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**CAN AND SHOULD GREENHOUSE
GASES BE REGULATED AS
HAZARDOUS AIR POLLUTANTS
UNDER CLEAN AIR ACT SECT. 112?**

By Mark Bond

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EXECUTIVE SUMMARY

This paper poses three questions: 1) Can greenhouse gases be regulated under §112 of the Clean Air Act? 2) If they were to be regulated in this way, what would be the practical consequences? 3) Should greenhouse gases be regulated this way?

The author reaches the following conclusions: greenhouse gases can indeed be regulated under §112; if they were to be regulated, the practical consequences would be substantial but potentially manageable; and whether or not they should be regulated in this way depends entirely on the nature and survival of the upcoming New Source Performance Standards under §111(d). If §111(d) regulation survives, the question of whether or not §112 regulation could co-exist arises, with the answer being in the affirmative albeit with potentially prohibitive difficulties. If §111(d) regulation fails, §112 regulation may serve as a regulatory last resort on which the Environmental Protection Agency may have to rely in order to seriously tackle the threat of climate change.

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1. INTRODUCTION

The global climate is changing. This change is bringing with it observable and intensifying shifts in temperature, precipitation and drought, ice and snow levels, sea level, and in the activity of Atlantic hurricanes.¹ In turn, these shifts negatively impact water resources, land resources, biodiversity, agriculture and human health.² Experts believe that these shifts are the result of an observed increase in greenhouse gases (“GHGs”) since the Industrial Revolution.³ GHGs, such as carbon dioxide and methane, are thought to collectively inhibit heat escaping from the Earth’s atmosphere and, as a consequence, increase global temperatures.⁴

The United States, as the emitter of approximately fifteen percent of global GHG emissions,⁵ has the potential to significantly mitigate this temperature rise and the wave of impacts that would follow in its wake. However, absent legislation specifically written for the purpose of tackling the climate change problem, the Environmental Protection Agency (“EPA”) is forced to rely on existing statutory authority in order to regulate GHG emissions at the federal level.

The Clean Air Act – federal legislation passed in 1963 and amended in 1967, 1970, 1977 and 1990 – has been the prime purveyor of this statutory authority. In a watershed moment, the Supreme Court held in *Massachusetts v. EPA* that GHGs fell under the definition of “air pollutant” as outlined in the Clean Air Act.⁶ This holding, and the subsequent “endangerment finding” for

¹ SCIENTIFIC ASSESSMENT OF THE EFFECTS OF GLOBAL CHANGE ON THE UNITED STATES, COMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES, NATIONAL SCIENCE AND TECHNOLOGY COUNCIL 3-7 (2008), *available at* <http://www.climate-science.gov/Library/scientific-assessment/Scientific-AssessmentFINAL.pdf>.

² *Id.* at 8.

³ FIFTH ASSESSMENT REPORT (Intergovernmental Panel on Climate Change, 2014), <http://www.ipcc.ch/report/ar5/>.

⁴ *Id.*

⁵ CAIT 2.0 CLIMATE DATA EXPLORER, WORLD RESOURCES INSTITUTE, [http://cait2.wri.org/wri/Country%20GHG%20Emissions?indicator\[\]=Total%20GHG%20Emissions%20Excluding%20Land-Use%20Change%20and%20Forestry&year\[\]=2011&sortDir=desc&chartType=pie](http://cait2.wri.org/wri/Country%20GHG%20Emissions?indicator[]=Total%20GHG%20Emissions%20Excluding%20Land-Use%20Change%20and%20Forestry&year[]=2011&sortDir=desc&chartType=pie) (last visited Apr. 24, 2015).

⁶ *Massachusetts v. E.P.A.*, 549 U.S. 497, 500 (2007) (“Because greenhouse gases fit well within the Act’s capacious definition of “air pollutant,” EPA has statutory authority to regulate emission of such gases from new motor vehicles”); 42 U.S.C. § 7602 (“The term “air pollutant” means any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive (including source

GHGs,⁷ led directly to the regulation of GHGs from new motor vehicles under §202(a)(1) of the Act.⁸ This also formed the beginning of a chain of events that led EPA to regulate GHGs under the Prevention of Significant Deterioration (“PSD”) program⁹ and the New Source Performance Standard (“NSPS”) program,¹⁰ both of which will be described in more detail at a later stage. Moreover, some lawyers have argued that there is also the potential for regulation under the broad scope of the National Ambient Air Quality Standards (“NAAQS”).¹¹

However, although garnering some,¹² much less attention has been paid to the §112 Hazardous Air Pollutants (“HAP”) program as a vehicle for regulation. Although somewhat neglected,¹³ the HAP program provides a comprehensive web of onerous limitations on the emission of pollutants that fall under its control. As such, if it could be extended to cover GHGs it would constitute a powerful emission-restricting tool. Yet, drawing wide-ranging and exacting regulation from a neglected provision is not without its drawbacks, especially considering that it has the potential to exclude existing and upcoming regulation.

Thus, the dual questions of can and should GHGs be regulated under the HAP program are both important. Furthermore a third, intermediary, question of what the practical consequences would be if GHGs were listed as hazardous air pollutants cannot be ignored. These three questions – the ‘can,’ the ‘if,’ and the ‘should’ – will be taken in turn. The conclusion drawn is that, even though GHGs can be regulated under §112, whether or not regulation should be pursued rests on

material, special nuclear material, and byproduct material) substance or matter which is emitted into or otherwise enters the ambient air.”)

⁷ Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496-01 (Dec. 15, 2009).

⁸ Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, 75 Fed. Reg. 25324-01 (May 7, 2010).

⁹ 42 U.S.C. §§ 7470-7479.

¹⁰ 42 U.S.C. § 7411.

¹¹ See e.g. Jonathan S. Martel, *Climate Change Law and Litigation in the Aftermath of Massachusetts v. EPA*, 38 ENV'T REP. 2424, 2 (Nov. 9, 2007), available at http://www.arnoldporter.com/resources/documents/BNA-Artice_Martel_1107.pdf; 42 U.S.C. § 7409.

¹² Daniel Brian, *Regulating Carbon Dioxide Under the Clean Air Act As A Hazardous Air Pollutant*, 33 COLUM. J. ENVTL. L. 369, 370 (2008).

¹³ GOV'T ACCOUNTABILITY OFFICE, CLEAN AIR ACT: EPA SHOULD IMPROVE THE MANAGEMENT OF ITS AIR TOXICS PROGRAM 7, 24 (2006), available at <http://www.gao.gov/new.items/d06669.pdf>.

the survival and the success of other regulatory initiatives to control GHGs; specifically the NSPS program.

2. THE 'CAN' QUESTION

The first question is a simple one: can GHGs be regulated as hazardous air pollutants under §112? Section 112 defines a hazardous air pollutant as “any air pollutant listed pursuant to subsection (b).”¹⁴ As a result, regulation under this section only applies to those pollutants listed as “hazardous air pollutants” under §112(b)(1):¹⁵ a list that can be revised by rule to add or remove pollutants.¹⁶ The initial question then becomes a question of whether GHGs could be added to this list of hazardous air pollutants. In short, the answer to this question is yes.

2.1 Greenhouse Gases As Hazardous Air Pollutants

To date, since the initial list of 189 hazardous air pollutants laid out in the 1990 amendments to the Act, none have been added and two have been removed.¹⁷ The statutory provision dealing with the revision of the hazardous air pollutant list reads as follows:

“The Administrator shall periodically review the list established by this subsection and publish the results thereof and, where appropriate, revise such list by rule, adding pollutants which present, or may present, through inhalation or other routes of exposure, a threat of adverse human health effects (including, but not limited to, substances which are known to be, or may reasonably be anticipated to be, carcinogenic, mutagenic, teratogenic, neurotoxic, which cause reproductive dysfunction, or which are acutely or chronically toxic) or adverse environmental effects whether through ambient concentrations, bioaccumulation, deposition, or otherwise, but not including releases subject to regulation under subsection (r) of this section as a result of emissions to the air.”¹⁸

As can be seen, there is a division in the justification for listing between the threat of “adverse human health effects” and “adverse environmental effects.” All 187 pollutants currently regulated

¹⁴ 42 U.S.C. § 7412(a)(6).

¹⁵ 42 U.S.C. § 7412(b)(1).

¹⁶ 42 U.S.C. § 7412(b)(2).

¹⁷ *Supra* note 13.

¹⁸ *Supra* note 16.

under the HAP program have direct human health effects.¹⁹ Fortunately the emphasis on justifying listing through the effects of pollutants on humans as opposed to the environment appears to be a result of EPA's funding and policy priorities, not of legislative intent.²⁰

GHGs, through their effect on the climate, are well known to have significant and widespread effects on human health.²¹ Increases in the frequency and duration of heat waves, increases in the intensity of tropical cyclone activity, increases in the incidence and magnitude of extreme high sea level, and so forth, all naturally have adverse effects on the health of humankind. However, these effects are not a result of the direct "carcinogenic, mutagenic, teratogenic, neurotoxic" or "acutely or chemically toxic" properties of GHGs; instead, they are the indirect, non-toxic effects that result from the impact GHGs have on the global climate system. Therefore, the legal foundation for using the human health language as a basis for listing GHGs as hazardous air pollutants would require a particularly expansive reading of the language.

However, there is still the option of justifying a listing because of the environmental effects caused by the emission of GHGs. The statutory definition of an "adverse environmental effect" is as follows:

"The term "adverse environmental effect" means any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas."²²

Unlike its sister provision, the language here appears almost tailored for the effects of climate change. Scientists have documented global risks likely to hit wildlife, aquatic life and natural resources substantially.²³ Moreover, documented impacts such as the substantial and continued decrease in the size of the Greenland and Antarctic ice sheets, the acidification of the ocean,

¹⁹ *Supra* note 13, at 8.

²⁰ *Supra* note 12, at 395.

²¹ FIFTH ASSESSMENT REPORT: SUMMARY FOR POLICYMAKERS, 7 (Intergovernmental Panel on Climate Change, 2014), http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf.

²² 42 U.S.C. § 7412(a)(7).

²³ Chris D. Thomas et al., *Extinction Risk from Climate Change*, 427 NATURE 145, 145 (2004); Kent E. Carpenter et al., *One-Third of Reef-Building Corals Face Elevated Extinction Risk from Climate Change and Local Impacts*, 320 SCIENCE 560, 560-563 (2008).

increasing levels of land desertification, and so forth,²⁴ constitute a priori “degradation of environmental quality over broad areas.”

Despite the resonance between GHGs and this language, adverse environmental effects must be caused through “ambient concentrations, bioaccumulation, deposition, or otherwise”²⁵ before their antecedent pollutants can be listed as hazardous air pollutants. The majority in *Massachusetts v. EPA* spoke directly to the question of whether GHG emissions permeating the atmosphere are “ambient”: “carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons are without a doubt ‘physical [and] chemical ... substance [s] which [are] emitted into ... the ambient air.’ The statute is unambiguous.”²⁶ This is strong support for the notion that the adverse environmental effects of GHGs are caused through their “ambient concentrations” in the air.

Therefore, as the textual hurdles a pollutant needs to jump for it to qualify as a hazardous air pollutant under §112 are cleared by GHGs, the answer to the question of whether or not GHGs could be listed as hazardous air pollutants for the purposes of this section is yes, they could.

2.2 The Listing Process

Even if a pollutant fits the statutory language for listing as a hazardous air pollutant under §112, it is not added to the list automatically. There are two routes through which a pollutant can be added to the list: the first is when the EPA Administrator determines that the addition is proper of their own volition and commences rulemaking to revise the list; the second is in response to a petition by a private party.²⁷

After a petition is submitted, the Administrator then has 18 months to either grant or deny it.²⁸ After this decision the Administrator is required to publish a written explanation of the reasons

²⁴ FIFTH ASSESSMENT REPORT: SUMMARY FOR POLICY MAKERS, at 4-12.

²⁵ *Supra* note 18.

²⁶ *Massachusetts v. E.P.A.*, 549 U.S. 497, 529 (2007).

²⁷ 42 U.S.C. § 7412(b)(3)(B) (“The Administrator shall add a substance to the list upon a showing by the petitioner or on the Administrator’s own determination that the substance is an air pollutant and that emissions, ambient concentrations, bioaccumulation or deposition of the substance are known to cause or may reasonably be anticipated to cause adverse effects to human health or adverse environmental effects.”)

²⁸ 42 U.S.C. § 7412(b)(3)(A).

for the decision, where reasons cannot include either “inadequate resources” or “time for review.”²⁹ Even though the statute explicitly denies judicial review for the addition of a pollutant to the list,³⁰ the denial of a petition could constitute final agency action and be judicially reviewable.³¹ Therefore, the Administrator of the EPA might not have a significant amount of discretion with regards to the listing of GHGs, were such a petition to be filed.

As an aside, if the Administrator did not wish to list GHGs as hazardous air pollutants, he/she would need to proactively search for an adequate reason to deny the petition outside of the fact that the EPA has insufficient resources or was left inadequate time for review.³² As the resonance between the showing required and the scientific understanding of GHGs and climate change is so strong, the Administrator might be forced to seek other reasons for denial. One argument could be that a hazardous air pollutant needs to be a single pollutant and not a combination of pollutants and, as a result, GHGs cannot be listed as such. This was the logic used in a statement, albeit a statement retracted shortly after its release, by EPA after consideration of diesel exhaust for listing under §112.³³ Therefore, if one wished to give the EPA the minimum grounds for rejection of a listing petition for GHGs, it would be preferable to petition to list each GHG separately.

²⁹ *Id.*

³⁰ 42 U.S.C. § 7412(e)(4) (“Notwithstanding section 7607 of this title, no action of the Administrator adding a pollutant to the list under subsection (b) of this section or listing a source category or subcategory under subsection (c) of this section shall be a final agency action subject to judicial review, except that any such action may be reviewed under such section 7607 of this title when the Administrator issues emission standards for such pollutant or category.”)

³¹ *Natural Res. Def. Council v. E.P.A.*, 902 F.2d 962, 982 (D.C. Cir. 1990) (“CAA § 307(b)(1), asserted by petitioners as the basis of our jurisdiction, confers review authority on this court if EPA’s action... [is] ‘final action taken’ by the agency.”) (citations omitted).

³² This is bolstered by the holdings in *Massachusetts v. EPA* and *Coalition for Responsible Regulation v. EPA*, which held that the EPA cannot refuse to list an air pollutant on the grounds that doing so would have a negative economic impact. *Massachusetts v. E.P.A.*, 549 U.S. 497; *Coalition for Responsible Regulation, Inc. v. E.P.A.*, 684 F.3d 102 (2012).

³³ Action on Petition to List Diesel Exhaust as a Hazardous Air Pollutant, 72 Fed. Reg. 23,78, 23,191 (Apr. 30, 2007) (“[D]iesel exhaust is a mixture of numerous chemicals and its composition can vary between engines and under different operating conditions. Thus, ‘diesel exhaust’ is not appropriate for listing because it does not present an effective regulatory target.”)

3. THE 'IF' QUESTION

The second question builds from the first: if GHGs were listed as hazardous air pollutants under §112, what would be the practical consequences? In other words, if GHGs were listed as hazardous air pollutants, what regulation would ensue and what strategies could EPA employ if implementation to the extent facially mandated by statute were too burdensome.

3.1 Substantive Ensuing Regulation

Regulation under §112 is broad and substantial. Once a pollutant is listed as a hazardous air pollutant under this section, the ensuing regulation takes the form of two steps.

The first step is the promulgation of National Emissions Standards for Hazardous Air Pollutants (“NESHAPS”).³⁴ These are uniform, nation-wide emission limits for each type of hazardous air pollutant for major sources – defined as those that emit more than 10 tons per year (“tpy”) of any hazardous air pollutant, or 25 tpy of a combination of hazardous air pollutants³⁵ – within each source category. EPA sets the NESHAPS limits on the basis of what emissions reductions would be achievable by a source if it were to employ the Maximum Achievable Control Technology (“MACT”).³⁶ Although MACT does allow consideration of the cost of compliance,³⁷ it is a strict technology-based standard focused on achieving the maximum achievable reductions. As such, the minimum level the limit can be set for new sources is the level of emissions of the “best controlled similar source,”³⁸ i.e. the most emission reductions achieved by any source of a particular source type in the United States becomes the new absolute minimum for that type. Similarly, for existing sources, this minimum is the average of the best performing – which means those that have reduced emissions the most – 12 percent of sources in that category or subcategory.

If these technology-based standards were not stringent enough, after setting the MACT standards the Administrator must also revisit each pollutant and evaluate the risks to public health

³⁴ 42 U.S.C. § 7412(d).

³⁵ 42 U.S.C. § 7412(a)(1).

³⁶ 42 U.S.C. § 7412(d)(2).

³⁷ *Id.* (“...the Administrator, taking into consideration the cost of achieving such emission reduction...”).

³⁸ 42 U.S.C. § 7412(d)(3).

remaining after this regulation.³⁹ If Congress does not act on the ensuing report, the Administrator is empowered to promulgate additional standards to deal with this residual risk eight years after the original MACT standards were imposed.⁴⁰

If this substantive ensuing regulation were applied to GHGs, as would be the case following a listing of GHGs as hazardous air pollutants, it would incur an enormous amount of regulation. As GHGs are emitted in large quantities across an incredibly broad range of industries, the quantitative thresholds of 10 and 25 tpy are comparatively miniscule; especially after their different carbon intensities are captured by the carbon dioxide equivalent (“CO₂e”) measure. As a consequence, the vast majority of sources within each listed source category would likely constitute a “major source” of GHGs and thus be required to meet the MACT standard for that source. Moreover, the construction, reconstruction or modification of any “major source” must also submit a pre-construction permit application proposing source-specific MACT.⁴¹ After eight years the Administrator would then have the discretion to introduce further risk-based standards if he/she deemed them appropriate.⁴²

This explosion of regulation would not only blanket countless facilities under strict, currently non-existent, MACT technology standards, but would also massively increase the financial demands on the EPA’s finite budget. This scenario is reminiscent of the predicament EPA found itself in after its attempt to regulate the GHGs of stationary sources under the PSD program. Therefore, it may be useful to revisit that situation, and the resulting Supreme Court opinion, to shed light on what the practical consequences would be were EPA to pursue this line of regulation.

³⁹ 42 U.S.C. § 7412(f)(1) (“...the Administrator shall investigate and report, after consultation with the Surgeon General and after opportunity for public comment, to Congress on-- (A) methods of calculating the risk to public health remaining, or likely to remain, from sources subject to regulation under this section after the application of [MACT] standards”).

⁴⁰ 42 U.S.C. § 7412(f)(2)

⁴¹ 42 U.S.C. § 7412(g) (“... no person may construct or reconstruct any major source of hazardous air pollutants, unless the Administrator (or the State) determines that the maximum achievable control technology emission limitation under this section for new sources will be met. Such determination shall be made on a case-by-case basis where no applicable emission limitations have been established by the Administrator.”)

⁴² 42 U.S.C. § 7412(f)(2)(C) (“The Administrator shall determine whether or not to promulgate such standards”).

3.2 The *Utility Air Regulatory Group v. EPA* Example

The PSD program requires a “major emitting facility” in “any area to which [the PSD program] applies” to obtain a permit before any construction or modification of that facility can take place.⁴³ To qualify for one of these permits, as with the HAP program and MACT, the facility must comply with emissions limitation that reflect the “best available control technology” (“BACT”) for “each pollutant subject to regulation under” the Clean Air Act.⁴⁴ BACT is a less stringent standard than MACT as it allows a case-by-case balancing of reductions in emissions with economic impacts and other costs.⁴⁵ Within the pertinent section, “major emitting facility” is defined as a stationary source with the potential to emit 250 tpy of “any air pollutant.”⁴⁶

After the holding in *Massachusetts v. EPA* that GHGs were considered “air pollutants” under the Clean Air Act,⁴⁷ the EPA determined that this opened GHGs up to regulation under the PSD program. More specifically, it determined that all facilities that emitted more than 250 tpy CO_{2e} of GHGs in areas that the program applied⁴⁸ were required to conform to BACT technology-standards for GHGs before any construction or modification could take place.

Not surprisingly this caused a significant jump in the administrative burden that would have been felt by EPA. According to EPA itself, under the PSD program annual permit applications would rise from approximately 800 to nearly 82,000; annual administrative costs would increase from \$12 million to \$1.5 billion and “decade-long delays in issuing permits would become common, causing construction projects to grind to a halt nationwide.”⁴⁹

Facing this overwhelming increase, the EPA promulgated the “Tailoring Rule”⁵⁰ in order to reduce this burden. It did so by “tailoring” the quantitative threshold of 250 tpy so that it would

⁴³ 42 U.S.C. § 7475(a)(1); 42 U.S.C. § 7479(2)(C).

⁴⁴ 42 U.S.C. § 7475(a)(4).

⁴⁵ 42 U.S.C. § 7479(3).

⁴⁶ 42 U.S.C. § 7479(1).

⁴⁷ *Supra* note 6.

⁴⁸ I.e. “Attainment” areas under the NAAQS. 42 U.S.C. § 7407(d).

⁴⁹ *Util. Air Regulatory Grp. v. E.P.A.*, 134 S. Ct. 2427, 2443 (2014).

⁵⁰ Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 75 Fed. Reg. 31514-01 (June 3, 2010).

only apply to “a relatively small number of large industrial sources.”⁵¹ This change took the form of three phases: the first phase would regulate “anyway’ sources – sources required to obtain PSD permit anyway because of their emissions of conventional pollutants – that emitted 75,000 tpy CO_{2e} or more of GHGs; the second phase would encompass all applicable sources that emitted 100,000 tpy CO_{2e} or more of GHGs; and the third phase gave EPA discretion to further alter permitting thresholds if it so wished.⁵²

The Tailoring Rule would have reduced the administrative burden considerably by reducing the number of sources falling under the PSD program to far fewer, much larger sources. However, even though this rule would have reduced the regulatory encumbrance on industry, industry spearheaded various challenges to this in the courts;⁵³ the reason for this was likely to force EPA to shoulder the impossible original administrative burden and, as a consequence, poison its ability to regulate at all. Eventually questions over the legal validity of the Tailoring Rule came to a head in *Utility Air Regulatory Group v. EPA*.⁵⁴

Here the Supreme Court did not look favorably on how the Tailoring Rule ignored the statutorily explicit threshold of 250 tpy in favor of its own quantitative thresholds:⁵⁵ it held that this was impermissible and went “well beyond the bounds of [EPA’s] statutory authority.”⁵⁶ Using strong language, Justice Scalia’s opinion described how “an agency has no power to ‘tailor’ legislation to bureaucratic policy goals by rewriting unambiguous statutory terms.”⁵⁷

However, this was not the end of the matter. The Supreme Court went on to hold that EPA’s decision to require BACT for GHGs emitted by “anyway” sources was a permissible interpretation of the statute.⁵⁸ The Court felt that, as these sources were already undergoing the

⁵¹ *Id.* at 31555.

⁵² *Id.* at 31523-31524.

⁵³ See e.g. *Coalition for Responsible Regulation, Inc. v. E.P.A.*, 684 F.3d 102 (2012) (*per curiam*).

⁵⁴ *Utility Air Regulatory Group v. E.P.A.*, 134 S.Ct. 2427 (2014).

⁵⁵ *Id.* at 2445 (“We conclude that EPA’s rewriting of the statutory thresholds was impermissible and therefore could not validate the Agency’s interpretation of the triggering provisions.”)

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.* at 2448.

permitting process, it did not require an enormous and unworkable expansion of agency authority to require them to employ BACT for GHGs alongside conventional pollutants.⁵⁹

In other words, the original quantitative statutory thresholds could not be altered even if EPA could not cope with the administrative burden that ensued. However, they were able to keep the original 250 tpy threshold and apply the BACT standard for GHGs to every source who would already be seeking a permit under the PSD program for other pollutants. This allowed EPA to drastically reduce their administrative burden without tailoring the thresholds, all the while maintaining the ability to apply technology-based standards over sources responsible for the majority of emissions. In fact, this regulation extended to roughly 83 percent of stationary source GHG emissions, and missed out on only 3 percent that would have been regulated were the Tailoring Rule to have remained.⁶⁰

3.3 Overcoming the *Utility Air Regulatory Group* Hurdles

There are obvious parallels between the facts in *Utility Air Regulatory Group* and the situation that would unfold were GHGs to be listed as hazardous air pollutants under §112. As such, the same balancing act of maintaining the statutorily explicit quantitative thresholds while also keeping the administrative burden within the realms of possibility must be performed. However, there are important differences between the two situations.

First of all, the technology-based standards differ in form and stringency. BACT is a case-by-case standard that balances the energy, environmental and economic impacts of the required technology, alongside other costs.⁶¹ MACT, on the other hand, is a uniform, nationwide standard for all sources of a particular category. While for BACT each source would have its own calculation, this calculation need only be performed once per source category for MACT. Therefore, even though MACT is the stricter standard, the administrative burden of determining the technology required is lower for each source.

⁵⁹ *Id.* (“We are not talking about extending EPA jurisdiction over millions of previously unregulated entities, but about moderately increasing the demands EPA (or a state permitting authority) can make of entities already subject to its regulation.”)

⁶⁰ *Id.* at 2438-2439.

⁶¹ 42 U.S.C. § 7479(3).

However, under both the HAP and PSD programs pre-construction permits are required for all newly constructed, reconstructed and modified sources that fall under their purview.⁶² This would mean that permit applications would soar in both cases, increasing the administrative costs in dealing with these. But, under the HAP program, the MACT standards also apply to existing sources absent modifications, albeit in a less stringent form, which would increase the administrative costs for ensuring compliance even further.

Nevertheless, another important difference between the two programs is the number of sources covered. The threshold level of emissions to enter the HAP program is many times lower than the PSD program: 10 tpy opposed to 250 tpy. However, the HAP program is less comprehensive in its source coverage. The PSD provisions have been interpreted to apply to all sources that are located in areas designed either “attainment” or “unclassifiable” for any of the six NAAQS pollutants.⁶³ As the Court notes in *Utility Air Regulatory Group*, because every area in the United States is either designated attainment or unclassifiable for at least one NAAQS pollutant, all stationary sources – hospitals, schools, churches, shops, etc. – could potentially fall under the PSD program.⁶⁴ In contrast, the HAP program only applies to those categories or subcategories of sources listed under §112(c).⁶⁵ This is a finite list currently comprising 16 distinct categories, with each category having between 1 and 40 subcategories.⁶⁶ This list draws an unbreakable perimeter beyond which regulation under §112 cannot expand without revisions to the list of sources.

However, without the requisite financial analysis, it is impossible to tell for certain whether or not regulation of GHGs under the HAP program would be workable under the EPA’s budget. The reduced number of covered sources and the simplified technology standard-setting process could be enough to offset both the lower quantitative emission threshold and the inclusion of

⁶² 42 U.S.C. § 7412(g); 42 U.S.C. § 7475(a)(4).

⁶³ The EPA has issued NAAQS for six pollutants: sulfur dioxide, particular matter, nitrogen dioxide, carbon monoxide, ozone and lead. J. DOMIKE & A. ZACAROLI, *CLEAN AIR HANDBOOK* 125 (3d ed. 2011).

⁶⁴ *Utility Air Regulatory Group*, at 2435.

⁶⁵ 42 U.S.C. § 7412(d)(1) (“The Administrator shall promulgate regulations establishing emission standards for each category or subcategory of major sources and area sources of hazardous air pollutants listed for regulation pursuant to subsection (c) of this section...”); 42 U.S.C. § 7412(c).

⁶⁶ National Emission Standards for Hazardous Air Pollutants: Revision of Source Category List and Schedule for Standards Under Section 112 of the Clean Air Act, 64 Fed. Reg. 63030-34 (Nov. 18, 1999).

existing sources to the point that regulation would be feasible compared to the PSD program. Yet, this is far from assured and cannot be assumed.

If it is instead assumed that the differences between regulation of GHGs under the HAP program and the PSD program do not sufficiently reduce the administrative burden so that regulation under §112 is workable, the next logical step is to explore actions that could be taken by EPA to reduce this burden. These actions would necessarily have to operate within the bounds of the law delineated in *Utility Air Regulatory Group*.

One action could be to try and follow the outcome of the *Utility Air Regulatory Group* and only impose MACT standards for those facilities that are already regulated under the HAP program for other hazardous air pollutants. However, the statutory language in the PSD provision that serves as the permitting trigger – i.e. the definition of “major emitting facility” as a stationary source with the potential to emit 250 tpy of “any pollutant”⁶⁷ – and the statutory language that speaks to pollutants subject to BACT – i.e. “each pollutant subject to regulation under” the Clean Air Act⁶⁸ – are distinct enough to allow separate EPA interpretations over which pollutants are spoken to.⁶⁹ In contrast, the applicable HAP provisions do not allow for so easy a distinction: the listing of a pollutant serves as the trigger and this list is explicitly referenced in relation to the NESHAPS.⁷⁰ Therefore, the “anyway” source strategy utilized by EPA with regards to the PSD program is not available here.

A more easily accomplishable action would be to act further upstream and list less than all of the GHGs as hazardous air pollutants before regulation can take place. The EPA divides GHGs into four: carbon dioxide, methane, nitrous oxide and fluorinated gases.⁷¹ As carbon dioxide

⁶⁷ 42 U.S.C. § 7479(1).

⁶⁸ 42 U.S.C. § 7475(a)(4).

⁶⁹ *Supra* note 53, at 2448. (“Whereas the dubious breadth of “any air pollutant” in the permitting triggers suggests a role for agency judgment in identifying the subset of pollutants covered by the particular regulatory at issue, the more specific phrasing of the BACT provision suggests that the necessary judgment has already been made by Congress.”)

⁷⁰ *Supra* note 64.

⁷¹ OVERVIEW OF GREENHOUSE GASES, EPA WEBSITE, <http://epa.gov/climatechange/ghgemissions/gases.html> (last visited Apr. 26, 2015).

constitutes approximately 82 percent of yearly GHG emissions in the United States,⁷² it seems the appropriate choice for regulation if one is looking to control GHGs and their impacts on the climate. However, if one is looking to reduce the administrative burden of regulation, carbon dioxide may not be the best choice. In order to strike the right balance, one would first have to determine the sources implicated under the HAP program – and hence the administrative cost – for regulation of each GHG and then determine the GHG reductions (in CO₂e) that would result from the regulation of each. After these figures were obtained, one could determine which combination of GHGs could be practically regulated by the EPA while simultaneously sacrificing the least in terms of emission reductions. Therefore, even if the regulation of all GHGs under the HAP program would become practically unreasonable, there might be an escape route through decision-making at the listing stage.

Moreover, another alternative would be to for EPA to utilize a general permitting process akin to the program established under §404 of the Clean Water Act.⁷³ Under this program, individual permits are only required for the sources with the most significant impacts, whereas general permits are issued for all remaining sources.⁷⁴ As these general permits can be issued on a nationwide basis for source categories, individual review is eliminated and allows certain activities to proceed with minimal delay providing the requisite conditions are met.⁷⁵ Such a system could be utilized for §112 regulation, where only the source categories with the largest emissions would undertake the burdensome individual review process. In practice this could tailor the HAP program so as to focus the majority of administrative resources on the biggest GHG emitters: a laudable outcome. However, as the quantitative threshold numbers and the minimum MACT standard – i.e. that of the best performing source – cannot be altered, it is likely that large swathes of source categories would still need to significantly alter their operations in order to meet the hypothetical general permit requirements.

⁷² *Id.* (Figures are from the year 2013; It also bears noting that almost a third of this number is from the transportation sector, which does not fall within the zone regulated under §112).

⁷³ 33 U.S.C. § 1344.

⁷⁴ 33 U.S.C. § 1344(e).

⁷⁵ *Id.*

4. THE 'SHOULD' QUESTION

The last question is the toughest one: assuming GHGs can be regulated under §112, and the practical consequences are not prohibitive, should this regulation take place? There are significant advantages and disadvantages to the regulation of GHGs under the HAP program. The conclusion drawn here is that regulation should only be attempted as a last resort if regulation under other sections of the Clean Air Act, notably §111(d), fails.

4.1 The Positives of Regulating Greenhouse Gases Under Section 112

The major benefits of regulating GHGs under the HAP program all stem from its breadth and its stringency.

First of all, the low quantitative threshold in the definition of “major source”⁷⁶ spreads a wide net over the listed sources. The threshold of 10 tpy is not frequently met for asbestos,⁷⁷ say. But, when one considers that the EPA’s 2009 estimate of the amount of methane released because of leaks and venting in the natural gas network was about 2.4 percent of gross United States natural gas production (or 570,000,000,000 cubic feet),⁷⁸ this implicates a sizeable portion of the ‘Natural Gas Transmission and Storage’ subcategory.⁷⁹ Furthermore, the HAP program encompasses both new and existing sources, setting it apart from regulation under the PSD program.

Moreover, when a source meets the threshold, the ensuing regulations are strict. It imposes both technology-based and risk-based standards. As described earlier, the MACT technology standards set a high bar for emission reductions, even though the residual risk standards may falter in their applicability due to their emphasis on “public health” compared to the environment.⁸⁰

⁷⁶ *Supra* note 34.

⁷⁷ A listed hazardous air pollutant under 42 U.S.C. § 7412(b)(1).

⁷⁸ U.S. ENVTL. PROTECTION AGENCY, INVENTORY OF US GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2009, EPA PUBLICATION 430-R-11-005 (2011).

⁷⁹ *Supra* note 65.

⁸⁰ 42 U.S.C. § 7412(f)(2)(A) (“...the Administrator shall, within 8 years after promulgation of standards for each category or subcategory of sources pursuant to subsection (d) of this section, promulgate standards for

In sum, the HAP program represents the potential for statutory authority behind which the EPA can address the climate change problem in a new, comprehensive and significant manner. However, this alone may not be enough to offset the drawbacks of such regulation.

4.2 The Negatives of Regulating Greenhouse Gases Under Section 112

Unfortunately there are a number of substantial drawbacks to regulation of GHGs under §112. These include the fact that the potential positives of regulation are diluted by the need to lower the subsequent administrative burden; the fact that action under this section would be drawing substantial regulation from a neglected provision designed for toxic substances emitted in small quantities; the political backlash that would result from such action; and potential for regulation under §112 to exclude current and future regulation of GHGs under other parts of the Clean Air Act.

As discussed in the previous section, the EPA may be unable to cope with the administrative burden the HAP program would entail. If this is the case, the comprehensiveness of the regulatory framework – one of its main drawing points – may have to be sacrificed in order to reduce this burden to a manageable amount.

Moreover, some scholars have suggested that §112 has been neglected to the point of questionable efficacy.⁸¹ A report by the Government Accountability Office found that EPA has consistently failed to meet its obligations under §112, including the failure to promulgate emissions standards for small sources, the substantially late promulgation of standards for large sources, and the absence of “residual risk” determinations.⁸² The report also details how the low priority of this program, coupled with its relatively low level of funding, may be the cause behind these implementation challenges.⁸³ The low level of funding and organizational infrastructure

such category or subcategory if promulgation of such standards is required in order to provide an *ample margin of safety to protect public health* in accordance with this section...” (emphasis added).

⁸¹ *Supra* note 12, at 410.

⁸² *Supra* note 13.

⁸³ *Id.* (“[t]he agency faces continuing implementation challenges stemming from the [HAP] program's low priority relative to other programs and related funding constraints.”)

surrounding this program could be a precursor for substantial delays and implementation missteps were GHGs to be pursued under it.

Furthermore, as climate change is still an incredibly divisive issue within the political realm of the United States,⁸⁴ it is not unreasonable to imagine that the implementation of such strict, wide-ranging emission limitations could spur significant political backlash. It is almost impossible to predict the ebbs and flows of public opinion and political action based upon hypotheses, but it is not inconceivable that such regulation could trigger reactionary politics that would act contrary to the mission of mitigating climate change. An example of this could be a furor that would result in the text of the Clean Air Act being reopened for possible amendment, which could have disastrous consequences. However, that being said, if one is to take any regulatory action on climate change it is likely that some will oppose it; thus it is not reasonable to abandon action on the expectation of such opposition, for no action would be taken.

4.3 The Exclusion of Pre-existing Regulation

One particularly troublesome consequence of regulating GHGs under §112 is that it would exclude GHGs from regulation under the Clean Air Act's PSD program.⁸⁵ Moreover, importantly, it could also exclude upcoming regulation under §111(d).⁸⁶

As described in more depth earlier, the PSD program imposes BACT technology standards onto 83 percent of the GHG emissions from newly constructed or modified stationary sources in the United States.⁸⁷ Yet, once a pollutant is listed as a hazardous air pollutant, the provisions of the PSD program no longer apply to that pollutant.⁸⁸ However, the MACT standards applied by the HAP program would be more onerous than the PSD program and would cover both new and

⁸⁴ Kate Shephard, *Climate Change Is The Single Most Divisive Political Issue, Says Poll*, HUFFINGTON POST (May 22, 2014), http://www.huffingtonpost.com/2014/05/21/republicans-climate-chang_n_5368134.html.

⁸⁵ 42 U.S.C. § 7412(b)(6) (“The provisions of [the PSD program] shall not apply to pollutants listed under this section.”)

⁸⁶ 42 U.S.C. § 7411(d).

⁸⁷ *Supra* note 59.

⁸⁸ 42 U.S.C. § 7412(b)(6) .

existing sources. Therefore, even if regulation under the PSD were excluded, overall GHG emissions would still likely fall.

The NSPS program is another matter. Similarly to the PSD program, the NSPS program sets national technology-based standards for categories of industrial sources.⁸⁹ Instead of being based on the MACT, these standards are based on the “best system of emission reduction” (“BSER”).⁹⁰ The EPA Administrator is required to develop such a standard for a source category if that source “causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.”⁹¹ The NSPS program applies to both new sources, under §111(b),⁹² and existing sources, under §111(d).⁹³

The EPA has established GHG standards for new stationary sources under §111(b), and is currently undertaking rulemaking on carbon dioxide standards for existing stationary sources under §111(d).⁹⁴ The EPA itself believes its §111(b) standards will result in negligible carbon dioxide “emission changes, energy impacts, quantified benefits, costs, and economic impacts by 2020.”⁹⁵ However, regulation under §111(b) is a requirement for regulation under §111(d),⁹⁶ which explains this otherwise redundant rulemaking. Nonetheless, regulation under §111(d) is expected to achieve carbon dioxide emission reductions from the power sector of approximately 30 percent compared to 2005 levels.⁹⁷ Even though the rule is not final, the proposed rule suggests that EPA

⁸⁹ 42 U.S.C. § 7411(d)(1).

⁹⁰ 42 U.S.C. § 7411(a)(1).

⁹¹ 42 U.S.C. § 7411(b)(1)(A).

⁹² 42 U.S.C. 7411(b).

⁹³ 42 U.S.C. 7411(d).

⁹⁴ Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34829 (June 18, 2014).

⁹⁵ U.S. ENVTL. PROTECTION AGENCY, REGULATORY IMPACT ANALYSIS FOR THE PROPOSED STANDARDS OF PERFORMANCE FOR GREENHOUSE GAS EMISSIONS FOR NEW STATIONARY SOURCES: ELECTRIC UTILITY GENERATING UNITS, ES-3 (2012), available at <http://www2.epa.gov/sites/production/files/2013-09/documents/20120327proposalria.pdf>.

⁹⁶ 42 U.S.C. § 7411(d)(1)(A)(ii) (“...to which a standard of performance under this section would apply if such existing source were a new source...”).

⁹⁷ *Supra* note 90.

will set a state-by-state cap on emissions before mandating that states determine their own BSEER to meet that cap.⁹⁸

The language of §111(d) allows standards of performance for any existing source for pollutants which are not listed under “7212(b) or emitted from a source category which is regulated under section 7212.”⁹⁹ This provision was a legislative mishap: the Senate agreed upon the language referring to listed hazardous air pollutants and the House agreed upon the language referring to source categories, yet both versions were not reconciled before the bill was signed. Yet, depending on which version is chosen, regulation under §111(d) is either already excluded by §112 or would be excluded were carbon dioxide to be listed as a hazardous air pollutant. This matter is one likely to be litigated when the rule becomes final.

Moreover, this regulation is likely to be forced to survive a plethora of legal challenges either way. To provide an illustration: Murray Energy Corporation, the largest underground coal mining company in the United States, has already filed two lawsuits in the U.S. Court of Appeals for the District Circuit challenging the proposed §111(d), despite the rule not yet constituting final agency action.¹⁰⁰

However, assuming the Senate language is chosen and §111(d) survives the multitude of challenges that will come its way, any pollutant listed under the HAP program would exclude regulation under this section. Therefore if all GHGs were listed under the HAP program the §111(d) program would be required to cease. Because of its comprehensive coverage over the electricity generating sector, and the substantial gains in emission reductions it would achieve if implemented, the §111(d) program offers significant progress towards the end of mitigating the United States’ influence on climate change. Moreover, flexibility afforded in §111(d) allows EPA to utilize a cooperative-federalist approach to reduce the administrative burden and allow local

⁹⁸ *Id.*

⁹⁹ *Supra* note 89.

¹⁰⁰ LEGAL CHALLENGES TO OBAMA ADMINISTRATION’S CLEAN POWER PLAN, THE AMERICAN LAW INSTITUTE CONTINUING LEGAL EDUCATION COURSE MATERIALS SW014 ALI-CLE 491 (2015).

expertise to guide policy.¹⁰¹ This program is already underway and could match, if not greatly surpass, the practical gains that could be achieved through realistic regulation under the HAP program. Thus, if the choice needed to be made between the two programs, regulation under HAP might not be the victor.

Nevertheless, if the §111(d) final rule continues to focus solely on carbon dioxide, and only methane, nitrous oxide and fluorinated gases were listed under §112(b), both provisions could theoretically co-exist. This would allow comprehensive regulation of carbon dioxide with reduced administrative burden while simultaneously allowing stringent regulation over the remaining GHGs with a lower likelihood of an absurd number of facilities needing to comply. However, any true appraisal of this possibility would still need an in-depth impact analysis of the number of sources that §112(b) would extend to and the resulting costs to the EPA.

5. CONCLUSION

To answer the three initial questions in sum: GHGs can be regulated under §112 of the Clean Air Act; if they were to be regulated, the practical consequences would be substantial but potentially manageable; and whether or not they should be regulated in this way depends entirely on the nature and survival of the upcoming NSPS under §111(d). If §111(d) regulation survives, the question of whether or not §112 regulation could co-exist arises, with the answer being in the affirmative albeit with potentially prohibitive difficulties. If §111(d) regulation fails, §112 regulation may serve as a regulatory last resort that the EPA may have to rely in order to seriously tackle the threat of climate change.

¹⁰¹ Megan Ceronsky, Tomás Carbonell, *Section 111(d) and the Clean Power Plan: The Legal Foundation for Strong, Flexible, and Cost-Effective Carbon Pollution Standards for Existing Power Plants*, 44 ENVTL. L. REP. NEWS & ANALYSIS 11086, 11088-90 (2014).