

**BEFORE THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY**

**CHAMBER OF COMMERCE OF THE
UNITED STATES OF AMERICA**

Petitioner

EPA Docket #:
EPA-HQ-OAR-2009-0171

PETITION FOR RECONSIDERATION
AND FOR STAY PENDING RECONSIDERATION

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Pursuant to Clean Air Act Section 307(d)(7)(B); 42 U.S.C. § 7607(d)(7)(B); 5 U.S.C. § 553(e); 5 U.S.C. § 705; and Fed. R. App. P. 18(a)(1), the Chamber of Commerce of the United States of America (“Chamber”) respectfully petitions the United States Environmental Protection Agency to grant reconsideration, and a stay pending the completion of its reconsideration proceeding, in the following matter: *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act*, Docket Number EPA-HQ-OAR-2009-0171, 74 Fed. Reg. 66,496 (Dec. 15, 2009) (“Endangerment Finding”). Given the important issues raised by this petition, the Chamber is willing to discuss with EPA an appropriate schedule and process for reconsideration with an EPA-ordered stay of the Endangerment Finding in place. EPA should contact the Chamber to initiate such a discussion. In the event the EPA has neither granted the petition nor contacted the Chamber to establish a mutually agreeable schedule for reconsideration by April 14, 2010, such inaction will be deemed a denial of the petition.

BACKGROUND

The Chamber is a not-for-profit entity that constitutes the world’s largest business federation. The Chamber represents 300,000 direct members, and indirectly represents more than 3,000,000 businesses and professional

organizations, drawn from every size category, economic sector, and geographic region of the country. An important part of the Chamber's mission is to advocate the interests of its members in matters pending before the Executive Branch of government, including before the Environmental Protection Agency.

In furtherance of that mission, the Chamber has been closely monitoring the EPA proceedings leading to the Endangerment Finding, and filed comments with EPA in response to, among other proposals, EPA's proposed Endangerment Finding; its proposed "Tailoring Rule," *see Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule*, 74 Fed. Reg. 55,292 (Oct. 27, 2009); and the joint rulemaking setting new fuel economy/GHG emission standards for new motor vehicles EPA is conducting with the Department of Transportation's National Highway Traffic Safety Administration ("NHTSA"), *see Proposed Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards*, 74 Fed. Reg. 49,454 (Sept. 28, 2009) (Docket Number EPA-HQ-OAR-2009-0472) ("Auto Rule"). The Chamber has maintained an on-going dialogue with the Agency regarding these important issues that affect businesses throughout our nation.

The Endangerment Finding, Tailoring Rule, and Auto Rule proceedings are extraordinarily unusual and important. These proceedings seek to impose expensive controls on greenhouse gas emissions, using preexisting Clean Air Act

authority. But this preexisting statutory authority was neither designed, nor intended, nor “tailored” to regulate “pollutants” such as greenhouse gases that, because of rapid dispersion, are found in essentially equal concentrations throughout the globe and, to the extent they cause harms, cause them on a global scale. This ill-fit between pollution problem and Clean Air Act solution prompted EPA, in its proposed Tailoring Rule, to invoke the canon of construction directing that statutes be read to avoid absurd results. EPA should be commended for candidly focusing on the potential absurdity of applying all or part of the Act to GHG emissions. This petition identifies a ready escape hatch from the underlying problem, which EPA can and should employ to make a graceful exit from the looming prospect of triggering an absurd regulatory regime.

The petition takes as its point of departure two significant, authoritative legal interpretations put forward by Executive Branch agencies long after the comment period for the Endangerment Finding had closed on June 23, 2009. *First*, as noted above, the absurdity of seeking to regulate greenhouse gas emissions from stationary sources under the existing Clean Air Act was formally recognized and emphasized by EPA in the preamble to its Tailoring Rule proposal. That proposal was first published in the Federal Register on October 27, 2009, more than four months after the June 23, 2009, deadline for submitting comments in the Endangerment Docket.

Second, NHTSA recently proclaimed that it enjoys authority to regulate emissions from new motor vehicles, regardless of whether or not EPA enjoys similar authority under Title II of the Clean Air Act. EPA had worried that it might be best to regulate greenhouse gas emissions from new motor vehicles under the Clean Air Act because, in the absence of such action, some or all of those emissions might escape regulation. *See* Letter from Lisa Jackson, EPA, to Senator Jay Rockefeller IV, at 2 (Feb. 22, 2010) (“The impacts of [passage of a resolution disapproving the Endangerment Finding by Congress] would be significant. In particular, it would undo an historic agreement among states, automakers, the federal government, and other stakeholders [permitting GHG standards for new motor vehicles].”). Now, however, a February 19, 2010 letter to Senator Diane Feinstein from O. Kevin Vincent, Chief Counsel of the National Highway Traffic Safety Administration (“NHTSA”) within the U.S. Department of Transportation (“DOT”), has defused this concern. This NHTSA letter acknowledges that as a “legal matter” Congress disapproving the Endangerment Finding, thus preventing it from becoming effective, would “not directly impact NHTSA’s independent statutory authority to set fuel economy standards under the Energy Policy and Conservation Act (EPCA), as amended by the Energy Independence and Security Act of 2007 (EISA).” *See* Letter from O. Kevin Vincent, NHTSA, to Matthew B.

Nelson, Office of Senator Diane Feinstein, at 1 (Feb. 19, 2010). In other words NHTSA is able to go it alone without EPA employing its Clean Air Act authority.

The controls on greenhouse gas emissions now under consideration by the EPA would, if promulgated, constitute the most expensive regulatory program ever adopted in the United States. Against that backdrop, the recent authoritative acknowledgements from EPA and NHTSA — combined with the reality that new controls on greenhouse gas emissions threaten a still-recovering economy — provide ample grounds for EPA to reconsider its Endangerment Finding and stay that Finding pending completion of its reconsideration process.

ARGUMENT

I. THE AGENCY SHOULD RECONSIDER ITS ENDANGERMENT FINDING.

The new EPA and NHTSA legal interpretations are of central relevance to EPA's Endangerment Finding and constitute grounds for reconsideration arising after the close of the Endangerment Finding's public comment period on June 23, 2009. These twin developments negate the legal basis EPA had relied on to justify the Endangerment Finding.

A. The Agency Has A Duty To Grant Reconsideration Where, As Here, The Grounds For Reconsideration Are Weighty And Have Arisen After A Rule Has Been Promulgated.

Clean Air Act Section 307(d)(7)(B) sets out an approach for EPA to use in adjudicating reconsideration petitions, and states as follows:

If the person raising an objection can demonstrate to the Administrator that it was impracticable to raise such objection within such time or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule, the Administrator shall convene a proceeding for reconsideration of the rule and provide the same procedural rights as would have been afforded had the information been available at the time the rule was proposed.

See 42 U.S.C. § 7607(d)(7)(B).

In implementing this provision, the Agency may look to the court's decision in *Oljato Chapter of the Navajo Tribe v. Train*, 515 F.2d 654 (D.C. Cir. 1975), which is endorsed in the Act's legislative history. *See* H.R. Rep. 95-294, at 323 (May 12, 1977) (stating "the committee bill confirms the court's decision in *Oljato Chapter of the Navajo Tribe v. Train*, 515 F.2d 654 (D.C. Cir. 1975).").

Oljato Tribe sets forth a straightforward three-step process for EPA to follow in situations where petitions to reconsider Clean Air Act rules are filed:

(1) The person seeking revision of a standard of performance, or any other standard reviewable under Section 307, should petition EPA to revise the standard in question. The petition should be submitted together with supporting materials, or references to supporting materials. (2) EPA should respond to the petition and, if it denies the petition, set forth its reasons. (3) If the petition is denied, the petitioner may seek review of the denial in this court pursuant to Section 307.

Id. at 666.

This petition satisfies or sets the stage for each of the three *Oljato Tribe* steps in a reconsideration process. It satisfies the first step because it seeks the

withdrawal of the Endangerment Finding on specified legal grounds. EPA thus has a duty to respond under the second *Oljato Tribe* step, mindful that judicial review of any explanations it gives for denying the relief the Chamber requests may occur, under the third *Oljato Tribe* step, in the D.C. Circuit.

Oljato Tribe reemphasized a key point, first emphasized in the legislative history to the 1970 Clean Air Act Amendments; namely, that “new information” may “dictate a revision or modification of any promulgated standard or regulation established under the act.” *Id.* at 660 (quoting S. Rep. No. 91-1196, at 41-42 (1970)). Because critical new information may become available, as here, after a “regulation” has been “promulgated,” legal argument should be directed in the first instance on reconsideration to EPA, in order to build a record for later D.C. Circuit review. *See id.* at n.20.

Also notable is Section 307(d)(7)(B)’s treatment of petitions submitted “within the time specified for judicial review.” The function of that provision is to *require* that EPA seek public comment on reconsideration requests received by the Agency within the 60-day judicial-review window specified by the Act’s Section 307(b)(1). *See Kennecott Corp. v. EPA*, 684 F.2d 1007, 1019-20 (D.C. Cir. 1982). But Section 307(d)(7)(B)’s *mandatory* notice-and-comment obligation does not mean that other reconsideration and stay petitions, like this one, can be ignored. If that were true, Congress would not have looked to *Oljato Tribe* as a model, for in

that case the relevant reconsideration petition was filed long outside the review window. Instead, where, as here, the grounds for reconsideration arise after the close of the review period, the petition must still be considered, albeit with a discretionary (as opposed to mandatory) opportunity for further public comment.

The D.C. Circuit thus explained in *Oljato Tribe* that “the public’s right to petition the Administrator for revision of a standard of performance and the Administrator’s duty to respond substantively to such requests *exist completely independently of Section 307* and this court’s appellate jurisdiction.” 515 F.2d at 667 (emphasis added); *see also, e.g., PPG Indus., Inc. v. Costle*, 659 F.2d 1239, 1250 (D.C. Cir. 1981) (counseling that amendment or repeal of a Clean Air Act regulation could be sought under APA Section 553(e) in conjunction with Section 307(d)(7)(B) even well outside the 60-day review window); *Lead Indus. Ass’n, Inc. v. EPA*, 647 F.2d 1130, 1143, 1145 (D.C. Cir.) (petition for reconsideration filed outside 60-day review window resolved on merits by EPA and not deemed untimely by D.C. Circuit), *cert. denied*, 449 U.S. 1042 (1980); *see also, e.g.,* 63 Fed. Reg. 24,749 (May 5, 1998) (granting three-month EPA stay of emissions standard promulgated nearly four years earlier). Unless Clean Air Act Section 307(d)(7)(B)’s rulemaking reconsideration procedures are newly read wholly to displace the APA’s ordinary processes for repealing or amending rules, Clean Air Act reconsideration requests based on grounds newly arising after close of the

review window must still be entertained by the Agency — albeit under the appropriate standard of review and with greater discretion as to further public comment.

In sum, EPA enjoys legal discretion to consider and grant this petition for reconsideration, under both Section 307 and general administrative law principles. Of course, as *Oljato Tribe* recognized, the depth of EPA’s analysis may vary with the significance of the arguments presented to the Agency: “We are by no means demanding comprehensive responses to frivolous petitions, but nor are we sanctioning summary dismissals of meritorious claims.” *Id.* at 666 n.19. Where, as here, the issues on reconsideration are substantial, a summary denial of the petition would constitute an abuse of EPA’s discretion. Likewise, a claim that EPA lacks authority to entertain the petition at all would run afoul of *Prill v. NLRB*, 755 F.2d 941, 947-48 (D.C. Cir. 1985), and its progeny, because, by definition, EPA would have misread its statutory mandate. EPA may and must exercise the statutory reconsideration discretion it has been delegated.

B. The Tailoring Rule Preamble And NHTSA Letter Have Combined To Undermine EPA’s Rationale For The Endangerment Finding.

As demonstrated below, the Tailoring Rule and NHTSA legal interpretations, taken together, establish that the public health and welfare benefits EPA had expected will be either legally unavailable (in the case of stationary

source emissions) and/or legally duplicative and superfluous (in the case of reductions from new motor vehicles). Moreover, both events occurred months after the June 23, 2009, close of the Endangerment Finding comment period: the Tailoring Rule was proposed in the Federal Register on October 27, 2009 (signed September 30, 2009), and the NHTSA letter is dated February 19, 2010. Given the dictates of *Massachusetts v EPA*, 549 U.S. 497 (2007), combined with these post-comment-period legal interpretations, the reasons EPA gave for supporting the Endangerment Finding are no longer cogent.

1. *Massachusetts Does Not Preclude EPA From Declining To Regulate.*

As emphasized in the Chamber's Tailoring Rule comments, the agency is at risk of misperceiving its options in the wake of *Massachusetts v. EPA*, 549 U.S. 497 (2007). According to the Agency, EPA must be prepared to say, either "yes," "no," or "the science is too uncertain" in answering the question whether public health and welfare are subject to endangerment from greenhouse gas emissions. *See* Auto Rule, 74 Fed. Reg. at 49,507 ("The Court held that the Administrator must determine whether or not emissions from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision."); *see also* Speech of EPA Administrator Lisa P. Jackson to the National Press Club, available at <http://yosemite.epa.gov/opa/admpress.nsf/8d49f7>

[ad4bbcf4ef852573590040b7f6/70ba33a218b8f22f852576e0006b2a53!OpenDocument](#) (Mar. 8, 2010) (referring incorrectly to “the Supreme Court’s 2007 decision that *EPA must use the Clean Air Act to reduce the proven threat of greenhouse gases.*”) (emphasis added).

In fact, other answers fitting within the *Massachusetts* holding are both possible, and preferable to these three alternatives. *Massachusetts*’s precise holding is that EPA’s reasons for denying a rulemaking petition submitted by the International Center for Technology Assessment were legally defective because the arguments advanced by the agency supporting that denial were not adequate. *Massachusetts* did not decide that the regulation of GHGs under the Act was legally required. *Massachusetts* did not address, much less decide, whether controls on greenhouse gases could be imposed throughout the Act, consistent with Congress’s intent, and without triggering absurd results. In particular, *Massachusetts* did not address whether Clean Air Act controls could lawfully be imposed on the small, stationary GHG emissions sources assertedly subject to the Act’s PSD and Title V programs. *Massachusetts* merely rejected the Agency rationale for inaction under review — a rationale that generally contended that GHGs are not “pollutants” for purposes of regulations promulgated under the Act’s section 202.

The *Massachusetts* Court made clear that, on remand, “EPA must ground its reasons for action *or inaction* in the statute.” 549 U.S. at 535 (emphasis supplied). Contrary to what the EPA has sometimes thought, *Massachusetts* does not paint the Agency into the confining corner of a false trilemma, or demand that the Agency shoehorn greenhouse gas emissions controls into the existing Clean Air Act. *Massachusetts* requires, not pre-ordained results, but the Agency’s conscientious adherence to the customary mode of interpretation required by *Chevron U.S.A., Inc. v. NRDC*, 467 U.S. 837 (1984). See *Massachusetts*, 549 U.S. at 527. In other words, the agency should consider all relevant statutory interpretive considerations, including relevant legislative history and any absurdities that result from applying the Act as written to small stationary sources.

2. The Tailoring Rule Preamble Correctly Concludes That A *Chevron* Step One Analysis Establishes That Regulating Greenhouse Gas Emissions From Statutory Sources Would Produce Absurd Results.

Massachusetts envisions that the Clean Air Act’s application to GHGs should be determined according to *Chevron*’s familiar two-step analytical framework. Under this framework, administrative agencies (and reviewing courts) must first assess the plain meaning of statutes using traditional tools of construction, including the canon that presumes Congress would not intend for its enactments to be carried to absurd extremes. Nonetheless, EPA thus far has

omitted consideration of the implications for its Endangerment Finding of its invocation of the absurdity canon in the Tailoring Rule.

A *Chevron* analysis begins with an application of “traditional tools” of statutory interpretation. *See Chevron*, 467 U.S. at 843 n.9 (“If a court, employing traditional tools of statutory construction, ascertains that Congress had an intention on the precise question at issue, that intention is the law and must be given effect.”); *Pharmaceutical Research & Mfrs. of Am. v. Thompson*, 251 F.3d 219, 224 (D.C. Cir. 2001) (at *Chevron* step one reviewing courts should employ all “traditional tools of statutory interpretation,” including “text, structure, purpose, and legislative history”); *Arizona Pub. Serv. Co. v. EPA*, 211 F.3d 1280, 1287 (D.C. Cir. 2000) (at *Chevron* step one, reviewing courts must “exhaust[] traditional tools of statutory construction”).

Because the absurdity canon is a traditional, though comparatively infrequently used, tool of construction, *see, e.g., Rector, Etc., of Holy Trinity Church v. United States*, 143 U.S. 457, 459 (1892); *Shotz v. City of Plantation, Fla.*, 344 F.3d 1161, 1167 (11th Cir. 2003), *Massachusetts* requires EPA to carefully consider its implications for the Agency’s overall statutory interpretation. Employed to help ascertain the plain meaning of statutes, the absurdity canon is grounded in courts’ recognition that a Congress or other legislative body would not intend their enactments to be taken in application to literal but absurd extremes.

The absurdity canon thus provides that, in interpreting the words of a statute, courts have “some ‘scope for adopting a restricted rather than a literal or usual meaning of its words where acceptance of that meaning would lead to absurd results . . . or would thwart the obvious purpose of the statute’” *In re Trans Alaska Pipeline Rate Cases*, 436 U.S. 631, 643 (1978) (quoting *Commissioner v. Brown*, 380 U.S. 563, 571 (1965) (alteration in original)).

EPA’s Tailoring Rule preamble emphasizes rightly that “[a]pplying the PSD thresholds to sources of GHG emissions literally results in a PSD program that is so contrary to what Congress had in mind — and that in fact so undermines what Congress attempted to accomplish with the PSD requirements — that it should be avoided under the ‘absurd results’ doctrine.” 74 Fed. Reg. at 55,310. The preamble also states that for “Title V, the application of the absurd results doctrine parallels that of PSD.” The Tailoring Rule preamble thus explains that applying PSD and Title V to controls on GHG emissions would produce an absurd situation in which Clean Air Act permitting processes seize up and break down:

If PSD and title V requirements apply at the applicability levels provided under the CAA, State permitting authorities would be paralyzed by permit applications in numbers that are orders of magnitude greater than their current administrative resources could accommodate

Without this tailoring rule, permitting authorities would receive approximately 40,000 PSD permit applications each year — currently, they receive approximately 300 — and they would be required to issue title V permits for approximately some six million sources —

currently, their title V inventory is some 15,000 sources. These increases are measured in orders of magnitude

It is also worth noting here that, under a scenario where State or local permitting authorities do not have the resources to implement the title V or PSD programs for GHG sources at current CAA permitting applicability thresholds, EPA may withdraw its approval, in which case, EPA would become the permitting authority and the enormous resource requirements would shift to EPA to implement these programs.

See id. at 55,292, 55,295, 55,300-01 (emphasis added).

Although EPA itself has candidly catalogued some of the ways in which application of the PSD program to GHG emissions would be absurd, the case for the absurdity of applying the Act to GHG emissions goes even beyond the arguments appearing in the Tailoring Rule's preamble. Consider the following analysis.

1. Applying the Act's PSD requirements to GHG emissions would absurdly draw into the PSD program emissions of pollutants whose asserted harm to human health and welfare is not concentrated near particular emissions sources, but dispersed throughout the globe. The PSD program is designed to maintain compliance and prevent specific geographic areas from experiencing air-quality deterioration that produces non-compliance with the National Ambient Air Quality Standards ("NAAQS"), whereas Title V is designed to streamline compliance with the PSD program and other Clean Air Act requirements by stationary sources. The PSD program is based on the setting of localized PSD "increments." These

localized increments define the maximum increase in concentrations of a pollutant over a baseline that will be allowed in a given geographically defined, air-quality control area. *See* Clean Air Act Section 164(b)-(c), 42 U.S.C. § 7474(b)-(c). Both EPA and courts have acknowledged the centrality of these geographically defined air-quality increments to the PSD program:

We continue to believe that the PSD program is intended to allow the air quality *in each area of the country attaining the NAAQS, and with the same area classification*, to “deteriorate” by the same amount for each subject pollutant, regardless of the existing air quality when the increment is initially triggered *in a particular area*, as long as such growth allowed within the constraints of the increment does not cause adverse impacts on *site-specific AQRVs [air quality related values]* or other important values. In this way, the PSD increments avoid having a disproportionate impact on growth that might disadvantage *some communities*

Environmental Def. v. EPA, 489 F.3d 1320, 1331 (D.C. Cir. 2007) (emphasis added). Self-evidently, a regulatory regime focused on ambient concentrations on the basis of geographically defined increments cannot be applied without absurdity to pollutants having essentially the same global concentration no matter where within our nation’s states or counties a given measurement might be taken. *See* 74 Fed. Reg. at 55,298.

2. Applying the Act’s PSD requirements to GHG emissions would absurdly require hundreds of thousands of small emissions sources to put in place burdensome, expensive, individualized emissions controls, *see* 74 Fed. Reg. at 55,294, 55,321-22, contrary to the express intentions of Congress. For example,

Senator Muskie, one architect of the 1977 Clean Air Act Amendments, made clear that he believed that “houses, dairies, farms, highways, hospitals, schools, grocery stores, and other such sources” would be excluded from the operation of PSD program. 123 Cong. Rec. 18,021 (June 8, 1977). Legislative history, the consultation of which is another traditional tool of construction, thus confirms that the PSD program was intended to apply exclusively to larger sources, not smaller ones.

3. Applying the Act’s PSD requirements to GHG emissions would absurdly jeopardize economic growth. The Clean Air Act declares that one purpose of PSD program is “to insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources.” Clean Air Act Section 160, 42 U.S.C. § 7470(3). But over-burdening state permitting processes to the point where permitting the machinery seizes up and breaks down will necessarily force proposed new and modified sources to wait months or years for the permits they need before they can proceed with growth-enhancing construction. *See* Tailoring Rule 74 Fed. Reg. at 55,304 (contending that application of the PSD program to GHG emissions would make it “impossible” for permitting authorities to review and dispose of permit applications within 12 months). The resulting impact on economic growth will be especially severe in the short run — that is, in

the midst of the most severe economic downturn in recent history — when the new GHG program is in its infancy and administrative bottleneck will be tight.

In short, EPA is on solid ground in recognizing the “absurdity” of applying the PSD program to GHG emissions. But the Agency is mistaken in pursuing the remedy proposed in the Tailoring Rule preamble; namely, EPA’s erasure of the statutorily prescribed emissions thresholds and the replacement of them with EPA-prescribed thresholds. As noted above, the Supreme Court’s decision in *Trans Alaska Pipeline* holds that absurd applications of statutes should be avoided by “adopting a *restricted* rather than a literal or usual meaning” of relevant statutory terms. 436 U.S. at 643 (emphasis added); *see also, e.g., Green v. Bock Laundry Mach. Co.*, 490 U.S. 504, 510 (1989) (construing a Federal Rule of Evidence to avoid an absurdity by entirely excluding from the term “any defendant” all criminal defendants). The Supreme Court’s remedy for potential absurd applications of statutes is thus one of narrowly, permanently, and categorically construing a statutory term to avoid the problem.

In this instance, having recognized the potential for an absurd application of the Clean Air Act, EPA should have considered resolving the absurdity by giving a permanent, categorical, restrictive interpretation to one or more statutory terms. For example, EPA might have adopted a categorical, narrowing construction of “emissions” or “major emitting facility,” by construing those terms to exclude all

GHG emissions or emitting facilities. *See, e.g.*, 42 U.S.C. § 7475(a) (referring to “major emitting facility”); *id.* § 7475(a)(i) (referring to “emission limitations”). EPA also should have considered a resolution that determines that the Act simply cannot apply at all to GHG emissions without triggering one or more absurdities in its application. But what EPA should not have done is what it did here — overlook this important aspect of the issue and finalize an Endangerment Finding with no mention of the problem. The Tailoring Rule preamble, issued months after the close of the Endangerment Docket comment period, makes clear a critical omission in the Agency’s justification for the Endangerment Finding.

3. The Recent NHTSA Letter Confirms That Clean Air Act Regulation Of New Motor Vehicle GHG Emission Is Not Necessary.

The Chamber’s comments to the Agency respecting EPA’s proposed Auto Rule emphasized that the federal government must choose between two alternative regulatory approaches: seeking to regulate GHG emissions using NHTSA’s authority under the Energy Policy Conservation Act (“EPCA”) and the Energy Independence and Security Act of 2007 (“EISA”) or, alternatively, seeking to regulate such emissions on authority of Title II of the Clean Air Act. *See* Clean Air Act Sections 202-250, 42 U.S.C. § 7521-7590; *see also* Chamber Comments on the Auto Rule at 1-2 (Nov. 27, 2009) (incorporated herein by reference). The Chamber advised strongly against regulation under the Clean Air Act’s Title II on

grounds that such regulation would “provide an unparalleled set of new tools to NIMBY (Not In My Back Yard) activists bent on stopping construction and development.” *Id.* at 1. The Chamber’s comments also recognized the mutual interconnections between the Auto Rule, the Tailoring Rule, and the Endangerment Finding. *Id.* at 7 and n.28.

Now, significantly, the DOT and NHTSA have concluded in their February 19, 2010, letter that Section 202(a) standards are *not* necessary to regulating automotive GHG emissions. NHTSA, EPA’s sister agency, instead enjoys adequate legal authority under EPCA and EISA to regulate such emissions, independent from EPA’s authority under Clean Air Act Section 202(a). *See* O. Kevin Vincent Letter at 1. The Endangerment Finding cannot claim to generate the public health benefits asserted to flow from mobile source GHG emissions reductions.

This NHTSA legal conclusion is critical in light of EPA’s own conclusion that the Endangerment Finding, as such, does not impose requirements on regulated entities: “The endangerment finding itself does not exercise jurisdiction over any source, domestic or foreign. It is a judgment that is a precondition for exercising regulatory authority.” 74 Fed. Reg. at 66,521. According to this logic, the Endangerment Finding, standing alone, produces no current public health or welfare benefits. It will instead produce such benefits in the future, according to

EPA, but only if it effectively serves as a precondition for the regulation of GHG emissions from new motor vehicles, stationary emissions sources, or some other category of emission sources.

Based on this understanding of the Endangerment Finding, EPA has actually described the Tailoring Rule as a *deregulatory* measure — one that seeks to scale back absurd and unavoidable regulatory implications that flow as unintended consequences from EPA’s independent decision to regulate GHG emissions from automobiles. *See* 74 Fed. Reg. at 55,349. *See also id.* at 55,294 (“This proposal is *necessary* because EPA expects soon to promulgate regulations under the CAA to control GHG emissions from light-duty motor vehicles and, as a result, trigger PSD and title V applicability requirements for GHG emissions.”) (emphasis added); *id.* at 55,295 (“Under EPA’s current interpretation of PSD and title V applicability requirements, promulgation of this motor vehicle rule will trigger the applicability of PSD and title V requirements for stationary sources that emit GHGs.”).

With the release of the February 19, 2010, NHTSA letter, however, this rationale for EPA’s regulatory program can no longer bear scrutiny. If EPA affirmatively wishes to pursue an Endangerment Finding to regulate emissions from new motor vehicles, it must explain what it can add to a NHTSA-only rulemaking. If EPA affirmatively wishes to pursue an Endangerment Finding to

lay the necessary groundwork to regulate GHG emissions from stationary sources, or other emissions sources, then the Agency must clearly say so and explain how such regulation can occur without absurdity. What the Agency may *not* do is maintain its current stance — where it assures the public that it has *no choice* but to risk the imposition of absurd stationary source regulations, based on a presumed need for motor vehicle regulations that could be accomplished through NHTSA regulations alone.

C. EPA Should Reconsider Its Endangerment Finding Based On The EPA’s And NHTSA’s Legal Conclusions.

The *Oljato Tribe* decision discussed above notes that the asserted grounds for reconsideration must be grounds EPA has power to address. *See* 515 F.2d at 664 n.17. Here, the grounds counseling reconsideration fall squarely within EPA’s statutory authority and either call into question the core rationale EPA has offered for the Endangerment Finding (in the case of the new NHTSA letter), or establish that EPA has failed to consider an important aspect of the problem before the Agency (in the case of EPA’s Tailoring Rule absurdity conclusion). To be sure, some type of an Endangerment Finding might potentially remain a prerequisite to EPA regulation, if any were needed, of GHG emissions from certain types of emission sources. But up to this point EPA has not viewed the Endangerment Finding as an end in itself, EPA has instead justified it as a means to the end of new motor vehicle regulation.

As matters stand, serious questions of central relevance to the legality of the Endangerment Finding have been raised. EPA's and NHTSA's own conclusions establish that, while the Endangerment Finding might well be unnecessary to achieving any significant public health or welfare advantages, it also might lead directly to absurd consequences. With the Endangerment Finding poised to set in motion a cascade of costly regulatory impositions on thousands of businesses across the nation — and on the people they employ — EPA simply cannot ignore these legal questions. EPA should use this petition, as it must, as a vehicle to confront these issues and resolve them by reconsidering its Endangerment Finding.

II. THE AGENCY SHOULD STAY THE ENDANGERMENT FINDING PENDING THE RECONSIDERATION.

Considering the relevant legal and factual developments that have occurred since EPA closed the comment period on the Endangerment Finding on June 23, 2009, justice demands that EPA grant a stay of the legal effectiveness of its Endangerment Finding. Granting such a stay will facilitate review with all deliberate speed of this petition for reconsideration, as well as any other reconsideration petitions pending before the Agency.

A. EPA Should Grant A Stay Pending Reconsideration Because “Justice So Requires.”

The Administrative Procedure Act controls how EPA should consider and decide requests for administrative stays pending reconsideration: “When an

agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review.” 5 U.S.C. § 705. Nothing in Clean Air Act Section 307(d)(7)(B) sets aside this APA standard. Accordingly, it would be an abuse of discretion for EPA not to postpone the effectiveness of its Clean Air Act rulemakings, including the Endangerment Finding, where, as here, the interests of justice require a stay. EPA has long recognized as much. *See Ohio: Approval and Promulgation of Implementation Plans*, 46 Fed. Reg. 8,581, 8,582 n.1 (Jan. 27, 1981) (signed Jan. 19, 1981 by Administrator Costle) (noting that EPA was applying APA Section 705 to petitions for reconsideration and a stay submitted pursuant to Clean Air Act Section 307(d)(7)(B)).

The only respect in which the Clean Air Act modifies the usual APA rules is that stays of rulemakings under the Clean Air Act can last no longer than three months. *See* Section 307(d)(7)(B). In considering and disapproving three additional EPA stays of a particular rulemaking granted *after* an initial three-month stay had expired, the D.C. Circuit concluded: “EPA had no authority to stay the effectiveness of a promulgated standard except for a single, three-month period authorized by section 307(d)(7)(B) of the CAA” *NRDC v. Reilly*, 976 F.2d 36, 41 (D.C. Cir. 1992). The outcome in *Reilly* is a reflection of the speed Congress sought to impose on Clean Air Act judicial review and reconsideration processes, including the fundamental principle that the pendency of a petition for

reconsideration does *not* affect a party's ability to simultaneously pursue judicial review. *See* H.R. Rep. 101-490, pt. 1 (May 17, 1990), (stating that "the filing of petitions for agency reconsideration does not render agency action nonfinal for purposes of judicial review").

Critically, APA Section 705 grants agencies authority to issue stays even absent showings of irreparable harm. Proving irreparable harm becomes an relevant consideration, if at all, only when a stay of an agency rule is requested *from a court*, as the full text of Section 705 makes clear:

When an agency finds that *justice so requires*, it may postpone the effective date of action taken by it, pending judicial review. On such conditions as may be required and to the extent necessary *to prevent irreparable injury*, the reviewing court may issue all necessary and appropriate process to postpone the effective date of an agency action or to preserve status or rights pending conclusion of the review proceedings.

5 U.S.C. § 705 (emphasis added).

To date, EPA has not directed its attention in the context of the Endangerment Finding to either of the two centrally relevant legal interpretations discussed above. Justice thus requires that a stay be put in place while the Agency grapples with the important questions raised by these EPA and NHTSA interpretations and by this petition: Why does the final Endangerment Finding not acknowledge that it may well produce absurd results? Why does the Endangerment Finding not conclude that this looming absurdity constitutes

evidence that Congress did not intend for the Clean Air Act to be used to regulate GHG emissions? Moreover, if NHTSA's legal conclusion is correct, why does EPA's participation in a joint automobile rulemaking remain necessary? What precisely are the incremental public health or welfare benefits that will flow from that participation? Are those benefits worth the price of the absurdities that the finding will or may entail by triggering regulation elsewhere under the Clean Air Act? In order to answer these questions, and meet the demands of fairness and justice, a stay of the Endangerment Finding is in order.

B. The Four Factors Courts Often Use To Analyze Stay Requests Also Weigh In Favor Of A Stay.

Although the test not applicable to this request for an administrative stay, the Chamber notes that courts asked to stay agency decisions on direct review often employ the same four-factor test as is used to adjudicate requests for preliminary injunctions or stays pending appeal. *See Ohio v. NRC*, 812 F.2d 288, 290 (6th Cir. 1987) (holding that a motion for a § 705 stay should be judged by the same standard as a motion for a preliminary injunction); *Cuomo v. NRC*, 772 F.2d 972, 974 (D.C. Cir. 1985) (per curiam). The leading D.C. Circuit cases in this line of judicial authority are *Washington Metropolitan Transit Comm'n v. Holiday Tours, Inc.*, 559 F.2d 841, 843 (D.C. Cir. 1977); and *Virginia Petroleum Jobbers Ass'n v. FPC*, 259 F.2d 921 (D.C. Cir. 1958). As stated in *WMATA v. Holiday Tours*, the four parts of the relevant test are as follows:

(1) Has the petitioner made a strong showing that it is likely to prevail on the merits of its appeal? Without such a substantial indication of probable success, there would be no justification for the court's intrusion into the ordinary processes of administration and judicial review. (2) Has the petitioner shown that without such relief, it will be irreparably injured? . . . (3) Would the issuance of a stay substantially harm other parties interested in the proceedings? . . . (4) Where lies the public interest?

559 F.2d 843 (quoting *Virginia Petroleum Jobbers Ass'n*, 259 F.2d at 925) (alteration in original). Again, this judicial test is not applicable to this request for an administrative stay, under APA Section 705. Nonetheless, it is instructive to note that each of the four *WMATA* factors militates strongly in favor of granting a stay pending reconsideration of the Chamber's petition.

1. The Chamber Has Made A Strong Showing On The Merits.

On the merits, and as discussed above, EPA has simply failed to square its Endangerment Finding with its Tailoring Rule preamble and NHTSA's legal authority letter. EPA's Endangerment Finding remains at present entirely divorced from (1) EPA's conclusion in the proposed Tailoring Rule that application of the PSD program could lead to absurd results; (2) EPA's conclusion that those absurd results are necessarily triggered by its decision to issue a Section 202(a) Endangerment Finding; and (3) the NHTSA letter's conclusion that an Endangerment Finding is not necessary for regulating GHG emissions from automobiles. *See Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1063 (D.C. Cir. 2001) (vacating EPA rule because the Agency "failed to explain" regulatory

classifications and left the reviewing court “to guess whether its decision was based on a consideration of the relevant factors”). This failure of explanation on foundational aspects of the Agency’s legal justification constitutes reversible error.

2. Business Will Be Irreparably Harmed If The Endangerment Finding Is Not Stayed.

The Chamber has already submitted a study that, standing alone, proves that the legal effect of the Endangerment Finding will cause irreparable harm to the Nation’s businesses, States, and local governments. *See* Portia M. E. Mills and Mark P. Mills, *A Regulatory Burden: The Compliance Dimension of Regulating CO₂ as a Pollutant*, U.S. Chamber of Commerce, at 3 (Sept. 2008), (Appendix A). This study estimates that the PSD thresholds written into the statute would be reached, for example, by one-fifth of all food service facilities, one-third of health care facilities, half of those employed in the lodging industry, and even 10 percent of buildings used for religious worship. *See* Ben Lieberman, *Small Business Impact of the Endangerment Finding* (Jan. 20, 2010), available at <http://www.heritage.org/Research/Reports/2010/01/Small-Business-Impact-of-the-EPA-Endangerment-Finding> (last visited Mar. 15, 2010). All told, the Chamber estimates that over 1.2 million buildings in the U.S. would potentially become subject to PSD as a direct result of the Endangerment Finding.

This vast number of newly-regulated entities will have to wait six to twelve months, and will spend, on average, \$125,120 and 866 hours on paperwork for

PSD permits so that new construction or modifications to their buildings can begin. *See* EPA, Information Collection Request for Prevention of Significant Deterioration and Nonattainment New Source Review (40 C.F.R. pts. 51, 52) (Aug. 2008). Even if only 40,000 of the 1.2 million affected building owners choose to make modifications or seek permits for new construction, PSD compliance alone would cost over \$5 billion and would require diverting untold employee hours toward drafting, submitting, and otherwise obtaining permits. Moreover, the state and local agencies responsible for processing those 40,000 permits would be on the receiving end of this paperwork avalanche and be forced to spend an estimated \$931.2 million additional dollars. This near-\$1 billion in administrative costs would, by itself, overwhelm the federal government's current appropriations to aid States in implementing the Clean Air Act. In 2008, Congress appropriated less than one-quarter of that amount — some \$227.5 million — for state, local and tribal assistance grants for air quality management. In fact, in 2008, EPA spent only \$971.7 million on all of its clean air and global climate programs combined.

These economic threats are confirmed by, among other commenters, an Office of Management and Budget memorandum that states, candidly, that “[m]aking the decision to regulate CO₂ under the CAA for the first time is likely to have serious economic consequences for regulated entities throughout the U.S.

economy, including small businesses and small communities. Should EPA later extend this finding to stationary sources, small businesses and institutions would be subject to costly regulatory programs such as New Source Review.” Undated OMB Memorandum, posted to regulations.gov docket folder for the Endangerment Finding Rulemaking as Document Number EPA–HQ–OAR–2009–0171-0124, at 2 (posted Apr. 22, 2009) available at <http://www.regulations.gov/search/regs/home.html/#documentdetail?R=0900006480965abd>.

In response to these and similar projections, EPA has often contended that its Tailoring Rule will help ameliorate the dire economic consequences its actions would otherwise entail. But even assuming the Tailoring Rule provides some relief, this contention rests on assumptions that EPA has not adequately substantiated or explained, including that the Tailoring Rule can and will withstand judicial scrutiny in its current form; and that the Tailoring Rule is broad enough to protect businesses from misguided litigation brought by activist groups during the unavoidable, years-long interim periods in which the legal regime is being tested and sorted out. The Endangerment Finding will have multiple consequences — only some of which, at best, will be mitigated by the Tailoring Rule. Given the fundamental fact that, very few (if any) of the costs incurred by businesses because of assertions of unmeritorious environmental law claims are recoverable, the likelihood of irreparable harm is clear.

3. No Party Will Be Appreciably Harmed If Automobile GHG Emissions Are Tackled Exclusively By NHTSA.

Temporarily staying the legal effectiveness of the Endangerment Finding will have absolutely no impact on the public health or welfare and would not appreciably harm other parties to this or other litigation. Indeed, by EPA's reasoning, the Endangerment Finding in and of itself will have no regulatory *force*. Moreover, after NHTSA's letter, the Endangerment Finding also has little or no beneficial regulatory *effect* as an indispensable building block for other regulation.

To be sure, very recent press accounts have reported a public statement by one EPA official, asserting that the Endangerment Finding retains some independent advantages even in the wake of the NHTSA letter. These reports indicate that at a March 4, 2010, continuing legal education conference, Assistant EPA Administrator for Air and Radiation Gina McCarthy asserted at that, if mobile source GHG regulation were tackled solely by NHTSA, 40 percent of the emissions benefits would be lost as compared to those available from a joint NHTSA/EPA rulemaking. *See* Steven D. Cook, *CAFE Increase Without Greenhouse Gas Limits Would Forgo 40 Percent of Emission Cuts*, BNA DAILY REPORT FOR EXECUTIVES, 1 (Mar. 5, 2010). One report quoted Assistant Administrator McCarthy as saying that "reducing greenhouse gas emissions from vehicles is a matter of more than fuel efficiency," and that "[r]eductions also can be achieved through improvements to other systems in a vehicle, particularly air

conditioning.” *Id.* These statements, if accurately reported, are interesting and significant, but they do not militate in favor of continuing the effectiveness of the Endangerment Finding, pending reconsideration.

First, Ms. McCarthy’s statements appear to contradict joint pronouncements made by EPA and NHTSA in proposing GHG emissions rule. Those previous statements suggest that a NHTSA-only proceeding would be able to achieve a much greater share than 60 percent of the emissions benefits produced by a joint NHTSA/EPA proceeding. *See, e.g.*, 74 Fed. Reg. at 49,458, 49,459; *see also id.* at 49,461, 49,465.

Second, to the extent EPA maintains that it enjoys a significant advantage over a NHTSA proceeding because NHTSA cannot by law test cars for compliance with their air conditioners running, *see* 49 U.S.C. § 32904(c), that advantage cannot be large and, in any event, can be neutralized without discharging the blunderbuss of an Endangerment Finding. For instance, NHTSA and EPA could, without an Endangerment Finding, establish a voluntary program permitting manufacturers to opt into a voluntary GHG emissions regime of slightly increased stringency in return for the ability to use air-conditioning credits. EPA and NHTSA could readily model such a program on the Voluntary National Low Emissions Vehicle (“NLEV”) program cooperatively developed by EPA and car manufacturers in the 1990s. *See, e.g.*, 62 Fed. Reg. 31,192 (June 6, 1997).

In sum, given EPA's previous statements, together with the alternative options for regulation, it appears that only a miniscule sliver of GHG benefits (if any) might be lost if all non-voluntary controls on automobile GHG emissions are issued by NHTSA alone. But even if this assumption were incorrect, and even if some significant emissions benefit were at stake, the case for a stay would be all the stronger. In that event, the potential validity of Assistant Administrator McCarthy's statements would show just how far from the official agency record and explanation and legal justification EPA's true thinking has wandered. *See FCC v. Fox Telev. Stations, Inc.*, 129 S. Ct. 1800 (2009) (reaffirming the requirement that agencies must adequately explain changes in course); *see also Winter v. NRDC*, 129 S. Ct. 365, 374-76 (2008) (court errs if it grants an injunction where irreparable harm is merely a "possibility," but not where the party has shown that it is likely to succeed on the merits and likely to experience irreparable harm, and the balance of equities tips in its favor); *Davis v. PBGC*, 571 F.3d 1288, 1291-92 (D.C. Cir. 2009) (four traditional equitable factors must be balanced against one another). EPA must give the public notice and an opportunity to comment on its *current* rationale for regulation, or reversal of EPA's action remains likely. And EPA must share with the public any evidence supporting a significant shift from previous federal government positions. Until such explanation is given and such evidence is shared, EPA cannot rely in the equitable

balancing on unofficial accounts of harms to third parties, as a reason not to stay the effectiveness of its Endangerment Finding.

4. The Public Interest Favors A Stay.

A final, and in this case decisive, factor to be considered in passing on a court-ordered stay of an administrative order is whether public interest favors such a stay. *See Hamlin Testing Labs., Inc. v. Atomic Energy Comm'n*, 337 F.2d 221 (6th Cir. 1964); *Associated Secs. Corp. v. SEC*, 283 F.2d 773 (10th Cir. 1960). Here a stay would greatly promote EPA's deliberate, logically consistent, consideration of regulations across its interrelated front of GHG regulatory proposals. Even more important, a stay would avoid the economic harms the Endangerment Finding would otherwise inflict on persons not directly before the Agency in these proceedings.

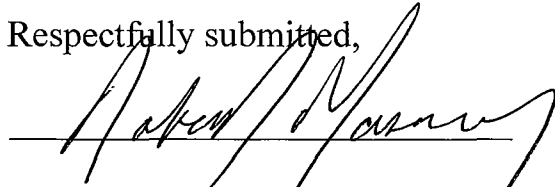
As to practically each and every American citizen, the public interest militates strongly in favor of a stay.

CONCLUSION

EPA should grant reconsideration of its Endangerment Finding and a stay pending completion of its reconsideration proceeding.

Date: March 15, 2010

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert R. Gasaway", is written over a horizontal line.

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APPENDIX A



A Regulatory Burden:

The Compliance Dimension of Regulating CO₂ as a Pollutant

For the U.S. Chamber of Commerce

Principal Researcher: Portia M. E. Mills
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September 2008

Executive Summary

Estimates of the costs of restricting carbon dioxide (CO₂) emissions have generally focused on the penalties arising from the associated direct or indirect increases in the cost of energy. Since hydrocarbons provide 85 percent of all U.S. energy, such fuel-cost penalties could be substantial and widespread. But generally missing from economic analyses to date is inclusion of the regulatory and bureaucratic costs from complying with and enforcing federal pollution laws should the U.S. Environmental Protection Agency regulate CO₂ and other greenhouse gases under the Clean Air Act (CAA).

Classifying CO₂ as a pollutant and regulating it under the CAA, or similar, domains would bring to force all the necessary related tracking, reporting and enforcement authorities. Many large enterprises (notably electric utilities, chemical plants, etc.) already accommodate the costs, and risks, of federal regulatory compliance. However, establishing operations and procedures to comply with federal Clean Air Act regulations would be a new experience for most small and mid-sized businesses, especially those that do not have infrastructure for such regulatory regimes, the staff time, consulting support and legal services. There is as well an associated potential risk for penalties arising from errors in compliance, recording, documenting or reporting. For many to-be-regulated businesses, it is possible that compliance costs could exceed the direct fuel price increase anticipated in a CO₂-constrained world.

Under proposed modifications to the CAA, a business would become a regulated “stationary source” if it emits over 250 tons per year (TPY) of CO₂.¹ On average, this emissions threshold is reached when a business uses about \$70,000² of oil or natural gas per year in “stationary” equipment (i.e., not cars, trucks and similar). How many commercial businesses, manufacturers and farms exceed this threshold?

By analyzing U.S. Census and Energy Information Administration data for energy consumption in manufacturing, commercial buildings, and farming, this report finds that **at 250 TPY for CO₂, a total of over one million businesses³ involved in manufacturing, operating buildings and services, and farming could become subject to new EPA regulations, monitoring, controls and enforcement.**

- At least **one million mid-sized to large commercial buildings** emit enough CO₂ per year to become EPA regulated stationary sources. The threshold would be reached, for example, by one-fifth of all food service businesses, one-third of those in health care, half of those in the lodging industry, even 10 percent of buildings used for religious worship.
- Nearly **200,000 manufacturing operations** would become regulated CO₂ sources. For the majority of industries, the average sized operation is big enough (in terms of emissions) to trigger the 250 TPY emissions threshold. At the top of the list are chemicals, metal fabrication, food processing, minerals, plastics, paper, and electrical equipment.
- About **20,000 large farms** emit enough CO₂ per year to become regulated stationary emissions sources. At the top of the list are greenhouses and nurseries, poultry and egg production, vegetable and melon farms, pig and dairy farms. (Limitations in primary data do not permit a complete analysis, and the number is likely an underestimate.)

1 Note that a small number of specifically designated industrial enterprises (e.g. oil refineries) would trigger this provision at a 100 ton-per-year level. This analysis incorporates those exceptions as indicated in relevant tables in this document.

2 Calculating 250 TPY in terms of dollars: assume \$10 per 1000 cubic feet natural gas, or \$3 per gallon oil yields ~ 7 lbs CO₂/\$

3 These estimates likely underestimate the impact because of limitations in the primary data.

Executive Summary Tables

The number and types of businesses potentially subject to proposed CO₂ regulation

Table 1: Industrial Sector Summary

Business type	Estimated # establishments regulated @ 250 TPY	Total Site CO ₂ emissions subject to reg million tons
Fabricated Metal Products	26,000	9
Food	15,000	50
Machinery	12,000	3
Nonmetallic Mineral Products	11,000	60
Printing and Related Support	9,300	1
Plastics and Rubber Products	9,200	7
Chemicals	8,900	200
Wood Products	8,400	3
Transportation Equipment	7,300	10
Computer and Electronic Products	7,200	3
Miscellaneous	5,100	1
Paper	4,200	60
Primary Metals	4,200	100
Furniture and Related Products	3,600	0
Apparel	3,600	1
Electrical Equip., Appliances	3,500	3
Textile Product Mills	2,900	1
Textile Mills	2,200	7
Petroleum and Coal Products	1,900	50
Beverage and Tobacco Products	1,600	5
Iron and Steel Mills*	770	100
Semiconductors, Related Devices	550	1
Leather and Allied Products	360	0
Petroleum Refineries*	210	50
Cements*	190	30
Lime*	65	7
Primary Aluminum*	41	1
Pulp Mills*	34	2
Total**	190,000	600

Total CO₂ including kWh

1,000

* Calculated for 100 TPY

** Total different from column due to rounding

Executive Summary Tables

The number and types of businesses potentially subject to proposed CO₂ regulation

Table 2: Commercial Sector Summary

Business type	Estimated # establishments regulated @ 250 TPY	Total Site CO ₂ emissions subject to reg
		million tons
Office	260,000	30
Warehouse and Storage	150,000	10
Mercantile	140,000	30
Education	100,000	30
Health Care	92,000	30
Lodging	71,000	20
Service	67,000	3
Food Service	58,000	10
Religious Worship	37,000	1
Public Assembly	26,000	8
Food Sales	23,000	4
Other	7,900	5
Public Order and Safety	7,100	2
Total*	1,000,000	200

* Total different from column due to rounding

Table 3: Agricultural Sector Summary

Business type	Estimated # establishments regulated @ 250 TPY	Total Site CO ₂ emissions subject to reg
		million tons
Oil seed, grain	3,400	9
Other Crop Farming Total	2,600	5
Poultry and egg	1,100	2
Vegetable, melon	1,500	2
Greenhouse, nursery, floriculture	1,400	2
Beef cattle ranching	920	5
Dairy cattle, milk production	910	2
Fruit and tree nut	880	1
Cattle feedlots	630	1
Hog and pig	560	1
Animal aquaculture, other	420	1
Sheep and goat	50	0
Total	17,000	40

Methodology

This study is intended to provide a reasonable estimate of the universe of stationary sources potentially exposed to Prevention of Significant Deterioration (PSD) permitting requirements should greenhouse gases become regulated pollutants under the Clean Air Act. Under the CAA, should CO₂ be deemed “regulated” in any way, no new or existing “major” stationary source of CO₂ can be built or modified (if the modification increases net emissions) without first obtaining a PSD permit. Major sources are defined as either a source in one of 28 listed categories (mostly industrial manufacturers and energy producers) with the potential to emit at least 100 tons per year of an air pollutant, or any other source with the potential to emit 250 tons per year (TPY) of an air pollutant. EPA defines “potential to emit” (PTE) as “the maximum capacity of a stationary source to emit a pollutant under its physical and operational design, including certain legal limitations, for example, on emissions or hours of operation.”

The results in this report emerge from an analysis of macro-economic and energy data, by sector, from the Energy Information Administration (EIA), U.S. Census and similar. The (calculated) CO₂ emissions are based on reported total on-site fuel consumption by relevant sector categories (types of buildings, factories, or farms). While aggregate energy data are deemed to be reasonably accurate, EIA and Census data become weaker (leading to under-reporting) the more finely the data are disaggregated and more specific the source. Nonetheless, the actual aggregate energy use (and thus actual CO₂ emissions) provide a reasonable starting point to estimate the number of buildings, factories, or farms that appear to emit enough CO₂ to cross the 250 TPY threshold (or 100 TPY threshold). The results of the analysis provide an estimate of the total universe of buildings likely exposed to potential PSD permitting should new construction or modifications be undertaken.

EPA has conducted its own analysis of the potential number of permits required by PSD.⁴ However, rather than using reported sector energy data, EPA instead chose to calculate and estimate emissions from the ‘bottom’ up. In doing so, EPA employed a “capacity factor” based on what EPA assumes to be the level of operations of reported energy-using equipment. For instance, EPA assumes the restaurant and food service sector only uses its equipment to ten percent of capacity, so it applies a ten percent capacity factor to that sector. Capacity factors are notoriously difficult to know, or obtain. (Capacity factors applicable to industrial boilers range from 25 to 66 percent.) By reducing the number of PTE-exposed sectors by anywhere from 40 to 90 percent, EPA’s analysis results in a sample size much smaller than the one used here. EPA also lists a series of “uncertainties” that differ from this study, including: no estimates for the agricultural sector (Note: EPA incorrectly asserts that there are no on-site CO₂ emissions from combustion in agriculture); no estimates of PSD permits required for modifications; and no consideration of existing major sources for other pollutants that will be exposed to PSD for CO₂. However, the basic methodology EPA used to determine the number of buildings exposed to PSD—setting aside EPA’s “capacity factor” de-rating, stated uncertainties, variables—is similar to that used here, and EPA’s initial estimates of sources meeting PTE thresholds for CO₂ are in the same order-of-magnitude as that found in this analysis.

⁴ “Estimates of Facilities that Emit CO₂ in Excess of 100 and 250 tpy thresholds,” prepared by EPA staff, May 2008.

Industrial-Manufacturing Sector

The majority of establishments in the industrial-manufacturing sector emit over 250 TPY. For some of these businesses, an operation as small as 1,000 square feet is sufficient to emit 250 TPY – e.g. chemicals and metals where the average sized operation is over 100,000 square feet.⁵ On-site emissions intensity in industrial operations varies widely, from several thousand pounds CO₂ per square foot in heavy material and mineral industries, to 10 to 30 lbs per square foot for furniture, printing, computer and semiconductor industries. (See Table 5.)

Even dominantly electricity-intensive businesses, like semiconductor and related tech industries, are large enough users of hydrocarbons to become regulated entities. A semiconductor manufacturer larger than 20,000 square feet, and computer maker larger than 45,000 square feet, would exceed the 250 TPY regulated threshold. The *average* semiconductor operation is over 175,000 square feet, and computer makers average almost 100,000 square feet. Thus nearly every semiconductor business, and about half the computer and electronics industry would be subject to CO₂ regulatory compliance. At the other end of the tech spectrum are food processing businesses, where the average facility is over 100,000 square feet. Food processors hit the 250 TPY threshold with only 3,500 square feet of operations.

For many industries, the more CO₂ is emitted indirectly from their use of electricity, and thus the associated utility emissions, than from site combustion; e.g.; textiles, computers, wood products. Using the computer and semiconductor industry examples again, where on-site fuel use leads to 12 and 26 pounds of CO₂ per square foot respectively – their electricity use equals 75 and 176 pounds, respectively, of CO₂ per square foot because of average utility fuel use to make the kilowatt-hours. (See Table 6.) Consequently, of the approximately 600 millions TPY of total industrial CO₂ emissions subject to on-site regulation identified in this report, at least as much again is emitted by electric utilities to serve those industries.⁶

Many businesses may find it desirable to increase electric intensity (use more electric, instead of fuel-burning technologies – a long-standing trend) to attempt to drop below the regulatory threshold, and shift the CO₂ regulatory burden to electric utilities. The industrial sector, overall, is the least electrified part of the stationary energy economy, with less than 25 percent of total energy needs supplied from electric utilities. Many new and emerging electric technologies have inherent productivity benefits over combustion-based equipment (e.g., faster, more uniform drying times for electric infrared heaters vs gas heaters). A CO₂ regulatory regime could have the effect of accelerating turn-over in, or biasing new purchases towards, electric-based capital equipment. This would create the unintended consequence of increasing growth in electric demand – a “dash to electricity” – and increase CO₂ emissions from utilities.

A “dash to electricity” by facilities trying to avoid triggering CO₂ permit requirements would not only further strain the electric supply system, but would likely exacerbate the emerging problem associated with the utility industry’s “dash to gas” as the primary means to generate electricity. A recent

5 EPA proposes a small number of specifically designated industrial enterprises would trigger this provision at a 100 ton-per-year level. This analysis incorporates those exceptions as indicated by an *.

6 Total CO₂ emissions calculated from the available data yields ~ 600 million TPY, which is significantly lower than the > 1,000 tons of total aggregate CO₂ emissions identified by DOE/EIA for the overall industrial sector. This difference results from the limitations of the primary data as disaggregated by sector: many companies do not report (for proprietary or competitive reasons) specific uses of fuels. Thus the data available under-counts total industrial fuel use – and thus CO₂ emissions for specific industrial sectors.

Industrial-Manufacturing Sector continued

Department of Energy report highlights the challenges with the U.S. natural gas system meeting *current* needs, and the attendant expected rapid growth in the need for LNG imports from many of the same regions where the U.S. is currently dependent on oil imports.⁷

Table 4: Summary of Typical Industrial-Manufacturing Categories

- Food and Kindred Products
- Meat Packing Plants
- Canned Fruit and Vegetables
- Frozen Fruits and Vegetables
- Wet Corn Milling
- Bread, Cake, and Related Products
- Cane Sugar Refining
- Beet Sugar
- Soybean Oil Mills
- Malt Beverages
- Textile Mill Products
- Apparel and Other Textile Products
- Lumber and Wood Products
- Furniture and Fixtures
- Wood Furniture, Except Upholstered
- Paper and Allied Products
- Paper Mills
- Paperboard Mills
- Printing and Publishing
- Chemicals and Allied Products
- Alkalis and Chlorine
- Industrial Glass
- Inorganic Pigments
- Industrial Inorganic Chemicals
- Plastic Materials and Resins
- Synthetic Rubber
- Cellulosic Manmade Fibers
- Organic Fibers, Noncellulosic
- Gum and Wood Chemicals
- Cyclic Crudes and Intermediates
- Industrial Organic Chemicals
- Nitrogenous Fertilizers
- Phosphatic Fertilizers
- Petroleum and Coal Products
- Petroleum Refining
- Rubber and Miscellaneous Plastic Products
- Tires and Inner Tubes
- Miscellaneous Plastics Products
- Stone, Clay, and Glass Products
- Fret Glass
- Glass Containers
- Pressed and Blown Glass
- Cement, Hydraulic
- Lime
- Mineral Wool
- Primary Metal Industries
- Blast Furnace and Basic Steel Products
- Blast Furnaces and Steel Mills
- Electrometallurgical Products
- Gray and Ductile Iron Foundries
- Primary Copper
- Primary Aluminum
- Primary Nonferrous Metals
- Aluminum Sheet, Plate, and Foil
- Fabricated Metal Products
- Industrial Machinery and Equipment
- Computer and Office Equipment
- Electronic and Other Electric Equipment
- Transportation Equipment
- Motor Vehicles and Car Bodies
- Motor Vehicle Parts and Accessories
- Instruments and Related Products
- Surgical and Medical Instruments

⁷ *Natural Gas and Electricity Impacts on Industry: White Paper on Expected Near Term Cost Increases*, DOE National Energy Technologies Laboratory, April 28, 2008, DoE/NETL-2008/1320: "The decline in EIA's AEO2008 forecast for natural gas supply from the AEO2001 forecast for year 2020 alone, excluding LNG, is roughly 13Tcf, or nearly equivalent to the expected annual supply from ten Alaskan pipelines. Domestic production is projected to decline steadily, falling below 20 Tcf by 2030. Disappointing U.S. production, declining Canadian imports, minimal LNG imports to date, and the continued rise in the price of oil have caused natural gas prices to more than triple between 2002 and today." "In the event of climate change legislation, running existing natural gas combined cycle units at higher capacity factors can displace 20- 35% of current coal kilowatt-hours. Such substitution requires another 5.4 TCF per year. Clearly, the existing natural gas fleet cannot meet the growth in peak demand expected before 2016 and also substitute for coal to meet carbon caps."

Industrial-Manufacturing Sector continued

Table 5: Summary of Industrial-Manufacturing Sector CO₂ Emissions: Ranked by Minimum Size of Establishment to Reach 250 TPY CO₂

Business type	Size to emit 250 TPY	Average floor space per establishment	Site CO ₂ emissions	Estimated # establishments regulated @ 250 TPY	Total # establishments
	sq ft	sq ft	lbs/sq ft		
Lime*	14	31,000	15,000	65	65
Cements*	41	110,000	4,900	190	200
Petroleum Refineries*	80	590,000	2,500	210	220
Iron and Steel Mills*	160	330,000	1,200	770	770
Pulp Mills*	330	490,000	610	34	34
Petroleum and Coal Products	360	58,000	1,400	1,900	1,900
Chemicals	940	110,000	530	8,900	8,900
Primary Metals	1,100	170,000	440	4,200	4,200
Nonmetallic Mineral Products	2,100	75,000	240	11,000	12,000
Paper	2,300	180,000	220	4,200	4,300
Primary Aluminum*	2,500	900,000	80	41	41
Food	3,400	100,000	150	15,000	15,000
Textile Mills	8,800	200,000	60	2,200	2,200
Beverage and Tobacco Products	9,000	160,000	60	1,600	1,600
Semiconductors, Related Devices	19,000	180,000	30	550	580
Transportation Equipment	22,000	220,000	20	7,300	7,700
Plastics and Rubber Products	24,000	94,000	20	9,200	11,000
Electrical Equip., Appliances	25,000	120,000	20	3,500	3,900
Fabricated Metal Products	25,000	48,000	20	26,000	35,000
Wood Products	26,000	65,000	20	8,400	10,000
Apparel	29,000	43,000	20	3,600	5,500
Textile Product Mills	33,000	100,000	10	2,900	3,500
Leather and Allied Products	35,000	38,000	10	360	690
Printing and Related Support	40,000	37,000	10	9,300	20,000
Machinery	43,000	72,000	10	12,000	17,000
Computer and Electronic Products	43,000	96,000	10	7,200	9,200
Miscellaneous	54,000	40,000	9	5,100	16,000
Furniture and Related Products	82,000	61,000	6	3,600	11,000
Total**				190,000	

* Calculations are for 100 TPY

**Total different from column due to rounding

Industrial-Manufacturing Sector continued

**Table 6:
Summary of Industrial-Manufacturing Sector CO₂ Emissions Arising from Electricity Use (Emissions from Electric Utilities Allocated by Industrial Site Use)**

Business type	Electricity CO ₂ emissions allocated to site	Site CO ₂ emissions	Electricity as Share Total Energy	Floor space to reach 250 TPY from electric use	Average floor space per establishment
	lbs/sq ft	lbs/sq ft	%	sq ft	sq ft
Lime*	1,800	15,000	10	280	31,000
Cements*	1,500	4,900	20	340	110,000
Petroleum Refineries*	1,200	2,500	5	430	590,000
Petroleum and Coal Products	620	1,400	5	810	58,000
Iron and Steel Mills*	440	1,200	20	1,100	330,000
Pulp Mills*	340	610	6	1,500	490,000
Primary Metals	340	440	30	1,500	170,000
Chemicals	300	530	20	1,700	110,000
Semiconductors	180	30	50	2,800	180,000
Paper	150	220	20	3,400	180,000
Textile Mills	130	60	40	3,900	200,000
Food	120	150	30	4,300	100,000
Nonmetallic Mineral Products	110	240	20	4,700	75,000
Plastics and Rubber Products	90	20	40	5,500	94,000
Computer and Electronic Products	75	10	50	6,700	96,000
Wood Products	60	20	30	8,200	65,000
Transportation Equipment	60	20	40	8,500	220,000
Electrical Equip., Appliances	60	20	30	8,500	120,000
Beverage and Tobacco Products	50	60	30	9,100	160,000
Fabricated Metal Products	50	20	40	10,000	48,000
Printing and Related Support	40	10	40	11,000	37,000
Apparel	40	20	40	12,000	43,000
Machinery	40	10	40	13,000	72,000
Miscellaneous	30	9	40	15,000	40,000
Textile Product Mills	30	10	30	18,000	100,000
Leather and Allied Products	30	10	40	18,000	38,000
Furniture and Related Products	20	6	40	26,000	61,000
Primary Aluminum*	N/A	80	N/A	N/A	900,000

* Calculations are for 100 TPY

Commercial Sector

Like the industrial sector, the commercial sector uses lots of fuel. Unlike the industrial sector, fuel purchases are heavily weighted towards electricity; 80 percent of total commercial energy is supplied by electric utilities. Thus, given the importance of coal for the electric supply system (>50 percent of national generation), the effect of directly, or indirectly, taxing carbon will have an inordinately large effect on the commercial sector's cost of energy.

Nonetheless, many of the commercial sector's buildings use enough carbon-based fuels to face the same kinds of regulatory costs, controls, and enforcement from EPA that the industrial sector would in a regulated CO₂ regime.

Energy use varies by building type – but within a far narrower range than industrial operations. Commercial buildings emit from a few pounds of CO₂ per square foot (e.g., office buildings) to 10 to 15 pounds CO₂ per square foot in health care and food services. On average, a building with over 40,000 square feet uses enough hydrocarbons to become a regulated source.

Using data for each type of commercial building, energy use and size, we estimate that a total of over 1,000,000 commercial buildings would become classified as new regulated stationary emissions sources. This would include over one-fourth of all school buildings, over two-thirds of health care facilities, one-third of office buildings, half of those in lodging, and one-fifth of food services. (See Table 8.) Hotels and resorts emit a relatively low 6 pounds CO₂ per square foot, but need only be over 80,000 square feet in size to hit the regulatory threshold (80,000 square feet is only two to three times the size of many hotel ballrooms alone). Food services (restaurants, etc.) are heavily electrified and emit on average only 14 pounds of CO₂ per square foot, but that's enough to be subject to regulation with a 30,000 square foot operation.

For every class of commercial building, emissions per square foot associated with electricity (not on site, but at the utility) exceed the on-site emissions from combustion. Office buildings emit 23, hotels about 18, and food services about 50 pounds of CO₂ per square foot associated with their electricity use – each respectively eight times, three times and almost four times more than on-site emissions. Still, because many commercial buildings are large enough fuel users to trigger the CO₂ regulatory threshold, here as with the industrial sector, many building owners may seek increased use of electric technologies as a means to fall below thresholds for CO₂ regulations. (See Table 9.)

Commercial Sector continued

Table 7: Examples of Commercial Sector Categories

- Accessory Stores
- Amusement, Theme Parks
- Amusement Parks
- Art Dealers
- Art Drama and Music Schools
- Auto and Home Supply Stores
- Automotive Repair Shops
- Baked Goods Stores
- Bakeries
- Botanical and Zoological Gardens
- Cafeterias
- Carpet and Upholstery Cleaning
- Casino Hotels
- Catalog and Mail-Order Houses
- Caterers
- Children's Hospitals
- Colleges Universities and Professional Schools
- Continuing Care Retirement Communities
- Department Stores
- Diaper Service
- Dinner Theaters
- Dry-Cleaning Plants
- Eating and Drinking Places
- Family Planning Centers
- Fish and Seafood Markets
- Fitness and Recreational Sports Centers (pt)
- Full Service Restaurants
- General Medical and Surgical Hospitals
- Golf Clubs
- Grocery Stores
- Historical Sites
- HMO Medical Centers
- Hotels and Motels (except Casino Hotels)
- Industrial Launderers
- Libraries
- Linen Supply
- Medical Supply
- Medical Laboratories
- Men's Accessory Stores
- Men's Clothing Stores
- Mental Health Facilities
- Museums
- Offices of Lawyers
- Offices of Physicians
- Operators of Apartment Buildings
- Personal Appliance Stores
- Pet and Pet Supply Stores
- Psychiatric Hospitals
- Recreation Clubs and Facilities
- Stadium Operators
- Supermarket and Grocery Stores
- Warehouse Clubs and General Merchandise Stores
- Zoos and Botanical Gardens

Table 8: Summary of Commercial Sector CO₂ Emissions: Ranked by Minimum Size of Establishment to Reach 250 TPY CO₂

Business type	Size to emit 250 TPY	Mean building size	Site CO ₂ emissions	Estimated # buildings regulated @ 250 TPY	Total # buildings
	sq ft	sq ft	lbs/sq ft		
Food Service	34,000	5,600	15	58,000	297,000
Health Care	51,000	25,000	10	92,000	129,000
Lodging	81,000	36,000	6	71,000	142,000
Other	83,000	22,000	6	7,900	79,000
Public Order and Safety	110,000	16,000	4	7,100	71,000
Public Assembly	120,000	14,000	4	26,000	277,000
Service	120,000	6,500	4	67,000	622,000
Education	120,000	26,000	4	100,000	386,000
Food Sales	130,000	5,600	4	23,000	226,000
Religious Worship	150,000	10,000	3	37,000	370,000
Mercantile	160,000	17,000	3	140,000	657,000
Office	170,000	15,000	3	260,000	824,000
Warehouse and Storage	290,000	17,000	2	150,000	597,000
Total				1,000,000	4,859,000

Commercial Sector continued

**Table 9:
Summary of Commercial Sector CO₂ Emissions Arising from Electricity Use (Emissions from Electric Utilities Allocated by Commercial Site Use)**

Business type	Electricity CO ₂ emissions allocated to site	Site CO ₂ emissions	Electricity as Share Total Energy	Floor space to reach 250 TPY from electric use	Mean floor space per establishment
	lbs/sq ft	lbs/sq ft	%	sq ft	sq ft
Food Sales	70	4	90	7,700	5,600
Food Service	50	15	80	9,700	5,600
Health Care	30	10	70	16,000	25,000
Other	30	6	80	17,000	22,000
Mercantile	30	3	90	19,000	17,000
Office	20	3	90	22,000	15,000
Public Order and Safety	20	4	80	24,000	16,000
Lodging	20	6	70	28,000	36,000
Public Assembly	20	4	80	30,000	14,000
Education	10	4	80	34,000	26,000
Service	10	4	80	35,000	6,500
Warehouse and Storage	10	2	80	53,000	17,000
Religious Worship	6	3	70	77,000	10,000

* Calculations are for 100 TPY

Agricultural Sector

Farmers don't get off the hook. The agricultural sector's dependence on low-cost energy is widely recognized. In addition to the obvious economic penalty associated with increased fuel costs for wheeled farm machinery, there are significant additional costs increases in fertilizer and chemical supplies directly tied to fuel prices in the agricultural sector.⁸

Just as in the commercial and industrial sectors, however, significant cost for many farming businesses may arise not just from fuel price increases but also from all of the activities associated with becoming a regulated stationary source of emissions of CO₂ as a new pollutant.

In counting only non-vehicular use of fossil fuels – oil, liquid petroleum gas and natural gas – nearly 20,000 farms would become regulated stationary emissions sources. (See Table 10.)

The highest impacted sectors in farming, based on the use of fossil fuels for purposes other than tractors and similar farm machinery, include poultry, grains, general crops, horticulture, vegetables and melons, fruits and livestock.

Note that Census data are very limited with regard to specific assignment of farm energy uses by either type (oil, gas, etc.), or use (stationary, or vehicles). Census farm energy use data are provided in dollars and aggregated for all purposes -- which would include vehicles, not subject to stationary source regulations analyzed here. Table 14 was used in this analysis to develop an estimated approximate average pounds of CO₂ emitted per dollar of farm energy expenditures associated only with stationary equipment.

⁸ See for example: American Farm Bureau Federation Commends Doane Advisory Services' Analysis of Lieberman-Warner Bill, The Fertilizer Institute, June 2, 2008: "Due to increasing energy prices, operating costs for corn are forecast to rise by an additional \$60.14 per acre by 2020. Potential climate change legislation will add up to \$78.80 in operating costs per acre of corn, resulting in a total increase of well over \$100 per acre by 2020."

Agricultural Sector continued

**Table 10: Summary of Agricultural Sector CO₂ Emissions:
Ranked by Minimum Size of Farm to Reach 250 TPY CO₂**

Farm type	Size to emit 250 TPY	Average farm size	Site CO ₂ emissions	Estimated # farms regulated @ 250 TPY	Total # Farms
	Acres	Acres	lbs/acre		
Greenhouse, nursery, floriculture	640	75	780	1,400	64,000
Poultry and egg	780	140	640	1,100	44,000
Vegetable, melon	1,600	320	310	1,500	35,000
Fruit and tree nut	2,000	120	250	880	96,000
Hog and pig	2,000	250	250	560	34,000
Dairy cattle, milk production	2,900	380	170	910	73,000
Cattle feedlots	5,800	470	90	630	55,000
Other Crop Farming Total	6,300	270	80	2,600	440,000
Oil seed, grain	6,400	690	80	3,400	350,000
Animal aquaculture, other	8,700	200	60	420	230,000
Beef cattle ranching	21,000	630	20	920	660,000
Sheep and goat	23,000	410	20	50	44,000
Total				17,000	2,100,000

Appendices

Data sources, detailed data tables, summary/calculation overview

Industrial-Manufacturing Sector Data:

- o Subsector Energy Expenditures: Energy Information Administration
 - 2002 Energy Consumption by Manufacturers--Data Tables
 - Link: <http://www.eia.doe.gov/emeu/mecs/mecs2002/data02/shelltables.html>
 - Pertinent Tables 1.1, 9.1
- o Emissions Factors: Energy Information Administration
 - Voluntary Reporting of Greenhouse Gases Program
 - link: <http://www.eia.doe.gov/oiaf/1605/coefficients.html>

Commercial Sector Data:

- o Subsector Energy Expenditures: Energy Information Administration
 - 2003 CBECS Detailed Tables
 - http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/detailed_tables_2003.html#consumexpen03
 - Pertinent Tables: A1, C1A, A6
- o EIA Commercial Data Contacts:
 - Joelle Michaels, CBECS Manager
 - Phone: (202) 586-8952
 - Alan Swenson
 - Phone: (202) 586-1129

Agricultural Sector Data:

- o **Summary by North American Industry Classification System 2002: USDA**
 - 2002 Census Publications, U.S. National Level Data
 - http://www.agcensus.usda.gov/Publications/2002/Volume_1,_Chapter_1_US/index.asp
 - Pertinent Tables: 59 - Summary by North American Industry Classification System: 2002
- o Contacts:
 - 202 694 5059 - ERS: Donnell Royster
 - 18007279540 - NASS
 - 2024010523 - Jim Duffield
- o Agriculture Energy Information
 - "On-Farm Energy Use Characterizations," Brown, Elliott, American Council for an Energy-Efficient Economy, March 2005

General Energy Information

- o gasoline: (dec) - http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/weekly_petroleum_status_report/historical/2003/2003_08_27/txt/table17.txt
- o diesel: (dec) - http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/weekly_petroleum_status_report/historical/2003/2003_08_27/txt/table17.txt
- o natural gas: (commercial) - http://tonto.eia.doe.gov/dnav/ng/ng_sum_lsum_dcu_nus_a.htm
- o electricity: (commercial) - <http://www.eia.doe.gov/cneaf/electricity/epa/epat7p4.html>
- o petroleum: <http://usasearch.gov>

Appendices continued

Table 11: Industrial-Manufacturing Sector Data

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Business type	Total # establishments	Average floorspace per establishment	Approximate Enclosed Floorspace of all buildings onsite	Net Electricity	Natural Gas	Total Oil	Total coal	Total site CO ₂ emissions in sector	Site CO ₂ emissions	Size to emit 250 TPY	250 TPY Reg Hurdle hit compared to avg size estab	Estimated # establishments regulated @ 250TPY	Total Site CO ₂ emissions subject to reg	CO ₂ Emissions from kWh @1.3lb/kWh	Electricity CO ₂ emissions allocated to site	Floorspace to reach 250 TPY from electric use
	counts	sq ft	million sq ft	million KWh	billion cu ft	million bbl	million short tons	Million tons	lbs/ sq ft	sq ft	%	Count	million tons	million tons	lbs/sq ft	sq ft
Food	15,089	102,589	751	67521	567	5	8	55	146	3425	3.3	14837	54	44	117	4278
Beverage, Tobacco	1,595	163,082	181	7639	45	0	1	5	55	9032	5.5	1551	5	5	55	9113
Textile Mills	2,247	201,870	253	25271	73	1	1	7	57	8841	4.4	2198	7	16	130	3851
Textile Product Mills	3,457	100,663	225	4875	28	0	0	2	15	33482	33.3	2882	1	3	28	17751
Apparel	5,500	42,905	111	3588	16	0	0	1	17	28906	67.4	3647	1	2	42	11899
Leather and Allied Products	685	37,749	34	716	4	0	0	0	14	35417	93.8	364	0	0	27	18264
Wood Products	10,486	64,501	445	20985	56	2	0	4	19	25944	40.2	8377	3	14	61	8156
Paper	4,257	179,562	580	65503	490	18	11	63	218	2296	1.3	4230	63	43	147	3406
Pulp Mills*	34	490,005	6	1579	23	1	0	2	615	325	0.2	34	2	1	342	1461
Printing and Related	20,220	36,999	433	14714	45	0	0	3	12	40093	108.4	9265	1	10	44	11318
Petroleum, Coal products	1,916	58,241	78	37186	854	7	0	54	1397	358	0.6	1910	54	24	620	807
Petroleum Refineries*	215	592,841	40	35478	799	4	0	50	2490	80	0.0	215	50	23	1153	434
Chemicals	8,909	111,909	672	153104	2,246	16	16	179	533	938	0.8	8872	178	100	296	1688
Plastics, Rubber Products	10,538	94,074	767	53181	125	1	0	8	21	24077	25.6	9189	7	35	90	5547
Nonmetallic Mineral	11,593	75,319	501	41393	411	6	14	60	239	2095	2.8	11432	59	27	107	4655
Cements*	195	114,618	11	12471	21	1	11	27	4933	41	0.1	195	27	8	1474	339
Lime*	65	31,060	1	1353	7	0	3	7	14700	14	0.1	65	7	1	1759	284
Primary Metals	4,166	174,794	550	144502	686	3	34	121	440	1136	0.6	4152	121	94	342	1464
Iron and Steel Mills*	771	325,341	159	53915	406	2	32	99	1248	160	0.1	771	99	35	441	1134
Primary Aluminum*	41	901,645	28	0	19	0	0	1	81	2456	0.7	41	1	0	0	N/A
Fabricated Metal	35,349	48,426	1,277	47123	204	1	0	13	20	25130	51.9	26177	9	31	48	10423
Machinery	17,381	72,187	825	24563	80	0	0	5	12	42969	59.5	12208	3	16	39	12918
Computer, Electronic	9,238	96,297	665	38352	64	0	0	4	12	43294	45.0	7161	3	25	75	6669
Semiconductors	578	176,153	96	13001	21	0	0	1	26	19048	10.8	547	1	8	176	2840
Electrical, Appliances	3,886	122,535	309	13901	52	0	0	3	20	24760	20.2	3493	3	9	58	8549
Transportation Equipment	7,653	223,706	1,111	50508	198	2	0	13	23	21686	9.7	7282	12	33	59	8460
Furniture and Related Products	10,941	60,782	473	7062	24	0	0	1	6	82118	135.1	3550	0	5	19	25761
Miscellaneous	15,605	39,779	400	10374	31	0	0	2	9	53763	135.2	5059	1	7	34	14830
Total**	200,710	80,268	10,643	832061	6,298	67	100	640	120	4158	5.2	190314	627	541		

* Calculations are for 100 TPY

Industrial-Manufacturing Sector Data: Explanation of data/calculations for Table 11

Columns 1 – 8: primary data from <http://www.eia.doe.gov/emeu/mecs/mecs2002/data02/shelltables.html>

Columns 9 – 17: calculated values/estimates as follows.

9. CO₂ emissions from combustion of natural gas (6), oil (7), coal (8) are added to yield total tons CO₂ for sector business.
10. Total emissions (9) divided by that sector's total square footage of all business in that sector (4) yields avg CO₂ lbs/sq ft
11. Divide 250 tons (500,000 lbs) by emissions per square foot (10) to yield size of operation that triggers 250 TPY
12. Divide the average 250 TPY trigger size (11) by the average size of facilities in that sector (3).
13. Rough estimate of number of establishments above 250 TPY by assuming: a) if size to trigger 250 TPY (11) is less than average size of establishment in that sector (3), then start with 50% of all establishments get regulated, then b) calculate how many more than 50% (i.e., "average") get regulated by using the ratio of trigger/average (12) as the % additional that are smaller than average that are regulated. Thus if the 250 TPY trigger occurs at 30% of the average size of an operation, and assume for this example the sector has 15,000 establishments, then a) 7,500 establishments are regulated (the 50%, or "average"), plus b) 70% (100 – 30%) of the remaining 7,500 establishments would be subject to regulation since only 30% of the average size is required to reach 250 TPY. (This calculation is done in reverse if the 250 TPY trigger is larger than the average size.) While this method is crude, at the broad statistical abstraction level, it yields a reasonable ballpark. There is no other means to estimate the distribution since the primary Census data does not provide granular information on energy use, but just overall totals, and overall averages. This method could both over, or under estimate. But it is notable regarding any potential overestimate of regulated establishments – such is likely, on average, to be more than offset by the entire data set's general underestimate of regulated establishments because the Census data is incomplete (i.e., undercounts by roughly 50%) total industrial energy use – Census/DOE does not have complete data for all companies which do not report all disaggregated data (for competitive reasons, or because of Census collection issues).
14. Total sector CO₂ emissions (10) are multiplied by ratio of number of regulated establishments (13) compared to total establishments (2).
15. Electric utility emissions of CO₂ associated with sector electric use (5) based on national average fuel use (and thus CO₂ emissions) for utility sector.
16. Sector electric-related emissions (15) divided by total square footage of that sector (4) to yield indirect CO₂ emissions per square foot from kWh use.
17. kWh-related CO₂ emissions (16) divided in to 250 TPY to yield number of square feet of operations that lead to 250 TPY trigger occurring at utilities for that specific industrial sector's average.

Appendices continued

Table 12: Commercial Sector Data

27	Electricity as share total energy	%	78	84	76	75	74	89	88	79	82	65	76	84	82	62	
26	Floorspace to reach 250 TPY from electric use	1000 sq ft	34	8	10	16	28	19	22	30	24	77	35	53	17	218	
25	Electricity CO ₂ emissions allocated to site	lbs/sq ft	15	65	52	31	18	26	23	17	21	6	14	10	30	2	
24	Electric CO ₂	million tons	73	41	43	49	46	144	141	33	11	12	29	48	26	3	
23	Total CO ₂ emitted (incl from kWh)	million tons	113	46	67	80	78	179	176	50	16	25	46	65	37	6	
22	Total Site CO ₂ emissions subject to reg	million tons	29	4	10	25	23	25	26	8	2	1	3	11	5	0	
21	Estimated # buildings regulated @ 250 TPY	1000	102	23	58	92	71	139	260	26	7	37	67	151	8	0	
20	# sq ft regulated (*Notes)	millions	2606	126	323	2246	2562	2367	3658	365	109	375	433	2552	174	0	
19	Size to emit 250 TPY	(1000 sq ft)	124	134	34	51	81	160	174	117	114	148	121	292	83	382	
18	Site CO ₂ emissions	lbs/sq ft	4	4	15	10	6	3	3	4	4	3	4	2	6	1	
17	Avg oil used	1000 Btu/sq ft	5	0	0	3	7	2	1	7	7	5	0	1	0	0	
16	Avg gas used	1000 Btu/sq ft	27	31	123	77	42	24	22	26	27	22	34	13	50	11	
15	total annual fuel oil consumption	trillion Btu	47	0	0	11	35	21	18	29	8	18	0	9	0	0	
14	total annual gas consumption	trillion Btu	268	39	203	243	215	264	269	102	29	82	139	132	87	28	
13	total annual electricity consumption	trillion Btu	1,121	629	654	748	709	2,214	2,170	506	172	188	451	738	401	46	
12	Floor space	million sq ft	9,874	1,255	1,654	3,163	5,096	11,192	12,208	3,939	1,090	3,754	4,050	10,078	1,738	2,567	
11	Over 500,000 sq ft		Q	N	N	973	Q	1,905	2,365	Q	Q	N	Q	Q	Q	Q	
10	200,001 to 500,000 sq ft		1,420	N	Q	514	1,185	462	1,493	Q	Q	Q	Q	Q	Q	Q	
9	100,001 to 200,000 sq ft		2,167	Q	N	395	930	1,677	1,428	868	Q	Q	Q	1,162	Q	Q	
8	50,001 to 100,000 sq ft		2,690	Q	Q	364	841	1,505	1,209	474	Q	Q	Q	1,494	Q	Q	
7	25,001 to 50,000 sq ft		1,756	Q	Q	157	803	1,291	1,506	301	Q	930	560	1,043	Q	471	
6	10,000 to 25,000 sq ft		931	Q	345	313	631	2,409	1,887	1,077	Q	1,235	1,021	2,064	Q	Q	
5	5,001 to 10,000 sq ft		399	356	442	280	160	1,173	938	518	Q	744	722	868	Q	Q	
4	1,001 to 5,000 sq ft		409	409	544	165	99	771	1,382	336	122	416	1,034	895	Q	239	
3	Mean floor space per building	x1000	26	6	6	25	36	17	15	14	16	10	7	17	22	14	
2	Total # bldgs	x1000	386	226	297	129	142	657	824	277	71	370	622	597	79	182	
1	Business type		Education	Food Sales	Food Service	Health Care	Lodging	Mercantile	Office	Public Assembly	Public Order and Safety	Religious Worship	Service	Warehouse, Storage	Other	Vacant	
	Total		4,859	15	6,922	7,033	12,659	9,382	10,291	10,217	7,494	7,660	71,658	10,746	2,100	228	
			3	4	124	20263	1374	181	987	639	20	26	82				
			Total from calculations													1040	173

Commercial Sector Data: Explanation of data/calculations for Table 12

Columns 1 – 15: primary data from

http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/detailed_tables_2003.html#consumexpen03

Columns 16 – 27: calculated values/estimates as follows.

16. Divide total sector gas use (13) by total square footage (12) to yield avg gas used per sq ft
17. Ditto re oil
18. Calculate site CO₂ emissions by adding avg emissions per sq foot from gas, and oil – by first converting gas or oil use to CO₂ emissions.
19. Divide 250 tons (as pounds) by avg pounds emitted per square foot (18) to yield avg size space that hits 250 TPY
20. To estimate how many square feet are subject to regulation, add up the number of square feet less than the trigger (19) from the disaggregated data in columns (4) – (11). Pro-rate the number of square feet in the relevant column where the average (19) falls in the relevant range in columns (4) – (11).
21. Estimate, roughly, number of buildings regulated by assuming share of total square footage regulated is approx the same as share of total buildings in that sector regulated. Share of square footage calculated by dividing (20) by (12) – multiply this ratio by total buildings in the sector (2).
22. Multiply same ratio in (21) by total sector emissions – latter calculated by multiplying emissions per sq ft (18) by total square footage in sector (12).
23. Multiply sector total electric use (13) by national average utility CO₂ emissions per kWh – add to total site CO₂ emissions (18).
24. As above without site CO₂ emissions.
25. Calculate utility emissions associated with kWh by dividing sector kWh CO₂ (24) by total square footage (12)
26. Calculate same way as (19).
27. Divide primary energy to make electricity (13) by total sector energy use.

Appendices continued

Table 13: Agricultural Sector Data

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Farm type	Total # Farms	Land in farms	Average farm size	Average size of farm	total annual purchases - gasoline, fuels, oils	Farms with gas, fuel, oil expenses of	64% Share All Energy purchases not for vehicles	TOTAL Site CO ₂ emissions subject to reg	Site CO ₂ emissions	Size to emit 250 TPY	Estimated # farms regulated @ 250 TPY	Total CO ₂ emission incl on-site vehicles			
	count	acres	Acres	\$US	1000 \$US	\$1 - 4,999	\$5,000 - \$24,999	\$25,000 - \$49,999	\$50,000+	\$million	million tons	lbs/ acre	Acres	count	lbs/ sq ft
TOTAL	2,128,982	938,279,056	441	97,320	6,675,419	1,738,679	242,029	29,049	14,382	4,272	32	68	7,321	14,382	50
Oil seed, grain	349,023	242,218,224	694	115,964	1,962,572	231,615	95,273	9,816	3,447	1,256	9	78	6,428	3,447	15
Vegetable, melon	34,624	11,215,546	324	382,581	358,743	24,765	4,711	1,467	1,499	230	2	307	1,628	1,499	3
Fruit and tree nut	95,680	11,525,130	120	141,680	301,769	83,938	8,016	1,264	882	193	1	251	1,989	882	2
Greenhouse, nursery, floriculture	64,366	4,819,149	75	234,219	393,875	50,194	7,502	1,472	1,433	252	2	785	637	1,433	3
Other Crop Farming Total	442,932	118,327,994	267	36,372	977,535	377,832	27,038	4,971	2,576	626	5	79	6,305	2,576	7
Beef cattle ranching	664,431	419,821,930	632	30,902	1,028,713	606,388	39,440	2,470	920	668	5	24	21,255	920	8
Cattle feedlots	55,472	25,984,434	468	415,480	231,441	44,677	6,735	970	633	148	1	86	5,848	633	2
Dairy cattle, milk production	72,537	27,351,777	377	323,182	488,176	44,487	23,524	2,129	909	312	2	171	2,918	909	4
Hog and pig	33,655	8,317,127	247	369,531	214,618	22,437	7,727	1,112	555	137	1	248	2,018	555	2
Poultry and egg	44,219	6,153,409	139	552,989	411,022	25,184	14,015	2,478	1,062	263	2	641	780	1,062	3
Sheep and goat	43,891	17,910,791	408	10,815	39,759	40,363	978	72	50	25	0	21	23,463	50	0
Animal aquaculture, other	228,152	44,633,545	196	19,034	267,197	186,763	7,070	828	416	171	1	57	8,700	416	2
TOTAL from calculations											37			16,958	57

Appendices continued

Agricultural Data: Explanation of data/calculations for Table 13

Columns 1 – 10: primary data from

http://www.agcensus.usda.gov/Publications/2002/Volume_1,_Chapter_1_US/index.asp

Columns 11 – 16: calculated values/estimates as follows.

11. Share of total energy purchases used for stationary equipment (non-vehicle) derived from Table 14. Data set in Table 13 and 14 both for year 2002 – permitting consistent transfer of derived value.
12. Conversion factor (16 lbs CO₂/\$) for average CO₂ emissions per energy \$ spent derived from Table 14. Multiply (16) by 16 lbs/\$ and convert to tons.
13. Divide (12) by total acres per category (3)
14. Divide 250 TPY by (13)
15. 250 TPY in 2002 ~ \$50,000 of fuel expenditures – thus only farms in (10) subject to regulation.
16. Multiply total fuel spending for all purposes (6) by average emissions per \$ (16 lbs per Table 14).

Agricultural Data: Explanation of data/calculations for Table 14

Columns 1 – 7: data from “On-Farm Energy Use Characterizations,” American Council for an Energy-Efficient Economy, March 2005.

Columns 11 – 16: calculated values/estimates as follows.

8. Convert BTU data from (2) to (7) to relevant units (gallons oil, cubic feet n gas, kWh electricity).
9. Fuel units
10. Cost per unit of relevant fuel in 2002 (DOE/EIA national average data)
11. Expenditures for each fuel type: total at bottom of column – all non-electric spending of \$8,415 million.
12. Calculate CO₂ emissions; multiply BTU in (7) by CO₂/BTU for each fuel type
13. Divide (12) by (11) to yield lbs CO₂/\$ spent on each fuel type: bottom of column derive straight statistical avg of 16 lbs CO₂/\$ of fuel purchases.
14. Estimate share of each fuel type associated with stationary source equipment (non-vehicle) from statistical avg of (18) through (22)
15. Multiply (14) by (11) for total spending on non-vehicle energy: total column \$5,348 million – divide by total for all non-electric energy spending (11) to yield 64% share of energy spending for stationary uses.
16. Multiply (15) by 16 lbs/\$ for total CO₂ emissions from non-vehicle
17. Same categories as (1)
- 18 – 22. Estimate share of fuel used for non-vehicle purposes based on category of use (e.g., 0% of “onsite transportation” energy is for stationary; but estimate 75% of all “machinery” is stationary).



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