



# REGULATORY IMPACT ANALYSIS FOR THE FINAL PREVENTION OF SIGNIFICANT DETERIORATION AND TITLE V GREENHOUSE GAS TAILORING RULE

Final Report

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## **Section 1**

### **Executive Summary**

#### **1.0 Summary**

This Regulatory Impact Analysis (RIA) examines the benefits, costs, and economic impacts of the Final Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule for affected entities and society as a whole. The tailoring rule lifts, for a period of beginning January 2, 2011 through April 30, 2016 (referred to as phase-in period), the burden to obtain a title V operating permit required by the Clean Air Act (CAA or Act) for many small existing sources of greenhouse gas (GHG) and the burden of Prevention of Significant Deterioration (PSD) requirements for small new or modifying sources of GHG. Thus, this rule may be viewed as providing regulatory relief rather than regulatory requirements for these smaller GHG sources for a period of at least the phase-in period. For larger sources of GHG, there are no direct economic burdens or costs as a result of this rule, because requirements to obtain a title V operating permit or to adhere to PSD requirements of the CAA are already mandated by the Act and by existing rules and are not imposed as a result of this rulemaking.

In this final rule, the Environmental Protection Agency (EPA) is relieving overwhelming permitting burdens that would, in the absence of this rule, fall on permitting authorities and sources. We accomplish this by tailoring the applicability criteria that determine which GHG emission sources become subject to the PSD and title V programs of the CAA. In particular, EPA is establishing with this rulemaking a phase-in approach for PSD and title V applicability, and is establishing the first two steps of the phase-in for the large emitters of GHGs. We also commit to certain follow-up actions regarding future steps beyond the first two, discussed in more detail later.

For the first step of this Tailoring Rule, which will begin on January 2, 2011, PSD or title V requirements will apply to sources' GHG emissions only if the sources are subject to PSD or title V anyway due to their non-GHG conventional pollutants. Therefore, EPA will not require sources or modifications to evaluate whether they are subject to PSD or title V requirements solely on account of their GHG emissions. Specifically, for PSD, Step 1 requires that as of January 2, 2011, the applicable requirements of PSD, most notably, the best available control technology (BACT) requirement, will apply to projects that increase net GHG emissions by at least 75,000 tons per year (tpy) carbon dioxide equivalent (CO<sub>2</sub>e), but only if the project also

significantly increases emissions of at least one non-GHG pollutant. For the title V program, only existing sources with, or new sources obtaining, title V permits for non-GHG pollutants will be required to address GHGs during this first step. This first step of the tailoring rule is referred to as Step 1 or ‘anyway’ threshold throughout this RIA.

The second step of the tailoring rule, that begins on July 1, 2011, will phase-in additional large sources of GHG emissions. New sources as well as existing sources not already subject to title V that emit, or have the potential to emit, at least 100,000 tpy CO<sub>2</sub>e will become subject to the PSD and title V requirements. In addition, sources that emit or have the potential to emit at least 100,000 tpy CO<sub>2</sub>e and that undertake a modification that increases net emissions of GHGs by at least 75,000 tpy CO<sub>2</sub>e will also be subject to PSD requirements. For both steps, we also note that if sources or modifications exceed these CO<sub>2</sub>e-adjusted GHG triggers, they are not covered by permitting requirements unless their GHG emissions also exceed the corresponding mass-based triggers (i.e., unadjusted for CO<sub>2</sub>e.) This second step of the phase-in period is referred to as Step 2 or 100,000 tpy CO<sub>2</sub>e threshold throughout this report. Although the thresholds established by the tailoring rule are levels set that apply to sources at or above the threshold, this RIA examine the sources obtaining regulatory relief. By definition the sources obtaining regulatory relief are those sources with GHG potential to emit emissions below a particular threshold

EPA believes that the costs to the sources and the administrative burdens to the permitting authorities of PSD and title V permitting will be manageable at the levels in these initial two steps, and that it would be administratively infeasible to subject additional sources to PSD and title V requirements at those times. However, we also intend to issue a supplemental notice of proposed rulemaking (SNPR) in 2011, in which we will propose or solicit comment on a third step of the phase-in that would include more sources, beginning by July 1, 2013. In the same rulemaking, we may propose or solicit comment on a permanent exclusion from permitting for some category of sources. We are establishing an enforceable commitment that we will complete this rulemaking by July 1, 2012, which will allow for 1 year's notice before step 3 would take effect. In addition, we commit to explore streamlining techniques that may well make the permitting programs much more efficient to administer for GHGs, and that therefore may allow their expansion to smaller sources. We expect that the initial streamlining techniques will take several years to develop and implement.



We are also including in this action a rule that no source with emissions below 50,000 tpy CO<sub>2</sub>e, and no modification resulting in net GHG increases of less than 50,000 tpy CO<sub>2</sub>e, will be subject to PSD or title V permitting before at least, April 30, 2016. This is because we are able to conclude at the present time that the administrative burdens that would accompany permitting sources below this level will be so great that even the streamlining actions that EPA may be able to develop and implement in the next several years, and even with the increases in permitting resources that we can reasonably expect the permitting authorities to acquire, it will be impossible to administer the permit programs for these sources until at least 2016.

Further, we are establishing an enforceable commitment that we will (i) complete a study by April 30, 2015, to evaluate the status of PSD and title V permitting for GHG-emitting sources, including progress in developing streamlining techniques; and (ii) complete further rulemaking based on that study by April 30, 2016, to address the permitting of smaller sources. That rulemaking may also consider additional permanent exclusions based on the “absurd results” doctrine, where applicable.

This tailoring rulemaking is necessary because without it, PSD and title V would apply to all stationary sources that emit or have the potential to emit more than 100 or 250 tpy of GHGs beginning on January 2, 2011. This is the date when EPA’s recently promulgated Light Duty Vehicle Rule (LDVR)<sup>1</sup> takes effect, imposing control requirements for the first time on carbon dioxide (CO<sub>2</sub>) and other GHGs. If this January 2, 2011 date were to pass without this tailoring rule being in effect, PSD and title V requirements would apply at the 100/250 tpy CO<sub>2</sub>e potential to emit (PTE) applicability levels provided under a literal reading of the CAA as of that date. From that point forward, a source owner proposing to construct any new major source that emits at or higher than the applicability levels (and which therefore may be referred to as a “major” source) or modify any existing major source in a way that would increase GHG emissions would need to obtain a permit under the PSD program that addresses these emissions before construction or modification could begin. Similarly, title V would apply to a new or existing source exceeding the 100 tpy applicability level in the Act, if the source did not already have a title V permit.

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<sup>1</sup> EPA-HQ-OAR-2009-0472; NHTSA-2010-0059 RIN 2060-AP58; RIN 2127-AK50. April 1, 2010 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule <http://www.epa.gov/otaq/climate/regulations/ldv-ghg-final-rule.pdf>

Under these circumstances, many small sources would be burdened by the costs of the individualized PSD control technology requirements and permit applications that the PSD provisions, absent streamlining, require. Additionally, state and local permitting authorities would be burdened by the extraordinary number of these permit applications, which are orders of magnitude greater than the current inventory of permits and would vastly exceed the current administrative resources of the permitting authorities. Permit gridlock would result with the permitting authorities able to issue only a tiny fraction of the permits requested.

This rulemaking provides permitting thresholds for sources of GHG exceeding levels contained in the CAA, and these levels are phased in steps based on legal considerations of absurd results and administrative necessity discussed in the preamble to this rule. In the phase-in period following promulgation of this rule, we estimate that, compared to baseline estimates that do not include the effects of this rule, over six million sources of GHG emissions will be allowed to operate without a title V operating permit and tens of thousands of new sources or modifying sources per year will not be subject to PSD requirements for GHG. The emissions from these sources amount to approximately 11 percent of all GHG emissions from stationary sources (100,000 CO<sub>2</sub>e tpy threshold) equating to approximately 630 million short tons CO<sub>2</sub>e, but represent 95 percent of the total number of stationary sources. For this large number of smaller GHG sources, this rule alleviates the regulatory burden associated with obtaining an operating or PSD permit or complying with PSD BACT requirements. Therefore, this final action may be considered beneficial to these small sources as it provides relief from regulation that would otherwise be required.

Within this RIA we are providing an illustrative monetary estimate of statutory permitting requirements to show the magnitude of the savings that hypothetically result from this rulemaking. While we believe it is impossible to implement these permit requirements by January 2, 2011 for the reasons laid out in the preamble, it is useful to understand the scale of what the burden may have been. For sake of simplicity, within this document we refer to this illustrative monetary estimate as the monetized benefits of the regulatory relief presented by this rulemaking or regulatory relief benefits for brevity. We estimate that the regulatory relief benefits from this rule amount to \$193.6 billion for the final rule Steps 1 and 2 of the phase-in period (January 2, 2011 through July 1, 2013). There will be some costs to society during this time from the potential loss of GHG emission reductions from small sources that could occur

during the Steps 1 and 2 phase-in period. We are not able to quantify or monetize these potential foregone emission reductions resulting from this final rule.

## **1.1 Summary of Analytical Approach for the Analysis**

Our analysis of the GHG tailoring rule includes several key elements including:

- specification of the baseline that requires title V and PSD permitting statutory thresholds of 100/250 tpy CO<sub>2</sub>e potential to emit (PTE),
- development of alternative regulatory relief thresholds including those authorized by this final rule,
- estimation of sources affected by alternative regulatory relief thresholds,
- estimation of the benefits of this rule in terms of permitting burden costs avoided,
- qualitative discussion of social costs or potential GHG emission reductions foregone due to this rule, and
- estimation of the economic impacts of this final rule.

A brief synopsis of these analytical aspects of the final rule follows.

### *Analytical Baseline*

The baseline for this rulemaking is a state of regulation in which the statutory thresholds of 100/250 tpy CO<sub>2</sub>e apply for title V sources and new or modifying PSD sources beginning January 2, 2011 absent actions taken in the final tailoring rule. Figure 1.0 below depicts this analytical baseline in which GHG permitting is statutorily required by the CAA. Within this framework, there are two general possibilities – ‘no action’ or ‘regulatory relief action’ taken by EPA. Under the ‘no action’ case baseline, statutory limits become effective and permitting authorities are overwhelmed with permit applications. Millions of new sources in total many of which have not been regulated under the Act would be required to obtain title V sources and tens of thousands of these sources will face PSD permitting annually. In contrast, the EPA may take action as it has in this final rule to provide ‘regulatory relief’. As described, the ‘no action’ case is the analytical baseline for this RIA. All alternatives analyzed in this RIA show the level of regulatory relief in comparison to a baseline in which statutory CAA thresholds of 100/250 tpy CO<sub>2</sub>e are required.

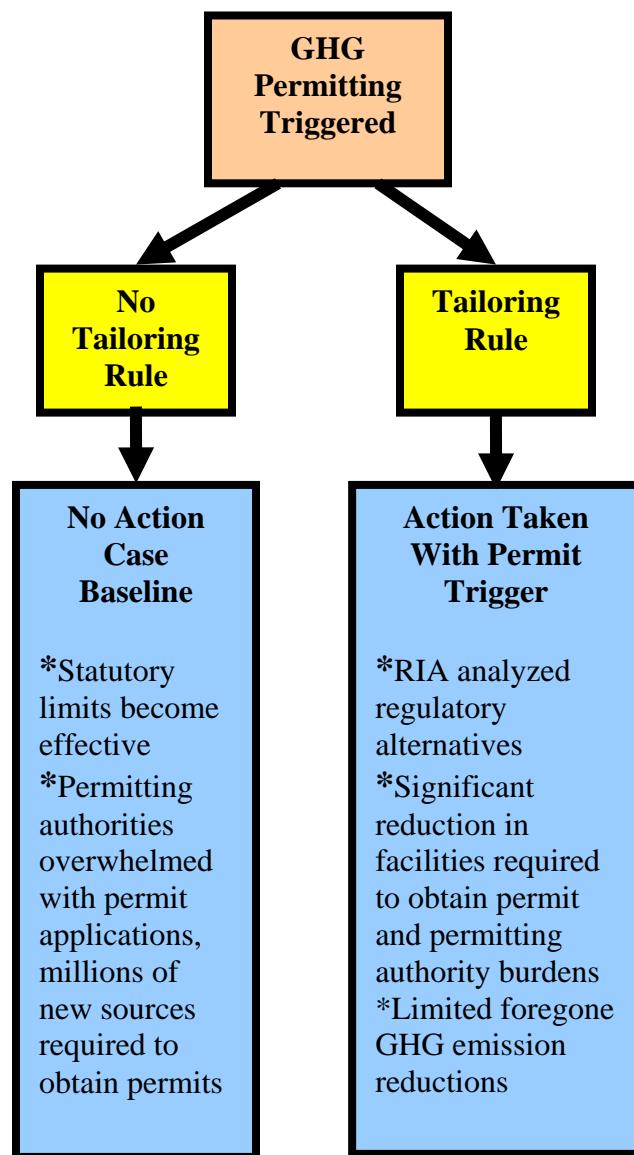
### *Regulatory Alternatives, Affected Sources, and Avoided Permitting Cost Estimates*

All regulatory alternatives evaluated in this RIA, except the ‘no action’ alternative, represent regulatory relief possibilities that establish title V permitting thresholds and PSD

permitting thresholds and significance levels above the statutory 100/250 tpy CO<sub>2</sub>e requirements. Due to the phase-in nature of this rule, EPA analyzes the benefits and costs of the tailoring rule for three different time periods. We analyze the net benefits of the rule annually to allow for a comparison of the final rule Steps 1 and 2 to be made with regulatory alternatives. We also evaluate the net benefits of the rule for the 2½ years period of Steps 1 and 2 of the phase-in period (January 2, 2011 through July 1, 2013) , and for the approximate five year period of Step 1, 2, and 3 of the phase-in period January 2, 2011 through April 30, 2016. Table 1.0 shows the final rule and regulatory alternatives analyzed in this RIA for these differing time periods of the phase-in.

The benefits of this rule are the regulatory relief in the form of avoided permitting burdened cost for smaller sources of GHG and permitting authorities. Avoided permitting costs to these smaller GHG sources and permitting authorities are calculated by estimating the number of sources and related permits avoided as a result of this rule. We then place a dollar value on these avoided permits by estimating the burden cost per permit. The product of the avoided permits and the per permit costs represents the regulatory relief for this rule. Thus the annual regulatory relief for the rule is equal to the number of annual sources (number of permits) above statutory thresholds of 100/250 tpy and below final rule thresholds multiplied by per permit costs for sources and permitting authorities, respectively. We use these annual estimates to calculate multiple year regulatory relief for Steps 1 and 2 of the phase-in and for the five years beginning January 2, 2011. Estimates of sources afforded regulatory relief under the alternative regulatory thresholds are based upon an analysis completed by EPA that is included as Attachment B *Technical Support Document for Greenhouse Gas Emissions Threshold Evaluation* of this report. This analysis supports EPA's assessment of the administrative burden created by adding GHGs to the PSD and title V programs. It was necessary to develop information on the number of affected facilities at both the current permitting major source thresholds (100 tons per year for title V and 100 or 250 tons per year for PSD depending on the source category classification) and at alternative higher thresholds in existing PSD and title V permitting programs. An affected facility would be one who's annual emissions of GHG equal or exceed the major source threshold being evaluated. The number of sources allowed regulatory relief by this rule represents the difference in the number of sources at the baseline 100/250 tpy CO<sub>2</sub>e PTE threshold and at the higher regulatory alternative thresholds.

**Figure 1.0. Alternative States of Regulation Relating to the GHG Tailoring Rule**



**Table 1.0 Time Periods and Regulatory Alternatives Analyzed in the RIA**

<b>Time Period of Analysis</b>	<b>Regulatory Alternatives Thresholds Analyzed for Each Time Period<sup>1</sup></b>
<b>Annual</b>	<ol style="list-style-type: none"> <li>1. Anyway</li> <li>2. 100,000 tpy CO<sub>2</sub>e</li> <li>3. 50,000 tpy CO<sub>2</sub>e</li> <li>4. 25,000 tpy CO<sub>2</sub>e</li> </ol>
<b>2.5-Year</b> (Jan. 2, 2011- July 1, 2013) Corresponds to Steps 1 and 2 of the Phase-In	Alternatives assuming threshold remain in effect for the entire 2½ years of the Step 1 and 2 phase-in period): <ol style="list-style-type: none"> <li>1. 25,000 tpy CO<sub>2</sub>e (25,000 tpy CO<sub>2</sub>e significance level)</li> <li>2. 50,000 tpy CO<sub>2</sub>e (50,000 tpy CO<sub>2</sub>e significance level)</li> <li>3. 100,000 tpy CO<sub>2</sub>e</li> <li>4. Anyway</li> </ol> Other alternatives involving thresholds that change during the phase-in period are: <ol style="list-style-type: none"> <li>5. Step 1 Anyway for 6 months/ Step 2 100,000 tpy CO<sub>2</sub>e for 2 years</li> <li>6. Step 1 Anyway threshold for 6 months / Step 2 50,000 tpy CO<sub>2</sub>e for 2 years</li> <li>7. Step1 Anyway threshold for 6 months/ Step 2 25,000 tpy CO<sub>2</sub>e for 2 years</li> </ol>
<b>5-year</b> (Five years beginning January 2, 2011) Corresponds to Steps 1-3 of the Phase-In	<ol style="list-style-type: none"> <li>1. Step 1 Anyway for 6 months/ Step2 100,000 tpy CO<sub>2</sub>e for 2 years/ Step 3 100,000 tpy CO<sub>2</sub>e for 2½ years</li> <li>2. Step 1 Anyway for 6 months/ Step 2 100,000 tpy CO<sub>2</sub>e for 2 years/ Step 3 50,000 tpy CO<sub>2</sub>e for 2½ years</li> </ol>

<sup>1</sup> Regulatory relief relates to those sources with the potential to emit annual emissions below the threshold levels. Threshold 100,000 tpy CO<sub>2</sub>e has significance level of 75,000 tpy CO<sub>2</sub>e. Threshold 50,000 tpy CO<sub>2</sub>e has significance level of 50,000 tpy CO<sub>2</sub>e, and threshold 25,000 tpy CO<sub>2</sub>e has significance level of 25,000 tpy CO<sub>2</sub>e

Regulatory relief or avoided permit burden estimates are based upon permitting cost estimates developed by EPA and discussed extensively in Attachment C *Summary of Methodology and Data Used to Estimate Burden Relief and Evaluate Resource Requirements at Alternative Greenhouse Gas Permitting Thresholds*.. EPA conducted an assessment of the estimated resource requirements for sources to obtain title V operating permits, for new and modifying sources to obtain PSD permits, and for permitting authorities to include GHG in permit actions at several possible major source permitting thresholds. EPA developed the burden reduction and costs savings for permitting authorities and sources as a result of requiring the inclusion of GHG in the title V and PSD permitting programs at thresholds greater than the current statutory requirements. Time and costs associated with permit activities are derived from existing Information Collection Requests (ICRs) for the title V and PSD programs. Regulatory

relief avoided cost estimates do not include the costs for new and modifying PSD sources to comply with BACT requirements due to lack of sufficient data to estimate the BACT requirements and associated costs.

We discuss the costs of this rule in terms of foregone environmental benefits qualitatively in this report. There will be some costs to society during this phase-in period from the potential loss of GHG emission reductions from small sources that could occur during the Steps 1, 2, and 3. We are not able to quantify or monetize these potential foregone emission reductions resulting from this final rule. We also provide in this RIA an estimate of the economic impact of the regulatory relief to affected sources by developing avoided-cost-to-sales ratios for the affected sources by comparing avoided permitting costs to average industry sales revenue or average revenue by firm size.

#### *Limitations and Uncertainties of the Analysis*

The benefits, costs and economic impacts estimated in this RIA are subject to limitations and uncertainties. The benefits of this rule are the regulatory relief provided to small sources of GHG and permitting authorities. Regulatory relief estimates are provided for the final rule Steps 1, 2 and 3 on an annual basis as well as for the full phase-in period. The benefits or avoided permitting costs are based upon the best data available currently regarding sources affected and burden cost estimates but are subject to uncertainties.

#### *Benefit Estimate Limitations and Uncertainties*

Uncertainties exist in the affected source counts at different thresholds used to estimate regulatory relief due to the absence of a comprehensive data set of facility-level GHG emissions across all sectors on which to base the number of facilities subject to title V and PSD permitting at alternative regulatory thresholds. These affected source counts are multiplied by the permit burden cost estimates to derive the benefit (regulatory relief) estimates for the rule. Although there are different levels of uncertainty in our facility level estimates across sectors, we do believe that the data are sufficiently robust to use in the aggregate to assess national permitting level impacts. The threshold analysis also conservatively assumes that no GHG PTE limits are in place for any of the affected sources. Some sources may use PTE limits to avoid being classified as major, which would reduce burden. The number of PTE limits is uncertain. We assume there will be a limited number in the immediate stages of GHG permitting for affected sources, but this assumption is subject to some uncertainty.

There is also significant uncertainty in both our modification rate for newly major GHG sources and in our estimate of modification activity at existing major sources that will become subject to PSD review for GHG emission increases. The general uncertainty results from inherent uncertainty in predicting not only how many major sources will elect to undergo physical or operational changes in any given year, but also which of those changes would result in GHG emissions increases that would exceed a proposed GHG significance level. First, information is not available across sectors and source categories on the types and numbers of specific physical and operational changes that would result in GHG emissions increases in amounts that can be estimated and that therefore can be compared to various GHG emissions significance levels. Second, there is uncertainty in how many project modifications will occur within any given year because decisions on these projects are driven by facility- and sector-based growth patterns and business planning decisions. Lastly, some source categories and units that emit GHGs have not previously been subject to any type of permitting or reporting requirements; as a result, for these sources, there is very little historical record for use in estimating the number and types of projects that would occur at these sources and, in turn, establish an appropriate significance level for GHGs.

The permit burden estimates that are multiplied by the source counts to derive the benefits of the rule are also subject to uncertainty. The primary reference sources for our estimate of burden hours and costs for permitting GHGs are the most recent ICRs for the PSD and title V programs. There a number of uncertainties introduced in using these references for costing GHG permitting activities. First, we are assuming that the average, conventional pollutant per-permit costs will be similar for GHGs. We do recognize the likelihood that residential and commercial permits would be simpler and have a lower per-permit burden than traditional industrial sources, and have made adjustments for this: however, for industrial sources we assume per-permit costs on par with what are estimated in the latest ICRs for PSD and title V programs. There is uncertainty in applying these average ICR-based costs to GHG permitting, even for industrial sources, because the best source of this cost information is permitting experience and there is no historical track record for permitting these GHG sources and thus any cost efficiencies that have been realized over the years for conventional pollutant permitting, and thus reflected in the current ICRs, may not be initially realized for GHG permitting.



As mentioned above, in our burden scenario analyses we do discount the ICR-based permit costs for residential and commercial sources to reflect what we believe will generally be simpler permits, involving primarily uniform combustion type equipment. For PSD we discount the per-permit cost by 30%, and for title V we discount the per-permit cost by 50%. There is significant uncertainty in these estimated discounts since we have no track record for permitting these smaller commercial and residential sources. However, we do believe that, based solely on the type and uniformity of the GHG emission units that would be subject to permitting at these facilities under lower GHG threshold scenarios, that average per-permit costs would be less than those currently experienced by more complex industrial facilities, with numerous emission units, for currently regulated pollutants.

Current avoided permitting cost or regulatory relief estimates also do not include the avoided costs to comply with PSD BACT requirements due to lack of available data. This omission will tend to reduce the amount of regulatory relief that smaller sources of GHG will experience during the phase-in period. In addition to the avoided BACT costs that we are unable to quantify, there are likely general economic costs associated with requiring permitting for these smaller sources of GHG. Numerous public comments on the proposed rule spoke to the economic burden permitting would place on sources above the actual costs to obtain a permit. These costs might include delays or impediments to entering a new market or to expand existing facilities to accommodate increased demand for products or services. These avoided costs might be viewed as additional costs of doing business or barriers to entry for these smaller sources of GHG. The avoided economic costs of these possible additional costs or barriers to doing business have not been considered in the regulatory relief estimates provided for this final rule due to lack of sufficient information about these potential impacts. If such avoided cost estimates were available, these estimates would tend to increase the regulatory relief burden reported for the final rule.

For the phase-in period regulatory relief multiyear estimates, we assume that the annual estimates are representative for each year of the phase-in period. This presumes that permitting activity would be constant over time. It is quite possible that permit activity for these smaller sources may grow over time with economic growth in the general economy and will likely vary from year to year due to differences in business activity. However, we do not have sufficient information about these year to year variations nor expected growth in permitting to develop

more precise estimates. Given the uncertainty in the annual relief estimates and the short time frame analyzed (five years), we feel it reasonable to not consider these potential yearly fluctuations for the phase-in period. Consideration of growth in permits over time would tend to increase the regulatory relief estimates reported for the final rule.

In a similar manner, we do not discount the phase-in regulatory relief to the present in this final report. Since the analytical time period evaluated varies from annual to five years, we feel this is a reasonable approach. Discounting the regulatory relief estimates to present values would tend to lower the total present value amount of regulatory relief reported.

#### *Social Cost Limitations and Uncertainties*

The social costs of this rule are the foregone environmental benefits that might occur during the phase-in period absent this rulemaking. This subject is discussed in Section 4 of the RIA. We are unable to estimate the PSD BACT requirements that would likely occur for the smaller sources of GHG at this time. Because BACT is a case-by-case decision and evolves over time, because we do not at this time have historical experience with the available controls for small-source GHG emissions, and because of the inherent uncertainty in describing the types of sources that would have triggered BACT absent this rule, we cannot quantify the emission reductions that might be feasible or the associated pollution control costs. For this reason, the social costs of this rule are discussed qualitatively in this RIA.

#### *Economic Impact Limitations and Uncertainties*

As previously discussed there is uncertainty in the estimates of sources affected by this final rule and the permitting burden costs used to estimate the benefits (regulatory relief) of this rule. These uncertainties also affect the economic impact analysis conducted. In the economic impact analysis, we compare the avoided permit burden cost estimates to average industry revenues in order to gauge the magnitude of regulatory relief for affected sources. We used average industry revenue, and average revenue estimates by firm size to estimate avoided-cost-to-sales ratios due to lack of data specific to the sources actually obtaining regulatory relief. The actual benefits to individual firms affected by this rule may differ from industry averages.

### **1.2 Benefits, Cost, and Net Benefits of the Final Tailoring Rule**

In the RIA, we estimated the benefits, costs and net benefits of the final rule. This rulemaking provides regulatory relief for a phase-in period of approximately 5 years to smaller sources of GHG by phasing in the statutory permitting threshold at levels above statutory

requirements. This final rule establishes thresholds and PSD significance levels for Steps 1 and 2 of the phase-in period (the 2½ year period between January 2, 2011 and July 1, 2013), commits to considering a further Step 3, and indicates floor title V and PSD threshold levels from July 1, 2013 through April 30, 2016. While the EPA commits to undertake a rulemaking for a further Step 3, the ultimate outcome for sources of GHG from this additional rulemaking is unknown at this time. Annual estimates for the final rule Steps 1 and 2 and regulatory alternatives are presented in Table 1.1. As Table 1.1 indicates, the annual net benefits associated with the final rule Step 1 are \$77,530.2 million  $+B-C$  and for Step 2 are \$77,416.2  $+B-C$  million, where  $B$  denotes the unquantified benefits and  $C$  the quantified costs of this final rule. These unquantified benefits and costs are discussed in more detail in the preceding limitations and uncertainties section of this executive summary. Table 1.2 shows the final rule Steps 1 and 2 with regulatory alternatives for the two and one-half year phase-in period January 2, 2011 through July 1, 2013. The net benefits of the final rule for Steps 1 and 2 are \$193,597.5  $+B - C$  million for the two and one-half year period. Finally, Table 1.3 presents the final rule net benefits with two alternatives for Step 3, one in which Step 3 remains at the Step 2 100,000 tpy CO<sub>2</sub>e level and one in which Step 3 becomes the minimum threshold of at least 50,000 tpy CO<sub>2</sub>e previously discussed. These alternatives for Step 3 bound the net benefit estimates for the entire phase in period. If Step 3 remains at the Step 2 level, net benefits for the five year period are \$387,153.4  $+B-C$  million. This net benefit estimate becomes \$386,724.1  $+B-C$  million if Step 3 becomes the minimum level of 50,000 tpy threshold for the five year phase-in period. Given the short time frame of the impact of this final rule, we did not consider the time value of money or discount the benefit and cost estimates provided in this report to present values, rather we assume these benefit and cost estimates are occurring currently. All dollar estimates shown are based upon 2007\$.

**Table 1.1 Annual Net Benefits for GHG Tailoring Rule Regulatory Alternatives**

	Annual Benefits and Costs for Regulatory Alternatives (millions of 2007\$)			
	Final Rule Step 1	Final Rule Step 2		
	Anyway	100,000 tpy CO2e	50,000 tpy CO2e	25,000 tpy CO2e
<b>Benefits - Regulatory Relief</b>				
<b>Sources</b>				
Title V <sup>1</sup>	\$49,457.3	\$49,447.4	\$49,403.8	\$49,334.2
PSD <sup>2</sup>	\$5,488.8	\$5,411.2	\$5,326.0	\$4,707.6
<i>Total Source Regulatory Relief</i>	\$54,946.1	\$54,858.6	\$54,729.8	\$54,041.8
<b>Permitting Authority</b>				
Title V <sup>1</sup>	\$21,077.6	\$21,072.4	\$21,052.8	\$21,014.9
PSD <sup>2</sup>	\$1,506.5	\$1,485.2	\$1,461.8	\$1,291.7
<i>Total Permitting Authority</i>	\$22,584.1	\$22,557.6	\$22,514.6	\$22,306.6
<b>Total Regulatory Relief</b>	\$77,530.2+B	\$77,416.2+B	\$77,244.4+B	\$76,348.4+B
<b>Costs - Foregone GHG Emission Reductions</b>				
Title V & PSD	C	C	C	C
<b>Net Benefits<sup>3</sup></b>	<b>\$77,530.2+B-C</b>	<b>\$77,416.2+B-C</b>	<b>\$77,244.4+B-C</b>	<b>\$76,348.4+B-C</b>

Benefits relate to regulatory relief for sources with annual potential to emit levels below the thresholds shown.

B - unquantified benefits of the rule include regulatory relief from BACT requirements for PSD sources

C - unquantified social costs of tailoring rule represents economic value of foregone environmental benefits (possible GHG emission reductions) during Step 1 and 2 of the phase in period. Potential foregone GHG emission reductions during the phase-in period are not known at this time. See Section 4 of the RIA for a qualitative discussion of the social costs of the rule.

1Reflects estimates of regulatory relief or avoided permit burden costs for title V GHG sources and permitting authorities.

2 Shows estimates of regulatory relief or avoided permit burden costs for GHG PSD sources and permitting authorities.

3 Totals may not sum due to rounding.

**Table 1.2. Net Benefits for the Final Rule and Regulatory Alternatives for Steps 1 and 2 of the Phase-In Period**

	Benefits and Cost s for Step 1 and 2 Phase-In Period (January 2, 2011- July 1, 2013)						
	For Regulatory Alternatives (millions of 2007\$)						
	Anyway <sup>3</sup>	100,000 tpy CO <sub>2</sub> e <sup>3</sup>	50,000 tpy CO <sub>2</sub> e <sup>3</sup>	25,000 tpy CO <sub>2</sub> e <sup>3</sup>	Anyway/ 50,000 tpy CO <sub>2</sub> e <sup>4</sup>	Anyway/25,000 tpy CO <sub>2</sub> e <sup>5</sup>	Final Rule <sup>6</sup>
<b><i>Benefits - Regulatory Relief</i></b>							
<b>Sources</b>							
Title V <sup>1</sup>	\$123,643.3	\$123,618.5	\$123,509.5	\$123,335.5	\$123,536.3	\$123,397.1	\$123,623.5
PSD <sup>2</sup>	\$13,722.0	\$13,528.0	\$13,315.0	\$11,769.0	\$13,396.4	\$12,159.6	\$13,566.8
<i>Total Source Regulatory Relief</i>	\$137,365.3	\$137,146.5	\$136,824.5	\$135,104.5	\$136,932.8	\$135,556.6	\$137,190.3
<b>Permitting Authority</b>							
Title V <sup>1</sup>	\$52,694.1	\$52,681	\$52,631.9	\$52,537.3	\$52,644.3	\$52,568.7	\$52,683.6
PSD <sup>2</sup>	\$3,766.3	\$3,713.0	\$3,654.5	\$3,229.3	\$3,676.8	\$3,336.7	\$3,723.6
<i>Total Permitting Authority</i>	\$56,460.4	\$56,393.9	\$56,286.3	\$55,766.7	\$56,321.1	\$55,905.4	\$56,407.2
<b>Total Regulatory Relief</b>	\$193,825.6+B	\$193,540.4+B	\$193,110.9+B	\$190,871.1+B	\$193,253.9+B	\$191,462.0+B	\$193,597.5+B
<b><i>Costs - Foregone GHG Emission Reductions</i></b>							
<i>Title V &amp; PSD</i>	C	C	C	C	C	C	C
<b>Net Benefits</b>	<b>\$193,825.6+B-C</b>	<b>\$193,540.4+B-C</b>	<b>\$193,110.9+B-C</b>	<b>\$190,871.1+B-C</b>	<b>\$193,253.9+B-C</b>	<b>\$191,462.0+B-C</b>	<b>\$193,597.5+B-C</b>

Benefits represent regulatory relief for those sources with the annual potential to emit less than the threshold shown.

B - unquantified benefits of the rule include regulatory relief from BACT requirements for PSD sources

C - unquantified social costs of tailoring rule represents economic value of foregone environmental benefits

(potential GHG emission reductions) during Step 1 and 2 of the phase in period. Foregone GHG emission reductions are not known at this time.

See Section 4 of the RIA for a qualitative discussion of the social costs of the rule.

1Reflects estimates of regulatory relief or avoided permit burden costs for title V GHG sources and permitting authorities.

2 Shows estimates of regulatory relief or avoided permit burden costs for GHG PSD sources and permitting authorities.

3 Shows alternative as single step for the 2½ year phase-in period for 'anyway', 100,000 tpy CO<sub>2</sub>e, 50,000 tpy CO<sub>2</sub>e, and 25,000 tpy CO<sub>2</sub>e thresholds respectively.

4 Includes Step 1 for one-half year and 50,000 tpy CO<sub>2</sub>e threshold for two years.

5 Includes Step 1 for one-half year and 25,000 tpy CO<sub>2</sub>e threshold for two years.

6 Phase-in period for final rule includes 1/2 year of Step 1 thresholds and 2 years of Step 2 threshold.