



MEMORANDUM

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SUBJECT: Reporting Methods for Small Emission Points (De Minimis Reporting)

A number of greenhouse gas (GHG) reporting programs contain provisions to avoid excessive reporting burdens on affected sources while ensuring maximum reporting of significant emissions. Some programs specify an overall reporting threshold that determines whether or not the facility or organization must submit a report. Regardless of the reporting threshold, a reporting facility in most cases will have emission points that are significant emitters of GHG and a number of emission points that are relatively minor emitters compared to total facility emissions. In some cases, monitoring of minor emission points can be burdensome or infeasible. As a result, many reporting programs are designed so that the same level of effort is not always required for estimating, documenting, and reporting emissions from minor emission points as for the larger sources.¹ These provisions sometimes are referred to as “de minimis” reporting provisions.

To better understand the reporting issues for minor emission points, we analyzed the de minimis requirements of existing mandatory and voluntary GHG reporting programs in the U.S. and internationally. The de minimis requirements of these programs are summarized in Attachment A. This memorandum explains the approach to de minimis reporting in existing GHG programs, provides examples of simplified reporting methods for minor emission points, and evaluates the concept of requiring reporting of all sources with simplified methods for minor emission points in the national rule.

1.0 APPROACH TO DE MINIMIS PROVISIONS IN EXISTING GHG PROGRAMS

Virtually all programs specify the methodologies to use for calculating GHG emissions from sources. Some programs specify a single calculation method (e.g., California in Assembly Bill [AB] 32 mandatory reporting). Others specify multiple tiers of reporting with increasing degrees of accuracy. For example, the European Union Emission Tracking System (EU ETS) specifies which tier to use depending on the source category and the level of GHG emissions. The Climate Registry (TCR) includes multiple tiers for certain processes and encourages the use of higher tier methods. But TCR allows the reporter to select the appropriate tier for each emission point. All of the specified methods rely on some form of data collection or monitoring of fuel use or process or operating parameters to support the calculations.

In some manner, all programs recognize that it may not be possible or efficient to apply any of the specified methods to every source that must be reported. To reduce the reporting burden,

¹ In this memo, the term “source” refers to GHG emission points within a facility and not to the facility itself.

some programs allow reporters to specify as “de minimis” a subset of any combination of sources and GHG that constitute a specified small percentage of their emissions. Depending on the program, the reporter is allowed to either not report emissions or use simplified calculation methods for de minimis sources. Table 1 summarizes the fundamental de minimis provisions from Appendix A. Some observations about the de minimis requirements of existing programs are:

- Of the 11 state reporting programs currently in effect, only three states (California, Maine, New Mexico) explicitly contain de minimis provisions. However, all of these states (except West Virginia) are members of TCR. The TCR allows simplified estimation methods to be used for up to 5 percent of emissions, which may apply to these states. In Maine, GHG emissions below 1 ton per year CO₂e, per facility do not need to be reported. New Mexico allows a facility to use simplified methods for measuring emissions that account for less than 5 percent of the GHG emission inventory of a facility. California allows simplified calculation methods to be used for up to 3 percent of the emissions. North Carolina sets reporting thresholds for emissions of each GHG.
- Of the national or regional programs, only Canada has no de minimis provisions, per se. However, Canada does not specify the calculation methods that must be used (Canada encourages the use of IPCC). Canada, therefore, inherently allows for simplified reporting methods, because reporters are allowed to select any calculation methodology.
- Of the nine programs with de minimis provisions, seven require reporting of de minimis emissions using simplified methods and only one, Maine, excludes reporting of de minimis emissions (for sources that collectively emit less than 1 short ton per year CO₂e).²
- Programs generally limit de minimis emission sources to between 2 and 5 percent of total emissions reported. Because a small percentage of emissions can still represent a large mass of emissions, both the EU ETS and California AB32 cap de minimis emissions at 20,000 metric tons (MT) per year CO₂e.
- The types of de minimis provisions vary across programs. The variations seem to be driven by the scope of each reporting program. Programs that allow a higher fraction of emission to be treated as de minimis tend to be those with broad reporting requirements that cover numerous types of sources. For example, the California Climate Action Registry (CCAR) and TCR allow the highest de minimis definition of 5 percent of total entity-level³ CO₂e. Both of these programs apply entity-wide. CCAR requires reporting of emissions from all facilities in California, and TCR includes all facilities in the U.S., Canada, and Mexico. Both programs include emissions from numerous potentially minor sources including motor vehicles, nonroad mobile sources, and all purchased energy. Programs such as these with full emissions reporting allow more flexible de minimis estimation methods so that the reporting burden is reasonable.

² In this memo, we have retained the units used in the original documents that we reference. Therefore, there is a mix of English and metric units.

³ For example, CCAR requires reporting of all emissions from the entity in its entirety and defines “entity” as a corporation or other legally constituted body, a city or county, a state government agency, or nonprofit organization, etc.”)

- For California AB 32, CCAR, Western Climate Initiative (proposed), and TCR, the simplified methods are subject to third party verification to avoid material undercounting of emissions. In EU ETS, simplified methods must be approved by the “competent authority.”

Table 1. De Minimis Provisions of Existing GHG Reporting Programs

Reporting Program	Fraction of Reportable CO₂e Emissions Considered De Minimis	De Minimis Provisions
European Union ETS	2%, not to exceed 20,000 MT/yr	Use emission methodologies of their own design.
California mandatory reporting (AB 32)	3%, not to exceed 20,000 MT/yr	Use emission methodologies of their own design, subject to approval by the verification team.
DOE 1605(b) voluntary reporting	3%	Exclude detailed reporting of de minimis emissions, but must estimate the emissions and report total quantity.
The Climate Registry	5%	Use emission methods of their own design based on upper bound assumptions.
California Climate Action Registry (CCAR)	5%	Use emission methodologies of their own design, subject to approval by the verification team every 4 years.
Western Climate Initiative (WCI)	3%, not to exceed 20,000 MT/yr	Use simplified calculation methods approved by the verification team.
Canada GHG reporting (Phase I)	not applicable	Encourages the use of IPCC but calculation methods are not specified.
Australia	2%	Use emission methodologies of their own design.
Maine	1 short ton CO ₂ e per year	Excludes de minimis sources
New Mexico	5%	Use simplified methods
North Carolina	Maximum ton per year limits for each GHG	Can exclude units classified as insignificant by permit.

The clear trend in reporting programs is toward requiring full reporting of all required GHG emissions, but allowing simplified calculation procedures for small sources. For example, TCR recently changed its protocol to require full reporting of all emissions. The October 2007 draft General Reporting Protocol (GRP) allowed reporters to exclude reporting 3% of the emissions as de minimis; however, in Version 1.0 (March 2008) and later versions, the terminology was changed from "de minimis" reporting to "Simplified Estimation Methods." The amount of emissions that may be reported using simplified estimation methods is 5% of the entity's total CO₂e emissions. The intent of the change was “to uphold the principle of completeness without adding significant additional costs” compared to excluding de minimis emissions. Likewise, CCAR’s March 2007 (Version 2.3) GRP specified that de minimis emissions would not have to be reported; however, the April 2008 (Version 3.0) GRP changed the policy such that de minimis emission must be verified and reported. The California AB 32 mandatory reporting rule adopted in December 2008 specifies that de minimis emissions must be reported, but that alternative methods may be used.

2.0 EXAMPLES OF SIMPLIFIED REPORTING

The supporting documentation for some GHG reporting programs include examples of simplified emission estimating methods that would be allowed under de minimis reporting provisions. We have included three examples from the documentation and two additional ones developed from other project experience. These examples provide insight into the types of emission sources for which the de minimis provisions were designed and show how emissions from some sources can be difficult to monitor precisely.

Many more examples could be developed of sources for which simplified emission estimating methods are applicable, and the following list of examples is far from comprehensive. For example, wherever a reporting protocol has a tiered approach and allows the use of lower tiers (i.e., simplified methods) for smaller emission sources or de minimis emission levels of certain pollutants, such as under the EU 2007 directive, an example could be developed for almost every one of the separate emission source types.

2.1 Simplified Reporting Examples for Motor Vehicles and Nonroad Mobile Sources

The Climate Registry GRP provides two examples of simplified emissions estimating from mobile combustion sources. No examples were provided for process emissions.

Example 1: The calculation protocol for methane (CH₄) and nitrous oxide (N₂O) emissions from mobile combustion requires data on vehicle miles traveled by vehicle type. However, if the source does not have data on either distance traveled or fuel use, CH₄ and N₂O emissions could be estimated using some other proxy data, for example, the amount of time (e.g. hours) that a vehicle was operated. Using hours as a proxy for distance traveled constitutes a simplified estimation method because it gives only a rough estimate of actual emissions. As long as the estimated emissions from this source (and all other simplified estimation sources) fall below 5 percent of the entity's total emissions, the source could use a simplified method. However, the source must always use upper-bound, conservative assumptions in developing the relationship between hours of operation and miles traveled.

Example 2: A hotel chain with hotels located throughout the U.S. is planning to report its GHG emissions to the Registry. Using the Registry-approved methods in Part III, it has already calculated its GHG emissions for most of its sources, including:

- Indirect emissions from electricity purchases
- Direct emissions from fuel used in stationary combustion units
- Direct emissions from courtesy vans used at some of the hotels to shuttle customers to and from local airports
- Direct emissions of hydrofluorocarbons (HFCs) from the heating, ventilating and air conditioning (HVAC) systems.

Total emissions of all GHGs from these sources are calculated as 36,472 metric tons CO₂e. There is one emissions source remaining to be quantified—the lawnmowers that are used to maintain the grounds at the hotels. There are 50 such lawnmowers in use at 47 different locations. However, only five of the hotels have kept fuel purchase records for their

lawnmowers. Because data on all 50 lawnmowers are lacking, and the lawnmowers as a whole are likely to represent a very small source (less than 5 percent) of emissions relative to the other sources, the hotel chain decides to compute emissions for one lawnmower, and multiply the result by 50 to obtain a simplified estimate of emissions for all 50 lawnmowers.

Recognizing the importance of developing a conservative emissions estimate, the hotel chain selects the lawnmower in use at its Miami, Florida location for three reasons. First, fuel consumption data are available for this lawnmower. Second, unlike the lawnmowers at its more northerly locations, this lawnmower is in use year round, and hence its emissions tend to be relatively high. And third, the grounds at the Miami hotel are extensive, and hence more fuel is required to mow the lawn at this hotel than at most of the other hotels owned by the chain.

The hotel chain calculates the emissions of the Miami lawnmower to be 0.32 MT CO₂e. Multiplying this result by 50, total lawnmower emissions for the chain as a whole are conservatively estimated as 16 MT CO₂e. Adding this value to the total emissions estimate for all of the other sources yields 36,488 MT CO₂e. The estimated lawnmower emissions represent less than 0.05 percent of this total—well below the 5 percent threshold for the use of simplified estimation methods. Therefore, the hotel chain's use of the simplified estimation method is allowable in this situation, and the chain reports 16 MT CO₂e as its estimate of emissions from its lawnmowers.

2.2 Simplified Reporting Example for Refrigerant Leaks

The CCAR GRP provides the following example when discussing the calculation of *de minimis* emissions.

Example 3: To estimate fugitive leaks from refrigeration systems, the CCAR requires a mass balance approach. This approach requires retaining inventory records of all purchases of hydrofluorocarbon (HFC) refrigerants and of the amount of HFC recycled, sold, and recovered during the year. However, fugitive emissions that account for less than 5 percent of a participant's total emissions can be designated as *de minimis*. To determine and report *de minimis* emissions, the protocol includes upper bound values for estimating annual loss rates from air conditioning equipment and from refrigerant charging from different sizes and types of systems. The protocol also includes default composition percentages for commercial refrigerant blends. For emissions that exceed the 5 percent level, the more accurate mass balance approach is required.

2.3 Simplified Reporting Example for Combustion of Industrial Waste Oil

The following example is for an actual facility based on a minor source audit conducted by ERG for a state air pollution control agency. While the audit was for criteria pollutants, the monitoring problem identified is equally applicable to estimating CO₂ emissions.

Example 4: A facility that manufactures aluminum foils using a rolling process has two types of combustion emission sources. The first type is the annealing furnaces that use natural gas. The second type is space heaters that use No. 2 heating oil. A by-product of the rolling process is waste lubricating oil that becomes too dirty to use in the rolling process. To dispose of this oil economically, it is mixed with the No. 2 heating oil and used in the space heaters. Some of the

lubricating oil evaporates, and some is carried out with the finished product, so the volume of waste oil generated from the lubricating oil is less than the amount purchased. However, because of the way the waste oil is collected and mixed with the heating oil, the volume added also cannot be measured directly. Instead, it would have to be estimated indirectly from a mass balance approach using assumptions for the volume that evaporates and the volume carried out on the product. Heating oil consumption is measured directly from purchase records.

CO₂ emissions from natural gas combustion in the annealing furnaces are estimated to be 30,000 tons per year. CO₂ emissions from the purchased No. 2 fuel oil in the space heaters are estimated to be 400 tons per year. If the facility conservatively assumes that all of the purchased lubricating oil became waste oil and was combusted, then estimated CO₂ emissions would be about 200 tons per year. Since the estimated CO₂ emissions from waste oil are a maximum of about 0.6 percent of total CO₂ emissions ($200/34,000 = 0.6\%$), the facility could make the conservative and simplifying assumption that all of the lubricating oil becomes waste oil.

2.4 Simplified Reporting Example for Cement Manufacturing

The EU ETS guidelines have provisions for simplified GHG emission estimates from relatively small sources designated as “minor sources” and “*de minimis* sources.” The EU guidelines have multiple tiers of GHG estimation methodologies for CO₂ from combustion. The guidance specifies the tier to use for each source category based on the level of emissions (< 50,000 MT/yr; 50-500,000 MT/yr; >500,000MT/yr). For minor sources, subject to approval by the competent authority, an operator can use one of the lower tiers than would otherwise apply at the facility’s level of total emissions. For *de minimis* sources, an operator can use estimation methodologies of their own design, subject to approval.

Example 5: Calculating the CO₂ emissions from clinker production in cement manufacturing requires activity data (amount of each carbon-bearing kiln input), an emission factor (mass of CO₂ released per tonne of each kiln input material), and a conversion factor (the fraction of carbonates in the kiln input materials that are converted to CO₂).

For the emission factor under the clinker output method, the EU guidelines provide three tiers for determining the CO₂ emission factor. Under Tier 1, the operator uses a fixed (default) emission factor of 0.525 MT CO₂/MT clinker. Under Tier 2, the operator applies a country-specific emission factor. Under Tier 3, the operator determines a facility-specific emission factor based on an analysis of the input materials.

Cement manufacturing installations with emissions greater than 50,000 MT/yr of CO₂ must use either Tier 2 or Tier 3 to determine the emission factor. However, if the operator of an installation with total emissions of 60,000 MT/yr CO₂ can demonstrate that the CO₂ emissions from the clinker are less than 10 percent of the total emissions (less than 6,000 MT/yr) and, therefore meet the definition of a minor source, then the operator could apply for approval to use the Tier 1 default emission factor, instead of the Tier 2 or 3 factors.

3.0 EVALUATION OF SIMPLIFIED REPORTING METHODS FOR MINOR SOURCES

Virtually all existing GHG reporting programs require facilities to report emissions from all sources that must be reported, but allow simplified methods for smaller sources. Due to widespread use, this approach appears feasible and not unduly burdensome. Some conclusions from the evaluation of existing de minimis reporting requirements are summarized below.

- Reporting of all emissions ensures a complete and transparent inventory. Excluding reporting of some sources would make it difficult to perform QA/QC activities and compare emissions across similar sources. For example, CCAR found it difficult to review emission reports for accuracy and completeness when de minimis emissions were not reported. In response to this problem, CCAR now requires de minimis emissions to be reported using simplified methods. Because the de minimis emissions would have to be provided to the verifier, CCAR concluded that reporting the emissions to the registry would not pose an undue burden on facilities.
- Reporting de minimis emissions need not be burdensome. The alternative approach of not requiring reporting de minimis emissions would require a reporter to estimate emissions from all sources in order to determine what sources qualify as de minimis within the specific definition in the rule. If these emissions must be estimated anyway, then reporting imposes no unreasonable burden as long as costly monitoring is not required and simplified calculation methods are allowed.
- A number of different methods can be used to provide simplified emission calculation methods: (a) A rule can specify multiple tiers of calculation methodologies with higher tier methods having a greater degree of accuracy. If lower tier methods use assumptions that overestimate emissions, then the rule could allow reporting sources the flexibility to use any of the methods without obtaining prior approval, because emissions levels would not be underreported. (b) A rule can specify multiple calculation tiers and specify the tier to use for specific sources based on size or capacity. Lower tier methods could be allowed for a subset of sources that meet a de minimis definition. (c) A rule could allow sources to obtain approval to use alternative calculation methods of their own design. This provision could apply to all emission points, not just de minimis emissions.
- All programs have included provisions that allow reporters to estimate emissions for some small subset of de minimis emission sources using methods of their own design. These provisions are in recognition that due to site-specific circumstances it may not be possible or cost effective to use the specified methods in the rule for every emission point. The programs strongly encourage the use of specified methods to the maximum extent possible. In programs where third party verification is required, the de minimis method chosen is subject to verification.
- The extent to which a program needs to allow the use of calculation methods of a facility's own design depends on the scope of the reporting requirements. For example, TCR and CCAR require corporate-wide reporting, which can involve numerous facilities including small facilities in remote locations. Besides emissions from significant combustion and process sources, these corporate-based reporting programs (and some other programs as well) require full reporting of GHG emissions including emissions from motor vehicles, indirect energy purchases, and off-road mobile equipment. In some programs, the emission protocols

may not include calculation methods for every type of emission source that must be reported. Programs that require such full reporting need extensive de minimis reporting provisions to avoid imposing unreasonable reporting costs.

- Programs that specify reporting for only particular emission sources need less extensive de minimis requirements. For example, the California AB 32 rule specifies reporting by industry sector for specific sources that are common and potentially significant for the sector. By designating reporting for only certain process sources, the rule excludes sources that are not typically associated with sector processes and not likely to be significant. Nevertheless, California recognized that “...the cost of tracking emissions for every small source using the regulation’s specified methods can be excessive...” Accordingly, the rule allows the use of alternative estimation methods of the reporter’s design for 3 percent of emissions (not to exceed 20,000 tpy), subject to verification oversight.
- Where reporting programs allow the use of simplified methods of a facility’s own design, some form of oversight of the method is required to prevent under reporting of emissions. Mostly, oversight is in the form of third party verification, and for EU ETS approval is required from the administering authority.

4.0 CONCLUSIONS

Based on the information collected and reviewed in this memo, it is not clear that a de minimis exclusion for small sources is warranted in the Federal mandatory reporting rule. For the sources that must be reported, it appears feasible to require reporting of all emissions if simplified methods are provided for small emission points.

There are several major differences between the Federal mandatory rule under development and the GHG reporting programs that have de minimis exclusions. The proposed Federal rule would already contain emission thresholds above which reporting is required, so smaller facilities would not be subject to the rule and would not have to report. In addition, reporting will be required at the facility level rather than the corporate level and only for those sources for which GHG emission estimating methods are provided. Reporting methods will be provided for the sources that are typically large sources of emissions in each source category and not provided for sources that are relatively small (e.g., lawnmowers, coal piles). Because reporting will not be at the corporate level, emissions will not need to be reported from small facilities that do not by themselves exceed the reporting threshold.

Nevertheless, some facilities that exceed the reporting threshold could have some small sources of certain GHG species. The existing GHG reporting programs provide simplified emissions estimation methods for these small sources, but still require that emissions for all sources have to be reported. This appears to be a practical and feasible approach for the Federal mandatory rule as well.

5.0 REFERENCES

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Appendix A. Overview of De Minimis Provisions of U.S. and International GHG Reporting Programs⁴

Program	Coverage	Level of Reporting	Gases	Fraction of emissions considered de minimis	De Minimis Approach
Australia: National Greenhouse and Energy Reporting Guidelines (Aug. 2008)	At the facility level, the threshold of 25,000 MT CO ₂ e or 100 TJ of energy per financial year. At the corporation level: (a) 125,000 MT carbon-dioxide equivalent (kt CO ₂ e), or 500 terajoules (TJ) of energy, for the 2008-09 financial year; (b) 87,500 MT CO ₂ e or 350 TJ of energy for the 2009-10 financial year; and (c) 50,000 MT CO ₂ e or 200 TJ of energy beginning in the 2010-11 financial year and thereafter.	Facility and Corporation	All 6 GHGs	2% of emissions	<p>At the facility level, corporations can use simplified methods of their own choosing for small emission units and small energy units (called “incidental” greenhouse emissions and energy) provided:</p> <ol style="list-style-type: none"> 1. Each emission unit cannot emit > 0.5% of the facilities total emissions or > 3kt CO₂e per annum; 2. Each energy unit cannot consume or produce > 0.5% of the facility’s total energy or >15TJ of energy per annum; 3. The aggregate total of all incidental emission units and energy consumption/production within a facility may not be >2%, 12 ktCO₂e, or 60TJ; and 4. Emissions and energy consumption/production may only be considered incidental where more accurate estimation is demonstrably difficult or expensive and the data is not otherwise required for reporting in another program. <p>At the corporate level, corporations can use simplified methods for small facilities that meet the following conditions:</p> <ol style="list-style-type: none"> 1. The facility accounts for < 2% of the corporation’s total GHG emissions and energy; 2. Emits ≤ 3 kt CO₂e greenhouse gases; 3. Produces ≤ 15 TJ energy; 4. Consumes ≤ 15 TJ energy; and 5. The aggregated total of all facilities excluded account for ≤ 5% of the corporation’s total emissions and energy. <p>For these facilities, the corporation must estimate the GHG emissions and energy as a percentage of the corporation’s total GHG emissions and energy. The corporation may use its own methods for estimating the emissions and energy.</p>
Canada	Any facility that emits >100,000 tpy of CO ₂ e.	Facility	All 6 GHGs	Not applicable	No de minimis provisions. Canada specifies IPCC guidelines, but does not require specific calculation methods. The guidance asks sources to use higher tier methods for emission sources of the most significance.

⁴ Several U.S. States are currently developing GHG reporting rules, including: Arizona, Colorado, Maryland, Minnesota, Montana, and Washington.

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Program	Coverage	Level of Reporting	Gases	Fraction of emissions considered de minimis	De Minimis Approach
European Union 2007 Directive	All sources of combustion, refineries, metal ore roasting, coke ovens, cement, lime, glass, ceramic, pulp and paper.	Facility	CO ₂	2% of emissions	<p>The EU guidelines have multiple tiers of GHG estimation methodologies for CO₂ from combustion. The guidance specifies the tier to use for each source category. The specified tier varies by source category and level of emissions (< 50,000 MT/y; 50-500,000 MT/yr; >500,000MT/yr). Minor sources can use lower tiers than otherwise specified for the total level of emissions. Minor source streams are those selected by the operator that jointly emit ≤5,000 MT/yr, or less than 10% of emissions, up to a maximum of 100,000 MT/yr, whichever is highest in MT/yr emissions. An operator can use Tier 1 or higher methods for "minor source" streams, subject to approval by the competent authority.</p> <p>Among the minor sources, an operator can select a <i>de minimis</i> group of source streams that jointly emit ≤1,000 MT/yr, or less than 2% of emissions, up to a maximum of 20,000 MT/yr, whichever is highest in MT/yr emissions. An operator can use estimation methodologies of their own design for "de minimis" sources, subject to approval by the competent authority.</p>
North America: The Climate Registry (Version 1.1)	TCR is intended for use by voluntary reporting and by mandatory programs.	Corporate-wide (must report by facility) for U.S., Canada, and Mexico holdings	All 6 GHGs	5% of total emissions as CO ₂ e (includes direct and indirect emissions)	<p>The final version of the Climate Registry's (TCR) General Reporting Protocol (GRP) was released March 31, 2008. The October 2007 draft version would have allowed reporters to exclude reporting 3% of the emissions as de minimis. The final Version 1.0 changed the terminology from "de minimis" reporting to "Simplified Estimation Methods." Reporters must report all emissions, even emissions for which there is no methodology prescribed in the TCR General Protocol. Use "industry best practices" in these cases. The amount of emissions that may be reported using simplified estimation methods is 5% of the entity's total emissions as CO₂e (includes direct and indirect emissions). The Registry does not provide a list of simplified estimation methods. Each entity can develop their own methods using upper-bound assumptions that err on the side of overestimating rather than underestimating emissions. In future years, reporters do not have to reestimate emission unless the initial assumptions change or become less than 5% of total emissions.</p> <p>Rationale: TCR specifies different data quality tiers for estimating emissions. TCR encourages the use of the highest tiers, but allows lower tiers due to technical constraints or excessive costs. The 5% provision was adopted because entities may have difficulty applying the tiered methods to every source within their organizational boundaries—either because it is not possible or efficient to use them. The intent of this provision is to uphold the principle of completeness without adding significant additional costs compared to a de minimis exclusion approach.</p>

Appendix A. Overview of De Minimis Provisions of U.S. and International GHG Reporting Programs⁴

Program	Coverage	Level of Reporting	Gases	Fraction of emissions considered de minimis	De Minimis Approach
United States DOE 1605(b) (10 CFR 300)	Voluntary program for reporting GHG emission reductions and sequestration. All sources. Stationary and mobile source combustion; manufacturing processes; fugitive emissions; indirect emissions from energy purchases.	Entity-wide (entity is flexible and can be all or part of a business or organization).	All 6 GHGs, plus CFCs, and other gases or particles that have been demonstrated to have climate forcing effects, and for which DOE has estimating methods.	3% of the emitter's total CO ₂ e	Large emitters (>10,000 metric tons CO ₂ e/year) must follow the protocols in Technical Guidelines published by DOE. May exclude 3% of emissions as de minimis. Must estimate the de minimis emission and report total quantity using the Guidelines or the Simplified Emission Inventory Tool (SEIT). Re-estimate every 5 years. Small emitters (<=10,000 metric tons CO ₂ e/year) can report emissions from specific activities without reporting total emissions; and can use the SEIT (a spreadsheet with default emission factors).
Regional Greenhouse Gas Initiative (RGGI) (Participating states include: CT, DE, ME, MA, MD, NH, NJ, NY, RI, and VT)	EGUs ≥ 25 MW	Facility	CO ₂	Not applicable	No de minimis provisions.
Midwestern Greenhouse Gas Reduction Accord (Under development) Participants are: Iowa, Illinois, Kansas, Manitoba, Michigan, Minnesota, and Wisconsin ⁵	Facilities with a nameplate capacity of ≥ 25 MW or annual emissions ≥ 10,000 MT/year	Facility	All 6 GHGs	Not yet determined	Propose to exclude emission sources with minimal contribution to facility's total GHG emissions. De minimis level not yet determined.

⁵ Observers currently include: Indiana, Ohio, Ontario, and South Dakota.

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Program	Coverage	Level of Reporting	Gases	Fraction of emissions considered de minimis	De Minimis Approach
<p>Western Climate Initiative (proposed 1/9/2009)</p> <p>(Participants: Arizona, British Columbia, California, Manitoba, Montana, New Mexico, Ontario, Oregon, Quebec, Utah, and Washington).⁶</p>	<p>Any facility that emits \geq 10,000 MT/year CO₂e and belonging to any one of 25 source categories (including electricity generation, hydrogen production, refineries, and petrochemical production); electricity importers; suppliers of transportation, residential, commercial or industrial fuels that distribute fuels equivalent to 10,000 MT/year CO₂e.</p>	Facility	All 6 GHGs	3% of the facility's total CO ₂ e, not to exceed 20,000 MT/year	<p>Facilities may elect to use alternative calculation methods for calculating emissions for units designated as de minimis. De minimis units must collectively emit no more than 3 percent of the facility's total CO₂e emissions and not more than 20,000 metric tons CO₂e. Where verification of the emissions report is required, the alternative GHG calculation method must be approved by the verification team. The alternative methods must provide reasonable assurance that the emissions designated as de minimis do not exceed the de minimis threshold. The facility must report the de minimis emissions separately.</p>
<p>CA Mandatory Reporting Rule (AB 32)</p>	<p>EGU and cogeneration >1MW and 2,500 tpy CO₂; retail electricity providers, petroleum refineries; and hydrogen plants and any stationary combustion sources emitting over 25,000 metric tons per year of CO₂.</p>	Unit/Process/Facility	CO ₂ , CH ₄ , N ₂ O, SF ₆ , and HFCs	3% of the facility's total CO ₂ e	<p>ARB's mandatory reporting rule (originally released 10/19/07, revised and re-released on 5/15/08) defines de minimis as "...emissions reported for a source or sources that are calculated using alternative methods selected by the operator, subject to the limits specified in section 95103(a)(6)." Section 95103(a)(6) says: "Emissions calculation and reporting procedures for de minimis sources. The operator may elect to designate one or more sources as de minimis that collectively produce not more than 3 percent of the facility's total CO₂ equivalent emissions, but in no case designating in excess of 20,000 metric tonnes CO₂ equivalent emissions. The operator may estimate emissions for these de minimis sources using alternative methods of the operator's choosing, subject to the concurrence of the verification team that the use of such methods provides reasonable assurance that the emissions so designated and estimated do not exceed the applicable de minimis limit. The operator shall separately identify and include in the emissions data report the emissions designated as de minimis.</p> <p>Rationale: Because AB 32 requires emission reports to be complete and rigorous, California chose not to allow exclusion of de minimis sources.⁷</p>

⁶ Observers currently include: the U.S. States of Alaska, Colorado, Idaho, Kansas, Nevada, and Wyoming; the Canadian Province of Saskatchewan; and the Mexican States of Baja California, Chihuahua, Nuevo Leon, Sonora, and Tamaulipas.

⁷ State Of California Air Resources Board. Staff Report: Initial Statement Of Reasons For Rulemaking Proposed Regulation For Mandatory Reporting Of Greenhouse Gas Emissions Pursuant To The California Global Warming Solutions Act Of 2006 (Assembly Bill 32). October 19, 2007. pp. 11, 15

Appendix A. Overview of De Minimis Provisions of U.S. and International GHG Reporting Programs⁴

Program	Coverage	Level of Reporting	Gases	Fraction of emissions considered de minimis	De Minimis Approach
California Climate Action Registry (CCAR), version 3.1	Voluntary. All sources. Stationary and mobile source combustion; manufacturing processes; fugitive emissions; indirect emissions from electricity use, imported steam or heat.	Organizations must report all emissions in California or U.S.	CO ₂ only in first 3 years, then all 6 gases in year 4 and beyond	5% of an organization's total emissions as CO ₂ e	<p>All emission must be reported, but 5% of emissions can be designated as de minimis and be estimated using methods other than the specified protocols. General Reporting Protocol (GRP), Version 3.1, January 2009, defines de minimis as “A quantity of GHG emissions from one or more sources, for one or more gases, which, when summed equal less than 5% of an organization's total emissions.” De minimis emissions must be verified the first year that a report for the facility/entity is submitted to the registry. However, if operating conditions do not change substantially in years 2 and 3, then de minimis emissions need not be reestimated or reverified. In the 4th year, de minimis emissions need to be recalculated and reverified prior to reporting to the registry.</p> <p>Rationale: Earlier versions of the Protocol specified that de minimis emissions would have to be verified, but not reported. The rationale was to avoid the use of methodologies that were overly burdensome and not cost effective. However, CCAR has found it difficult to complete the review of reported emissions for accuracy and completeness when de minimis emissions are not reported. Because de minimis information is disclosed to the verifier, CCAR concluded that reporting the information would not present an additional burden, and would improve transparency and comparability of the reports. These emissions also will be made available to the public, aggregated by gas.⁸</p>
Connecticut	Title V sources; electricity generators >25 MWe (reporting program may be expanded in the future)	Unit/Facility	All 6 GHGs	Not applicable	No de minimis provisions.
Iowa	Title V sources and ethanol facilities	Facility	CO ₂ , CH ₄ , N ₂ O (Beginning in 2008, Title V sources report all 6 GHGs)	Not applicable	No de minimis provisions.

⁸ California Climate Action Registry. General Reporting Protocol Version 3.0: Summary of Changes from Version 2.2. April 2008. p. 3
http://www.climateregistry.org/resources/docs/protocols/grp/changes_in_grp_v3_april_2008.pdf

Appendix A. Overview of De Minimis Provisions of U.S. and International GHG Reporting Programs⁴

Program	Coverage	Level of Reporting	Gases	Fraction of emissions considered de minimis	De Minimis Approach
Massachusetts	State's six oldest power plants	Unit/Facility	CO ₂	Not applicable	No de minimis provisions.
Maine	<p>Any stationary source that emits any criteria pollutant over these reporting threshold must also report GHGs:</p> <p>(1) CO 75 tpy (2) SO₂ 40 tpy (3) VOC 25 tpy (4) NOx(as NO₂e) 25 tpy (5) PM10 15 tpy (6) PM2.5 15 tpy (7) Pb 0.1 tpy (8) NH₃ 50 tpy</p> <p>All electrical power transmission and distribution plants that emit any amount of sulfur hexafluoride (SF₆). All greenhouse gas manufacturing facilities.</p>	Facility ("Source" means any building, structure, facility, or installation which emits or may emit any regulated pollutant.)	All 6 GHGs	1 ton CO ₂ e, aggregate for facility	<p>If any criteria pollutant is emitted at or above the reporting threshold level, data for all criteria pollutants and GHGs must be reported for all equipment included in their air emission license. However, fugitive emissions of HFCs, PFC and SF₆ greater than the de minimis reporting threshold must be reported. 06-96 CMR 137, Section 4.D.(4): <i>De minimis</i> emissions need not be reported. <i>De minimis</i> emissions means those emissions, when aggregated on a facility basis, that are less than 1 ton CO₂ equivalent.</p>

Appendix A. Overview of De Minimis Provisions of U.S. and International GHG Reporting Programs⁴

Program	Coverage	Level of Reporting	Gases	Fraction of emissions considered de minimis	De Minimis Approach
North Carolina (rule pending January 2009)	Title V sources	Unit/Process/Facility	All 6 GHGs	Ton per year thresholds for each GHG	Must report emissions for all emission units listed in their Title V permit, including insignificant units. However, emission units listed as insignificant in their permit may be excluded if (1) criteria pollutants, hazardous air pollutants, and toxic pollutants for that unit are not required to be reported; or (2) the facility-wide total GHG emissions are below the following thresholds: 5,000 tpy for CO ₂ ; 10 tpy for CH ₄ ; 1.0 tpy for N ₂ O; and 0.05 tpy for SF ₆ , PFCs, and HFCs. In addition, certain emission units are exempt from reporting (e.g., air conditioning/ventilation systems, space heaters, and combustion engines used for landscaping).
New Jersey	Major sources with emissions ≥25 tpy VOC or NO _x ; ≥100 tpy CO, SO ₂ , NH ₃ , PM _{2.5} , PM ₁₀ or TSP; or ≥5 tpy Pb.	Facility	CO ₂ and CH ₄ ⁹	Not applicable	No de minimis provisions.
New Mexico	Title V sources, including power industry >25 MW and all oil refineries and cement plants	Process/Facility	CO ₂ only in 2009. CO ₂ and CH ₄ in 2010. All 6 GHGs for large facilities by 2011.	5% of inventory	Simplified methods for measuring de minimis (less than 5% of inventory). Detailed estimation methods for other sources. Any facility may choose to meet requirements by registering emissions with The Climate Registry or CCAR.

⁹ New Jersey is currently considering changes to their GHG reporting requirements that would require major sources to report all GHG gases and non-major sources to report GHG gases emitted at levels above 2,500 tpy CO₂e.

Appendix A. Overview of De Minimis Provisions of U.S. and International GHG Reporting Programs⁴

Program	Coverage	Level of Reporting	Gases	Fraction of emissions considered de minimis	De Minimis Approach
Oregon	Title V sources; NSPS boilers; cement manufacturing; plywood manufacturing and/or veneer drying; pulp, paperboard, and paper mills, and 40 other categories; facilities with 15 specified SIC codes; solid waste disposal, wastewater treatment, electric generating units, electricity and natural gas transmission and distribution systems that emit >2,500 metric tons of CO ₂ e.	Facility	All 6 GHGs	Not applicable	No de minimis provisions. However, excludes emissions from facilities that meet the definition of a “categorically insignificant activity” as defined in OAR 340-200-0020.
Wisconsin	Any facility emitting over 100,000 tpy of CO ₂ must report CO ₂ . Any facility emitting over 6,000 lbs/year of N ₂ O must report N ₂ O Includes power plants and large industrial boilers. ¹⁰	Facility	CO ₂ , N ₂ O	Not applicable	No de minimis provisions.

¹⁰ Governor’s Task Force on Global Warming has recommended changing the reporting threshold from 100,000 tpy CO₂ to 10,000 tpy CO₂ and requiring methane and nitrous oxide reporting for stationary combustion sources that report CO₂ emissions.

Appendix A. Overview of De Minimis Provisions of U.S. and International GHG Reporting Programs⁴

Program	Coverage	Level of Reporting	Gases	Fraction of emissions considered de minimis	De Minimis Approach
West Virginia	<p>Any stationary source that annual emits one or more GHGs greater than the "de minimis" amounts listed below, and already reports emissions of regulated air pollutants under a Title V permit, is required to report emissions of all GHGs:</p> <p>CO₂: 10,000 tpy CH₄: 476 tpy N₂O: 32.6 tpy HFCs: 0.855 tpy PFCs: 1.09 tpy SF₆: 0.42 tpy</p>	Facility	All 6 GHGs	Not applicable	<p>West Virginia uses the term "de minimis" but it is really a reporting threshold. Sources that are required to report emissions under a Title V permit and exceed the "de minimis" GHG emission thresholds are required to estimate and report all anthropogenic non-mobile source GHG emissions. "De minimis" is defined in the rule as the GHG emission levels listed in the "coverage" column of this table.</p> <p>Sources do not need to report biogenic emissions. (Biogenic means a naturally occurring biological source or process that is not significantly influenced by human actions or activity.)</p>