

Greenhouse Gas Permitting Under the Clean Air Act

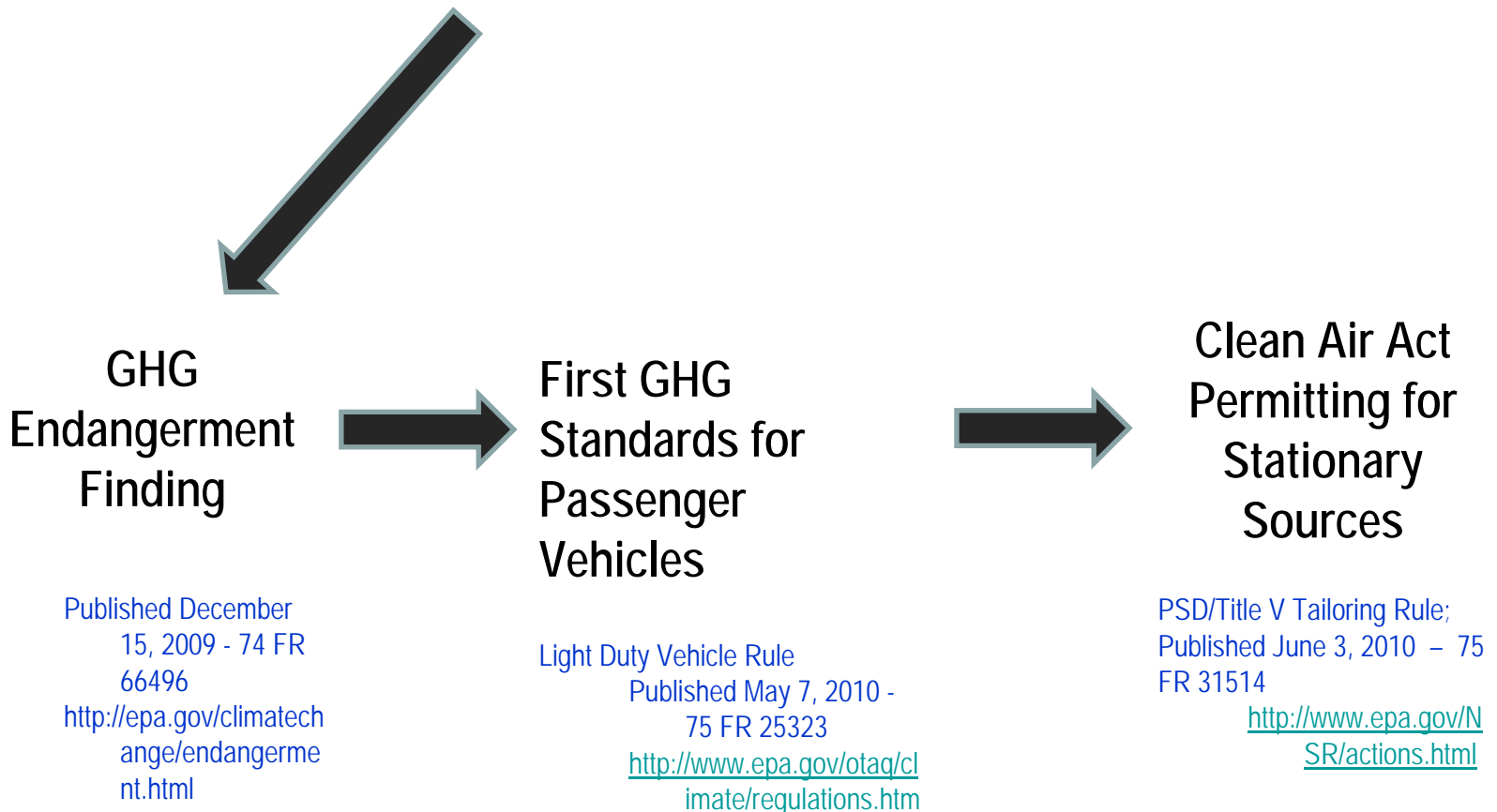
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Overview

- How we got to where we are on permitting for greenhouse gases (GHG)
- Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule (Tailoring Rule)
- Key points about PSD and Title V permitting guidance for GHG and other technical resources
- Update on current status of GHG permitting

U.S. Supreme Court Decision (*Massachusetts vs. EPA* (2007);

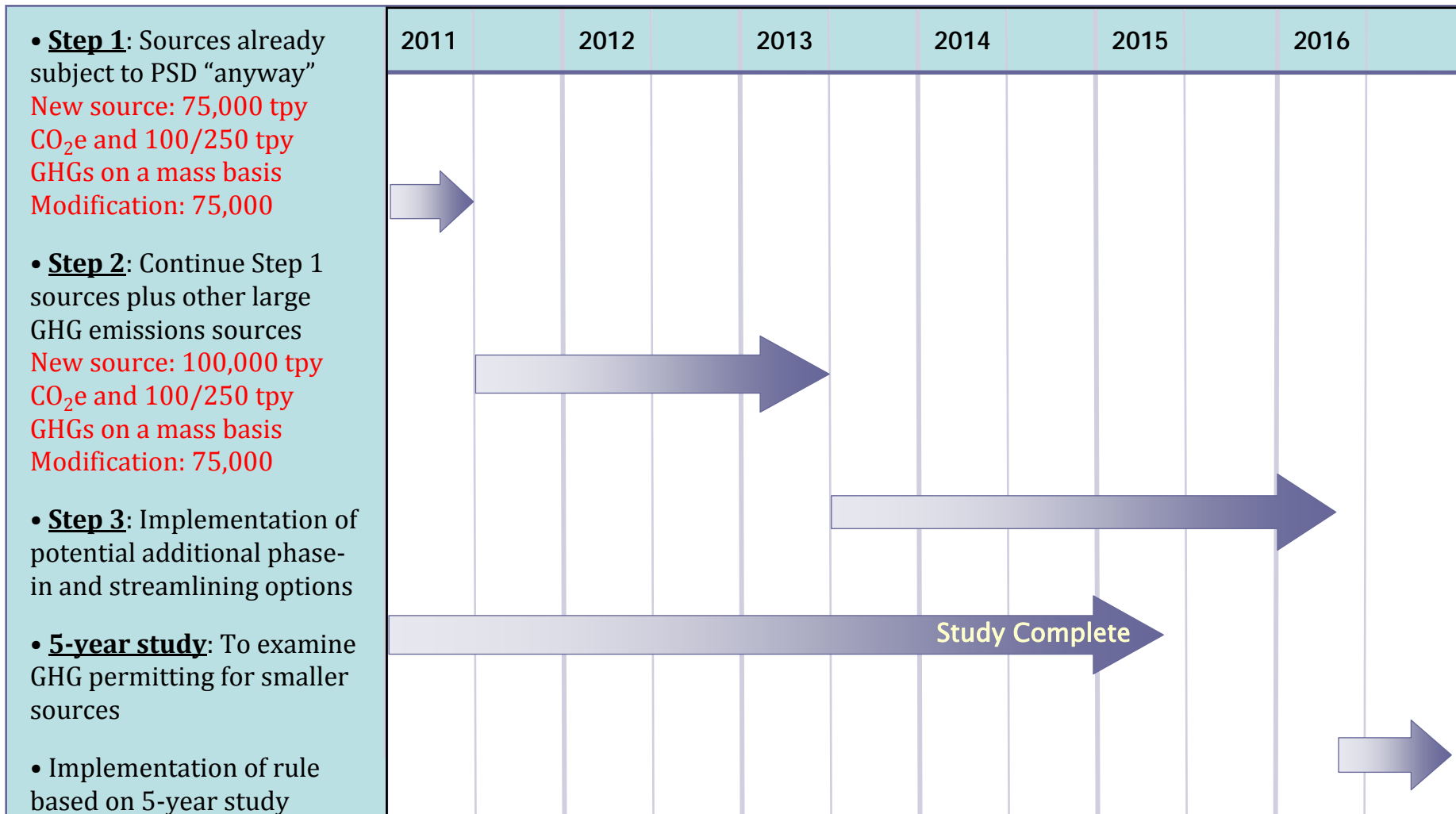
<http://www.supremecourtus.gov/opinions/06pdf/05-1120.pdf>



PSD and Title V GHG Tailoring Rule

- Issued on May 13, 2010
- “Tailors” the requirements to focus PSD and title V permit requirements on the largest emitting facilities
- Subjects facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources to CAA permitting requirements
 - This includes the nation’s largest GHG emitters—power plants, refineries, and cement production facilities
 - Small farms, restaurants, and commercial facilities are shielded by this rule

Review: Permitting Steps under the Tailoring Rule



GHG Guidance: Introduction

- Provides statutory and regulatory background for the permitting and regulation of GHGs.
- Explains the PSD and Title V permitting requirements are generally no different for GHGs.
- Reiterates that document is guidance, not a rule.
 - EPA and delegated permitting authorities should follow guidance when issuing permits.
 - SIP-approved permitting authorities have discretion to establish alternative approaches, as long as they comply with CAA and Federal rules.
 - Permitting authorities have the discretion to be more stringent than the policies in guidance.

GHG Guidance: PSD Applicability

- Explains general PSD applicability requirements for new and modified sources of “regulated NSR pollutants.”
- Reiterates GHG applicability thresholds and framework from Tailoring Rule.
 - GHG applicability based on both mass and CO₂e emissions, resulting in a 2-part test for new sources and a 4-part test for modifications.
- Demonstrates how to calculate CO₂e-based emissions using global warming potential (GWP).
 - Includes a simplified example for a modified source.
- Identifies resources for GHG calculation methodologies
 - GHG Mandatory Reporting Rule is a primary reference resource (40 CFR Part 98) other resources also listed in appendix to GHG guidance

GHG Guidance: PSD Applicability

- Modifications must answer “yes” to all of the following questions to trigger PSD permitting for GHG:
 - Is the increase in CO₂e emissions at least 75,000 TPY?
 - Is the net increase in CO₂e emissions at least 75,000 TPY?
 - Is the increase in mass emissions at least 0 TPY?
 - Is the net increase in mass emissions at least 0 TPY?
- Federal contemporaneous netting period (i.e., 5 years before construction of the proposed modification) remains unchanged.
- For a few years, netting “look back” (and baseline actual emissions) may include periods before Jan. 2, 2011.

GHG Guidance: Biomass

- EPA received requests to exclude emissions of GHG from bioenergy and other biogenic sources for the purposes of the BACT analysis and PSD applicability.
- EPA published a Call for Information in July 2010 to obtain scientific and technical information concerning GHG resulting from the use of biomass and PSD
 - Some data supporting the conclusion that certain biomass such as waste materials whose inevitable decomposition will result in greenhouse gas emissions anyway and have only very limited climate impacts when combusted as fuel.
 - However, other data received indicating that the use of certain other biomass as fuel could have more significant climate impacts

GHG Guidance: Biomass

- Guidance acknowledged external requests to exclude emissions of GHG from bioenergy and other biogenic sources for the purposes of the BACT analysis and PSD applicability.
- Guidance noted that permitting authorities currently have the discretion to consider the environmental, energy and economic benefits that may accrue from the use of certain types of biomass and other biogenic sources in the BACT process.
 - Variety of federal and state policies have recognized that some types of biomass can be part of a national strategy to reduce dependence on fossil fuels and to reduce emissions of GHGs.
- Guidance also referenced additional steps EPA intended to take on biomass issue

Recent Developments: Biomass and GHG Permitting

- January 12, 2011 letter sent to several Senators and 30 Congressmen laying out additional actions to address biomass and GHG permitting
- EPA will undertake an expedited rulemaking to be completed by July 1, 2011 to defer application of pre-construction permitting requirements to biomass-fired CO₂ and other biogenic CO₂ emissions for a period of three years.
- EPA will initiate a scientific examination with partners from other federal agencies and scientists outside the government with relevant expertise to assist the agency in determining how CO₂ emissions from biomass should be handled under PSD.
- EPA intends to issue interim guidance to help permitting authorities establish a basis for concluding that BACT for GHG at such sources is combustion of biomass fuels alone.
- Current status of interim guidance and deferral rulemaking

GHG Guidance: BACT General Approach

- Explains EPA's 5-step "top down" process and how each step should be applied for GHG permitting.
 - Step 1: Identify all available control technologies
 - Step 2: Eliminate technically infeasible options
 - Step 3: Rank remaining options by emissions control effectiveness
 - Step 4: Evaluate economic, energy, and other environmental impacts
 - Step 5: Select best option as BACT for the source

GHG Guidance: BACT General Approach (cont.)

- Reiterates the CAA requirement that BACT is a case-by-case determination, providing discretion to the permitting authority.
 - Does not prescribe GHG BACT for any source type.
 - Emphasizes the importance of a detailed case- and fact-specific record to justify the permitting decisions reached by the permitting authority.
- Focuses BACT analysis on achieving emission reductions within the fence line of the facility.
 - Although impacts/benefits beyond the fence line can be considered later in Step 4 of BACT process (*i.e.*, collateral impacts analysis).

GHG Guidance: BACT General Approach (cont.)

- Focuses on BACT options that reduce GHG emissions by improving energy efficiency.
 - In most cases, energy efficiency improvements will satisfy the BACT requirement for GHGs.
 - BACT for a new source may consider source-wide emissions reductions resulting from energy efficiency at the source.
 - May include, for example, non-emitting units such as electric fans, pumps that draw energy from emitting units.
 - BACT for a modified existing source can consider energy efficiency reductions that are part of the changed emissions unit.
 - Recommends use of industry-established benchmarking tools to assist in comparing efficiency of control options and determining BACT limits.

GHG Guidance: BACT General Approach (cont.)

- Carbon Capture and Sequestration (CCS) should be considered an available control option, but required consideration of technical feasibility and /or costs likely to rule CCS out for now.
- Specific types of fuels or facility design neither required nor precluded
- A BACT analysis for greenhouse gas emissions does not need to consider a fuel switch that would fundamentally redefine the source.

GHG Guidance: Modeling and Monitoring

- Since there are no NAAQS or PSD increments, ambient modeling (*i.e.*, additional impacts analysis or Class I area) is not required for GHG emissions.
- Unnecessary for applicants to gather monitoring data to assess ambient air quality for GHGs, since GHGs do not affect “ambient air quality” in the sense that other pollutants do.

GHG Guidance: Modeling and Monitoring (cont.)

- EPA does not consider it necessary to evaluate additional impacts analysis or Class I area for GHG emissions, since quantifying the exact impacts attributable to a specific GHG source obtaining a permit in specific places and points would not be possible with current climate change modeling.
 - GHG emissions serve as the more appropriate and credible proxy for assessing the impact of a given facility.
 - Compliance with the BACT analysis is the best technique that can be employed at present to satisfy the additional impacts analysis and Class I area requirements of the rules related to GHGs.

GHG Guidance: Title V Permits

- Reiterates title V applicability under Tailoring Rule:
 - Under Step 1, no sources subject to title V based solely on GHG emissions.
 - Step 2 includes 'anyway' Step 1 sources and those with GHG emissions of at least 100,000 TPY CO₂e and 100 TPY (mass basis).
- Reiterates Tailoring Rule statements on title V fees
 - EPA rules currently do not require sources to pay title V fees based on GHGs.
 - Permitting authorities should review resource needs for GHG sources and determine if their existing fee structure is adequate.
 - EPA will assist permitting authorities that need help in determining fees to address resource needs for GHG sources.

GHG Guidance: Title V Permits (cont.)

- GHG Mandatory Reporting Rule not considered an “applicable requirement” under title V regulations.
- Encourages the use of Flexible Air Permits, particularly if a source is able to improve energy efficiency and reduce GHG emissions over time.

EPA Resources to Assist States and Industry

To ensure that GHG permitting runs smoothly, EPA is providing the following:

- White Papers on
 - utilities, refineries, cement, large commercial/industrial/institutional boilers, pulp and paper, iron and steel, nitric acid plants
- Control Technology Clearinghouses
 - RACT/BACT/LAER, GHG Mitigation Strategies
- GHG Permitting Action Team
- GHG Training for States, Industry and Other Interested Stakeholders
- Websites for GHG permitting resources: www.epa.gov/nsr/ghgpermitting and www.epa.gov/apti/broadcast2010.html#GHGTraining1210

Current Status: EPA's Efforts to Facilitate Consistency in GHG Permitting

- GHG Permitting Action Team
 - see regional contacts on GHG permitting web site
- Weekly internal Action Team meetings to address GHG permitting issues
- Posting of Q and A to FAQ on GHG permitting Web Site
- Approximate number of pending permit applications in progress
- EPA comment letters on permit applications addressing GHG
 - NSR Policy and Guidance Data Base;
<http://www.epa.gov/region7/air/nsr/nsrpg.htm>

Points to Keep in Mind

- Adequate support and explanation of GHG control considerations and decisions
- Inclusion of and adequate support and explanation for form of GHG BACT emissions limit
 - Numerical limit, design standard or some other type of requirement in lieu of numerical limit
- Practical enforceability, compliance monitoring to measure efficiency over time
- Bottom line: documentation of GHG control considerations and BACT limits is very important

Appendix

Greenhouse Gases

- Permits will consider the following GHGs:
 - Carbon dioxide (CO₂)
 - Methane (CH₄)
 - Nitrous oxide (N₂O)
 - Hydrofluorocarbons (HFCs)
 - Perfluorocarbons (PFCs)
 - Sulfur hexafluoride (SF₆)
- A source's GHG emissions are calculated as the sum of the six gases on a CO₂ equivalent (CO₂e) and mass basis and compared against the relevant thresholds in the Tailoring Rule (CO₂e) and the CAA (mass basis)

Tailoring Rule Steps: Step 1

- January 2, 2011 to June 30, 2011
- No new permitting actions due solely to GHG emissions during this time period; only sources undertaking permitting actions anyway for other pollutants will need to address GHGs
 - PSD permitting applicability:
 - Anyway sources will be subject to the PSD requirements only if they increase GHG emissions by 75,000 tpy CO₂e or more
 - Title V permitting applicability:
 - Only those sources currently with title V permits will address GHGs, and only when applying for, renewing or revising their permits
- No sources will be subject to Clean Air Act permitting requirements based solely on their GHG emissions

Tailoring Rule Steps: Step 2

- July 1, 2011 to June 30, 2013
- Sources subject to GHG permitting requirements under step 1 will continue to be subject to GHG permitting requirements
- In addition, sources that emit or have the potential to emit GHGs at or above 100,000 tpy CO₂e will also be subject to GHG permitting requirements as follows:
- PSD permitting applicability – triggered with construction that increases emissions
 - A newly constructed source (which is not major for another pollutant) will not be subject to PSD unless it emits 100,000 tpy or more on a CO₂e basis
 - A modification project at a major stationary source will not be subject to PSD unless it results in a net GHG emissions increase of 75,000 tpy or more on a CO₂e basis
- Title V permitting applicability
 - A GHG emission source (which is not already subject to title V) will not be subject to title V unless it emits 100,000 tpy or more on a CO₂e basis.

Tailoring Rule Steps: Step 3

- The rule establishes an enforceable commitment to complete another rulemaking no later than July 1, 2012, in which we will propose or solicit comment on a possible step 3 of the phase-in and plan to consider other approaches that may result in the permanent exclusion of a category of sources from PSD or title V requirements
 - EPA will consider, during the implementation of step 2, whether it will be possible to administer GHG permitting programs for additional sources.
 - EPA will establish that step 3 would take effect on July 1, 2013 so that permitting authorities and sources can prepare for any additional GHG permitting action.
- Step 3, if different from step 2, would not require permitting of sources with GHG emissions below 50,000 tpy CO₂e
- We also commit to explore a wide range of streamlining options on which we plan to take comment in the step 3 proposal
- In addition, we plan to solicit comment on a permanent exclusion of certain sources from PSD, title V or both

Phase-In Steps: Further Action

- We will use this study to serve as the basis for an additional rulemaking that would take further action to address small sources, as appropriate.
- We are making an enforceable commitment to complete this rulemaking by April 30, 2016
- We plan to solicit comment on a permanent exclusion of certain sources from PSD, title V or both.

Phase-In Steps: Further Action

- EPA will not require permits for smaller sources until April 30, 2016 or later
- The rule establishes an enforceable commitment for EPA to complete a study within 5 years projecting the administrative burdens that remain for small sources after EPA has had time to develop (and states have had time to adopt) streamlining measures to reduce the permitting burden for such sources

Source categories to report GHG emissions data under 40 CFR Part 98 beginning in 2010

- **Adipic Acid Production (Subpart E)**
- **Aluminum Production (Subpart F)**
- **Ammonia Manufacturing (Subpart G)**
- **Cement Production (Subpart H)**
- **Electricity Generation (Subpart D)**
- **Ferroalloy Production (Subpart K)**
- **General Stationary Fuel Combustion Sources (Subpart C)**
- **Glass Production (Subpart N)**
- **HCFC-22 Production HFC-23 Destruction (Subpart O)**
- **Hydrogen Production (Subpart P)**
- **Iron and Steel Production (Subpart Q)**
- **Lead Production (Subpart R)**
- **Lime Manufacturing (Subpart S)**
- **Manure Management Systems (Subpart JJ) [EPA will not be implementing subpart JJ due to a Congressional restriction prohibiting the expenditure of funds for this purpose.]**
- **Municipal Solid Waste Landfills (Subpart HH)**
- **Miscellaneous Uses of Carbonates (Subpart U)**
- **Nitric Acid Production (Subpart V)**
- **Petrochemical Production (Subpart X)**
- **Petroleum Refineries (Subpart Y)**
- **Phosphoric Acid Production (Subpart Z)**
- **Pulp and Paper Manufacturing (Subpart AA)**
- **Silicon Carbide Production (Subpart BB)**
- **Soda Ash Production (Subpart CC)**
- **Suppliers of Coal-based Liquid Fuels (Subpart LL)**
- **Suppliers of Petroleum Products (Subpart MM)**
- **Suppliers of Natural Gas and Natural Gas Liquids (Subpart NN)**
- **Suppliers of Industrial Greenhouse Gases (Subpart OO)**
- **Suppliers of Carbon Dioxide (Subpart PP)**
- **Titanium Dioxide Production (Subpart EE)**
- **Zinc Production (Subpart GG)**

Source categories to report GHG emissions data under 40 CFR Part 98 beginning in 2011

- Electronics Manufacturing (Subpart I)
- Fluorinated Gas Production (Subpart L)
- Magnesium Production (Subpart T)
- Petroleum and Natural Gas Systems (Subpart W)
- Use of Electric Transmission and Distribution Equipment (Subpart DD)
- Underground Coal Mines (Subpart FF)
- Industrial Wastewater Treatment (Subpart II)
- Imports and Exports of Equipment Pre-charged with Fluorinated GHGs or Containing Fluorinated GHGs in Closed-cell Foams (Subpart QQ)
- Carbon dioxide injection and geologic sequestration (Subpart RR)
- Manufacture of electric transmission and distribution (Subpart SS)
- Industrial waste landfills (Subpart TT)
- Injection of carbon dioxide (Subpart UU)