

Potential Authorities under the Clean Air Act for Mitigation of GHGs from Stationary Sources

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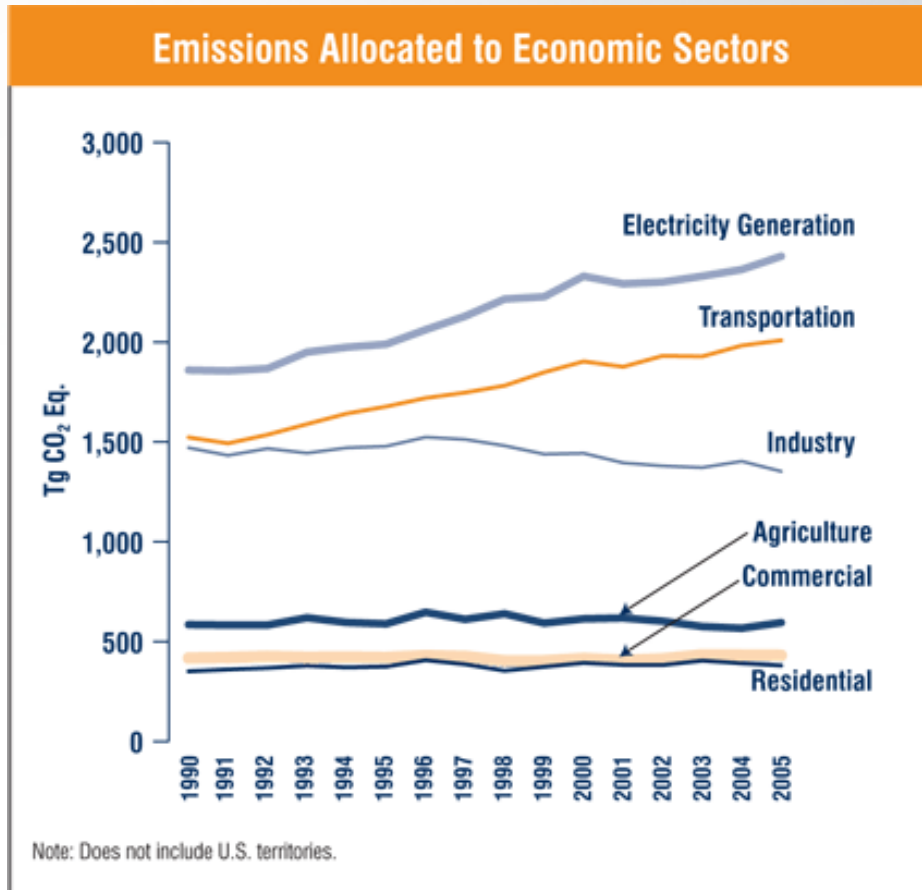


Outline of Discussion



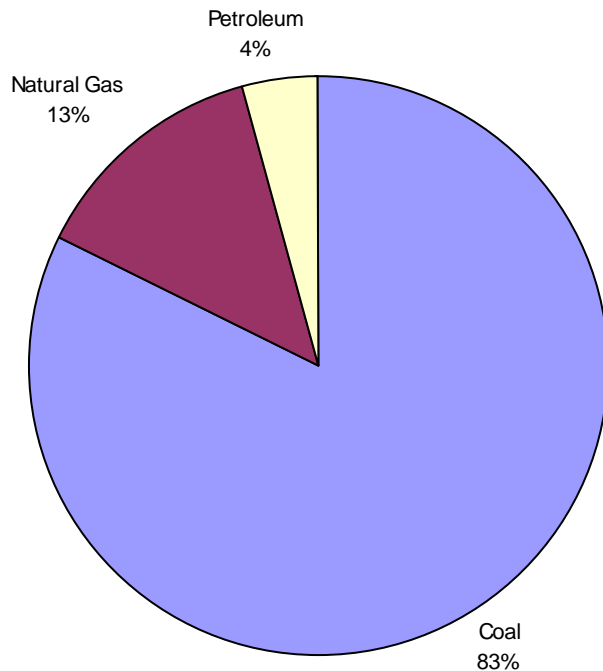
- What are sources of GHGs?
 - GHG emissions from U.S. sectors
 - CO2 emissions from electricity generation
 - Key industrial sources associated with GHG emissions
- Issues and authorities
 - Key Elements and Issues before EPA
 - i. Title II
 - ii. Ongoing stationary source rulemakings/litigation: boiler NSPS, refinery NSPS, cement kiln NSPS
 - iii. Permitting actions
 - Clean Air Act (CAA) Authorities to regulate emissions from stationary sources
 - i. Section 108
 - ii. Section 111
 - iii. Section 112
 - iv. Others
 - Implications of CAA regulations for PSD
- Example Path Forward
- Conclusions
- NOTE: The purpose of this document is to stimulate discussion. The Administrator is still developing an overall strategy and has made no decisions regarding the direction of the Agency.

GHG Emissions by Economic Sector



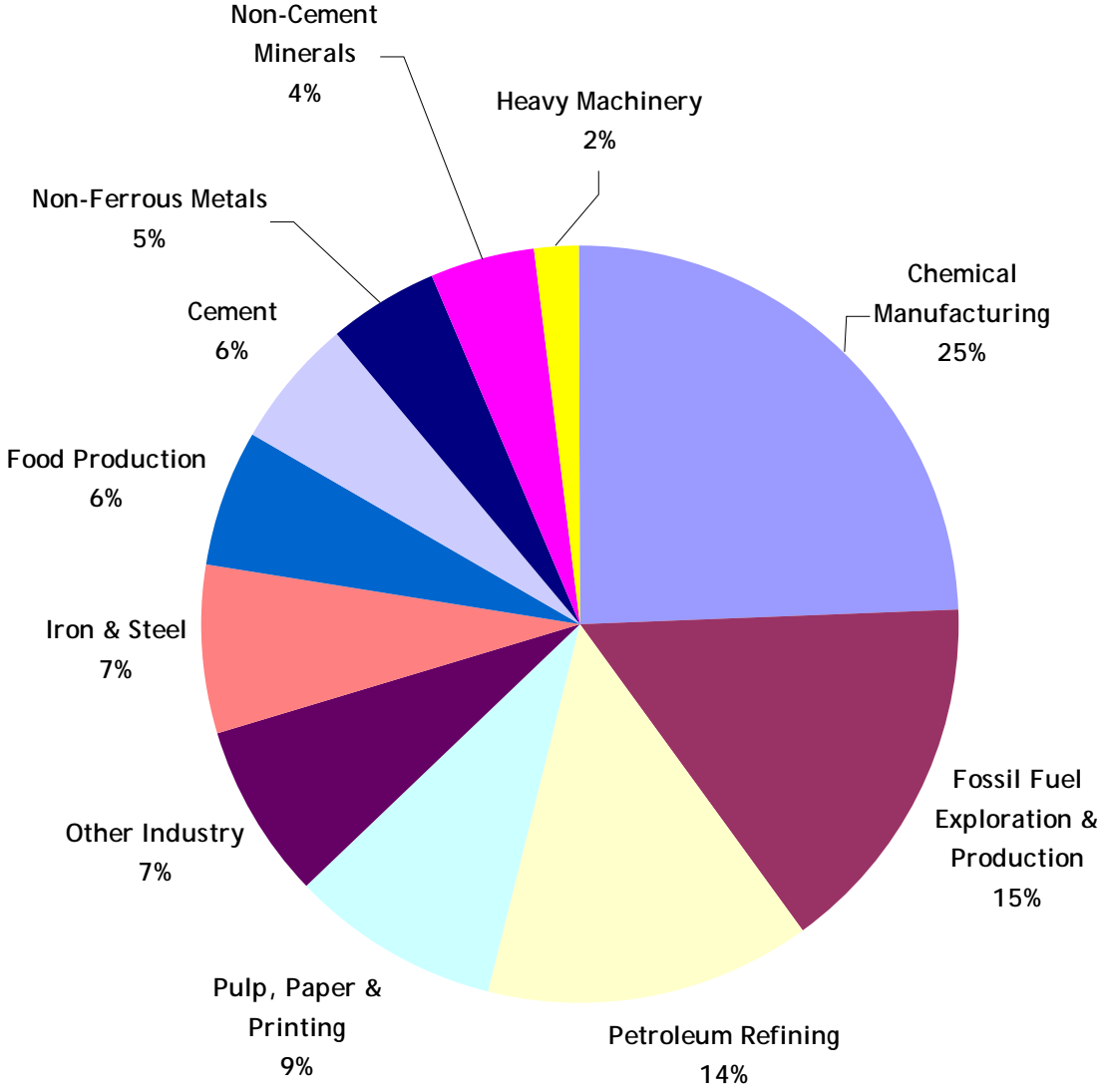
- Electricity generation accounted for the largest portion of U.S. greenhouse gas emissions
- Transportation activities accounted for the second largest portion and
- Industry comprised the third largest portion of U.S. greenhouse gas emissions

CO₂ Emissions from Electricity Generation



- Electricity generation is the largest source of U.S. greenhouse gas emissions = 2,381 Million Metric tons (MMT) CO₂ in 2005
 - Coal = 1,958 MMT CO₂
 - Natural gas = 320 MMT CO₂
 - Petroleum = 102 MMT CO₂
- 1,700 power plants (emitting >10,000 tons)
 - 1,209 power plants in the Acid Rain Program

Key Industrial Sources



Percentages reflect contribution to GHG emissions

Source: Based on EIA Manufacturing Energy Consumption Survey and EPA Inventory of Greenhouse Gas Emissions and Sinks 1990-2005.

Key Elements and Issues



- **Massachusetts vs. EPA**
- **Energy Independence and Security Act**
- **Mandatory Reporting Rule**
- **Advanced Notice of Proposed Rulemaking**
- **Upcoming Stationary Source actions**
 - **NSPS for Petroleum Refineries (Subpart J)** – Signed final rule April 30, 2008
 - Environmental commenters argue EPA is legally compelled to regulate GHGs in refinery NSPS
 - Did not include standards for GHGs
 - **NSPS for Utility Boilers** – Remanded
 - Issue of regulating CO₂ from power plants via section 111 back before the Agency
 - **NSPS for Portland Cement Mfr** – Signed NPRM on May 30, 2008, deferred GHG issues to ANPR
- **Permitting actions for which comments have been received calling for GHG controls**
 - There are several New Source Review permitting actions pending before EPA (or its delegated States) for which comments have been received calling for GHG controls and/or raising other GHG related issues.
 - EPA (and a delegated State) have also issued three permits for which GHG-related comments were received during the comment period, and where those issues are part of a permit appeals

Clean Air Act Authorities



- Section 108 National Ambient Air Quality Standards
- Section 111 New Source Performance Standards
- Section 112 Hazardous Air Pollutants (Maximum Achievable Control Technology)
- Section 115 International Air Pollution
- Section 615 Stratospheric Ozone Protection

Section 108 - National Ambient Air Quality Standards



- Process for setting standard
 - List pollutant if:
 - Emissions cause or contribute to air pollution that is reasonably anticipated to endanger public health or welfare
 - Emitted by numerous or diverse stationary or mobile sources
 - EPA plans to issue air quality criteria
 - Establish air quality criteria (through criteria document)
 - Promulgate primary and secondary NAAQS
- Challenges:
 - What is the pollutant of concern?
 - What is the scientific information on effects on human health or welfare in the U.S.?
 - How do you translate the science into a NAAQS for the U.S.?

NAAQS Implementation



- Implementation Issues
 - Depending on level of standard, entire country would either be in attainment, nonattainment, or unclassifiable
 - Attainment designation required within 2-3 years depending on available information
 - If country is in attainment or unclassifiable (Primary NAAQS):
 - States submit SIPs to implement PSD, conduct monitoring, set limits for existing sources, and require Title V permits
 - If country is in nonattainment (Primary NAAQS):
 - States must submit transport SIP within 3 years of promulgation of a NAAQS and nonattainment area SIP within 3 years and attain within 10 years of designation
 - If country is in nonattainment (Secondary NAAQS):
 - Implemented in similar manner as primary NAAQS except there is no maximum attainment date – attainment required “as expeditiously as practicable”
- Cost may be considered in establishing implementation requirements and schedules for compliance
- Challenges:
 - How to attain within statutory timeframes, especially given relative contributions from domestic and foreign emissions?
 - What resources are needed or not needed for state/local infrastructure issues?

Section 111 New Source Performance Standards



- EPA must list categories of stationary sources which “cause or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.”
- Standards must reflect “the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.”
- Standards are to be reviewed at least every 8 years and revised “if appropriate.”

Features of Sec. 111



- EPA may distinguish among classes, types, and sizes of new sources in setting standards (e.g., utility boilers v. industrial boilers based on heat input)
- While standards are based on demonstrated controls, EPA generally may not require use of any particular technology.
- Where pollutants regulated under NSPS are not regulated as criteria or hazardous air pollutants, States must submit plans, in accordance with regulations to be prescribed by EPA, setting standards for existing sources within the category for which NSPS are established
- Under certain circumstances, in regulating existing sources, States may consider remaining useful life of sources to set requirements

Section 112 Hazardous Air Pollutants



- EPA must list pollutants that present a threat of adverse health effects through inhalation or other routes of exposure, or which cause significant degradation of environmental quality over broad areas
- EPA must list “all categories and subcategories of major sources” of listed pollutants and certain categories of area sources
 - Major sources emit 10 tpy or more of any one pollutant or 25 tons of all listed pollutants in the aggregate
- Regulations for existing major sources must require a level of control of all emitted pollutants that is at least equivalent to what is achieved by the best-performing 12% of sources within the category or subcategory.
 - Called the MACT “floor”
 - May regulate more strictly than the floor where justified
 - Less stringent regulation of area sources possible
- Regulations for new major sources set the MACT floor based on the best performing similar source

Features of Section 112



- EPA may distinguish among classes, types and sizes of sources when setting standards, but may not exempt sources
- Degree of emission limitation is based not on demonstrated technologies, but on what is achieved in practice for whatever reasons
 - Can result from use of cleaner feedstocks or other local or non-technological factors
 - Recent case law restricts flexibility with regard to stringency of controls
- States may, but are not required to, establish their own programs that are no less stringent than EPA standards
- Standards for existing sources may be less stringent than for new sources, but may not be less stringent than the “floor.”

Other Authorities



- Section 115 International air pollution
 - EPA is authorized to require States to revise plans to address endangerment of public health or welfare in other countries caused by transported air pollution, but only if it finds that the same rights are granted to the U.S. by the country(s) affected
- Section 615 Stratospheric Ozone Protection
 - EPA must regulate “substances, practices, processes, or activities” which it finds may reasonably be anticipated to affect the stratosphere in ways that endanger public health or welfare
 - Provides broad grant of authority; lack of specific actions or limitations implies significant discretion regarding “practices, processes, or activities”

Implications of Regulations on other Clean Air Act Programs



- Prevention of Significant Deterioration (PSD) Program
 - Preconstruction permitting program
 - Applies to new “Major Sources”: major sources are defined under Sec. 169 as sources that emit one regulated air pollutant greater than or equal to a threshold of:
 - 100 tons per year (tpy), if part of the 28 listed source categories listed in the Clean Air Act.
 - 250 tpy for all other sources not part of the 28 listed source categories.
 - Applies to changes at existing major sources which result in a “significant” increase in emissions of a regulated NSR pollutant and changes at minor sources that exceed the major source threshold
 - major source thresholds and significance levels are measured on a pollutant-specific basis.
 - Requires Best Available Control Technology (BACT)

Example Application of CAA to Address GHG Emissions Using Section 111



- Process
- Time frame
- Implications for other programs

Process for Applying Section 111



- Determine whether pollutant regulated under Section 112
- Identify sources that contribute to the air pollution – EPA determines size threshold
- EPA determines BDT (which only needs to be adequately demonstrated)
 - Conduct technology review to identify technologies and emission reductions
 - Consider technologies in light of costs, secondary (dis)benefits related to energy, and non-air quality impacts
- Based on this analysis, EPA sets emission rates for new, modified and reconstructed sources in the source category as a performance standard
- If pollutant is not regulated under section 108 and 112, States develop emission standards for existing sources in the category

Possible Timeline for Development of a New Source Standard for GHGs



- Identify source categories for regulation
 - Many of the important GHG categories already listed
 - Timeline starts from listing or may be part of 8-year review
- Generally, one year from listing to proposal
 - Experience has shown this may take longer depending on the availability and quality of information
 - May be shorter for GHGs because of efforts to reduce GHGs in EGUs and efforts to increase energy efficiency
- One year from proposal to final action

Possible Timeline for Development of an Existing Source Standard for GHGs



- Because GHGs are not regulated under Section 108 (NAAQS) and 112 (MACT), States develop emission standards for existing sources in the category for which a new source standard exists
- After final action for new source category, States submit plans for existing sources in that category within 9 months
 - Typically up to 3 years for compliance, but States may provide longer or shorter timeframes
 - May set multiple targets over time
 - Example is cap and trade program under CAMR
- Standards may be less stringent based on cost of control, useful life of facilities, process design or other factors

Implications for Other Programs



- Generally, independent of other parts of CAA
- Trigger permitting requirements under NSR
- May preclude use of Section 112
- Standards developed under Section 108 or 112 may supersede Section 111(d) standards

Conclusions



- There are several authorities under the CAA that may be applicable to GHGs; each authority provides various degrees of flexibility, but also presents challenges
- Decisions in one regulatory context are likely to have implications for other programs

Questions?

