

Update on Greenhouse Gas Regulations



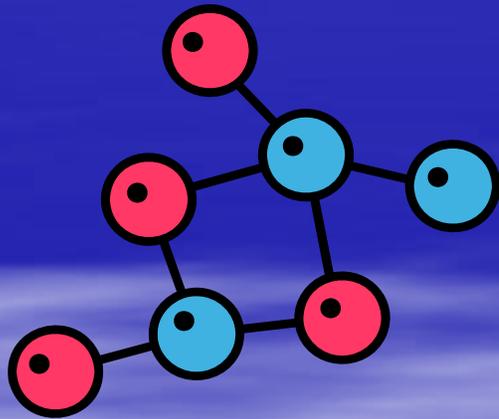
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Overview

- What are greenhouse gases?
- Federal Action
- EPA Authority/Interpretation
- Endangerment Finding
- GHG Mandatory Reporting Rule
- Light Duty Vehicle Rule
- Permit Requirements
- GHG Tailoring Rule
- Michigan GHG Regulation

What are Greenhouse Gases?

GHG's are the
sum of:



Carbon Dioxide (CO₂) GWP = 1x (or 1 CO₂e)

Methane (CH₄) GWP = 21x

Nitrous Oxide (N₂O) GWP = 298x

Hydrofluorocarbons (HFC)
GWP = 140-11,700x

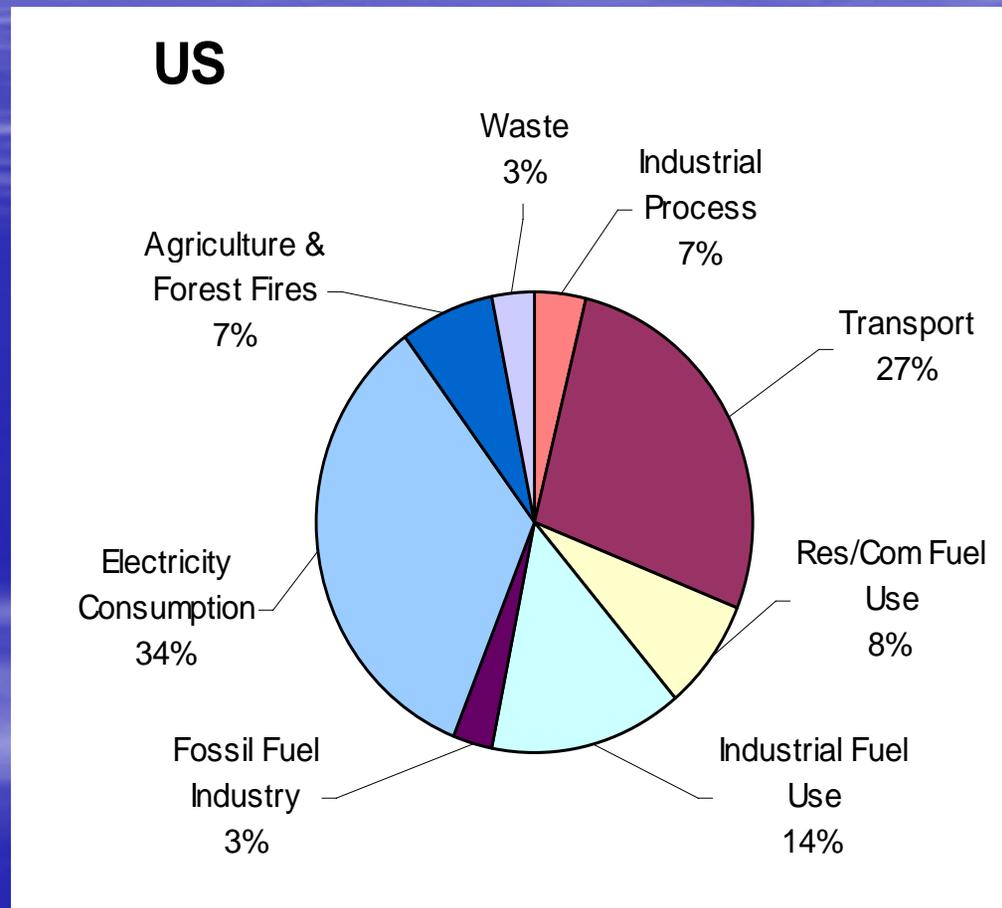
Perfluorocarbons (PFC)
GWP = 6,500-9,200x

Sulfur Hexafluoride (SF₆)
GWP = 23,900x

What Type of Sources Emit Greenhouse Gases?

- CO₂ – Combustion
- CH₄ – Combustion, fermentation
- N₂O – Sewage & manure management, adipic acid production used in nylon mfg
- HFC – Refrigeration coolant leakage
- PFC – aluminum production (byproduct of smelting), semiconductor mfg
- SF₆ – electric distribution industry (gas is used as insulation, arc quenching, substations)

U.S. GHG Emissions by Sector



Federal Action

- Legislative Action through Congress

- Waxman-Markey Bill

- The American Clean Energy and Security Act

- Kerry Boxer Bill

- Clean Energy Jobs and American Power Act

- Kerry Lieberman Bill

- Clean Energy and Climate Bill

- New bill released May 12, 2010

- Includes a cap and trade provision for industry

- Includes the purchase of allowances for fuel producers and importers

- Regulatory Approach through EPA

- Clean Air Act

- Mobile and Stationary Sources

EPA Authority

- Massachusetts v EPA
- April 2, 2007, the U.S. Supreme Court found that GHGs are air pollutants covered under the Clean Air Act
- Stated EPA can regulate GHGs if:
 - Determine if GHG emissions from new motor vehicles cause or contribute to air pollution
 - Determine if this air pollution may reasonably be anticipated to endanger public health or welfare
 - Determine if insufficient scientific information to make an endangerment finding

Permitting Requirements Interpretation

- GHGs are not currently subject to regulation under the Clean Air Act
- December 18, 2008 Johnson Memo
 - EPA's interpretation of 'subject to regulation'
 - Excludes pollutants for which only monitoring is required
 - Excludes pollutants that are only regulated in an EPA-approved SIP
 - Includes pollutants subject to an EPA regulation that requires control of emissions
- February 15, 2009 – New EPA Administrator agrees to reconsider the Johnson Memo
- October 7, 2009 – EPA proposes to maintain the interpretation in the Johnson Memo
- March 29, 2010 – EPA's final action on the reconsideration of what is 'subject to regulation'

March 29, 2010

Reconsideration of Interpretation of Regulations that Determine Pollutants Covered by Clean Air Act Permitting

- Affirmed EPA position that permitting is not triggered for a pollutant such as GHGs until a final nationwide rule requires actual control of emissions of that pollutant
- Interpreted the requirements to be triggered when the control requirement 'takes effect' rather than at signature
- Confirmed that there is no 'grandfathering' of pending permit applications
- Reinforced that new and modified large stationary sources must already consider energy efficiency when selecting Best Available Control Technology for non-GHG pollutants

Endangerment Finding

- Final December 15, 2009
- EPA Administrator found -
 - 1) The 6 GHGs in combination in the atmosphere endanger both the public health and the public welfare of current and future generations
 - 2) Combined emissions of GHGs from new motor vehicles contribute to the GHG air pollution that endangers public health and welfare under Section 202(a) of the CAA

GHG Mandatory Reporting Rule

- Effective December 29, 2009
- Designed to collect source specific data
- Data collection begins in 2010
- First report due March 31, 2011
- Report directly to EPA
- Additional MMR information available at:
www.epa.gov/climatechange/emissions/ghgrulemaking.htm
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Light Duty Vehicle Rule

- Joint Regulatory Proposal by EPA and NHTSA signed September 15, 2009
- Becomes effective July 6, 2010
- Covers model year 2012-2016 passenger cars, light-duty trucks, and medium-duty passenger vehicles
- Establishes tailpipe emission standards for CO₂, N₂O, methane, and HFCs

Permitting Requirements

- Prevention of Significant Deterioration
 - Current thresholds for major source review are 250 tons per year of a regulated New Source Review pollutant, or 100 tons per year for certain source categories
- Renewable Operating Permit
 - Applicable for a major source at 100 tpy of a regulated NSR pollutant or a major source or hazardous air pollutants

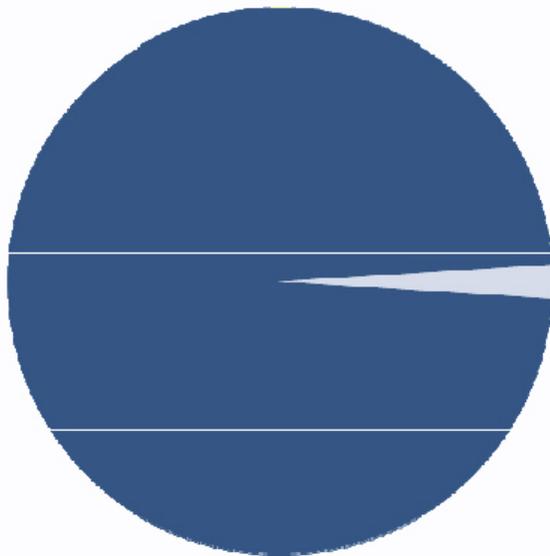
Final PSD and Title V GHG Tailoring Rule

- The 'tailored' regulatory thresholds for GHGs are:
 - New PSD Major Source > 100,000 tpy CO₂e
 - PSD Source Significance Level for Existing Source Modification > 75,000 tpy CO₂e
 - ROP applicability >100,000 tpy
- New or modified facilities over these thresholds would have to implement Best Available Control Technology

PSD Permitting Burden Reductions

Without the Tailoring Rule

82,000 permitting actions per year would need to address GHGs

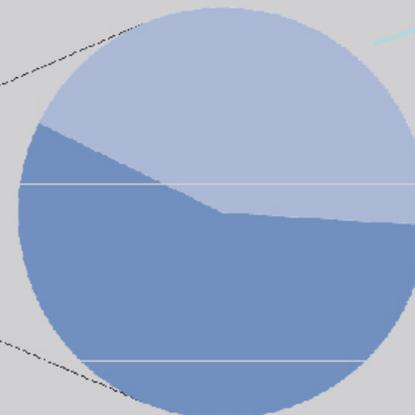


78% of total national stationary source GHG emissions are associated with facilities where actions could have occurred

\$1.5 billion annual cost to permitting authorities

With the Tailoring Rule

Only 1,600 permitting actions per year will need to address GHG



700 permitting actions that would **already** occur will need to address GHGs

900 more permitting actions will occur to address GHGs – but not until more than a year from now

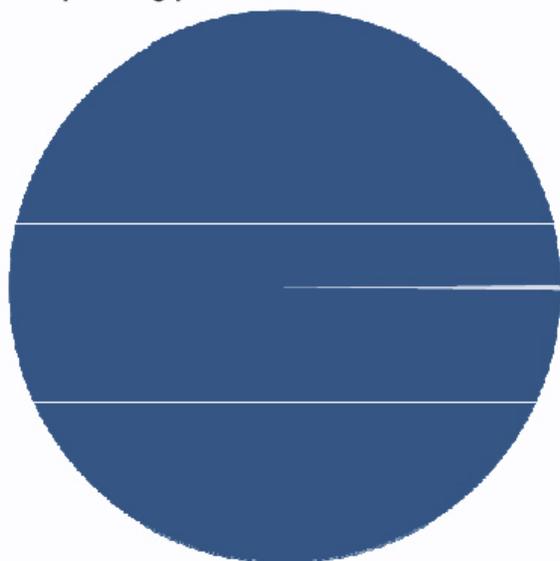
67% of total national stationary source GHG emissions are associated with facilities where actions could occur

\$36 million annual cost to permitting authorities

Operating Permits Burden Reductions

Without the Tailoring Rule

6 million sources would have needed operating permits

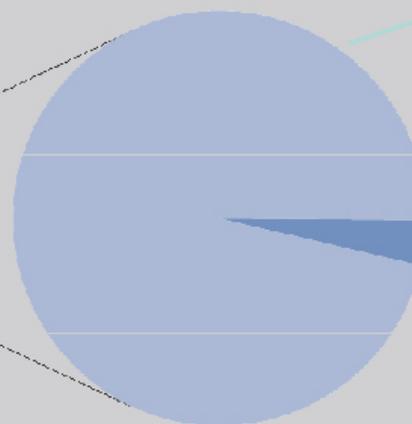


78% of total national stationary source GHG emissions would be covered

\$21 billion annual cost to permitting authorities

With the Tailoring Rule

Only 15,550 sources will need operating permits



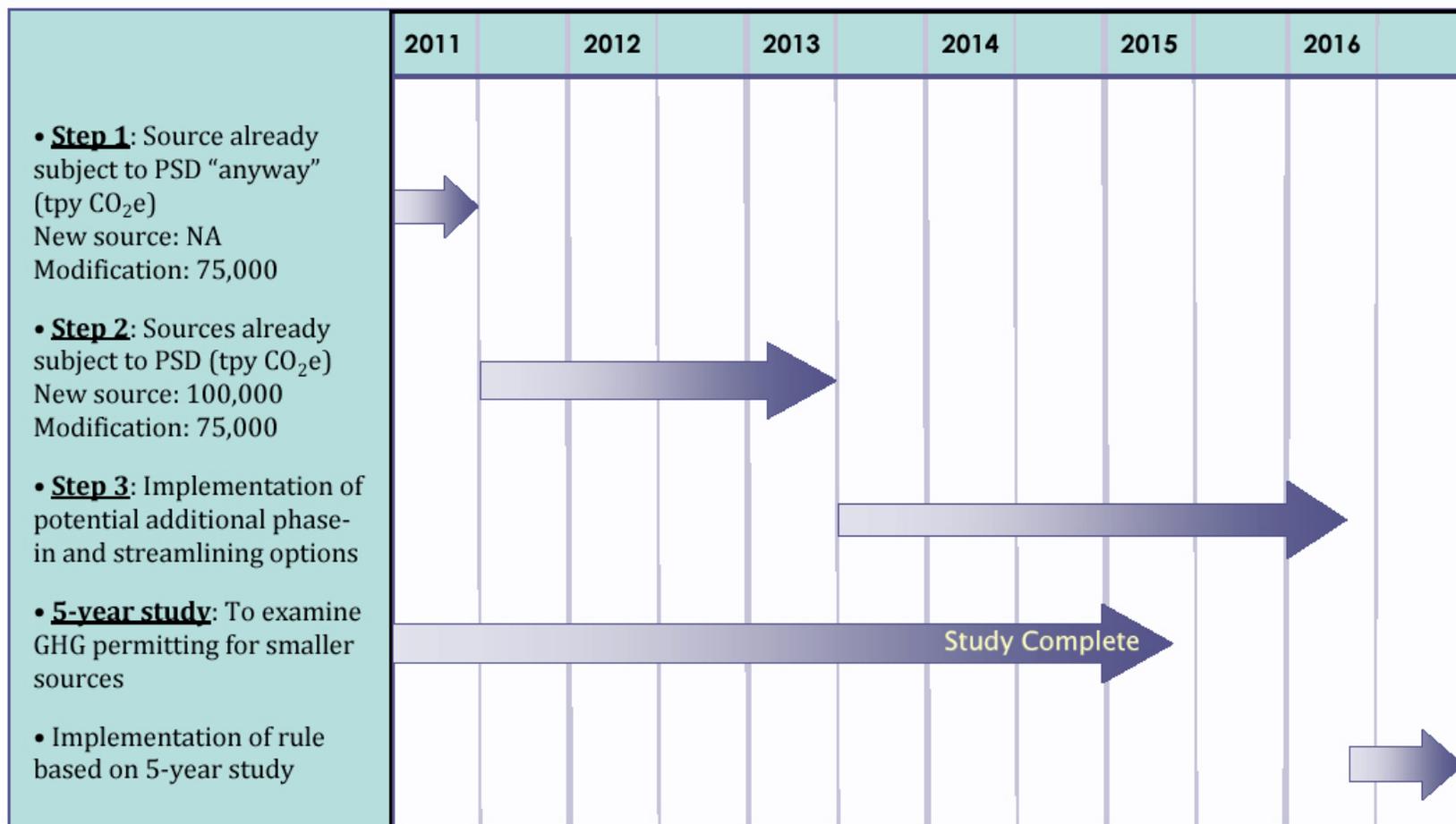
15,000 sources already have operating permits

Only 550 more sources will be subject to operating permitting for GHGs alone – but not until more than a year from now.

67% of total national stationary source GHG emissions would be covered

\$69 million annual cost to permitting authorities

Permitting Steps under the Tailoring Rule



Michigan GHG Regulation

- GHGs not currently regulated in Michigan, but will become subject to regulation on January 2, 2011
- Michigan's definition of NSR regulated pollutant is same as current EPA
- Existing thresholds for major source permitting per Michigan Rule are 250/100 tons per year
- MDNRE – Now that EPA has finalized the tailoring rule, AQD will determine its course of action; will most likely update state rules to coincide with the federally established 'tailored' thresholds

GHG Summary

- Current approach is to regulate GHGs under the Clean Air Act
- Permitting requirements begin for large sources January 2, 2011
- Thresholds for determining if permitting requirements apply are 75,000/100,000 tpy
- Best available control technology applicable to major sources of GHGs
- Current Michigan rule conflicts with these thresholds

Other Current Air Issues

- PM2.5 – EPA has proposed to eliminate use of PM10 Surrogate Policy
- NO2 – New 1-hour NAAQS as of April 12, 2010
- SO2 – New 1-hour NAAQS pending; could be effective as early as August 2010
- Lead - DC Court rejects challenges to revised NAAQS

Other Current Air Issues

cont'd

- EPA proposes area and major source air toxics standards for industrial boilers and process heaters
 - All new and existing natural gas units, establish a work practice standard instead of emission limits, annual tune-up
 - Existing units <10 MMBTU/hr, establish a work practice standard instead of emission limits; tune-up once every 2 years
 - Existing major source facilities conduct an energy assessment to identify cost-effective energy conservation measures
 - For all other existing and new boilers and process heaters at major sources establish emission limits for:
 - Mercury
 - Dioxin
 - Particulate (as a surrogate for non-mercury metals)
 - Hydrogen Chloride (as a surrogate for acid gases)
 - Carbon Monoxide (as a surrogate for non-dioxin organic air toxics)

Questions?