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# Greenhouse Gas Reporting and Carbon Footprints

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# What is a carbon footprint?

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- An estimate of the amount of carbon dioxide equivalents (CO<sub>2</sub>e) emitted by a person or business.
- Usually expressed in the number of CO<sub>2</sub>e tons emitted per unit of time (per year) or production (per billed hour)
- Used to assess relative contributions to climate change
  - a larger carbon footprint suggests a more significant contribution to global warming and the other effects of climate change.

# Top 10 List of Reasons to Calculate Your Carbon Footprint

1. Because client will not otherwise pay your bill
2. It is more interesting than charting your actual footprint and small is better
3. To impress Carter Strang and the CMBA Green Initiative Committee
4. To impress your date
5. To green guilt your building manager into installing better light bulbs and temperature regulators
6. To encourage participation in the CMBA Greener Way to Work Day
7. To show your partners that they are behind the competition
8. For bragging rights over your competition
9. To set a firm baseline to chart improvements
10. For the fun of it

# How do I get started?

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- Determine the scope:
  - Client centered (carbon emitted to provide legal services)
    - Electricity (heating/cooling/power)
    - Business Transportation
    - Business Supplies (Paper)
  - Firm centered (baseline to measure progress)
    - Add commuting
    - Lunchroom supplies
- Gather usage data
  - Baseline (kW-hrs, reams of paper, miles travelled)
  - Periodic Updates (annually, quarterly)
- Calculate emissions (apply emission factors)

# Issues to Consider

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- Commuter information?
  - New information not typically gathered
  - “Low hanging fruit” for potential benefits
- Which emission factor?
  - National vs. Regional
  - CO<sub>2</sub>, CH<sub>4</sub>, SF<sub>6</sub>, N<sub>2</sub>O, HFC, PFC
- How to account for carbon sinks?
  - Paper produced with sustainable forestry management practices
- How to track business miles travelled?

# Avoiding Carbon Headaches

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- Don't sweat the small stuff
- Focus on what you can measure
- Focus on carbon that costs you money

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- Educate—don't legislate--on life style choices
- Use carrots instead of sticks to encourage low carbon behavior

# Sources for more information

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For additional information on carbon calculators and steps you can take to reduce your carbon footprint, see the following websites:

[www.carbonneutral.com](http://www.carbonneutral.com);

[www.carbonify.com](http://www.carbonify.com);

[www.carbonfund.org](http://www.carbonfund.org);

[www.carbonfootprint.com](http://www.carbonfootprint.com);

[www.begreennow.com](http://www.begreennow.com);

[www.climatetrust.org](http://www.climatetrust.org).

# GHG Monitoring Rule

- **Rule Date:** Signed on September 22, 2009
- **Reporting Threshold:** 25,000 metric tons CO<sub>2</sub>e greenhouse gas emissions
- **Covered GHGs:** CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, Sulfur Hexafluoride, HFCs, and PFCs
- **Mandatory Start Date:** *January 1, 2010*
- **First Report:** Due March 31, 2011 for calendar year 2010 information
- **Impact:** Will inform climate legislation, spur regulation and focus public opinion

# Who Must Report GHGs

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- Fossil fuel and industrial GHG gas suppliers
- Sources emitting more than 25,000 tons of CO<sub>2</sub>e per year (actual)
- Motor vehicle and engine suppliers
- Title IV Electric Utilities
- Aluminum Production
- Cement Production
- Petrochemical Production & Refineries
- Lime Manufacturing
- And Others

# Adjustments for 2010

- Abbreviated reporting for the 2010 reporting year
  - Facilities containing only general stationary fuel combustion sources
  - §98.3(d)(3)
- Use of best available monitoring methods through March 31, 2010 (with possible extension through December 31, 2010)
  - Any parameter for which it is not reasonably feasible to acquire, install, and operate a required piece of equipment
  - §98.3(d)(1)
- Postponement of equipment calibrations beyond April 1, 2010
  - Monitoring devices with active calibrations and processes that cannot be calibrated without removing the device from service
  - §98.3(i)(5) and §98.3(i)(6)
- Monitoring plan completed by April 1, 2010
  - All facilities
  - §98.3(g)(5)(i)

# Combustion Source Tiers

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Four primary tiers exist:

- Tier 1: Pure emissions factors
- Tier 2: Higher heating value data + EFs
- Tier 3: Measured carbon content, molecular weight (for gases), and flow
- Tier 4: Continuous CO<sub>2</sub> monitoring at the stack (CEMS)

# Which tier applies?

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- Tier 1 is available when:
  - Default factors exist for the fuel combusted;
  - < 250 mmBtu max. rated heat input capacity; and
  - No routine higher heating value data.
- Tier 2 is available when:
  - Default factors exist for the fuel combusted; and
  - > 250 mmBtu of “pipeline quality NG” or distillate fuel oil.
- Tier 3 is:
  - Available at any size unit combusting any fuel that is not required to use Tier 4.
  - Required where Tiers 1, 2 and 4 are unavailable.

# Which tier applies?

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- Tier 4 (CEMS) is required when a unit meets all of the following:
  1. Has a max. heat input capacity > 250 mmBtu/hr;
  2. Combusts solid fossil fuel or MSW, either as primary or secondary fuel;
  3. Has operated for more than 1,000 hours in any calendar year since 2005;
  4. Has installed CEMS (not including COMS) required by regulation or an operating permit;
  5. The installed CEMS includes a gas monitor of any kind, a stack gas volumetric flow rate monitor or both; and
  6. The installed monitors are required to undergo periodic quality assurance testing.

# Strategic Approach

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- Identify each source and select applicable tier
- Reduce GHGs below 25,000 tons if possible in 2010.
  - Otherwise must report for at least 3 years (<15k) and possibly five years (<25k)
- Assess alternative reporting methods
- Identify needed equipment and critical acquisition path
- Develop required monitoring plan
- Submit extension request if necessary

# The GHG Monitoring Plan

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- Identify responsible person/position
- Establish monitoring Tier (1,2,3, or 4)
- Sources of carbon, HHV, EF data
- Frequency of data gathering
- Quality assurance for equipment
- Equations for calculating CO<sub>2</sub>e
- Annual reporting

# Questions & Discussion

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