






# The Construction Institute EPA's Climate Leaders

March 26, 2009



# Program Comparison

		
Greenhouse gas reduction	Energy use reduction	Energy efficient design and construction
Inventory of current GHG emission	Energy efficient products	Energy efficient products
Goal setting on GHG reduction	Energy efficient practices	Water efficiency & conservation & reuse
Assess supplier & product impact	ROI approach for decisions	Indoor environmental quality
Consumption reduction	Benchmarking energy use	Protect natural & agricultural areas
PJM impact & alternatives and alternative products	Residential and commercial programs and products	Energy efficiency & system performance
Renewable energies	0-100% Ranking system	Reduce material consumption
Focus on CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, SF <sub>6</sub> , HFC impacts	Program focuses on re-commissioning, best practices, etc	Use materials with less environmental impact -green material use (cleaning, etc)
Annual tracking and reporting	Annual tracking & reporting	Reduction of automobile use
Achievement = meeting or exceeding goals established and submitted and finally approved by the EPA	Measure current performance, set goals, track savings and reward improvements – annual process	New building and existing building programs with credits towards certification plus new home design

Federal EPA Program

Federal EPA Program

Private Organization – Non-Profit

# Getting Started

- Corporate Commitment at Senior level
- Establish Team (Facilities, Procurement, Fleet, IT, Aviation, Communication, production, engineering)
- Identify GHG Inventory
  - Utilities (Direct and In-direct)
  - Aviation
  - Fleet
  - Other
- Develop IMP (Inventory Management Plan)
- Establish the Base-year (2006)
- Identify a realistic goal that can be achieved over time typically 5-15% (TRV's goal is 7%)
- Set reduction goals with EPA (Absolute, page printed, production, barrel beer (Miller), revenue, improved efficiencies (caterpillar))
- Implementation of GHG reduction initiatives
- Annual Reporting (modify plan as appropriate)
- Reach Established Goal
- Establish New Future Goal

# Two Types of CO<sub>2</sub> Inventories

- Direct

- Natural Gas
- Diesel/Gasoline
- Heating Oil
- Aircraft Fuel (Owned)
- Emissions from MFG
- HVAC/Refrigeration CFC's

- In-Direct

- Electricity
- Chilled Water purchase
- Steam/HW purchase
- Aviation (Commercial Travel)

# Sampling of other Corporate Goals

<u>Company</u>	<u>Goal</u>	<u>Measurement/Measurement Timeframe</u>
3M	30%	2002-2007
Bank of America	9%	2004-2009
Calpine	4%	Per MWH 2003-2008
Caterpillar	20%	Per dollar of revenue 2002-2010
Dupont	15%	2004-2015
Eastman Kodak	10%	2002-2008
EMC	8%	Per square foot 2005-2012
Exelon	8%	2001-2008
General Electric	1%	2004-2012
General Motors	10%	2000-2005
Haworth	20%	Per dollar sales 2004-2009
Marriott	6%	Per available room 2004-2010
Miller Brewing	18%	Per barrel of production 2001-2006
Pfizer	35%	Per dollar of revenue 2000-2007
Staples	7%	2001-2010
United Technologies	16%	Per dollar of revenue 2001-2006
Xerox	10%	2002-2012

# Travel Consumption - 2005 vs 2006

<b>Commodity/ Goal</b>	<b>Unit</b>	<b>Totals</b>	<b>05 to 06 Variance</b>
<b>2005 Vehicles</b>	Units	1,180	
<b>2006 Vehicles</b>	Units	2,900	+245%
<b>2005 Miles Driven</b>	Mileage	18,473,528	
<b>2006 Miles Driven</b>	Mileage	54,580,187	+295%
<b>2005 Fuel Purchased</b>	Gallons	712,924	
<b>2006 Fuel Purchased</b>	Gallons	2,138,986	+300%
<b>2005 Miles Per Gallon Average</b>	MPG	25.91	
<b>2006 Miles Per Gallon Average</b>	MPG	25.52	-2%
<b>2005 Jet Fuel Purchased</b>	Gal		
<b>2006 Jet Fuel Purchased</b>	Gal		TBD
<b>2005 Flight Miles</b>	Miles		
<b>2006 Flight Miles</b>	Miles		TBD

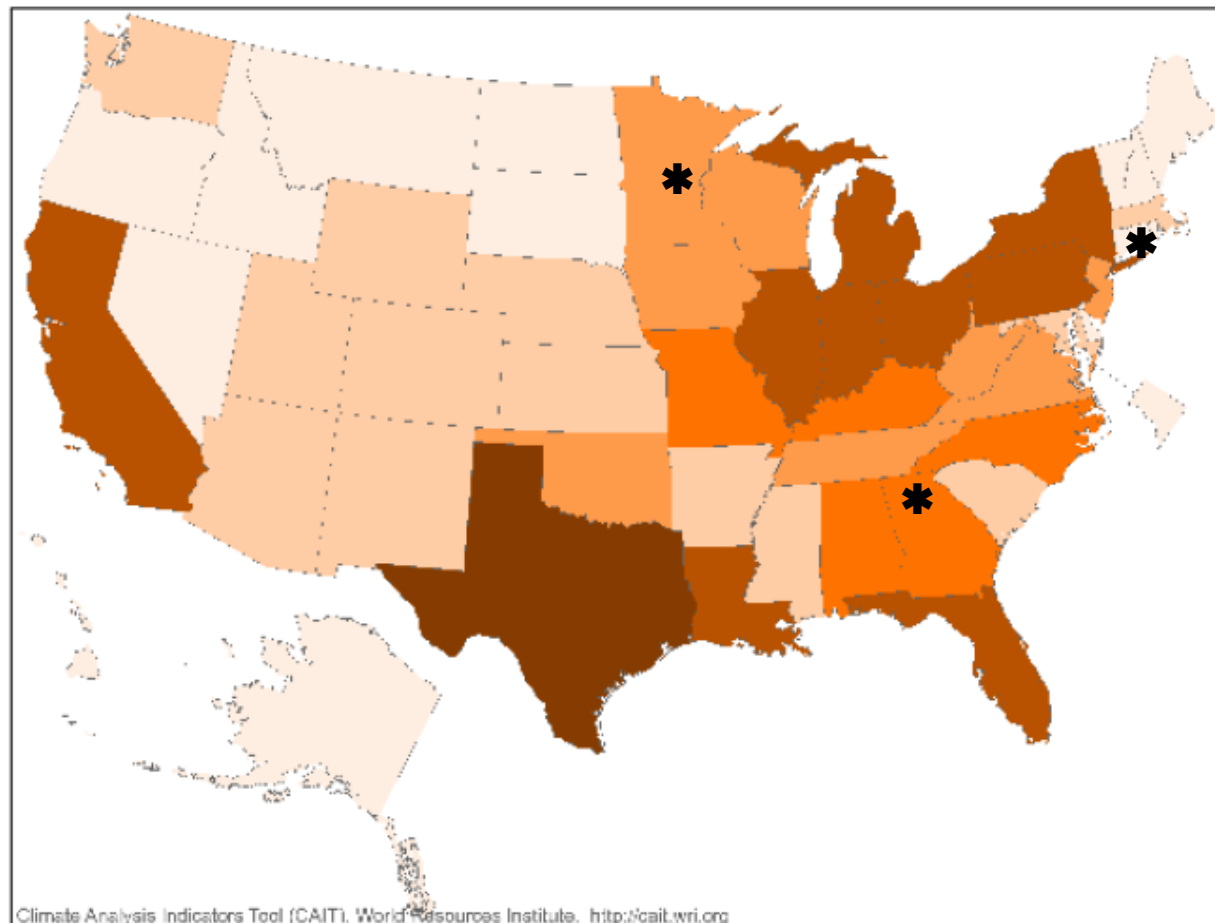
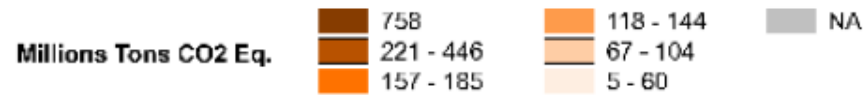
# Potential Negative Impacts

- In order to reduce GHG emissions we need to be extremely cognizant of all future negative impacts we create in order to meet the approved goal we negotiate with the EPA
  - LAN Center Strategy
    - Relocation from Hartford could lead to higher GHG emissions from Travelers
  - Business is Growing
    - More FTE's = more plug load
    - Possibly more space
  - IT Impacts
    - Server growth
    - Blade servers
  - Project Management
    - New sites
    - Renovations
- Capital requirements needed to implement some of the reduction strategies
  - Long term capital plan to be developed
- All future decisions should have an impact analysis done relevant to GHG

# LAN Relocation Impact

- Moving 6,063 MWh to St Paul, MN from Hartford
  - Increase CO<sup>2</sup> by 11,149,482 lbs
  - Decrease CO<sup>2</sup> by 5,438,328 lbs in Hartford
  - Net change in CO<sup>2</sup> = **Unfavorable 5,711,154 lbs**
- Moving 6,063 MWh to Norcross, GA from Hartford
  - Increase CO<sup>2</sup> by 9,470,087 lbs
  - Decrease CO<sup>2</sup> by 5,438,328 lbs in Hartford
  - Net change in CO<sup>2</sup> = **Unfavorable 4,031,759 lbs**

# US GHG Emissions



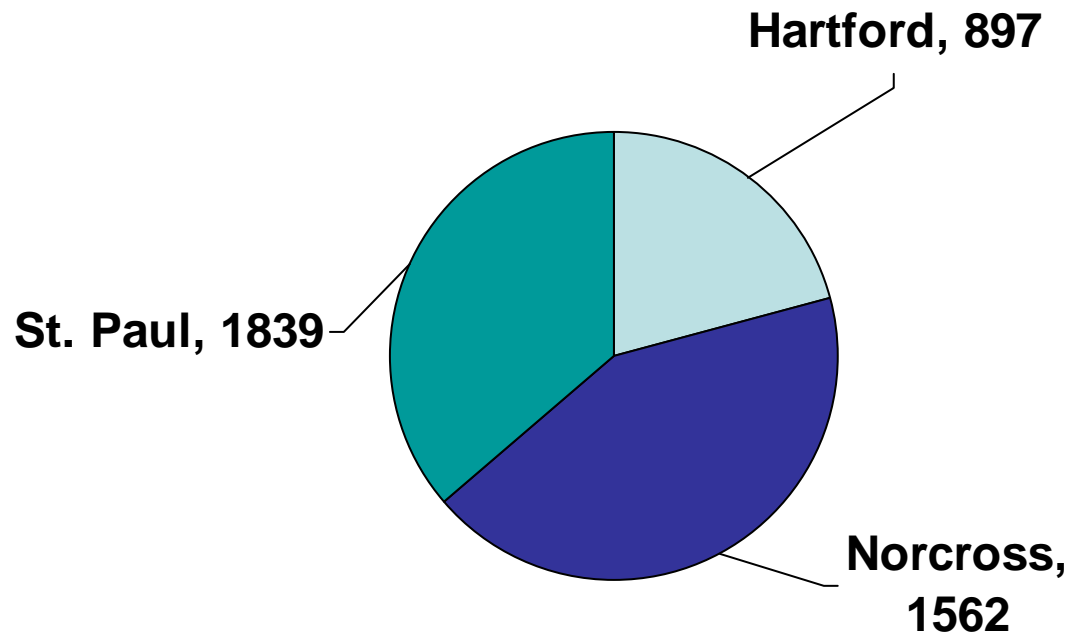
Climate Analysis Indicators Tool (CAIT), World Resources Institute, <http://cait.wri.org>



W R I

# Power Plant CO<sub>2</sub> Emission Rates

From EPA



# Initiatives Underway

- Overall electrical consumption reduction
  - Comprehensive audit of 3 Corporate sites
    - 3<sup>rd</sup> party energy audits
    - Obtained Energy Star ratings
    - Access CBRE “Best Practice” energy reduction
    - Plug load audit initiative
    - Start with highest ROI (kW reduction)
- Employee awareness program
  - Let’s get them involved
- Project Management Plan
  - Technology design, upgrades and standards
- Operations Plan
  - Retro-commissioning and hours of operations assessment
  - Energy purchasing and demand side management
  - Energy communications – influence behaviors – Company wide
  - Future purchases plan – bulbs, equipment, etc
  - Replacement strategy

# Final Realities

- What we're doing
  - Will have minimal or no impact to us during our life time
  - Will significantly impact the generations after us
- This is a global problem
  - All companies and all countries need to commit to this initiative
  - The world will change dramatically and not for the better
- This problem is here
  - Now
  - It's not going away
  - Things will get worse before they get better
- Eventually no one has a choice but to participate



## Climate Leaders

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## EPA Voluntary Programs

### The Climate Leaders Umbrella

Climate Leaders is a voluntary EPA industry-government partnership that encourages companies to develop long-term comprehensive climate change strategies. Partners set a corporate-wide greenhouse gas (GHG) reduction goal and inventory their emissions to measure progress towards their goal. By reporting inventory data to EPA, Partners create a lasting record of their accomplishments, identify themselves as corporate environmental leaders, and strategically position themselves as climate change policy continues to unfold.

Many corporations are already making great strides in reducing their GHG emissions through participation in EPA voluntary programs. For these companies, Climate Leaders can serve as a coordinating umbrella to comprehensively manage their voluntary climate change activities. For instance, Climate Leaders may already work with ENERGY STAR® to improve the energy efficiency of their operations, with the Green Power Partnership to purchase renewable energy, or with WasteWise to better manage their solid waste. The GHG reductions achieved through these activities will be reflected in a Climate Leaders' GHG inventory and count toward the company's GHG reduction goal.



### The Suite of EPA Voluntary Climate Change Partnerships



**ENERGY STAR®** offers organizations energy efficient solutions — helping to save money while protecting the environment.

**Purchase Energy Efficient Products for Your Organization** — The ENERGY STAR® Web site makes it quick and easy for your organization to purchase energy efficient products. By purchasing ENERGY STAR® Products, you can reduce the CO<sub>2</sub> emissions associated with your electricity use.

**Improve the Energy Performance of Your Organization** — Partnering with ENERGY STAR® leads you