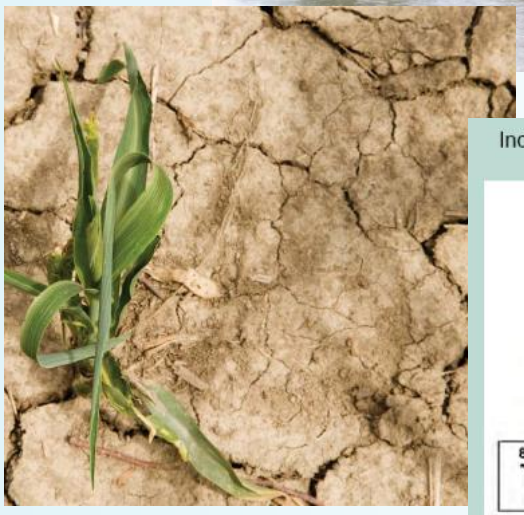
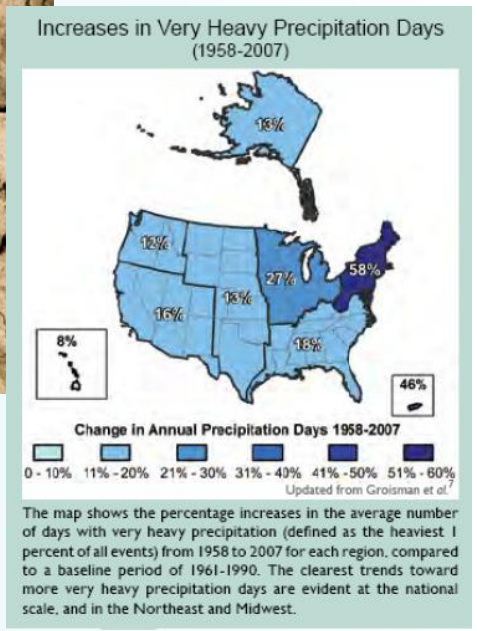
Peter J. Taglia, P.G., Staff Scientist, Clean Wisconsin, 11/3/09

Capturing Wisconsin's Clean Energy Future: Cap and Trade

Outline

- **Why Address Global Warming?**
- **Wisconsin's Energy and Emissions Mix**
- **The Economic Drain of Fossil Fuel Imports**
- **Wisconsin's Energy Opportunities**
- **Making Cap and Trade Work in WI**

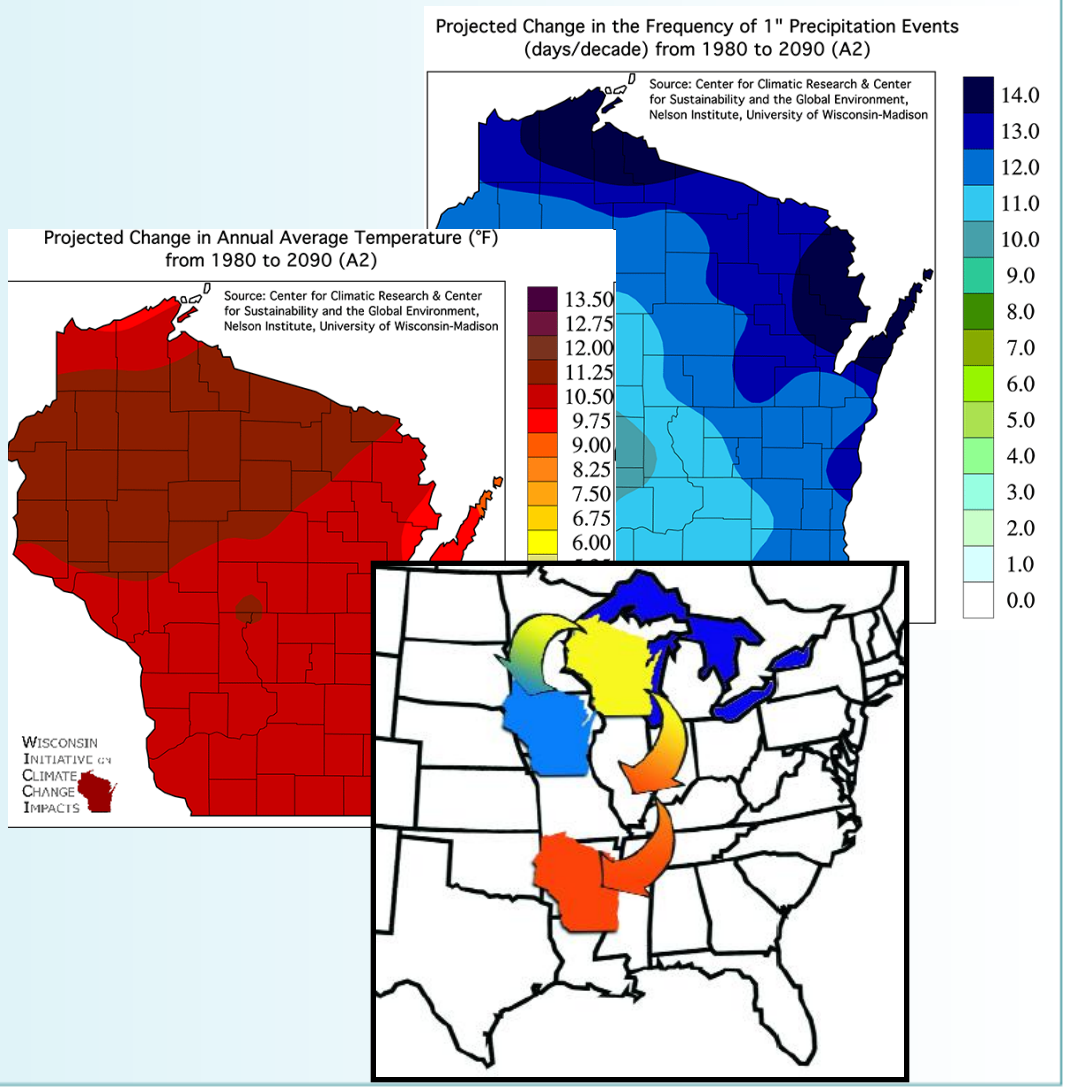




Global Warming Threatens Wisconsin

- Wisconsin faces increased temperatures (particularly in winter), more very hot days, fewer very cold days, more winter precipitation, and more extreme precipitation events

- Agriculture, Forestry, Fishing and Tourism are all based on WI's current climate and landscape



Global Warming Threatens Wisconsin

What does this mean?

Examples:

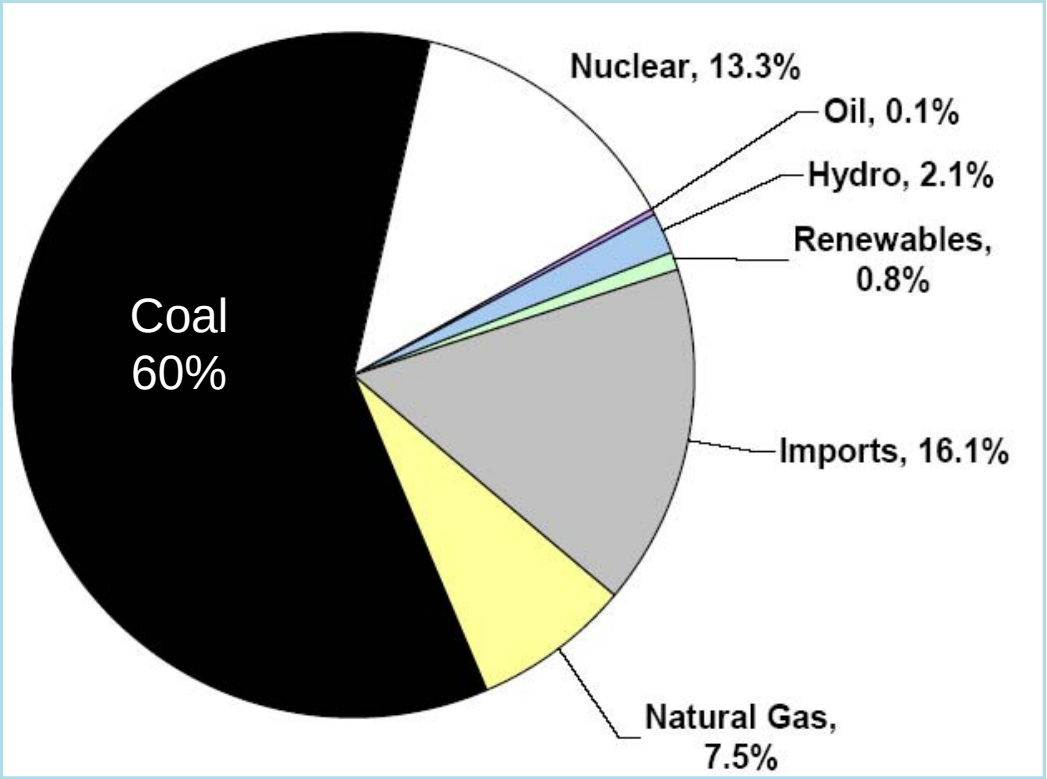
- Trout are particularly vulnerable, threatening a fishing industry that accounts for over $1 Billion of economic activity in the driftless area per year.

- Climate change currently costs corn growers $1.4 Billion per year worldwide, but the USDA projects a 2° F increase will cost corn growers in Wisconsin alone approx. $41 million per year.

What is Wisconsin's contribution to this problem?

Electrical Generation in WI by Fuel

- Coal provides approximately 70% of WI electrical sales (in-state generation and imports)
- Only coal-producing states use a higher mix of coal than WI



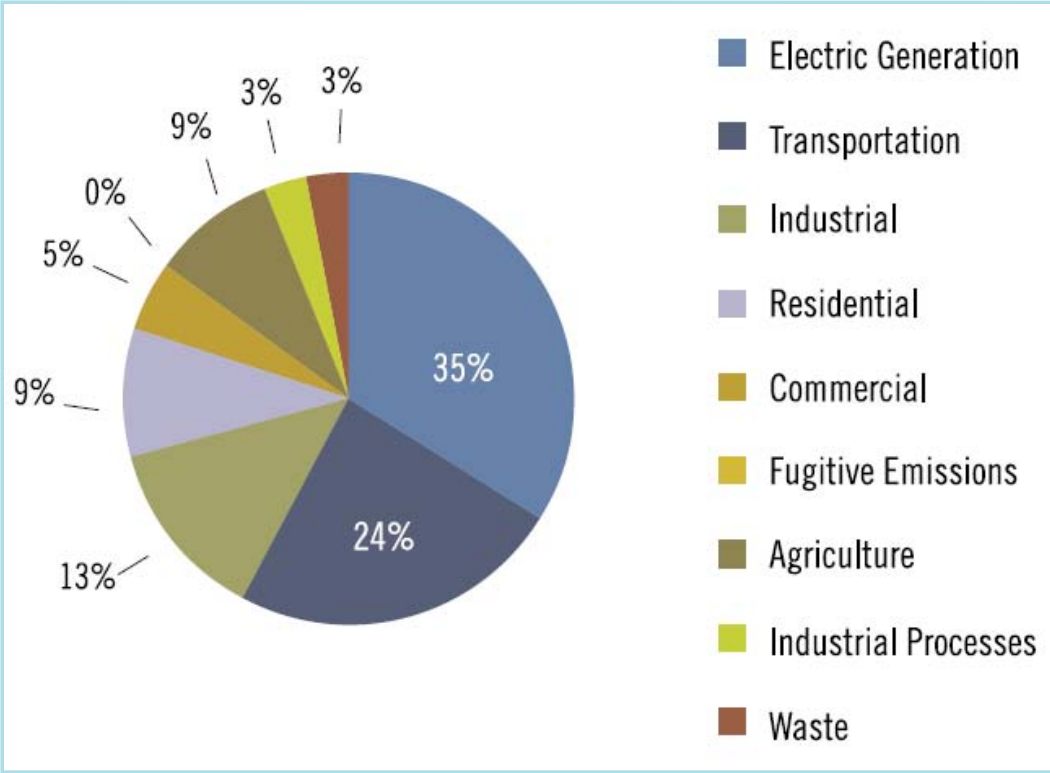
Electrical Generation in WI

Source: WI PSC, SEA, 2007

Note: Wind power increased almost 8X in 2008

GHG Emissions in Wisconsin

- WI's GHG emissions were 123 Million Metric Tons (MT) CO_2e in 2003
  - 14% higher than 1990
- Electrical generation is the largest source of GHGs in WI
  - 43 MT CO_2e
  - 30% higher than 1990
- By comparison, transportation is the largest source of GHGs in CA (59%)



Wisconsin Greenhouse Gas Emissions by Sector
Source: World Resources Institute, Charting the Midwest, 2007

Wisconsin's Energy Deficit

- Wisconsin has NO fossil fuels
  - No COAL, GAS or OIL
- WI spends over $20 BILLION on imported fossil fuel energy
  - Approximately 10% of Gross State Product
- This money brings jobs to the Middle East, Venezuela, Canada and Wyoming instead of WI
- Fossil fuel dependency = price volatility

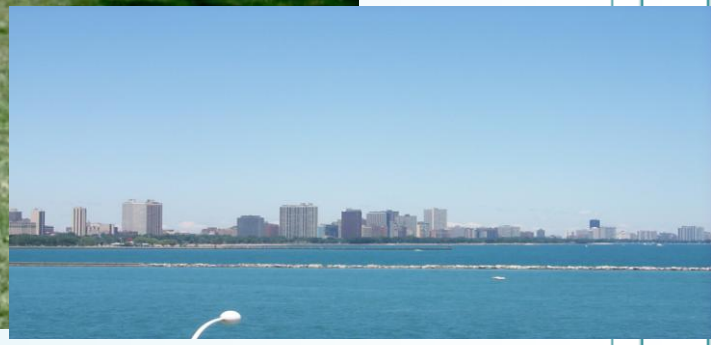
Fossil Fuels Costs Outside the Energy Bill:

- State-wide Mercury Fish Advisory
- Increasing Winter Particulate Pollution

Annual Impacts of the two new coal plants in Oak Creek:

- 26 premature deaths
- 2,000 asthma attacks
- 350 emergency room visits
- $188 million in public health impacts

Source: Harvard School of Public Health, 2003 testimony to Wisconsin PSC



But Does Wisconsin Have a Homegrown Alternative to Fossil Fuels?

Bioenergy

Wisconsin's Bioenergy Advantage:

- High Productivity Agriculture in Southern WI
- High Productivity Forestry in Northern WI
- Leading Research Institutions
- Advanced Biofuel Industry

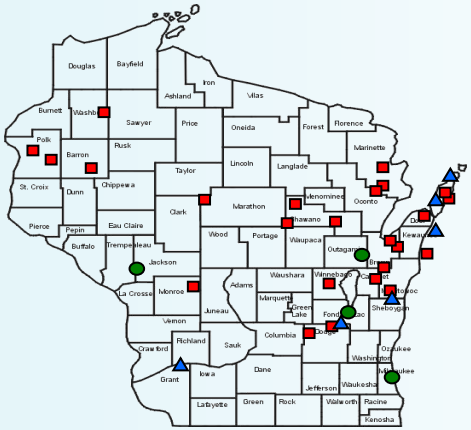
Flambeau River BioFuels
P.O. Box 340
Park Falls, WI 54552

C5•6 Technologies, Inc.

VIRENT

Biomass Momentum

- DTE Stoneman coal to biomass conversion in Cassville
- Xcel's Bay Front coal to biomass gasification conversion in Ashland
- We Energies proposed biomass cogeneration plant in Rothschild



- 24 - Operating Farm Digesters
- 6 – Farm Digesters Under Construction
- 4 – New Industrial or Municipal Digesters Under Construction

Wisconsin leads the U.S. in Anaerobic Digesters producing biogas

April 7, 2009
Source: Larry Krom
Wisconsin Focus on Energy

Wind, Solar, Geothermal, Energy Efficiency

Wisconsin is Uniquely Positioned to Lead in Clean Energy:

- Manufacturing:
  - Heavy Industry
  - Electrical Component Production
  - Diverse Specialty Products
- Energy Efficiency
- Cutting Edge Energy Products

In Contrast, Old Dirty Fossil Technologies are Tomorrow's Economic Caboose

Cap and Trade

ONE part of a comprehensive clean energy plan

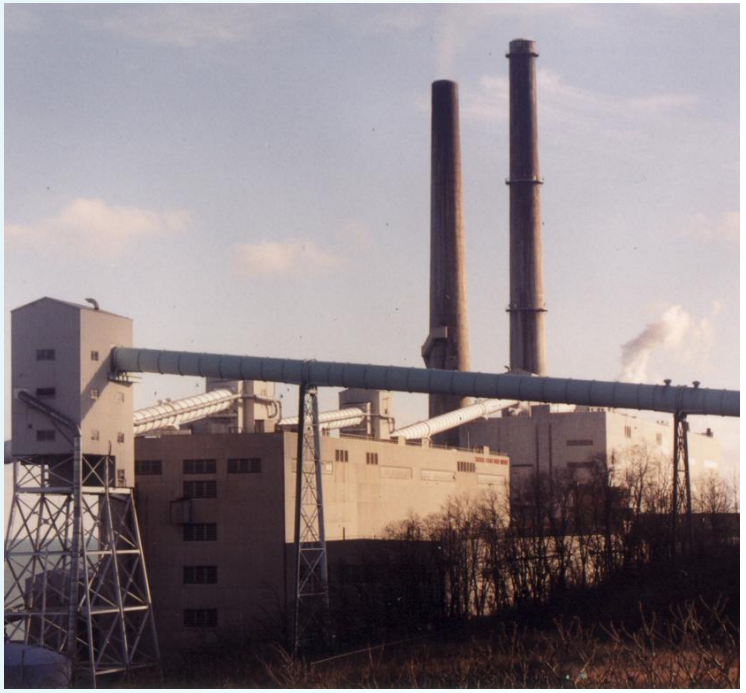
In a nutshell: The government sets a cap on pollution, limiting the amount that companies or other groups are allowed to release. The government then issues credits, which allow companies to each pollute a certain amount as long as the aggregate pollution is less than the set cap.

Cap and Trade is designed to address global warming pollution from the largest sources:

- Power Plants
- Refineries
- Industrial Facilities

What does it cost?

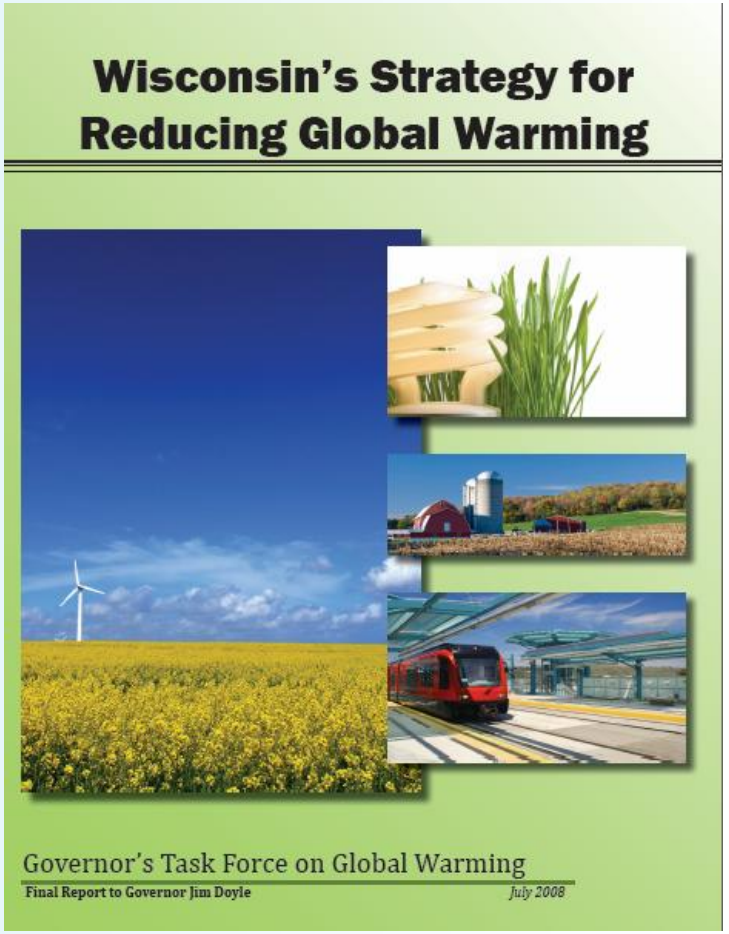
Depends on the Cap and Trade Program Design AND the Total Energy Plan



WI Task Force on Global Warming

- 29 Member bipartisan panel
- 6 Working groups developed policy recommendations
- Staffed by DNR, PSC, DATCP and others
- Goals: Reduce GHG emissions, increase jobs and transform economy
- Near-unanimous approval of 63 policies
  - Energy Efficiency
  - Energy Conservation
  - Renewable Energy
  - Infrastructure

  - Cap and Trade
  - 22% reduction from 2005 levels by 2022



http://dnr.wi.gov/environmentprotect/gtfgw/

"CREWE will advocate meaningful energy policy change, as outlined in the Governor's Global Warming Task Force final report, which will have a positive impact on Wisconsin's economic development and security, as well as foster jobs."

Alliant Energy
American TransmissionCo.
Axley Brynelson
C5•6 Technologies
CleanPower
DTE Energy Services
EcoEnergy
Emerging Energies of WI
Forest County Potawatomi Community
Johnson Controls
Madison Gas and Electric
MillerCoors
Orion Energy Systems
Wisconsin Energy Corp.
WPPI Energy
Xcel Energy

wicrewe.com

Midwestern Governors Association (MGA) 2007 Midwestern Greenhouse Gas Accord

- Bi-partisan stakeholder groups formed to develop specific recommendations
- May 22, 2009 Final Consensus
  - 20% reduction from 2005 levels by 2020
  - Offsets up to 20% of compliance
  - Direct allocation of emissions

MIDWESTERN ENERGY SECURITY & CLIMATE STEWARDSHIP SUMMIT

MGA
Midwestern Governors Association

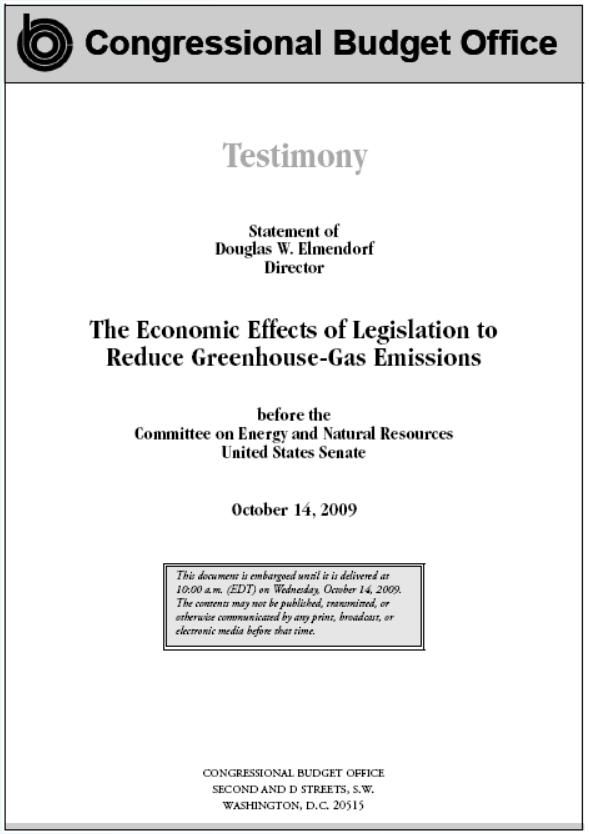
Cap and Trade in Federal Energy Legislation

The non-partisan Congressional Budget Office (CBO) Analysis of Cap and Trade:

- The average households would pay less than a postage stamp a day
- The lowest income households will actually see net positive budget results

The CBO Analysis did NOT take into account Wisconsin initiatives that will lower our compliance costs

- Aggressive Energy Efficiency Goals in Wisconsin
- Federal Analyses also do NOT include site-specific opportunities for very high ghg emission reduction actions like converting coal power plants to biomass



Congressional Budget Office

Testimony

Statement of
Douglas W. Elmendorf
Director

The Economic Effects of Legislation to Reduce Greenhouse-Gas Emissions

before the
Committee on Energy and Natural Resources
United States Senate

October 14, 2009

This document is embargoed until it is delivered at 10:00 a.m. (EDT) on Wednesday, October 14, 2009. The contents may not be published, transmitted, or otherwise communicated by any print, broadcast, or electronic media before that time.

CONGRESSIONAL BUDGET OFFICE
SECOND AND D STREETS, S.W.
WASHINGTON, D.C. 20515

"United States Climate Action Partnership (USCAP) is a group of businesses and leading environmental organizations that have come together to call on the federal government to quickly enact strong national legislation to require significant reductions of greenhouse gas emissions."

AES
Alcoa
Alstom
Boston Scientific Corporation
BP America
Caterpillar
Chrysler
ConocoPhillips
Deere & Company
The Dow Chemical Company
Duke Energy
DuPont
Environmental Defense Fund
Exelon Corporation
Ford Motor Company
FPL Group
General Electric
General Motors Corporation
Honeywell
Johnson & Johnson
Natural Resources Defense Council
The Nature Conservancy
NRG Energy
PepsiCo
Pew Center on Global Climate Change
PG&E Corporation
PNM Resources
Rio Tinto
Shell
Siemens Corporation
World Resources Institute

Many Companies Are Already Exceeding the Targets of Cap and Trade Legislation

"Our plan would **reduce** carbon dioxide emissions by 22 percent from 2005 levels by 2020, a 6 million ton reduction, while pursuing the lowest-cost expansion path, meeting increased customer needs and maintaining system reliability."

Source: Xcel Energy's Resource Plan, 12/07

Xcel's Bay Front Coal Plant in Ashland WI. A coal to biomass gasification conversion was recently approved by the Public Service Commission (10/30/09)

Thank You

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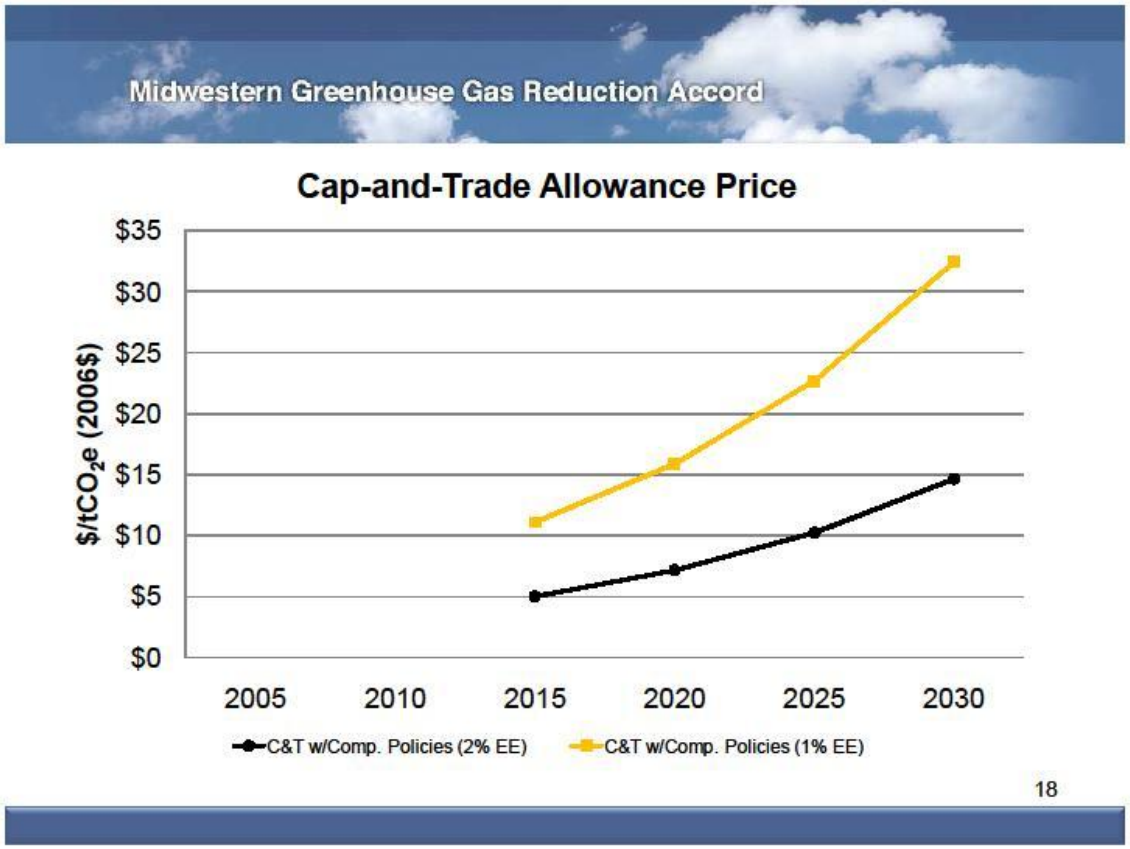
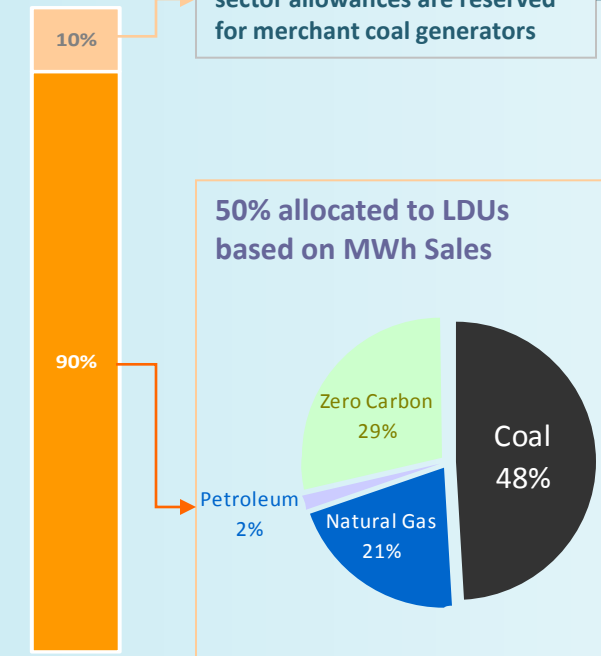
Extra Slides

MGA Modeling Shows Energy Efficiency Drives Low Cost Cap & Trade



Initial Distribution of Electric Sector Allowances by Fuel Type under H.R. 2454



Up to 10% of total electric sector allowances are reserved for merchant coal generators

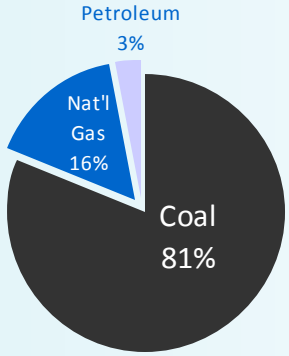
100 percent to Coal (approx. 200m allowances)

50% allocated to LDUs based on MWh Sales

Coal	**441m**
Natural Gas	**187m**
Petroleum	**16m**
Nuclear	175m
Hydro	57m
Other Renewable	25m

+

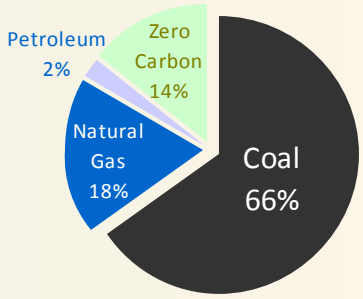
50% allocated to LDUs based on $CO2_e$ emissions



Coal	**731m**
Natural Gas	**142m**
Petroleum	**27m**
Nuclear	-
Hydro	-
Other Renewable	-

=

Total Electric LDU Allocations



Coal	**1,172m**	**(66%)**
Natural Gas	**330m**	**(18%)**
Petroleum	**44m**	**(2%)**
Nuclear	**175m**	**(10%)**
Hydro	**57m**	**(3%)**
Other Renewable	**25m**	**(1%)**

Sources: EIA 2006, 2007, 2008 (Sales and Emission figures are averages for the three-year period.)

Other Companies are Voluntarily Investing in Energy Efficiency and Renewable Energy