

*Midwest Climate Change  
Leadership Inventory*

**Midwest Climate Change Project**  
*Part 2.*



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# Contents

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<b>Introduction</b> .....	<b>5</b>
<b>Midwest Companies and Companies Invested in the Midwest</b> .....	<b>6</b>
Finance .....	7
Healthcare .....	11
Energy Resources.....	12
Electric Utilities.....	13
Industrial and Transportation Equipment .....	19
Surface Transportation .....	22
Air Transportation .....	24
Appliances, HVAC, and Controls .....	26
Furniture and Work Spaces .....	28
Consumer Electronics.....	28
Household Products.....	29
Other Industrial.....	30
Retail .....	33
Hotels/Tourism .....	34
Biofuels .....	35
Wind and Photovoltaics.....	37
Chicago Climate Exchange .....	39
<b>Midwest Multi-Stakeholder Collaborative Initiatives</b> .....	<b>41</b>
25x'25 .....	41
Energy Transition 2050 .....	41
Great Plains Institute – Powering the Plains.....	42
<b>Midwest Sustainable Business Collaborative Initiatives</b> .....	<b>43</b>
Cleveland Business Entrepreneurs for Sustainability .....	43
Climate Midwest Partnership.....	43
NextEnergy .....	43
Ohio Clean Energy Business Association .....	44
West Michigan Sustainable Business Forum .....	44
<b>National Business Collaborative Initiatives</b> .....	<b>45</b>
Ceres .....	45
Energy Information Administration Voluntary Reporting Program (1605(b) Program) .....	45
Global Greenhouse Gas Register.....	45
The Global Roundtable on Climate Change of the Earth Institute .....	46
Green Power Market Development Group.....	46
Pew Center on Global Climate Change .....	47
U.S. Climate Action Partnership.....	47
U.S. EPA Climate Leaders .....	47
U.S. EPA Green Suppliers Network .....	48
<b>Cities</b> .....	<b>49</b>

<b>Midwest Collaborative Initiatives of Cities</b> .....	<b>57</b>
Great Lakes and St. Lawrence Cities Initiative .....	57
Metropolitan Mayors Caucus .....	57
<b>National Collaborations of Cities</b> .....	<b>58</b>
Center for Clean Air Policy, Urban Leaders Initiative on Infrastructure, Land Use and Climate Change .....	58
International Council for Local Environmental Initiatives: Cities for Climate Protection.....	58
U.S. Conference of Mayors .....	59
<b>State Governments</b> .....	<b>61</b>
<b>Midwest Collaborative Initiatives of States</b> .....	<b>71</b>
Clean Energy States Alliance .....	71
Council of Great Lakes Governors.....	71
Council of State Governments (Midwest Office) .....	71
Governors’ Ethanol Coalition .....	71
Lake Michigan Air Directors Consortium .....	71
Midwest Natural Gas Initiative .....	72
Midwestern Governors Association.....	73
<b>Legislators Visible on Climate Change</b> .....	<b>74</b>
U.S. Congress – Midwest Delegation.....	74
State Legislators.....	76
<b>Environmental and Commerce Agencies</b> .....	<b>78</b>
<b>Researchers/Universities</b> .....	<b>80</b>
<b>Labor</b> .....	<b>84</b>
<b>Faith-Based Collaborative Initiatives</b> .....	<b>87</b>
<b>Energy and Environment NGOs – Midwest Regional</b> .....	<b>89</b>
<b>Energy and Environment NGOs – Midwest State</b> .....	<b>92</b>
Illinois.....	92
Minnesota.....	94
Michigan .....	95
Iowa .....	96
Ohio.....	97
Wisconsin .....	97
Indiana.....	99
<b>NGOs – National</b> .....	<b>100</b>
<b>Socially Responsible Investing</b> .....	<b>105</b>
<b>Foundations</b> .....	<b>106</b>
<b>Trade Associations</b> .....	<b>111</b>
<b>Conclusion</b> .....	<b>113</b>
<b>Appendix A. Interviewees</b> .....	<b>114</b>
<b>Appendix B. Membership Organizations and Affiliations</b> .....	<b>115</b>
<b>Glossary</b> .....	<b>118</b>
<b>Acronyms/Definitions</b> .....	<b>127</b>
<b>Index</b> .....	<b>128</b>

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# Introduction

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**A**t a December 2005 climate change forum sponsored by the British Consulate General, Chicago, participants from business, government, unions and civil society called for a survey of Midwest activities related to climate change.<sup>1</sup> They believed that such a survey could provide a basis for more concerted and collaborative efforts to address global warming. This inventory is a response to that request. It provides a snapshot of current Midwest initiatives to slow climate change, lower energy costs, reduce reliance on imported energy, and build new renewable energy and energy efficiency sectors. It includes individual efforts and collaborative work undertaken by business, government, and the civil sector. The hope is that this inventory will make it easier to identify gaps and find partners. Coordinated regional action involving many actors is the most effective approach to meeting this global challenge.

A companion report, *Part 1, Meeting the Challenge: Opportunities for Midwest Action on Climate Change*, identifies specific strategies and how they can be supported, and explores common ground between environmental and business goals.

Much of the corporate and state government information in this inventory was obtained from the Pew Center for Global Climate Change, Ceres – particularly its 2006 report *Corporate Governance and Climate Change: Making the Connection* – and U.S. EPA Climate Leaders.

The inventory is based on an extensive Internet search and more than 30 interviews with key stakeholders. The authors wish to thank the many people who provided information. (See Appendix A.)

The information presented here was gathered between June 2006 and January 31, 2007. As new initiatives are announced almost daily, there are inevitable gaps in the inventory. If material is out of date or if an organization or company has inadvertently been omitted, please let the authors know. Their goal is to keep this document up to date, and they welcome suggestions and new information.

*A note about the organization of this inventory:* Each listing for a company or institution includes its location, the name(s) of contacts if available, and membership affiliations. More on the membership organizations is available in Appendix B, “Membership Organizations and Affiliations,” and in the Index. A “Ceres Score” notation is included when available. This refers to the 100-point scorecard that ranks climate change commitment levels by major corporations used by Ceres, a national coalition of institutional investors and environmental organizations. For more information, see “Ceres Scorecard” in the Glossary.

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<sup>1</sup> *The Midwest is loosely defined as Illinois, Indiana, Iowa, Michigan, Ohio, and Wisconsin.*

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# Midwest Companies and Companies Invested in the Midwest

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Eight of the nation's top ten companies recognized for their role in climate action<sup>2</sup> are either Midwest companies or very active in the Midwest:

- **BP** reached its 2010 greenhouse gases (GHG) reduction target in 2001. The company increased its valuation by \$650 million through improvements in operating efficiency and energy management. It is one of the ten corporate members of the U.S. Climate Action Partnership (USCAP), which has called for a nationwide cap on CO<sub>2</sub> emissions.
- **3M** achieved a 62% improvement in energy efficiency between 1973 and 2004. It has saved more than \$190 million since 1990 and reduced its GHG emissions by about 37% between 1990 and 2004.
- **ABN AMRO** reduced its worldwide direct GHG emissions by 4.3% and indirect emissions by 9% between 2003 and 2004.
- **AEP** reduced its GHG emissions by 13% between 2000 and 2004.
- **Caterpillar** reduced its direct GHG emissions by 35% between 1990 and 2005 in the U.S. It is a member of USCAP.
- **Cinergy** achieved a 7.5% reduction in emissions between 2002 and 2004.
- **GM** achieved a 7.1% reduction in GHG emissions between 2000 and 2003.
- **Motorola** achieved a 78% absolute reduction in energy use between 2000 and 2004.

It is encouraging that a number of Midwest corporations and companies with Midwest facilities are already taking steps to reduce their GHG emissions or address some other contributor to climate change. A few of them are publicly championing regulatory limits on emissions, a critical next step backed by most environmental organizations. For instance, at a Senate conference on global warming in August 2006, Exelon, General Electric, Shell, Duke Energy, and Wal-Mart) stated they would either welcome or accept mandatory caps on their GHG emissions.

An historic "Call to Action" released on January 22, 2007, by the U.S. Climate Action Partnership recommends a 10-30% reduction in GHG emissions within 15 years, with a goal of a 60-80% reduction from current levels by 2050. USCAP consists of high-level corporate leaders, among them the Midwest companies BP America, Caterpillar, and Duke Energy), and four nongovernmental organizations: Environmental Defense, Natural Resources Defense Council, Pew Center on Global Climate Change, and World Resources Institute). The USCAP report calls for federal limits on GHG emissions and a comprehensive set of market-based incentives, including a GHG cap and trade system and support for new, clean technologies and energy efficiency. The Call to Action proposal offers an important consensus by leading businesses and environmentalists on a policy path forward.

Corporate supporters of a "cap and trade" system to reduce emissions prefer a national

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<sup>2</sup> Based on total reduction of greenhouse gases, results relative to company revenues, and management's leadership on environmental issues over the past ten years, Business Week, Dec. 12, 2005.

policy rather than state or regional policies with different requirements. At the same time, a number of companies believe that a voluntary GHG emissions registry for the Midwest is a first step toward a carbon cap that could happen on a regional level. Many also back specific state and federal policies that promote energy efficiency and renewable energy.

### ***Finance***

Bankers, insurers, institutional investors, and rating agencies are increasingly aware of the financial risks posed by climate change. On the part of insurers, for example, the National Association of Insurance Commissioners formed an executive-level task force on climate change in late 2005. Co-chaired by Nebraska Insurance Director Tim Wagner, the task force will review whether U.S. insurers have adequately considered the consequences for their industry, including financial ramifications, if current global warming trends continue or intensify. According to a 2006 Ceres report, the insurance sector is rapidly developing new products to address climate change and its impacts.<sup>3</sup>

Investment firms also are designing new products. JPMorganChase is working with analysts and bankers to model the impact of global warming on the bank's clients. ABN AMRO has launched new climate-risk management services, including mutual funds focused on sustainability investments and the trading of GHG emission allowances on the European Climate exchange.

Institutional investors are organizing through several venues to ask that companies account for their GHG emissions and development mitigation plans. The Investor Network on Climate Risk (INCR), which is managed by Ceres and has \$3 trillion in assets under management, is educating investors about climate risk and using shareholder resolutions to spur climate action. Some pension funds that are members of INCR have taken a leadership role in encouraging carbon disclosure. For example, the Illinois State Treasurer signed a letter with other state treasurers urging insurers to disclose their climate risk. In December 2006, Ceres held a Chicago meeting for Midwest investors on managing climate risk. The Carbon Disclosure Project is another investor coalition with reported assets of \$31 trillion under management.

Forty-two shareholder issues related to GHG emissions were presented to companies in 2007, up from 31 in 2006. Investor concern over risk is already pushing energy companies to switch some of the billions of dollars in planned investments from coal-fired power plants to new, cleaner facilities. For example, the recent KKR-Texas Pacific acquisition of the Texas-based TXU Corporation was accompanied by an announcement that 8 of the 11 new coal plants that TXU planned would be cancelled. Most of the investors and insurers that could influence climate risk management among Midwest companies are not headquartered in the Midwest.

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<sup>3</sup> Ceres, *From Risk to Opportunity: How Insurers Can Proactively and Profitably Manage Climate Change*, Sept. 2006.

**ABN AMRO** (ABN AMRO Chicago Corp., LaSalle Bank Corp.)  
Amsterdam, the Netherlands

Contact: Mary Laraia, Sustainability Coordinator.

Member: Corporate Leaders Group on Climate Change, Equator Principles signatory.  
Links to Ceres.

One of the Netherlands' largest financial services firms, ABN AMRO performs retail banking services mainly in its home country, Brazil (through Banco ABN AMRO Real), and the U.S., where it runs LaSalle Bank in Chicago, Indiana, and Michigan, and is one of the largest foreign banks by assets. It has lobbied for increased investment in low-carbon technology in the U.K. Between 2003 and 2004, ABN AMRO reduced its worldwide direct CO<sub>2</sub> emissions by 4.3% and indirect emissions by 9%. It launched a global energy efficiency program to decrease groupwide energy consumption by 10% from 2004 to 2008. The program includes "greening" its facilities. ABN AMRO signed on to the Equator Principles, which commit it to screen investments over a certain level for impact on environment and climate. It launched new climate-risk management services, including mutual funds focused on sustainability investments, and the trading of GHG emission allowances on the European Climate exchange. In June 2006, the bank brokered its first carbon-credit transaction between two private corporations.

### **Allstate Corp.**

Northbrook, Illinois

Contact: Patrick Sarb, Senior Manager, Environmental Sciences.

Allstate Corp. is the nation's largest publicly held personal lines insurer, selling auto, property, life, and commercial insurance. Allstate is one of a handful of U.S. insurance companies that disclosed any action regarding climate change in 2003. Allstate is a participating member of the Climate Resolve initiative within the Business Roundtable, a national organization of chief executive officers. The organization's goal is to commit 100% of its members to reducing GHG intensity. Allstate is registered with Clean Air Counts, a greater-Chicago initiative to reduce ozone-causing emissions.

At its Northbrook headquarters, Allstate has converted to energy efficient lighting, uses only environmentally inert HCFC or HFC in its air conditioning units, and has a self-sustaining irrigation system. It saved 1,232,560 pounds of GHG emissions in 2004 alone by specifying a climate-neutral carpet. The company promotes employee use of public transportation, recycling, and environmental quality.

Allstate is refusing to write new homeowner policies in many U.S. coastal communities to reduce its risk exposure to natural disasters. According to company spokespeople, the nation is in a period of greater storms where some events have the potential to be so large as to exceed the capabilities of the insurance industry, as well as the funding and financing capability of individual states.

### **Citigroup**

New York, New York

Contact: Shawn Miller, Director for Environmental and Social Risk Management.

Member: U.S. EPA Climate Leaders.

Citigroup is an international financial conglomerate with operations in consumer, corporate and investment banking, and insurance. In January 2006, Citigroup commit-

ted to a 10% reduction of its direct GHG emissions by 2011. In 2004, it announced a GHG reporting scheme for its project finance deals within the thermal power sectors. Under the scheme, Citigroup calculates and reports on its share of the projected lifetime emissions of thermal power projects. Citigroup remains reluctant to manage the climate impacts associated with its broader portfolio. It is preparing 88 buildings for entry into the EPA Energy Star System, the first step toward obtaining LEED certification for the buildings. Citigroup buys green power and expects to buy more than 30,000 MW by 2007. Citigroup and WRI recently released a report, *Investing in Solutions to Climate Change*, which identifies 12 companies set to benefit from global warming by offering products and services that improve energy conversion efficiencies, utilize low-carbon energy conversion technologies, capture and store carbon, or displace high-intensity with low-intensity carbon sources. The companies include Archer Daniels Midland, Johnson Controls, Monsanto, and Waste Management.

### **Goldman Sachs**

New York, New York

Goldman Sachs is a leading global investment banking, securities, and investment management firm. It announced the adoption of a climate change policy and support for federal GHG regulations in 2005. Goldman Sachs became the first global investment bank to adopt a comprehensive environmental policy that acknowledges the value of “ecosystem services” and carbon savings. It established a Center for Environmental Markets in partnership with universities and civil society to develop public policy options for establishing markets around climate change, biodiversity conservation, and ecosystem services. As a major owner and operator of fossil fuel-fired power plants in the U.S., Goldman Sachs has agreed to publicly report and work to reduce GHG emissions from its plants. It has said its investment businesses will be a leading U.S. wind energy developer and generator. It owns and develops wind projects in the Midwest and is an investor with Shell in Iogen Canadien, which builds ethanol plants.

### **HSBC (HSBC North America)**

Prospect Heights, Illinois

Member: U.S. EPA Climate Leaders, EPA Green Power Partnership and Energy Star programs, Climate Change Group, Business Roundtable Climate Resolve, UNEP, Dow Jones Sustainability Index, Carbon Disclosure Project, Equator Principles signatory and leading adopter.

HSBC is the world’s second-largest bank. It pledged to neutralize its carbon output by 2006 through investment in wind farms and other green projects. By October 2005, it had achieved its goal through emission reductions, purchasing green electricity, and buying emission credits to offset its remaining CO<sub>2</sub> discharges. HSBC-North America has pledged to reduce total U.S. GHG emissions by 10% from 2005 to 2010. In addition to making significant purchases of renewable energy certificates to offset more than 35% of its U.S. operations, it has implemented standards for new construction utilizing LEED principles and practices; joined the EPA’s Energy Star program to maximize improvements to existing buildings; and implemented industry sector guidelines that set out HSBC’s environmentally conscious business practices. It has extensive employee awareness programs to encourage energy efficient practices at the office and at home.



### **JPMorganChase**

New York, New York

Contact: Amy Davidsen, Director, Office of Environmental Affairs.

Member: Equator Principles signatory.

JPMorganChase is a leading global financial services firm. Its loan review process now formally includes carbon disclosure and mitigation efforts. For power plants, the cost of GHG emissions are quantified and factored into the analysis. JPMorganChase advocates for a national market-based policy to reduce GHG emissions. It has formed a coalition to explore financing GHG mitigation for coal-fired generating plants.

JPMorganChase is a signatory to the United Nations Environment Programme Finance Initiative, a global partnership between the UNEP and the private financial sector. It provides practical research, technical expertise, and exposure to sustainable development practices across regions. The company also encourages clients that are large GHG emitters to develop carbon mitigation plans and is participating in the WRI's Northeast Business Climate Collaborative to learn about and adopt specialized strategies to address climate change.

### **Marsh USA**

New York, New York

Contact: Gary Guzy, Senior Vice President, Emerging Solutions.

Member: Carbon Disclosure Project, Climate Leaders Index, Pew Leadership Council.

Marsh USA is the risk and insurance services unit of the global professional services firm Marsh & McLennan. Marsh works with clients to develop climate-risk mitigation strategies. It has launched carbon emissions credit guarantees and other renewable energy-related insurance products. In 2006-2007, with Ceres and Yale University, Marsh is holding forums for 200-plus corporate board directors of Fortune 1000 companies on the financial, legal, business, and investor implications of climate change.

### **St. Paul Travelers**

St. Paul, Minnesota

Member: U.S. EPA Climate Partners, Business Roundtable Climate Resolve Project.

St. Paul Travelers is an insurance and risk management company and is the second largest writer of commercial U.S. property casualty insurance. It has submitted data on climate change vulnerability and opportunities to the Carbon Disclosure Project. St. Paul Travelers offers special incentives related to climate risk. Its two largest campuses (in St. Paul and Hartford, Connecticut) received the EPA's Energy Star® label.

### **Wells Fargo**

San Francisco, California

Contact: Barry Neal, Environmental Finance.

Member: Equator Principles signatory.

Wells Fargo is a top investor and mortgage lender in the Midwest. It created the new position of Head of Environmental Finance to help implement its \$1 billion environmental commitment, including investments in wind, solar, geothermal, biomass, and biofuels (ethanol and biodiesel), and to integrate a formal process for environmental due diligence into its business practices and procedures. Wells Fargo announced a ten-point Environ-

mental Commitment. Jon Campbell, president and chief executive of Wells Fargo Minnesota, which oversees community banking in Minnesota, Indiana, and Ohio, is part of the Itasca Project in the Twin Cities.

### ***Healthcare***

The healthcare sector in the Midwest is taking a leading role on climate change. The U.S. EPA has a Green Suppliers Network that works with large manufacturers to engage their small and medium-sized suppliers in low-cost technical reviews that employ “Lean and Clean” methods to increase productivity, reduce waste, and boost profitability. The largest of the Green Suppliers Network sectors is pharmaceutical/healthcare, including nine major equipment manufacturers. Spearheaded by Baxter Healthcare Corp., the network includes Abbott Laboratories and others.

#### **Abbott Laboratories**

Abbott Park, Illinois

Contact: Bob Accarino, Director, Environmental Affairs.

Member: U.S. EPA Green Suppliers Network, U.S. EPA Climate Leaders.

Abbott Laboratories develops and manufactures pharmaceutical and nutritional products such as drug delivery systems, antibiotics, and prepared infant formulas. From 1985 through 2000, Abbott’s U.S. operations reduced energy consumed per unit produced by 46%. Abbott adopted a three-phase plan for managing emissions: defining GHG emission sources and establishing a policy; completing a baseline inventory and reporting publicly; and developing a data management, verification, and performance improvement system. The plan is consistent with the Business Roundtable’s Climate Resolve program, an initiative endorsed by Abbott that encourages voluntary actions to reduce GHG emissions.

#### **Baxter Healthcare Corporation**

Deerfield, Illinois

Contact: Ronald Meissen, Senior Director Sustainability, Baxter Environment, Health & Safety.

Member: CCX, U.S. EPA Climate Leaders, Pew Business Environmental Leadership Council, U.S. EPA Green Suppliers Network.

Baxter Healthcare Corp. is the principal U.S. operating subsidiary of Baxter International Inc., a major manufacturer of pharmaceuticals, medical devices, and biotechnology. An early actor on Midwest climate change, Baxter began publicly reporting energy use, cost, and GHG emissions for all of its global facilities in the mid 1990s. In 1997, Baxter set a goal to reduce energy use and associated GHG emissions by an ambitious 30% per unit of product by 2005 from 1996 levels, principally through energy conservation. The 27% actually achieved, in spite of increasing production, is impressive. Baxter was part of the group of experts and business leaders who developed the GHG Protocol, which is the global standard for determining GHG emissions. In June 2005, Baxter was one of four companies that testified before the U.S. House of Representatives Energy Subcommittee regarding the business benefits of taking action to address climate change. Baxter is one of the founding members of the Chicago Climate Exchange. In May 2006, Baxter executed the first-ever transaction linking GHG emission trading systems in Eu-

rope and North America. With three manufacturing plants in India, Baxter has joined the technical committee to develop the India Climate Exchange. In 2006, Baxter was twice recognized by the U.S. EPA with a Climate Leaders Award and one of the 2006 Climate Protection Awards. Baxter was recognized by InnoVest Strategic Value Advisors as one of the Global 100 Most Sustainable Corporations in the World for each of the past three years and has been named to the Dow Jones Sustainability Index for seven consecutive years.

### **Medline Industries**

Mundelein, Illinois

Contact: Wendy Abrams, Principal.

Medline Industries manufactures medical supplies serving hospitals, nursing homes, and home health agencies. In 2005, Medline completed an extensive review of its internal energy usage and implemented programs companywide to dramatically reduce energy consumption. It lowered carbon emissions by more than 12 million pounds.

### ***Energy Resources***

Only a few of the energy resources companies located in the Midwest are actively addressing climate change. Two that are involved in Midwest policy circles on climate issues are BP America and, very narrowly, Exxon Mobil. BP has set an example through its “Beyond Petroleum” transformation.

### **BP America**

Warrenville, Illinois

Contacts: William Gerwing, Director, Western Hemisphere Health, Safety, Security and Environment; Gary Stewart, Head of Governmental Affairs, Eastern States.

Member: Pew Leadership Council, Global Roundtable on Climate Change, Alliance to Save Energy associate, U.S. Climate Action Partnership, Illinois Climate Change Advisory Group.

Ceres score: 90.

BP America is one of the world’s largest energy companies and the U.S.’s largest producer of oil and gas. In the Midwest, BP operates petroleum refineries in Whiting, Indiana, and Toledo, Ohio. It has terminals, pipeline, and retail facilities throughout the region. In 1998, BP set a target to cut emissions from its operations to 10% below 1990 levels by 2010. In 2001, BP achieved its 2010 target, nine years early. The company has since continued to improve its GHG emission performance through energy efficiency projects, aiming to offset half of the underlying GHG emission increases that result from its expanding business through energy efficiency projects and sustainable reductions.

BP established an Alternative Energy business unit in 2005 that plans to invest \$8 billion in solar, wind, hydrogen, and combined-cycle power generation technologies over the next decade. BP partnered with Edison International to begin building the nation’s first hydrogen-fueled power plant, with most of the CO<sub>2</sub> being captured and stored underground. The company supports government policies to promote research on and use of wind, solar, and natural gas. It supported adoption of the Illinois commercial energy efficiency code and is active in the development of the LADCO voluntary GHG registry. BP’s Bill Gerwing believes that the nation and the Midwest need a GHG registry, a

national cap and trade system, more education and incentives for consumers, and more technical assistance and competitive structure for mid-sized companies to advance energy efficiency. The company supports the cross-sector, economy-wide framework, as well as a mandatory policy to address global climate change.

The Governors of Illinois and California have joined executives from BP to launch the Energy Biosciences Institute to be based at the University of Illinois Urbana/Champaign and the University of California, Berkeley. The \$500 million effort, funded by BP, will invest in research on next-generation homegrown biofuels made from crops that will cut GHG emissions, boost America's energy independence, and create new markets for Illinois farmers.

In January 2007, BP joined ten major corporations in forming the U.S. Climate Action Partnership (USCAP), which calls for GHG reductions of 10-30% by 2022, with a goal of a 60-80% reduction from current levels by 2050.

### *Electric Utilities*

An informal poll of utility executives taken at a 2005 meeting found that four out of five utility executives thought the U.S. would impose mandatory curbs on GHG emissions once President Bush leaves office. Many companies still plan to build new coal-fired power plants that will commit them and their customers to producing high levels of GHG emissions far into the future. There are plans to build as many as 30 coal-fired electric plants in the Midwest alone. Rising energy prices are intensifying the pressure to increase mining and burning of coal. At the same time, the recent acquisition of TXU by KKR and Texas Pacific was accompanied by an announcement that 8 of 11 planned new power plants would be scrapped, and AEP announced in March 2007 that it would build carbon sequestration capacity at two of its current coal fired plants.

To try to stop the building of new pulverized coal plants and to support the development of clean coal, the Joyce Foundation, Energy Foundation, and others are funding interventions. The only ways to stop construction are if purchasers refuse to sign long-term contracts, if stockholders and electric ratepayers refuse to invest based on climate risk, or if environmental groups sue to stop construction. In 2005, SC Johnson unsuccessfully fought the construction of two new coal plants in Wisconsin on environmental grounds. A few utility companies, such as Entergy, have openly opposed the building of pulverized coal plants, and others, such as those who are part of USCAP, have implicitly opposed the plants and support a cap on emissions that would be hard to meet if more pulverized plants come on line.

Emerging "clean coal" technologies are garnering some support among utilities. IGCC costs about 20% more than alternative technologies, so it will be difficult to speed this transition without limits on GHG emissions. Cinergy and AEP are working with General Electric and Bechtel Corp. to design and construct separate 600-MW integrated gasification combined cycle plants in Indiana and Ohio, respectively. Illinois and Indiana are making a joint bid to attract to Illinois the \$1 billion Future Gen federal coal plant demonstration program. Two years ago, Wisconsin regulators turned down Wisconsin Energy's request to build an IGCC plant. In Minnesota, where there still is integrated resource planning, there should be more sympathy for IGCC. The developer of the controversial \$2 billion Mesaba Energy Project proposed for the state's Iron Range region, Excelsior Energy, has no immediate plans for CO<sub>2</sub> sequestration.

The National Action Plan for Energy Efficiency, developed by the U.S. EPA and U.S. DOE with the help of leading utilities from around the nation, was announced in July 2006. Leaders were Diane Munns, president of the National Association of Regulatory Utility Commissioners and Iowa Utilities Board member, and James Rogers, president of Duke Energy. The plan makes five broad recommendations framed in terms of climate change and cost effectiveness, energy security, and environmental security. In concert with the plan rollout, Duke Energy renewed its commitment to advance energy efficiency and conservation programs in the five states in which the company's U.S. utilities operate – Indiana, Kentucky, North Carolina, Ohio, and South Carolina. Utilities in the Midwest have expressed interest in the plan's recommendations.

**Ameren Corp.**

St. Louis, Missouri

Contact: Paul Pike, Strategic Analyst.

Ameren Corp. is one of the nation's largest energy and natural gas utility holding companies; it serves Missouri and central and southern Illinois. Ameren's climate actions include research to increase plant efficiency, finding reusable energy sources, and planting trees. It supports President Bush's initiative to reduce "carbon intensity" (CO<sub>2</sub> produced over dollar GDP). Environmental groups such as the Clean the Air coalition have heavily criticized Ameren, the nation's seventh-largest source of CO<sub>2</sub> emissions. They cite its lack of support for "cap and reduce" programs and its relatively low financial support for environmental protection and pollution prevention compared to other Midwest energy providers.

**American Electric Power Co.**

Columbus, Ohio

Contacts: Bruce Braine, Senior Vice President of Analysis for AEP Energy Services; Greg McCall, Senior Engineer, Environmental Services.

Member: Chicago Climate Exchange (Bruce Braine is a founder and board member), Global Roundtable on Climate Change, Pew Leadership Council. Ceres score: 73.

American Electric Power Co. is the nation's largest electricity generator and largest consumer of coal. It has committed to reducing or offsetting approximately 46 million tons of cumulative CO<sub>2</sub> emissions by 2010, a 6% decrease relative to a 1999–2001 baseline. AEP reduced its CO<sub>2</sub> emissions by 13% between 2000 and 2004, but it still produces more carbon dioxide than any other power company.<sup>4</sup> Its interests include better net metering tariffs for renewable energy, RPS, energy efficient building codes, GHG reduction plans, GHG reporting and inventory, carbon sequestration, and rescission of state laws prohibiting action on climate change. AEP is working with General Electric and Bechtel Corp. to design and construct a 600-MW IGCC plant in Ohio.

In March 2007, AEP announced that it would install carbon capture capacity at two existing coal-fired plants.

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<sup>4</sup> "Top 50 Investor-Owned CO<sub>2</sub> Emitters in the U.S. Power Industry," 2004 Benchmarking Air Emissions Report, *Ceres*, April 2006.

**Calpine Corp.**

San Jose, California

Contact: Frederick L. Manuel, Senior Vice President, Operations, Safety, Health & Environment.

Member: U.S. EPA Climate Leaders, 1605(b) program.

Ceres score: 55.

Calpine Corp. is a national independent power company that builds and operates plants in the Midwest, including a 540-MW natural gas-fired electricity generating facility near Fremont, Ohio, and the 375-MW Mankato Energy Center in Minnesota. Calpine's goal is to reduce its GHG efficiency-based emissions rate (pounds of GHG emitted/MW hour of electricity generated) by 4% from 2003 levels by 2008. It has completed a GHG emissions inventory.

**Consumers Energy**

Lansing, Michigan

Contact: Nicole McIntosh, Environmental Department; Steve Stubleski, Project Manager.

Consumers Energy is one of the largest combination gas and electric utilities in the U.S. and Michigan's second-largest electric and natural gas utility. In 2006, Consumers Energy received Green-e certification for its "Green Generation" Renewable Energy Certificates. The renewable energy for the Green Generation program comes from Michigan-based landfill gas facilities and wind generators.

**Detroit Edison**

Contact: Michael Rodenberg, Chairman, PowerTree Carbon Co.

Member: U.S. DOE Climate Challenge Program.

Ceres score (DTE Energy): 50.

Detroit Edison, the electric subsidiary of DTE Energy, is an energy and energy technology provider for residential and commercial electric and natural gas. Its annual CO<sub>2</sub> emissions are currently below 1990 levels and its emission intensity (tons of CO<sub>2</sub>/MW hour of electricity generated) also shows a downward trend. Detroit Edison's increased nuclear generation and energy efficiency projects, especially turbine upgrades, contributed greatly to avoiding emission increases.

**Duke Energy Corp.**

Charlotte, North Carolina

Contacts: Richard Osborne, Group Vice President, Head, Public and Regulatory Policy Dept.; Dan Weiss, Director of State Energy and Environmental Public Affairs, Duke Energy Indiana.

Member: Pew Leadership Council, Alliance to Save Energy associate, U.S. EPA's Natural Gas STAR program. (Cinergy was a member of U.S. EPA Climate Leaders).

Ceres score: 47.

Duke Energy provides gas and electricity services to Ohio, Indiana, and Kentucky. It merged with Cinergy to become the nation's third-largest carbon-emitting company. Its CEO is an advocate of a carbon tax that would address GHG emissions from all sectors of the economy. Duke Energy has a tradition of reporting its greenhouse gas (GHG)

emissions. Duke's position is that nuclear power must play a key role in GHG reduction, as must integrated gasification combined cycle (IGCC) electric generating units that would replace pulverized coal units. Duke Energy is working with General Electric and Bechtel to complete a front-end engineering and design study for carbon sequestration. It is a technology coalition partner in three sequestration initiatives: the Southeast Regional Carbon Partnership, the Illinois State Geological Survey Midwest Geological Sequestration Consortium, and the Midwest Regional Carbon Sequestration Partnership. Duke Energy Indiana has agreed to purchase 100 MW of wind-generated electricity from an Orion Energy wind farm under development in Benton County, Indiana, under a 20-year agreement, pending regulatory approval.

Under the U.S. DOE's 1605(b) voluntary GHG reporting program, Duke Energy reported actions that have avoided or biologically sequestered (captured CO<sub>2</sub> in living plants) GHG emissions equivalent to approximately 175 million metric tons of CO<sub>2</sub> between 1991 and 2005. Duke Energy pledged \$2.5 million to Duke University to support the Climate Change Policy Partnership, a new industry-university collaboration.

Cinergy, which merged with Duke in 2005, had a Ceres score of 73. It was one of the first utilities to set a CO<sub>2</sub> management goal, calling for a 5% cut below its 2000 level by 2010–2012. Cinergy achieved a 7.5% reduction in emissions between 2002 and 2004. It planned to spend \$21 million to trim 10 million tons (12.5%) from its CO<sub>2</sub> emissions by 2012. Cinergy's CEO was outspoken in calling for prudent GHG regulations that would include cap-and-trade mechanisms. It worked with the Union of Concerned Scientists on cap and trade, with Environmental Defense on biofuels and low-carbon certification, and with the Western Governors Association on combined heat and power.

The National Action Plan for Energy Efficiency, developed by the U.S. EPA and U.S. DOE with the help of leading utilities from around the nation, was announced in July 2006. Leaders were Diane Munns, president of the National Association of Regulatory Utility Commissioners and Iowa Utilities Board member, and James Rogers, president of Duke Energy. The plan makes five broad recommendations framed in terms of climate change and cost effectiveness, energy security, and environmental security. In concert with the plan rollout, Duke Energy renewed its commitment to advance energy efficiency and conservation programs in the five states in which the company's U.S. utilities operate – Indiana, Kentucky, North Carolina, Ohio, and South Carolina. Utilities in the Midwest have expressed interest in the plan's recommendations. In January 2007, Duke Energy joined ten major corporations in forming the U.S. Climate Action Partnership (USCAP), which calls for GHG reductions of 10-30% by 2022, with a goal of a 60-80% reduction from current levels by 2050.

### **Edison International: Midwest Generation**

Rosemead, California

Contact: John Bryson, Chairman and CEO.

Ceres score: 51.

Edison International owns Midwest Generation, which owns and operates six electric power-generating facilities in Illinois. Edison's CEO is calling for comprehensive national programs to address global warming and reduce GHG emissions. These will include energy and resource use efficiency in electricity production and delivery; customer energy efficiency; electro-technologies, including electric transportation; economically based ap-

proaches; and renewable energy supply. The company has calculated GHG savings from its emissions reduction programs but has not set any future targets.

With BP, Edison announced plans in 2006 to build a \$1 billion hydrogen-fueled power plant in southern California that will be first in the U.S. to produce hydrogen from petroleum coke. Most of the CO<sub>2</sub> produced will be captured and pumped underground to enhance oil recovery. Edison says that new CO<sub>2</sub> removal technology must be developed and become commercially available before cap and trade is implemented, to avoid the need to purchase higher-priced resources.

### **Exelon Corp.**

Chicago, Illinois

Contacts: John Rowe, Chairman, President & CEO; Helen Howes, Vice President for Environmental, Health, and Safety Matters.

Member: Pew Leadership Council, Global Roundtable on Climate Change, U.S. EPA Climate Leaders, Alliance to Save Energy associate.

Ceres score: 63.

Exelon, a provider of natural gas and electricity, is the largest U.S. generator of nuclear energy, which represented 67% of its owned generation capacity and 90% of its electricity production in 2005. In May 2005, Exelon pledged to reduce its total U.S. GHG emissions by 8% from 2001 to 2008 and to work with suppliers to reduce their GHG emissions. Exelon expects that more than half of these reductions will come from use of cleaner energy sources, including increased renewable generation and increased output from its landfill gas and hydroelectric facilities, as well as cessation of operations at several of its older, less efficient fossil fuel plants, including Mystic 4-6 and Delaware 7-8. The remainder will come largely from energy and process efficiency measures, including building and fleet vehicle efficiency improvements, reduction of methane and SF<sub>6</sub> leakage, and waste recycling efforts, with a small contribution from carbon sequestration activities.

Exelon's chairman and CEO, John Rowe, co-chaired the National Commission on Energy Policy. Its 2004 report, *Ending the Energy Stalemate*, calls for the U.S. to establish a mandatory, economy-wide tradable-permits program to limit GHG emissions, while capping costs through use of a safety valve. A bipartisan group of 24 leading energy experts continues to work on national energy policy. The NCEP focuses on oil security, climate change, and energy infrastructure adequacy and siting.

Exelon testified in support of mandatory, economy-wide regulation of all six GHG emissions during an April 4, 2006, U.S. Senate Energy and Natural Resources Committee conference on climate change. The company is currently working with Sens. Bingaman and Spector to support a mandatory, economy-wide program covering all six GHGs that would start in 2012. This program would reduce national GHG intensity (GHG emissions per dollar GDP) each year. This approach slows GHG growth in the early years, stabilizes GHG emissions in the mid term, and ultimately starts to reduce GHG emissions in the long term. A safety valve would also be employed.

Exelon is a participant in the Clean Air Policy Initiative, which supports modest federal limits on power plant CO<sub>2</sub> emissions. Its newly renovated headquarters incorporate elements of sustainable design and energy efficiency, and adhere to standards established by the U.S. Green Building Council's Leadership in Energy and Environmental Design



(LEED) program.

Exelon is the parent company of Commonwealth Edison (ComEd), which provides electrical service to 70% of Illinois's residents. It is the largest regional consumer of biodiesel and ranks in the top 5% of biodiesel consumers nationwide. Exelon favors federal legislation rather than state-by-state legislation and, therefore, would encourage a common GHG registry for the Midwest aligned with California and the Northeast. It would like to see a common agreement about what offsets are and can be.

Exelon purchases some renewable energy in Illinois. It prefers a legislative framework similar to that in Pennsylvania, which addresses renewable energy and energy efficiency. It supports heating and appliance standards and the extension of Chicago's building codes to the rest of the state.

### **FirstEnergy Corp.**

Akron, Ohio

Ceres score: 50.

FirstEnergy, formed by the merger of Ohio Edison and Centerior Energy, is the fifth-largest investor-owned electric system in the U.S. FirstEnergy has reached an agreement with a wind power company to purchase power from a future 250-MW wind farm in West Virginia over a 20-year period. It is participating in an Electric Power Research Institute effort (the "Coal Fleet for Tomorrow") to evaluate advanced coal power systems such as IGCC. It supports research by Battelle Memorial Institute to assess geological (carbon injection) and terrestrial (trees) sequestration potential for CO<sub>2</sub> in the Midwest.

### **NiSource**

Merrillville, Indiana

Contact: Art Smith, Senior Vice President and Environmental Counsel.

Member: Global Roundtable on Climate Change, U.S. EPA Climate Leaders.

NiSource companies comprise the nation's third-largest natural gas transmission, storage, and distribution corporation, with markets primarily in the Midwest, Mid-Atlantic, and Northeast regions. In Indiana, NiSource has a power and natural gas subsidiary, Northern Indiana Public Service Company (NIPSCO), that in addition to its natural gas distribution business and two small hydroelectric plants currently operates three coal-fired electric generating stations with a net capacity of approximately 2,900 MWs. NiSource also has Indiana-based companies engaged in natural gas transmission and combined heat and power projects.

In 2005, NiSource completed its first enterprisewide GHG emissions inventory and presented it to the U.S. EPA's Climate Leader Partnership program. NiSource companies are working to increase generation, transportation, and distribution efficiency and reduce the carbon intensity of their energy products. NiSource has proposed to improve its companies' and customers' energy efficiency by 7% using a base-year and end-year of 2001 and 2012, respectively. Total benefits of NiSource's efforts are anticipated to reduce GHG emissions by approximately 1.9 million tons of CO<sub>2</sub> equivalent from 2012 projected emissions.

NiSource was one of the first utility companies to promote the development of large, on-site combined heat and power (CHP) projects designed to provide significant improvements in customer energy efficiency. NiSource Energy Technologies (NET) has

pioneered highly efficient distributed generation systems for commercial and small industrial customers. The U.S. EPA's Combined Heat and Power Partnership recognized NET for its "superior environmental performance." EPA also has recognized a number of natural gas conservation projects within EPA's Natural Gas Star program and selected several NiSource transmission and distribution companies as Partner of the Year. NIPSCO is in the process of seeking regulatory approval for a biomass fuel blend permit for part of its generating fleet. A 3% biomass blend to replace coal in about 500 MWs of generation will result in a reduction of approximately 80,000 tons of CO<sub>2</sub> per year reduction.

### **Wisconsin Energy Corp.**

Milwaukee, Wisconsin

Contact: Donna Danihel, Senior Environmental Specialist.

Member: Pew Leadership Council.

Wisconsin Energy Corp.'s businesses include electric generation and the distribution of electricity, natural gas, steam, and water. It has adopted a target of supplying 5% of its energy mix with renewable resources by 2011. Its support of demand-side management programs has resulted in reductions of over 15 million tons of CO<sub>2</sub>-equivalent emissions since 1995. WE gives consumers the choice of purchasing energy generated from renewable sources through its Energy for Tomorrow program.

### ***Industrial and Transportation Equipment***

The Midwest is a leading producer of engines, turbines, and power production equipment. Manufacturers in this sector are part of R&D initiatives to improve energy efficiency, and many of them have committed to reducing their own GHG emissions. John Deere has engineered school buses with compressed natural gas engines and hybrid lawn mowers. Caterpillar is part of initiatives with U.S. DOE to improve heavy-duty truck fuel efficiency, natural gas-fired engine efficiency, and solar turbine efficiency, and to develop new fuel cell power generation. Caterpillar also is heavily engaged in remanufacturing, replacing, and retrofitting older diesel engines. Cummins joined the U.S. government and other industry partners in the Twenty-First Century Truck Initiative, with the goal of developing commercially viable truck and propulsion system technologies that will dramatically cut fuel use and emissions from medium- and heavy-duty trucks and buses. Cummins also has partnered with other companies to build hybrid buses for the New York City Metropolitan Transit Authority.

### **Caterpillar**

Peoria, Illinois

Contact: Gary Connor, Operations Manager.

Member: U.S. EPA Climate Leaders.

Ceres score: 27.

Caterpillar is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, and industrial gas turbines. In 2003, Caterpillar committed to reducing its GHG emissions intensity by 20% by 2010, from a 2002 base. Having achieved this target ahead of schedule, Caterpillar has established a GHG intensity reduction goal of 35% by 2010. Caterpillar is committed to the ongoing development,

commercialization, and global deployment of clean and highly efficient technologies.

Caterpillar is part of research and development initiatives with U.S. DOE to improve heavy-duty truck fuel efficiency, natural gas-fired engine efficiency, and solar turbine efficiency, and to develop new fuel cell power generation. It is heavily engaged in remanufacturing, replacing, and retrofitting older diesel engines used in construction equipment, school and mass transit buses, electric power generation, and equipment used in port operations. The company actively supported congressional funding of the Diesel Emission Reduction Act of 2005, which authorized \$1 billion over five years for a national retrofit program.

In January 2007, Caterpillar joined ten major corporations in forming the U.S. Climate Action Partnership (USCAP), which calls for GHG reductions of 10-30% by 2022, with a goal of a 60-80% reduction from current levels by 2050.

### **Cummins**

Columbus, Indiana

Contact: Mark Land, Public Relations.

Member: Pew Leadership Council, U.S. EPA Climate Leaders.

Cummins designs, manufactures, distributes, and services electrical power generation systems, engines, and related technologies, including fuel systems, controls, air handling, filtration, and emissions solutions. The company has pledged to reduce its global GHG emissions by 25% per dollar revenue from 2005 to 2010. It has implemented energy conservation efforts in several of its facilities that have committed to cut peak electricity consumption. Cummins joined the U.S. government and other industry partners in the Twenty-First Century Truck Initiative, with the goal of developing commercially viable truck and propulsion system technologies that will dramatically cut fuel use and emissions from medium- and heavy-duty trucks and buses. It has partnered with Lockheed Martin Control Systems and Orion Bus to produce the diesel engine and soot filter for Lockheed's hybrid electric drive system for 125 Orion VII hybrid buses, to be purchased by the New York City Metropolitan Transit Authority.

### **Eaton Corp.**

Cleveland, Ohio

Contact: Steven Fesko, Manager, Environmental Services.

Member: U.S. EPA Green Suppliers Network.

Eaton's products include electrical systems and components, fluid power systems, truck drivetrain systems, car engine air management systems, and specialty controls for performance, fuel economy, and safety. It developed a diesel electric hybrid utility vehicle for FedEx that is 50% more fuel efficient than the conventional FedEx vehicle. This hybrid model is slated to become the replacement vehicle for future FedEx delivery vehicles. Both Eaton and Parker Hannifin, a leading manufacturer of motion and control technologies and systems headquartered in Cleveland, have developed a hydraulic hybrid drivetrain for heavy-duty vehicles. Eaton's technology was used in 50 hydraulic hybrid diesel trucks used by UPS. Eaton will soon produce and sell hydraulic hybrid transmission systems for installation in garbage truck bodies assembled by Peterbilt. Peterbilt says that

Chicago is among the municipalities expressing interest in the truck.<sup>5</sup> Eaton is helping 20 of its suppliers make process improvements to conserve energy and reduce pollution.

### **General Electric Co.**

Fairfield, Connecticut

Contact: Steve Ramsey, Vice President, Environmental Programs.

Member: Pew Leadership Council.

Ceres score: 58.

General Electric's products and services include lighting, aircraft engines, power generation, water processing and security technology, and medical imaging. It has a Midwest presence in wind, IGCC coal and carbon sequestration, and nuclear power, and sells many turbines to the Midwest. GE's "Ecoimagination" campaign, announced in 2005, is a plan to double investments in climate-friendly technologies and reach \$20 billion in annual sales by 2010. As part of the campaign, GE has pledged to achieve a 1% reduction in its GHG emissions from 2004 levels by 2012. It plans to double its investments to \$1.5 billion a year by 2010 in clean technologies such as wind turbines, high efficiency gas turbines, IGCC power plants, and hybrid diesel-electric locomotives. In May 2005, GE's chairman and CEO, Jeffrey Immelt, said that it was time for the federal government to reconsider the U.S. stance on global warming.

In January 2007, GE joined ten major corporations in forming the U.S. Climate Action Partnership (USCAP), which calls for GHG reductions of 10-30% by 2022, with a goal of a 60-80% reduction from current levels by 2050.

### **John Deere & Co.**

Moline, Illinois

Contact: Karl-Heinz Mertins, Manager Business Development.

Member: Pew Leadership Council, 25x'25 signatory.

Ceres score: 14.

John Deere, one of the oldest industrial companies in the U.S., manufactures agricultural, construction, and forestry equipment and related support operations (parts, power systems, and technology services). Deere began tracking its GHG emissions in 2003, but so far is disclosing emissions intensity data only. The company's GHG inventory protocol follows the U.S. EPA's Climate Leaders Program Inventory Guidance. Deere looks to improved efficiency of its facilities, cleaner products, and advanced research and development to address global warming. It also supports incentives for renewable energy. The company created a new wind energy business unit, managed by its credit business, which planned to invest up to \$60 million in wind energy projects by the end of 2005, and encourages wind power use by farmers. Deere announced plans in 2005 to use a 2% biodiesel blend (B2) as the preferred factory fill in its U.S. factories that make diesel-powered equipment. It has been recognized by the U.S. EPA's Clean School Bus USA initiative for its compressed natural gas engines. A hybrid green mower, one of its most

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<sup>5</sup> John J. Fialka, "EPA-Influenced Vehicles Get Set to Hit Road: Agency Inspires Commercial Manufacture of Fuel-Saving, Hydraulic-Hybrid System in Trucks," *The Wall Street Journal*, Aug. 22, 2006.

recent product offerings, contains an electrical reel system that reduces noise, improves fuel efficiency, and virtually eliminates oil leaks. It also is working on biodiesel tractors. Deere is actively looking for market opportunities that support its interest in minimizing climate change. It works to influence federal policy in this direction but has not become involved at the state level.

### **Tenneco Automotive**

Lake Forest, Illinois

Member: U.S. EPA Climate Leaders.

Tenneco Automotive designs, manufactures, and distributes automotive emission control and ride control products and systems for the automotive original equipment market and the aftermarket. The company serves General Motors, Ford Motor Co., Volkswagen, DaimlerChrysler, PSA Peugeot Citroen, Toyota, Honda, and Nissan. In the aftermarket, it serves more than 500 distributors and retailers. Its emissions control products (specifically, catalytic converters) conform to the highest standards worldwide. Tenneco has been recognized for its steps to limit emissions and reduce waste by the Georgia Pollution Prevention Assistance Division and the Michigan Department of Environmental Quality.

### ***Surface Transportation***

While commitment to address climate change is rare in the U.S. auto industry, car companies at least are beginning to address consumer demand for fuel-efficient cars. Weak sales of sport-utility vehicles and trucks, partly due to high gasoline prices, are signaling that fuel economy should be a key competitiveness priority. Technology leadership – a crucial factor in sales success – will now be measured primarily in terms of energy efficiency, according to Larry Burns, vice president in charge of R&D and strategic planning at General Motors. Ford Motor Co. and DaimlerChrysler AG executives agree.<sup>6</sup> And in June 2006, the CEOs of GM, Ford, and DaimlerChrysler AG's Chrysler Group sent a letter to Congress promising to double their annual production of alternative-fuel vehicles to two million by 2010.

Hybrid vehicles may be a more popular option than U.S. car companies have anticipated. Fifty-seven percent of consumers who expect to buy a new vehicle within the next two years plan to consider a hybrid, according to a recent study by J.D. Power and Associates. Survey respondents said they expect to pay an average of \$5,250 extra to get a hybrid, gas-electric power system. For that, they expect to get 28 mpg more than they could get with a similar vehicle powered by a conventional gas engine. Consumers are looking for far more than the mileage increase of the average hybrid on the market, but no better than the rating for the Toyota Prius.<sup>7</sup>

Japanese companies, which operate under 50-year business plans, have been ahead of the U.S. companies on energy efficiency and vehicles that manage multiple power sources. This strategy has filtered down to U.S. suppliers for Toyota and Honda. Suppliers are working on initiatives to reduce the weight of cars and improve efficiency.

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<sup>6</sup> Joseph B. White, "Eyes on the Road, Detroit Finally Learns Tough Lesson: Fuel Economy Becomes a Top Priority As Gas Prices Stay High, Truck Sales Slump," *The Wall Street Journal*, Sept. 11, 2006.

<sup>7</sup> White, *The Wall Street Journal*, September 11, 2006.

Along with fuel efficiency, the other climate-change priority for the auto industry should be to reduce GHG emissions from auto production facilities. Recently Toyota came out in favor of addressing global warming. The president of Toyota North America challenged other automakers to work with Congress to set reasonable goals for boosting fuel efficiency and curbing GHG emissions.<sup>8</sup> This has not happened yet. The U.S. auto companies still oppose regulation of GHG emissions.

### **Ford Motor Co.**

Dearborn, Michigan

Contacts: Niel Golightly, Director of Sustainable Business Strategies;

Claudya Arana and Larry Merritt, Environmental Quality Office.

Member: Chicago Climate Exchange, 1605(b) program, U.S. EPA Green Suppliers Network, Global Roundtable on Climate Change, and U.S. EPA Green Power Market Development Group.

Ceres score: 58.

Ford Motor Co. manufactures and distributes automobiles. Its brands include Aston Martin, Ford, Jaguar, Land Rover, Lincoln, Mazda, Mercury, and Volvo. Executive Chairman Bill Ford has said repeatedly over the years that developing vehicles that dramatically lower GHG emissions is a major competitive advantage in the auto industry, as well as a key element in building the company for the future. However, Ford has opposed U.S. legislative proposals to institute mandatory CO<sub>2</sub> controls on such emissions. In late 2005, Ford announced it would boost production of hybrid vehicles tenfold by 2010, to 250,000 hybrid vehicles annually, and take steps to offset the carbon emissions that occur in the production of these vehicles. The company has since pulled back from this pledge in favor of a broader focus on alternative fuels vehicles. Ford has set targets to reduce facility GHG emissions in North America and in the U.K. It is part of voluntary industry agreements in Europe and Canada to reduce CO<sub>2</sub> emissions from new vehicles. Ford issued the auto industry's first stand-alone report on climate change in 2005. Green power supplies 3% of Ford's global energy needs and 5% of its U.S. energy needs.

### **General Motors Corp.**

Detroit, Michigan

Contact: Kristen Zimmerman, Public Policy Center.

Member: U.S. EPA Green Suppliers Network, U.S. EPA Climate Leaders, Chicago Climate Exchange, Green Power Market Development Group.

Ceres score: 52.

General Motors is the world's largest automobile manufacturer. Its brands include Buick, Cadillac, Chevrolet, GMC, GM Daewoo, Holden, Hummer, Opel, Pontiac, Saab, Saturn, and Vauxhall. GM has been tracking its GHG emissions since 1990 and has set targets to reduce GHG emissions from its North American facilities and global operations. It is part of voluntary industry agreements in Europe and Canada to reduce CO<sub>2</sub> emissions from new vehicles, but it opposes proposed U.S. legislation to institute mandatory CO<sub>2</sub> controls on these emissions. GM has invested \$1 billion in fuel cell tech-

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<sup>8</sup> Zachary Coile, "Industry Starts to Back Rules on Greenhouse Gas," San Francisco Chronicle, Aug. 24, 2006.

nology and is working to design and validate a fuel cell propulsion system by 2010 that is competitive in terms of durability and performance and that ultimately can be mass produced. GM plans to introduce 12 hybrid models between mid-2006 and 2010. To date, GM has offered hybrid components in a limited number of transit buses and pickup trucks. GM is the nation's third-largest corporate user of solar photovoltaic systems and one of the two largest corporate users of landfill gas or thermal energy.

### **Honda**

Torrance, California

Ceres score: 62.

Honda manufactures Honda cars, motorcycles, personal watercraft, all-terrain vehicles, engines, generators, marine motors, and Acura cars. It is a major manufacturer of hybrid electric vehicles. In 2005, Honda took part in efforts to stop stricter GHG legislation from taking shape in California. Honda believes that it is the role of the federal government, not individual states, to regulate GHG emissions from motor vehicles. The company also says that the National Highway Traffic Safety Administration should increase corporate average fuel economy requirements because there is a direct relationship between fuel efficiency and GHG emissions, and that Congress should develop performance-based consumer incentives to stimulate purchases of new alternative fuel vehicles. Honda initiated the Green Factory Program in 1998 as a companywide framework in which Honda factories can assess and research ways to reduce environmental impact. According to the company, Honda manufactures the most fuel-efficient fleet of vehicles of all major U.S. manufacturers.

### **International Truck & Engine Corp.**

Warrenville, Illinois

Contact: Patrick Charbonneau, Vice President, Regulatory and Technology Affairs.

International Truck and Engine Corp. manufactures medium- and heavy-duty trucks. The company is involved in a variety of clean technology initiatives. It produces hybrid trucks that don't need to idle while their bucket is in operation. International Truck and Engine Corp. and Eaton Corp. are partnering with the U.S. Environmental Protection Agency (EPA), the U.S. Army National Automotive Center, and Morgan-Olson to build the world's first diesel-hydraulic series hybrid truck for UPS. The company also manufactures Green Diesel Technology school buses and trucks, and provides Green Diesel Technology retrofit kits for late-model diesel vehicles. Its Green Diesel Technology school buses have been in service in California since 2000.

### ***Air Transportation***

Although aviation now accounts for just 3% of carbon emissions globally, projected increases in air travel could make aviation one of the biggest contributors to global warming. Boeing, one of the world's two main aircraft manufacturers, is researching ways to reduce emissions. Given the working lifespan of aircraft, however, it will take a long time to turn over existing fleets. For instance, the new Boeing 787 will be launched in 2008 and is planned to be in service until at least 2058.<sup>9</sup>

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<sup>9</sup> Guardian Unlimited, "Special Report: The Airline Industry," Feb. 19, 2006.

## **The Boeing Co.**

Chicago, Illinois

Contact: Sarah Garvey, Vice President, Government Relations.

Member: Pew Leadership Council, U.S. EPA Green Suppliers Network.

The Boeing Co. manufactures satellites, commercial jetliners, and military aircraft, and is also involved in missile defense, human space flight, and launch services. As a member of the Pew Leadership Council, Boeing established GHG emissions reduction targets that it is meeting through energy efficiency steps within its own facilities. Boeing conducts routine energy audits at all sites to identify and implement energy-saving opportunities and installs energy efficient lighting. About 25% of its U.S. employees participate in programs to encourage commuting alternatives such as telecommuting, public transportation, and car sharing.

Boeing has a comprehensive environmental design process for its products that addresses fuel efficiency, light materials, and efficient operations. For example, in 2008 Boeing will launch its 787 aircraft, which will be lighter and use 20% less fuel than other models. The company is involved in demonstration projects on the use of fuel cell technology for future aerospace applications. In late 2006, Boeing announced that Spectrolab, Inc., a wholly owned subsidiary, achieved a new world record in solar cell efficiency. Using concentrated sunlight, Spectrolab demonstrated the ability of a photovoltaic cell to convert 40.7% of the sun's energy into electricity, a barrier that researchers had been trying to break for two decades.

## **Hamilton Sundstrand**

Windsor Locks, Connecticut

Contact: Richard H. Bennett, Jr., Vice President, Environment, Health & Safety.

Member: U.S. EPA Climate Leaders, Pew Leadership Council (parent company UTC is a member of these organizations, not Hamilton Sundstrand).

Hamilton Sundstrand is a leader in the production of aerospace systems for military and commercial applications. Its Midwest operations include Aerospace Customer Service and Electrical Systems in Rockford, Illinois, and Sullair Corp. in Michigan City, Indiana. The company is a leader in the production of aerospace systems for military and commercial applications. In the Midwest, it is involved in many projects with Chicago-based Boeing.

Its parent company, United Technologies Corp., has been listed on Dow Jones Sustainability World Indexes since they began in 1999. UTC also was named one of the world's 100 most sustainable companies at the 2005 World Economic Forum in Davos, the only aerospace company included. In 2003, UTC successfully achieved its goal of reducing energy consumption as a percent of sales by 25% from 1997 levels – a goal originally set for 2007 – resulting in a 15% reduction in absolute GHG emissions since 1997. It has increased its goal to a 40% reduction. UTC is one of 100 companies named to a new Global Climate 100 Index, intended to alert investors to businesses that are expected to provide solutions to climate change.



**Rockwell Collins**

Cedar Rapids, Iowa

Member: U.S. EPA Climate Leaders.

Rockwell Collins develops communication and aviation electronics solutions for commercial and government applications. It has been recognized by the U.S. EPA as a Performance Track Corporate Leader for its commitment to implementing programs that protect the environment. Rockwell Collins participates in EPA's Green Power Partnership and purchases 10,000 MWh of renewable energy certificates each year, equivalent to a CO<sub>2</sub> reduction of 13.8 million pounds.

***Appliances, HVAC, and Controls***

Some of the leading companies supplying energy efficiency appliances and controls are located in the Midwest. Appliance efficiency policies are of interest to such major manufacturers as Whirlpool, Andersen, Maytag, and Johnson Controls. Many of these firms are members of the Alliance to Save Energy or Energy Alley.

**Andersen Corp.**

Bayport, Minnesota

Contact: Chris Mathis, Technical Specifications Manager.

Member: Energy Star, U.S. EPA Project XL, Alliance to Save Energy associate.

Andersen Corp. manufactures windows and patio doors. It is the first and only such manufacturer to receive Green Seal certification. In 1998, the U.S. EPA named Andersen its Outstanding Energy Star Homes Manufacturer Ally. Andersen has reduced its GHG emissions since 1988. It has reduced landfill deposits by 98% by implementing a recycling and reuse program. It trimmed Toxic Release Inventory emissions by more than 97% and reduced releases of volatile organic compounds by more than 60%.

Sawdust collection systems supply Andersen plants with energy and materials for new products. The company is putting to use increasing amounts of reclaimed wood that are also being used for the creation of new products. For these and other efforts to conserve and reuse waste, Andersen has received awards from the State of Minnesota and the Minnesota Chamber of Commerce.

**Johnson Controls**

Milwaukee, Wisconsin

Member: Alliance to Save Energy associate, Climate RESOLVE, U.S. EPA Climate Leaders.

Johnson Controls produces advanced battery technology and environmentally friendly interior components for cars, as well as green technologies and services for buildings that consume less energy. Energy-saving initiatives in its own facilities reduced energy consumption by 30% from 1997 levels, preventing the release of over 20 million pounds of GHG and hundreds of thousands of pounds of other air pollutants. From 2002 to 2012, Johnson Controls will reduce GHG emissions by another 18% to fulfill its commitments to Climate RESOLVE and the Climate Leaders program. The company helped develop the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system and is involved in the High-Performance Green Buildings Initiative.

**Maytag Corp.**

Newton, Iowa

Contact: Lynne Dragomier, Senior Director, Corporate Communications.

Member: Pew Leadership Council.

Maytag, recently acquired by Whirlpool, makes home and commercial appliances. It is the first manufacturer to partner with the Energy Star program and the first to label qualifying products with the Energy Star logo. It achieved water savings of 38% and energy savings of 56% through use of an energy-saving “Neptune” front-loading clothes washer. Maytag supports the concept of giving credits for early GHG emissions reductions.

**Owens Corning**

Toledo, Ohio

Member: Alliance for Sustainable Built Environments, Alliance to Save Energy associate.

Owens Corning produces insulation, roofing, siding, basement and acoustic systems for building and remodeling, composites solutions, and asphalt. It supports Illinois’s commercial energy efficiency code. Owens Corning uses large amounts of energy to produce fiberglass insulation and composite materials. Starting in 1998, the company embarked on an integrated energy management strategy – simultaneously improving energy procurement, energy efficiency, and production technology – to reduce its energy costs by 20%. Owens Corning exceeded this target in under five years.

**The Trane Co.**

LaCrosse, Wisconsin

Contact: Mike Thompson, Director of Environmental Affairs.

Member: U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) New Construction Core Committee and Technical Committee, Alliance to Save Energy associate.

Trane, an American Standard company, is the world’s largest manufacturer of commercial air conditioners, heating, and ventilation systems. Trane’s chiller, the device that produces air conditioning coolant, is the only chiller in the world that has received the EPA’s Climate Protection Award. Trane provided systems design for the Herman Miller Marketplace in Zeeland, Michigan, which earned the LEED Gold rating, the American Institute of Architects Top 10 Award, and the Sustainable Building Council Exemplary Sustainable Building Award.

**Whirlpool Corp.**

Benton Harbor, Michigan

Member: Pew Leadership Council, Alliance to Save Energy associate.

Whirlpool Corp. is the world’s leading manufacturer and marketer of major home appliances. It pledged to decrease absolute total GHG emissions from global manufacturing, product use, and end-of-life by 3% by 2008 from a 1998 baseline. Whirlpool makes clothes washers, refrigerators, and dishwashers that qualify for the Energy Star label. Some of these appliances exceed U.S. energy efficiency standards by 30-50%.

### ***Furniture and Work Spaces***

Western Michigan is home to a number of furniture and workspace companies with a high commitment to environmental sustainability. These companies, considered Midwest leaders in sustainability, have a history of working together.

#### **Haworth**

Holland, Michigan

Member: U.S. EPA Climate Leaders, U.S. Green Building Council, Forest Stewardship Council, GreenGuard.

Haworth manufactures adaptable workspaces and interior architectural systems. The company pledged to reduce its U.S. GHG emissions by 20% per dollar sales from 2004 to 2009. It was part of the U.S. Green Building Council's pilot program in establishing guidelines for LEED. Its Chicago showroom at the Merchandise Mart was the first space in the building to meet LEED Gold certification standards. Haworth's Michigan facility has an on-site recycling center. The company won the Michigan Department of Environmental Quality's 2004 "Clean Corporate Citizen Award."

#### **Herman Miller**

Zeeland, Michigan

Contact: Paul Murray, Environmental Manager.

Member: U.S. EPA Green Suppliers Network, Western Michigan Sustainable Business Forum.

Herman Miller designs and manufactures furniture and furniture systems for offices and healthcare facilities. The company has launched "Perfect Vision," a broad initiative that sets significant sustainability targets for the year 2020, including zero air and water emissions from manufacturing and the use of 100% green energy to meet power needs. Herman Miller has undertaken a number of notable energy conservation projects. It burns its nonplastic, nontoxic waste at a cogeneration plant that provides all the heat and air-conditioning needs for its central facility and 10% of the electricity. The company owns a new building that uses passive solar energy design methods to manage the plant's heat gain.

#### **Steelcase**

Grand Rapids, Michigan

Contact: David Rinard, Director of Corporate Environmental Performance.

Member: U.S. EPA Green Suppliers Network, U.S. EPA Climate Leaders.

Steelcase makes office furniture. The company has often been honored for its environmental commitment. Between 2001 and 2005, Steelcase reduced its global GHG emissions by 41% and its global energy consumption by 46%.

### ***Consumer Electronics***

#### **Motorola**

Schaumburg, Illinois

Contact: Darcy Davidsmeyer, Director of State and Local Government Relations; Jody Shapiro, Vice President, Environment, Health, and Safety.

Member: Chicago Climate Exchange (founding member), Carbon Disclosure Project.

Motorola produces cell phones, cable modems, two-way voice and data radio products, and other communication devices and systems for consumers and institutions. The company achieved a 78% absolute reduction in energy use between 2000 and 2004. In 1999, Motorola established an aggressive goal to reduce its emissions of PFCs (perfluorocarbons) – the largest source of GHGs – by 50% worldwide by 2010. Motorola achieved that goal in 2003, earning a place among the Top 10 Companies of the Decade for climate reductions listed in the December 12, 2005, issue of *Business Week*. Motorola has continued to set emissions reduction targets. Its emissions were 5% lower in 2006 (normalized by sales) than in 2005.

Motorola has developed a number of energy-saving products. Its electronic engine controllers, used by many of the world's leading vehicle manufacturers, enable gas and diesel engines to save considerable amounts of energy and also reduce other atmospheric emissions of pollutants. Motorola's SoftSwitch, used in communications networks, consumes approximately 48% less energy than the switches it is designed to replace. Motorola reduced the amount of material used in its mobile phones from 5 kilograms in 1984 to less than 100 grams in 2005. In conjunction with various universities, it is actively researching renewable energy options for powering the cellular base stations of the future.

### ***Household Products***

Both Kimberly-Clark and SC Johnson are demonstrating leadership in waste and emissions reductions.

#### **Kimberly-Clark Corp.**

Neenah, Wisconsin

Contact: Kenneth A. Strassner, Vice President – Global Environment, Safety, Regulatory and Scientific Affairs.

Member: World Business Council for Sustainable Development, Sustainable Forestry Products Industry Working Group, Greenbiz.com, U.S. EPA Environmental Leaders.

Kimberly-Clark is the world's leading manufacturer of healthcare and hygiene products, including Kleenex. The company's Vision 2005 program, begun in 2000, succeeded in increasing energy efficiency by 19%, increasing water efficiency by 29%, and reducing landfill waste by 30%. Its Neenah facility has completely eliminated landfill waste, converting much of it into fuel. Greenpeace targeted the company in a 2005 campaign concerning its use of virgin-pulp from protected forests. Despite this, K-C maintains a progressive environmental policy and is recognized by many national and international groups. It was ranked first in the 2005 Dow Jones Sustainability World Index. K-C has adopted a Vision 2010 plan, which will seek to increase water and energy efficiency, reduce carbon emissions and waste, and promote sustainable forestry.

#### **SC Johnson**

Racine, Wisconsin

Contact: Frank Ericson, Environmental Manager.

Member: Pew Leadership Council, U.S. EPA Climate Leaders, World Business Council for Sustainable Development (founder), participant on HRH Prince Charles's Business and Environment Council.

SC Johnson is a consumer packaged goods company whose product line includes

Windex and Ziploc. It committed to achieve an absolute GHG reduction of 8% for all U.S. operations (or reduce GHG emissions intensity by 23% per kilograms of product manufactured) from 2000 levels by 2005. It also committed to reduce GHG emissions from its top five factories worldwide by 5% per year from 2000 to 2005. It exceeded this commitment through reductions in waste and fossil fuel usage. By 2005, SC Johnson reduced GHGs by 24% and doubled its commitment of an 8% absolute reduction of CO<sub>2</sub> emissions by reaching 16%. In 2003, SC Johnson was honored by the U.S. EPA with the first-ever Lifetime Atmospheric Achievement Award for its longstanding commitment to protecting both the ozone layer and climate. The SC Johnson headquarters building in Racine was designed for energy efficiency. SC Johnson unsuccessfully fought the construction of two new pulverized coal plants in Wisconsin on environmental grounds in 2005.

### ***Other Industrial***

Converting resources to industrial products can consume large amounts of energy. Many of the companies in this section have shown that it is possible to reduce emissions and still compete.

### **3M**

St. Paul, Minnesota

Member: Pew Leadership Council, Alliance to Save Energy associate.

3M is a diverse company whose products include consumer and office supplies, display and graphics materials, and electronics and communications. The company achieved a 62% improvement in energy efficiency since 1973; by cutting its energy consumption, 3M saved more than \$190 million since 1990. It reduced GHG emissions by 37% between 1990 and 2004. 3M is working to further reduce its GHG emissions through process improvements and the purchase of renewable energy. 3M products that help customers reduce their GHG footprint include replacements for ozone-depleting halon, energy conservation products, light management technologies, fuel cell components, high-temperature superconducting materials, and aluminum matrix composites that reduce transmission losses by up to 25%, thereby saving energy and reducing emissions. 3M is aggressive on energy efficiency, but is not as actively engaged in policy discussion as it has been in the past.

### **Alcoa**

Pittsburgh, Pennsylvania

Contact: Jim Bollenbacher, Vice President, Environment Health and Safety.

Member: U.S. EPA Climate Leaders, Pew Leadership Council, Global GHG Register.

Ceres score: 74.

Alcoa is the world's leading producer of primary aluminum, fabricated aluminum, and alumina. It is a major participant in all segments of the industry: mining, refining, smelting, fabricating, and recycling. It has production facilities in Illinois, Indiana, and Michigan. In 2006, Alcoa adopted a 2020 Strategic Framework for Sustainability, including 25% use of recycled aluminum in products by 2010 and 50% by 2020; 10% reduction in material from 2005 to 2010; 50% reduction in landfill waste by 2007 and 100% reduction by 2015; 25% reduction in GHG by 2010; 60% reduction in water process use by 2009; and substantial reductions in toxic substances (VOC, SO<sub>2</sub>, NO<sub>x</sub>). Despite ambi-

tious plans and many awards, Alcoa remains a large source of toxic pollution. Ceres has ranked it a Top Company for Climate Change.

Alcoa's chairman and CEO, Alain Belda, is a member of the corporate-environmentalist coalition U.S. Climate Action Partnership, which released a "Call to Action" on January 22, 2007, recommending a 10-30% reduction in GHG emissions within 15 years, with a goal of a 60-80% reduction from current levels by 2050. The USCAP report calls for federal limits on GHG emissions and a comprehensive set of market-based incentives, including a GHG cap and trade system and support for new, clean technologies and energy efficiency.

### **Holcim Ltd.**

Dundee, Michigan

Contact: Ruksana Mirza, Vice President of Environmental Affairs.

Member: Pew Leadership Council, U.S. EPA Climate Leaders, Global GHG Register.

Holcim is an international supplier of cement, aggregate, and concrete. Its plant in Dundee, Michigan, has long been criticized by environmental groups for its high emissions and water pollution. Holcim has committed to reduce CO<sub>2</sub> emissions by 12% per ton of product manufactured between 2000 and 2008. As of August 2005, it had emissions and other environmental reporting indexes. The Holcim Foundation works internationally to encourage sustainable development and environmentally friendly practices through award monies.

### **International Paper**

Stamford, Connecticut

Contact: Thomas C. Jorling, Vice President, Environmental Affairs.

Member: Chicago Climate Exchange, U.S. EPA Climate Leaders, World Resources Institute, World Business Council for Sustainable Development.

Ceres score: 49.

International Paper is the world's largest paper and forest products company. All of the forests it owns in the U.S. (some are in Wisconsin) are ISO 14001 and SFI certified. The company has developed a complete U.S. inventory of GHG emissions using the WRI protocol and reports them in its annual Sustainability Report. International Paper set a goal of reducing absolute GHG emissions by 15% by the year 2010 from a year-2000 baseline.

### **LaFarge**

Paris, France

Contact: Gaelle Monteller, Senior Vice President, Public Affairs & Environment.

Member: U.S. EPA Climate Leaders.

LaFarge is one of the world's largest producers of cement, aggregates, concrete, roofing, and gypsum. It maintains large Midwest operations in Illinois, Missouri, Iowa, and Michigan. The industry is a notorious polluter, and LaFarge is one of the major polluters in the Midwest. The company does, however, assert its commitment to sound environmental policies, including increasing energy efficiency, reducing water use, and reducing and reusing waste products from other industries. LaFarge has been strongly criticized for producing heavy pollution through tire burning.

**Novelis Corp.**

Cleveland, Ohio

Member: U.S. EPA Climate Leaders.

Novelis is the wholly owned U.S. subsidiary of Canadian-based Novelis Inc., which produces aluminum rolled products and recycles aluminum cans. Novelis supplies aluminum sheet and foil to the automotive and transportation, beverage and food packaging, construction, industrial, and printing markets. It tries to reduce GHG emissions through the supply chain through aluminum recycling, and by maximizing the benefits of using aluminum in improving energy efficiency, such as in the transportation sector.

**Stora Enso**

Wisconsin Rapids, Wisconsin (North American headquarters)

Contact: Annabeth Reitter, Division Air Programs Manager.

Member: Chicago Climate Exchange.

Stora Enso is an integrated paper, packaging, and forest products company that produces publication and fine paper, packaging board, and wood products. The company was rated best in its class in addressing climate change by the Carbon Disclosure Project, which cited its Environmental and Social Impact Assessment. The company used biofuels for 63% of its energy needs in 2005, most from its own processes (e.g., bark and logging residues). Seventy-four percent of its CO<sub>2</sub> emissions come from renewable sources that recycle carbon in the environment and do not produce “new” carbon. The company is committed to using combined heat and power schemes to increase energy efficiency. Its Whiting Mill in Stevens Point, Wisconsin, received the 2006 Wisconsin Business “Friend of the Environment” Award for its efforts in reducing coal-burning emissions.

**Waste Management**

Houston, Texas

Contacts: Robert P. Damico, Senior Vice President, Midwestern Group; Amy Banister.

Member: U.S. EPA Climate Leaders, Chicago Climate Exchange (founder), 1605(b) program, Keep America Beautiful, Inc. (partnership to promote recycling and renewable energy), Carbon Disclosure Project.

Waste Management is the nation’s largest operator of municipal waste landfills, waste-to-energy facilities, and refuse collection vehicles, as well as the nation’s largest recycler. Waste Management committed to reduce its GHG emissions by 6% between 2003 and 2010. Most of its landfills have landfill gas collection and destruction programs. It has an active clean energy portfolio to construct waste-to-energy plants, produce energy from recovered landfill gas, and switch from diesel trucks to clean-burning natural gas. These programs have drawn recognition from organizations such as the U.S. EPA, the U.S. DOE, and the Wildlife Habitat Council. WM operates one of the nation’s largest fleets of heavy-duty trucks powered exclusively by natural gas.

WM generates significant amounts of GHG credits through the operation of its landfill gas collection and control systems, its landfill gas beneficial use projects, and its waste-to-energy business, Wheelabrator Technologies Inc. In 2002, WM donated credits to a number of projects, including all of the 120,000 metric tons of CO<sub>2</sub> equivalent emission reduction credits needed to offset additional CO<sub>2</sub> emissions anticipated from the 2002 Olympic Winter Games. Even so, WM has been a target of environmental concern and

criticism about its landfill projects and ineffective recycling.

### ***Retail***

The success of energy efficient and low-waste products depends in large part on the retail companies that will price and sell them. Promoting consumer acceptance of these products is something that retailers can do to address climate change, in addition to their own potential to reduce GHG emissions. Wal-Mart, for example, could be a powerful force in creating markets for solar panels and compact fluorescent bulbs. Companies such as Wal-Mart and Target are making strong commitments to sustainability.

### **Best Buy**

Minneapolis, Minnesota

Member: Rethink Initiative (recycling e-products,) U.S. EPA "Plug-in to eCycling."

Best Buy is a retailer of consumer electronics, computers, software, and entertainment appliances. Every Best Buy store has a drop box in its entryway to allow individuals to recycle old cell phones, inkjet cartridges, and rechargeable batteries. The boxes also provide envelopes and labels for individuals to mail in recyclables from their homes. In 2001, Best Buy became the first retailer to host "Consumer Electronics Recycling Events," providing an opportunity for people to safely recycle computers, monitors, printers, fax machines, televisions, audio equipment, VCRs, and DVD players. Over three million pounds of consumer electronics have been collected and recycled to date. Best Buy recycles its used fluorescent and HID lights, preventing mercury contamination of 353 million gallons of drinking water in 2003. Recycled and recyclable packing materials are used for packaging and delivery. The company communicates mainly through electronic means to reduce paper use. In 2003, the U.S. EPA and Department of Transportation recognized Best Buy's incentives to encourage employees to bicycle, carpool, and take public transportation to work.

### **Jewel-Osco**

Minneapolis, Minnesota

In June 2006, Jewel-Osco became part of the SuperValu chain of 2,200 grocery stores. Jewel began a program during 2003 to quantify, claim, and trade GHG emission reduction credits. The company received the U.S. EPA's Waste Wise Honorable Mention Award for the Very Large Business Category in 2003.

### **Target Corp.**

Minneapolis, Minnesota

Member: U.S. EPA Climate Leaders, United States Green Building Council (corporate sponsor), Minnesota Environmental Initiative, Clean Air Minnesota, Sustainable Packaging Coalition.

Target Corp. operates 1,500 retail stores in 47 states. The company has cut its waste by 70% through reuse and recycling programs. It is cutting its energy consumption by using energy efficient lighting and equipment in stores, saving 132 billion BTUs in 2004 through corporate-wide energy conservation practices. Target has estimated its annual carbon emissions (2 million metric tons from energy usage) and is working to set a reduction goal for GHG emissions. Target introduced the Leadership in Energy and Envi-



ronmental Design (LEED) program in new store locations. The new Target stores on Peterson Avenue and in McKinley Park, both in Chicago, are the first to use the LEED system.

### **Wal-Mart**

Bentonville, Arkansas

Contact: Andy Rubin, Vice President of Sustainability.

Wal-Mart is the world's second-largest company by revenues (after Exxon/Mobil), serving 176 million customers weekly. While Wal-Mart is not a Midwest company, its desire to switch to renewable sources of energy might impact Midwestern markets. In October 2005, CEO H. Lee Scott announced a goal to invest \$500 million annually to transform Wal-Mart into a company that runs on 100% renewable energy, sells sustainable products, and produces zero waste. Since then, Wal-Mart has committed to increase the efficiency of existing stores by 20% over the next seven years, double the fuel efficiency of Wal-Mart's truck fleet within 10 years, reduce solid waste from U.S. stores by 25% in the next three years, design and open a viable store prototype that is 30% more efficient, and have 20% of its supply base aligned with its sustainability goals in three years. Wal-Mart has joined leading energy executives in calling for mandatory caps on GHG emissions.

### ***Hotels/Tourism***

Many hotels have implemented energy and water conservation programs. A smaller number are trying to become environmentally sustainable. For example, the Sheraton Rittenhouse Square in Philadelphia has countertops and flooring made of recycled granite, room number signs that incorporate recycled aluminum and glass, and carpets made of 100% nylon with a jute backing that allows recycling after use. Its furniture, paint, and wall coverings do not contain toxic chemicals and therefore do not emit toxic gases. A 40-foot bamboo garden oxygenates the lobby; bamboo was chosen because its oxygenation rate is 35% higher than other plants. Independent of the heating and cooling system, each guest room gets a complete supply of fresh air every half hour. The hotel uses non-toxic cleaning products and organic cotton bedding. The hotel is part of the Ceres Green Hotel Initiative, which seeks to increase the demand for environmentally conscious hotels by harnessing corporate and government purchasing power.

Because winter tourism is likely to be adversely affected by warmer winters with less snow, winter resort companies are stepping up to support climate action.

### **Aspen Skiing Co.**

Aspen/Snow Mass, Colorado

Contact: Auden Schendler, Director of Environmental Affairs.

Member: Chicago Climate Exchange, Ceres.

Aspen Skiing Company, owned by the Crown family of Chicago, operates the Aspen/Snowmass resort complex of four ski areas near the town of Aspen. ASC has won prizes for its commitment to energy efficiency and renewable energy. It built one of the first dozen LEED-approved buildings (bronze rating) in the U.S. and has since completed a new silver-level LEED building. ASC has made a large commitment to renewable energy. It committed to the first significant purchase of wind power and renewable

energy certificates in the ski industry, established the largest solar photovoltaic system in the industry, and built a small hydro-electric plant to power part of its operations. The company offsets 100% of its electricity use and fuels all of its Snowcats with biodiesel.

ASC developed the ski industry's first climate policy and was the first ski resort to join the Chicago Climate Exchange. ASC has committed itself to legally binding annual reductions in its CO<sub>2</sub> emissions. In 2001, ASC adopted a climate change policy that commits the company to build green, improve energy efficiency, support mass transport, account for emissions annually, and reduce 2010 emissions to 1999 levels.

In 2006 ASC launched "Save Snow," the first climate change education campaign in the ski industry. The campaign began with a series of three full-page ads that ran as part of the company's winter advertising campaign. (Information is available at the campaign's Website, [savesnow.com](http://savesnow.com).) ASC also established an environmental consulting practice as part of its Environmental Affairs Department, Aspen Sustainability Associates, which will assist other businesses, governments, and individuals in greening their operations.

### **Crystal Mountain**

Thompsonville, Michigan

Crystal Mountain is a ski resort in Benzie County, Michigan, near Traverse City. In March 2004, it joined 65 other ski resorts in 18 states in a letter supporting the Climate Stewardship Act, a Congressional proposal to begin limiting GHGs. Crystal Mountain was the only Michigan snow sports company to join. Since that time, it has committed to powering the entire resort using renewable energy. The resort already uses wind credits to power its high-speed chairlift. In 2006, it formed a green team to identify improvements in environmental performance.

### **Hyatt**

Chicago, Illinois

Hyatt is an international hospitality brand within the Global Hyatt Corp., which is a part of the Marmon Group owned by Chicago's Pritzker Family. Various hotels in the Hyatt group have been recognized for environmental performance. The Hyatt Regency Boston earned an Environmental Merit Award from the EPA for making a commitment in 2004 to continuously use environmentally friendly practices. The Hyatt Regency Boston also became the first hotel in the city to be part of the Green Hotels Association, an organization that promotes and recognizes eco-friendly hotel operations. Two Hyatt Regency hotels in the Dallas area agreed to buy only renewable energy. This purchase places the two Hyatt hotels among the top 20 green power purchasers in the U.S. and the top five in Texas. EPA's Climate Protection Partnerships Division recognized the two hotels with Green Power Leadership Awards. The hotels are buying their power from Green Mountain Energy, based in Austin. Hyatt Regency Chicago is known for its Comprehensive Waste Reduction and Recycling Program.

### ***Biofuels***

Biofuel is any fuel that is derived from biomass, including ethanol and biodiesel. Biomass includes wood, crop residues, municipal waste, and other organic materials. At present, the biofuels industry is highly concentrated in the Midwest. The region is home to all existing ethanol plants, and every agricultural state in it is interested in producing more

ethanol. In Iowa alone, there are 25 ethanol plants operating, with another 22 on the drawing board.

Producing ethanol from corn kernels, however, requires a great deal of corn. If all the ethanol plants proposed for Iowa were built, says Iowa State University economist Robert Wisner, the state's entire corn crop would be required to supply them. At the least, there would be a steep rise in corn prices.<sup>10</sup>

While biofuels could be a boon to the agricultural industry and improve energy security, using corn to produce fuel will have negative environmental impacts and will contribute to increases in food prices. Corn ethanol both supports the Midwest economy and reduces reliance on imported oil, but it does not contribute significantly to GHG reduction. A recent series in *Nature* confirms that the net GHG reductions are small at best when one takes into account the energy that goes into harvesting, fertilizing, and transporting the corn to refineries and then refining it.<sup>11</sup> CO<sub>2</sub> benefits will come mainly from cellulosic sources, such as grasses, that are nearly carbon neutral, rather than corn-based ethanol.

As the U.S. moves beyond corn, the next generation of ethanol is likely to come from crop residues such as wheat straw and corn stover (the stalks left over after the corn is harvested). There is a massive amount of corn stover in the Midwest. The third generation of ethanol is likely to come from prairie grasses grown on land that has low value for crop production. There is a great deal of low-value agricultural land outside the Midwest: in the South, in Texas, and in the drylands of Wyoming and the Dakotas. Purdue University has a large research program on cellulosic ethanol, and BP announced in fall 2006 that it was investing \$500 million to support research in biofuels at the University of Illinois Urbana/Champaign and the University of California, Berkeley.

Both Archer Daniels Midland and Cargill are involved in cellulosic ethanol; ADM is very close to having cellulosic ethanol ready for commercial use. Other big players investing in cellulosic ethanol are Iogen Canadien (Shell and Goldman Sachs are investors), BP, Chevron, and DuPont. Every farmer-owned ethanol co-op is interested in cellulosic ethanol.

### **Archer Daniels Midland Co.**

Decatur, Illinois

Contact: Lee Cunningham, Corporate Environmental Council.

Ceres score: 12.

Archer Daniels Midland Co. is one of the world's biggest processors of soybeans, corn, wheat, and cocoa. A huge producer of corn-based ethanol, ADM sees itself as both an energy and a food company. ADM operates coal-fired plants at its company base in Decatur, Illinois, and in Cedar Rapids, Iowa, and is currently adding another coal-powered facility at its Clinton, Iowa, ethanol plant. ADM president and CEO Patricia Woertz (formerly with Chevron) said that ADM is going to put more money into ethanol and has mentioned the possibility of marketing biodiesel in Europe. ADM has seven ethanol plans in the Midwest, including three in Illinois and one each in Minnesota, Iowa, Nebraska, and North Dakota. ADM has broken ground on new plants in Cedar Rapids,

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<sup>10</sup> Jon Birger and Patricia Woertz, "The Outside," *CNNMoney.com*, Oct. 2, 2006.

<sup>11</sup> Katharine Sanderson, "A Field in Ferment," *Nature*, Vol. 444, Dec. 2006.

Iowa, and Columbus, Nebraska, that will produce 550 million gallons a year. The company has also begun work on a bioplastics plant in Clinton, Iowa.

### **Aventine Renewable Energy**

Pekin, Illinois

Aventine Renewable Energy is a leading producer and marketer of ethanol. It supplies over 500 million gallons of ethanol per year through its wholly owned plant in Pekin, Illinois, a partially owned Nebraska Energy plant in Aurora, Nebraska, and business relationships and marketing alliances.

### **Cargill**

Minneapolis, Minnesota

Contacts: Robbin S. Johnson, Senior Vice President, Director of Corporate Affairs; La-Ray Osborne, Vice President of Environment, Health, and Safety Group.

Member: Chicago Climate Exchange, 1605(b) program, Global Roundtable on Climate Change, Green Power Market Development Group.

The world's largest private corporation, Cargill, Inc. supplies food, agricultural, and "risk management" products and services. The company sees itself first as a producer of food, followed by feed and then fuel. A leader in the production of corn-based ethanol, Cargill also produces many kinds of biomaterials, including new plastic products made from field corn rather than petrochemicals. Cargill tracks its GHG emissions, although addressing climate change is not a high priority for it. If there is going to be carbon regulation, Cargill would like to see a comprehensive approach that includes developing countries and support for research. Cargill's president is not comfortable with the current ethanol and biodiesel subsidies, which are tilted toward fuel production rather than food production. The company would like to see more subsidies for research to support the development of new technologies, including research on the energy/output ratio for cellulosic ethanol.

### ***Wind and Photovoltaics***

Wind power is coming of age as an alternative source of energy in the Midwest. According to the DOE's National Renewable Energy Laboratory, there was 744 MW of wind power capacity in Minnesota, 836 in Iowa, 107 in Illinois, 53 in Wisconsin, 7 in Ohio, and 3 in Michigan, for a total capacity of 1,750 MW by the end of 2005. As of May 2004, projects with at least 3,480 MW combined output were in the planning pipeline.<sup>12</sup> In 2006, more than a dozen wind farm projects with a combined output of 1,920 MW were under development in Wisconsin, Illinois, Minnesota, and the Dakotas. Smaller-scale wind energy generation is being promoted to farmers, who increasingly see wind energy as a potential source of income.

Most wind energy technology is not produced by Midwest companies. Major wind developers/owners include FPL Energy, Invenergy, EnXco, Zikha, and Goldman Sachs. Midwest leaders in wind power include Wisconsin Public Service Corp., which built a 14-turbine facility in Lincoln, Wisconsin, and is testing wind power feasibility in Glenmore; John Deere, which provides credit for wind farms; Clipper, a wind turbine manu-

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<sup>12</sup> *Environmental Law & Policy Center, Midwest/Great Plains Wind Power Project Map, 2004.*

facturer in Iowa; and L M Glass Fiber, a Danish company whose U.S. headquarters are located in North Dakota. National companies active in the Midwest include GE, which sells many turbines in the Midwest.

A recent federal action stalled or stopped the development of wind energy facilities across the country, including more than a dozen in the Midwest. The action was an interim policy on the proposed windmill locations that was issued jointly by the Departments of Defense and Homeland Security on March 21, 2006. One of the stalled projects is located in Bloomington, Illinois. If completed, the wind farm would be the largest source of wind energy in the nation, generating enough power to serve an estimated 120,000 Chicago-area homes.

Solar, or photovoltaic (PV), facilities also are proliferating, although not at the same rate as wind power. In 2000, the Iowa Department of Natural Resources commissioned a survey to determine barriers to the use of PV technologies in the Midwest. The survey report concluded that the Midwest did not have a mature PV infrastructure to support widespread use of the technology. The number of manufacturers, dealers, designers, and installers in the Midwest was limited, while consumer demand was low. Professionals were skeptical about solar's cost effectiveness, efficiency, and reliability. These concerns have begun to be addressed.

The world market for solar cells has grown roughly 30% annually over the last six years. U.S. demand for solar PV is expected to more than triple from 2005 to 2010 due to the falling price of solar power.<sup>13</sup> Iowa, Wisconsin, Michigan, and Illinois are among the states that have provided incentives and supports to encourage market growth.

Two states – Michigan and Ohio – have taken a special interest in renewable energy. Michigan, home to 12 PV facilities, has committed \$2 billion in bond funds in a bid to become the nation's alternative energy hub. Ohio is working to support new business development around alternative energy. It is home to the nation's second-highest number of companies that are in the wind turbine manufacturing supply chain, including Parker Hannifin, Owens Corning, and Timken Steel. One of the largest solar panel manufacturers in the nation, First Solar, is located in Perrysburg, Ohio.

Listed below are a few of the region's renewable energy leaders.

#### **D. H. Blattner**

Avon, Minnesota

Contact: Ken Hilgert, Marketing Manager.

D. H. Blattner is one of the largest construction companies for wind power. With M. A. Mortenson, it has built \$1 billion worth of wind farms.

#### **First Solar**

Perrysburg, Ohio

Contact: Chip Hambro, President.

First Solar produces high-quality thin film solar modules. It received the Green Energy Ohio 2003 Business of the Year Award for its leadership and for establishing the Ohio Clean Energy Business Association. Other companies in the Ohio Clean Energy Business Association include Advanced Distributed Generation (Maumee), Bio-Gas

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<sup>13</sup> *Freedomia Group, Inc., Solar Energy Products, Nov. 1, 2006.*

Technologies (Westlake), Dovetail Solar (Glouster), Energy Conversion Devices (Rochester Hills, Michigan) and its affiliate Texaco Ovonic Battery Systems, LLC (Springboro), Green Mountain Energy Co. (Dublin), Technology Management Inc. (Cleveland), Third Sun Solar & Wind Power (Millfield), Universal Electric Power Corp. (Akron), and Vanner, Inc. (Hilliard). (All are in Ohio unless otherwise indicated.)

### **M. A. Mortenson**

Minneapolis, Minnesota

Member: U.S. Green Building Council.

M. A. Mortenson is a general contracting firm with annual revenues in excess of \$1 billion. It is the leading general contractor of U.S. wind power projects. Over the last four years, Mortenson has been involved in the construction of more than 15 wind projects with a combined nameplate capacity in excess of 550 MW.

### **Spire Solar**

Chicago, Illinois

Contact: Chris Dufresne, Assistant to the President.

Spire Solar, a subsidiary of Spire Solar Corp. of Bedford, Massachusetts, is the world's leading supplier of specialized equipment for producing photovoltaic solar modules. Responding to the City of Chicago's pledge to use renewable power whenever possible, Spire is producing PVs in the Chicago area, with assistance from state and federal agencies. Spire produced solar curtain walls for the Exelon Pavilions and Bicycle Station at Millennium Park in Chicago and PV systems for the Bethel Commercial Center, a mixed-use transit center in a neighborhood on Chicago's West Side.

### **White Construction Svcs.**

Clinton, Indiana

White Construction Services, a family-owned construction company, is the nation's third-largest installer of wind farms. It recently established a wind power division specializing in construction of wind turbines and wind-farm infrastructure. White expects its wind project workload to double through 2006.<sup>14</sup> None of these projects are located in Indiana. According to the DOE's National Renewable Energy Laboratory, the northern two-thirds of Indiana has enough wind to supply twice the energy the state needs.

### ***Chicago Climate Exchange***

#### **Chicago Climate Exchange**

Contacts: Richard Sandor, Chairman and CEO; Michael Walsh, Senior Vice President.

The Chicago Climate Exchange is the world's first legally binding GHG emission registry, reduction, and trading system. Based in Chicago, the CCX has traded all six GHGs since 2003. Members make a legally binding commitment to reduce their emissions based on a specified baseline and reduction schedule. Those who exceed their commitments may sell allowances to other members, while those that do not meet their commitments must buy allowances from other members.

Of the 100-plus participants in CCX, Midwest members include American Electric

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<sup>14</sup> The Indianapolis Star, Jan. 28, 2006.

Power, Baxter Healthcare Corp., Ford, Cargill, Motorola, Schneider Electric U.S., Stora Enso (North American Headquarters), the Universities of Iowa and Minnesota, the City of Chicago, the State of Illinois, and farmers in Iowa. The number of participants continues to grow despite the lack of regulatory limits on carbon emissions in the United States. CCX members must monitor and measure their emissions. Getting these systems in place is, in fact, a major step for many corporations and governments, and an important contribution of CCX.

Whether states should be recruited to join CCX is a matter of some controversy in the environmental community, which hopes that federal standards will be higher than those of CCX.

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# Midwest Multi-Stakeholder Collaborative Initiatives

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Strengthening rural and farm economies is the main focus of current Midwest multi-stakeholder collaborative initiatives. To achieve this, the initiatives emphasize increasing the market share of renewable resources and the demand for terrestrial and geological carbon sequestration. The collaborative groups are gaining strength. 25x'25, for example, is continually broadening its public and private base of support.

## 25x'25

Contact: Ernie Shea.

Member: Energy Future Coalition.

With the goal of producing 25% of America's energy from renewable resources by 2025, the Energy Future Coalition in 2006 launched a major national campaign for "25x'25." The EFC is a broad alliance seeking energy policy reforms. More than 70 agricultural and forestry groups and companies have embraced 25x'25's basic plan, including the American Farm Bureau Federation, the National Corn Growers Association, the National Milk Producers Federation, the Association of Consulting Foresters of America, and the farm equipment company John Deere & Co.

Governors who have endorsed 25x'25 include Kathleen Sebelius of Kansas, Brian Schweitzer of Montana, Mitch Daniels of Indiana, Ed Rendell of Pennsylvania, Tim Pawlenty of Minnesota, Dave Heineman of Nebraska and Jeb Bush of Florida. Gov. Sebelius and Gov. Heineman are co-chairs of the Governors' Ethanol Coalition. Gov. Pawlenty is working through the Midwestern Governors Association to encourage all 13 of its governors to endorse 25x'25.

Ernie Shea, who heads the campaign, is forming deep relationships with agricultural leaders and creating a vision for the future of rural communities that is linked to renewable energy production. In February 2007, the 25x'25 Action Plan, *Charting America's Energy Future*, was released, outlining specific steps to enable biofuels and renewables to meet 25% of the country's energy needs. The plan calls for increasing production of renewable energy and expanding renewable energy markets, as well as improving energy efficiency and productivity and strengthening conservation of natural resources. It includes specific policy recommendations. See [www.25x25.org](http://www.25x25.org) for more information.

## Energy Transition 2050

Contact: Energy Center of Wisconsin, Madison, Wisconsin.

Energy Transition 2050 is a forum for advocates, utilities, businesses, and policy makers from the Northern Plains and Midwest to address energy transition issues, including buildings and transportation. These stakeholders meet every two years, with the next meeting in Chicago in late 2007. Sponsors include Alliant Energy, Duke Energy, Energy Center of Wisconsin, Great Plains Institute, Great River Energy, Midwest Governors Association, We Energies, Wisconsin Public Power Inc., and Xcel Energy.



## **Great Plains Institute – Powering the Plains**

Minneapolis, Minnesota

Contact: Brad Crabtree.

A project of the Great Plains Institute, Powering the Plains works to find economic opportunities within efforts to mitigate climate change and other environmental concerns. PTP brings together elected and government officials, utility industry executives, agricultural producers, farm organization representatives, and renewable energy advocates from the Dakotas, Iowa, Minnesota, Wisconsin, and Manitoba. Participants meet quarterly to develop and implement initiatives in energy and agriculture that add value to the region's economy while reducing the risk of climate change.

PTP's range includes work on renewable energy development (wind, biomass, and hydroelectric projects); hydrogen production from renewable and carbon-neutral sources; emissions trading; carbon dioxide sequestration in prairie soils and wetlands; and coal gasification with capture and geologic sequestration of CO<sub>2</sub>. The Great Plains Institute recently received a significant grant from the Joyce Foundation to support its Coal Gasification Working Group. Brad Crabtree, project head, has noted a broadening in the conversation about climate change from talking only about costs to including new economic opportunities.

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# Midwest Sustainable Business Collaborative Initiatives

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The Midwest has a number of strong regional business partnerships focused on environmental sustainability, including Cleveland Business Entrepreneurs for Sustainability and the Western Michigan Sustainable Business Forum. Added to this mix is the Climate Midwest Partnership, a new Midwest-wide partnership of large corporations focused on energy and climate policy development. These initiatives could provide a good starting point for an effective regional climate initiative.

## **Cleveland Business Entrepreneurs for Sustainability**

Cleveland, Ohio

Contact: Courtney DeOreo.

Known as E4S, Cleveland Business Entrepreneurs for Sustainability is dedicated to creating a sustainable economy in northern Ohio by promoting sustainable practices in facilities, products, markets, and the environment. E4S sponsors events and workshops for members and non-members in Ohio and has a strong relationship with the Ohio Green Building Council.

## **Climate Midwest Partnership**

Contact: Andrew Aulisi, Project Manager.

Formed by the World Resources Institute, the Climate Midwest Partnership works to develop corporate strategies to reduce GHG emissions, make the business case for reductions, and identify opportunities for technology and cross-sector innovation. It is a Midwest workgroup of 12 corporate partners: Archer Daniels Midland, Baker & McKenzie, Baxter, Caterpillar, Great River Energy, Johnson Controls, Kimberly-Clark, LaSalle Bank, OfficeMax, Stora Enso North America, Target, and United Airlines. WRI intends to add a few more partners. All of these companies have an interest in manufacturing or purchasing technology for energy efficiency, renewable energy, or coal gasification. By working together, the partners share best practices and solutions with a diverse set of peers, create a leadership forum on corporate responses to GHG issues, and become more effective participants in policy dialogues.

## **NextEnergy**

Detroit, Michigan

Contacts: Jim Croce, Executive Director; Rachel Kuntzsch, Coalition Coordinator.

NextEnergy is a nonprofit corporation founded to advance the alternative energy technology industry in Michigan. It is particularly concerned with fostering alternatives to fossil fuels, such as biodiesel, and zero-emission, sustainable sources such as hydrogen, wind, and solar. It was capitalized with a \$30 million seed grant from the Michigan Economic Development Corp.

**Ohio Clean Energy Business Association**

Columbus, Ohio (Green Energy Ohio)

Ohio Clean Energy Business Association (OCEBA) was formed in 2003 by ten Ohio firms engaged in the “clean energy” business. Its purpose is to grow a diverse, sustainable energy economy that improves the quality of life for Ohio residents. The association focuses on educating the public, businesses, and legislators while promoting concise policy changes that stimulate renewable energy growth. Its latest report, released in April 2005, concerns the implications of Ohio Non-Attainment (i.e., air pollution levels that exceed the federal air quality standards). OCEBA has campaigned to promote the economic benefits of the wind power industry, including job creation and research opportunities.

**West Michigan Sustainable Business Forum**

Grand Rapids, Michigan

Contact: Bill Stough.

The West Michigan Sustainable Business Forum seeks a “triple bottom-line objective”: to promote business practices that demonstrate environmental stewardship, economic vitality, and social responsibility. Its membership includes large area industries, particularly furniture and textile manufacturers, and small businesses. The SBF helps companies share information about waste reduction, renewable materials, energy conservation, and “best practices.” Founded in 1994 under the auspices of the West Michigan Environmental Action Council, the forum has not taken policy positions.

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# National Business Collaborative Initiatives

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Most Midwest companies are active on climate issues through the national business collaboratives. Many of the companies are members of several collaboratives.

## **Ceres**

Boston, Massachusetts

Contacts: Mindy Lubber, President; Chris Fox, Director of Investor Programs.

Ceres is a national coalition of institutional investors and environmental organizations that works with companies and investors to address sustainability challenges. With the Interfaith Center on Corporate Responsibility, Ceres is leading a multi-year campaign to use shareholder resolutions to get companies to commit to climate action. Companies that have responded to resolutions by agreeing to issue reports measuring climate change impacts and present plans for mitigation include Apache, Anadarko Petroleum, Chevron, Marathon Oil, Tesoro, Unocal, American Electric Power, Cinergy, Reliant Energy, Southern Co., and TXU.

Ceres directs the Investor Network on Climate Risk, a group of more than 50 leading institutional investors with collective assets of over \$3 trillion. The INCR held an investor conference in Chicago in December 2006.

Ceres ranks major U.S. corporations on climate action using a scoring system that addresses board oversight, management performance, public disclosure, GHG emissions accounting, and strategic planning. The 100-point scoring system gives the most credit to companies with a sustained commitment to controlling GHG emissions, disclosing data and strategies, supporting regulatory actions, and taking practical, near-term steps to find lasting solutions to climate change.

## **Energy Information Administration Voluntary Reporting Program (1605(b) Program)**

Washington, D.C.

The DOE's 1605(b) program, established under Section 1605(b) of the 1992 Energy Policy Act, is a voluntary program to record the results of voluntary measures to reduce, avoid, or sequester GHG emissions. For the 2005 reporting year, 221 U.S. companies and other organizations reported to the Energy Information Administration that they had undertaken 2,379 projects to reduce or sequester GHGs. Midwest participants include Exelon Corp., Baxter Healthcare, and Ford Motor Co. Some climate experts are concerned that 1605(b) lacks a credible and recognizable protocol.

## **Global Greenhouse Gas Register**

Geneva, Switzerland

An initiative of the World Economic Forum, the Global Greenhouse Gas Register enables multinational companies to disclose, monitor, and compare their GHG emissions across the world. Since the register's launch in January 2004, 15 global companies have committed to participate. Together, these participants are responsible for generating 800 million tons of CO<sub>2</sub> equivalent emissions per year, or approximately 5% of global GHG

emissions. One of these participants is Holcim, a manufacturer of cement, aggregate, and concrete headquartered in Michigan. The Register has signed Cross Recognition Agreements with other organizations that support voluntary programs, including the California Climate Action Registry and the Chicago Climate Exchange. These agreements are a first step toward achieving harmonization of measurement and reporting standards.

### **The Global Roundtable on Climate Change of the Earth Institute**

New York, New York

Contact: David Downie, Director.

Based at Columbia University, GROCC brings together more than 150 senior executives to explore scientific, technological, and economic issues critical to shaping sound public policies on climate change. Participants are drawn from the private sector and from international governmental and nongovernmental organizations. Midwest participants include American Electric Power, BP, Cargill, Chicago Climate Exchange, Exelon, Ford Motor Company, NiSource, and the Pew Center on Global Climate Change.

On Feb. 20, 2007, GROCC released a statement signed by 100 companies and institutions. The signatory companies agreed to “work to increase public awareness of climate change risks and solutions, report information on their GHG emissions, engage in emissions mitigation, champion demonstration projects, and support public policy efforts to mitigate climate change and its impacts.” The signatories recognize that the changes needed to reduce GHG emissions will require action by governments, the private sector, trade unions, and civil society.<sup>15</sup>

### **Green Power Market Development Group**

Washington, D.C.

Contact: Andrew Aulisi, Director of WRI’s U.S. climate policy initiative.

The Green Power Market Development Group is a commercial and industrial partnership convened by the World Resources Institute. The group is trying to develop corporate markets for 1,000 MW of new green energy by 2010. Its U.S. members are Alcoa, Dow Chemical Company, DuPont, FedEx Kinko’s, General Motors, IBM, Interface, Johnson & Johnson, NatureWorks LLC, Pitney Bowes, Staples, and Starbucks. Seven of these companies now purchase at least 10% of their annual U.S. electricity consumption from renewable sources. Group members are among the largest non-utility buyers of renewable energy in the U.S. Johnson & Johnson is currently the country’s largest corporate buyer of green power products, and it and General Motors are the nation’s second- and third-largest corporate users of solar photovoltaic systems. GM and DuPont are the country’s two largest corporate users of landfill gas for thermal energy, while Starbucks, IBM, and Johnson & Johnson are the three largest corporate buyers of renewable energy certificates from wind farms.

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<sup>15</sup> *Global Roundtable on Climate Change*, The Path to Climate Sustainability, Feb. 20, 2007. See [www.earth.columbia.edu/grocc](http://www.earth.columbia.edu/grocc).

## **Pew Center on Global Climate Change**

Arlington, Virginia

Contacts: Eileen Claussen, President; Judy Greenwald, Director of Innovative Solutions.

The Pew Center on Global Climate Change is a forum for objective research and analysis and for the development of pragmatic policies and solutions. The Center's Business Environmental Leadership Council is the largest U.S.-based association of corporations focused on addressing climate change.<sup>16</sup> Its 42 members represent \$2.4 trillion in market capitalization and over three million employees. Members of the Pew Leadership Council accept the view that enough is known about the science and environmental impacts of climate change to act. Thirty of the companies have GHG reduction targets. Members from the Midwest include The Boeing Co. (Chicago), BP (Warrenville, Illinois), American Electric Power Co. (Columbus, Ohio), Maytag Corp. (Newton, Iowa), 3M Co. (St. Paul), Whirlpool Corp. (Benton Harbor, Michigan), Wisconsin Energy Corp. (Milwaukee), Cummins Inc. (Columbus, Indiana), and SC Johnson (Racine, Wisconsin). These companies bring a needed Midwest perspective to the Council's work to establish a national cap and trade emissions reduction system.

The Pew Center created a comprehensive guide to developing climate change-related business strategies titled *Getting Ahead of the Curve: Corporate Strategies That Address Climate Change*. The guide includes case studies of Alcoa, Cinergy (now Duke Energy), DuPont, Shell, Swiss Re, and Whirlpool Corp.

Under a grant from the Joyce Foundation, the Pew Center has been working in Ohio to organize interest in Capitalizing on Climate-Friendly Technologies, an initiative to promote state assistance to developers, manufacturers, and vendors of these technologies. This is the Center's only Midwest initiative.

## **U.S. Climate Action Partnership**

The U.S. Climate Action Partnership was announced on Jan. 22, 2007, by ten companies (Alcoa, BP America, Caterpillar, Duke Energy, DuPont, FPL Group, General Electric, Lehman Brothers, PG&E Corp., and PNM Resources) and four environmental groups (Environmental Defense, the National Resources Defense Council, the Pew Center on Climate Change, and the World Resources Institute). USCAP calls for mandatory reductions of GHG emissions and a cap and trade program. Its statement called for short- and mid-term GHG reduction targets and a federally supported research program to develop incentives and capacity for low-carbon technology.<sup>17</sup>

## **U.S. EPA Climate Leaders**

Washington, D.C.

Contact: Jim Sullivan.

Climate Leaders is an industry-government partnership that works with 86 companies to develop long-term, comprehensive climate change strategies. Partners set GHG reduction goals and inventory their emissions to measure progress. Midwest partner companies include Ecolab, Inc. (St. Paul), Johnson Controls, Inc. (Milwaukee), Target Corp. (Min-

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<sup>16</sup> This inventory abbreviates the Pew Center on Global Climate Change's Business Environmental Leadership Council as the "Pew Leadership Council."

<sup>17</sup> "A Call for Action," USCAP, [www.us-cap.org](http://www.us-cap.org).

neapolis), and Tenneco Automotive (Lake Forest, Illinois). Many partner companies do not produce much carbon.

### **U.S. EPA Green Suppliers Network**

Washington, D.C.

Contact: Tom Murray, Prevention Analysis Branch Chief, U.S. EPA.

The Green Suppliers Network works with large manufacturers to engage their suppliers in low-cost technical reviews that employ “Lean and Clean” manufacturing techniques to increase productivity, reduce waste, and boost profitability. It is a collaborative venture among industry, the U.S. EPA, and the U.S. Department of Commerce’s National Institute of Standards and Technology Manufacturing Extension Partnership (NIST MEP).

The Network’s Office Furniture sector could be a key starter group for a Midwest climate change initiative. Six of the major office furniture manufacturers are members of the sector: Haworth, Inc., Herman Miller, Inc., HNI Corp., Kimball International, Inc., Light Corp., and Steelcase Inc. Much of their work to improve supplier processes and minimize waste generation has been in the Midwest, especially in western Michigan. The companies work closely with the Michigan Department of Environmental Quality and The Right Place, Inc., West Michigan’s Manufacturing Extension Partnership.

Pharmaceutical/ healthcare is the largest of the Green Suppliers Network sectors and counts among its participants nine major equipment manufacturers. Led by Baxter International, the sector includes Abbott Laboratories, two large Midwest companies, and other firms.

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# Cities

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Global warming is increasingly on the radar of Great Lakes mayors. Mayors are concerned about rising water temperatures, lower Lake levels, the impact of acute weather on combined sewer overflows, the health risks of high summer temperatures to people without air conditioning, and the cost of snow removal for unusually severe storms. As pointed out by David Ullrich, director of the Great Lakes and St. Lawrence Cities Initiative, the mayors have a unique perspective on climate change. Their responsibilities range from practical concerns to the big picture. Forced to confront climate change impacts sooner than states, many mayors already have seized opportunities for action.

As of **March 1, 2007**, 409 mayors representing more than 53 million Americans have signed the U.S. Mayors Climate Protection Agreement, led by Seattle's Mayor Greg Nickels and jointly executed by the ICLEI's Local Governments for Sustainability and the U.S. Conference of Mayors. The agreement commits them to meet the Kyoto goal of reducing GHG emissions in their cities to 7% below 1990 levels by 2012. It provides a good summary of what many Midwest mayors are doing to address climate change, committing signatories to:

- 1) Inventory global warming emissions in City operations and in the community, set reduction targets, and create an action plan.
- 2) Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities.
- 3) Promote transportation options such as bicycle trails, commute trip reduction programs, incentives for car pooling, and public transit.
- 4) Increase the use of clean, alternative energy (e.g., investing in "green tags"), advocating for the development of renewable energy resources, and recovering landfill methane for energy production.
- 5) Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting, and urging employees to conserve energy and save money.
- 6) Purchase only Energy Star equipment and appliances for City use.
- 7) Practice and promote sustainable building practices using the U.S. Green Building Council's LEED program or a similar system.
- 8) Increase the average fuel efficiency of municipal fleet vehicles, reduce the number of vehicles, launch an employee education program including anti-idling messages, and convert diesel vehicles to bio-diesel.
- 9) Evaluate opportunities to increase pump efficiency in water and wastewater systems, and recover wastewater treatment methane for energy production.
- 10) Increase recycling rates in City operations and in the community.
- 11) Maintain healthy urban forests and promote tree planting to increase shading and absorb CO<sub>2</sub>.
- 12) Help educate the public, schools, other jurisdictions, professional associations, business, and industry about reducing global warming pollution.

Signatories of the U.S. Conference of Mayors Climate Protection Agreement include the mayors of the following Midwest cities: Ann Arbor, Michigan; Berkeley, Michigan;



Brooklyn, Ohio; Chicago, Illinois; Cincinnati, Ohio; Cleveland, Ohio; Cleveland Heights, Ohio; Dayton, Ohio; Des Moines, Iowa; Dubuque, Iowa; Duluth, Minnesota; Ferndale, Michigan; Garfield Heights, Ohio; Gary, Indiana; Grand Rapids, Michigan; Marquette, Michigan; Minneapolis, Minnesota; North Olmsted, Ohio; Rochester, Minnesota; St. Paul, Minnesota, South Euclid, Ohio; Southfield, Michigan; and Toledo, Ohio.

Many cities have signed the International Council for Local Environmental Initiative (ICLEI) Cities for Climate Protection Agreement. Local governments begin participating in the CCP campaign by passing a resolution pledging to reduce GHG emissions from their local government operations and throughout their communities. ICLEI supplies a detailed toolkit, including software, and technical assistance to help the participating community achieve the CCP campaign “5 Milestones”:

- 1) Conduct a baseline emissions inventory and forecast to provide a benchmark against which the city may measure its progress.
- 2) Adopt an emissions reduction target for the forecast year.
- 3) Develop a Local Action Plan, including a timeline, a description of financing mechanisms, and an assignment of responsibilities. In addition to direct GHG reduction measures, most plans also incorporate public awareness and education efforts.
- 4) Implement policies and measures such as energy efficiency improvements to municipal buildings and water treatment facilities, streetlight retrofits, public transit improvements, installation of renewable power applications, and methane recovery from waste management.
- 5) Monitor and verify results on an ongoing basis.

Chicago, St. Paul, and Minneapolis are early and prominent actors. Other leaders include Overland Park, Kansas; Ann Arbor, Michigan; Duluth, Minnesota; Madison, Wisconsin; and Toledo, Ohio. Other Midwest participants in Cities for Climate Protection include the following cities and counties: Apple Valley, Minnesota; Ashland, Wisconsin; Bloomington, Indiana; Burnsville, Minnesota; Carol Stream, Illinois; Columbus, Indiana; Dane County, Wisconsin; Delta County, Michigan; Fort Wayne, Indiana; Grand Rapids, Michigan; Greenfield, Wisconsin; Hennepin County, Minnesota; Highland Park, Illinois; LaCrosse, Wisconsin; Michigan City, Indiana; Milwaukee, Wisconsin; Muncie, Indiana; New Berlin, Wisconsin; Ramsey County, Minnesota; River Falls, Wisconsin; Schaumburg, Illinois; Turtle River, Minnesota; Washburn, Wisconsin; Washtenaw County, Michigan; Waukegan, Illinois; Wauwatosa, Wisconsin; and West Allis, Wisconsin.

Other actions on climate change taken by individual cities are highlighted below.

### **Chicago, Illinois**

Contact: Sadhu Johnston, Commissioner for the Environment for Mayor Daley;  
Karen Hobbs, First Deputy Commissioner.

Member: ICLEI Cities for Climate Protection, U.S. Conference of Mayors Climate Protection Agreement, U.S. Conference of Mayors New Municipal Energy Agenda, Large Cities Climate Leadership Group (led by the mayor of London), Chicago Climate Exchange.

Chicago has made a solid commitment to being the nation’s greenest large city. The City is concerned about the implications of lower Lake Michigan levels, more extreme heat days (possibly coupled with brown/blackouts), and other emergency planning needs.

The City is meeting its commitment to reduce emissions to Kyoto Protocol compliance

levels by 1) reducing natural gas and electricity use in existing buildings; 2) adopting efficient design in new construction; 3) reducing mobile source emissions from its vehicle fleet; and 4) installing renewable energy systems and buying green power. Special initiatives include:

- The Mayor's Initiative to Buy Renewable Energy, under which 10% of the municipal energy needs will be purchased from renewable sources.
- The Green Buildings Initiative, which requires all new city buildings to be LEED certified.
- The rooftop garden initiative, which has resulted in the installation of energy-conserving rooftop gardens in more than 120 buildings in Chicago, including City Hall and all new big-box retail buildings.
- Brownfields redevelopment projects, including Millennium Park and the Chicago Center for Green Technology, which is certified as LEED Platinum and where Spire Solar Corp. solar panels are built.
- Planting over 500,000 trees since Mayor Richard M. Daley took office.
- Distribution of 500,000 free fluorescent light bulbs in 2007.
- Development of bike paths and bike stations, which has earned Chicago recognition as one of the most bicycle-friendly U.S. cities.
- The 2001 Chicago Energy Plan, through which the City encourages energy efficient buildings. The 45 participant companies have saved over \$4 million.
- Expediting permits for green building projects.
- The Great Lakes and St. Lawrence Cities Initiative.

By upgrading buildings through retrofits, Chicago has reduced CO<sub>2</sub> emissions by 6,900 tons a year. The goal is to reduce emissions 4% by 2006, from a baseline of 1998-2001 average emissions. The City has already saved \$6 million per year through energy efficiency and conservation in City facilities and through the use of smart power. Municipal codes and standards that promote green buildings have been created, and the City adopted the Chicago Energy Conservation Code, which is based on the 2000 International Energy Conservation Code.

Chicago is updating its 2001 energy plan, which is of interest to other large and post-industrial cities that look to Chicago for leadership. Changes to the plan will include a commitment to reduce the City's energy load by a larger percentage. The city plans to challenge Chicago businesses and citizens to match its reduction and to provide them with technical assistance to do so. It will look for ways to build on existing programs, including the industrial rebuild program and green museums initiative. The City will be more aggressive in seeking green power sources. It has enlisted a number of partners to help it develop a new strategy, including work with the Clinton Foundation, ICLEI, Bain & Co., and the Illinois Institute of Technology's Institute for Design.

Chicago suburbs are taking their own steps to reduce their carbon footprint. Highland Park has purchased hybrid cars for its fleet. Northbrook became the first municipality in Illinois, and one of the first in the country, to purchase enough wind-generated energy to run an entire municipal utility – its water plant.<sup>18</sup> In 2005, Naperville allowed its energy customers the option of purchasing environmentally friendly electricity, including power from wind farms. Naperville annually purchases about 800 MWh of wind-generated power.

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<sup>18</sup> David Wischnowsky, "Wind Now Runs Suburb's Water Plant," Chicago Tribune, Oct. 2, 2006.

### **Ann Arbor, Michigan**

Contact: Matthew Naud, Environmental Coordinator.

Member: ICLEI Cities for Climate Protection, U.S. Mayors Climate Protection Agreement.

In May 2006, Mayor John Hieftje issued a Green Energy Ann Arbor Challenge to provide 30% of the municipal government's energy from renewable sources by 2010 and 20% of the community's energy from renewable sources by 2015. Ann Arbor operates an extensive recycling program. It invests significant resources in alternative transportation (public transit and biking) and in maintaining the quality of water resources, specifically the Huron River and its floodplain. The City is engaged in the Allen Creek Greenway project to develop an environmentally sensitive open space that operates as green infrastructure. Ann Arbor has had a Municipal Energy Fund since 1998 that provides a source of capital for energy efficiency retrofits of public buildings and receives 80% of the projected annual energy savings from each installed project for five years. The fund was seeded by the city with five annual investments of \$100,000 but quickly became self-sustaining.<sup>19</sup>

Ann Arbor officials say their most dramatic example of climate protection is at the municipal landfill, where a project pays for itself by allowing a private company to capture and "digest" methane from the landfill, convert it to electricity, and sell it for a profit. The City recycles and composts over 50% of its solid waste, which results in the City's second-largest reduction in GHG emissions. It invests in energy conservation methods that include requiring employees to shut off idling engines, keeping drafty windows well caulked, installing compact fluorescent light bulbs, and switching traffic lights to new, ultra-efficient LED (light-emitting diode) bulbs.

### **Cleveland, Ohio**

Contact: Mayor Frank G. Jackson.

Member: U.S. Mayors Climate Protection Agreement.

The City of Cleveland's Sustainability Program, established in 2005, guides the City on projects and policies related to building and fleet management, energy, and purchasing. Current projects include energy audits of City facilities and encouragement of green building principles, including two green building incentive programs through the Department of Community Development's Housing Trust Fund Program. In partnership with Green Energy Ohio, Cleveland is monitoring wind on Lake Erie to determine the feasibility of utility-scale wind power. The city is purchasing smaller, more fuel-efficient vehicles for its fleet, which includes approximately 300 flex-fuel and 32 hybrid vehicles.

### **Cincinnati, Ohio**

Contact: Mayor Mark Mallory.

Member: U.S. Mayors Climate Protection Agreement.

In April 2006, Mayor Mallory and City Council member David Crowley announced plans to re-open Cincinnati's Office of Environmental Management. After a series of meetings a planning group composed of city officials, local organizations, and interested parties developed recommendations for a new Office of Environmental Quality.

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<sup>19</sup> ICLEI, *Cities in Action*, 2006.

**Dayton, Ohio**

Contact: Mayor Rhine McLin.

Member: U.S. Mayors Climate Protection Agreement.

Dayton's Mayor McLin was one of the early signers of the Climate Protection Agreement. Since then, some of the city's old electric trolleys have been restored, lowering public transit emissions. In 2005, the U.S. Conference of Mayors recognized the excellence of Dayton's Brownfield Redevelopment Program.

**Dearborn, Michigan**

Mayor Michael Guido, who died in December 2006, was president of the U.S. Conference of Mayors and was interested in launching an energy or climate campaign for Dearborn. He supported an energy policy focused on wind, solar, and nuclear power and planned to establish a task force on climate change.

**Des Moines, Iowa**

Contact: Mayor Frank Cownie.

Member: ICLEI Midwest Regional Capacity Center (host), ICLEI Cities for Climate Protection, U.S. Mayors Climate Protection Agreement.

Des Moines is measuring its emissions so it can set a target for reductions, begin cutting back, and chart progress. It has begun replacing its fleet with hybrid vehicles, changing over to energy efficient lighting, planting trees, and taking other steps to promote energy conservation awareness. The Mayor set up an Energy and Environment Task Force to explore additional ways to increase conservation, improve energy efficiency practices, and develop renewable energy use citywide. ICLEI—Local Governments for Sustainability will establish its fourth U.S. regional capacity center in Des Moines.

**Duluth, Minnesota**

Contact: Mayor Herb Bergson.

Member: ICLEI Cities for Climate Protection, U.S. Mayors Climate Protection Agreement.

Duluth's primary environmental concern is water pollution, especially in the Duluth-Superior Harbor. Since Duluth joined Cities for Climate Protection in 2001, data has emerged (much of it from the University of Minnesota at Duluth) on the impacts of global warming in the Duluth area. Duluth exchanges climate change and technologies information with Värjö Blazé, its sister city in Sweden.

**Fort Wayne, Indiana**

Contact: Mayor Graham Richard; Wendy Barrot, Director of Energy and Environmental Services.

Member: ICLEI Cities for Climate Protection.

Mayor Graham Richards is committed to continuous improvement in environmental performance. In August 2006, Mayor Richards and his Green Ribbon Commission announced a Green City Public Outreach campaign to educate Fort Wayne residents in practices that will increase energy efficiency and air quality. The Commission is working on a new comprehensive energy and air quality plan.

### **Grand Rapids, Michigan**

Contact: Mayor George Heartwell.

Member: U.S. Mayors Climate Protection Agreement, ICLEI Cities for Climate Protection.

The City of Grand Rapids plans to reduce its GHG emissions through the exclusive purchase of Energy Star equipment; increasing the average municipal fleet fuel efficiency; inventorying emissions, setting targets, and creating an action plan; retrofitting City facilities with efficient lighting; and promoting sustainable building practices. Grand Rapids is very concerned about watershed management and has partnered with 30 other communities to plan and coordinate effective control of water systems and pollution. It is home to three significant LEED buildings. Mayor George Heartwell predicts that cities will take the lead on climate change.

### **Madison, Wisconsin**

Contact: Mayor Dave Cieslewicz.

Member: ICLEI Cities for Climate Protection.

Mayor Dave Cieslewicz is a former director of 1000 Friends of Wisconsin and a strong advocate for environmental stewardship and climate change action. With grant funding from ICLEI, the City developed a Climate Protection Plan. Among Madison's strategies to reduce GHG emissions are plans to add a renewable energy source to one city building and to develop a green building program. Madison recently completed a solar electric (photovoltaic) parking shade structure. The Metropolitan Transit Authority is purchasing wind-generated power for half of its electricity needs. Local organizations are working with the City to implement parts of the plan. The Mayor initiated the New Cities project, a network of mayors working to implement the energy independence ideas of the Apollo Alliance, which is a coalition of labor, environment, and other groups seeking to spur environmentally friendly economic growth.

### **Milwaukee, Wisconsin**

Contact: Mayor Tom Barrett.

Member: ICLEI Cities for Climate Protection, New Cities Mayor's Caucus.

Through its "Green Team," Milwaukee takes a comprehensive approach to environmental education, planning, and development. Mayor Tom Barrett outlined a "Green Vision" for Milwaukee in November 2005 that included the establishment of renewable energy blocks and green industrial zones. The City hopes to rely on renewable sources for at least 10% of its energy by the end of 2006 as part of We Energies' Energy for Tomorrow Program. Milwaukee's City Hall will be an EPA Green Power Partner. The City hopes to encourage growth in the environmental economy as part of the Apollo Alliance. Through partnerships with businesses and organizations, Milwaukee hopes to find innovative solutions to energy issues. An example would be using LED traffic lights, which emit the same amount of light as ordinary traffic lights but require only one-quarter of the energy.

### **Minneapolis, Minnesota**

Contact: Mayor R. T. Rybak.

Member: ICLEI Cities for Climate Protection, U.S. Mayors Climate Protection Agreement.

With U.S. EPA grants, Minneapolis is planting locust and elm trees in downtown areas to demonstrate the positive effects of a tree canopy on the urban heat-island effect and installing photovoltaic cells on highly visible public buildings to reduce emissions and encourage the use of renewable energy. It also has greened public buildings to increase their energy efficiency.

### **Racine, Wisconsin**

Contact: Mayor Gary Becker.

Mayor Gary Becker has made the environment, economic development, and neighborhood improvement his top goals for the city. He is on the advisory board of Sustainable Racine.

### **St. Paul, Minnesota**

Contact: Mayor Chris Coleman.

Member: ICLEI Cities for Climate Protection, U.S. Mayors Climate Protection Agreement.

Under Mayor Chris Coleman, St. Paul achieved by 2004 an 8% reduction on 1988-level CO<sub>2</sub> emissions levels, with \$59 million in annual energy cost savings. It has a goal of continuing to reduce CO<sub>2</sub> emissions. Since Mayor Coleman signed the U.S. Conference of Mayors Climate Protection Agreement a year ago, the City has created the Energy Reinvestment Fund to finance energy efficient improvements with a ten-year payback or less; passed a “Sustainable Development Policy for New and Renovated Municipal Buildings” resolution to improve energy efficiency in City buildings by requiring the use of one of two well-established standards: Minnesota Sustainable Building Guidelines or Leadership in Energy and Environmental Design (LEED) Silver. The City has updated municipal fleets with more fuel-efficient Ford Focus sedans, light utility trucks, and electric utility vehicles; directed City fleets to use E85 in the flex-fuel Ford Taurus and require other sedans to use Blue Planet gasoline, which has fewer emissions than standard unleaded gasoline; and required City diesel trucks to run on 5-10% biodiesel. With Minneapolis, it launched the Mayor’s Initiative on Green Manufacturing to recruit green businesses to the Twin Cities.

### **Springfield, Illinois**

Contact: Mayor Timothy Davlin.

In the nation’s first enforceable agreement by any city or utility to significantly reduce its global warming pollution, the City of Springfield and the Sierra Club in 2006 agreed to a plan to replace an old coal-fired power plant with a cleaner facility. City Water, Light and Power, a utility owned by the City of Springfield, agreed to close its oldest and dirtiest lakeside coal-fired power plant and replace it with a new coal plant subject to the most stringent soot, smog, and mercury pollution limits in the U.S.

Under the 2006 plan, the new plant will be complemented by investment in energy efficiency and wind power. Springfield plans to install infrastructure that will double the

wind energy capacity of Illinois. The State of Illinois has agreed to purchase the majority of its electricity needs in the state capital from wind power. Springfield will conduct a comprehensive energy efficiency audit and invest \$4 million over the next decade – a tenfold increase – in efficiency programs and incentives for ratepayers. The agreement also formalizes a role for local citizens to help the City direct investments in additional conservation and energy efficiency measures, including a special program targeted to help low-income and elderly residents. By 2012, Springfield plans to cut its GHG emissions to 25% below its 2005 levels.

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# Midwest Collaborative Initiatives of Cities

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The two Midwest collaborations of cities are not specifically focused on climate, but they are seeing increased interest among members in climate and energy.

## **Great Lakes and St. Lawrence Cities Initiative**

Chicago, Illinois

Contact: David A. Ullrich, Director (c/o Northeast-Midwest Institute).

The Great Lakes and St. Lawrence Cities Initiative (GLSLCI) is a bi-national coalition of 24 mayors and other local officials that works actively with federal, state, and provincial governments to advance the protection and restoration of the Great Lakes. Eighty-four mayors participate in some way. Chaired by Chicago's Mayor Richard Daley, the GLSLCI board of directors includes Daley; Gary Becker of Racine, Wisconsin; Herb Bergson of Duluth, Minnesota; Carleton S. Finkbeiner of Toledo, Ohio; and George K. Heartwell of Grand Rapids, Michigan. In recent years, GLSLCI and Great Lakes cities have been welcomed to the table on Great Lakes international treaties and agreements.

Mayors are increasingly concerned with climate change, energy, sustainability, and green infrastructure. To help them confront these issues and get new ideas, GLSLCI hosts one-day symposia for mayors on topics such as water conservation and beach management. Participants take home a small handbook, a checklist, and a list of contacts.

## **Metropolitan Mayors Caucus**

Chicago, Illinois

Contact: David E. Bennett, Executive Director.

Formed by Chicago Mayor Richard M. Daley in 1997, the Metropolitan Mayors Caucus is a collaborative group of 272 municipalities in the six-county Chicago area. It aims to foster regional economic development, electrical service reliability, workforce development, affordable housing, environmental and infrastructure improvements, and emergency preparedness. The Caucus's Clean Air Counts program was awarded a Clean Air Excellence Award by the EPA in 2005 for its pioneering work to improve air quality. Its Water Issues Task Force is researching best water management practices for a clean and safe regional water supply. In an attempt to mitigate increasing electricity costs, the Caucus launched the Municipal Energy Collaborative in 2006 to secure competitive pricing from certified Retail Electric Suppliers (third-party suppliers).



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## National Collaborations of Cities

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Recognizing the leadership role that mayors play in climate change, initiatives to assist and work with mayors are multiplying. Each initiative has its own goals, but all stress a common set of actions. The same mayors tend to be active across initiatives. Visible Midwest leaders in these national initiatives include the mayors of Chicago, St. Paul, Minneapolis, Ann Arbor, Duluth, Madison, Milwaukee, and Toledo. The initiatives described below have significant Midwest involvement. For more information on municipal efforts, see the introduction to the “Cities” section of this inventory.

### **Center for Clean Air Policy, Urban Leaders Initiative on Infrastructure, Land Use and Climate Change**

Washington, D.C.

Contact: Steve Winkelman, Manager of Transportation.

The Center for Clean Air Policy seeks market-based approaches to environmental and energy problems that balance both environmental and economic interests. In December 2006, the Center for Clean Air Policy launched the Urban Leaders Initiative on Infrastructure, Land Use and Climate Change. This partnership with government leaders from six large U.S. counties and cities aims to ensure the resilience of those communities to the impacts of inevitable climate change. Senior representatives from King County, Los Angeles, Miami-Dade County, Milwaukee, Nassau County and San Francisco are participating. The project requires participating cities to develop local adaptation plans. CCAP also has launched a program to develop and implement climate change plans in key states and build momentum for a strong federal approach. This initiative addresses GHG emissions from all sectors of the economy, including transportation and land-use, electricity generation, industry, buildings, agriculture and forestry, and examines the full range of measures.

### **International Council for Local Environmental Initiatives: Cities for Climate Protection**

Oakland, California

Contact: Susan Ode, Program Officer, Outreach.

ICLEI is an international association of local governments and national and regional local government organizations that have made a commitment to sustainable development. Its flagship campaign is Cities for Climate Protection, which educates and empowers local governments to take action on climate change. (For a list of Midwest participants and a summary of the CCP campaign, see the “Cities” section of this inventory.)

ICLEI has helped a number of U.S. cities, including many Midwest cities, to implement the Mayors Climate Protection Agreement that was passed by the U.S. Conference of Mayors in June 2005. It also is working with nine Great Lakes jurisdictions (Ann Arbor, Buffalo, Chicago, Milwaukee, Duluth, Minneapolis, St. Paul, Toledo, and Toronto) on a project to identify policy solutions that link climate and water.

Early in 2007, ICLEI will open the ICLEI Midwest Regional Capacity Center in Des Moines with the support of the city’s mayor. It is reaching out to new mayors in the

region to build membership and momentum. ICLEI will focus on accelerating GHG reductions by cities in the Midwest by offering local, hands-on expertise. It believes that establishing a Midwest office will help the region's cities to learn from each other and act more quickly. The Northeast already has a tightly functioning regional network.

In preparation for the 2008 Iowa caucuses, ICLEI plans a nationally significant gathering of mayors to put climate change front and center for both parties. The gathering will include briefings by mayors for national legislators. The mayors also have a valuable role to play in state policy development, according to ICLEI. Collegial relationships between local and state officials are abundant, offering many opportunities to harmonize city and state efforts. Convening groups of local mayors to visit state capitals can help put climate change on the governors' agendas.

Recruiting new cities has been harder in the Midwest than elsewhere, but ICLEI has found that interest is growing. It has reached agreement with the National Conference of Mayors to get climate change a visible place on its agenda, which aids recruitment. ICLEI has a Memorandum of Understanding with the City of Seattle and the U.S. Conference of Mayors to be the implementing agency to help mayors who have signed the Mayors Climate Protection Agreement to take action. ICLEI also is a primary partner of the Clinton Foundation.

### ***U.S. Conference of Mayors***

Washington, D.C.

Contacts: Kim Drury or John Mauro with the Office of Sustainability, Seattle.

The U.S. Conference of Mayors is the official nonpartisan organization of cities with populations of 30,000 or more. There are 1,139 such cities in the country today. The USCM seeks to promote the development of effective national urban/suburban policy, strengthen federal-city relationships; and ensure that federal policy meets urban needs. In June 2005, it unanimously passed the U.S. Mayors Climate Protection Agreement. Signed by 409 mayors as of March 1, 2007, the agreement asks for federal actions to cap and reduce GHG emissions and commits mayors to meet the Kyoto goal of reducing GHG emissions in their cities to 7% below 1990 levels by 2012. (For a list of Midwest signatories and a summary of the agreement, see the "Cities" section of this inventory.)

In June 2006, the USCM unanimously voted to call for sharp reductions in fossil fuel use in all buildings, for construction and for heating and cooling. The goal is to make the nation's building stock "carbon-neutral" by 2030.

Many mayors participated in the USCM's National Summit on Energy and the Environment in May 2006 in Chicago. At the summit, the mayors pledged to take six initial steps to alleviate energy problems:

- Invest more money in transportation options, including public and mass transit, and bike paths.
- Encourage at the local, state, and federal levels the building or rehabilitation of more energy efficient buildings in both the public and private sector.
- Encourage automakers to make more energy efficient cars and encourage individuals to buy vehicles that are more energy efficient, including alternative fuels, hybrids, and plug-in hybrids.
- Encourage more investment in renewable and alternative energy through additional incentives.

- Encourage more mixed-use development to allow people to have more walkable communities.
- Encourage the public and private sectors, as well as citizens, to do their part in conserving energy.

The following Midwest mayors participated in the U.S. Conference of Mayors Summit on Energy and the Environment: Dearborn, Michigan, Michael A. Guido, USCM Vice President (deceased); Chicago, Illinois, Richard M. Daley (host); Racine, Wisconsin, Gary Becker; Highland Park, Illinois, Michael Belsky; Carmel, Indiana, James Brainard; East Cleveland, Ohio, Eric Brewer; New Berlin, Wisconsin, Jack Chiovatero; Carbondale, Illinois, Brad Cole; Des Moines, Iowa, T. M. Franklin Cownie; Manitowoc, Wisconsin, Kevin Crawford; Carol Stream, Illinois, Ross Ferraro; Normal, Illinois, Chris Koos; Northbrook, Illinois, Eugene Marks; Palatine, Illinois, Rita Mullins; Akron, Ohio, Donald L. Plusquellic; Mansfield, Ohio, Lydia J. Reid; Fort Wayne, Indiana, Graham Richard; Green Bay, Wisconsin, Jim Schmitt.

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## State Governments

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Energy policy goals for the Midwest may be easier to achieve as a result of the November 2006 elections. The governors of Illinois, Michigan, Minnesota, Wisconsin, and Indiana were re-elected, and new Democratic governors were elected in Iowa and Ohio. In the state legislatures, Democrats picked up close to 320 more seats, adding up to new majorities in the Iowa Senate (previously tied) and House, the Indiana House, the Minnesota House, the Michigan House, and the Wisconsin Senate. These changes in state legislatures may help both Democratic and Republican governors to enact meaningful policies on climate.

Midwest governors are taking a greater interest than in the past in renewable energy and energy efficiency, if not climate change *per se*. The governors of Ohio, Illinois, Wisconsin, Indiana, Minnesota, and Iowa all have an interest in building renewable fuels sectors as economic development and security strategies, including biofuels (ethanol and biodiesel), wind, combined heat and power, distributed energy, and clean coal. Several of the governors have set a goal of becoming the top producer for a particular alternative fuel. The governors of Illinois and Wisconsin have announced plans for energy independence. Michigan and Indiana have energy plans under development. The new governor of Ohio is interested in renewable energy and energy efficiency. Many states, including Ohio and Wisconsin, are providing support for the commercialization of new energy technology.

New or stronger renewable portfolio standards (RPS) are being considered by a number of states, including Michigan, Wisconsin, Minnesota, Illinois, and Indiana. Also under consideration are renewable and biofuels standards, commercial and residential building efficiency standards, and public benefit funds. Minnesota, Iowa, and Ohio have initiatives to explore decoupling of the link between utility profit and sales to increase opportunities for energy efficiency. Many states are setting higher goals for state building energy efficiency, state purchases of renewable energy, and requirements for alternative fuels and hybrids for state fleets.

A Memorandum of Understanding (MOU) for the Midwest Natural Gas Initiative was signed by seven Midwest states: Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin. Missouri also is a signatory. The Initiative is a cooperative effort to develop a multi-state energy efficiency plan to decrease natural gas consumption by 1% per year for five years, causing wholesale natural gas prices to decrease by as much as 13%.

However, most Midwest states are doing less than they could to reduce GHG emissions. The steps they are taking are not close to what is technically possible and economically beneficial. For example, Wisconsin recently legislated an RPS of 10% of electricity from renewable energy sources by 2015. In Illinois, Governor Blagojevich has proposed an 8% RPS by 2010. These are big advances, but the Midwest could do much more: New York's RPS goal is 24% by 2013 and California's is 20% by 2017.

Many Midwest states have not yet adopted best practice steps to promote energy efficiency and renewable energy. Only Ohio, Illinois, and Wisconsin have adopted the International Energy Conservation Code (IECC), which governs the construction of new commercial buildings. Best practice policies across the states would help put in place

more energy efficient lighting, air conditioning, refrigerators, furnaces, windows, and electric motors.

This section describes the many positive steps Midwest states have taken. Much of the data here is drawn from the ELPC's 2004 analysis of Midwest opportunities and the Pew Center on Global Climate Change's website.

## **Illinois**

Contact: Steve Frenkel, Office of the Governor, Senior Policy Advisor for Energy and Environment.

In early 2007, Gov. Rod Blagojevich announced a statewide goal to slash the production of heat-trapping GHGs to 1990 levels by 2020 and 60% below 1990 levels by 2050. The Governor also has created a new Climate Change Advisory Group to recommend strategies to meet these GHG reduction goals. The Governor's GHG reduction goals are similar to goals set by other states and those proposed by Sens. Lieberman and McCain. The World Resources Institute will facilitate the Advisory Group meetings and provide technical assistance. Illinois is the second state (after New Mexico) to join the Chicago Climate Exchange.

In August 2006, Gov. Blagojevich unveiled a comprehensive energy independence plan. The plan would meet 50% of the State's motor fuel needs with alternative home-grown sources made from crops and coal by 2017. Illinois would be the first state to achieve this level of energy independence. The plan includes tripling ethanol production and investing in clean coal technology to create 30,000 new downstate jobs and save consumers billions of dollars. It calls for financial incentives to build up to 20 ethanol plants, five biodiesel plants, and four facilities to create ethanol from cellulosic wastes such as corn husks and wood pulp. It also calls for additional incentives for service stations to offer E85 ethanol and for automakers to produce hybrid flexible fuel cars. The plan refers to a package of energy efficiency policies, as well as RPS. It calls for incentives for coal gasification plants and a pipeline to move CO<sub>2</sub> created by coal gasification plants to oilfields in the southeastern section of the state to aid extraction of oil and gas. This ambitious plan does not significantly address building or appliance efficiency.

In early 2006, Illinois launched the Illinois Conservation Climate Initiative (ICCI) in partnership with the Chicago Climate Exchange (CCX) and the Delta Institute. ICCI offer farmers and other landowners the opportunity to earn and sell GHG emission reduction credits through CCX when they take steps to trap carbon dioxide and reduce methane emissions by using conservation tillage and planting grasses and trees. These practices keep carbon in the soil and plants instead of being released as CO<sub>2</sub>. Illinois is the first state to sponsor such a program. More than 200 landowners have enrolled 67,000 acres.

The State has taken numerous steps to reduce GHG emissions from its vehicle fleet, including reducing the overall number of state vehicles by 11% (from 13,635 in 2003 to 12,100 now); increasing the number of flex fuel vehicles in the state fleet from 1,339 in 2000 (10% of fleet) to 1,944 now (16% of fleet); and increasing the use of renewable and cleaner burning ethanol and biodiesel in the state fleet. More than one million gallons of biofuels have been consumed by state vehicles since April 2004.

The state adopted one of the nation's strongest mercury pollution reduction standards in late 2006. These require coal plants to reduce mercury pollution by 90% by June 30,

2009, by installing modern pollution control technology, which reduces GHG emissions as well. Illinois has a good commercial building code and passed incentives for biofuels in 2003.

In early 2007, Gov. Blagojevich joined California Gov. Schwarzenegger and executives from BP to launch the Energy Biosciences Institute, to be based at the University of Illinois Urbana/Champaign and the University of California, Berkeley. The \$500 million effort, funded by BP, will invest in research on next-generation homegrown biofuels made from crops that will cut GHG emissions, boost America's energy independence, and create new markets for Illinois farmers.

Illinois is poised for progress on a number of fronts. There is potential for an energy efficient residential building code, RPS, funding for energy efficiency retrofits of public buildings, funding for IGCC with carbon capture and sequestration, funding for cellulosic ethanol, and even clean vehicles.

## **Indiana**

Contact: Betsy Burdick, Deputy Chief of Staff.

Indiana lacks a Renewable Portfolio Standard, an up-to-date building code, and programs to reduce or report GHG emissions. Through the work of the Hoosier Environmental Council, the state's NO<sub>x</sub> SIP-Call (an EPA trading program to reduce the transport of nitrogen oxides, one of the precursors of ozone) has a 2% set-aside for renewable energy, as well as incentives for energy efficiency. Renewables are allocated credits based on a calculation of what the source would have produced. The credit can then be sold on the NO<sub>x</sub> market.

In his recent Energy Plan, Gov. Mitch Daniels said that he wants Indiana to be the number one ethanol producer in the nation. The plan also calls for maximizing Indiana's wind energy potential. Daniels has endorsed 25x25, an initiative to increase renewable energy production from agriculture, and supported the Louis Dreyfus Agriculture Industries LLC plans to build the world's largest biodiesel plant near Claypool, Indiana. With this facility and the two other biodiesel and six ethanol plants currently under construction, Indiana could become a leading producer in the biofuels industry.

In August 2006, Gov. Daniels signed an executive order creating the Interagency Council on Energy to provide energy policy advice to the Governor and General Assembly, oversee the implementation of a plan to improve energy efficiency, and promote in-state production of clean energy. The plan encourages the use of clean coal and biomass to produce electricity and transportation fuels. Gov. Daniels also signed Executive Order 06-14 mandating that at least 10% of electricity used in Indiana government buildings come from domestically produced, renewable energy by 2010, and increase to 25% by 2025. In addition, state fleet vehicle replacements must be able to use alternative fuels.

There is potential to pass a statewide Renewable Electricity Standard (RES) in the coming legislative session. In August 2006, the Indiana Farm Bureau voted in favor of a 10% RES. ELPC is working with White Construction Co., wind power developers, and county board members and economic development officials on policy development. ELPC serves on the Lieutenant Governor's Alternative Energy Task Force, which is working on a renewable energy standard. A supportive public commissioner has been making the case for energy efficiency and renewable energy to promote job creation, energy security, and reliability to the Governor and Lieutenant Governor. The Indiana

Citizens Action Coalition is working with Sen. Richard Lugar on renewable energy.

## **Iowa**

Contact: Chet Culver, Office of the Governor; Richard Leopold, Director, Department of Natural Resources.

Gov. Chet Culver proposes to make Iowa the nation's renewable energy leader, focused on producing energy from Iowa's resources, including biomass, wind, and ethanol. Culver's renewable energy plan includes creating the \$100 million Iowa Power Fund to help Iowa businesses, small and large, expand rapidly into the high-growth renewable energy and alternative fuel industries. Through a new Governor's Director of Renewable Power, the state will encourage research and incubation of new technologies. Gov. Culver proposes that within four years, every car in the Iowa fleet will be a hybrid or an E85 ethanol vehicle; that the state's buses will begin shifting to biodiesel; and that every time the state buys regular gasoline for its existing cars and trucks, it will be from a station that has installed an alternative fuel pump.

Iowa's public service commission has been a strong supporter of energy efficiency and is exploring decoupling (i.e., separating a utility's revenues from its sales), similar to Minnesota. It is also looking at a host of combined heat and power and distributed generation opportunities. A best practice in Iowa has been its successful approach to Integrated Resource Planning, which obliges it to look at energy efficiency as a least-cost resource. IRP has lost favor in many states, but is coming back into fashion.

Iowa already is in the number three position nationwide in renewable energy development. The state met its RPS of 105 MW in 1999, but it has not been possible to increase the standard. The use of biofuels and wind energy continues to expand regardless. Iowa has over 600 MW of wind capacity, in part due to the 1999 RPS. It also has 25 ethanol refineries with the capacity to produce over 1.5 billion gallons of fuel annually. There are four ethanol refineries and two major expansions under construction, with a combined annual capacity of 425 million gallons. The state is home to six biodiesel refineries with a combined annual capacity of over 100 million gallons either in operation or under construction. Iowa has a mandatory energy efficiency code, but its enforcement is limited, with the state depending on self-certification by builders and owners.

A comprehensive renewable fuels law designed to boost the availability and use of renewable fuels such as biodiesel and ethanol was enacted by former Gov. Tom Vilsack. The law's centerpiece is its 25% Iowa Renewable Fuels Standard.

State agencies are required to increase their operational energy efficiency and renewable energy use under an executive order signed by Gov. Vilsack in April 2005. The order mandates a 15% improvement in energy efficiency at state facilities by 2010, and the procurement of hybrid or alternative-fuel vehicles for non-law enforcement state vehicles. The Governor also directed state agencies to purchase equipment with the lowest life-cycle cost when possible and to purchase 10% of their electricity from renewable sources.

A package of bills to strengthen Iowa's bio-energy and other renewable energy industries was signed in May 2006 by Gov. Vilsack. The bills offer a variety of incentives to expand the use of E85 (a mixture of 85% ethanol and 15% gasoline), including a 25-cent-per-gallon tax break for every gallon of E85 sold. They set a standard requiring that 25% of the petroleum used in the formulation of gasoline be replaced by biofuels by 2020. The measures also create a sales tax exemption for the purchase of solar energy equipment,

expand an existing tax credit for wind energy production, and give utilities a tax credit for using soy-based fluids in electric transformers.

To meet Iowa's commitment to the Midwest Natural Gas Initiative, Gov. Vilsack requested that at least 10% of state agencies' electric consumption come from renewable energy sources. The executive order orders state agencies to increase energy conservation and efficiency practices. The order directs the state to 1) reduce energy consumption; 2) implement lifecycle cost calculations for equipment; 3) ensure that 10% of electricity comes from alternative energy; 4) use alternative-fuel or hybrid vehicles; 5) use E85 in flexible fuel vehicles; 6) ensure that all diesel fuel has at least 5% renewable content by 2007; and 7) provide the state's Department of Natural Resources with quarterly progress reports. Gov. Vilsack also created a tax credit to specified purchasers of renewable energy equal to \$.015 per kilowatt-hour for electricity, \$4.50 per BTU for heat, and \$1.44 per standard cubic foot for hydrogen fuel.

## **Michigan**

Contact: Dana Debel, Policy Advisor; Jennifer Granholm, Office of Governor.

Gov. Jennifer Granholm is interested in climate change, but the auto industry is in a precarious position, leaving the state with little room to act. Michigan has no GHG reporting or goal for reduction. In February 2007, the Governor announced in her State of the State address that she will ask the state legislature to create a renewable energy standard requiring that 10% of Michigan's energy come from renewable sources within eight years and 20% in 18 years. She also stated her goal of 1,000 new ethanol and biodiesel pumps installed by 2008.

Michigan has improved its energy efficient building code, partially reversing prior rollbacks on residential buildings, although the updated code does not meet the 2000 International Energy Conservation Code levels. A lawsuit by homebuilders is challenging new residential codes. Further action is expected on the efficiency of commercial buildings. Gov. Granholm has targeted energy efficiency in the state government as a way to cut costs, and issued a general mandate for state agencies to become more energy efficient. Energy efficiency advocates will work with the Department of Management and Budget to construct guidelines.

An energy plan that encourages Michigan to reduce its reliance on fossil fuels through alternative and renewable sources of energy and energy efficiency was established through an executive order from Gov. Granholm in April 2006. She asked that the plan include a renewable energy portfolio standard for the state that will spur economic development and help Michigan to become a clean energy leader. She recently created a Michigan Renewable Fuels Commission and asked its members to "think big" and "be bold."

Incentives for the production, distribution, and purchase of alternative fuels were legislated in July 2006. The legislation allowed for the creation of tax-free agricultural processing "Renaissance Zones" for companies producing ethanol and biodiesel, and provided grants to renovate or expand existing service stations to make E85 and biodiesel available.

Researchers at the University of Michigan completed a baseline Michigan GHG inventory in 2005. They are now examining the economic impact of carbon constraints and the risk exposure if nothing is done. They will analyze the impact of various policies that have been proposed for Michigan.



As blackouts, higher prices for natural gas, and hurricanes continue to make news, the Michigan legislature is increasingly aware that it needs to act on energy security, diversify the state's energy portfolio, and promote renewable energy and energy efficiency. Commitments to reducing GHG emissions, however, are not yet high on the state agenda.

### **Minnesota**

Contact: Tim Pawlenty, Governor; Mark Holsten, Commissioner, Department of Natural Resources.

On Feb. 22, 2007, Gov. Tim Pawlenty signed a historic renewable energy standard bill requiring utilities to generate 25% of their energy from renewable sources by 2025. The Next Generation Energy Initiative includes strategies to increase energy conservation, increase the number of E85 pumps, raise the state's Renewable Energy Objective, and promote cellulosic ethanol and other biomass technology. Energy conservation will be achieved by increasing Energy Star buildings throughout the state and reducing fossil fuel energy use by 15% by 2015. Minnesota will join the Chicago Climate Exchange or another national GHG registry and, with the help of the Center for Climate Strategies, begin a stakeholder process to identify ways that the state can reduce its emissions efficiently and cost effectively.

Minnesota has the highest RPS in the Midwest, but it applies to only half of the state. There is a good chance of its passing a stronger RPS in 2007. According to the State, relevant Minnesota laws have resulted in more than \$5 billion in clean energy investments since 1992. These include laws that require utilities to use electricity from renewable sources, support utilities that convert old coal plants, and provide funding for wind power projects owned by farmers. Minnesota passed a 20% renewable fuels standard stipulating that all gasoline must contain 20% ethanol by 2013. It has a biofuels mandate requiring that all diesel fuel sold in the state contain at least 2% biodiesel by 2005. The Governor is promoting E85 automobiles for state agencies and consumers and chairs the Governors' Ethanol Coalition, which promotes the use of ethanol fuels nationwide and worldwide.

An advocate of energy efficiency and alternative energy, Gov. Pawlenty has urged other governors to raise their states' awareness of efficiency and to educate the public in energy conserving practices. Minnesota has a budding green industry in wind, ethanol, biodiesel, and cogeneration. The University of Minnesota is working on projects to turn cornhusks into biomass for energy creation and to employ wind to produce hydrogen. The projects are part of the University's Initiatives in Renewable Energy and the Environment, which assigns top professors to the task of producing a greener, non-carbon-based energy strategy for the state.

The Minnesota Public Service Commission is working with the U.S. EPA and utilities on the next steps for promoting energy efficiency. They are looking at decoupling the link between utility profit and sales to increase opportunities for energy efficiency. Minnesota already is a leader in its shareholder incentives for utilities that exceed energy efficiency goals. The Minnesota Project, which leads the RE-AMP energy efficiency team, is involved in these discussions.

To achieve the state's commitment to the Midwest Natural Gas Initiative, Gov. Pawlenty signed legislation requiring that all diesel fuel in Minnesota contain 2% biodiesel made from soybeans. A 2005 law will require a 10% ethanol blend in all gasoline

(E10) by 2010. E85, an even cleaner 85% ethanol, is already available at more than 100 fueling stations. The Conservation Improvement Project dictates that energy utilities must dedicate a portion of their revenues to projects that will reduce the consumption of electricity and natural gas. These funds are primarily used to provide customers with incentives to purchase energy efficient products.

## **Ohio**

Contact: Ted Strickland, Office of the Governor; Mark Shanahan, Governor's Energy Advisor.

As of 2006, Ohio had no RPS, energy efficient building code, or GHG reporting. The state's environmental stance may be strengthened by Gov. Ted Strickland, who has expressed strong commitment to a number of actions related to climate change. He proposes a strategy to spur \$1 billion in private and public investment in next-generation energy production and consumption in Ohio by 2010, and a \$250 million investment plan funded by setting aside 30% of the state's tax-exempt bonds for next-generation energy production projects. He wants to complement the bond program with Third Frontier funding, an existing program described below. Part of the funding would be used to provide capital and training support to Ohio's manufacturers who are either making the transition to hybrid vehicle manufacturing or entering a new market for renewable energy such as wind or solar.

Strickland says he will work to ensure that Ohio's regulatory climate provides incentives for investment in a wide range of clean coal technologies. He would encourage the development and implementation of advanced coal gasification technologies for a variety of purposes, including electricity, liquid fuels, and fertilizers. He would support establishment of Ohio ethanol plants, preferably with a strong equity position for Ohio farmers. He says he will support development of infrastructure to make biofuels such as ethanol and soy diesel accessible, and use state purchasing power to boost demand for alternative energy sources and to ensure energy efficiency savings.

In addition to requiring state vehicles to use biofuels where available and purchasing only efficient automobiles, Gov. Strickland plans to establish mandates for ethanol fuel sales where possible. He says he will pursue energy efficiency opportunities for state-owned buildings, targeting a 5% energy reduction within one year and 15% within five years for all state facilities. Finally, he intends to launch a Governor's Higher Education Energy Challenge, establishing teams of students, faculty, administrators, and facility staff to identify energy savings initiatives on their campuses. Awards would be given to the most innovative campuses.

Ohio is part of the Midwest Carbon Sequestration Regional Partnership, a research project on permanent underground storage (geologic sequestration). Other project partners include the State of Indiana, Battelle, BP, and AEP. Carbon sequestration is supported by the Ohio Coal Development Office.

The Ohio Distributed Energy Resources Program encourages investment by private companies in distributed generation technologies, including wind turbines, combined heat and power technologies, and photovoltaics. The program has made 26 grants for over \$15 million dollars. Ohio agriculture personnel are working with the Chicago Climate Exchange to aggregate reductions for credit.

Ohio's commitment to biofuels got a boost in February 2006, when former Gov.

Bob Taft mandated doubling E85 ethanol use in the state fleet (from 30,000 gallons to 60,000 gallons) in 2007 and increasing future use by 5,000 gallons each year thereafter; increasing biodiesel use in the state fleet by 10%; purchasing only flex-fuel vehicles that can run on both unblended gasoline and E85 ethanol blend as state vehicles are replaced (Ohio already has 1,710 flex-fuel vehicles); and tripling the number of E85 pumps available to Ohio consumers by the end of 2006.

The Third Frontier Fuel Cell Program is a \$100 million state grant program designed to support the commercialization of fuel cells. It focuses on R&D that addresses technical and cost barriers and adapts fuel cell components produced in Ohio for use in fuel cell systems. The program recently provided \$11 million to develop the Ohio Bioproducts Innovation Center at the Ohio Agricultural Research and Development Center. The center will focus on research and development of a broad range of chemical industry products (adhesives, composites, specialty chemicals, and hydrogen production).

A bill to develop efficiency standards for state-funded facilities was adopted in April 2006 by the Ohio House of Representatives. The bill also provides technical assistance for state purchasing and provides for the creation of an inter-university committee to develop building efficiency guidelines for state institutions of higher education and a 15-year plan for reducing on- and off-campus building energy expenditures by at least 20% by 2014.

A bill requiring Ohio to purchase biofuel-friendly vehicles and biofuels and to create state contract preferences for companies that use biofuels was adopted by both the Ohio House and Senate as of June 2006. The legislation would create financial programs to promote biofuels and idling reduction and a tax credit to promote ethanol-blended gasoline.

The Office of the Ohio Consumers' Counsel worked with four investor-owned gas utilities to file a proposal with the Public Utilities Commission of Ohio for decoupling linked to energy efficiency commitments. One of the commissioners, Don Mason, is very supportive. The Ohio Environmental Council is working with the Department of Development's Office of Energy Efficiency to rework an Ohio revolving loan fund so that incentives can be used to purchase efficient appliances. It is presenting the concept to state legislators and gubernatorial candidates.

## **Wisconsin**

Contacts: Patrick Henderson, Senate Liaison; Jim Doyle, Office of Governor; Scott Hassett, Secretary, Department of Natural Resources.

In January 2007, Gov. Jim Doyle announced plans to appoint a global warming task force and create an energy independence office to coordinate an effort to dramatically expand the state's use of renewable energy by 2025. Gov. Doyle plans for the state to invest more in wind power, ethanol, and other sources of renewable energy with the help of grants, loans, and tax credits. In his campaign for governor, Doyle said Wisconsin would use renewable energy for 25% of its electricity and 25% of its transportation fuels by 2025. The energy independence office will coordinate the work of various state agencies toward those goals. Gov. Doyle plans to earmark \$5 million to help Wisconsin create the first plant in the nation that would make ethanol from cellulose.

The Governor's new Task Force on Global Warming will explore how Wisconsin can reduce its emissions of GHGs. The task force will be modeled on an energy task force

whose recommendations led to a state law requiring 10% of the state's electricity to be powered by wind turbines and other clean-energy sources by 2015.

Climate change has been part of the state dialogue in Wisconsin for several years. All utilities and any facilities that emit 100,000 tons or more of CO<sub>2</sub> are required to report their annual CO<sub>2</sub> releases. Sources that emit fewer tons can voluntarily choose to report their emissions. Wisconsin's State Climate Change Action Plan includes policies that are cost-neutral or save money for the state. Some parts of the plan have been implemented, but observers say that large parts have not.

Gov. Doyle substantially increased the state's Renewable Portfolio Standard in the Energy Efficiency and Renewables Act of March 2006. The revised RPS requires utilities to produce 10% of their electricity from renewable energy sources by 2015. It increases funding to local governments for energy efficiency projects and requires Wisconsin utilities to directly support energy efficiency programs, ensuring that \$85 million a year will be spent promoting energy efficiency. The RPS requires the state to support R&D on agricultural digesters and to launch a pilot residential heating program using leftover corn plants. It also mandates that the state purchase 20% of the energy for the six largest state agencies from renewable sources by 2011, include higher energy efficiency standards in building codes (upgrading to the 2005 standards), and create specific energy standards for state building projects.

These steps replace funds that had been diverted from Focus On Energy, the state's energy efficiency fund. Clean Wisconsin estimates that the changes to the Focus On Energy program will result in more than \$200 million in savings for businesses and homeowners initially, and increase with increased investments; and reduce global warming emissions by 700,000 tons per year. Wisconsin is a model for third-party implementation of energy efficiency programs (public benefit funds).

All state government buildings must conform to "green building" standards by an executive order signed in April 2006 by Gov. Doyle. The state expects that changes to existing buildings and future construction will reduce its energy bill up to 30%. The order also requires that overall energy usage in state government buildings be reduced by 10% by 2008 and 20% by 2010.

Wisconsin and nine other states (New York, California, Connecticut, Maine, Massachusetts, New Mexico, Oregon, Rhode Island, and Vermont) filed a lawsuit in 2006 against the U.S. EPA for its decision not to regulate carbon dioxide emissions as a contributor to global warming. The states – led by then New York Attorney General Eliot Spitzer and joined by environmental groups and the cities of Washington, D.C., and New York – urged the federal government to require tighter controls on GHG emissions from new power plants.

Wisconsin's ambitious "Declaration of Energy Independence" was signed in July 2006 by Gov. Doyle, University of Wisconsin System President Kevin Reilly, and other industry and environmental leaders. It set broad goals for the state to become the nation's leader in energy independence. Its main goals are:

- To generate 25% of electricity and 25% of transportation fuel from renewable fuels by 2025.
- To capture 10% of the market share for the production of renewable energy sources by 2030. Achieving this goal would bring \$13.5 billion annually to Wisconsin's economy by 2030.

- To become a national research leader in alternative energies.
- Gov. Doyle is directing state agencies to work toward achieving the goals in the Declaration. As a first step, Wisconsin is to:
- Identify at least three University of Wisconsin campuses that will be moved “off the grid” within five years – producing enough energy on their own to be completely energy independent, with a strong focus on renewable fuels.
  - Provide \$1 million in grant funding to Wisconsin businesses and entrepreneurs who are developing and commercializing new bioenergy, bioproducts, and biofuels technologies.
  - Aggressively promote new incentives, including as part of the budget process, encouraging the production and use of renewable fuels. The state will seek federal and state grants for the installation of E85 pumps throughout Wisconsin, lead an effort to create a state biodiesel association to foster the growth of this sector, and collaborate with other Midwest states to seek changes in the next Farm Bill to encourage the growth of alternative fuels and the feedstocks used for biomass production.
  - Encourage additional research in renewable energy development at the University of Wisconsin.
  - Implement the recommendations of the Governor’s Biobased Industry Consortium, including creation of a Wisconsin Biobased Industry partnership, building research and development capacity at the University of Wisconsin system and technical colleges, developing specialized business support programs, and building markets and demand for bioproducts.
  - Form a Wisconsin Energy Independence Project, an interagency effort to coordinate and focus the activities of state government toward achieving the Declaration’s goals.
  - Launch an effort to make Wisconsin the first state to have a cellulosic ethanol plant, to produce ethanol fuel from wood products.

Gov. Doyle’s office highlights the broad coalition of educational, industry, and environmental leaders in signing the declaration. Signatories include representatives from agriculture, the energy industry, nonprofit organizations, labor, and the president of the University of Wisconsin System.

In keeping with Wisconsin’s commitment to the Midwest Natural Gas Initiative to accomplish a 1% reduction in energy consumption per year, Gov. Doyle is aiming for 10% of the state’s energy to come from renewable sources by 2010.

There is little discussion in Wisconsin about fuel efficiency standards and little funding for climate-friendly transportation projects.

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# Midwest Collaborative Initiatives of States

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## **Clean Energy States Alliance**

Montpelier, Vermont

Contact: Lewis Milford, Executive Director.

Publicly managed clean energy funds from 12 states have formed the Clean Energy States Alliance to coordinate public benefit fund investments in renewable energy. Managed by the nonprofit Clean Energy Group Inc., the Alliance is composed of funds in California, Connecticut, Illinois, Massachusetts, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, and Wisconsin.

## **Council of Great Lakes Governors**

Contacts: David Naftzger, Executive Director; Gov. Jim Doyle, Chair (Wisconsin).

The Council of Great Lakes Governors promotes environmentally responsible economic growth through a cooperative effort between the public and private sectors among the eight Great Lakes States (Illinois, Indiana, Michigan, Minnesota, Ohio, New York, Pennsylvania, and Wisconsin) and with Ontario and Québec. The Council has administered the Great Lakes Biomass State-Regional Partnership under contract with the U.S. DOE to encourage greater production and use of biomass for energy generation. The Partnership sponsors renewable energy conferences and workshops organized by nonprofit associations. Partnership states include Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin.

## **Council of State Governments (Midwest Office)**

Lombard, Illinois

Contact: Laura Kliewer, Senior Policy Analyst.

The Midwest office of the Council of State Governments staffs the Midwestern Governors Association. It is working to bring about the planned Midwest Governors Energy Summit, which will bring together the governors to discuss energy issues at the state and federal levels.

## **Governors' Ethanol Coalition**

Lincoln, Nebraska

The Governors' Ethanol Coalition seeks to increase the use of ethanol-based fuels, to decrease the nation's dependence on imported energy resources, to improve the environment, and to stimulate the national economy. It supports the production of ethanol from corn or other domestic, renewable resources using sustainable agricultural methods, and encourages its use in environmentally acceptable applications.

## **Lake Michigan Air Directors Consortium**

Des Plaines, Illinois

Contact: Michael Koerber, Executive Director.

LADCO provides technical assessments for and assistance to its member states of Il-

Illinois, Indiana, Michigan, Ohio, and Wisconsin on problems of air quality, and serves as a forum for discussion of regional air quality issues. In August 2005, LADCO received a grant from the Joyce Foundation to develop a framework for a voluntary GHG registry serving its five states. The purpose of the Midwest registry is to provide a credible GHG measurement and reporting platform to participating companies.

The project gathered so much momentum that Iowa, Minnesota, and Missouri joined the effort. Subsequently, the Midwest registry states, the California Climate Action Registry, and the Eastern Climate Registry (formerly known as the Regional Greenhouse Gas Initiative) are discussing the opportunity to join forces to create a nearly-national, 30-state registry. Final design and implementation work is underway, with the goal being for the registry to start operations in late 2007. ELPC worked closely with state EPA directors and then LADCO to design the registry and recruit business participants. World Resources Institute was hired in 2005 to provide the technical protocols for the registry. Several major Midwestern companies already have submitted letters indicating a willingness to participate in the registry once it opens, and the project recently received publicity in a high-profile article in *Crain's Chicago Business*.

### **Midwest Natural Gas Initiative**

Chicago, Illinois

Contact: Becky Wigg, Policy Manager, Midwest Energy Efficiency Alliance.

The Midwest Natural Gas Initiative is a cooperative effort among eight Midwest states (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin) to develop an energy efficiency initiative to decrease natural gas consumption by 1% per year for five years. The hoped-for result is that wholesale natural gas prices will decrease by as much as 13%. Participating states sign a Memorandum of Understanding pledging to develop a plan for increasing energy efficiency in their state. Iowa, Minnesota, and Wisconsin already have established energy efficiency plans.

The Initiative is coordinated by the Midwest Energy Efficiency Alliance, a Chicago-based nonprofit organization dedicated to advancing energy efficiency. MEEA will support the participants as they implement their plans. The Regulatory Assistance Project (RAP) and American Council for an Energy-Efficient Economy (ACEEE) also lend policy and technical support to the Initiative. The steering committee consists of Midwest representatives of Public Service Commissioners as well as representatives from RAP, ACEEE, and MEEA.

In economic terms alone, the Midwest states have much to gain by decreasing their reliance on natural gas. Under current energy policies, the Initiative reports that:

- Illinois's economy exports \$22 billion each year to pay for imported fuels including coal, natural gas, and petroleum. Almost half (\$10 billion) is due to the high price of natural gas.
- Indiana's economy exports \$14 billion each year to pay for imported fuels including coal, natural gas, and petroleum. Almost one-third (\$5.4 billion) of this drain on Indiana's economy is due to the high price of natural gas.
- Michigan's economy exports \$18 billion each year to pay for imported fuels including coal, natural gas, and petroleum. More than one-third (\$7 billion) is due to the high price of natural gas.
- Minnesota's economy exports \$3.5 billion each year to pay for natural gas.

- Ohio's economy exports \$20 billion each year to pay for imported fuels including coal, natural gas and petroleum. Over one-third (\$7 billion) is due to the high price of natural gas.
- Wisconsin's economy exports \$11 billion each year to pay for imported fuels including coal, natural gas, and petroleum. Almost half (\$4 billion) is due to the high price of natural gas.

### **Midwestern Governors Association**

Lombard, Illinois, and Washington, D.C.

The Midwestern Governors Association is a nonprofit, bipartisan organization that brings together top state leaders to work cooperatively on public policy issues of significance to the Midwest. Members include the governors of Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. MGA has endorsed production tax credits for ethanol and renewable electricity.

Minnesota Gov. Timothy Pawlenty is working through the MGA to encourage all 13 MGA governors to endorse 25x'25, the campaign to produce 25% of America's energy from renewable resources by 2025. Endorsers of 25x'25 now include Gov. Kathleen Sebelius, Kansas, Gov. Pawlenty, and Gov. Dave Heineman, Nebraska. Sebelius and Heineman co-chair the Governors' Ethanol Coalition and have encouraged all 32 members of the Coalition to endorse the 25x'25 vision.

The association is planning a Midwest Governors Energy Summit to set the stage for a 2008 federal policy debate about global warming, energy R&D, infrastructure for carbon transfer, and tax incentives for coal gasification. Likely topics for the summit include coal, energy efficiency, biofuels, climate policy, coal gasification, and carbon sequestration.



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# Legislators Visible on Climate Change

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## U.S. Congress – Midwest Delegation

New opportunities for federal energy policy have emerged as a result of the November 2006 national elections. All of the chairmanships in the House and the Senate shifted to Democratic legislators, many of whom support policy changes to reduce GHG emissions, improve energy security, or build renewable energy sectors. Both of the new majority leaders – Rep. Nancy Pelosi, the new Speaker of the House, and Senate Majority Leader Harry Reid, who will be responsible for setting the Congressional agenda – have called for mandatory climate measures. Sen. Barbara Boxer of California has replaced Oklahoma Sen. James Inhofe, a climate change skeptic, as chair of the Environment and Public Works Committee. The committee will hold hearings and is expected to try to move a bill that supports mandatory caps out of the committee this year.

Many observers are skeptical that Congress will pass many new energy policies or address climate change in the first 18 months after the election, even though new Democratic leadership has committed to do so. A number of factors support this view: a split Senate and the requirement that at least 60 senators support the legislation, a President who opposes mandatory curbs on GHG emissions, tight fiscal constraints, a Congress that just passed an omnibus bill (the National Energy Policy Act of 2005), and five new Democratic Senators who represent states (Missouri, Montana, Ohio, Pennsylvania, and Virginia) where mandatory climate action is bound to be unpopular.<sup>20</sup> The majority leader, Sen. Harry Reid, has stated his preference to support a number of smaller energy-related bills instead of a mandatory cap.

After 2008, however, climate legislation is considered highly likely. Climate change already is a visible issue in New Hampshire and Iowa. There is growing public concern about impacts as well as concern by industry that action in California and the northeastern states will be replicated across additional states.<sup>21</sup>

Prior to the November election, in June 2006, 40 senators sent a letter to President Bush to support congressional efforts to reverse the threats posed by global warming. Midwest senators who signed the letter include Richard Lugar (R-Indiana), Evan Bayh (D-Indiana), Barack Obama (D-Illinois), Dick Durbin (D-Illinois), Russ Feingold (D-Wisconsin), Tom Harkin (D-Iowa), Herb Kohl (D-Wisconsin), and Mark Dayton (D-Minnesota).

Senators who have shown interest in climate change action include:

- Sen. Barack Obama has spoken about climate change and security together. His proposal, “Health Care for Hybrids,” would allow the federal government to pick up part of the tab for the auto companies’ retiree health care costs. In exchange, the auto companies would use savings to build and invest in more fuel-efficient cars. With Sen. Lugar, Obama introduced the American Fuels Act to reduce the risk of investing in renewable fuels. Sen. Obama is an original co-sponsor of the new Lieberman-

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<sup>20</sup> “Big Oil Companies a Target in New U.S. Congress,” *Reuters*, Nov. 8, 2006.

<sup>21</sup> “Global Warming Heats Up Capitol Hill,” *Business Week*, Sept. 18, 2006.

McCain bill. He also supports the current Senate bill promoting coal-to-liquids, which is opposed by the environmental community because it lacks sufficient environmental standards.

- Sen. Dick Durbin supports cap and trade and has proposed an amendment to raise the Corporate Average Fuel Economy (CAFÉ) standard for cars and light trucks to 40 mpg by 2016. On June 23, 2005, the Senate rejected the amendment by a vote of 28-67. He also has proposed tax incentives for fuel efficient vehicles.
- Sen. Mark Dayton is a co-sponsor of the McCain-Lieberman Climate Stewardship Act, which would dramatically cut polluting emissions. He also has advocated for tougher mercury emissions standards for power plants, a federal renewable portfolio standard, and tax credits for renewable energy.
- Sen. Russ Feingold is recognized by the League of Conservation Voters as having one of the highest lifetime voting records of any seated U.S. Senator. He supports the renewable portfolio standard, investment in renewable energy technology, a federal energy efficiency bank, alternative fuels for cars, and clean power.
- Sen. Herb Kohl supports a national energy policy that emphasizes greater conservation and efficiency and the development of renewable energy sources.
- Sen. Tom Harkin co-sponsored with Sen. Lugar the Fuel Security and Consumer Choice Act in 2005 to require auto manufacturers to increase production of flexible fuel cars. In summer 2006, Sen. Harkin co-sponsored the Fuel Economy Reform Act with Sens. Obama, Durbin, Lugar, and others to create a 4% target for annual increase in CAFE standards. With Sens. Durbin, Lugar, Hagel, and Nelson, Harkin co-sponsored the Rural Energy for America Program to reauthorize and improve the Department of Agriculture's renewable energy systems and energy efficiency improvements program.
- Sen. Richard Lugar's proposed national energy plan would make every new car sold in America a flexible fuel vehicle, ensure that at least one-quarter of U.S. filling stations have E85 ethanol blend pumps, expand ethanol production to 100 billion gallons a year by 2025, and enact stricter vehicle mileage standards to point automobile innovation toward conservation. As Chairman of the U.S. Senate Foreign Relations Committee, Sen. Lugar has called for the U.S. to return to negotiations under the Framework Convention on Climate Change to achieve a comprehensive international approach to global warming. His Indiana farm is the first in the state to enroll as an offset provider in the Chicago Climate Exchange for carbon sequestration benefits achieved through tree farm management practices.
- Sen. Debbie Stabenow (D-Michigan) supported the Climate Stewardship Act, although Michigan's senior senator, Democrat Carl Levin, opposed it out of concern for loss of manufacturing jobs.

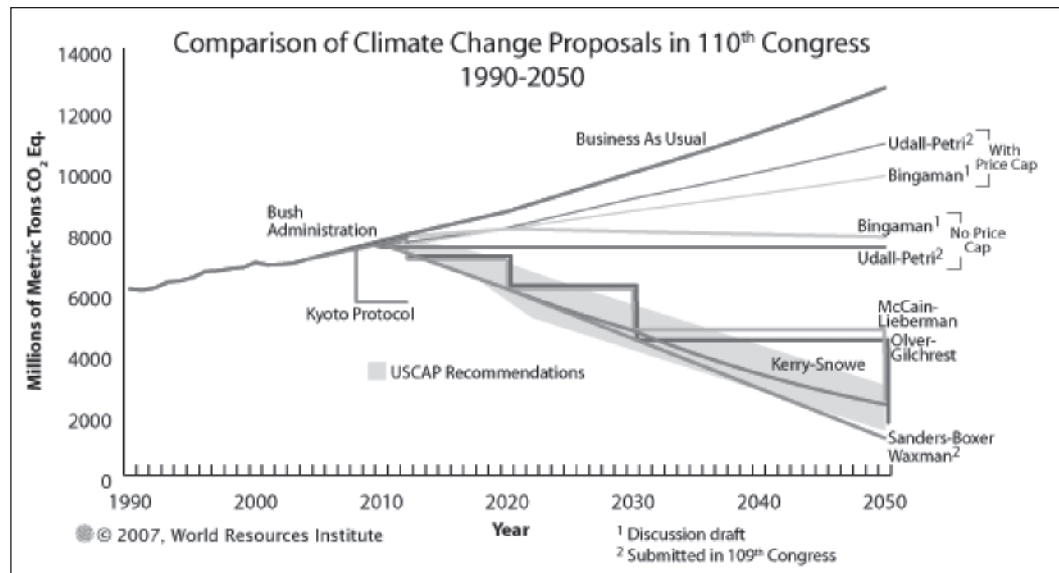
In the House, support for federal climate change action is likely stronger than in 2005, when the House of Representatives conference committee removed the Senate-approved renewable portfolio standard from the 2005 National Energy Policy Act.

A number of Midwest representatives have supported positive energy legislation. For example, Illinois Reps. Jan Schakowsky, Jesse Jackson Jr., Danny Davis, and Luis Guterierrez supported the Safe Climate Act, introduced in summer 2006 by Rep. Henry Waxman of California to harness clean energy solutions and reduce U.S. global warming emissions by 15% by 2020 and 80% by 2050. Rep. Peter Visclosky of Indiana has

said that the U.S. must address climate change by raising the CAFE standards using the federal government’s purchasing power to build markets for next-generation vehicles (hybrids, hybrid plug-ins, and flex-fuel vehicles); by retrofitting public buildings and government installations for energy efficiency; by providing federal support for R&D for biomass and solar, clean coal, carbon sequestration, and nuclear power; and by setting GHG emissions reduction targets and a goal for energy independence within 20 years.

Rep. John Dingell, a Michigan Democrat, now chairs the Energy and Commerce Committee and Rep. Rick Boucher, a Virginia Democrat, chairs the Energy and Air Quality Committee. At a hearing of the Energy and Air Quality Committee, Reps. Dingell and Boucher announced that they intended to report out a bill that calls for a mandatory cap on GHG emissions by June 1, 2007. This represents a shift in Dingell’s prior position.

The different impacts of current bills are illustrated in this 2007 graph produced by the World Resources Institute. The shaded area shows the range of targets described in the USCAP’s report “A Call for Action.”



### State Legislators

The 2006 elections yielded major changes in Midwest state legislatures. Democrats gained close to 320 state legislative seats, achieving new majorities in the Iowa House and Senate, the Indiana House, the Minnesota House, the Michigan House, and the Wisconsin Senate.

A group of state legislators from Illinois, Iowa, Michigan, Minnesota, Ohio, and Wisconsin announced their commitment to address climate and clean energy in their states. In February 2006, they introduced a number of pieces of legislation to promote renewable energy, energy efficiency, reduced vehicle emissions, and GHG registries. They also offered plans to encourage coal gasification and carbon sequestration.

The National Caucus of Environmental Legislators is working with these legislators to coordinate their actions. NCEL’s role is to educate caucus participants on the policy op-

tions and strategies used by fellow caucus participants to enact those policies. NCEL also monitors efforts of anti-environment state legislator organizations, such as the American Legislative Exchange Council, to defeat or delay state policies to address climate change. The NCEL's Midwest activities are coordinated by Jane Krentz, a former Minnesota State Senator, and Rep. Pam Godchaux. Leaders include Reps. Karen May (Illinois), Rob Hogg (Iowa), Chris Kolb (Michigan), Rick Hansen (Minnesota), Kathleen Chandler (Ohio), and Mark Miller (Wisconsin).

Much of NCEL's annual Midwest/Great Lakes Environmental Legislators Forum in December 2006 was devoted to global warming and renewable energy. California Assemblywoman Fran Pavley keynoted the conference, highlighting California's landmark GHG legislation and providing political and strategic analysis on replicating the policy in other states. NCEL participants in Wisconsin and Illinois are considering introducing legislation modeled after California's new law. Other sessions included legislative options for cleaning up coal-fired power plants and promoting renewable energy and energy efficiency. LADCO has suggested ways that NCEL participants can assist in the formation of a voluntary GHG registry for the region.

To promote energy conservation and renewable energy, Midwest legislators have introduced bills that would limit carbon emissions, foster renewable portfolio standards, award tax credits for Energy Star appliance purchases, set energy efficiency standards for appliances, create Climate Change Commissions, create Renewable Energy Funds, adopt California automobile emissions standards, establish a voluntary GHG registry, and award tax credits for carbon sequestration project.

NCEL's Midwest effort, focused on Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin, is funded by the Joyce Foundation. More than 150 legislators from these seven states participate in NCEL, and 40 of them attended the December 2006 forum. NCEL may enlist a climate expert to visit state legislators to reach caucus participants who were unable to attend the forum. NCEL would use the state visits to recruit new legislators to the caucus.

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## Environmental and Commerce Agencies

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In many states, leaders of state environmental and commerce agencies are representing their Governors on climate and energy policy and related economic development strategies.

*Illinois EPA*

Doug Scott, Director  
Ron Burke, Assoc. Director  
Participating in LADCO registry process

*Illinois Department of Natural Resources*

David Baker, Associate Technical Scientist

*Illinois Department of Commerce and Opportunity*

Hans Detweiler, Deputy Director  
David Ross (e-waste)

*Iowa Department of Natural Resources*

George Welch  
Participating in LADCO registry process

*Ohio EPA*

Bill Spires  
Participating in LADCO registry process

*Ohio Department of Natural Resources*

Sam Speck, Director

*Indiana Department of Environmental Management*

Jon Bates

*Michigan Department of Environmental Quality*

G. Vinson Hellwig, Chief, Air Quality Division  
Dave Mason  
Participating in LADCO registry process

*Minnesota Pollution Control Agency*

Sheryl Corrigan, Commissioner  
Ana Seha, Asst. Commissioner  
Peter Ciborowski  
Participating in LADCO process

*Minnesota Department of Commerce*  
Mike Bull, Director for Renewable Energy Technologies

*Wisconsin Department of Natural Resources*  
Patrick Kirsop  
Ed Jepsen  
Participating in LADCO process

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## Researchers/Universities

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Some of the researchers and research centers prominent in climate change policy circles are listed here.

Dr. Joel E. Scherraga, National Program Director  
Global Change Research Program, National Center for Environmental Assessment, U.S. EPA

Dr. Scherraga is an articulate and frequent speaker on interpreting climate change for policy decision-makers.

Dr. Donald Wuebbles, Professor  
Department of Atmospheric Sciences, University of Illinois  
also Director, School of Earth, Society, and Environment

Dr. Wuebbles is co-author of *Confronting Climate Change in the Great Lakes Region: Impacts on Our Communities and Ecosystems*, a comprehensive report released in 2003 by the Union of Concerned Scientists and the Ecological Society of America. He co-developed the Global Warming Potential concept used in the Kyoto Protocol and was a lead author on the first Intergovernmental Panel on Climate Change (IPCC) assessment.

Dr. Rattan Lal, Professor and Director  
Carbon Management and Sequestration Center, Ohio State University

Dr. Lal focuses on understanding and enhancing the science, management, and policy of carbon within terrestrial soils, crops, trees, and wetlands. He is a lead author for the Intergovernmental Panel on Climate Change's *Special Report on Land Use, Land Use Change, and Forestry*.

Dr. Rosina M. Bierbaum, Professor and Dean  
School of Natural Resources and Environment, University of Michigan

Dr. Bierbaum is the former key person in the Clinton White House on climate science for OSTP. She says that (1) we're not being nearly aggressive enough to get on a climate control strategy path; (2) as the science has improved, each successive five-year consensus statement by the Intergovernmental Panel on Climate Change has been clarified to the extent that the next one will be unambiguous; (3) it will take a set of aligned interventions to successfully address climate change, and thus far our policy set is too constrained.

Dr. George Kling, Professor  
Department of Ecology and Evolutionary Biology, University of Michigan

Dr. Kling is co-author of *Confronting Climate Change in the Great Lakes Region: Impacts on Our Communities and Ecosystems*, a comprehensive report released in 2003 by the Union of Concerned Scientists and the Ecological Society of America.

Dr. Katharine Hayhoe, Research Associate Professor  
Department of Geosciences, Texas Tech University

Dr. Hayhoe is co-author of *Confronting Climate Change in the Great Lakes Region: Impacts on Our Communities and Ecosystems*, a comprehensive report released in 2003 by the Union of Concerned Scientists and the Ecological Society of America. More recently, she has also led regional climate impact assessments for the state of California (2004) and the Northeast (2006) that have been highlighted by state and federal agencies in support of actions to reduce greenhouse gas emissions from human activities.

Dr. Stanley A. Changnon, Chief Emeritus  
Office of Applied Climatology, State Water Survey, Illinois Department of Natural Resources

Dr. Changnon has studied climate change impacts on the Great Lakes for many years. He also is a research consultant to the insurance industry.

Dr. Mark L. Wilson, Associate Professor  
Department of Biology and Epidemiology, School of Public Health, University of Michigan

Professor Wilson is Director of the Global Health Program at University of Michigan. His research addresses emerging diseases resulting from environmental and social change, including climate change.

Dr. Raymond Pierrehumbert, Professor  
Department of the Geophysical Sciences, University of Chicago

Professor Pierrehumbert focuses on the physics of climate, especially regarding the long-term evolution of the climates of Earth and Mars. He was the lead author on the Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report (1997-2001).

Dr. Jonathan Patz, Professor  
University of Wisconsin

Professor Patz is a world expert in climate-health impacts. He directs a university-wide initiative on Global Environmental health and is an Affiliate Scientist of the National Center for Atmospheric Research (NCAR).

Dr. Michael E. Schlesinger, Professor  
University of Illinois at Champaign-Urbana

Professor Schlesinger directs the UIUC Climate Research Group (CRG) within the Department of Atmospheric Sciences.

Dr. Susanne Moser, NCAR

Dr. Moser is an expert in regional climate impacts and social implications, and has just written a book published by Cambridge University Press titled *Communicating Climate Change*.



Professor David Archer, University of Chicago

Professor Archer is a world expert in the carbon cycle and geological sequestration.

Dr. Jon Foley, University of Wisconsin-Madison

Director, Center for Sustainability and the Global Environment (SAGE) at the University of Wisconsin

Professor Foley is an expert on interactions of climate with changes in land use, ecosystems, climate, and freshwater resources.

### **Additional Important Researchers**

Gopal Alagarswamy, Michigan State University

George M. Albercook, University of Michigan

J. David Allan, University of Michigan

Jeffrey A. Andresen, Michigan State University

Raymond A. Assel, Great Lakes Environmental Research Laboratory

Laura Bowling, Purdue University

John Braden, UIUC

Arthur S. Brooks, University of Wisconsin-Milwaukee

Michael Barlage, University of Michigan

Jeanne Bisanz, University of Michigan

Daniel G. Brown, Michigan State University

H. H. Cheng, University of Minnesota

Keith Cherkauer, Purdue University

Anne H. Clites, Great Lakes Environmental Research Laboratory

Thomas E. Croley II, Great Lakes Environmental Research Laboratory

Margaret Davis, University of Minnesota

Otto Doering, Purdue University

Anthony J. Eberhardt, Buffalo District, Army Corps of Engineers

Byron Gleason, National Climatic Data Center

Emily K. Grover, University of Michigan

Galina Guentchev, Michigan State University

Rebecca Hellman, University of Notre Dame

Tracey Holloway, University of Wisconsin

Vilan Hung, University of Michigan

Atul Jain, University of Illinois

Lucinda Johnson, University of Minnesota at Duluth

Madhu Khanna, UIUC

David A. R. Kirstovich, Illinois State Water Survey

Kenneth E. Kunkel, Illinois State Water Survey

Steve Long, UIUC

John T. Lehman, University of Michigan

Xin-Zhong Liang (ISWS)

John D. Lindeberg, Center for Environmental Studies, Economics and Science

Richard L. Lindroth, University of Wisconsin-Madison

Brent M. Lofgren, Great Lakes Environmental Research Laboratory

John J. Magnuson, University of Wisconsin-Madison

Mike Mazzocco, University of Illinois, Urbana-Champaign  
Dan McGrath, UIUC  
James R. Nicholas, USGS, Lansing, Michigan  
Jamie A. Picardy, Michigan State University  
Stephen Polasky, University of Minnesota  
Jeff Price, American Bird Conservancy  
Frank H. Quinn, Great Lakes Environmental Research Laboratory  
J.C. Randolph, Indiana University  
Paul Richards, University of Michigan  
Joe Ritchie, Michigan State University  
Scott K. Robinson, University of Illinois  
Terry Root, University of Michigan  
Kristen Schrader-Frechette, Notre Dame  
Mark Schwartz, University of Wisconsin-Milwaukee  
Michael Schlesinger, University Of Illinois  
William B. Sea, University of Minnesota  
Brian Shuter, University of Toronto and Ontario Ministry of Natural Resources  
Becky Snedegar, Indiana University Great Lakes Workshop and Assessment Team  
Peter J. Sousounis, University of Michigan  
David Stead, Center for Environmental Studies, Economics and Science  
Shinya Sugita, University of Minnesota  
Steve Vavrus, University of Wisconsin  
Karen Walker, University of Minnesota  
Eleanor A. Waller, Michigan State University  
Michelle Wander, UIUC  
Nancy E. Westcott, Illinois State Water Survey  
Mark Wilson, University of Michigan  
Julie A. Winkler, Michigan State University  
Donald R. Zak, University of Michigan  
John Zastrow, University of Wisconsin

### **The Midwestern Regional Climate Center**

Champaign, Illinois

The Midwestern Regional Climate Center is a cooperative program of the Illinois State Water Survey and the National Climatic Data Center of the National Oceanic and Atmospheric Administration, U.S., Department of Commerce. Its mission is to provide the Midwest with high-quality climate data, derived information, and data summaries; monitor and assess regional climate conditions and their impacts; prepare specialized historical climate data sets; and coordinate applied research on climate-related issues and problems. The Midwestern Regional Center examines the causes and consequences associated with global environmental change, particularly climate change due to human modification of the atmosphere. The Center is administered by Indiana University's School of Public and Environmental Affairs.

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# Labor

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Labor unions have an important role to play in the transition from a fossil fuels-based economy. The Apollo Alliance has been in the forefront of demonstrating how this change could positively impact the creation of jobs.

## **Apollo Alliance**

Contact: Bill Holland, Midwest Field Director.

The Apollo Alliance is a coalition within the labor, environmental, business, urban, and faith communities in support of good jobs and energy independence. It has been endorsed by the AFL-CIO and 23 international labor unions as well as a majority of national environmental organizations. The Apollo Alliance has a Ten-Point Plan for Good Jobs and Energy Independence, which calls for a 10-year, \$300 billion federal investment in clean-energy technologies and green buildings leading to the creation of over one million new manufacturing jobs. Its strategy center director, Kate Gordon, is on the steering committee of RE-AMP (the Renewable Energy Alignment Mapping Project).

In Wisconsin, Apollo worked with union and environmental groups to advocate for the Wisconsin State Assembly passage of SB 459, legislation that increased the Wisconsin Renewable Energy Standard to 10% by 2015, secured funding for Wisconsin's Focus on Energy program, and updated Wisconsin's building codes. Wisconsin's labor unions and environmental groups worked together for this legislative priority. Apollo is establishing a fund, on the scale of \$30-50 million using industrial development bonds to promote renewable energy manufacturing. Another initiative is underway to fund energy efficiency retrofits for schools using savings from energy projects to pay off the bonds issued for the effort.

The Michigan Apollo Alliance currently includes Clean Water Action, Ecology Center, Michigan Environmental Council, Michigan League of Conservation Voters, National Wildlife Federation, Public Interest Research Group in Michigan (PIRGIM), International Association of Machinists, International Brotherhood of Electrical Workers #17, IBEW #58, International Union of Operating Engineers, Michigan AFL-CIO, Michigan State Building Trades Council, and United Auto Workers. Its 2006 policy priorities include:

- Reinstate utility energy efficiency programs and a Michigan Public Benefits Fund.
- Develop a renewable energy manufacturing sector in Michigan.
- Support policies ensuring state government leadership on energy efficiency.

In Ohio, the Apollo Alliance has been working with a local partner, Policy Matters Ohio, to develop an agenda for creating jobs for Ohio citizens. It also is working with the Ohio Blue-Green Alliance to identify opportunities at the state level that would create jobs in clean energy and energy efficiency. UAW has agreed to sit on the steering committee, and the building trades in Cleveland are supportive. Apollo supports a transition for Ohio from traditional coal jobs to the creation of more jobs from IGCC and sequestration.

Creating jobs in renewable energy presents a number of opportunities for Midwest collaboration. For instance, the states could work together to promote the Midwest as

the renewable energy center. Iowa and Wisconsin could increase wind production using parts produced in Ohio. A group of states could request federal assistance in promoting IGGC. Perhaps the auto-producing states – Michigan, Ohio, Indiana, and Illinois – could work together to develop plug-in hybrid car technologies, researching how to transition fleets to hybrids and fostering a manufacturing conversion. A regional approach could be taken in capturing offshore wind energy. Michigan and Ohio are potential sites.

### **Blue-Green Alliance**

Minneapolis, Minnesota

Contact: David Foster (former District #11 director of the USW).

The Blue-Green Alliance is a strategic alliance among organized labor and major environmental organizations that promotes a labor-friendly plan to stop global warming. It represents more than nine million members, including the nation's largest industrial union, the United Steelworkers, and its largest environmental organization, the Sierra Club. The Blue-Green Alliance is pursuing a joint public policy agenda under the banner of Good Jobs, A Clean Environment, and A Safer World. It launched a national "New Vision for America" tour designed to highlight the economic benefits of dealing with global warming. The tour includes events in cities whose mayors have embraced the Mayors Climate Protection Agreement.

### **Center on Wisconsin Strategy, University of Wisconsin-Madison**

Madison, Wisconsin

The Center on Wisconsin Strategy (COWS) promotes research, policy analysis, field experiments, and demonstration projects in "high road" (high wage/productivity/profits, low waste, democratically accountable) economic growth and government. COWS is building support among labor leaders in Wisconsin and other Midwest states for "clean" coal gasification technology as an alternative to conventional coal power plants.

### **International Brotherhood of Electrical Workers**

Washington, D.C.

Contact: Kevin Lynch.

The International Brotherhood of Electrical Workers represents approximately 750,000 members in the U.S. and Canada who work in a wide variety of fields, including utilities, construction, telecommunications, broadcasting, manufacturing, railroads, and government. IBEW is part of the National Photovoltaic Construction Partnership (NPCP), which was formed to address the challenges of global warming and job creation. The NPCP seeks to build alliances between the business, labor, and environmental communities through investment in clean, renewable, domestically produced solar energy. In Illinois, Kevin Lynch of IBEW Local 134 coordinates the electrical program for the IBEW-NECA (Electrical Contractors' Association) Technical Institute apprenticeship program. Lynch also chairs the Chicago Solar Partnership and serves on the Chicago Climate Change Task Force. In Michigan, IBEW is part of the Apollo Alliance.

**United Transportation Union**

Cleveland, Ohio

Contact: Joe Szabo.

The United Transportation Union represents about 125,000 active and retired railroad, bus, and mass transit workers in the U.S. and Canada. It is working with the ELPC on passenger rail expansion.

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## Faith-Based Collaborative Initiatives

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Faith-based groups are increasingly concerned and vocal about environmental degradation, including climate change. These groups are an important ally in efforts to promote climate action.

### **Evangelical Climate Initiative**

Washington, D.C.

Contact: Rick Warren.

The Evangelical Climate Initiative is formed of the 86 evangelical Christian leaders who signed the February 2006 “Evangelical Call to Action on Climate” statement on global warming. The initiative is running advertisements in newspapers and on television urging Christians and the U.S. government to do more to cut CO<sub>2</sub> emissions and advocating for cap and trade emissions controls.

The alliance between evangelicals and scientists to save the living world is particularly compelling. On January 17, 2007 the National Association of Evangelicals and the Center for Health and the Global Environment at the Harvard Medical School issued an “Urgent Call to Action” addressed to President Bush in which scientists, religious leaders, and environmental leaders informed him of their belief that “life on Earth is seriously imperiled and informed him of their intent to work together to “care for creation.”<sup>22</sup>

Members of the initiative include activist pastors such as Rick Warren – author of the bestseller *The Purpose-Driven Life* – heads of Christian colleges, and missionary organizations, including the Salvation Army and World Vision. Eighteen of the signatories are from the Midwest, including the following:

#### *Minnesota*

Rev. Dr. Leith Anderson, Former President, National Association of Evangelicals (NAE); Senior Pastor, Wooddale Church, Eden Prairie

Rev. George K. Brushaber, Ph.D., President, Bethel University; Senior Advisor, *Christianity Today*; St. Paul

#### *Michigan*

Rev. Dr. Peter Borgdorff, Executive Director, Christian Reformed Church, Grand Rapids  
Gaylen Byker, Ph.D., President, Calvin College, Grand Rapids

Rev. Myles Fish, President/CEO, International Aid, Spring Lake

Rev. Michael J. Glodo, Stated Clerk, Evangelical Presbyterian Church, Livonia

Andy Ryskamp, Executive Director, Christian Reformed World Relief Committee, Grand Rapids

#### *Illinois*

Rev. Dr. Jerry B. Cain, President, Judson College, Elgin

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<sup>22</sup> Letter to President George W. Bush from Eric Chavin M.D. and Rev. Richard Cizik, January 17, 2007

Craig Hilton Dyer, President, Bright Hope International, Hoffman Estates  
Duane Litfin, Ph.D., President, Wheaton College, Wheaton  
Jim Mannoia, Ph.D., President, Greenville College, Greenville  
David Neff, Editor, *Christianity Today*, Carol Stream  
Robert W. Yarbrough, Ph.D., New Testament Dept. Chair, Trinity Evangelical Divinity School, Deerfield

#### *Indiana*

Blair Dowden, Ed.D., President, Huntington University, Huntington  
John D. Yordy, Ph.D., Interim President, Goshen College, Goshen

#### *Ohio*

Rev. Dr. LeBron Fairbanks, President, Mount Vernon Nazarene University, Mount Vernon  
Ronald G. Johnson, Ph.D., President, Malone College, Canton

#### *Iowa*

Dr. Bruce Murphy, President, Northwestern University, Orange City

### **Ohio Interfaith Climate and Energy Campaign**

Dayton, Ohio

The Ohio Interfaith Climate and Energy Campaign is a project of the Ohio Council of Churches' Environmental Justice Task Force. Coordinated by the Marianist Environmental Education Center, it is one of 18 state campaigns that provide members with information and suggestions about what people of faith can do to reduce the threat of climate change. The state campaigns are coordinated nationally by the Coalition on the Environment and Jewish Life and the National Council of Churches of Christ in the USA.

### **Protestants for the Common Good**

Chicago, Illinois

Contact: Al Sharp.

Protestants for the Common Good educates and mobilizes people of faith on matters of public policy. One of the group's priorities is climate change.

### **Wisconsin Interfaith Climate and Energy Campaign**

Stoughton, Wisconsin

The Wisconsin Interfaith Climate and Energy Campaign is one of more than 20 state campaigns of the National Religious Partnership for the Environment. Its object is to inform, train, and activate faith congregations to take concrete steps to reduce global warming and work toward a sustainable future. For example, WICEC helps congregations to save money on their utility bills.

### **Michigan Interfaith Power and Light**

East Lansing, Michigan

Michigan Interfaith Power and Light is a coalition of congregations and their partners whose mission is to "involve communities of faith as stewards of God's creation by promoting and implementing energy efficiency, renewable energy and related sustainable practices."

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## Energy and Environment NGOs – Midwest Regional

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Energy and environmental nongovernmental organizations are campaigning for a series of changes that, taken together, will help reduce the worst effects of climate change:

- Supporting clean, renewable energy
- Supporting energy efficiency
- Cleaning up old coal power plants, stopping plans for new pulverized coal plants, and promoting “clean coal” technologies for new plants
- Supporting “clean” cars (PAVLEV)
- Reducing dirty cars (cleaner running cars using biodiesel and inflating tires)
- Getting people out of cars (transit, bikes, and walking)

Environmental groups are increasingly working directly on climate policies, including the establishment of a voluntary Midwest GHG registry and state commitments to reduce GHG emissions. In most states, NGOs are working closely with business and with local and state governments.

### **Environmental Law and Policy Center of the Midwest**

Chicago, Illinois

Contacts: Howard Learner, Executive Director; Joseph Shacter, Senior Policy Advocate.

The Environmental Law and Policy Center is the Midwest’s leading public interest environmental advocacy organization. Its Midwest Global Warming Solutions Program works on most aspects of addressing climate change, including developing state global warming solutions strategies and policies for Illinois and other Midwest states; championing the Midwest Voluntary Greenhouse Gas Registry; advancing the adoption of cleaner car standards; and increasing the use of less-polluting energy efficiency and renewable resources, while reducing pollution from coal plants through public policy initiatives and litigation pressures. ELPC works with Midwest businesses on climate change solutions. It has organized wind and solar developers in connection with a campaign for a renewable portfolio standard in Illinois. ELPC has engaged manufacturers of energy efficient products in promoting energy efficiency building codes and energy efficiency funding legislation for Illinois. It is working with a variety of companies, including BP, Abbott, Baxter, NiSource, Exelon, TPNA, and Honeywell.

ELPC’s new Global Warming Solutions Action Group is organizing colleagues to support clean renewable energy and energy efficiency solutions, challenge coal plants that produce large amounts of carbon dioxide pollution, and advance cleaner cars that produce less GHG emissions and achieve better fuel efficiency. ELPC also is promoting “Buycotts” to encourage purchases of CFLs and other products. It is enlisting other organizations to help create a CFL viral marketing campaign and working to engage CFL lighting manufacturers, marketers, distributors, and retailers. Its executive director is the vice-chair of the Illinois Governor’s Climate Change Advisory Council and serves on the City of Chicago’s Climate Change Task Force. ELPC and the Environment Committee of the Chicagoland Chamber of Commerce are jointly reaching out to businesses to enlist



their participation in the new Midwestern Voluntary Greenhouse Gas Registry.

### **Midwest Energy Efficiency Alliance**

Chicago, Illinois

Contacts: Alecia Ward, Executive Director; Rebecca Wigg, Policy Manager.

The Midwest Energy Efficiency Alliance is a collaborative network advancing energy efficiency as a means of supporting sustainable economic development and environmental preservation. It provides a collective voice at the regional and national level, acts as a clearinghouse for successful programs and market assessments, and fosters communication on energy policy.

MEEA's first regional program, the "Change a Light, Change the World" campaign, was launched in fall 2001. The campaign serves as a platform for cooperation between national, regional, and local Energy Star partners in delivering a coordinated message to the public on the benefits of Energy Star lighting products. The campaign educates consumers and retailers on the energy and financial savings of Energy Star qualified compact fluorescent light bulbs (CFLs) through targeted marketing and outreach, retailer training, and instant rebates on Energy Star qualified lighting products. Since 2001, MEEA has rebated more than one million Energy Star CFL bulbs across six Midwest states with over 20 participating utilities and state energy offices. MEEA is part of the RE-AMP energy efficiency team.

MEEA has shifted its focus to concentrate more on climate change, framing energy efficiency as a crucial first step with state legislators and public service administrators. It is working with partner organizations to develop consistent messages around climate change and is trying to link energy efficiency to climate change at every opportunity.

In the next five years, MEEA would like to see a regional loading order for the Midwest, under which the states would agree to exhaust high return-on-investment energy efficiency options for the region before pursuing renewable energy and then fossil fuels. Wisconsin already has such a loading order. If the other Midwest states adopted loading orders, it would be possible to move to a regional order. This is one approach through which the Midwest could become a leader and signal that it takes climate change seriously. Regional action would provide a consistent marketplace for producers, enabling them to drive down prices and spur new technologies. MEEA sees potential for progress at the state level in the next two years. Once the states implementing these policies have a good experience with them, it will be easier to act regionally to strengthen the energy efficiency and renewable energy sectors.

MEEA helped to create the Midwest Natural Gas Initiative, a cooperative effort by eight Midwest states to develop a multi-state energy efficiency initiative to decrease natural gas consumption by 1% per year for five years. It seemed an excellent opportunity for the governors to work together, but the politics have made it hard to move forward. MEEA has stepped away from getting all of the states to sign on to the initiative. Instead, it turned to building knowledge in and across the states about sending signals to utilities to promote energy efficiency and share information about energy plans.

### **The Nature Conservancy Great Lakes Program**

Chicago, Illinois

Contact: John Andersen, Jr.

The Nature Conservancy Great Lakes Program focuses on adaptation to climate change for the Great Lakes, concentrating its investments in places that will be resilient for species in the face of warming trends. It is interested in exploring how land used for carbon sequestration can further conservation goals.

### **RE-AMP (Renewable Energy Alignment Mapping Project)**

RE-AMP is a six-state collaboration in Iowa, Wisconsin, Illinois, North Dakota, South Dakota, and Minnesota involving 30 nonprofits and eight foundations. It uses systems analysis to align global warming solutions for electric power in the upper Midwest. RE-AMP's goal is to see the Midwest take leadership in clean energy and achieve an 80% decrease of electricity sector GHG emissions by 2030.

Working groups of eight to ten NGOs focus on critical leverage points identified by the systems analysis and subsequent planning process in three areas: 1) increasing energy efficiency; 2) stopping new “dirty” energy plants and retiring or repowering old dirty plants; and 3) increasing clean energy generation. There may be a similar process for the transportation sector in the future.

RE-AMP members include WE Energy, Energy Center of Wisconsin, Renew Wisconsin, ELPC, Joyce Foundation, Association of Illinois Rural Electrical Cooperatives, Illinois Clean Energy Community Foundation, Iowa Public Utilities Commission, Iowa Citizen Action, Bush Foundation, ME3, Great Plains Institute, McKnight Foundation Wind on the Wires, Izaak Walton League, Northwest Area Foundation, the Minnesota Project, and groups in North and South Dakota.

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## Energy and Environment NGOs – Midwest State

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Many state-level environmental organizations are focused on energy policy and climate change. Environment Illinois, Clean Wisconsin, and Fresh Energy are pursuing global warming plans for their states. New York and Oregon have started down the path of controlling emissions by first setting a reduction goal. This is a good first step because it allows for science-based goal setting, with hard decisions about where the reductions will come from left to administrative processes. Other groups, such as the Delta Institute and the Center for Neighborhood Technology, are helping states and cities to develop new programs and measurement tools to advance GHG emissions reductions and trading.

### Illinois

#### Center for Neighborhood Technology

Chicago, Illinois

Contact: Scott Bernstein.

The Center for Neighborhood Technology works to show urban communities locally and across the country how to develop more sustainably. It is focused on place-based initiatives scored for climate change impacts and economic benefits. Through its Community Energy Cooperative, CNT has developed and tested programs designed to help consumers and communities lower their energy costs and reduce energy use. Of special note is the Energy-Smart Pricing Plan, which provides market-based opportunities for reducing cost and/or incentives for changes in energy use behavior. CNT also provides consulting support to the Clinton Foundation Climate Initiative.

Active on transit and transportation issues, CNT has partnered with the Center for Clean Air Policy on a corridor-based analysis of the GHG benefits of high-speed rail systems in the U.S. Also with the CCAP, CNT produced *Climate Matters*, a paper on transportation demand and GHG emission reduction. In a project for the Transportation Research Board (a division of the National Research Council), CNT produced *Travel-matters*, a website that provides users with information and tools to evaluate the impact of their daily transportation choices on global atmospheric processes.

CNT is part of the Chicago Regional Environmental and Transportation Efficiency project. Formed to pursue major improvements in the freight transportation system, CREATE is seen by the Chicago DOE as an important emissions controls driver in the region for the next five years. Unless improvements are made to the freight infrastructure, it is predicted that rail traffic could lead to mounting delays and freight shifting to highways. CREATE represents the first time the railroad industry and government have worked together on a capital project.

Civic Footprint is a CNT project being tested by the City of Chicago, the Conservation Corps, and CNT. It is an outreach program in which users may be able to log on to a community website and calculate the impact of specific actions in terms of emissions, energy savings, and cost savings. There may be a way for users to link to other people in their neighborhood making similar choices.

## **Delta Institute**

Chicago, Illinois

Contact: Tim Brown.

The Delta Institute works to integrate environmental protection and economic development to create sustainable communities in the Great Lakes region. Delta is leading two climate change initiatives: 1) aggregating farmer practices for credits at the Chicago Climate Exchange and brokering sales of these credits; and 2) helping companies with pollution prevention and energy efficiency, mostly in Michigan. It is exploring ways to work with the City of Chicago on green procurement.

## **Environment Illinois**

Chicago, Illinois

Contact: Becky Stanfield (participant in LADCO registry process).

Environment Illinois (formerly the Illinois PIRG Education Fund) is a statewide, citizen-based environmental advocacy organization. It is working to dramatically increase energy efficiency funding and expand the use of renewable energy in Illinois. It is attempting to stop the construction of conventional coal plants in the state and has begun to advance a mandatory cap for Illinois, soliciting the support of both administrative and legislative officials.

The 2007 legislative session is viewed by Environment Illinois as the starting point of a multi-session campaign to get legislators to endorse a cap on global warming emissions of 10% in 10 years and 80% by 2050. By fall 2006, 33 legislators had signed up and pledged their support for this cap. The goal is to sign up a majority of the state legislators. It assumes that the first legislative session will focus on debate and hearings in both houses.

Environment Illinois is developing a state version of the Socolow wedges based on 15 policies that could achieve the proposed emissions cap. These policies include California emissions standards for cars, rolling friction reduction for tires, car insurance based upon miles driven, energy efficiency investments, RPS, building energy efficiency standards, and a moratorium on new coal construction. If the Governor proposes a clean car standard in the 2007 session, requiring automakers to limit GHG emissions, this will be an immediate focus for Environment Illinois. Another focus is likely to be appliance standards, for which it already laid the groundwork in 2005.

Reaching out to the evangelical community – starting with the Evangelical Call to Action on Climate – is another Environment Illinois strategy to activate members. Environment Illinois also is working on a white paper to be used to start a conversation with the Illinois-based property and casualty companies. The Illinois insurance commissioner is one of two Midwest commissioners on the climate change task force of the National Association of Insurance Commissioners.

Environment Illinois is circulating a pledge among legislators that contains the following elements:

- 1) Illinois should adopt a near-term and long-term goal for GHG reductions of 10% in 10 years, and 75-80% by 2050.
- 2) Illinois should establish a commission to determine specific steps we will take to meet these targets. The commission should, at a minimum:
  - Adopt a renewable energy standard that achieves the Governor's goal of 8% of

state power generated using clean, renewable energy sources by 2012, and further sets a goal of 20% renewable energy by 2020.

- Adopt energy efficiency standards for furnaces, appliances, and residential buildings, and establish a dedicated funding source for cost-effective energy efficiency investments.
- Adopt the standards that limit global warming pollution from automobile tailpipes.
- Adopt a moratorium on the construction of new, conventional coal plants until such time as it can be determined whether any such plants are consistent with Environment Illinois's global warming response plan.

### **Illinois Sierra Club**

Chicago, Illinois

Contacts: Jack Darin; Becky Clayborn (participating in LADCO registry process); Verena Owen, Clean Air Chair; Bruce Nilles, director of the Midwest Clean Energy Campaign.

The Sierra Club is the nation's oldest and largest grassroots environmental organization. Its Cool Cities campaign encourages cities to sign the U.S. Conference of Mayors Mayor's Climate Protection Agreement and pursue energy solutions. A number of Illinois cities have local campaigns. The Illinois Sierra Club is fighting the development of new pulverized-coal power plants in Illinois. In the nation's first enforceable agreement by any city or utility to significantly reduce its global warming pollution, the City of Springfield and the Sierra Club in 2006 agreed to a plan to replace an old coal-fired power plant with a cleaner facility. The agreement launches an effort to save energy in Springfield and gives a boost to Illinois's wind energy industry.

### **Illinois Renewable Energy Association**

Oregon, Illinois

Contact: Bob Vogl.

The Illinois Renewable Energy Association supports sustainable energy development in Illinois. It offers hands-on opportunities for the Illinois public to learn about the benefits, potentials, and uses of renewable energy and energy efficiency for homes and businesses.

### **Minnesota**

#### **Fresh Energy**

St. Paul, Minnesota

Contact: Michael Noble.

Formerly ME3, Fresh Energy works for the phased-in adoption of clean energy technologies and the retirement of inefficient, dirty technologies. It is promoting for Minnesota an RPS, a global warming plan, and a motor vehicle sales tax exemption for government purchase or use of hybrid vehicles and other policy options for advancing new fuel vehicles. It is helping to demonstrate new efficiency and clean electricity technologies that can compete with new coal-fired plants.

Fresh Energy is a regional leader in RE-AMP, the learning community whose goal is to reduce global warming pollution by 80% in the electricity sector by 2030. It is involved

in an economic modeling study on a \$5 billion wind power infrastructure that would deliver power at low cost to electric utility customers that sign long-term contracts. It hopes to jumpstart similar analyses and strategies for the transportation sector.

In the same way that it has promoted wind energy, Fresh Energy is exploring ways to expand the solar technology and biogas markets. It is championing green buildings, location-efficient housing, and incentives for transit, car sharing, carpooling, and funding for transit. It supports decoupling (the separation of a utility company's revenues from its sales).

### **Izaak Walton League of America**

St. Paul, Minnesota

The Izaak Walton League is one of the nation's oldest conservation organizations. It works to promote renewable energy and to fight power generation derived from pulverized coal in South Dakota. It houses Wind on the Wires, a project to overcome barriers to wind power in the Midwest.

### **The Minnesota Project**

St. Paul, Minnesota

The Minnesota Project promotes clean, renewable energy and the efficient use of energy; farm practices and policies that help farms be profitable while protecting the environment; and the production and consumption of local and sustainably produced foods. It supports the Midwest Agriculture Energy Network, a group of leaders from agriculture and commodity organizations that supports Midwestern renewable energy opportunities. The Minnesota Project also advances community wind efforts in Minnesota, the Upper Midwest, and Great Plains by expanding policy developments and advocacy efforts.

## **Michigan**

### **Michigan Environmental Council**

Contacts: Lana Potlock, Executive Director and former state legislator; David Gard, Policy Specialist.

The Michigan Environmental Council supports a range of public policies to encourage growth in Michigan's clean energy sector. Some of those policies include:

- A Renewable Portfolio Standard (RPS) that sets minimum green power requirements. This will be MEC's biggest state initiative.
- Appliance efficiency standards that also could benefit Michigan manufacturers.
- Updated building efficiency codes for industrial, commercial, and residential construction.
- Electric industry restructuring that provides incentives for cleaner air and new green industries by funding energy efficiency and wind, solar, and other clean power options, while decreasing the amount of electricity generated by burning dirty coal.
- Encouragement for the auto industry, labor, and vehicle buyers to support innovative automobile technology that will protect Michigan's leading industry while helping curb emissions that jeopardize human health and foster global warming.

In 2005, MEC began to pull together the Michigan Sustainable Energy Coalition, a multi-stakeholder group composed of farm organizations, Next Energy, wind developers, clean energy companies, the Great Lakes Renewable Energy Association, National

Wildlife Federation, Environment Michigan, Michigan Public Service Commission, and others. The coalition's purpose is to create a unified strategy for Michigan to meet long-term energy needs. The plan will address alternative technologies, distributed energy, and energy efficiency and make recommendations to the Governor. MEC is trying to persuade regulators, utilities, and power plant developers in Michigan that new coal plants should use the latest technologies for capturing and storing carbon.

MEC plans to work with the many mayors in Michigan who have come out in support of climate action and continues to target key members of its Congressional delegation. While CAFE standards are not politically feasible in Michigan, MEC is part of conversations about a bailout of the auto industry tied to energy efficiency and about the risks to auto companies of waiting to take stronger action. The UAW is fairly supportive of the need to make adjustments to fleets. MEC is trying to work with Ford Motor Co. in connection with various auto industry proposals, including Healthcare for Hybrids and NRDC and Environmental Defense initiatives.

## **Iowa**

### **Iowa Association for Energy Efficiency**

West Des Moines, Iowa

Contact: Tracy Feldmann.

The Iowa Association for Energy Efficiency works to advance energy efficiency and renewable energy by raising public awareness.

### **Iowa Citizens Action Network**

Des Moines, Iowa

Contact: Betty Ahrens, Executive Director.

The Iowa Citizens Action Network coordinates the Sustainable Energy for Economic Development Coalition (SEED), which unites diverse organizations across the state to promote renewable energy in Iowa. ICAN also participates in Iowans for Responsible Energy Policy, which promotes comprehensive approaches to solving energy issues.

### **Iowa Energy Center**

Ames, Iowa

The Iowa Energy Center provides data on renewable energy and energy efficiency for use by utilities, farmers, manufacturers, municipalities, and school districts. It conducts research and demonstration projects and manages the state's Alternative Energy Revolving Loan Program. The center is funded from an annual assessment on the gross intra-state revenues of all gas and electric utilities in Iowa.

### **Iowa Environmental Council**

Des Moines, Iowa

Contact: Rich Leopold, Executive Director.

The Iowa Environmental Council promotes wind power and renewable fuels development. The Council supports passage of the Small-Producer Renewable Energy Bill to encourage the development of small-scale, locally owned renewable energy in Iowa. The bill offers a 1.5 cent/KWh tax incentive to small wind producers such as farmers or schools, and to producers of other forms of renewable energy such as biomass conversion or biogas

production. Other supporters included Alliant Energy, Iowa Farm Bureau, Mid-American Energy, and the UCS.

### **Iowa Renewable Energy Association**

Iowa City, Iowa

The Iowa Renewable Energy Association is a nonprofit membership organization promoting the use of renewable energy and energy conservation in Iowa.

### **Ohio**

#### **Ohio Environmental Council**

Columbus, Ohio

Contact: Staci Putney McLennan, Director of Clean Air Programs.

The Ohio Environmental Council is a network of more than 100 local and state conservation groups that advocates for clean air and water and the protection of natural resources in Ohio. In June 2005, OEC released *Ohio Climate Road Map, Part One*, describing Ohio's climate impacts and action steps. The report recommended increased investment in technology innovation such as the Third Frontier program, a climate-friendly approach to clean air strategies, investment in low-carbon electric power generation (such as advanced coal gasification, renewable energy, and increased efficiency), promotion of biofuels and fuel-efficient vehicles, and carbon sequestration through farming and forestry practices. In June 2006, OEC released its *Road Map Part Two*, which highlights how Ohio industry can become a major supplier of technology that will result in lower GHG emissions. It proposes specific policies such as an RPS. It is collaborating with the Ohio Interfaith Climate and Energy Campaign. OEC has received support from the Joyce Foundation for its ongoing efforts to promote IGCC in Ohio and to oppose a conventional coal plant proposed by AMP-Ohio, a municipal utility consortium.

#### **Policy Matters Ohio**

Cleveland and Columbus, Ohio

Policy Matters Ohio seeks to broaden the debate about economic policy in Ohio. It is the Ohio partner for the Apollo Alliance. Policy Matters and Apollo commissioned the Renewable Energy Policy Project to produce a comprehensive report on the potential investment and job growth opportunities in every Ohio county. Policy Matters released a brief report, relying on the REPP data and analysis, which showed that Ohio could gain more than 22,000 jobs from renewable energy investments.

### **Wisconsin**

#### **Clean Wisconsin, Inc.**

Madison, Wisconsin

Contacts: Keith Reopelle (LADCO registry participant); Katie Nakola.

Clean Wisconsin works to protect Wisconsin's clean water and air and advocate for clean energy by working with the state legislature and by holding elected officials and corporations accountable. In 2003, Clean Wisconsin submitted a petition to the state DNR asserting the right of the state to impose a carbon cap and reduction. The petition was signed by academics, religious leaders, doctors, advocates, and a former DNR Secretary. The cap would be set and then would decline every year until 2060, resulting in a



75% reduction in carbon emissions in Wisconsin. Wisconsin law says that the state can regulate emissions not regulated by federal government. The DNR rejected the petition, saying it was not a priority. Other state environmental organizations are again raising the question about a legislative proposal for a carbon cap.

Clean Wisconsin was a leader on the recent energy efficiency and renewables bill passed in Wisconsin. It will be involved in making and overseeing new air rules at DNR, and implementing public benefits and renewables programs. Clean Wisconsin sees global warming advocacy as an area of increasing focus in the next two years. It received a grant to prepare a global warming plan and priorities. The plan is likely to focus on education and outreach, state and regional policy development, and regulatory intervention.

Clean Wisconsin would like to see integrated resource planning restored in Wisconsin to guide decisions about what should be added to the energy mix, including an energy efficiency strategy. It is actively fighting new coal plants. The Joyce Foundation has given significant support to Clean Wisconsin and its partner, the Wisconsin Citizens Utility Board, for a campaign to promote coal gasification with sequestration as an alternative to conventional coal plants proposed for Wisconsin. Clean Wisconsin intends to appeal the decision upholding a construction permit for a 1,300 MW pulverized coal facility. Alliant Energy has announced it wants to build another coal plant on the Mississippi River, which Clean Wisconsin would fight. It is working with RE-AMP and Action Media on messaging. Clean Wisconsin sees concern among local businesses about new coal plants because of their contribution to emissions in non-attainment areas and because of concern about impacts on rates.

With other state and national environmental groups, UCS, and government officials in Wisconsin, Illinois, Indiana, Michigan, and Ohio, Clean Wisconsin is working to establish a voluntary Midwest Greenhouse Gas Registry. Wisconsin is one of the few states – and the only Midwestern state – that has a GHG registry already in place at the state level. Clean Wisconsin would like to see an analysis of what reductions in GHG emissions could be achieved with existing policies, what more is needed towards a 2050 goal of an 85% reduction, and how this could be accomplished. (The Energy Center of Wisconsin has studied the potential for energy efficiency in Wisconsin.)

### **Preserve Our Climate Coalition**

Madison, Wisconsin

The Preserve Our Climate Coalition is a coalition of individuals that encourages Madison-area residents, public organizations and institutions, private interests, and publicly elected officials to learn about and confront the issue of the changing climate.

### **Public Interest Fund of the Citizens Utility Board**

Madison, Wisconsin

The Citizens Utility Board fights for reliable and affordable electricity and telephone service on behalf of Wisconsin customers before regulatory agencies, the legislature, and the courts. Its Public Interest Fund is implementing recommendations made by the Wisconsin Governor's Task Force and developing recommendations for a comprehensive energy planning process.

## **Renew Wisconsin**

Madison, Wisconsin

Contact: Michael Vickerman.

Renew Wisconsin is a network of clean energy businesses, educators, utility managers, builders, farmers, state agency officials, environmental advocates, and concerned citizens promoting clean energy strategies in Wisconsin. The network actively supports economic development from renewable energy initiatives; siting turbine manufacturers and supporting anaerobic digesters from farms are two examples. Renew Wisconsin is working to implement recommendations made by the Wisconsin Governor's Task Force on Energy Efficiency and Renewable Energy and to develop recommendations for a comprehensive energy planning process. It co-chairs the Renewables Workgroup of the Governor's Task Force.

## **Indiana**

### **Hoosier Environmental Council**

Indianapolis, Indiana

Contact: Andy Knott.

The Hoosier Environmental Council works for long-term sustainable use and preservation of Indiana's natural heritage. It has a broad set of climate and energy interests, including renewable energy, energy efficiency, smart growth and efficient transportation, and phasing out old coal plants. Through the work of HEC, the Indiana NO<sub>x</sub> SIP-Call (an EPA trading program to reduce the transport of nitrogen oxides) has a 2% set-aside for renewable energy and incentives for energy efficiency. Renewables are allocated credits based on a calculation of what the source would have produced. The credit can then be sold in the NO<sub>x</sub> market.

### **Citizens Action Coalition of Indiana**

Indianapolis, Indiana

Contact: Grant Smith, Executive Director

The Citizens Action Coalition of Indiana advocates public policies to conserve natural resources, protect the environment, and provide affordable access to essential human services. It is working with Sen. Richard Lugar on renewable energy in Indiana. With the Indiana Coalition for Renewable Energy and Economic Development, the CAC is campaigning for the Indiana General Assembly to pass a 10% Renewable Electricity Standard. Founding members of the CAC include the Benton County Commissioners, White Construction, Orion Energy LLC, ELPC, enXco, Citizens Action Coalition of Indiana, Hoosier Environmental Council, and Invenergy.

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## NGOs – National

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Many national environmental organizations are supporting the efforts of Midwest groups on energy and climate change. Some are pursuing their own collaborations with corporations and governments.

### **The Alliance to Save Energy**

Washington, D.C.

The Alliance to Save Energy promotes energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security. Its industrial program works with corporate, state, federal, and international partners to help industry improve its bottom line through energy management and improvement projects. The Alliance supports the U.S. DOE's BestPractices Steam program through communications and outreach. BestPractices Steam, which began in 1997 as the Steam Challenge, is one component of the U.S. DOE's Energy Management Best Practices industrial technology assistance effort. BestPractices spearheads the implementation approach for the Industries of the Future (IOF) program. The activities of BestPractices include energy assessments, sponsorship of emerging technologies, and energy management. BestPractices activities assist the nine IOF industries to identify and realize their best energy efficiency and pollution prevention options from a systems and life-cycle cost perspective.

### **American Council for an Energy-Efficient Economy**

Washington, D.C.

The American Council for an Energy-Efficient Economy works with companies and policymakers to promote energy efficiency. It routinely evaluates a large number of efficiency improvements that can save money while effectively reducing energy-related CO<sub>2</sub> emissions.

### **American Council on Renewable Energy**

Washington, D.C.

Contact: Bill Holmberg.

The American Council on Renewable Energy promotes all renewable energy options for the production of electricity, hydrogen, fuels, and end-use energy, with a focus on trade, finance, and policy. Its membership includes manufacturing companies, professional services firms, financial institutions, trade associations, professional societies, nonprofit organizations, foundations, educational institutions, research institutions, and government agencies.

### **Center for Clean Air Policy**

Washington, D.C.

Contact: Steve Winkelman, Manager of Transportation.

Center for Clean Air Policy seeks to address major environmental and energy problems, guided by the belief that market-based approaches to environmental problems offer the greatest potential to reach common ground between these often conflicting interests.

CCAP is sponsoring a national commission and white paper on land-use and infrastructure investment policies needed to assist adaptation to climate change and mitigation of GHGs over the next few decades. It has asked Chicago and other cities to participate by developing local adaptation and mitigation plans. The lessons learned will inform federal policy.

### **The Climate Group**

Woking, United Kingdom

The Climate Group works internationally to advance business and government leadership on climate change. Based in the U.K., U.S., and Australia, it was founded in 2004 by companies, governments, and supporters who saw the opportunity to create new momentum in the international effort to stop global warming. Proactive companies, states, and cities around the world are demonstrating that cuts in GHGs required to stop climate change can be achieved while adding to the bottom line. By highlighting the work of these leaders, The Climate Group seeks to accelerate action on global warming with a strong focus on practical solutions. Corporate members from or with facilities in the Midwest include BP and ABN AMRO.

The 2005 edition of The Climate Group's *Carbon Down Profits Up* report covers 74 leading companies that have taken significant action to reduce their climate impact, more than tripling the 22 featured in the 2004 edition. Midwest companies (or those with a primary office in the Midwest) among the 74 include 3M, ABN AMRO, AEP, BP, Caterpillar, Cinergy, General Motors, and Motorola. These same companies were among the Top 10 Companies of the Decade for climate reductions listed in the Dec. 12, 2005, issue of *Business Week*.

### **The Climate Neutral Network**

Washington, D.C.

The Climate Neutral Network is an alliance of companies and other organizations committed to developing products and enterprises that eliminate their impacts on the earth's climate. The Network provides certification for Climate Cool products and enterprises; technical assistance to companies to create new business opportunities, build portfolios of offset investments, and forge alliances; and promotion of Climate Cool products to corporate and institutional purchasers. Climate Cool certified products include a BP Climate Cool gasoline pilot. Midwest companies that have participated in Climate Cool include Baxter, SC Johnson, General Motors, and Ford.

### **Clean Air Task Force**

Boston, Massachusetts

Contacts: Armand Cohen; John Thompson.

Clean Air Task Force is dedicated to restoring clean air and a healthy environment through education, research, and legal advocacy. The group works with institutions and governments around the country to build model state-wide and regional plans/projects. It is involved in many initiatives around the Midwest. For example, the Task Force worked with the Sierra Club on the deal to require City Water, Light and Power of Springfield, Illinois, to buy wind-generated energy and impose more stringent pollution controls in its new power plant. The Task Force received support from the Joyce Foundation to promote IGCC in the upper Midwest.

## **Environmental Defense**

New York, New York

Contact: Peter Goldmark, former President, Rockefeller Foundation and International Herald Tribune.

Environmental Defense works to protect the environmental rights of all people, including future generations. These rights include clean air, clean water, healthy food, and flourishing ecosystems. ED is active in every aspect of climate change policy and market development. ED was a leader in establishing the U.S. Climate Action Partnership (USCAP) and is partner to a number of companies on their climate actions. ED played an important role in creating the Northeast Regional Greenhouse Gas Initiative (REGGI) and in establishing AB 32 cap and trade in California. The California plan will benefit efforts to promote cap and trade throughout the nation. ED is fighting new coal plants and supporting IGCC. The Partnership for Climate Action, a collaboration of business and environmental leaders (including ED) dedicated to climate protection, has made a commitment to reduce GHG emissions, take direct actions, employ market-based mechanisms, and share its learning.

Jim Marsten of ED's Texas office is one of the leaders of the coalition formed to block TXU from building 11 new pulverized coal plants. More than 50 environmental groups signed a letter opposing the plants. In February 2007, Texas Pacific Group and KKR asked for advice and support from Environmental Defense in setting terms for the \$48 billion acquisition of TXU. Texas Pacific and KKR announced that they would drop plans to build 8 out of 11 proposed coal-fired plants using current technology, introduce a variety of other environmental initiatives, and support a mandatory federal cap and trade system.

ED is spending about \$1.5 million over three years on two public education campaigns. One campaign, Global Warming: Undo It, seeks the passage of the McCain-Lieberman Climate Stewardship Act, which would cut polluting emissions. The second, the Fight Global Warming Campaign, seeks to educate Americans about how quickly they must act, and gives concrete steps that people can incorporate into their lives.

## **National Resources Defense Council**

New York, New York

Contacts: David Hawkins, Director of the Climate Center; Henry Henderson, Director of the Midwest Office (Chicago).

The Natural Resources Defense Council is a national organization of scientists, lawyers, and environmental specialists dedicated to protecting public health and the environment. NRDC is active on many fronts through its Climate Center. It helped Northeastern states reach regional agreement on how to regulate power plant emissions (the Eastern Climate Registry) and assisted California and New Mexico in setting specific timetables for reducing emissions. It helped persuade ten states to adopt regulations to reduce GHG car emissions. To show the energy industry that releasing carbon dioxide will not always be free of cost, NRDC advised JPMorganChase on its plan to start accounting for carbon risks in investment practices and to begin lobbying for a federal carbon dioxide cap. With a combination of carrots and sticks, it engaged the coal industry, filing a lawsuit against the five largest global warming polluters and successfully including incentives for "clean" coal technology in the energy bill.

NRDC is a founding member of the U.S. Climate Action Partnership.

In partnership with the Set America Free coalition (a group of conservative security analysts pushing for reduced U.S. dependence on oil), NRDC published a report showing that biofuels could reduce GHG emissions by an amount equal to more than 80% of current transportation emissions by the year 2050. Its proposed biofuels incentives were in the 2005 energy bill. NRDC also helped draft a program for California's utilities to provide \$2 billion in efficiency incentives over the next three years. It opposes the construction of new conventional coal plants and promotes alternative plants using coal gasification with carbon sequestration in the Midwest.

Henry Henderson, director of the NRDC's new Midwest Office, will focus largely on coal and biofuels. The office also may address Great Lakes water quality, sustainable agriculture, open space, and environmental justice.

### **National Wildlife Federation**

Reston, Virginia

The National Wildlife Federation advocates for the protection of wildlife. It is working with affiliates, the Indiana Wildlife Federation and Michigan United Conservation Clubs, to build support in Indiana and Michigan for coal gasification as an alternative to conventional coal-burning power plants.

### **Union of Concerned Scientists**

Cambridge, Massachusetts

Contacts: Alden Meyer, Director of Strategy and Policy; Nancy Cole, Deputy Director of the Global Environment Program; Ann McCabe, consultant, Ann McCabe and Associates, Inc.

The Union of Concerned Scientists is the leading science-based nonprofit working for a healthy environment and a safer world. Although it is a national organization, UCS has had a Midwest focus on energy and climate change for more than a decade. Beginning with the release of *Powering the Midwest*, its seminal 1993 analysis that initiated the push for renewable energy in the region, UCS has been working with Midwest partners to win state Renewable Electricity Standards (RES). With its recent *Gambling with Coal* report, UCS again brought strong analysis to the table and played a key role in opposing the Big Stone coal plant on the Minnesota-South Dakota border.

Complementing its energy work, UCS released its influential 2003 report on the impacts of global warming on the Great Lakes states, *Confronting Climate Change in the Great Lakes Region: Impacts on Our Communities and Ecosystems*.<sup>23</sup> Selected findings show that extreme heat events are occurring more frequently, heavy precipitation events (both rain and snow) are becoming more common, air quality may be deteriorating due to harmful gases released during more frequent forest fires, and the number of summer pollution days may be on the rise in the Midwest. This report provided the motivation and rationale for the initiation of a multi-state Midwest Greenhouse Gas Emissions Registry, under development at LADCO. This will be the region's first step to identify and even-

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<sup>23</sup> The report's lead co-authors are Dr. Donald Wuebbles, University of Illinois, Department of Atmospheric Sciences, and Dr. George Kling, University of Michigan, Department of Ecology and Biology.

tually reduce emissions.

UCS's work in the Midwest 1) emphasizes education on global warming impacts and urgency in the region; 2) engages state agencies, state legislators, local business leaders, and members of the agriculture community on this issue; and 3) provides analytic and outreach support for a number of policies, including stronger Renewable Electricity Standards, opposition to new conventional coal plant construction, promotion of bioenergy, and implementation of California-type vehicle emissions standards. In addition to UCS staff, Ann McCabe, principal in Ann McCabe and Associates, Inc., and long-term UCS consultant, works closely with the Michigan Environmental Council, Clean Wisconsin, Fresh Energy, and others to achieve UCS's educational and policy goals.

### **World Resources Institute**

Washington, D.C.

Contacts: Andrew Aulisi, Project Manager.

World Resources Institute is an environmental think tank that researches practical ways to avert climate change, reverse damage to ecosystems, and increase prosperity while improving the environment. WRI researches Midwest emissions by state and sector and was hired by LADCO to help support the Midwest voluntary GHG registry. WRI facilitates the Climate Midwest Partnership, a replication of its Climate Northeast Partnership. It was a leader in establishing the U.S. Climate Action Partnership (USCAP). WRI's Green Power Market Development Group, a collaboration with 12 leading corporations, seeks to build corporate markets for 1,000 MW of new, cost-competitive green power by 2010. SafeClimate for Business is a joint project of WRI's Sustainable Enterprise Program and the Center for Environmental Leadership in Business, a division of Conservation International. SafeClimate for Business details the steps necessary for action on climate change and provides additional information and resources for businesses.

### **Biomass Coordinating Council**

Washington, D.C.

Formed under the auspices of the American Council on Renewable Energy (ACORE), the Biomass Coordinating Council works to accelerate the adoption of renewable biofuels, biopower, and bio-based products. BCC's goals include reducing America's dependence on oil, creating a cleaner environment, and expanding markets for rural America.

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# Socially Responsible Investing

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Socially responsible investment assets jumped from \$639 billion in 1995 to \$2.29 trillion in 2005, a 258% increase, according to a study by the Social Investment Forum, a national trade association for SRI professionals and funds.<sup>24</sup> Individual and institutional investors increasingly are concerned about the environmental impacts of their investments and the effectiveness of companies at managing environmental risk. In particular, investors are asking companies to report on their exposure to climate change risk and how they are managing it.

## **Carbon Disclosure Project**

London, United Kingdom

Contact: Paul Simpson, Project Director.

The Carbon Disclosure Project is an institutional investor coalition of more than 200 institutions with reported assets of \$31 trillion under management. In 2006, the group asked 1,800 of the world's largest companies to provide investor-relevant information regarding their GHG emissions. The CDP is the world's biggest collaborative investor initiative on a corporate responsibility issue. Swiss Re, the world's second-largest global reinsurer, is among the sponsors.

## **Illinois State Treasurer**

Springfield, Illinois

The Illinois State Treasurer has joined other state treasurers and controllers from around the country in urging insurance companies to analyze and disclose their financial risk from climate change. It is part of the Investor Network on Climate Risk.<sup>25</sup>

## **Investor Network on Climate Risk**

Managed by Ceres. (For information on Ceres, see its entry under "National Business Collaborative Initiatives.")

The Investor Network on Climate Risk, which includes more than 50 institutional investors managing nearly \$3 trillion in assets, seeks better climate risk disclosure so analysts can better estimate the fair value of companies in their portfolios. In May 2006, INCR contacted TXU Corp. chairman and CEO C. John Wilder about his company's plan to build 11 new pulverized coal-fired power plants in Texas without any controls for GHG emissions. INCR asked TXU to disclose how it accounted for the future cost of carbon in its resource planning for the plants. Signers of the letter included California and New York pension funds. The concerns of investors about TXU's plants shaped the nature of the Texas Pacific/KKR buyout of TXU.

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<sup>24</sup> *Shabeen Pasha, "Five Funds to Ease Your Conscience," CNNMoney.com, July 4, 2006.*

<sup>25</sup> *John Christoffersen, "Insurers Urged To Assess Climate Change Risks," The Associated Press State & Local Wire, Dec. 2, 2005.*



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## Foundations

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### **Climate and Energy Funders Group of the Consultative Group on Biological Diversity**

San Francisco, California

The mission of the Climate and Energy Funders Group is to expand the field of climate and energy philanthropy and to promote collaborative, strategic grantmaking among its members.

### **The William J. Clinton Foundation, Clinton Climate Initiative**

New York, New York

Contacts: Ira Magaziner; Conor Riffle, Climate Initiative coordinator.

The Clinton Climate Initiative entered into a partnership with the Large Cities Climate Leadership Group in August 2006, committing \$3 million in technical assistance to assist Group members in lowering GHG emissions and increasing energy efficiency. The initiative will focus on building a purchasing consortium for energy-saving products to stimulate R&D and promote new technology; providing technical assistance (in partnership with the American Society of Heating, Refrigerating and Air-Conditioning Engineers, ICLEI-Local Governments for Sustainability, and the Green Buildings Council) to cities that want to implement emissions reductions plans; and creating common measurement tools to allow cities to establish baselines, measure progress, and share lessons. The tools will begin with ICLEI's toolkit and possibly refine them. There will be a real-time Internet site for cities to share information. A later phase will focus on ensuring that new coal plants minimize GHG emissions. The initiative will have a staff person based in Chicago.

The Large Cities Climate Leadership Group is a group of cities around the world, including Chicago, committed to the reduction of urban carbon emissions and adapting to climate change. It was founded following the World Cities Leadership Climate Change Summit organized by the Mayor of London in October 2005. Its purpose is to create a consortium through which cities can buy energy-saving products. It also will create common measurement tools that help cities establish a baseline for their GHG emissions and determine the effectiveness of programs to lower them. The Group will hold its next summit in New York during 2007.

The Clinton Foundation is supporting the City of Chicago's project to develop a long-term strategic plan for reducing GHG emissions and adapting to the changes that are already happening as a result of climate change.

### **The Energy Foundation**

San Francisco, California

Contact: Ben Paulos.

The Energy Foundation has promoted clean energy policy nationally and in the Midwest since 1991. It has worked in partnership with the McKnight Foundation since 1997. The Foundation currently gives grants of about \$5 million per year in the Midwest to promote policies favoring wind power and advanced biofuels, fighting conventional coal

power plants, and developing a strong agricultural constituency for clean energy policies.

The Foundation works on renewable portfolio standards, farmer-owned wind farms, and wind-friendly transmission policy and planning. Its biofuels efforts focus on commercializing cellulosic conversion technologies through public and private investments, expanding the market for biofuels, and ensuring biofuels development is as environmentally sustainable as possible. On coal, advocates are intervening to block issuance of new permits, to internalize the costs of carbon pollution, and to steer utilities toward zero-emission coal technologies. Outreach to farm groups has included direct grants, creation of the Midwest Ag-Energy Network, and working collaboratively to promote farm-based energy. The Foundation has a lesser focus on utility energy efficiency in the Midwest.

### **The Garfield Foundation**

New York, New York

Contact: Rick Reed.

The Garfield Foundation is the founder of the RE-AMP learning community, a collaboration of eight foundations and 30 NGOs. Other foundations involved in RE-AMP include the Joyce Foundation, McKnight Foundation/Energy Foundation, Bush Foundation, Carolyn Foundation, and Northwest Area Foundation. RE-AMP covers Illinois, Minnesota, Wisconsin, Iowa, and the Dakotas. The Garfield Foundation also supports individual organizations, such as the work of the Apollo Alliance in Ohio.

### **Great Lakes Protection Fund**

Evanston, Illinois

Contact: David Rankin, Program Director.

The Great Lakes Protection Fund does not have a specific focus on climate change at this time. The Fund supports efforts to find ways to score, commodify, capture, and bank environmental values. It has supported pilot projects on carbon sequestration as part of a set of market strategies to encourage good stewardship of the land by accounting for the ecological benefits of stewardship, including sequestration. It has helped to create mechanisms for contracts to sequester carbon for various ownership structures. What is missing in this work is demand for the credits. There is potential to have aggregation capacity approaching scale in the next five years.

The Fund is looking at how to create institutions, such as ecosystem service districts, that can act to make the Lakes healthier by stripping out and aggregating the environmental benefits of protection steps. These steps may include full benefits accounting for environmental services (water quality, restoring and improving habitat, and carbon sequestration). There are some encouraging signals from public leaders around Ohio intergovernmental stream management leaders, drainage district leaders in Michigan, and NGO leaders in Wisconsin.

### **The William and Flora Hewlett Foundation**

Menlo Park, California

Contact: Hal Harvey.

The Hewlett Foundation promotes a bipartisan approach to national energy policy, building a clean electric energy system in the western U.S., and encouraging cleaner,

more efficient cars and trucks in key cities and countries. In partnership with four other national foundations, Hewlett formed the National Commission on Energy Policy, a bipartisan group of leading energy experts who have come together to develop a long-term U.S. energy strategy that promotes national security, economic prosperity, and environmental safety and health. Hewlett also supports the Energy Foundation, enabling it to expand its grantmaking in the area of national energy strategy.

### **The Illinois Clean Energy Community Foundation**

Chicago, Illinois

Contact: James Mann, Executive Director.

The Illinois Clean Energy Community Foundation was established as a result of a settlement between the State and Com Ed. The initial endowment of \$225 million is to be used for renewable energy development and energy efficiency improvement projects. Examples of projects include \$4 million in funding for retrofitting buildings to meet energy efficiency goals under the Governor's "Small Business Smart Energy Program," \$4 million to support energy efficiency measures in manufacturing in response to high energy costs, and the Illinois Green and Clean Energy Initiative, which encourages companies to reduce GHG emissions, increase use of renewable fuels, and promote "clean coal" technologies. The foundation also has been investing in energy efficiency programs in schools and municipalities.

### **The Joyce Foundation**

Chicago, Illinois

Contacts: Steve Brick; Margaret O'Dell; James Sedita.

The Joyce Foundation has funded the work of LADCO on a Midwest voluntary GHG emissions registry, the work of the National Council of Environmental Legislators on energy and climate change state policy, and the Pew Center on Global Climate Change for work in Ohio on new energy technologies.

Focusing on the effect of coal on climate change, the Foundation has committed \$7 million over the next three years to push the next generation of Midwest coal plants to minimize GHG pollution. Many environmental organizations in the region are trying to stop construction of almost 40 new pulverized coal plants that cannot be retrofitted to limit CO<sub>2</sub> emissions. Tighter clean air standards also are needed on the hundreds of existing old-technology coal plants. In August 2006, the Joyce Foundation awarded over \$3 million in grants – including major grants to the Clean Air Task Force, Great Plains Institute, and Natural Resources Defense Council – to work with coal and utility executives, regulators, environmental groups, and others to promote such technologies as coal gasification and capture and storage of carbon emissions, addressing technical, financial, and regulatory barriers to progress. It also is funding various organizations, including Clean Wisconsin and the Izaak Walton League, to oppose new plants and promote alternatives, including coal gasification.

### **W. K. Kellogg Foundation**

Battle Creek, Michigan

The Kellogg Foundation's Food and Society Program has explored climate issues related to local food systems and the environment.

**Kresge Foundation**

Troy, Michigan

Contact: Rip Rapson, President.

The Kresge Foundation built its own green headquarters building and in 2003 launched its Green Building Initiative, which encourages nonprofit leaders to examine their planning and design processes so they can assess the environmental impact of their facilities. The Foundation is adding the incentive of planning and bonus grants (available on a limited basis).

**The McKnight Foundation**

Minneapolis, Minnesota

The McKnight Foundation focuses on renewable energy and has collaborated with the Energy Foundation on work on biofuels. The McKnight Foundation is part of the RE-AMP learning community.

**The Pew Charitable Trusts**

Philadelphia, Pennsylvania

Contact: Josh Reichert.

Pew Charitable Trusts supports work to create a policy environment that leads to the adoption of mandatory federal limits on GHG emissions. Through its work with the Clear the Air Campaign at Pace University, it invests in targeted efforts to educate the public and engage key constituencies, and has made substantial investments in advocacy to reduce emissions from the nation's electric sector. Its partnership with the Energy Foundation and other U.S. groups promotes the adoption of state and regional policies to curb global warming pollution. The Pew Center on Global Climate Change was launched in 1998 to advance the climate change debate through analysis, public education, and a new cooperative approach with business.

**Wallace Global Fund**

Washington, D.C.

The Wallace Global Fund supports a variety of efforts to promote global climate change policies, including efforts to encourage the financial services sector to consider climate risk.

**The Wege Foundation**

Grand Rapids, Michigan

Contact: Peter Wege.

The Wege Foundation is a major source of funding for solar energy and other distributed energy technology demonstration projects and educational outreach. It also supports green buildings. For example, the building that houses the School of Natural Resources and Environment at the University of Michigan received a LEED gold standard, in part with funding from the Wege Foundation.

Economicology is a group of colleges and universities that collaborates with the Wege Foundation to provide a forum for sharing information about ecological and environmental issues both on campus and in the community. Limited to 20 institutions of higher

learning, the group includes Michigan's public universities, Yale University, and the University of California at Santa Barbara. Peter Wege coined the term "economicology" in his 1998 book *Economicology: The Eleventh Commandment*, which teaches how combining economics with ecology is strategic to achieving sustainability and that businesses can be environmentally responsible. Wege is committed to utilizing the vision of the Earth Charter Initiative in promoting values and principles for a sustainable future.

### **Other Foundations**

Other foundations that have supported climate change initiatives in this decade include the Turner Foundation, Rockefeller Brothers Fund, Dave and Lucile Packard Foundation, Starr Foundation, Belden Fund, John Merck Fund, ExxonMobil Foundation, Surdna Foundation, John D. and Catherine T. MacArthur Foundation, Blue Moon, Henry Luce Foundation, W. M. Keck Foundation, Educational Foundation of America, and the Lloyd A. Fry Foundation.

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## Trade Associations

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Strong leadership from the American Soybean Association, United Soybean Board, and National Biodiesel Board contributed to the passage of federal incentives for biodiesel. The National Corn Growers Association has played a similar role on corn-based ethanol. Statewide corn and soybean associations have been active in promoting biofuels in all of the Midwest states.

### **Illinois Corn Growers Association**

Bloomington, Illinois

Contact: Roger Sy.

The Illinois Corn Growers Association, along with the Illinois Corn Marketing Board, has invested significant funds and manpower to expand the market for ethanol and promote E85 technology. Corn growers' associations in Wisconsin, Ohio, Indiana, Michigan, and Iowa have taken similar steps.

### **Illinois Soybean Association**

Bloomington, Illinois

Contact: Rebecca Richardson.

Soybean farmers have made investments of tens of million of dollars in biodiesel research and promotion over the past decade. The Illinois Soybean Association supports incentives to speed the growth of the market for biodiesel. Now the number one producer of biodiesel in the nation, Illinois is positioned to attract more fuel manufacturers as demand grows. Soybean associations in Indiana, Iowa, Michigan, Wisconsin, and Minnesota have taken similar steps.

Farm bureaus also have been visible leaders on biofuels. For example, Don Villwock, president of the Indiana Farm Bureau Federation, serves on the Steering Committee for 25x25. The Ohio Farm Bureau Federation and Iowa Farm Bureau also are members of 25x25, an Energy Future Coalition campaign that advocates producing 25% of America's energy from renewable resources by 2025.

### **Iowa Farm Bureau**

West Des Moines, Iowa

Contact: David A. Miller, Director, Research and Community Services.

The Iowa Farm Bureau represents the interests of Iowa farmers interested in producing more wind energy, biomass, biogas (methane produced from manure and plant wastes), biodiesel, and hydrogen from ethanol. It is interested in increased ethanol production. There already are 15 to 17 ethanol plants in Iowa.

The Bureau has entered into a partnership with the Chicago Climate Exchange to begin a pilot GHG emissions trading program among farmers in Iowa through a carbon credit aggregation program. Participating farmers will be issued "Exchange Soil Offsets" representing tradable emission credits. The Bureau hopes to enroll at least 100,000 acres in the program and to expand the practice of no-till and low-till farming in the state while restoring acreage to permanent pasture. Such practices have the potential to

sequester between  $\frac{1}{2}$  to  $\frac{3}{4}$  ton of carbon per acre, possibly generating \$1 to \$5 per acre per year for farmers.

At its December 2003 annual meeting, the Iowa Farm Bureau adopted a resolution that supports increasing the state's Renewable Electricity Standard, and it has recently expressed interest in doing more to mobilize members. The Iowa Farm Bureau supports carbon sequestration research and development at Iowa State University and South Dakota State University.

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## Conclusion

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The purpose of this inventory is to enable people and organizations working in the Midwest to gain a sense of the region's climate change activities and actors. If the Midwest is to influence emerging legislation in Washington, its leaders must find a way to identify and articulate common interests. This document may be helpful in that process.

For specific strategies and priorities, please consult Part 1 of the Midwest Climate Change Project, *Meeting the Challenge: Opportunities for Midwest Action on Climate Change*.

This inventory was compiled between June 2006 and January 2007. New initiatives and partnerships have since emerged, and a new Congress has changed the federal legislative landscape. Although parts of the inventory may already be out of date, the authors still think it can be useful as a quick means of locating sources of information and new partners. The authors intend to update the inventory in the summer of 2007 and welcome suggestions and new information.

Send comments to: [info@global-philanthropy.org](mailto:info@global-philanthropy.org).



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## Appendix A. Interviewees

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1. Michael Noble, Fresh Energy
2. Howard Learner, ELPC
3. Joe Shacter, ELPC
4. Scott Bernstein, CNT
5. Ann McCabe and Henry Henderson, Policy Solutions
6. Helen Howe, Exelon
7. Art Smith, NiSource
8. Bill Gerwing, BP America
9. Rebecca Stanfield, Environment Illinois
10. Peter Goldmark, ED
11. Steve Brick, the Joyce Foundation
12. Margaret O'Dell, the Joyce Foundation
13. Nancy Cole, UCS
14. Jennifer Layke and Andrew Aulisi, WRI
15. David Gard, MEC
16. Abby Young, ICLEI
17. Rebecca Wigg, MEEA
18. David Ullrich, Great Lakes and St. Lawrence Cities Initiative
19. Katie Nakola, Clean Wisconsin
20. Adam Schafer, National Caucus of Environmental Legislators
21. David Rankin, GLPF
22. Rob Johnson, Cargill
23. Julie Hamos, Illinois State Representative
24. William Moomaw, Center for International Environment and Resource Policy, Tufts University
25. Karen Hobbs and Sadhu Johnson, Chicago Department of Environment
26. Ernie Shea, 25x25
27. Ron Meissen, Baxter Healthcare Corporation
28. Tim Brown, Delta Institute
29. Bob Lieberman, Illinois Commerce Commission
30. John Cleveland, IRN, Inc.
31. Judy Greenwald, Pew Center on Global Climate Change
32. Ben Paulos, Energy Foundation
33. Jane Krentz, former Minnesota State Senator
34. Bill Holland, Apollo Alliance

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## Appendix B. Membership Organizations and Affiliations

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*Many of the entries in this inventory include “Member” information. Short descriptions of these membership organizations are given here for quick reference. More detailed information can be found in the body of the inventory and can be located with the help of the Index.*

**25x’25.** A national campaign of the Energy Future Coalition that advocates the production of 25% of America’s energy from renewable resources by 2025.

**1605(b) program.** The Department of Energy’s 1605(b) program, established under Section 1605(b) of the 1992 Energy Policy Act, is a voluntary program to record the results of voluntary measures to reduce, avoid, or sequester GHG emissions.

**Alliance to Save Energy.** An organization that promotes energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security.

**Carbon Disclosure Project.** An institutional investor coalition of more than 200 institutions with reported assets of \$31 trillion under management.

**Ceres.** A national coalition of institutional investors and environmental organizations that works with companies and investors to address sustainability challenges. Ceres ranks major U.S. corporations on climate action using a 100-point scoring system that addresses board oversight, management performance, public disclosure, GHG emissions accounting, and strategic planning.

**CCX.** The Chicago Climate Exchange is the world’s first legally binding GHG emission registry, reduction, and trading system. Based in Chicago, the CCX has traded all six GHGs since 2003.

**Cities for Climate Protection.** The flagship campaign of the International Council for Local Environmental Initiatives (ICLEI), it seeks to educate and empower local governments to take action on climate change.

**Climate RESOLVE.** An initiative by the Business Roundtable that seeks to have every company in every sector of the economy undertake voluntary actions to control GHG emissions and improve the GHG intensity of the U.S. economy.

**Global GHG Register.** An initiative of the World Economic Forum, the Register enables multinational companies to disclose, monitor, and compare their GHG emissions across the world.

**Global Roundtable on Climate Change of the Earth Institute.** Based at Columbia University, GROCC brings together more than 150 senior executives to explore scientific, technological, and economic issues critical to shaping sound public policies on climate change. Participants are drawn from the private sector and from international governmental and nongovernmental organizations.

**Green Suppliers Network.** The Network works with large manufacturers to engage their suppliers in low-cost technical reviews that employ “Lean and Clean” manufacturing techniques to increase productivity, reduce waste, and boost profitability. It is a collaborative venture among industry, the U.S. EPA, and the U.S. Department of Commerce’s National Institute of Standards and Technology Manufacturing Extension Partnership.

**LADCO.** A nonprofit organization that provides technical assessments for and assistance to its member states of Illinois, Indiana, Michigan, Ohio, and Wisconsin on problems of air quality, and serves as a forum for discussion of regional air quality issues.

**Large Cities Climate Leadership Group.** A group of cities around the world (including Chicago) committed to the reduction of urban carbon emissions and adapting to climate change. Its purposes are to create a consortium through which cities can buy energy-saving products, and to develop common measurement tools that help cities establish a baseline for their GHG emissions and determine the effectiveness of programs to lower them. (See the William J. Clinton Foundation entry for further information.)

**Mayors Climate Protection Agreement.** Initiated by the U.S. Conference of Mayors, the agreement asks for federal actions to cap and reduce GHG emissions and commits mayors to meet the Kyoto goal of reducing GHG emissions in their cities to 7% below 1990 levels by 2012.

**Pew Leadership Council.** The Pew Center on Global Climate Change is a forum for objective research and analysis and for the development of pragmatic policies and solutions. The Center’s Business Environmental Leadership Council (shortened here to Pew Leadership Council) is the largest U.S.-based association of corporations focused on addressing climate change.

**U.S. EPA Climate Leaders.** An industry-government partnership that works with 86 companies to develop long-term, comprehensive climate change strategies. Partners set GHG reduction goals and inventory their emissions to measure progress.

**U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED).** The USGBC is the nation’s foremost coalition of leaders from every sector of the building industry working to promote buildings that are environmentally responsible, profitable, and healthy places to live and work. Its Leadership in Energy and Environmental Design (LEED) Green Building Rating System is the nationally accepted benchmark for the design, construction, and operation of high-performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings’ performance. LEED promotes a whole-build-

ing approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

**World Business Council for Sustainable Development.** A CEO-led, global association of 190 companies dealing exclusively with business and sustainable development. The Council provides a platform for companies to explore sustainable development, share knowledge, experiences and best practices, and to advocate business positions on these issues in a variety of forums, working with governments, nongovernmental and intergovernmental organizations.

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# Glossary

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*Sources for this glossary: U.S. Environmental Protection Agency (EPA), Intergovernmental Panel on Climate Change (IPCC), Green House Office of the Commonwealth of Australia (Australia), International Petroleum Industry Environmental Conservation Association (IP-IECA), and others.*

**Adaptation.** Adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

**Alternative Energy.** Energy derived from non-fossil fuel sources.

**Ancillary Benefits.** The ancillary or side effects of policies aimed exclusively at climate change mitigation. Such policies have an impact not only on GHG emissions, but also on resource use efficiency (i.e. reduction in emissions of local and regional air pollutants associated with fossil fuel use) and on issues such as transportation, agriculture, land-use practices, employment, and fuel security. Sometimes these benefits are referred to as “ancillary impacts,” to reflect the fact that in some cases the side effects may be negative. From the perspective of policies directed at abating local air pollution, GHG mitigation may in some cases also be considered to be an ancillary benefit, but these relationships are not considered in this assessment. (IPCC definition)

**Atmosphere.** The envelope of gases surrounding the earth and bound to it by the earth’s gravitational attraction. The atmosphere is divided into layers: the troposphere (from ground level to between 8-17 km); the stratosphere (up to 50 km); the mesosphere (50-90 km); and the thermosphere that forms the transition zone to outer space. Mixing between layers is extremely slow.

**Baseline Emissions.** The emissions that would occur without policy intervention (in a business-as-usual scenario). Baseline estimates are needed to determine the effectiveness of emissions reduction programs (often called mitigation strategies). (EPA)

**Basket of Gases.** This refers to the group of six greenhouse gases regulated under the Kyoto Protocol. They are listed in Annex A of the Kyoto Protocol and include: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF<sub>6</sub>).

**Biodiesel:** A fuel produced from organically derived oils combined with alcohol (ethanol or methanol) to form ethyl or methyl ester. Biodiesel can be made from soybean or canola oils, animal fats, waste vegetable oils, or microalgae oils.

**Biofuel.** A fuel produced from dry organic matter or combustible oils produced by plants.

Examples of biofuels include alcohols (from fermented sugar), black liquor from the paper manufacturing process, wood, and soybean oil.

**Biomass.** The total dry organic matter or stored energy content of living organisms. Biomass can be used for fuel directly by burning it (e.g., wood), or indirectly by fermentation to an alcohol (e.g., sugar) or extraction of combustible oils (e.g., soybeans). For example, trees and plants are biomass. (EPA)

**Biomass Energy.** Energy produced by combusting renewable biomass materials such as wood. The carbon dioxide emitted from burning biomass will not increase total atmospheric carbon dioxide if this consumption is done on a sustainable basis (i.e., if in a given period of time, regrowth of biomass takes up as much carbon dioxide as is released from biomass combustion). Biomass energy is often suggested as a replacement for fossil fuel combustion, which has large greenhouse gas emissions. (EPA)

**Cap and Trade.** See *Emissions Trading*.

**Carbon Dioxide (CO<sub>2</sub>).** The greenhouse gas whose concentration is being most affected directly by human activities. CO<sub>2</sub> also serves as the reference to compare all other greenhouse gases (see *Carbon Dioxide Equivalents*). The major source of CO<sub>2</sub> emissions is fossil fuel combustion. CO<sub>2</sub> emissions are also a product of forest clearing, biomass burning, and non-energy production processes such as cement production. Atmospheric concentrations of CO<sub>2</sub> have been increasing at a rate of about 0.5% per year and are now about 30% above pre-industrial levels. (EPA)

**Carbon Dioxide Equivalent (CDE).** A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed as “million metric tons of carbon dioxide equivalents” (MMTCDE) or “million short tons of carbon dioxide equivalents” (MSTCDE). The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP.  $MMTCDE = (\text{million metric tons of a gas}) * (\text{GWP of the gas})$ . For example, the GWP for methane is 24.5. This means that emissions of one million metric tons of methane is equivalent to emissions of 24.5 million metric tons of carbon dioxide. Carbon may also be used as the reference and other greenhouse gases may be converted to carbon equivalents. To convert carbon to carbon dioxide, multiply the carbon by 44/12, the ratio of the molecular weight of carbon dioxide to carbon. (EPA)

**Carbon Equivalent (CE).** A metric measure used to compare the emissions of the different greenhouse gases based upon their global warming potential (GWP). Greenhouse gas emissions in the U.S. are most commonly expressed as “million metric tons of carbon equivalents” (MMTCE). Global warming potentials are used to convert greenhouse gases to carbon dioxide equivalents. Carbon dioxide equivalents can then be converted to carbon equivalents by multiplying the carbon dioxide equivalents by 12/44 (the ratio of the molecular weight of carbon to carbon dioxide). Thus, the formula to derive carbon equivalents is:  $MMTCE = (\text{million metric tons of a gas}) * (\text{GWP of the gas}) * (12/44)$ . (EPA)

**Carbon Sequestration.** The uptake and storage of carbon. Trees and plants, for example, absorb carbon dioxide, release the oxygen, and store the carbon. Fossil fuels were at one time biomass and continue to store the carbon until burned. (EPA)

**Carbon Sinks.** Carbon reservoirs and conditions that take in and store more carbon (carbon sequestration) than they release. Carbon sinks can serve to partially offset greenhouse gas emissions. Forests and oceans are common carbon sinks. (EPA)

**Ceres Scorecard.** Ceres has ranked major U.S. corporations on climate action using a 100-point scoring system that addresses board oversight, management performance, public disclosure, greenhouse gas emissions accounting, and strategic planning. The scoring system gives the most credit to companies with a sustained commitment to controlling greenhouse gas emissions, disclosing data and strategies, supporting regulatory actions, and taking practical, near-term steps to find lasting solutions to climate change.

**Climate.** The average weather for a particular region and time period, usually taken over a 30-year period. Climate is not the same as weather, but rather, it is the average pattern of weather for a particular region. Weather describes the short-term state of the atmosphere. Climatic elements include precipitation, temperature, humidity, sunshine, wind velocity, phenomena such as fog, frost, and hail storms, and other measures of the weather. (EPA)

**Climate Change** (also referred to as “global climate change”). The term “climate change” is sometimes used to refer to all forms of climatic inconsistency, but because the Earth’s climate is never static, the term is more properly used to imply a significant change from one climatic condition to another. In some cases, “climate change” has been used synonymously with the term “global warming.” Scientists however, tend to use the term in the wider sense to also include natural changes in climate. See also *Enhanced Greenhouse Effect*. (EPA)

**Climate Change Action Plan.** Unveiled in October 1993 by President Bill Clinton, the CCAP is the U.S. plan for meeting its pledge to reduce greenhouse gas emissions under the terms of the Framework Convention on Climate Change (FCCC). The goal of the CCAP is to reduce U.S. emissions of anthropogenic greenhouse gases to 1990 levels by the year 2000. The CCAP, which consists of some 50 voluntary federal programs that span all sectors of the economy, uses a win-win approach by helping program partners save energy, save money, and gain access to clean technology while also reducing greenhouse gas emissions. (EPA)

**Cogeneration.** The process by which two different and useful forms of energy are produced at the same time. For example, while boiling water to generate electricity, the leftover steam can be sold for industrial processes or space heating. (EPA)

**Combined Cycle.** Electricity generation where the waste heat of a gas turbine generator is used to heat water in a boiler to drive a steam-turbine generator, thereby increasing efficiency.

**Decoupling.** Severing the link between utility profit and sales to increase opportunities for energy efficiency.

**Demand-side Management.** Policies and programs designed to reduce consumer demand for electricity and other energy sources and, therefore, reduce the need for constructing new power facilities.

**Emissions.** The release of a substance (usually a gas when referring to the subject of climate change) into the atmosphere. (EPA)

**Emissions Cap.** A mandated restraint, in a scheduled time frame, that puts a “ceiling” on the total amount of anthropogenic greenhouse gas (GHG) emissions that can be released into the atmosphere. The Kyoto Protocol mandates caps on the GHG emissions released by Annex B, or developed, countries.

**Emission Quota.** The portion or share of total allowable emissions assigned to a country or group of countries within a framework of maximum total emissions and mandatory allocations of resources or assessments. (IPCC)

**Emission Standard.** A level of emission that, under law, may not be exceeded. (IPCC)

**Emissions Trading.** Also known as “cap and trade,” this is a market-based approach to achieving environmental objectives that allows those reducing GHG emissions below what is required to use or trade the excess reductions to offset emissions at another source inside or outside the country. In general, trading can occur at the domestic, international, and intra-company levels. Article 17 of the Kyoto Protocol allows Annex B countries to exchange emissions obligations. Negotiations will determine the extent to which firms and others may be allowed to participate. International emissions trading constitutes one of the Kyoto Mechanisms, designed to provide Annex B countries cost-effective flexibility in reducing emissions to achieve their agreed commitments.

**Energy Intensity.** Ratio of energy consumption and economic or physical output. At the national level, energy intensity is the ratio of total domestic primary energy consumption or final energy consumption to gross domestic product or physical output. (IPCC)

**Energy Star.** A joint program of the U.S. EPA and the U.S. DOE that seeks to save citizens money and protect the environment through energy efficient products and practices.

**Equator Principles:** A financial industry benchmark for determining, assessing, and managing social and environmental risk in project financing ([www.equator-principles.com](http://www.equator-principles.com)) They have been adopted by 40 leading international financial institutions, which together underwrite more than 75% of all project finance transactions worldwide.

**Equivalent CO<sub>2</sub>.** The concentration of CO<sub>2</sub> that would cause the same amount of radiative forcing as a given mixture of CO<sub>2</sub> and other greenhouse gasses. (IPCC)



**Evapotranspiration.** The sum of evaporation and plant transpiration. Potential evapotranspiration is the amount of water that could be evaporated or transpired at a given temperature and humidity, if plenty of water was available. Actual evapotranspiration can not be any greater than precipitation, and will usually be less because some water will run off in rivers and flow to the oceans. If potential evapotranspiration is greater than actual precipitation, then soils are extremely dry during at least a major part of the year. (EPA)

**Fossil Fuel.** A general term for combustible geologic deposits of carbon in reduced (organic) form and of biological origin, including coal, oil, natural gas, oil shales, and tar sands. A major concern is that they emit carbon dioxide into the atmosphere when burned, thus significantly contributing to the enhanced greenhouse effect. (EPA)

**Fossil Fuel Combustion.** Burning of coal, oil (including gasoline), or natural gas. This burning, usually to generate energy, releases carbon dioxide, as well as combustion by-products that can include unburned hydrocarbons, methane, and carbon monoxide. Carbon monoxide, methane, and many of the unburned hydrocarbons slowly oxidize into carbon dioxide in the atmosphere. Common sources of fossil fuel combustion include cars and electric utilities. (EPA)

**Fuel Cell.** An electrochemical device, such as a battery, that combines hydrogen and oxygen to produce electricity, heat, and water. The source of hydrogen can be either pure hydrogen or a number of other fuels, such as methanol or other hydrocarbons, that are first converted to hydrogen and CO<sub>2</sub>.

**Fuel Switching.** Supplying energy services using different fuels. Often used to refer to actions that reduce CO<sub>2</sub> emissions from electric utilities by switching from coal to natural gas.

**Global Warming.** An increase in the near-surface temperature of the Earth. Global warming has occurred in the distant past as the result of natural influences, but the term is most often used to refer to the warming predicted to occur as a result of increased emissions of greenhouse gases. Scientists generally agree that the Earth's surface has warmed by about 1 degree Fahrenheit in the past 140 years. The Intergovernmental Panel on Climate Change (IPCC) recently concluded that increased concentrations of greenhouse gases are causing an increase in the Earth's surface temperature and that increased concentrations of sulfate aerosols have led to relative cooling in some regions, generally over and downwind of heavily industrialized areas. Also see *Climate Change* and *Greenhouse Effect*. (EPA)

**Global Warming Potential (GWP).** The index used to translate the level of emissions of various gases into a common measure in order to compare the relative radiative forcing of different gases without directly calculating the changes in atmospheric concentrations. GWPs are calculated as the ratio of the radiative forcing that would result from the emissions of one kilogram of a greenhouse gas to that from emission of one kilogram of carbon dioxide over a period of time, usually 100 years. Gases involved in complex atmospheric chemical processes have not been assigned GWPs due to complications that arise. Greenhouse gases are expressed in terms of Carbon Dioxide Equivalent. The

International Panel on Climate Change has presented these GWPs and regularly updates them in new assessments.

**Greenhouse Effect.** The effect produced as greenhouse gases allow incoming solar radiation to pass through the Earth's atmosphere, but prevent most of the outgoing infrared radiation from the surface and lower atmosphere from escaping into outer space. This process occurs naturally and has kept the Earth's temperature about 59 degrees Fahrenheit warmer than it would otherwise be. Current life on Earth could not be sustained without the natural greenhouse effect. (EPA)

**Greenhouse Gas.** Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), halogenated fluorocarbons (HCFCs), ozone (O<sub>3</sub>), perfluorinated carbons (PFCs), and hydrofluorocarbons (HFCs). (EPA)

**Greenhouse Gas Intensity.** The ratio of greenhouse gas emissions to economic output. The U.S. government has a target of reducing greenhouse gas intensity by 18% by 2012.

**Heat-Island Effect.** Localized warming produced in cities due to the density of infrastructure, such as pavement, buildings, and roads that retain heat. This effect can influence temperature readings obtained from nearby weather stations.

**Hydrofluorocarbons, or HFCs.** Among the six greenhouse gases to be controlled in the Kyoto Protocol "basket of gases." They are produced commercially as a substitute for chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). HFCs are largely used in refrigeration and insulating foam. Their Global Warming Potentials range from 140 to 11,700 times that of CO<sub>2</sub>, depending on the HFC. See *Global Warming Potential*.

**Integrated Gasification Combined Cycle.** An emerging power generation process that uses a gasifier to transform coal to a synthetic gas, consisting mainly of carbon monoxide and hydrogen. IGCC has lower sulfur dioxide and mercury emissions than pulverized coal plants and cost-effectively controls carbon dioxide emissions.

**Intergovernmental Panel on Climate Change, or IPCC.** A panel established in 1988 by governments under the auspices of the World Meteorological Organization and the UN Environment Programme. It prepares assessments, reports, and guidelines on: the science of climate change and its potential environmental, economic, and social impacts; technological developments; possible national and international responses to climate change; and cross-cutting issues. It provides advice to the UNFCCC's Conference of the Parties. It is currently organized into three Working Groups, which address Science; Impacts, Adaptation, and Vulnerability; and Mitigation. There is also a Working Group to address GHG Inventories.

**Kyoto Protocol.** An international agreement, reached in 1997 in Kyoto, Japan, which extends the commitments of the UNFCCC. In particular, it sets targets for future emissions in developed countries. (Australia)

**LEED certification.** A program through the U.S. Green Building Council, the Leadership in Energy and Environmental Design (LEED) Green Building Rating System is the nationally accepted benchmark for the design, construction, and operation of high-performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

**Methane, or CH<sub>4</sub>.** One of the basket of six greenhouse gases to be controlled under the Kyoto Protocol, it has a relatively short atmospheric lifetime of 10 (±2) years. Primary sources of methane are landfills, coal mines, paddy fields, natural gas systems, and livestock. The 1995 SAR estimate of the Global Warming Potential of methane is 21, over a 100-year time horizon. See *Global Warming Potential*.

**Methane Recovery.** Method by which methane emissions from, for example, coal mines or waste sites are captured and then re-used, either through cost-effective management methods or through power generation.

**Mitigation.** All actions aimed at reducing the negative effects or the likelihood of global warming, such as reducing energy use, shifting from carbon-based fossil fuels to alternative energy sources, carbon capture and storage, and carbon sequestration.

**Nitrous Oxide, or N<sub>2</sub>O.** One of the basket of six greenhouse gases to be controlled under the Kyoto Protocol, it is generated by burning fossil fuels and the manufacture of fertilizer. It has a Global Warming Potential of 310 over a 100-year time horizon. See *Global Warming Potential*.

**No Regrets.** Actions that result in greenhouse gas limitations and abatement, and which also make good environmental and economic sense in their own right.

**Ozone, or O<sub>3</sub>.** Ozone (O<sub>3</sub>) is a greenhouse gas. In the troposphere, or lower part of the atmosphere, O<sub>3</sub> can be a constituent of smog. It is created naturally and also by reactions in the atmosphere involving gases resulting from human activities, including NO<sub>x</sub>, or nitrogen oxides, from motor vehicles and power plants. The Montreal Protocol seeks to control chemicals that destroy ozone in the stratosphere (upper part of the atmosphere) where ozone absorbs ultraviolet radiation. Ozone consists of three atoms of oxygen bonded together, in contrast to normal atmospheric oxygen, which consists of two atoms of oxygen. Ozone is an important greenhouse gas found in both the stratosphere (about 90% of the total atmospheric loading) and the troposphere (about 10%). Ozone has other effects beyond acting as a greenhouse gas. In the stratosphere, ozone provides a protective layer shielding the Earth from ultraviolet radiation and subsequent harmful health effect on humans and the environment. In the troposphere, oxygen molecules in ozone combine with other chemicals and gases (oxidization) to cause smog. (EPA)

**Perfluorocarbons (PFCs).** One of the basket of the six greenhouse gases to be controlled

under the Kyoto Protocol. They are a by-product of aluminum smelting. They also are the replacement for CFCs in manufacturing semiconductors. The Global Warming Potential of PFCs ranges from 6,500–9,200 over a 100-year time horizon. See *Global Warming Potential*.

**Precautionary Approach.** The approach promoted under the Framework Convention of Climate Change to help achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system. (EPA)

**Public Benefit Funds.** Public Benefit Funds are typically state-level programs developed through the electric utility restructuring process as a measure to assure continued support for renewable energy resources, energy efficiency initiatives, and low-income support programs. (These funds are also frequently referred to as a system benefits charge, or SBC.) Such a fund is most commonly supported through a charge to all customers on electricity consumption, e.g., 0.2 cents/kWh.

**Renewable Energy.** Energy obtained from sources such as geothermal, wind, photovoltaic, solar, and biomass.

**Renewable Portfolio Standard (RPS).** A policy set by federal or state governments that a percentage of the electricity supplied by generators be derived from a renewable source.

**Sink.** A reservoir that uptakes a pollutant from another part of its cycle. Soil and trees tend to act as natural sinks for carbon. (EPA)

**Socolow Wedges.** (See: S. Pacala and R. Socolow, “Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies,” *Science*, Volume 305, Aug. 13, 2004.) According to Socolow and Pacala, a portfolio of technologies, many of which have already been implemented somewhere at industrial scale, now exists to meet the world’s energy needs over the next 50 years and limit atmospheric CO<sub>2</sub> to a trajectory that avoids a doubling of the pre-industrial concentration. The portfolio as a whole is large enough that not every element has to be used. A stabilization triangle is formed by the space between a flat trajectory for fossil fuel emissions and a ramp trajectory representing what will happen based upon past growth. The stabilization triangle is filled by seven wedges. Strategies that together lower emissions enough to cover all seven wedges include the following categories: 1) efficiency and conservation, which includes options for improved fuel economy, reduced reliance on cars, more efficient buildings, and improved power plant efficiency; 2) decarbonization of electricity and fuels, which includes substituting natural gas for coal, storage of carbon captured in power plants, hydrogen plants, synfuels plants, wind-generated electricity, photovoltaic energy, renewable hydrogen, and biofuels; and 3) natural sinks, including forest management and agricultural soils management.

**Source.** Any process or activity that results in the net release of greenhouse gases, aerosols, or precursors of greenhouse gases into the atmosphere.

**Targets and Timetables.** A target is the reduction of a specific percentage of GHG emissions (e.g., 6% or 7%) from a base year (e.g., “below 1990 levels”) to be achieved by a set date, or timetable (e.g., 2008–12). For example, under the Kyoto Protocol’s formula, the EU has agreed to reduce its GHG emissions to 8 per cent below 1990 levels by the 2008–12 commitment period. These targets and timetables are, in effect, a cap on the total amount of GHG emissions that can be emitted by a country or region in a given time period.

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## Acronyms/Definitions

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BP	British Petroleum
CAFÉ	corporate average fuel economy
CCX	Chicago Climate Exchange
CFLs	compact fluorescent light bulbs
CNT	Center for Neighborhood Technology
CO <sub>2</sub>	carbon dioxide
CREATE	Chicago Regional Environmental and Transportation Efficiency project
DNR	Department of Natural Resources
DOE	Department of Energy
ED	Environmental Defense
ELPC	Environmental Law and Policy Center of the Midwest
EPA	Environmental Protection Agency
GHG	greenhouse gas
GLSLCI	Great Lakes and St. Lawrence Cities Initiative
GW	Gigawatt: unit of power equal to 1 billion watts or 1 million kilowatts
ICLEI	International Council for Local Environmental Initiatives
IECC	International Energy Conservation Code
IGCC	integrated gasification combined cycle
INCR	Investor Network on Climate Risk
ISO	Independent Transmission System Operator
KW	Kilowatt: a unit of electrical power equal to 1000 watts
KWh	Kilowatt Hour: the work performed by one kilowatt of electric power in one hour
LADCO	Lake Michigan Air Directors Consortium
LEED	Leadership in Energy and Environmental Design
MEEA	Midwest Energy Efficiency Alliance
MISO	Midwest Independent System Operator
MOU	Memorandum of Understanding
MW	Megawatt: unit of electrical power equal to one million watts
NCEP	National Commission on Energy Policy
NREL	National Renewable Energy Laboratory
R&D	research and development
RE-AMP	Renewable Energy Alignment Mapping Project
RES	Renewable Electricity Standard
RFA	Renewable Fuels Association
RPS	Renewable Portfolio Standard
UCS	Union of Concerned Scientists
UNEP	United Nations Environmental Programme
USCAP	United States Climate Action Partnership
WRI	World Resources Institute

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# Index

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- 1605(b) 15, 23, 32, 37, 45, 115  
2007 Legislative Agenda 9, 30, 65, 68, 93, 106  
25x25 41, 63, 73, 111, 114, 115  
3M 6, 30, 47, 101
- A**
- Abbott 11, 48, 89  
ABN AMRO 6, 7, 8, 101  
Adaptation 91, 101, 118, 123  
AEP 6, 13, 14, 67, 101  
Alcoa 30, 31, 46, 47  
Alliance to Save Energy 12, 17, 26, 27, 30, 100, 115  
Allstate Corp 8  
alternative fuels 23  
Ameren 14  
American Council for an Energy-Efficient Economy 72, 100  
American Council on Renewable Energy 100  
American Electric Power 14, 40, 45, 46, 47  
Andersen 26, 91  
Ann Arbor 49, 50, 52, 58  
Apollo Alliance 54, 84, 85, 97, 107, 114  
Archer Daniels Midland 9, 36, 43  
Aspen Skiing Company 34  
Aventine 37
- B**
- Baxter 11, 40, 43, 45, 48, 89, 101, 114  
Best Buy 33  
Biomass Coordinating Council 104  
Blue-Green Alliance 84, 85  
Boeing 24, 25, 47  
BP 6, 12, 13, 17, 36, 46, 47, 63, 67, 89, 101, 114, 127
- C**
- Calpine 15  
Cap and Trade 6, 13, 14, 17, 33, 40, 47, 55, 59, 75, 93, 97, 102, 109, 116, 121, 126  
Carbon Disclosure Project 7, 9, 10, 28, 32, 105, 115  
Carbon Management and Sequestration Center, Ohio State University 80  
Cargill 36, 37, 40, 46, 114  
Caterpillar 6, 19, 20, 43, 47, 101  
cellulosic 36, 37, 70  
Center for Clean Air Policy 58, 92, 100  
Center for Neighborhood Technology 92, 127  
Center for Sustainability and the Global Environment (SAGE) 82  
Ceres 5, 7, 8, 10, 12, 36, 45, 105, 115, 120  
Chicago 5, 7, 8, 14, 17, 18, 21, 23, 25, 28, 31, 32, 34, 35, 37, 38, 39, 40, 41, 45, 46, 47, 50, 51, 57, 58, 59, 60, 62, 66, 67, 72, 75, 85, 88, 89, 90, 91, 92, 93, 94, 101, 102, 106, 108, 111, 114, 115, 116, 127  
Chicago Climate Exchange 14, 23, 28, 31, 32, 34, 35, 37, 39, 40, 46, 50, 62, 66, 67, 75, 93, 111, 115, 127  
Cincinnati 50, 52  
Cinergy 6, 13, 45, 47, 101  
Citigroup 8  
Citizens Action Coalition of Indiana 99  
Citizens Utility Board 98  
Clean Air Task Force 101, 108  
Clean Energy States Alliance 71  
Clean Wisconsin 69, 92, 97, 98, 104, 108, 114  
Cleveland 20, 32, 39, 43, 50, 52, 60, 84, 86, 97, 114  
Cleveland Business Entrepreneurs for Sustainability 43  
Climate and Energy Funders Group 106  
Climate Group 101  
Climate Leaders 5, 8, 9, 10, 11, 15, 17, 19, 21, 22, 23, 25, 26, 28, 29, 30, 31, 32, 47, 50, 106, 116  
Climate Midwest Partnership 43, 104

Climate Neutral Network 101  
 Clinton Climate Initiative 106  
 Coal 13, 14, 18, 21, 42, 43, 55, 61, 63, 66,  
 67, 72, 73, 76, 84, 85, 89, 93, 94, 95,  
 96, 97, 98, 99, 102, 103, 106, 108, 122,  
 123, 124, 125  
 Integrated Gasification Combined Cycle  
 13, 14, 21, 97, 101, 102, 123  
 Power Plants 7, 9, 10, 13, 17, 21, 55, 69,  
 75, 85, 89, 94, 96, 101, 102, 103, 105,  
 124, 125  
 Cogeneration 28, 66, 120  
 Combined Heat and Power 32, 61, 64, 67  
 Commitments to Emissions Reductions 9,  
 10, 14, 26, 28, 30, 31, 35, 39, 45, 50,  
 51, 68, 76, 102, 120, 126  
 Consultative Group on Biological Diversity  
 106  
 Consumers Energy 15  
 Council of Great Lakes Governors 71  
 Council of State Governments 71  
 COWS 85  
 Crystal Mountain 35  
 Cummins 19, 20, 47

## D

D. H. Blattner 38  
 Dayton 50, 53, 75, 88  
 Dearborn 23, 53, 60  
 Delta Institute 62, 92, 93, 114  
 demand-side management 19  
 Department of Atmospheric Sciences,  
 University of Illinois 80  
 Department of Biology and Epidemiology,  
 School of Public Health, 81  
 Department of Ecology and Evolutionary  
 Biology, University of Michigan 80  
 Department of Geosciences, Texas Tech  
 University 81  
 Department of the Geophysical Sciences,  
 University of Chicago 81  
 Des Moines 50, 53, 58, 60, 96, 111  
 Detroit Edison 15  
 Duke 6, 14, 41, 47  
 Duluth 50, 53, 57, 58

## E

Eaton 20, 24  
 Edison International 12, 16  
 Emissions Reduction Credits 9, 27, 33, 63,  
 73, 75, 77, 93, 99, 107, 111  
 Energy Efficiency 5, 6, 7, 8, 14, 15, 16, 20,  
 22, 26, 27, 28, 29, 30, 31, 32, 37, 43,  
 44, 49, 51, 52, 53, 55, 57, 61, 63, 64,  
 65, 66, 67, 68, 69, 72, 75, 76, 77, 84,  
 89, 90, 91, 92, 93, 94, 95, 96, 98, 99,  
 100, 103, 104, 118, 125  
 Appliances 26, 27, 33, 49, 68, 77, 93, 94,  
 95  
 Buildings 9, 13, 14, 23, 26, 27, 28, 30,  
 33, 39, 43, 49, 51, 52, 54, 55, 58, 59,  
 61, 63, 65, 67, 68, 69, 76, 84, 90, 93,  
 94, 95, 104, 106, 109, 116, 123, 125  
 Clean Cars 89, 93  
 Diesel 19, 20, 24, 49, 65, 66, 67, 68  
 Fuel Cells 19, 20, 23, 30, 68, 122  
 Hybrid 19, 20, 21, 22, 23, 24, 51, 59,  
 61, 64, 65, 67, 74, 76, 85, 94, 96  
 Compact Fluorescent Bulbs 33, 90  
 Energy Star 9, 10, 26, 27, 49, 54, 77, 90  
 Fuel Efficiency 24, 74, 97  
 LEED 9, 26, 27, 28, 49, 51, 54, 109, 116  
 Lighting 33, 49, 54, 62, 90  
 energy efficiency 16, 26, 27, 30, 32, 53, 55,  
 63, 64, 65, 66, 68, 69, 72, 76, 77, 84,  
 89, 90, 91, 93, 94, 95, 96, 98, 99, 100  
 Energy Foundation 13, 106, 107, 108, 109, 114  
 Energy Transition 2050 41  
 Environmental Defense 6, 47, 96, 102, 127  
 Environmental Law and Policy Center 89,  
 99, 127  
 Environment Illinois 92, 93, 94, 114  
 Evangelical Climate Initiative 87  
 Exelon 6, 17, 39, 45, 46, 89, 114

## F

FirstEnergy 18  
 First Solar 38  
 footprint 30  
 Ford 22, 23, 40, 45, 46, 55, 96, 101  
 Fort Wayne 50, 53, 60  
 Fresh Energy 92, 94, 95, 104, 114



## G

Garfield Foundation 107  
GE 21, 38  
General Electric 6, 13, 14, 21, 47  
General Motors 22, 23, 46, 101  
Global Change Research Program, National  
Center for Environmental 80  
Global Greenhouse Gas Register 45  
Glossary 118  
GM 6, 22, 23, 46  
Goldman Sachs 9, 36, 37  
Governors' Ethanol Coalition 66, 71  
Grand Rapids 28, 44, 50, 54, 57, 87, 109  
Great Lakes and St. Lawrence Cities  
Initiative 49, 51, 57, 114, 127  
Great Lakes Protection Fund 107  
Great Plains Institute 41, 42, 91, 108  
Greenhouse Gas Registry 7, 15, 39, 46, 71,  
77, 78, 89, 93, 94, 97, 98, 104, 108,  
115  
Green power 23  
Green Power Market Development Group  
23, 37, 46, 104  
Green Seal 26  
Green Suppliers 11, 20, 23, 25, 28, 48  
GROCC 46, 116

## H

Hamilton Sundstrand 25  
Haworth 28, 48  
Herman Miller 27, 28, 48  
Hewlett Foundation 107  
Holcim 31, 46  
Honda 22, 24  
Hoosier Environmental Council 63, 99  
HSBC 9  
Hyatt 35

## I

ICLEI 50, 51, 52, 58, 59, 106, 114, 115  
IGGC 13  
Illinois 62  
Illinois Clean Energy Community  
Foundation 91, 108  
Illinois Corn Growers Association 111  
Illinois Renewable Energy Association 94

Illinois Soybean Association 111  
Illinois State Treasurer 7, 105  
Indiana 63  
International Brotherhood of Electrical  
Workers 84, 85  
International Paper 31  
International Truck and Engine Corp 24  
Inventory 21, 49  
Investor Network on Climate Risk 105, 127  
Iowa 64  
Iowa Association for Energy Efficiency 96  
Iowa Citizens Action Network 96  
Iowa Energy Center 96  
Iowa Environmental Council 96  
Iowa Farm Bureau 97, 111, 112  
Iowa Renewable Energy Association 97  
Izaak Walton League 91, 95, 108

## J

Jewel-Osco 33  
John Deere 21  
Johnson Controls 9, 26, 43, 47  
Joyce Foundation 13, 42, 47, 91, 97, 98,  
101, 107, 108, 114  
JPMorganChase 7, 10, 102

## K

Kellogg Foundation 108  
Kimberly-Clark 29, 43  
Kresge Foundation 109

## L

LADCO 12, 71, 72, 77, 78, 79, 93, 94, 97,  
103, 104, 108, 116, 127  
LaFarge 31

## M

M. A. Mortenson 38, 39  
Madison 41, 50, 54, 58, 82, 85, 97, 98, 99  
Marsh 10  
Maytag 26, 27, 47  
McKnight Foundation 91, 106, 107, 109  
Medline 12  
MEEA 72, 90, 114, 127  
Methane 49, 52, 111, 118, 119, 122, 123,  
124

Metropolitan Mayors Caucus 57  
Michigan 65  
Michigan Environmental Council 84, 95, 104  
Michigan Interfaith Power and Light 88  
Midwest Energy Efficiency Alliance 72, 90, 127  
Midwestern Governors Association 41, 71, 73  
Midwestern Regional Climate Center 83  
Midwest Generation 16  
Midwest Natural Gas Initiative 61, 65, 66, 70, 72, 90  
Milwaukee 19, 26, 47, 50, 54, 58  
Minneapolis 33, 37, 39, 42, 48, 50, 55, 58, 85, 109  
Minnesota 66  
Minnesota Project 66, 91, 95  
Mitigation 7, 10, 42, 45, 101, 118, 123, 124  
Motorola 6, 28, 29, 40, 101

**N**

National Caucus of Environmental Legislators 76, 114  
National Wildlife Federation 84, 96, 103  
Natural Resources Defense Council 6, 102, 108  
Nature Conservancy 91  
NCAR 81  
NextEnergy 43  
NiSource 18, 46, 89, 114  
Novelis 32

**O**

Ohio 67  
Ohio Clean Energy Business Association 38, 44  
Ohio Environmental Council 68, 97  
Ohio Interfaith Climate and Energy Campaign 88, 97  
Owens Corning 27, 38

**P**

Perfluorocarbons 29, 118, 124  
Pew Center 5, 6, 46, 47, 62, 108, 109, 114, 116  
Pew Charitable Trusts 109  
Pew Leadership Council 14, 19, 20, 21, 25, 27, 29, 30, 31  
Policy Matters Ohio 84, 97  
pollution prevention 14  
Powering the Plains 42  
Preserve Our Climate Coalition 98  
Protestants for the Common Good 88  
Public Education/Engagement 67, 88, 98, 109

**R**

Racine 29, 30, 47, 55, 57, 60  
RE-AMP 84, 90, 91, 94, 98, 107, 127  
Renewable Energy 5, 7, 9, 10, 14, 15, 17, 19, 21, 23, 28, 30, 32, 35, 37, 38, 39, 41, 42, 43, 44, 46, 49, 51, 52, 54, 55, 59, 61, 63, 64, 65, 66, 67, 69, 70, 71, 73, 74, 75, 76, 77, 79, 84, 89, 90, 91, 93, 94, 95, 96, 97, 98, 99, 100, 104, 111, 115, 118, 119, 124, 125  
Biofuels 10, 32, 35, 36, 61, 63, 64, 66, 67, 68, 70, 103, 104, 111, 125  
Biodiesel 111, 118  
Ethanol 9, 10, 35, 36, 37, 41, 61, 63, 64, 65, 66, 67, 68, 70, 71, 73, 75, 111, 118  
Solar 19, 20, 28, 33, 38, 39, 46, 51, 53, 64, 67, 76, 95, 109, 125  
Wind Energy 9, 10, 15, 18, 21, 35, 37, 38, 39, 42, 43, 44, 46, 51, 53, 55, 61, 63, 64, 65, 66, 67, 85, 91, 94, 95, 96, 111, 120, 125  
Renewable Energy Standard 14, 61, 63, 64, 65, 66, 67, 69, 93, 94, 95, 97, 99, 112  
Renew Wisconsin 91, 99  
Risk Management 7, 37  
Insurance 7, 8, 10, 93  
Investor 7, 9, 10, 45, 68, 105, 115  
Rockwell Collins 26

**S**

Saint Paul 10, 30, 47, 50, 55, 58, 87, 94, 95  
School of Natural Resources and Environment, University of Michigan 80

SC Johnson 13, 29, 47  
 Sequestration 13, 14, 18, 21, 41, 42, 67, 75,  
     76, 77, 84, 91, 97, 98, 103, 107, 112,  
     120, 124  
 Sierra Club 55, 85, 94, 101  
 Solid Waste 52  
 Spire Solar 39, 51  
 Springfield 55, 94, 101, 105  
 St. Paul Travelers 10  
 State Legislators 76  
 State Water Survey 81, 83  
 Steelcase 28, 48  
 Stora Enso 32, 40, 43

**T**

Target Corp 33, 47  
 Tenneco 22, 48  
 Trane 27  
 Transportation 16, 19, 22, 24, 33, 49, 52,  
     58, 59, 63, 69, 70, 86, 91, 92, 95, 99,  
     100, 103, 118  
 Transportation Demand Management  
     Land Use 99  
     Transit 19, 20, 24, 49, 52, 53, 59, 89, 92,  
     95  
 Transportation Demand Management Rail  
     86, 92

**U**

U.S. Climate Action Partnership 6, 12, 13,  
     20, 21, 31, 47, 102, 103, 104  
 U.S. Conference of Mayors 49, 50, 53, 55,  
     58, 59, 60, 94, 116  
 U.S. Congress — Midwest Delegation 74  
 UCS 103, 104, 127  
 Union of Concerned Scientists 80, 97, 98,  
     103, 114, 127  
 United Transportation Union 86  
 Urban Leaders Initiative 58

**W**

Wal-Mart 6, 33, 34  
 Wallace Global Fund 109  
 Waste Management 9, 32  
 WE 19, 91

Wedge  
     Socolow 93, 125  
 Wege Foundation 109  
 Wells Fargo 10  
 West Michigan Sustainable Business  
     Forum 44  
 Whirlpool 26, 27, 47  
 White Construction Services 39  
 William J. Clinton Foundation 106, 116  
 Wisconsin 68  
 Wisconsin Energy 13, 19, 47, 70  
 Wisconsin Interfaith Climate and Energy  
     Campaign 88  
 World Resources Institute 9, 31, 43, 46,  
     104, 114, 117  
 WRI 10, 43, 104, 127



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