

# CLIMATE CHANGE:

# WHAT DOES IT MEAN FOR THE MIDWEST?

A REPORT ON THE APRIL 28, 1999  
EPA REGIONAL CONFERENCE SPONSORED BY THE

EPA OFFICE OF POLICY, OFFICE OF ECONOMY AND ENVIRONMENT



## THE MIDWEST PREPARES FOR CLIMATE CHANGE

To meet the challenge of climate change, we need “a vision that is greater than the separate parts—a vision that sees everything we do is connected,” said Robert Mann, director of Bridging the Gap, a Kansas City-based nonprofit organization. Mann was the opening speaker at a public conference on global climate change convened by the U.S. Environmental Protection Agency in Kansas City, Missouri, on April 28, 1999.

Dennis Grams, EPA regional administrator, welcomed the participants and emphasized that education is a key factor in the mitigation of climate change. “People need to have the science translated into something they can understand—only then can they get more involved.” Like Mann, Grams said that individual action is crucial.

The meeting was sponsored by public agencies and private organizations, and was attended by more than 120 leaders and representatives from a wide range of businesses, environmental and civic organizations, federal and state municipal utilities, academic institutions, and others.

Following the welcoming remarks, participants heard presentations about the science of global warming, potential economic impacts on the Midwest, and the policies and technologies that will be needed to slow climate change.

David Gardiner, assistant administrator for policy at EPA, discussed international climate change negotiations. He called the Kyoto Protocol an

important step in the right direction. “It’s still a work in progress, a framework for action,” Gardiner said, “and a starting point for further negotiations that we believe will clarify and deepen the international resolve to tackle the global warming issue.”

Christopher Lotspeich, executive assistant to the director of research at the Rocky Mountain Institute, gave the keynote luncheon address. He emphasized the power of renewable energy and its potential for achieving a sustainable future.

The *Kansas City Star*, the leading newspaper in Kansas City, ran a lengthy story on the conference. The story referenced speaker David Easterling’s assertion that changes in precipitation may be among the most serious consequences of global warming in the Midwest.

### BRIDGING THE GAP

Opening speaker Robert Mann, of Bridging the Gap, described how the organization seeks to weave a “whole fabric” in which climate change is not an isolated environmental issue. The nonprofit group, which depends on the volunteerism for which Kansas City is known, provides support for waste reduction, recycling, air and water quality issues, transportation, and energy and resource conservation. Mann noted that more than 10,000 people have volunteered for the city’s recycling program over the last seven years. “We’ve recovered more than 42 million pounds of materials,” he added.

The success stories of the organization’s “Choose Environmental Excellence” initiative are impressive. One participant, Hallmark Cards, reduced its waste stream by 69 percent. Another, Allied Signal Federal Manufacturing and Technologies, provided free reusable mugs to its employees, thus eliminating 4,000 plastic foam cups per day.



*Top Photo: To mitigate climate change, we'll need to see "beyond the specific and separate parts of the issue," said Bob Mann, director of Bridging the Gap.*

*Bottom Photo: EPA Regional Administrator Dennis Grams emphasized that people will become more involved in climate change issues once the science is translated into something they can understand.*

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## CO-SPONSORS

Bridging the Gap

Heartland Solar Industries Association

International Council for Local Environmental Initiatives

Iowa Association for Energy Efficiency

Kansas Corporation Commission, Kansas Energy Office

Metropolitan Energy Center

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Missouri Department of Natural Resources, Missouri Energy Office

U.S. Department of Energy, Denver Regional Office

U.S. Department of Energy, Kansas City Plant

U.S. General Services Administration

## A NO-REGRETS CLIMATE CHANGE POLICY

Midwesterners are first-rate observers, according to Stephen Mahfood, director of the Missouri Department of Natural Resources. As far as climate is concerned, he said, “people are noticing unusual weather” that may indicate short-term or long-term changes. Mahfood added that since the late 1980s, Missouri has taken “no-regrets” steps to mitigate global warming—steps, such as using energy efficiently, that would make sense in any circumstances.

In the 1980s, a Missouri commission on global climate change and ozone depletion offered recommendations on how to reduce industrial emissions, foster environmental stewardship, and support energy efficiency. This strategy was followed by a collaborative state energy study that emphasized the connection between a strong economy and a sustainable environment.

With the help of an EPA grant, Missouri found that the state’s fossil fuel emissions increased by about 22 million tons between 1990 and 1996. Mahfood said that the Missouri Department of Natural Resources hopes to reduce emissions by helping to implement effective policies. Yet he cautioned that “without one more leg on the stool”—that is, a partnership between industry, government, and citizens—such innovative policies will be difficult to achieve.

Mahfood told conference participants that some volunteers already have stepped up to the plate. Noranda Aluminum, for example, has achieved significant reductions of emissions of perfluorocarbons (PFCs). The St. Francis power plant in Missouri has switched to an efficient natural gas combined-cycle power plant. “These innovations are the answer,” said Mahfood. “We can’t turn back.”

## THE HEAT IS ON

“Greenhouse gases are increasing in concentration,” said Eugene Takle, professor of Atmospheric Science at Iowa State University, who went on to say that recent levels of carbon dioxide—about 360 parts per million—are higher than they’ve been in the past 160,000 years. What accounts for the change? “It’s a result of burning fossil fuels and deforestation,” Takle said.

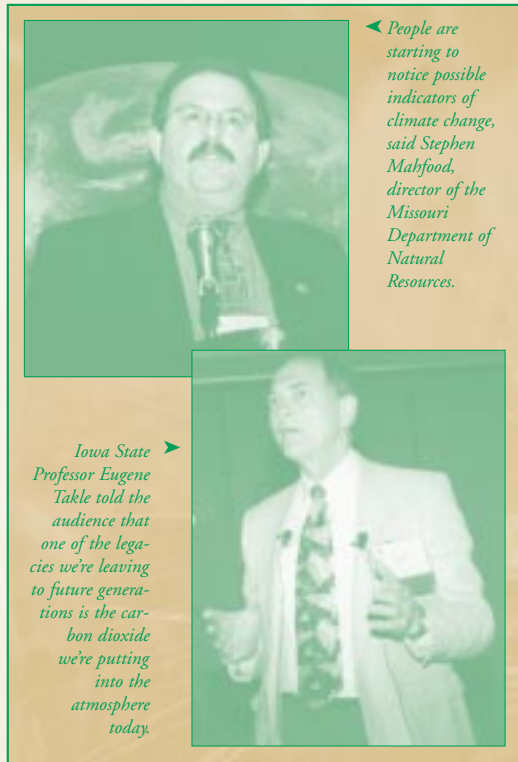
He told the conference that greenhouse gases are necessary for human existence on Earth. But if the concentration of greenhouse gases continues, Takle noted, we’ll see a substantial increase in global surface temperatures.

Some warming already has occurred. “It’s pretty well agreed that there is an increase in global mean temperatures at the surface of the Earth,” Takle said. He

pointed to additional evidence that the climate is changing. For example, studies suggest that there is a widespread retreat in mountain glaciers around the world, whether in Iceland, Alaska, the Himalayas, or Kenya. This melting, coupled with the expansion of ocean waters from warmer temperatures, has resulted in rising sea levels.

Takle said that as the planet warms, a possibility exists for a “climate surprise,” such as break-up of the West Antarctic ice sheet, which would cause the sea level to rise by 5 to 7 meters (16-21 feet). Another possible scenario is a change in the ocean circulation that moves warm waters from the

tropics to the North Atlantic. “Any [change] in that circulation would have significant regional consequences for temperatures,” Takle added. Although the possibility of such a surprise is limited, it cannot be discounted.



◀ *People are starting to notice possible indicators of climate change, said Stephen Mahfood, director of the Missouri Department of Natural Resources.*

▶ *Iowa State Professor Eugene Takle told the audience that one of the legacies we're leaving to future generations is the carbon dioxide we're putting into the atmosphere today.*

## AN ALTERNATE VIEW OF THE SCIENCE

If the predictions about global warming are true, noted Christopher Horner, “we must do something about it.” But, according to Horner, the evidence supporting climate change is anecdotal. Horner is a member and liaison of the Cooler Heads Coalition, a subgroup of the National Consumer Coalition that aims to “dispel the myths of global warming.”

“The science is up for interpretation,” Horner said, questioning the accuracy of climate models that scientists use to predict future climates.

Horner advocated a strict scrutiny of the Kyoto Protocol, which is pending ratification by the U.S. Congress. In an effort to stabilize greenhouse gas emissions, the protocol requires nations to reduce their use of fossil fuels. The United States has committed to a 7 percent reduction below 1990 levels by 2008-2012. “We are legally bound to these cuts,” said Horner. “What happens if we don’t meet the caps?”



◀ Cooler Heads Coalition liaison Christopher Horner said that the Kyoto Protocol deserves strict scrutiny.

► Emissions trading and clean investment across national borders are tools that will lead to brighter economic and environmental futures, said EPA Assistant Administrator David Gardiner.



Horner expressed skepticism toward emissions trading, a mechanism designed to facilitate cost-effective emissions reductions among the international community. Continuing his critique, he added that those nations that signed the treaty have binding commitments, while other countries “have binding goals, at best.” He added that such a discrepancy could put the United States at a competitive disadvantage within the agriculture, manufacturing, and service sectors.

Although Horner agreed that when it comes to the environment, the “precautionary principle” applies [i.e., sometimes action is warranted before all the facts are known], he emphasized that it’s a double-edged sword. “Look before you leap,” he advised.

## MEETING THE CLIMATE CHALLENGE

“We have to think about climate change the way people do when they buy insurance for their own homes,” said David Gardiner, assistant administrator for policy at the U.S. Environmental Protection Agency. “You don’t know that there’s going to be a fire or some other catastrophic event, but there might be, and for that reason you purchase an insurance policy.” Gardiner added that given what we know about the potential impacts of climate change, it’s important for the United States and the rest of the world to take the first steps and “buy” some insurance by taking steps to fix global warming.

Gardiner assured conference participants that the Kyoto Protocol is not the final word on international cooperation. The protocol is “a work in progress, a framework for action, and a starting point for further negotiations that we believe will clarify and deepen the international resolve to tackle the global warming issue.”

In negotiating the Kyoto Protocol, the United States pursued three major objectives: realistic targets and timetables to reduce greenhouse gases, the meaningful participation of key developing countries, and the implementation of flexible market mechanisms such as emissions trading that will help countries meet their targets cost-effectively. Gardiner mentioned that during the Buenos Aires negotiations in November 1998, Argentina and Khazakistan agreed to take on binding targets. “They mark a historic breakthrough,” Gardiner said. “Developing countries are beginning to see that we can find new pathways toward economic growth and deal with protecting the climate at the same time.”

To illustrate the potential benefits of greenhouse gas emissions trading, Gardiner discussed the U.S. acid rain program. In the United States, emissions trading has led to emissions being reduced 50 percent faster than originally expected, at 50 percent less cost.

Gardiner also described the Kyoto Protocol’s Clean Development Mechanism. The mechanism is expected to help build a “strong bridge” between the developed world and developing countries while retaining flexibility in how U.S. companies reduce emissions.

The United States is pursuing domestic actions aimed at voluntary reductions, along with tax credits to encourage the use of new technologies. EPA has initiated several voluntary programs, such as ENERGY STAR®, which help businesses, state and local governments, and nonprofits reduce their energy use in cost-effective ways. “These programs are introducing energy-efficient technologies into the marketplace more quickly than they would enter it otherwise,” Gardiner said. Specifically, he talked about the “sleep” feature in ENERGY STAR computers, which allows users to conserve energy when they are away from their PCs.

A DISSENTER’S  
VIEW:

“We’re concerned that Missouri will lose 50,000 jobs to some of the 130 countries that have refused to participate in the Kyoto Protocol. We don’t believe that the United States can clean up greenhouse gas emissions for the entire world.”

—JAN POLLACK  
Missouri Coalition on  
Global Climate Change  
St. Louis, Missouri





*“We’ve made a commitment to sound environmental policies and practices on four fronts: buying green, building green, driving green, and saving green.”*

—GLEN “WOODY”  
OVERTON  
Regional Administrator,  
Region 6  
General Services  
Administration

## CLIMATE CHALLENGE *(continued)*

Energy-efficient technologies reduce energy use and air pollution, as well as save money. The aircraft manufacturer Boeing instituted a company-wide energy efficiency campaign that saved \$15.7 million while avoiding emissions of almost 150,000 tons of carbon dioxide.

Gardiner noted that schools nationwide have increased the quality of classroom lighting while achieving large reductions in energy bills. “Since 1995,” he said, “EPA programs have helped schools and universities save more than \$200 million—enough money to buy four million books or hire 4,000 new teachers.”

“In 1998 alone,” Gardiner added, “greenhouse gas reductions due to EPA programs were equivalent to the emissions from more than 22 million cars, and we saved enough energy to light 35 million homes for the entire year.” Concluding on an optimistic note, Gardiner said, “We’re strengthening our economy now, reducing air pollution now, and buying a good insurance plan for the future.”

## TRADING SMART

It’s all about flexibility. According to Joseph Aldy, senior adviser to the White House Council of Economic Advisers, the Kyoto Protocol is designed to allow participating nations maximum flexibility. For example, although countries can meet their emissions targets by reducing their emissions of carbon dioxide or other greenhouse gases, they also can receive credit for carbon sinks (such as forests) and engage in international emissions trading. Under emissions trading, those that can reduce their emissions relatively cheaply can sell tradable permits to other countries that need them. Aldy noted, “You can reduce emissions anywhere in the world, and it has the same effect on the global climate.”

Emissions trading has an excellent track record. The United States has a sulfur dioxide trading program that

began in 1995. “To date,” Aldy said, “program cost-savings have ranged from 25 to more than 40 percent.” The bottom line: emissions trading gives businesses and governments flexibility to find the least-cost way to meet their goals.

## USDA REPORT IS GOOD NEWS FOR AGRICULTURE SECTOR

Following on the heels of the Kansas City conference, the U.S. Department of Agriculture’s Global Change Program Office released a study that holds promise for the agriculture sector. The study concludes that if the United States and other countries take proper advantage of the Kyoto Protocol’s flexible, market-based mechanisms, the impact on American farmers would be relatively modest.

The report notes that studies purporting to demonstrate severe impacts on farm income are flawed because they fail to take adequate account of the adjustments that farmers would make to changes in production costs. When these flaws are corrected, it becomes apparent that the impact on farm income would be just a fraction of what the dire scenarios estimate.

Addressing climate change could create opportunities for farmers to supplement their income by growing tree plantations to sequester carbon or biomass that can be used to produce fuels, energy, and chemicals.

To download a copy of the report, visit the USDA website at <http://www.usda.gov/ocel/gcpo/gcponews.htm>

Aldy emphasized that during negotiations of the Kyoto Protocol, the United States was able to secure a five-year target period for emission reductions (2008-2012) that will give the U.S. and other nations time to determine the best way to meet their commitments. But Aldy added that we need to start making plans without delay. “If we start actions now,” he said, “it makes the transition toward 2008-2012 more gradual and at lower cost.”

Rejecting claims that the protocol would destroy the U.S. economy, Aldy said that one analysis conducted by the Council of Economic Advisers predicted that in 2010, energy costs in the United States would increase only about 5 percent under the protocol compared to what they are today. In other words,

annual energy bills for the average household would increase approximately \$110, or 5 cents more per gallon of gasoline. Most of these increases would be offset by decreases in energy costs from the restructuring of the electricity industry.

The good news is that flexibility mechanisms and renewable energy technologies will make it more cost-effective for the United States to meet its target. “We don’t have to do it all at home, all in the energy sector, and all by reducing energy consumption,” Aldy said.

*Joseph Aldy, senior adviser to the White House Council of Economic Advisers, said that the Kyoto Protocol’s tradable permit system will give firms the flexibility to find the least-cost way to meet emissions goals.*



## CLIMATE SHIFTS

Precipitation and the hydrological cycle are key to understanding climate change, said David Easterling, principal scientist at the National Climatic Data Center. Easterling told the audience that precipitation has increased in the highest latitudes of the northern hemisphere and decreased in the tropics and subtropics.



◀ *David Easterling, a scientist at the National Climatic Data Center, told the audience that although some areas in the world are cooling, most are becoming warmer.*

According to Easterling, a fundamental shift in climate may have taken place after 1979, when more El Niño events began to occur. This change may be one way for oceans to release heat energy that has accumulated in the climate system. He added that climates over the oceans and the land follow each other closely—a change in one easily can bring about a change in the other.

To no one's surprise, Easterling said that changes in the hydrological cycle can have a significant impact on agriculture. Although the Midwest has seen a significant increase in precipitation during the 20th century, the kind of drought that devastated the region in the 1930s and unleashed a dustbowl is not necessarily a rare occurrence. Quoting a study from the American Meteorological Society, Easterling said that such an event normally occurs twice a century. "It's not as much of an anomaly as you might think," he noted.

Temperatures are changing as well. Easterling said that the West and northern Great Plains have seen strong decreases in the number of days when the temperature drops below freezing.

## ASSESSING THE RISKS

"The insurance sector agrees that there is climate change," said James Russell, vice president of outreach for the Institute for Business and Home Safety. But insurers want to know if the changes now underway are cyclical "or something going in one direction."

Russell noted that by 2100, more than 73 million Americans will live in hurricane-prone areas. "More and more people are moving into harm's way, and more property is at risk," Russell said. Changes in demographics have consequences. Eight insurance companies in Florida went out of business after Hurricane Andrew. If the public fails to take precau-

tions, insurance companies may not be able to help out. Advocating sensible mitigation, Russell urged people to make smart land-use decisions.

According to Russell, businesses in many sectors are paying more attention to risk. One company in Indiana performed a risk analysis and discovered that if an extreme event forced it to close its doors for one week, it would lose \$1 million. As a prevention, the company then spent \$1 million to retrofit portions of its facility that were vulnerable to earthquakes or other violent events.

Like many of the speakers at the conference, Russell advocated an increase in research on climate change. He said that insurers want 20 to 30 years of usable data before they say, "Maybe there's a trend here." Even so, with worldwide losses from weather-related natural disasters in 1998 reaching \$65.5 billion, according to Russell, climate change is something we need to keep in the back of our minds in everything that we do in the insurance industry.

▶ *James Russell, of the Institute for Business and Home Safety, said that more and more people are moving into harm's way.*



## INDUSTRY UP, ENERGY DOWN

The business community is an essential agent of change in our society, according to Christopher Lotspeich, senior associate at the Rocky Mountain Institute. As the primary user of resources, engine of wealth creation, and generator of waste, industry "may well be our best hope to shift our economy in a more environmentally as well as economically sustainable direction," he said.

Lotspeich said that regardless of climate change, we should improve energy efficiency for business reasons. As many industries have demonstrated, saving energy is often less expensive than buying supplied energy, and reduces both costs and pollution. "If this happens



◀ *Christopher Lotspeich, of the Rocky Mountain Institute, extolled the economic and environmental benefits of renewable technologies.*

*"Global warming is the first human environmental experiment on a global scale. We don't know the outcome. It could be one of the biggest changes that humans will have to adapt to."*

—WALTER BLEICH  
Nebraska Sustainable  
Energy for Economic  
Development

*Climate Change reports the results of a conference sponsored by the U.S. Environmental Protection Agency entitled, "Climate Change: What Does It Mean for the Midwest?" The conference took place on April 28, 1999, in Kansas City, Missouri. Articles may be reprinted without permission; however, please include an acknowledgment and send a copy of the published material to Karen Gibbons, U.S. Environmental Protection Agency, Mail Code 2171, 401 M Street, SW, Washington, DC 20460, or Norah Davis, ICF Consulting, 1850 K Street, NW, Suite 1000, Washington, DC 20006.*

*For more information about the conference, visit the U.S. Environmental Protection Agency's global warming conference website at: <http://www.epa.gov/globalwarming/conferences/>*

to protect the climate, great," he said. "And if we're wrong about affecting the climate, then at least we improved our economy."

Lotspeich endorsed the notion that less is indeed more. "You can simultaneously have economic growth and decreasing energy intensity per unit of output." Managers would be well advised to harness the power of energy efficiency, Lotspeich said. Although energy costs in most businesses are approximately 1 to 2 percent of overhead, every saved dollar goes straight to the bottom line. A 1 percentage point increase in motor efficiency alone can save more than \$100 a year per large motor; upgrading to premium efficiency motors can save some businesses thousands—if not tens of thousands—of dollars annually, he concluded.

"Energy efficiency is like eating a lobster," Lotspeich said. "About half of the good stuff is easy to get at, and the other half you have to work at. But it's worth it."

## CHALLENGES FOR UTILITIES

Climate change is the second biggest issue for the electric utility industry after restructuring, said David Martin, director of governmental affairs at Kansas City Power and Light. To help do its part in addressing climate change, the utility company has pledged under the U.S. Department of Energy's Climate Challenge program to strive for at least a 3 percent improvement in efficiency in its electricity production. "We are trying to emit less carbon dioxide and give reduced costs to our customers," Martin said.

He called for more research on the economic impacts of efforts to reduce greenhouse gas emissions. "What are the costs going to be?" he asked. "What will our customers see? This is why research is critical."

Martin expressed concern about emissions targets. Although Kansas City Power and Light has reduced its emissions significantly since 1995, the area it serves

is expanding in population and the economy is robust. Martin wondered how the company would manage, given mandatory emissions reductions. He said that natural gas and renewable energy sources could be used to reduce emissions, but they present challenges of their own. Kansas City Power and Light has investigated wind power, but Martin reported that there is currently only 600 megawatts of capacity available. Yet the company needs 1,000 megawatts of new capacity. "How much flexibility we will have as a country and company is critical," Martin said.

## A STARRING ROLE FOR AN ENERGY STAR

"How can business benefit from climate change opportunities?" asked Val Jensen, director of the U.S.

Department of Energy's Chicago Regional Office. One answer: by participating in ENERGY STAR<sup>®</sup>, a partnership of EPA, DOE, product manufacturers, local utilities, and retailers. ENERGY STAR programs allow companies that produce products that meet energy efficiency standards to display the ENERGY STAR label on those products. The programs also engage in educating consumers about the benefits of energy efficiency. ENERGY STAR programs can translate into big savings for businesses.

If a business has 100 personal computers, 10 printers, and three copiers, it will save more than \$2,000

annually if the equipment meets ENERGY STAR standards, Jensen said. Dow Chemical spent \$1.7 million on a variety of energy efficiency investments and received a rate of return of 173 percent. ENERGY STAR is proof that green begets green. "Having access to the ENERGY STAR label and selling green will make you money," Jensen said.

He took issue with the notion that environmental sustainability entails making onerous sacrifices in standard of living or loss of business profits to take advan-



← *David Martin, of Kansas City Power and Light, said that continued climate change research is critical.*

▶ *Val Jensen, director of the Energy Department's Chicago Regional Office, provided evidence of substantial energy savings from the ENERGY STAR<sup>®</sup> program.*



tage of energy efficiency. Jensen mentioned the results of a DOE study that concluded emissions can remain close to what they were in 1990 at very little net economic cost. Five technologies funded in part by DOE have over their lifespan yielded gross savings of \$28 billion, net savings of \$20 billion, and carbon reductions of 60 million metric tons.

## BACK IN THE BLACK

Promoting self-reliance is key at the Iowa Energy Center. William Haman, an engineer and industry program manager at the center, showed how his organization used energy efficiency to help one Iowa company back on its feet.

In the early 1990s, the Crane Valve Company, a foundry that produces ductile and cast iron, went through some tough times. The company laid off 77 percent of its employees, and it was assumed that it would go out of business. With assistance from the Iowa Energy Center, Crane Valve initiated a total assessment audit geared at improving its economic viability, competitiveness, and profitability through improved energy efficiency, state-of-the-art technology improvements, and a waste reduction program.

A team of specialists in energy efficiency, waste reduction, and the foundry business developed a set of recommendations. Implementation took about two years. "In the first year, the company saw significant improvements," Haman said. "More people were hired, more metal was poured, quality went up, and energy consumption and scrap went down."

The transformation was astounding. "The quality continues to soar, and the company's energy consumption per ton of metal poured continues to go down," Haman added. Best yet, he said, the company has expanded.

Iowa Energy's focus on improvements rather than regulations is crucial, Haman stressed, adding that productivity alone will attract industry's attention. "You need to approach them from a nonregulatory perspective," he concluded.

## MAKING BUSINESSES BETTER

Energy efficiency can help a company strengthen its competitiveness, said Daniel Moeller, regional vice president of Competitive Resources Inc. Moeller said that a small retail store or office building can improve the efficiency of its heating, ventilation, and air conditioning to reduce total energy costs from \$1.30 per square foot to about \$1.00. "If they're paying 30 cents less per square foot than their neighbor down the street," he said, "they're in a more competitive situation."

William Haman, of the Iowa Energy Center, detailed how energy efficiency improvements changed one company's fortunes for the better.



Marketeters of energy efficiency need to show businesses how innovative technologies provide financial benefits, according to Competitive Resources Vice President Daniel Moeller.

"Joe Business Owner doesn't really care what the environmental benefits are," Moeller noted. "But if a company can say it's a green organization, that its building is an ENERGY STAR® building, and if it can promote that quality to its customers, then that changes the equation."

"The customer does not want to hear a lot of bull and a lot of smoke about what's going to benefit them over a period of time," Moeller said. "If you can show them, in dollars and cents, a payback period based on their cost of energy, they're going to listen."



Audience members asked questions about a number of issues such as the impact of climate change on agriculture.

*"I'm aware of the controversy surrounding global warming, and I'm here to see what's new—to learn about the new scientific data."*

—PAUL TAYLOR  
Environmental Specialist  
Taylor Environmental  
Inc. Skidmore, Missouri

## SPEAKERS

Joe Aldy, Senior Adviser,  
Council of Economic Advisers

David R. Easterling, Ph.D.,  
Principal Scientist,  
National Climatic Data Center

David Gardiner,  
Assistant Administrator for Policy,  
U.S. Environmental Protection  
Agency

Dennis D. Grams, Regional  
Administrator, U.S. Environmental  
Protection Agency, Region 7

William G. Haman, P.E., Industry  
Program Manager,  
Iowa Energy Center

Christopher C. Horner, Esq.,  
Member and Liaison of the  
Cooler Heads Coalition

Val R. Jensen, Director,  
U.S. Department of Energy,  
Chicago Regional Office

Christopher Lotspeich,  
Senior Associate,  
Rocky Mountain Institute

Stephen Mahfood,  
Director, Missouri Department  
of Natural Resources

Robert Mann, Director,  
Bridging the Gap

David Martin, Director of  
Governmental Affairs,  
Kansas City Power and Light

Daniel L. Moeller,  
Regional Vice President,  
Competitive Resources, Inc.

George A. Moody, Environmental  
Compliance Manager/  
Operations Analyst,  
City of Overland Park, Kansas

Glen W. Overton, Regional  
Administrator, General Services  
Administration, Region 6

Anita Randolph, Director,  
Missouri Department of Natural  
Resources, Division of Energy

James W. Russell, EdD.,  
Vice President, Outreach, Institute  
for Business and Home Safety

Eugene S. Takle, Ph.D.,  
Professor of Atmospheric Science,  
Iowa State University

## A TEAM EFFORT

Partnerships are the name of the game, according to Anita Randolph, director of the Missouri Department of Natural Resources' energy division. Partnerships help climate change stakeholders share information, spread the word, and stimulate projects to improve energy efficiency and increase the use of renewable energy.

The Missouri DNR works in partnership with the Department of Housing and Community Development in Kansas City to improve energy efficiency for low-income citizens. The DNR also is involved in the new Kansas City Discovery Center, which will educate people about science and energy efficiency.

According to Randolph, informing citizens requires a "what and how" approach. The Department of Natural Resources helps provide answers to questions such as "How do I use energy efficiently?" To encourage an energy-efficient future, the DNR sponsors training programs aimed at teachers, architects, home builders, and others. The programs address how to take advantage of solar energy and state-of-the-art energy efficiency approaches. DNR also has a low-interest loan fund that helps schools and local governments implement energy efficiency improvements in their buildings.

Success stories abound. The Lee's Summit School District, located just outside Kansas City, saved \$13,500 annually on its utility bill simply by changing its exit lights to light emitting diodes (LEDs). The Patonville School, located in a St. Louis suburb, uses methane gas from a nearby landfill to reduce costs. Kansas City, by changing its red traffic lights to LEDs, will save \$100,000 annually. "There are very real dollars attached to these changes," said Randolph.

The Department of Natural Resources also is using state facilities to show the effectiveness of renewable

energy technologies. A solar array that has been on the roof of a facility in Bennett Spring State Park for 20 years was recently refurbished. "The applications are out there," Randolph concluded. "We just have to start using them where they make sense."

## ON THE MOVE IN OVERLAND PARK

Overland Park, Kansas, is serious about reducing greenhouse gas emissions. George Moody, environmental compliance manager and operations analyst for Overland Park, said that the city was invited in 1996 to join the Cities for Climate Protection

Campaign (CCPC). The CCPC is a campaign of the International Council for Local Environmental Initiatives (ICLEI), which encourages cities to reduce local emissions of carbon dioxide, other greenhouse gases that contribute to global warming, and related air pollutants. "We agreed to develop an action plan," Moody said.

Overland Park performed an energy audit of its public buildings and then upgraded their lighting at a cost of \$300,000. After a six-year payback time, the city expects to save about \$73,000 annually from the upgrade. Carbon dioxide reductions

are estimated at 873 tons per year. "With that kind of return, it's a solid investment," Moody added.

Changes to Overland Park street lights will lead to further savings. Moody said that the city has converted all red city street lights to LEDs. The project saves \$128,700 and 1,220 tons of carbon dioxide annually. Overland Park also is using renewable energy to reduce emissions. Moody described a project to have one of the city's golf course parking lots lighted with photovoltaic lights, which generate a savings of 554 tons of carbon dioxide per year. "If we can prove that alternative sources of energy work, we'll be that much more ahead of the game," Moody said.



◀ "Energy is central to our conversation about climate change," said Anita Randolph, director of the Missouri DNR's Division of Energy.

George Moody, environmental compliance manager of the City of Overland Park, emphasized that local governments can do a number of things to minimize greenhouse gases.