Development of Climate Change Policy in Illinois

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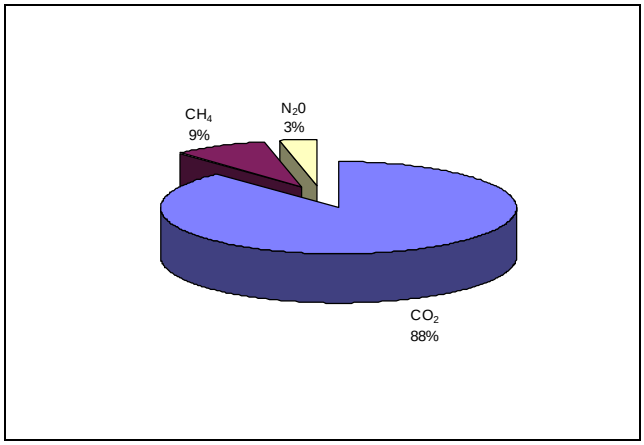
Introduction

Illinois became one of the first if not the first state to create a Task Force to develop state policies to address climate change, with passage of a joint resolution by the Illinois General Assembly in 1991, several months before George Bush, Senior signed the Rio Climate Convention. The state was still reeling from the recently passed Clean Air Act Amendments which were expected to devastate its coal industry. It was hoped that taking on the issue of climate early, as opposed to denying it was a problem, could perhaps result in policies more favorable to the state. Ironically, it was the coal interests, rather than environmental interests that helped sustain state-level efforts to address climate change, by flexing its political muscle to pass this and several other state resolutions related to climate change. The Illinois Task Force on Global Climate Change was composed of appointees representing electric utilities, coal producers, agriculture, water suppliers, the environmental community, and state university research, as well as four legislators and representatives of several state agencies. It was chaired by the Director of the Department of Natural Resources. During its eight-year existence the Task Force developed an Action Plan for the state, inventoried its greenhouse gas emissions several times, analyzed the economics of emission mitigation, briefed the Congressional Delegation, and prepared several reports recommending policies to the Governor and Illinois General Assembly.

The purpose of my talk is to provide a context for climate policy development in Illinois. I will talk briefly about greenhouse gas emission trends in the state and factors that may affect future emissions. I will then discuss the actions recommended by the State Task Force, and highlight those that have been followed up on. Then I will describe current efforts to advance climate policy in the state and finish with a few insights on the process.

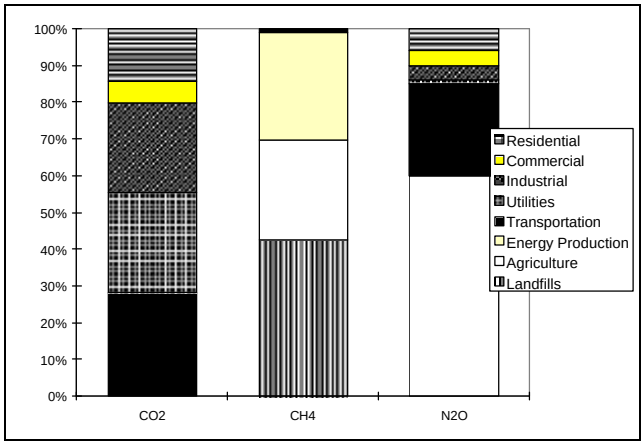
Share of Illinois GHG Emissions



Illinois Emissions

Illinois ranks sixth among the states in greenhouse gas emissions and 30th in emissions per capita, emitting approximately 280 million tons CO_2 equivalent in 2000. Illinois accounts for more than four percent of US greenhouse gas emissions and nearly one percent of world emissions. Most of the emissions, 88%, are carbon dioxide, while 9% are methane, and 3% are nitrous oxide. Most of the CO_2 emissions are emitted during direct combustion of fossil fuels, roughly one-third each from utilities, transportation, and industry, and the remaining third from the residential and commercial sectors. Methane, on the other hand, is generated by landfills, energy production (oil, gas, and coal production), and agriculture (livestock); nitrous oxide is mostly from fertilizers and secondarily fossil combustion.

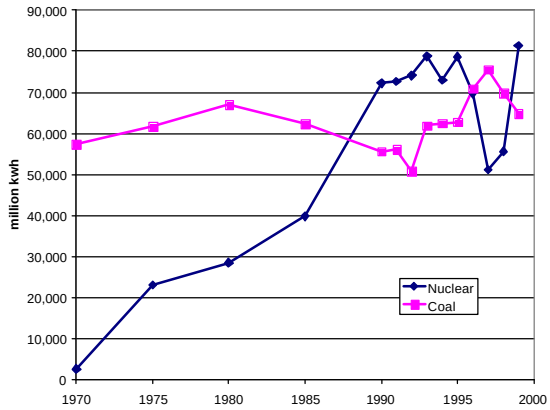
Sources of Illinois GHG Emissions



Emissions declined rather dramatically in the state, during the 1970s and 1980s. They dropped by 22% from 1970 to 1992, due in part to energy efficiency gains and from structural shifts toward less energy intensive industries/sectors, which resulted in

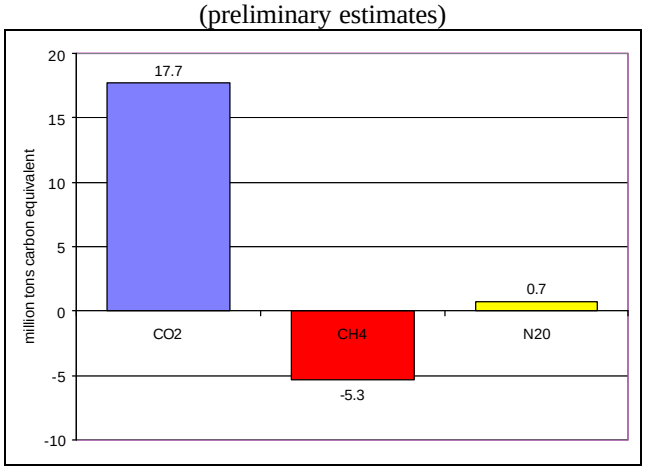
relatively flat energy demand during the period. Another major factor, however, was that Illinois utilities chose to address new Clean Air Act regulations by building nuclear generation. Nuclear power generation jumped from 1% of Illinois electricity generation in 1970 to nearly 60% by the early 1990s.

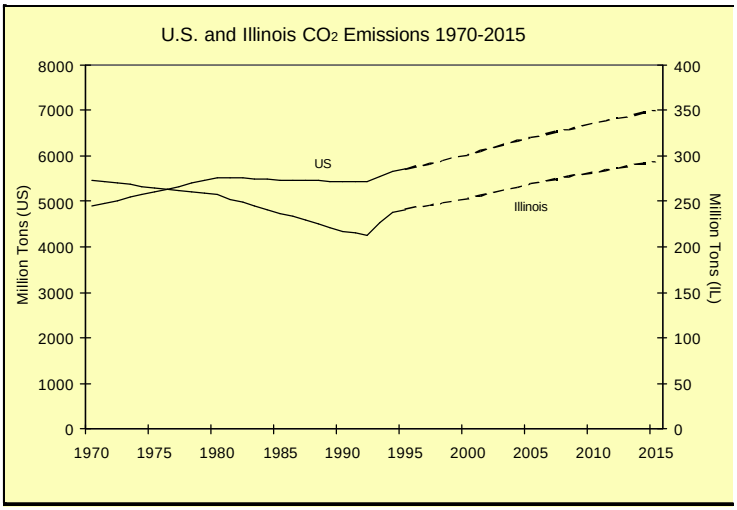
Illinois Coal and Nuclear Generation



During the 1990s, or at least after 1992, this trend reversed. The growth in wholesale electric markets and increases in transportation emissions have caused Illinois greenhouse gas emissions to grow by 15% since 1990. Emissions remain below peak levels of around 1970, but are not likely to for long. Methane emissions are declining due to capture or burning of landfill gas and declining coal production, but CO_2 emissions are rising.

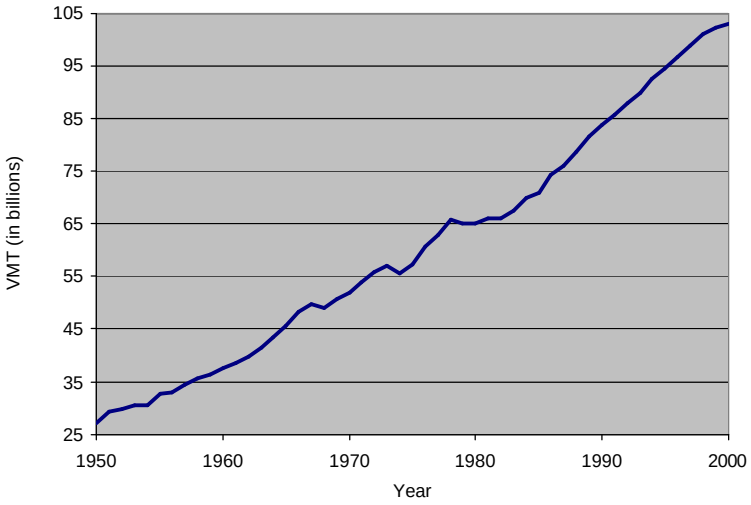
Change in Illinois GHG Emissions 1990-2000
(preliminary estimates)





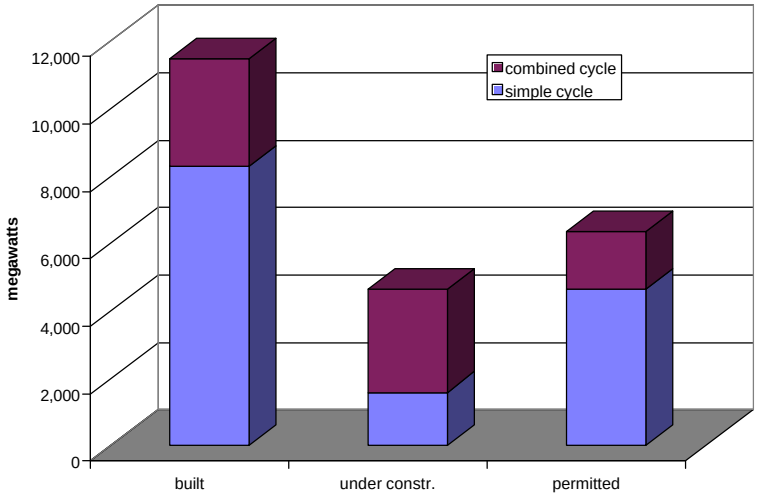
It seems likely that Illinois emissions will continue their upward trend. Transportation and utility emissions are not expected to turn around any time soon. Between 1990 and 2000 vehicle miles traveled on Illinois highways have grown by 23% continuing a long – term trend with only a few bumps when prices have temporarily climbed. Electric generation capacity has grown recently in Illinois after a long lull. Just since 1998 11,500 megawatts of new electric capacity have been added, with 4,600 additional MWs under construction and nearly 7,000 more permitted. Virtually all of this capacity is natural gas peakers and intermediate load plants, but eight coal-fired power plants are at various stages of the permitting process as well. Even with the lower emissions rates of these natural gas and new generation coal plants, they will increase greenhouse gas emissions.

Annual Vehicle Miles Traveled



Source: Illinois Department of Transportation

New Electric Capacity in Illinois



A further cloud over the state's efforts to control emission growth is the eventual retirement of the state's ample nuclear capacity. Right now the nuclear plants are operating at near capacity. This capacity is the proverbial two-edged sword. Nuclear power greatly reduces greenhouse gas emissions, but it is difficult to envision replacing such a large base load capacity without increasing greenhouse gas emissions. Tremendous progress on renewables and efficiency or sequestering CO_2 from fossil sources would be required.

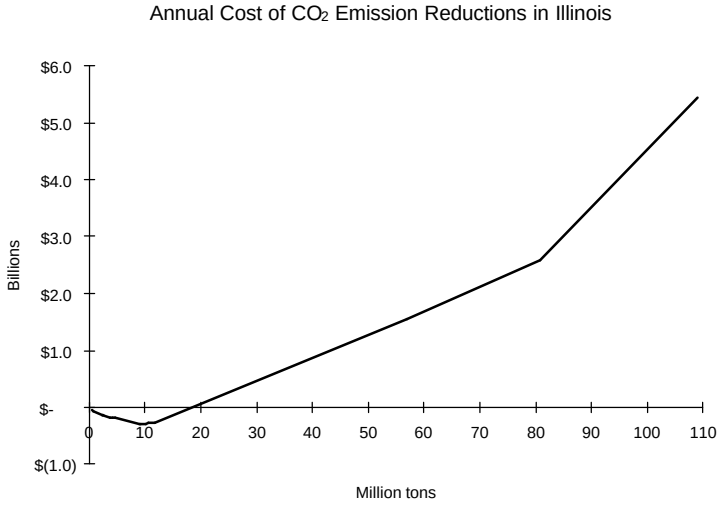
Illinois Nuclear Capacity

Plant	Capacity (MW)	License Expiration	Capacity Factor (in '01)
Braidwood 1	1,137	2026	96.0%
Braidwood 2	1,140	2027	96.6%
Byron 1	1,135	2024	104.5%
Byron 2	1,136	2026	98.7%
Clinton	930	2026	96.7%
Dresden 1		retired	
Dresden 2	787	2009	95.2%
Dresden 3	784	2011	87.0%
LaSalle Co. 1	1,128	2022	99.7%
LaSalle Co. 2	1,131	2023	97.7%
Zion 1	1,040	retired	
Zion 2	1,040	retired	

Cost Analysis

The Climate Change Task Force performed a variety of analyses to estimate the cost of stabilizing Illinois emissions or reducing them to 7% below 1990 levels as called for under the Kyoto Protocols. I do not want to go into any detail, but I would like to make a few points using a cost curve we put together a few years ago. First, the costs of reducing Illinois greenhouse gas emissions are highly uncertain depending not only on how deep the cuts are, but on how quickly they would be made, the pace of technological innovation and many other factors.

Second, despite this uncertainty there are many reductions that can be made that are clearly cost-effective; the energy cost savings exceed the annual capital costs for such measures as high efficiency motors, efficient appliances, and fluorescent lighting. Sequestration through tree planting or no-till agriculture can also be accomplished at relatively low cost. According to this cost curve which includes many but certainly not all possible actions, 20 million tons in reductions can be achieved at zero net cost.



However, thirdly, if more significant reductions are to be achieved, then significant changes are required in the utility and/or transportation sectors, where 60% of CO_2 is currently emitted. Possible strategies include switching coal-fired power plants to natural gas or renewable fuels, geologically sequestering CO_2, greatly increasing the efficiency of motor vehicles, or switching motor vehicles to alternative fuels. These measures could be quite costly, particularly if implemented in a short time frame. Overall, we estimated an annual cost of about $2.5 billion if 80 million tons of CO_2 were to be reduced. I would caution, however, that even seemingly well-grounded estimates of reducing acid rain related emissions turned how to generally be way too high.

Action Plan

The mission of the Illinois Climate Change Task Force was: "to monitor national policy and to study and make recommendations for State policies and programs regarding climate change". For the most part, the Task Force set aside the issue of whether climate change is actually occurring. Instead the Task Force focused on development of state policy, given that national and international action is likely. I would like to describe some of the policies and actions recommended by the Task Force, as well as which ones have been acted upon.

General policy

The Task Force adopted several general policies.

- Oppose the Kyoto Protocol as written.
- Pursue "no regrets" strategies to mitigate greenhouse gas emissions and adapt to potential change.
- Advance the science of detecting climate change and identifying regional impacts.

The first, not surprisingly, is to oppose the Kyoto Protocol as written. The Task Force developed several criteria for an acceptable treaty, which included flexibility in mitigation strategies, a system for trading of emission credits, and the involvement of developing countries. The primary argument for rejecting the treaty was that unless developing countries are committed to making reductions along with the developed countries, any actions we would take would be swamped by growth in developing country emissions.

The second policy is to pursue "no regrets" strategies to mitigate greenhouse gas emissions and to prepare for any potential impacts. The Task Force was uncomfortable with setting actual goals for the state because of the scientific and economic uncertainties. But many actions could be taken that would reduce emissions at relatively low cost and provide other environmental and energy cost benefits to the state.

And the third was to try to improve the science of climate change at the state and regional level. Illinois has tremendous research capabilities in the Scientific Surveys and its university system. The Task Force recommended using those capabilities to monitor any changes in Illinois' climate and to evaluate potential regional impacts.

The Task Force recommended a number of actions under its "no regrets" and improving the science policies. I will to briefly describe those and identify which ones have been followed up on.

Mitigation Actions

Some of the specific actions to mitigate emissions that were advocated by the Task Force include:

- Aggressively proceed to promote energy efficiency and renewables
- Expand programs to sequester carbon in plants and soil.
- Encourage participation in federal programs

- Test voluntary reduction credit reporting under 1605(b) of the Energy Policy Act
- Test joint implementation through pilot project
- Advocate "nuclear-conscious" emissions baseline
- Monitor emissions through a biennial inventory of Illinois greenhouse gas emissions and sinks

Perhaps surprisingly, agreement on the first of these actions was not automatic. The coal interests suspected that promotion of energy efficiency by the environmentalists was just an indirect way of attacking coal, but in the end the environmentalists, utilities, and coal industry came together on this issue because of the ancillary benefits. This recommendation has been followed up on in quite a few ways during the past five years.

The Electric Service Customer Choice and Rate Relief Law of 1997 (Illinois' electric restructuring law) created small public interest funds of about $3 million to support development of energy efficiency and renewables, although environmentalists were seeking $50 million. However, in 1999 the Clean Energy Community Trust Fund was created with $250 million from the sale of Commonwealth Edison's coal plants, from which the interest is supporting additional efficiency and renewable projects. More recently Governor Ryan signed a series of "Green Government" executive orders that directed state agencies to reduce waste, purchase Energy Star compliant equipment, and design more efficient buildings, as well as provide funding to local governments to carry out similar activities. The state has participated in a variety of federal programs, including the Landfill Methane Outreach Program. On Earth Day this year Illinois became the first state to join USEPA's Green Power Partnership, committing the agencies under the Governor's control to purchase 5% of their power from renewables by 2010 and 15% by 2020. The state, not surprisingly, also aggressively promotes ethanol and other bio-fuels. The State Energy Policy which was released in February of this year includes 56 recommendations, the majority of which are related to energy efficiency or renewables.

Carbon sequestration was an easy issue for the Task Force because of the state's reforestation program and the large agricultural sector. The state has partnered with Illinois Power and Commonwealth Edison to expand the capacity of its tree nurseries and increase the level of tree planting. Illinois farmers are very interested in participating in any voluntary program that creates credits for sequestering soil in plants or the soil. Last fall a Carbon Sequestration Advisory Committee was formed and produced a report laying out an agenda for researching carbon sequestration in agriculture and the potential for carbon sequestration in geologic formations.

Under the previous Governor's administration, the state partnered with Illinois Power Company to explore opportunities for joint implementation of climate action internationally. A wide variety of potential projects were identified in Illinois sister-state of Liaoning in China, although none of them were carried out because of the difficulties of getting a return on the investment out of the country. The state tested the 1605(b) voluntary reporting process by calculating the benefits of the Department of Natural

Resources' recycling program that replaced the twenty gallon trash cans with a recycling bin and one gallon trash cans six inches high.

A briefing was held for the Illinois Congressional Delegation about the problems related to setting a base year for emission reductions at 1990, a time when Illinois' nuclear capacity was at its peak. It is unclear what the solution is, other than to keep the plants on line as long as is safely possible, so that alternatives have time to become fully developed; it is unlikely that Congress would set 1970 as the base year to accommodate Illinois' special situation.

Finally, we have continued to monitor greenhouse gas emissions in the state and to produce biennial inventories to get a sense of what direction emissions are going.

Adaptation strategies

The Task Force also adopted several recommendations to adapt to any potential climate change that may occur.

- Strengthen state water law for dealing with water emergencies
- Consider construction rules which require climate considerations in design and construction of infrastructure
- Support planning activities ("smart growth") that address climate variation and change

During the past few years, several studies have been conducted and various task forces and work groups have met to address the issue of water quantity and emergencies, whether of too much or too little water. The Climate Task Force sponsored a "Survey of Legal and Regulatory Influences on the Development and Use of Water Resources in Illinois in a Context of Global Climate Change". Regulatory authority over water quantity is fairly limited in Illinois. Legislation has been drafted that would give the state greater authority to resolve water quantity conflicts and address emergencies, but so far nothing has passed the General Assembly. A new water quantity work subcommittee of the Interagency Coordinating Council on Groundwater met this fall and recommended incremental changes in water law over a 10 year period.

The Task Force proposed that construction rules for major infrastructure like locks, dams, and lake front improvements, take into account potential changes in climate, such as more droughts, more floods, or just more climate variability. This has not happened, although the state has taken steps to ensure state buildings are more efficient and to require water conservation in areas that rely on Lake Michigan water.

Smart growth initiatives have slowly picked up momentum in Illinois. The Chicago area has been particularly active with the Campaign for Sensible Growth and Chicago Metropolis 2020 projects among others. The Department of Natural Resources has been working with planning organizations in the Peoria and East St. Louis areas to identify open space resources that could be protected by planned growth.

Science and Education

The Task Force recommended several actions related to science and education:

- Designate "benchmark" weather station to monitor climate change indicators in Illinois.
- Maintain state climate research center (at the State Water Survey) to conduct and coordinate research on regional climate impacts
- Develop climate change curriculum and education materials and web site.

The State Water Survey Climatologists studied the historical records of 70 long-term weather stations in Illinois and selected 12 in rural areas away from the state's cities, and these stations were approved by the national Weather Service and officially designated as locations to monitor climate change in Illinois. Data will be collected from these sites for decades to come.

The State Water Survey maintains the Midwestern Regional Climate Center (MRCC) in cooperation with the National Climatic Data Center of National Oceanic and Atmospheric Administration, U.S to provide regional climate information. The Survey is also working toward developing a climate, air quality and impact modeling system to examine regional impacts of climate change. As you heard from Professor Wuebbles and you will hear from some of speakers in the next session, I wide range of research is being conducted at the university as well.

For a while we provided educational materials related to climate change at science teacher workshops. The focus was on everyday activities that students and their families could carry out in their everyday lives that would reduce emissions of greenhouse gases. The funding has not been maintained for this effort.

Recent Policy Development

While Illinois began as a leader in examining state policies related to climate change, eventually the Task Force lost momentum when it became clear that the Kyoto Treaty would not be ratified by the US. Authorization for the group expired in 2000. President Bush's new global climate change plan announced in February of 2002 sparked new interest in the issue in the state. He set a national greenhouse gas intensity target and proposed a series of initiatives to move the nation towards meeting that target. While most of these initiatives are still floundering in Congress in the energy bill and farm bill, they could create significant opportunities for Illinois farmers, coal industry, businesses, researchers, and residential energy consumers. Governor Ryan's Energy Cabinet has formed an interagency work group to track the progress of the President's initiatives and pursue opportunities to address climate issues as they arise. At this point I would expect that we will meet once before the end of the year and the focus will be on briefing the new Governor's transition team on the issue.

Insights

I would like to end with a few insights about the process of developing climate policy in Illinois.

1. **It is important to involve all of the major interests across the state.** We were handicapped by limited environmental participation and limited Chicago participation. We had only one environmentalist involved; it was difficult for her to represent the breadth of the environmental community and she felt rather isolated at times in promoting certain policies. Also, despite our efforts to include participation from Chicago, representatives of the City only rarely participated.
2. **Personal relationships do matter.** When we tried to get participation from the Chicago Department of the Environment, we discovered that the current Director did not get along with the former director who was one of the Task Force members.
3. **Location matters.** We generally held the meetings in Springfield. For many Chicagoans the world ends at the suburbs, and only when the meetings were held in Chicago did certain legislators and City representatives consider coming to Task Force meetings. Although I must say several of the non-government members lived in the Chicago area and attended faithfully.
4. **Diverse interests can find common ground.** Energy efficiency brought together utilities and environmentalists with coal interests despite their initial skepticism.
5. **It is easy to agree on general principles, but difficult to get to specifics.** What we called the "State Action Plan" was more a listing of principles than a specific action plan. Only over time was the Task Force able to get somewhat more specific, but generally the group stayed away from specific initiatives that would cost state revenues.
6. **A crisis is helpful.** Natural disasters like floods or drought can often drive changes in state or federal policy, even if as in this case there is no proof that climate change is the cause. In this case, however, the crisis that motivated the Task Force was political. Soon after the Task Force was first formed, President Clinton was elected and, given the statements that Vice-President Al Gore made about climate change in his book, everyone assumed the U.S. would have a strong climate change policy. So the Illinois Task Force was initially very focused on developing state policy. However, after subsequent elections, Congress showed great reluctance to support strong climate action and in particular the Kyoto Treaty, robbing the Task Force of much of its impetus.
7. **Leadership is critical.** Absent a crisis, leadership is critical. This is particularly the case for a state to take action on a long-term global issue like climate change. States that have taken action on climate change have generally had the support of their Governor or key legislators. For example, when Christie Whitman was governor of New Jersey her Department of Environmental Protection was able to implement some very innovative approaches to encouraging climate action by New Jersey companies. The new Governor, however, has backed away from most of those programs.

The staff of Illinois' current Governor has had a fairly strong energy policy focus and Governor Ryan's environmental advisor was former head of the Illinois Environmental Council, but the Governor has been quite distracted by the problems from his previous

position as Secretary of State and by the state's current fiscal problems. It is indicative of the continued concern for the issue, however, that the Governor's Energy Cabinet has created a new group to focus on climate change even when the guy is charge is clearly a lame duck. Illinois will have a new Governor and General Assembly in January and we will see what happens.

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