# ECONOMY SECTOR REPORT

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## INTRODUCTION

The Economic breakout group included participants from the Council of Great Lakes Industries, General Motors, Global R & D Operations, Port of Milwaukee, Environmental Research Institute of Michigan, and several sectors of the scientific community.

The Great Lakes region is one of the most intensive industrial regions in the United States today. Less than 1.5% of earned income derives from agricultural services, forestry, and fisheries, whereas 25-39% derives from construction and manufacturing. Industry is the third largest employer in the Great Lakes States (behind services and wholesale and retail).

Participants agreed that, except for tourism and agriculture, industry/manufacturing in the Great Lakes region is not vulnerable to the direct effects of the predicted changes in temperature, precipitation, or weather variability associated with climate change. Nevertheless, the economy and commerce of the region are highly vulnerable to the secondary effects of climate change. That is, public opinion has the potential to vastly change markets and altered governmental policies have the potential, if not carefully designed, to devastate Great Lakes industries.

Industries in the Great Lakes region have the potential to address greenhouse gas emissions and other environmental concerns in a timely way if the transition from new technologies and techniques is done in a careful manner that provides a predictable environment in which businesses can plan for the future. A key to effective and swift change is propagation of technologies/techniques that serve a dual role of addressing the threat of climate change while simultaneously improving efficiency and profit margins. In addition, the timing of transitions must be staged to allow a return on investment of current capital stock while stimulating investment in innovative technologies that are ready for market.

## THE 4 QUESTIONS ADDRESSED

### 1. What are the current concerns?

The stresses on the economy that are secondarily related to climate change were divided into three groups: the historical tensions between economy and environment, economic realities that exist for business, and the impacts of social factors.

- ***Historical tensions between economy and environment.*** Federal regulation of industrial pollution was almost nonexistent until the US Congress passed the National Environmental Policy Act of 1969, which committed government to take an active role in protecting the environment. The next year, the Environmental Protection Agency (EPA) was established to coordinate and oversee this effort. A series of federal acts following that one progressively placed increasingly stringent restrictions on industrial and commercial activities that might result in the pollution, degradation, or contamination of land, air, water, food, and the workplace. The main mechanism for control was a top-down regulatory paradigm that ignored the possibility of cooperation and collaboration of industrial leaders to achieve these worthy goals. Because the regulations imposed costly (but not necessarily the most economical or efficient) solutions on industries, people in the highly industrial Great Lakes region now regularly assume environmental protection and economic well-being are in opposition to one another, i.e., that as one benefits, the other must be harmed.

This assumption is currently being disproved by leading companies in a number of Great Lakes region industries that are experiencing significant environmental accomplishments while reducing costs. However, moves to protect global climate from the harmful effects of greenhouse gases have been seen by some members who were present at the discussion as a means to transfer wealth from the Great Lakes industries to other factions within the US and to other, less-developed countries. Even with this negative background, industrial leaders are concerned about the ecological footprint of their industries and there is a strong commitment to minimize the environmental impact of industrial activities. While regulation is seen as necessary, it was suggested that faster and more effective solutions to environmental threats (especially ones as severe and far-reaching as climate change) can be found through collaboration with the industrial sector.

To understand this, one must be acutely aware that industry is in business to make money, not to pollute. If economical, money-saving, effective, competitive methods to avoid pollution are available, then those mechanisms will be instituted as soon as it is profitable to do so. In the current anti-collaborative climate, many environmentally-friendly innovations have occurred and are continuing to occur, but these innovations are frequently hidden because of fear that the innovation will become the next regulatory standard and because hiding proprietary technologies can increase profit margin. For example, one major company in the Great Lakes region has experienced an annual 22% reduction in greenhouse gas emissions over the past five years but refuses to discuss it in public for fear these accomplishments will become the baseline for even deeper cuts when new standards are set by the government.

Environmental regulations that ignore the economic realities of doing business in the modern, global marketplace create a setting that discourages substantive progress toward critical environmental goals.

- ***Economic realities that exist for businesses.*** The foremost economic reality of industry is that unless a profit on capital investment is made the capital is lost and the business will cease to exist. To make a profit, investments must be allowed to mature. A corollary reality is that making a product is not sufficient to ensure a profit; consumers willing to buy the product must exist and it has to be sold for more than it costs to produce.

- ***Impacts of social factors.*** The public's willingness to buy can change rapidly and most consumers are not willing to be the first to try new, unproven, innovative commodities. In addition, new technologies must start out small and gain a market share. High-risk investment capital for moderate and small business ventures is extremely rare in the Great Lakes region. To move from a great idea to mass production and mass marketing requires sufficient time to ensure maximal safety of invested capital and also requires a relatively stable policy environment. Infrastructure to support the new product must be developed before consumers are willing to buy. For example, photovoltaic shingles to collect clean, renewable energy for houses have tremendous potential to help greenhouse emissions but the reality of moving this technology from the "great idea" stage to the "mass production and common usage" stage will require vast amounts of investment capital, a work force trained to produce, install, and maintain the technology, and a public willing to buy it.

In addition to a public willing to buy, a key social factor is the availability of a trained work force with the ability to transition as needed in response to the threat of climate change. Coordinated effort and incentives on the part of all segments of the region will be necessary to implement change.

### 2. How may climate change impact our lives?

The majority of industry/commerce (excluding tourism, agriculture, construction, fisheries, and the pulp/paper industry) in the Great Lakes region is not directly threatened by the predicted effects of climate change. Nevertheless, nearly all industries in the region are highly vulnerable to the secondary impacts of global climate change. That is, industry/commerce can be severely damaged by rapid, unpredictable changes in economic/environmental policy or in consumer opinions and desires. For example, the WEFA report projects disproportionate loss of jobs and industrial activity in the Great Lakes region if the U.S. response to the Kyoto Protocol is the institution of a carbon tax or permit fee of $200 per metric ton. Additional secondary impacts may occur as a result of impacts on other regions because of the global interdependence of industry, commerce, and markets. For example, if compliance costs are lower for European nations or Japan than for Great Lakes industries, this disparity will be reflected in the cost of goods and resultant market share in the international marketplace.

### 3. What additional information do we need?

Extensive economic modeling with a wide variety of possible policy responses is needed in order for industry to best adapt to potential changes. Education of the general public in both the primary and secondary impacts of climate change is needed. A part of that education should include an understanding of the constraints under which industry/commerce operate. In addition, business people from all industries (including the smallest) need education on the potential impacts of climate change, both primary and secondary.

Multiple government-scientist-industry partnerships are needed to facilitate communication and information exchange. The media should have reliable information sources that are not slanted toward scare tactics. Climate change (and the potential economic disaster resulting from an improper response) is far too dangerous both environmentally and economically to use an adversarial "court of public opinion" to decide the issue. Consensus building, with industry as full partners in the discussion, is critical to an effective response.

### 4. How do we cope with climate change?

The key tools that can facilitate the adaptation of industry/commerce to climate change are the implementation of policies that set an economic environment, and the removal of barriers that impede change, and the promotion of consumer markets. All responses to climate change should be tested for dual benefit. That is, their ability to impact the threat of climate change as well as their ability to stimulate desirable economic growth and economic opportunity, energy (and other) efficiency, and innovation, should be evaluated. Following is a series of suggestions for the implementation of climate change strategies and policies.

#### *Strategies*

- ***Emissions trading.*** Establish emissions trading. For example, as in the case of sulfur emissions, if companies could reduce their emissions below their allotment, then they could sell their unused emissions. This helped to harnessed market competition to improve air quality.

- ***Desirable markets.*** Use market incentives to stimulate the type economic activity that is desired.

- ***Investment capital.*** Stimulate investment capital for both medium and small business in the region that is responsive to climate change.

- ***Technology Development.*** Help the orderly development of innovative technology to a level where it is ready for production and marketing.

- ***Market opportunities.*** The Annex I emissions problem (i.e. the lack of emissions standards in the Kyoto Protocol for nations that are currently underdeveloped) might be mitigated by economic incentives and trading policies that develop markets, for example in China or elsewhere for clean, renewable energy sources (leapfrog technology). Helping China to develop solar and wind energy rather than to continue developing their coal burning facilities would open a market for these new technologies, decrease global greenhouse gas emissions, improve air quality and human health in China, and promote economic development in this populous country.

### *Implementation*

Implementation of changes is critical to a successful transition. Rather than uniform, regulatory responses that have the strong potential to harm the economy, an orderly transition that takes advantage of all beneficial (i.e. dual benefits as outlined above) opportunities should be implemented. A series of suggestions follows:

- ***Short-term, quick-response.*** Industries should take advantage of situations where the technology exists and it is proven. For example, the cement industry is a sizeable industry in the Great Lakes area, which is a significant contributor to $CO_2$ emissions (one ton $CO_2$ is released for each ton of Portland cement manufactured). A low $CO_2$ cement exists and it is stronger than Portland cement. This new cement can use current infrastructure and is made with waste from another industry, but cannot be marketed because of building codes. With the removal of governmental barriers, huge carbon emissions and economic benefits could result.
    - – Use systematic methods to educate industry in the existence of already-proven alternatives to the status quo technology. Such alternatives should cost the same (or less) than current technology but should also help the carbon emissions problem.
    - – Stimulate energy efficiency in all new construction of industrial plants, homes, and renovations.
    - – Facilitate growth of markets for these quick-response items through incentives and trade policies.

- ***Medium-term responses.*** Longer time to implementation would be needed for technology that is promising but not ready to market yet.
    - – Stimulate speed of development, discourage or remove market barriers, and facilitate dissemination.
    - – Set-up a government-sponsored development fund.
    - – Facilitate growth of markets through incentives and trade policies.

- ***Long-term responses.*** This is a sweepstakes race for big money in the future. For example, the car company that develops the next generation of vehicles will be highly successful.
    - – This process cannot be rushed because implementation requires vast changes in infrastructure and markets.
    - – The costs of errors in this arena are huge. Consumers are not forgiving if they have bought a technology that does not work well for them. Thus, care must be taken to fully test innovations before whole factories are modified for production. Such transitions will require huge amounts of investment capital that will be available as this generation of capital matures with a profit.

- These responses must be done in an orderly manner and with sufficient time to ensure the safety of investments

## CONCLUSION

In conclusion, the consensus from the breakout group is that the response to the threat of climate change must recognize, value, and partner with the realities of industry/commerce. Industry cannot be viewed as a source of money to solve the world's problems. It should be viewed as a partner whose activities can help develop new wealth, sustainability, and a stable climate for earth.