

GREENHOUSE GAS EMISSIONS

House Bill 4651 (Substitute H-2) First Analysis (11-9-99)

Sponsor: Rep. Janet Kukuk
**Committee: Conservation and Outdoor
Recreation**

THE APPARENT PROBLEM:

The term “greenhouse gases” – carbon dioxide and other gases in the atmosphere – is derived from the parallel between the way that these gases heat the earth and the way that the green tiles on a greenhouse keep the temperature inside warmer than the outside temperature. “Greenhouse gases” absorb heat from the earth and reflect it back. Although this is a naturally occurring phenomenon that helps keep the earth’s temperature at a habitable level, certain human activities, such as burning fossil fuels, cause an increase in the atmospheric levels of the gases, and, consequently, an increase in the amount of heat reflected back. “Global warming” is the term used to describe the average rise in the earth’s temperatures above previously measured levels that results from this, and the term “greenhouse effect” describes how this occurs.

The scientific study of global climate change has been an international consideration for over a decade (for a history of international activity on this issue, see *Background Information*). In 1992, international talks on global climate change began officially with the U.N. Conference on Environment and Development and the development of the United Nations Framework Convention on Climate Change. Most recently, at a December, 1997, conference in Kyoto, Japan, parties to the convention drafted a protocol. Annex A of the Kyoto Protocol identified the following as “greenhouse gases”: carbon dioxide (CO₂); methane (CH₄); nitrous oxide (N₂O); hydro fluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF₆).

The Kyoto Protocol would require new regulatory action by the United States and other industrialized countries. It calls on parties to the protocol to meet legally binding specific emission reduction levels during the years 2008-2012. The protocol goes into effect once at least 55 countries, representing at least 55 percent of 1990 global greenhouse gas emissions, adopt the protocol. The United States represents

approximately 19 percent of global greenhouse gas emissions, and the reduction level that has been set for it is 7 percent below 1990 emission levels. The U.S. Senate has not yet ratified the protocol, due in part to significant opposition by industry, and in particular, the auto industry. However, there is some concern that the Environmental Protection Agency (EPA) is attempting to regulate “greenhouse gases” without Senate ratification. As a result, legislation has been introduced to prevent the adoption of certain actions unless the U.S. Senate ratifies the Kyoto Protocol.

THE CONTENT OF THE BILL:

The bill would add a provision to Part 55 of the Natural Resources and Environmental Protection Act (NREPA), which regulates air pollution control, to prohibit the Department of Environmental Quality (DEQ) from taking certain actions unless the U.S. Senate ratified the Kyoto Protocol and federal legislation was enacted to implement the protocol. The bill would also specify that the prohibition against following the conditions of the Kyoto Protocol would not prohibit the DEQ from encouraging energy efficiency; encouraging the development of renewable energy sources; nor from enforcing the provisions of Part 55 of the NREPA, or the federal Clean Air Act.

Under the bill, the DEQ would be prohibited from taking the following actions:

- Proposing or promulgating a rule intended in whole or in part to reduce emissions of greenhouse gases according to the provisions of the Kyoto Protocol, unless the legislature enacted specific enabling legislation for such a rule.
- Expending funds or designing policies or programs to reduce emissions of greenhouse gases according to the provisions of the Kyoto Protocol.

- Submitting any legally enforceable commitments related to the reduction of greenhouse gases, according to the provisions of the Kyoto Protocol, to the U.S. Environmental Protection Agency (EPA) or any other federal agency.

“Greenhouse gases” would be defined under the bill to mean the gases listed as such in Annex A to the Kyoto Protocol. “Kyoto Protocol” would refer to the Kyoto Protocol to the U.N. Framework Convention on Climate Change, Conference of the Parties, 3D SESS., Decision 1/CP.3, FCCC/CP/1997/7/ADD.1, at 7 [March 18, 1998].

MCL 324.5503a

BACKGROUND INFORMATION:

A January 13, 1998, memorandum from the Legislative Service Bureau (LSB), Science and Technology Division, on the subject “Scientific Study of Global Climate Change,” included information on the history of international activity on global climate change, as follows:

- 1992 - U.N. Conference on Environment and Development resulted in the U.N. Framework Convention on Climate Change. Under the convention, signing countries agreed that the issue of greenhouse gas emissions and removal of carbon “sinks” (forests and other natural areas that absorb CO₂) had to be addressed. Over 160 developed and developing countries signed the convention.

- 1995 - Convention parties met in Berlin and developed the Berlin Mandate. Members agreed that developed countries must set legal binding emission reductions along a defined time line. No new commitments were to be required of developing countries.

- 1996 - U.S. makes policy statement agreeing to set binding limits on itself during a subsequent meeting of Convention parties.

- 1997 - International working group compiled proposals for binding limits from Convention members. The compilation served as the initial draft protocol for negotiation at conference in Kyoto, Japan, in December, 1997.

- 1997 - The U.S. proposed a phased-in reduction of emissions to 1990 levels. President Clinton proposed tax incentives to support the implementation of these reductions and recommended the use of energy

conservation and new technology to achieve those reductions. The European Union and Japan proposed emission reductions of 12 percent and 5 percent, respectively, *below* 1990 emissions levels.

- 1997 - December 1 - 10, Kyoto meeting of the parties to the Convention.

FISCAL IMPLICATIONS:

The House Fiscal Agency (HFA) estimates that the bill would have no impact on state funds. (11-8-99)

ARGUMENTS:

For:

Michigan should not be obligated to adhere to Environmental Protection Agency (EPA) regulations designed to comply with the Kyoto Protocol, since the U.S. Senate has not yet ratified it. Moreover, issues surrounding the protocol are still being debated: Scientists generally agree that increased levels of greenhouse gases contribute to global climate change. Still, the scientific community is divided regarding global warming issues. Much of the scientific debate results from the uncertainty and variation in the mathematical models used to predict the global climate. Climate and weather patterns are highly complex systems that involve many factors, such as cloud movements, winds, ocean tides, levels of air pollutants, and human generated emissions. Mathematical models developed by atmospheric scientists predict climate trends and future weather changes. However, these predictions are not 100 percent accurate, since present day computers do not have the capability to take all factors into consideration. Similarly, the impact on global climate for many natural phenomenon, such as volcano eruptions and large forest fires, is not fully understood. Therefore, the models only provide a “best available” estimate. The models estimate future global temperatures, based on past climate conditions and projections of future greenhouse gas emissions. Existing climate models do predict global warming if greenhouse gas emissions increase, yet at varying levels, ranging from very minor changes of approximately 0.5 degrees Centigrade, up to significant changes of 4.5 degrees Centigrade.

Interpretation of these variable results is complicated by natural variations in the global climate. Scientists have little data on climate trends since the global temperature has only been measured for approximately 100 years. Some scientists suggest the measured rise in global temperatures over the past 12 years could be

caused by natural climate variations. Other scientists note the consistency of all the models in predicting some rise in temperature with increasing emission of greenhouse gases as support for global warming.

Increased global temperatures could lead to a variety of changes in the earth's climate and effect on plant and animal life. The degree of variation in the earth's climate and living species depends on the level of climate change. Possible effects of global warming include rising sea levels, death of plant species unable to adapt, changing migration patterns, and increased occurrence of extreme weather conditions, such as droughts and high precipitation levels.

The inherent uncertainty in the models leaves two significant questions concerning global climate change: what is the time line for significant changes in the global climate; and, what will be the effect of these changes on the earth's ecosystems? Many feel the international efforts to reduce greenhouse gas emissions is dependent on the answers to these questions. (*Legislative Service Bureau, Science and Technology Division, "Scientific Study of Global Climate Change," January 13, 1998*).

Response:

In testimony presented to the House Conservation and Outdoor Recreation Committee (11-4-99), the Michigan Environmental Council (MEC) emphasized that, while the long-term health effects of greenhouse gases may be uncertain in the minds of some, the massive potential harm posed by them is reason enough to limit their emission. The MEC states that certain facts about the emission of greenhouse gases are well established. For example, the amount of carbon dioxide in the atmosphere has increased by approximately 25 percent in the past 100 years, and continues to increase at the rate of one percent each year. The MEC statement also asserts that there is widespread consensus among the scientific community that global average temperatures will continue to increase, but somewhat less consensus on the effects the increase will have on local environments.

The MEC testimony quotes the American Geophysical Union (AGU), a 35,000-member international scientific society, in its December, 1998, statement on Climate Change and Greenhouse Gases:

"Present understanding of the Earth climate system provides a compelling basis for legitimate public concern over future global- and regional-scale changes resulting from increased concentrations of greenhouse

gases AGU believes that the present level of scientific uncertainty does not justify inaction in the mitigation of human-induced climate change and/or the adaptation to it."

The MEC maintains that the potential impact on Michigan includes threats to the health and lake levels of the Great Lakes, the influx of non-native species (both aquatic and disease-carrying insects), increases in heat-related deaths, increases in ground-level ozone, changes in agricultural growing conditions, and a decrease in habitat for cold water fish species. In addition, the sugar maple, the species that primarily accounts for Michigan's fall colors, would probably leave Michigan.

The MEC also notes that the same processes that produce greenhouse gases result in massive emissions of sulfur dioxide, nitrogen oxides, volatile organic compounds, particulate matter, mercury, and other toxic materials.

For:

A January 13, 1998, memorandum from the Legislative Service Bureau (LSB), Science and Technology Division, included information on this country's involvement in global climate change, and noted that the U.N.'s international convention creates the following issues for the U.S.:

- The Kyoto Protocol set U.S. reductions in greenhouse gas emissions at 7 percent below 1990 levels. Achieving this could have significant effects on several economic sectors, including energy, transportation, industry, agriculture, forestry, and waste management.
- The Berlin mandate of 1995 excluded developing countries from new binding reductions. However, the growth in developing countries is expected to lead to a large increase in greenhouse gas emissions and elimination of carbon "sinks" (forests and other natural areas that absorb CO₂). These new emissions are expected to be at levels higher than those emitted by other developed countries. The U.S. and other developed nations have suggested new reductions must be binding on developing countries as well, in order to be truly effective.
- The draft protocol for Kyoto suggested developed countries would be responsible for providing continual technical and financial resources to developing countries to help them achieve emission reductions or to compensate for financial losses due to emission reduction measures.

Response:

The LSB memorandum also noted that the actual effects of the provisions of the Kyoto Protocol on the economy

depend on how the U.S. meets the proposed reductions in greenhouse gas emissions. The LSB writes that options are available for this, including energy efficiency and conservation; technological advances; energy taxes; and energy source shifts.

In addition, the LSB memo noted that several groups—including the U.S. Department of Energy and a U.N. committee – have issued reports outlining currently available technology that could reduce greenhouse gas emissions. These focus on the biggest sources of greenhouse gases, including transportation sources, electric utility plants, and incinerators and similar industrial processes. The reports emphasize that cost-effective measures are available that would not necessarily affect the U.S. economy, including advanced pollution control technologies on industrial facilities, and increased use of renewable energy sources. According to the LSB, some scientists also focus on “sinks” (forests and other natural areas that absorb CO₂). Studies are under way to examine the potential of these areas to reduce the amount of greenhouse gases that reach the atmosphere.

Against:

In testimony presented to the House committee, the Michigan Environmental Council (MEC) notes that one of the Kyoto Protocol programs is designed to enhance energy efficiency, promotion of renewable energy, and the elimination of subsidies in sectors that emit greenhouse gases. The MEC cautions that the provisions of the bills could have significant unintended consequences, such as ending efforts to promote energy efficiency. Of particular concern to the MEC are emissions from coal-fired power plants, which were “grandfathered in” under the original provisions of the federal Clean Air Act. These plants did not have to install emission control technologies to reduce their emissions, since it was believed that they had limited life spans and would soon be replaced. In 1997, according to the MEC testimony, these facilities emitted almost 400,000 tons of sulfur dioxide and 178,799 tons of nitrogen oxides. These are major contributors to ozone-related health problems in the state.

Against:

The bill could be challenged on constitutional grounds. Article IV, Section 52, of the state Constitution reads: “The conservation and development of the natural resources of the state are hereby declared to be of

paramount public concern in the interest of the health, safety and general welfare of the people. The legislature shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction.”

At least some of the gases that the Kyoto Protocol has identified as being greenhouse gases -- carbon dioxide (CO₂); methane (CH₄); nitrous oxide (N₂O); hydro fluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF₆) – contribute to other environmental problems, such as depletion of the stratospheric ozone layer. The state should develop policies to protect the state’s air, water, and natural resources from this environmental danger. However, the bill would prevent the state from taking action.

POSITIONS:

The Department of Environmental Quality (DEQ) supports the bill. (11-5-99)

The Michigan Chamber of Commerce supports the bill. (11-8-99)

The Michigan Climate Change Coalition supports the bill. (11-5-99)

The Michigan Manufacturers Association (MMA) supports the bill. (11-8-99)

The Michigan United Conservation Clubs (MUCC) has no position on the bill. (11-5-99)

The Michigan Environmental Council (MEC) opposes the bill. (11-5-99)

Analyst: R. Young

■ This analysis was prepared by nonpartisan House staff for use by House members in their deliberations, and does not constitute an official statement of legislative intent.