



CLIMATE CHANGE AND THE DOW CHEMICAL COMPANY

Global climate change, often referred to as global warming, has become one of the most debated environmental concerns of our time.

The Dow Chemical Company recognizes that the continuing increase in greenhouse gas concentration in the Earth's atmosphere is a cause for concern and believes in the importance of taking reasonable and well thought out action to reduce these emissions.

Dow has taken a leadership role globally to reduce, measure and report greenhouse gas emissions, and has adopted a corporate goal to improve energy efficiency by 20% from 1994 to 2005. This is in addition to the 20% improvement accomplished from 1990-94. The 39,000 Dow people around the world develop sustainable solutions for society based on Dow's inherent strength in science and technology— which we refer to as “good thinking.” Good thinking helps customers succeed, stockholders prosper, employees achieve and communities thrive. Dow will continue this high standard and actively promote similar early action efforts among industry peers.

In fact, Dow's dedication to climate change can be found in its Global Policy Statement on the issue:

- The continuing increase in greenhouse gas concentrations in the earth's atmosphere is a cause for concern and warrants diligent efforts to further reduce these emissions.

- Dow is committed to further reduce greenhouse gas emissions by achieving energy efficiency improvements, research for less energy intensive manufacturing processes and climate-friendly product solutions for its customers.
- The Company will also methodically investigate the viability of carbon trading, flexible mechanisms, offsets, joint implementation schemes and alternative energy sources.
- Dow has taken the initiative to educate employees, customers, suppliers and other key stakeholders to raise their awareness of climate change issues and their individual roles in reducing greenhouse gas emissions.
- Because quantum scientific and technological breakthroughs are needed to stabilize and reduce greenhouse gas emissions, Dow believes joint research and development partnerships with public and private sectors are required.
- Public policy must be based on long-term goals, shared by all segments of society, using measures that reward innovation, efficiency and voluntary action.
- Dow and the rest of industry have a critical role to play and must partner with all stakeholders to develop public policy that achieves continuous greenhouse gas reductions without sacrificing global equity, economic growth or competitiveness.

WHAT IS CLIMATE CHANGE?

When the sun's visible rays heat up the earth's surface, that surface emits infrared radiation back toward space. Greenhouse gases in the earth's atmosphere trap some of the outgoing infrared radiation, thus heating the climate system.

This phenomenon, called the “greenhouse effect,” is naturally occurring and allows the Earth to maintain comfortable temperatures.

Increases in the atmospheric concentrations of greenhouse gases can result in warmer surface temperatures by increasing the amount of infrared heat radiated back toward the surface rather than into space.

Greenhouse gases can be natural or man made. They include water vapor, carbon dioxide, methane, ozone, nitrous oxide, chlorofluorocarbons (CFCs), fluorocarbons (HCFCs, HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6.) Human activity is believed to have caused an increase of 25 percent in the concentrations of greenhouse gases over the last 150 years.

A question that remains is whether an increase in greenhouse gases due to the burning of fossil fuels and other human activities yields a measurable impact on global climate, given the existence of many negative as well as positive feedbacks in the earth's climate system. Negative feedbacks decrease the expected global warming, while positive feedbacks cause increases. Computer models are still too primitive to adequately account for all the feedbacks triggered by greenhouse gases.

Another reason why it is difficult to attribute global warming to human activity is the existence of strong natural variability. Some scientists believe that if greenhouse gases continue to accumulate, the earth's temperature could increase 3 to 8°F over the next 100 years. This could have serious effects on things we all take for granted such as our food supply, water resources, consumption patterns and overall lifestyle.

Given the uncertainties that remain regarding global climate change, should something be done about it now? If yes, then what and by whom?

"Among the most critical uncertainties is the ability of climate models to simulate clouds and other aspects of the hydrological cycle (water cycle) and also the feedback between atmospheric chemistry and climate."

Jay Olaguer
Atmospheric Scientist
Dow Chemical

WHAT ARE THE SOURCES OF GREENHOUSE GAS EMISSIONS?

While the majority of greenhouse effects come from water vapor, over which we have no control, the second leading cause is carbon emissions.

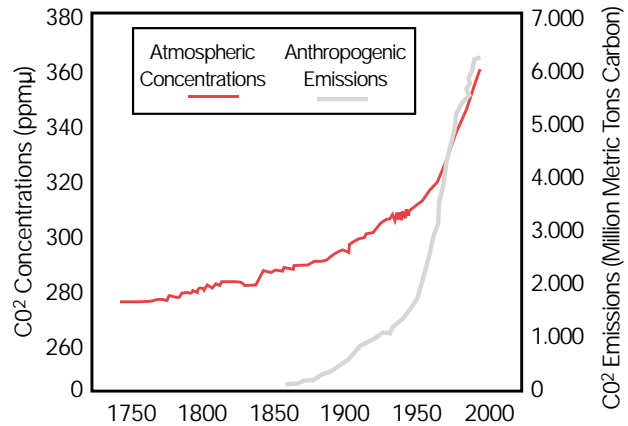
The United States is a major source of carbon emissions, primarily because its economy is the largest in the world. With less than five percent of the world's population—but a quarter of the world gross domestic product (GDP)—the U.S. produces 20 percent of man-made carbon emissions generated.

In December 1997, representatives from several countries met in Kyoto, Japan, for negotiations on global climate change. Out of that meeting came the Kyoto Protocol which would commit 38 developed countries, including the United States, to reduce their combined carbon dioxide emissions an average of five

percent below 1990 levels over the period 2008 - 2012. The Kyoto Protocol, which has not been ratified, excludes more than 130 developing nations from any commitments,

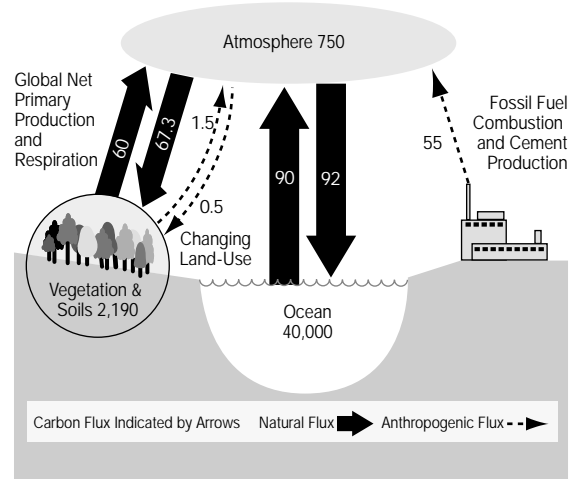
today, while carbon emissions are expected to be 44 percent higher than the Kyoto target by 2010. Since economic growth and energy are closely tied, this could potentially

Figure 1. Trends in Atmospheric Concentrations and Anthropogenic Emissions of Carbon Dioxide.



Source: Oak Ridge National Laboratory.

Figure 2. Global Carbon Cycle (Billion Metric Tons)



Source: Intergovernmental Panel on Climate Change.

which is a concern because it is estimated most future increases in emissions will come from developing nations. While not perfect, the Kyoto Protocol provides the impetus for negotiations to continue in developing a global agreement that is equitable and attainable for all nations.

For the United States, the Kyoto target is to reduce carbon dioxide emissions by seven percent below 1990 levels. There is much to be done to meet that target, given we must reduce beyond where we are

mean a huge economic impact for the United States and other countries. For developing countries, the impacts will vary. If Kyoto restrictions economically impair industrialized countries, fewer imports from developing countries will be used. That could affect global trade and economic growth. Conversely, because developing countries may not have carbon dioxide emission targets, they may attract more industry and jobs from industrialized countries.

WHAT IS THE PROSPECT FOR FUTURE EMISSIONS?

Projections show that most increases in carbon emissions will come from developing countries including

allowing industry to develop creative and innovative solutions. For example, a company may seek credit for early action to reduce carbon emissions; a company may consider

An international multi-stakeholder, cost-effective strategy is needed to develop and implement technology that will help the world reduce carbon emissions. This may require collaboration with private/public partnerships to develop the best solutions.

Finally, careful monitoring, full public reporting and open dialogue among business sectors and across national boundaries will be essential to future progress.

WHAT DOES THIS MEAN TO DOW?

Global climate change is one of the most critical challenges to the growth and well-being of our company.

Energy and hydrocarbons are the key ingredients for production of chlorine and ethylene, the two major building blocks at Dow.

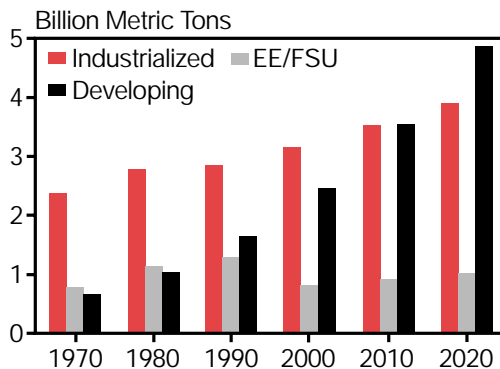
All major Dow sites already co-generate electricity and use natural gas, the least carbon containing fuel. As a result, our sites are energy efficient.

In light of these facts, and considering that our building blocks are energy intensive and traded globally, the imposition of greenhouse gas emissions limits on companies would represent a serious challenge to intensive energy users like ourselves.

We do know that leadership and commitment to action are necessary to address the global climate challenges. Finding common ground among business, government and environmental interests is critical to ensuring a clean environment and continued healthy business.

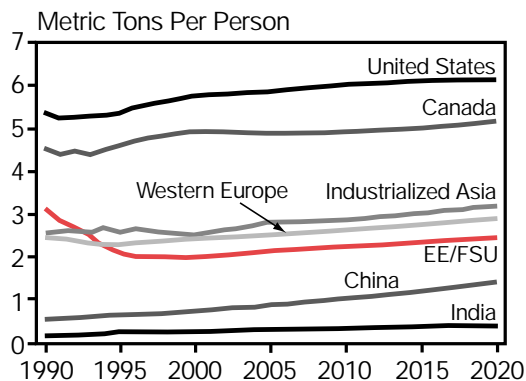
Our company, like other businesses, has a strategic responsibility to its employees, shareholders, customers and the public to respond to climate change challenges. That's where our industry comes in. We believe that "chemistry is part of the solution."

Figure 3. World Carbon Emissions by Region, 1970-2020



Sources: History: Energy Information Markets and End Use, International Statistics Database, and International Energy Annual 1996, DOE/ EIA-0219(96) (Washington, DC, February 1998). Projections: EIA, World Energy Projection System (1999).

Figure 4. Carbon Emissions per Capita for Selected Regions and Countries, 1990-2020



Sources: History: Energy Information Administration (EIA), International Energy Annual 1996, DOE/EIA-0219(96) (Washington, DC, February 1998). Projections: EIA, World Energy Projection System (1999).

China, Mexico, Brazil and India. These countries face enormous challenges such as alleviating poverty, raising the educational level and expanding life expectancy rates. Meeting these needs will require economic growth, which requires energy.

Perhaps more important is how we achieve these targets. It may be necessary for governments to consider long-term, rate-based targets and adopt flexible mechanisms,

emissions trading between its own global locations; it may decide to pursue joint implementation with other companies; or it may rely on the Clean Development Mechanism, part of the Kyoto Protocol that enables countries to flexibly meet their reduction commitments through a system of emissions credits or by assisting developing countries through promoting sustainable development or the creation of a fund.

Dow's technology and ingenuity play a significant role: our plastic products allow for lighter vehicles, thus reducing fuel consumption; our Styrofoam* brand products provide homes with better insulation, thus reducing carbon dioxide emissions; and our composite materials are used in windmill propellers, allowing more efficient power generation.

WHAT CAN YOU DO ABOUT CLIMATE CHANGE?

What follows is a list of ideas generated by the Environmental Defense Fund you may want to try in your day-to-day family experience.

They're common sense ideas to help you develop your own energy reduction program.

1. Run your dishwasher with a full load.
2. Wash clothes in warm, not hot, water
3. Turn down your water heater thermostat to 120°F.
4. Don't overheat or overcool rooms.
5. Clean or replace air filters, as recommended.
6. Replace light bulbs with fluorescent bulbs.
7. Wrap your water heater in an insulated jacket.
8. Install low-pressure showerheads.
9. Caulk and weatherstrip around doors and windows.
10. Seek a home energy audit from your utility company.
11. Whenever possible, walk, bike, carpool or use mass transit.
12. When you buy a car, look for good gas mileage.
13. Reduce waste: buy minimally packaged goods, choose reusable over disposable and recycle.
14. Recycle the coolant in your car's air conditioning system.
15. Insulate your walls and ceilings.
16. If you need to install/replace windows, use energy-saving models.
17. Plant trees next to your home.
18. As you replace home appliances, choose energy efficient models.
19. Reduce waste at work and set up community recycling programs.
20. Be informed about environmental issues.

For further information, contact Dow Chemical Public Affairs at 517-636-0626 or email jhutchison@dow.com.

