

Approaches to Combat Global Warming: Examples from Japan's Automobile Manufacturers

By Masayo Hasegawa

In its third report, issued earlier this spring, the Intergovernmental Panel on Climate Change (IPCC) warned that global warming problems are more serious than before estimated and emphasized the necessity of devising programs to fight them. On the other hand, the United States announced that it was withdrawing from the Kyoto Protocol, citing "non-participation by developing countries," "adverse impact on the U.S. economy" and "lack of scientific evidence" as reasons. The withdrawal caused waves, to say the least, in diplomatic circles involving the European Union and Japan.

Late July in Bonn, after tough negotiations, 178 countries, minus the United States, accepted a compromise agreement governing the Kyoto Protocol. The United States should still be encouraged to join the Protocol. However, in the industrial community, environmental issues should not be something we address simply "because there are regulations." Rather, in planning the future of industry in the twenty-first century, these issues cannot be ignored. By the same token, when speaking of approaches to combat global warming, our objectives should be absolutely clear. If preventing global warming were no longer our objective, chances are issues would come to concentrate solely on industrial competitiveness. Thus it becomes doubly important that we not forget that the task of preventing global warming must involve all humankind working together to stop the gradual warming of our planet.

In 1997, the third meeting of the Conference of Parties (COP3) of the United Nations Framework Convention on Climate Change (UNFCCC) was held in Kyoto, Japan. There, the Kyoto Protocol was adopted and targets for reducing greenhouse gas (GHG) emissions were set for each country. For Japan, the target was set at a 6 percent reduction of 1990 emissions figures. The Japanese government responded by passing the Guideline of Measures to Prevent Global Warming as well as the Law Concerning the Rational Use of Energy (Energy Conservation Law). The target is a very high one, but Japanese industry at once began

implementing programs with step-by-step, progressive actions aimed at achieving it.

JAPAN'S AUTOMOBILE MANUFACTURERS RESPOND

Japanese automobile manufacturers are engaged with the issue of global warming and have been involved in the following policies and programs:

- 1) In reaction to the government's Guideline of Measures to Prevent Global Warming, the Japan Federation of Economic Organizations (Keidanren) prepared the Keidanren Voluntary Action Plan on the Environment (Global Warming Measures: Report by Industry), based on voluntary plans submitted by its member companies' industrial associations. Under the Keidanren Voluntary Action Plan, automobile plants would reduce CO₂ emissions to 10 percent less than their 1990 figures by 2010. Today, improvements in manufacturing processes, redesign of components with an eye to conserving resources, and other actions have taken the Japanese automobile industry well on its way toward achieving that goal.
- 2) Japanese automobile manufacturers have established programs to meet fuel efficiency regulations set in the Law Concerning the Rational Use of Energy. For gasoline-powered vehicles, the target is to achieve 22.8 percent greater fuel efficiency by 2010, compared to 1995. For diesel-powered vehicles, the target is a 14.9 percent improvement in fuel efficiency by 2005, again compared to 1995.
- 3) The amount of HFC134a coolant used in automobile air conditioners is to be reduced, and reclaimed and destroyed when a vehicle reaches the end of its useful life. HFC134a (Hydrofluorocarbon134a) is an alternative refrigerant to CFC12 (Chlorofluorocarbon 12), which was identified as a substance that depletes the ozone layer. Japanese Automobile Manufacturers have discontinued the use of CFC12 and

completed a cult. Rather than set a single standard for reduction of greenhouse gases, Japanese industries believe it makes more sense to allow each company and each industry set its own programs and goals, considering the differences among the various industries, cost and results analyses, and so on. It is only human nature that we set higher goals when we do so voluntarily, and by challenging these high hurdles, we find that we are able to meet and surpass our targets.

- 4) The Advisory Committee for Natural Resources and Energy of METI (Ministry of Economy, Trade and Industry, formerly MITI) has suggested accelerating the introduction of vehicles that meet fuel efficiency standards and clean energy vehicles (including hybrid cars), and perhaps introduction of vehicles with idling stop functions. Japanese automotive manufacturers are working hard to respond to this recommendation and meet the requirements.

THE CASE FOR VOLUNTARY PROGRAMS TO ADDRESS GLOBAL WARMING

Basically, Japan is a country with few energy resources. Ever since the oil crises of the 1970s, Japanese industry has developed programs aimed at greater energy and production efficiency. Perhaps as a result, Japanese industry emits only about half the CO₂ per gross domestic product (GDP) of that emitted by the United States. Energy conservation efforts of the past have brought us this far, but further steps toward reducing CO₂ emissions in the future will be much more difficult. Rather than set a single standard for reduction of greenhouse gases, Japanese industries believe it makes more sense to allow each company and each industry set its own programs and goals, considering the differences among the various industries, cost and results analyses, and so on. It is only human nature that we set higher goals when we do so voluntarily, and by challenging these high hurdles, we find that we are able to meet and surpass our targets.

In addition, regulations should not result in a decline in international competitiveness. Issues of global warming aside, automobile manufacturers continually insist on international harmonization of regulations and standards. Automobiles are global products, and the automobile industry is engaged in competition on a global scale. If countries and regions adopt different global warming programs and policies, and set varying regulations and standards, then the costs will burgeon

in every field—research, development, equipment and facilities, and production.

Let us consider the general benefits of voluntary programs to address the environmental issues. In the past, environmental programs have aimed at “identifying the problems” and “devising prescriptions of solutions,” along with “reduction and cleanup of pollution.” In these situations, regulations and standards played a vital role that was not apparent from the beginning. Recently, however, automobile manufacturers’ environmental programs seem to be working quite well based on the principles of comparative market competition. Actually, the world’s automakers have accepted the challenge presented by global environmental issues, and they are investing vast sums of operating capital in voluntary programs.

In other words, automobile companies are now competing on environmental grounds, and for that reason, we see new alliances being formed between companies as well. Therefore, to encourage these affirmative actions to continue, we feel that incentive-based programs would work better than restrictive regulations and standards. With incentive-based programs, the actual goal-setting and execution would be left up to the organizations that know the industries best—those that would therefore be better able to devise programs that take economics, viability and achievability into consideration.

TECHNOLOGICAL INNOVATION

In addressing the issue of global warming, technical innovation and technological breakthroughs are vitally important from the standpoint of reducing costs and implementing energy conservation programs that go beyond what has been done before. Political leaders play an important role in encouraging and accelerating innovation. For example, Japan’s Prime Minister Junichiro Koizumi has directed that all government vehicles be low emissions vehicles, out of concern for the global environment.

At Toyota, we are improving conventional engines, and we have developed revolutionary new technology for hybrid cars such as the Prius, which is already on the market. Nevertheless, we face even greater challenges in the development of new technologies such as practical fuel cells and in achieving great leaps forward in fuel efficiency. As a manufacturer, we work to develop technology that allows us to offer many options and a wide range of choices to our customers. And this effort reaches beyond the vehicle itself. It

means using information technologies (IT), for example, to provide more conveniences while working to stem global warming, and it means studying traffic systems and the state of mobility itself in search of new solutions. Nevertheless, if industrial programs are to take root, societal systems themselves will also have to be revolutionized.

Returning to the Kyoto Protocol, we feel the Kyoto Mechanisms (Emissions Trading, Joint Implementation and Clean Development Mechanism [CDM]) are an excellent method and opportunity to achieve regional cooperation. The first period (2008-2012) goals (10 percent less than 1990 actual emissions) are reachable as far as the Japanese automobile manufacturers are concerned. Therefore, the Kyoto mechanism may not even be necessary. Still, in general, it is desirable to get the greatest possible results from funds invested in environmental programs. Toyota, for example, has started reforestation in Australia. If Joint Implementation and CDM allow our overseas subsidiaries' activities to be counted, compliance with the Kyoto Protocol will be even easier for us.

From that viewpoint, perhaps there is much to learn about reducing intra-company emissions from the activities of British Petroleum. BP voluntarily launched the first ever global corporate GHG emissions trading system. (Please refer to http://www.bp.com/corp_reporting/hse_perform/env/climate_change/index/asp.) The company has set emissions targets for each of its business units and implemented a system of internal emissions trading to meet targeted goals. Royal Dutch Shell also established a similar system in its group.

Emissions trading is a market-based policy instrument that enables emissions reductions to be made in the most cost-effective way. This type of policy moves away from the traditional governmental regulatory approach. Within a "cap and trade" scheme, participants voluntarily take on targets requiring them to reduce their emissions to a capped level. In this scheme in which market mechanisms work well, allowances to individual caps can be said to have a trading value. On the other hand, there seem to be quite a few problems associated with mandatory and regulatory caps set by government—an approach that rather seems to imitate a planned economy and would restrict free market economic activities.

ADOPTING A LONG-TERM APPROACH

Industrial programs dealing with environmental issues require not only a long-term view but also a broad-

based consensus. Here we would like to introduce a new approach. Under the auspices of the World Business Council for Sustainable Development (WBCSD) in Geneva, Switzerland, a new research project that supersedes industrial and corporate boundaries has been set up to consider the future of the automobile and how it can contribute to human mobility. This Sustainable Mobility Project (SMP) will study mobility in future societies and develop scenarios from a global viewpoint.

Core members of the project are member companies of the WBCSD as well: BP, Daimler-Chrysler, Ford, GM*, Honda, Michelin, Norsk Hydro, Shell*, Volkswagen and Toyota. The three-year project, launched in 2000, will consider problems of mobility, which naturally include issues of climate change and global warming. The first order of business is to assess today's mobility in terms of air, land and sea. That assessment will lead to the identification of subjects for study and analysis in their main report, "Sustainable Mobility in 2030," which is due in mid-2003. This project is an excellent opportunity to articulate visions and make specific proposals for sustainable development.

Finally, sustainable development as well as globalization and the IT revolution are key elements in industry's visions for the twenty-first century. Investment in the environment must take place with the long-term view of achieving harmony between human society and the natural environment. And one of the keys to success in this kind of endeavor will be the realization on the part of industry of just how important environmental issues really are. Therefore, it is Toyota's view that the ability to devise viable environmental programs is a vital management tool. ♻️

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