FOCUS
A New Business Model from Japan:
Environment-Related Businesses Reducing
the Carbon Footprint
— Accelerating the Trend Toward Emissions Trading —
Climate change became the main focus of attention at the G8 Summit in Heiligendamm, Germany in June 2007, and the leaders agreed that serious consideration would be given to “at least a halving of global emissions by 2050.” This was in line with the Invitation to “Cool Earth 50” offered by the then Japanese Prime Minister Shinzo Abe.

The Kyoto Protocol came into effect in February 2005, and Japan has made a commitment to the international community to cut its average annual greenhouse gas (GHG) emissions from 2008 to 2012 by 6% compared to the 1990 level. Japan has been making effective use of energy for some time now, so it has only limited opportunities to reduce its emissions further. This means that Japan needs to acquire carbon credits from abroad under the Kyoto Mechanisms.

Today, the secondary acquisition of carbon credits that have been approved and issued by the United Nations Framework Convention on Climate Change (UNFCCC) is in the spotlight as the way to acquire carbon credits, as well as acquiring them directly from projects that are designed to reduce GHG emissions through schemes such as the Clean Development Mechanism (CDM). At the present time, though, there is no established system in Japan facilitating a secure and sure way to conduct emissions trading.

Japan Bank for International Cooperation (JBIC) is applying the wealth of experience and expertise it has gained through its International Financial Operations to facilitate the development of a system that would be easily accessible to many Japanese companies, while also pursuing other activities to accelerate the move to emissions trading.
1. The International Trend Away from Carbon Emissions

Invitation to “Cool Earth 50”: Moving Away from Carbon Emissions
The Kyoto Protocol is expected to lead to reductions in GHG emissions in industrialized countries because the numerical targets for individually named countries are legally binding, and because complementary measures (the Kyoto Mechanisms) have been introduced to help countries meet their targets. However, the Protocol has not been ratified by the United States, the world’s largest emitter, and GHG reduction goals have not been established for countries in a rapid stage of development, such as China and India. These are the main reasons why the Protocol itself has limitations as a framework agreement to reduce emissions on a global scale.

In the meantime, the global energy situation is changing greatly, as is apparent from the recent jump in crude oil prices and today’s stiff competition for natural resources. Against this backdrop, countries worldwide are changing their energy strategies to prepare for the future. For example, to reduce dependence on CO2-emitting fossil fuels, many countries are encouraging a shift away from carbon by developing renewable energy resources and promoting stronger energy conservation measures. In China, where economic growth is rapidly accelerating demand for more energy, numerical targets have been set in China’s Five-Year Plan (2006-2010) to conserve energy in order to ensure sustainable growth.

Changes such as these led to the commitment included in the G8 Declaration issued at the June 2007 Summit in Heiligendamm, that serious consideration would be given to “at least a halving of global emissions by 2050,” and that the process of setting a global goal for emissions reductions should involve all major emitters.

As a host to the 2008 G8 Hokkaido Toyako Summit, Japan will be expected to show an initiative in promoting the goals of the 2007 G8 Declaration. The Japanese government’s initiative, Invitation to “Cool Earth 50”, highlights the importance of Japan achieving its Kyoto Protocol targets and playing a leading role in the emerging post-Kyoto world.

2. The Expanding Carbon Credit Market

More Projects Offering Carbon Credits: Japan’s Place in the Pictures
The number of Clean Development Mechanism (CDM) projects registered by the CDM Executive Board of the United Nations has been growing, totaling 732 as of July 13, 2007, a little more than two years after the Kyoto Protocol came into effect. The projects have spawned a diversity of businesses, from the development of renewable energy (notably wind, solar and geothermal power generation) to the production of biomass using sugar cane pulp residue, the collection of methane gas from garbage and livestock manure, and the recovery and decomposition of freons.

These types of projects have also begun at the state and corporate level in the United States, a nation
These terms are keys to understanding Japan’s environment-related businesses in CO2 emissions reduction.

Global warming

Global temperatures need to be maintained through a delicate balance, with the earth’s surface radiating heat outward at the same rate it absorbs heat from the sun. Greenhouse gases (GHG) in the atmosphere absorb radiated heat energy, and if the concentration of these gases increases, the temperature of the earth as a whole will rise, resulting in severe global consequences. If current trends continue, it is predicted that by the year 2100, the global mean temperature could increase by up to 5.8°C over the 1990 level. (Source: Third Assessment Report of the Intergovernmental Panel on Climate Change)
and the value of those credits is determined through market mechanisms. It would be advantageous for Japan, too, to develop its own emissions trading market and promote the development of a global market environment for such trading.

Preparations for Emissions Trading in Japan
The types of needs mentioned above have prompted JBIC to take steps to make it easier for Japanese corporations to participate in emissions trading markets. While doing so, JBIC takes advantage of the experience and know-how it has gained in overseas carbon credit business projects.

In March 2006, JBIC collaborated with a trust bank, auditing firm, tax accounting firm and law firm to establish the Study Group on the Utilization of Trust Functions for Carbon Credits Management. The Group spent the next year studying and conducting research into frameworks that could be applied in Japan for emissions trading under a trust function. The objective here is not to establish an emissions trading “Exchange” but to apply existing trust function and reduce the cost of managing and dealing in carbon credits, thereby facilitating emissions trading in Japan.

Introduction of Credit Rating Services to Encourage Emissions Trading
A proper understanding of the risks involved in emissions trading and measures to ensure carbon market stability are required to energize emission trading.

This type of trading entails the risks generally associated with any overseas project, and there could be a concern that the project is not registered for emissions trading under the Kyoto mechanisms. Decisions should therefore be made after a third party verifies, in the first place, whether credits can be obtained from the candidate project, and evaluates the candidate project using a carbon credit rating system.

To promote these objectives, in May 2007 JBIC signed a Memorandum of Understanding with IDEAcarbon Ltd., a British private-sector consultant engaging in emission trading, and the Japan Institute for Overseas Investment (JOI), with a view to cooperating in giving the Japanese emission trading market a rating (risk assessment) service for diverse projects generating carbon credits.

JBIC Participation in G8+5 Climate Change Dialogues
Under the initiative of then-Prime Minister Tony Blair of the UK, the GLOBE G8+5 Climate Change Dialogue was launched as a forum for legislators and others from developed and developing countries to address climate change issues. The initiative was inspired by the Gleneagles Plan of Action on climate change, clean energy and sustainable development, announced at the 2005 G8 Gleneagles Summit in the UK.

The Dialogue also includes climate change experts and consultants representing international corporations and organizations. JBIC, the only Japanese organization to participate in the forum, draws on its financing experience to offer advice on policies to encourage investments in energy conservation and renewable energy projects.
3. Support Guided by Japan’s Development Experience: Recent Examples

The Kyoto Mechanisms — Business Opportunities for Japanese Corporations
Japanese corporations have some of the world’s most advanced technologies for conserving energy and using it efficiently, and this offers them excellent business opportunities to expand their involvement in Kyoto mechanism projects. If they do so, they will contribute to the world through their efforts to ameliorate global warming and improve the environment, and they will also help Japan achieve its GHG reduction commitments.

For these reasons, too, JBIC is drawing on Japan’s own development experience when using a variety of financing schemes to support GHG reduction projects.

Case Study 1
Effective use of surplus gases from a steel plant offers promise of future carbon credits

Financing for Industrial Union of Donbass, Ukraine
In February 2007, JBIC signed a buyer’s credit agreement totaling up to 13.8 billion yen with Ekoenergiya, a subsidiary of the Industrial Union of Donbass, a major steel producer in Ukraine. This is the first loan JBIC has offered to a Ukrainian company while assuming the credit risk.

The loan will finance the export of a Japanese-made gas turbine combined cycle power generation unit, for installation in the Donbass steel plant. The export from Japan to Ekoenergiya will be arranged by Sumitomo Corporation. The unit will use surplus gases from the steel plant to generate some of the electric power required by the plant. It is expected that in this way Japanese technology will promote a more efficient use of energy and improve the environment.

There is also a good prospect that Japanese firms will be able to acquire carbon credits under the Kyoto mechanisms through this power project, which will use surplus gases.

Case Study 2
First JI project financed by JBIC will yield carbon credits for Japan

Financing for the Kaliakra Wind Power Project, Bulgaria
In March 2007, JBIC signed a loan agreement totaling up to 37 million euros for the Kaliakra Wind Power Project in Bulgaria. Mitsubishi Heavy Industries has

Japanese Model for Emissions-related Business

(Investee country)
National government

Support
Approval
Policy dialogues (cooperation agreements providing support in project formation)

Kyoto Protocol

Project resulting in reduced GHG emissions

Carbon credits

Investments; supply of advanced equipment and technology

Financing

(Investor country)
Japanese government

Carbon credit purchaser

Government
Corporation
Subscription
Carbon credits

Japan GHG Reduction Fund (JGRF)

Manufacturer, etc.

JPIC

Subscription and operational assistance

Global Legislators Organization for a Balanced Environment (GLOBE)
GLOBE was founded in 1989 by members of the European Parliament (EC at the time), the US Congress and the Japanese Diet, as an inter-parliamentary group to promote international cooperation among legislators in response to global environmental challenges. Later, legislators from Russia as well as Asian and African countries also joined the group. GLOBE submits proposals on global environmental issues to national governments and relevant international organizations.
The Kyoto mechanisms
Clean Development Mechanism (CDM)
Industrialized countries promote projects in developing countries for the purpose of reducing GHG emissions there, in return for which the industrialized countries receive carbon credits that they can apply to their own emission reduction commitments under the Kyoto Protocol.

Joint Implementation (JI)
Industrialized countries invest in GHG emission reduction projects in other industrialized countries, then apply the resulting reduction against their own commitments.

International Emissions Trading
This system facilitates the buying and selling of emission credits among industrialized countries. Countries that have reduced emissions more than required under their targets can sell their excess emission credits to other countries.

equity stakes in the project.

The project involves the construction and operation of a 35 MW wind power plant on the Black Sea coast. This is the first project financing loan JBIC has extended for a wind power project.

The loan is intended to support the financing of a Joint Implementation (JI) project with investment and technology provided by a Japanese corporation. JBIC and the Bulgarian government reached an agreement in 2004 on cooperating in the promotion of projects that lead to lower GHG emissions, and if the said government authorizes the JI component of the project, it will be the first JI project implemented by a Japanese company. The carbon credits to be generated from the project will be purchased by Japan Carbon Finance (JCF), thereby contributing to Japan’s acquisition of carbon credits. Income from the sale of the credits will be added to the project cash flow used to repay the loan, making the project even more economically viable.

Bulgaria acceded to the EU in January 2007, and the project is expected to open the door for the Japanese corporation to enter the European wind power market.

JBIC will continue to cooperate with governments and JCF in providing strong support for projects that lead to the acquisition of carbon credits for Japan.

**Achieving Emission Targets for Future Development**

The year 2008 will be the first in the period during which countries will be obliged to meet their GHG reduction commitments under the Kyoto Protocol. Industrialized countries became affluent partly due to energy obtained from fossil fuels, so it is natural that they are now expected to take firm steps to halt global warming. Meanwhile, as developing countries continue on their path to advancement, they will require large amounts of energy. Japan and other industrialized countries should use their innovative technologies to support developing countries in their efforts to reduce GHG emissions, and this will not only contribute to economic growth in developing countries but also create new business opportunities for the countries offering support. The Kyoto Protocol represents the potential for this type of win-win situation born from international cooperation.

As Japan prepares to host the 2008 G8 Hokkaido Toyako Summit, JBIC will continue to contribute to the growth of Japanese-style environment-related businesses, helping Japan take a leadership role in a world moving away from carbon emissions.

For further information on environment-related businesses:
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**Possible Reduction in CO₂ Emissions with Energy-Saving Technologies**

Possible emission reductions achieved if all equipment used in 2020 is similar to existing highly efficient models, rather than equipment similar to existing models remaining in use until 2020 (single year base)

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Let the Power of the Market Tackle Climate Change

Dr. Tony Hayward,
BP Group Chief Executive Officer, BP p.l.c.

Beyond petroleum: Proactive investments for energy efficiency

The UN’s Intergovernmental Panel on Climate Change has found that there is evidence that a large part of climate change is manmade.

For a company to do business in the long term, it must respect the broader needs of society and be a good corporate citizen. BP was the first major energy company to publicly acknowledge the issue of climate change, and is investing in diverse projects to mitigate global warming.

BP provides energy for the essential things of life, while at the same time aiming Beyond Petroleum by producing fossil fuels more efficiently, making better use of fossil fuels, and beginning the transition to a low carbon future. Fossil fuels are responsible for 60% of greenhouse gas emissions, and they will remain the main source of energy for some time to come. So BP is investing US$8 billion in the development of alternative sources of energy, such as solar, wind and hydrogen power, promoting projects that will help reduce carbon emissions ahead of long-term targets agreed to internationally. And for the development of the next generation of biofuels, we have pledged US$500 million for a new Biosciences Institute at the University of California at Berkeley and Indiana University.

We are also reducing the carbon emissions from our own operations by making them more efficient. This has created nearly US$2 billion of value for us in the last decade.

Market price mechanisms to drive emissions trading

Some people would simply prefer a tax to be imposed on carbon use to reduce greenhouse gas emissions. But a control approach would be a totally inappropriate and unworkable solution to a global problem like climate change. A more effective approach would be to include the costs of emissions in what we consumers pay for everything. This cost approach would work under a price mechanism that would be set in the market by the interaction of supply and demand. Market mechanisms are the most powerful economic force, and I believe that unlocking the ability of a competitive market to innovate and change behaviors will be the fastest way to mitigate climate change. One can expect that more progress will be made if we integrate climate change into the strategic growth opportunities of societies and businesses.

Aiming for a global emissions trading market

The absolute requirement for carbon markets to work is for national governments and legislatures to place caps on all greenhouse gas emissions. These caps can then be divided up into tradable permits in a so-called Cap and Trade system. This system is already running with some success in the EU’s Emissions Trading System. A global emissions trading system should of course be our ultimate objective, and although it is not achievable immediately, I believe we should start on a regional basis now. After all, financial markets started off as local systems and yet are now global in scale. A similar evolutionary process should be promoted for carbon trading.

Our objective should be to let markets and companies work their magic. I believe that a global market for carbon will emerge over time. Humankind tends to act in its own interest, so plainly we would all benefit if consumers paid the true cost of climate change via a carbon market, and consequently reduced their emissions. This would bring great benefits to everyone.

The need for new technologies, and the role of incentives

Now is the time for us all to take the necessary action on climate change. Alternate sources of energy have already been developed and we already have new technologies that can make existing systems more efficient. Companies like BP are already making some progress in these fields.

If mechanisms are established to shift the cost of emissions to the cost of what we pay for things, the result will be a cascade of incentives throughout the economy which will encourage massive emissions reductions. And for the business world, incentives should be put in place to encourage companies to develop new technologies - if incentives gradually taper away as those technologies advance, this will lead to true cost reduction.

I am an optimist. Although the challenges of climate change are grave, they can be solved because human ingenuity knows no bounds. Humankind has surmounted many major obstacles so far, and I believe it will be able to do the same with climate change, opening the door to a better future.

(Abridged from a speech by Dr. Hayward)

* BP p.l.c. is an international energy company based in the U.K. The company was previously known as British Petroleum, but assumed its present name in 2001.

Dr. Tony Hayward, BP’s Group Chief Executive Officer, is an international advisory board member for the GLOBE (Global Legislators Organization for a Balanced Environment) G8+5 Climate Change Dialogue. He gave this speech, entitled “Delivering Technologies via Carbon Markets,” at the GLOBE G8+5 Climate Change Dialogue Berlin Legislators’ Forum in June 2007.