Results of the Fiscal 2004 Follow-up
to the Keidanren Voluntary Action Plan on the Environment (Summary)
--Section on Global Warming Measures—
<Tentative translation>

November 26, 2004
Nippon Keidanren (Japan Business Federation)

1. CO_2 emissions in fiscal 2003 by industry as a whole (comprising the industrial and energy-conversion sectors)

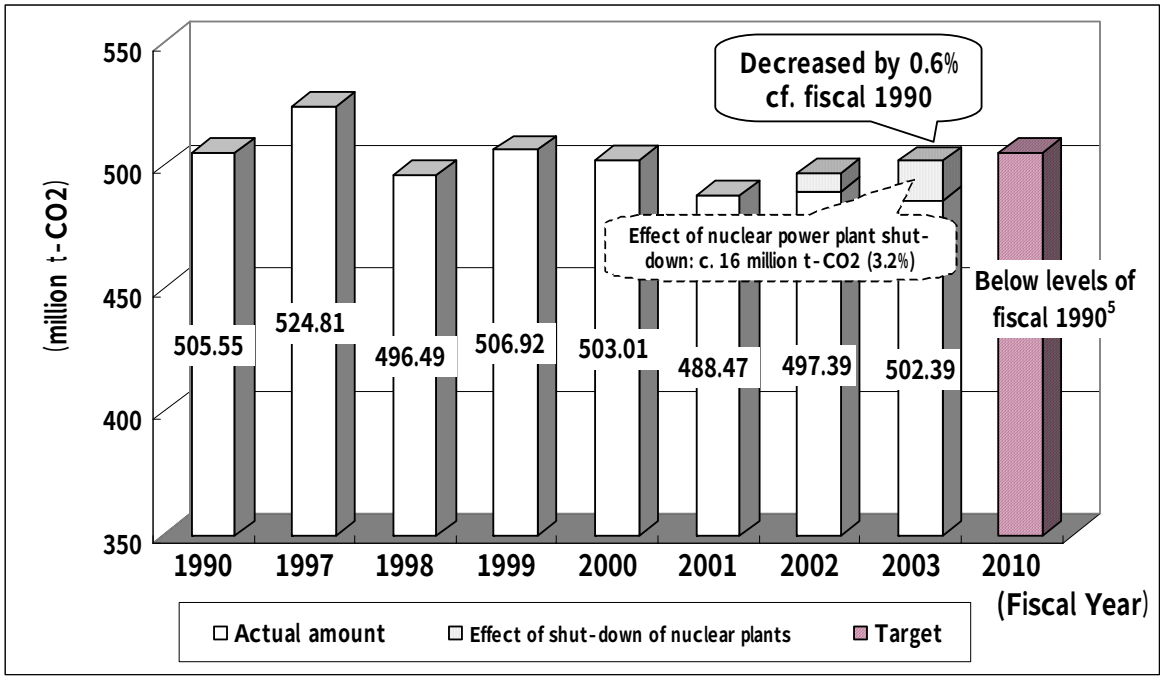
Nippon Keidanren has declared that it will "endeavor to reduce CO_2 emissions from the industrial and energy-converting sectors in fiscal 2010 to below the levels of fiscal 1990," and participating industries and companies are striving to achieve this target.

The 34 industries[1] in the industrial and energy-converting sectors that participated in the fiscal 2004 Follow-up emitted 505.55 million t-CO_2[2] in fiscal 1990, equivalent to around 45.0% of the 1.1223 billion t-CO_2 emitted by Japan as a whole during that year. Moreover, the emissions of the 34 industries represented approximately 82.2% of the total amount of CO_2 emitted by the country's industrial and energy-converting sectors in fiscal 1990 (615.00 million t-CO_2[3]).

Results of the fiscal 2004 Follow-up indicate that CO_2 emissions in fiscal 2003 were 502.39 million t-CO_2, a 1.0% increase compared to fiscal 2002 and a 0.6% decrease compared to fiscal 1990.

If the effect of the worsening of the CO_2 emissions intensity of electricity resulting from the long-term shut-down of some nuclear power plants is excluded, CO_2 emissions can be estimated at approximately 486 million t-CO_2, a decrease of around 3.8% compared to fiscal 1990.

CO_2 Emissions by 34 Industries in the Industrial and Energy-Converting Sectors[4]



2. Trends by industry

Of the 34 industries in the industrial and energy-converting sectors that participated in the fiscal 2004 Follow-up, 19 reported declines in CO_2 emissions compared to fiscal 1990, while 8 reported declines compared to fiscal 2002. Of the 12 industries that defined their goals in terms of reductions of CO_2 emissions, 9 reported reductions compared to fiscal 1990 and 4 reported reductions compared to fiscal 2002[6].

All 5 of the 5 industries that defined their goals in terms of reduction of energy consumption reported reductions compared to fiscal 1990; 2 industries reported reductions compared to fiscal 2002[6].

Of the 21 industries that defined their goals in terms of either CO_2 emissions intensity or energy consumption intensity, 14 reported improvements in their indices compared to fiscal 1990, and 10 of these industries also showed improvements in these indices compared to fiscal 2002 (see Attachment 1)[6].

3. Efforts by industries in the transportation, offices and household sectors to reduce CO_2 emissions

Since CO_2 emissions in the transportation, offices and household sectors are increasing by 20–30% compared to those of 1990, efforts in these sectors based on the Keidanren Voluntary Action Plan on the Environment are being strengthened.

To date, 23 industrial associations and companies from the transportation, offices and household sectors[7] have participated in this Voluntary Action Plan, each of them formulating voluntary action plans and endeavoring to take steps to deal with global warming (see Attachment 2).

Moreover, in the participating industrial and energy-converting industries, measures are being taken in the transportation, offices and household sectors to reduce CO_2 emissions.

According to actual examples reported by participating industries, in addition to promoting office and distribution measures, efforts are also being made to provide energy-saving products that make maximum use of technology possessed by companies and to reduce CO_2 emissions in homes through employee education and the provision of new public transportation services. Energy Service Company (ESCO) operations and the commercialization of energy management systems are also being promoted, making comprehensive use of the expertise and technology utilized in these measures.

* Examples of transportation, offices and household sector measures reported by participating industries

[Examples of office measures]

- Introduction of energy-saving equipment (thermal storage HVAC systems, solar power generation systems, etc.)
- Shift in OA equipment, lighting fixtures, etc. to energy-saving types
- Adhesion of light-filtering film to glass
- Efficient operation of air conditioning, adjustment of set temperature
- Switching off lights during lunch breaks or using only every other light, using elevators less
- Environment education for employees

[Examples of distribution measures]

- Distribution improvement through using larger trucks to transport products and utilizing joint transportation
- Modal shift to railway transport and shipping
- Introduction of fuel-efficient cars, electric cars, natural gas cars, etc.
- Encouragement of fuel-efficient driving, such as the practice of turning off engines rather than leaving them idling, reduction of fast take-offs and accelerations, etc.
- Move to more lightweight products
- Measures through affiliation between distributors and their clients

[Examples of measures from the LCA perspective]

- Development and provision of various kinds of energy-saving equipment and high-efficiency heat pumps
- Development and provision of materials and systems that contribute to energy-saving
- Development and provision of cogeneration, fuel cells, etc.
- Use of waste products as raw materials for cement and sources of thermal energy

Examples of quantitative evaluations (benefits estimated by industries)

- Electric refrigerators: reduction of CO_2 emissions in total life cycle by 30% (1995–2000)
- High-performance steel products: reduction effect through six main product items manufactured in the 1990s: about 6.5 million t-CO_2
- Liquid crystal displays: electricity-saving effect of diffusion of LCDs in PCs (2003): about 3 billion kWh
- Making tissue paper packages more compact: reduction of CO_2 emissions intensity at time of shipping by 35%
- Using aluminum for lighter-weight rolling stock: reduction of about 100 t-CO_2 per car though the car’s life cycle
- Sulfur-free car fuel: improvement of atmospheric pollution, 4-5% reduction in fuel usage

*Operations to reduce greenhouse gases overseas

The promotion of the reduction of CO_2 emissions overseas through the use of advanced

technology of Japanese companies can also be described as an important voluntary measure on the part of industry. In particular, the Clean Development Mechanism (CDM) and Joint Implementation (JI), which can be used to achieve Japan's commitment under the Kyoto Protocol through reductions overseas, are positioned as one means of achieving the objectives of the Voluntary Action Plan.

In the fiscal 2004 Follow-up, examples of forestation and energy-saving activities and specific operations such as biomass power generation and methane gas recovery in various regions of the world are reported. Furthermore, many of the industries and corporations that are implementing voluntary action plans are making efforts for the reduction of greenhouse gases overseas, by voluntarily participating in overseas carbon funds, including the World Bank's Prototype Carbon Fund, and in the Japan GHG Reduction Fund, a fund comprised of private Japanese companies.

In addition, of those industries that have not yet implemented specific measures, some are making preparations to take such measures.

4. Evaluation of Voluntary Action Plan measures

(1) Reasons for the variations in CO_2 emissions in the industrial and energy-converting sectors

An analysis of the reasons for the 0.6% decrease in CO_2 emissions by the 34 industries in fiscal 2003 compared to fiscal 1990 is provided in the table below. This reveals that improvement is progressing in the amount of emissions per production, to an extent that compensates for the worsening of the CO_2 emission coefficient and the increase in production, and that energy-saving and other CO_2 emission reduction measures by the industries and companies are having an effect.

At the same time, analysis of the reasons for the increase since fiscal 2002 reveals that, although reduction of the emission amount per production as a result of the production activities of industries and companies is progressing, the combined effect of greater production activity and the worsening of the CO_2 coefficient associated with the long-term shut-down of some nuclear power plants led to an increase in CO_2 emissions of 1% compared to the previous fiscal year.

	Cf. fiscal 1990	Cf. fiscal 2002
Change in CO_2 coefficient*[1]	+0.4%	+0.8%
Change in production*[2]	+4.9%	+0.8%
Change in CO_2 emissions per production	-5.9%	-0.6%
Total	-0.6%	+1.0%

*[1] CO_2/MJ for fuel use; CO_2/kWh for electricity consumption

*[2] For the indices for change in production, the indices with the closest relation to energy consumption in each industry were selected. The changes in production of the 34 participating industries in the industrial and energy-converting sectors are weighted averages applying the indices of each industry to CO_2 emissions.

*The effect of the shut-down of some nuclear power plants

In fiscal 2003 some nuclear power plants had long-term shut-downs, and through the effect of using thermal power generation to compensate for the amount of electricity generation lost as a result, in order to maintain a stable supply of electricity, the CO_2 emissions intensity worsened.

If calculations were made using the CO_2 emissions intensity for electricity in the event of there being no effect of a long-term stoppage of some nuclear power plants, based on estimates of the Federation of Electric Power Companies (3.24 t-CO_2/10,000 kWh for all electricity sources at electricity generating ends), the CO_2 emissions of the 34 participating industries would represent a decrease of about 16 million t-CO_2 (approximately 3.2%).

(2) An international comparison of energy efficiency

According to the international comparison of energy efficiency conducted by participating industries, in every industry global top-runner levels of energy efficiency have already been achieved (see Attachment 3). It is important to contribute to the reduction of emissions of greenhouse gases on a global scale through furthering the overseas transfer of the advanced energy-saving and new energy technologies possessed by Japanese companies.

5. Future Policies

In spite of the increase in production resulting from Japan's economic recovery, through the efforts of the participating industries, CO_2 emissions for fiscal 2003 showed a decrease of 0.6% compared to fiscal 1990. The voluntary measures of industry are showing considerable effects, such as the improvement in the CO_2 emissions intensity and energy consumption intensity since 1990, as well as the steady progress in the shift to less carbon-intensive energy.

Moreover, calculations based on the CO_2 emissions forecasted by the main industries found that achieving the goal of "below the level of 1990" by 2010 is well within the bounds of feasibility (see Attachment 4)[8].

While calling on participating industries to remain committed to efforts to achieve their individual goals, Nippon Keidanren will work toward achieving the common goal for all industries, namely "to endeavor to reduce CO_2 emissions from the industrial and energy-converting sectors in fiscal 2010 to below the level of fiscal 1990."

Nippon Keidanren established the Evaluation Committee for the Voluntary Action Plan on the Environment in 2002, and is receiving evaluations in order to enable the industries to continue their measures within the framework of the Voluntary Action Plan over the medium and long terms (see Attachment 5).

In the fiscal 2004 Follow-up, in light of the points made by the Committee, Nippon Keidanren has worked towards improvements, including enhancement of the transparency of the Follow-up, greater clarification of the efforts of the participating industries, based on an international comparison of intensity evaluation and energy efficiency, and verification of the possibility of achieving the common goal for 2010. Along with continuing to improve the transparency and reliability of the Voluntary Action Plan, and working to make use of the Kyoto Mechanism, Nippon Keidanren will continue to make efforts for the achievement of the goal.

At the same time, industry will continue to contribute not only by reducing CO_2 emissions from the industrial sector, but also by further strengthening measures to reduce emissions from the transportation, offices and household sectors. Specifically, it will implement the following recommendations stated in the "Towards the Steady

Implementation of Global Warming Measures" proposal announced in July 2004: 1. Development and diffusion of energy-saving products; 2. Provision of information and services on energy-saving to the public; 3. Promotion of global warming measures in distribution; 4. Promotion of forestry maintenance activities; and 5. Promotion of global warming measures in homes and offices.

Moreover, global warming is a problem that must be addressed on a global scale, and one that calls for a long-term efforts. Industry will continue to make overseas contributions through Japan's advanced technology, and to promote technological development, the key to resolution of the global warming problem.

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[1] This year the Japan Coal Energy Center ended its participation. The following are the 34 participating industries in the industrial and energy-conversion sectors: Flat Glass Manufacturers Association of Japan; Japan Federation of Housing Organizations; The Communications and Information Network Association of Japan; The Japan Electronics and Information Technology Industries Association, The Japan Electrical Manufacturers' Association and The Japan Business Machine and Information System Industries Association; Japan Sugar Refiners' Association; Flour Millers Association; Petroleum Association of Japan; Limestone Association of Japan; Japan Cement Association; The Japan Soft Drinks Association; The Federation of Electric Power Companies of Japan; Japan Aluminum Association; Japan Sanitary Equipment Industry Association; Japan Chemical Industry Association; The Japan Gas Association; Japan Federation of Construction Contractors, Japan Civil Engineering Contractors' Association and Building Contractors Society; Japan Mining Industry Association; Japan Machine Tool Builder's Association; The Japan Rubber Manufacturers Association; The Japan Society of Industrial Machinery Manufacturers; Japan Industrial Vehicles Association; Japan Automobile Manufacturers Association; Japan Auto-body Industries Association; Japan Auto Parts Industries Association; Japan Copper and Brass Association; Japan Paper Association; The Federation of Pharmaceutical Manufacturers' Associations of Japan and Japan Pharmaceutical Manufacturers Association; Japan Lime Association; The Shipbuilders' Association of Japan and the Cooperative Association of Japan Shipbuilders; The Japan Iron and Steel Federation; Japan Association of Rolling Stock Industries; The Japanese Electric Wire & Cable Makers' Association; Japan Dairy Industry Association; The Japan Bearing Industrial Association; and Brewers Association of Japan.

[2] When electric power input per unit output is used to calculate emissions for industry as a whole, Nippon Keidanren uses the following data (for all power sources at generating ends) provided by the Federation of Electric Power Companies. When not otherwise specified, electric power input per unit output cited by the respective industries is also based on data provided by the Federation of Electric Power Companies.
{For FY 1990: 3.74; FY 1997: 3.26; FY 1998: 3.16; FY 1999: 3.34; FY 2000: 3.38; FY 2001: 3.38; FY 2002: 3.62; FY 2003: 3.89; FY 2010: 2.99; FY 2010 (BAU): 3.89 (t-CO_2/10,000 kWh)}.
Other conversion coefficients for energy: With respect to caloric value, Keidanren utilizes data from the following: Comprehensive Energy Statistics, the Agency of Natural Resources and Energy's "Caloric Value Table by Energy Source" (dated March 30, 2001), and survey data by the Federation of Electric Power Companies. Due to revisions of the Caloric Value Table, caloric conversion coefficients for periods prior to FY1999 differ from those for after FY2000. For carbon conversion coefficients, Keidanren uses the Environment Agency's "Report on Survey of Carbon Dioxide Emissions (1992)."

[3] The total of emissions from the energy-conversion and industrial sectors, and from industrial processes, as contained in the statistics on total CO_2 emissions for Japan, which are announced by the Ministry of the Environment.

[4] Industries review actual and forecasted figures on CO_2 emissions each year with the aim of improving the accuracy of such figures. Therefore, different numbers may appear from those cited in the previous year.

[5] BAU (Business As Usual): the amount of CO_2 emissions in FY 2010, assuming that the Voluntary Action Plan as of FY 2004 is not executed from FY 2004 on. This is estimated as an increase of approximately 38 million t-CO_2 compared to 1990.

[6] The goals of the Japan Gas Association, which defines its targets in terms of CO_2 emissions and CO_2 emissions intensity; the Japan Rubber Manufacturers' Association, which defines its targets in terms of CO_2 emissions and energy consumption intensity; the Japan Soft Drinks Association and Flour Millers Association, which define their targets in terms of CO_2 emissions intensity and energy consumption intensity; the Japan Machine Tool Builders' Association and the Japan Electric Wire and Cable Makers' Association, which define their targets in terms of energy consumption and energy consumption intensity, have been included among industries reporting improvements in each target.

[7] The participating industries from the offices and household sector comprise the following: Japanese Bankers Association; Japan LP Gas Association; The General Insurance Association of Japan; Japan Chain Stores Association; Japan Department Stores Association; Japan Hotel Association; Japan Foreign Trade Council, Inc.; Japan Association of Refrigerated Warehouses; The Real Estate Companies Association of Japan; and NTT Group.
The participating industries from the transportation sector comprise the following: All Japan Freight Forwarders Association; Japan Trucking Association; The Scheduled Airlines Association of Japan; The Japanese Shipowners' Association; Japan Federation of Coastal Shipping Associations; The Association of Japanese Private Railways; and JR Freight, JR Kyushu, JR Shikoku, JR Central, JR West, JR East and JR Hokkaido.

[8] Estimates of the 2010 production were based on the common economic indicators (reference materials dated January 16, 2004, the Council on Economic and Fiscal Policy, Cabinet Office), but some industries based these forecasts on their own assumptions.