

Achievable! 6% Reduction

JAPAN's 6% Reduction Citizen's Proposal - Final Report (Summary)

This paper is a summary of the final report of the project which Kiko Network, a Japanese environmental NGO, has been promoting in order to propose domestic climate change policies which work towards meeting Japan's 6% greenhouse gas reduction target between the years 2008-2012 as agreed under the Kyoto Protocol. The proposal which is an alternative to the government policy, takes into consideration political and economic acceptability and sets forth policies and measures that can immediately be put into practice. If the policies and measures outlined in this proposal are immediately implemented, the 6% reduction target by 2010 can easily be met at home without relying on "sinks" or the "Kyoto Mechanisms". Through this proposal, a new climate change policy will be implemented and a 6% reduction will be realized, and it will be the first step towards a sustainable society.

Summary of 6% Reduction Citizens' Proposal

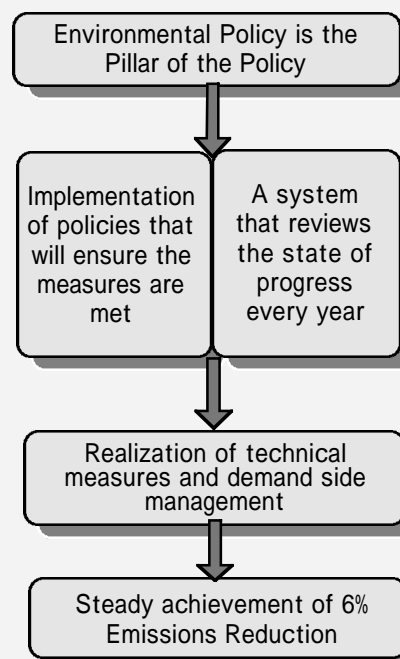
Environmental policy has taken a back seat to other government policies in Japan, and the present climate change policy is nothing more than a mixture of odds and ends of existing policies. The contents of this policy are a failure and it is clear that it won't even be possible to return CO₂ emissions to the 1990 level.

In this project we carried out an evaluation of various technical measures such as improving the efficiency of appliances and changing over to non-fluorinated gases, and an evaluation of measures to curb energy demand such as traffic volume control and efficiency improvement. The result of the evaluations confirms that it is possible to achieve a more than 6% reduction of CO₂ and three HFCs, PFCs, SF₆ by the year 2010. The proposal also calls for the establishment of a check & review system to ensure that these policies and measures are properly implemented.

As for CO₂ reduction, we are proposing policies such as policies that support the spread of renewable energy through the enactment of a law which guarantees the appropriate price of the electricity, policies that curb the use of coal, policies that strengthen energy reduction of factories, buildings, appliances and cars, and policies that lengthen the lifetimes of buildings and appliances. In addition, we are calling for the introduction of a carbon tax which will support all the measures.

As for fluorinated gases reduction, we are proposing implementing regulations to curb leakage from factories, make recovery and decomposition mandatory, and taxation which encourages using alternative fluids instead of HFC, PFC and SF₆.

That is to say, by immediately implementing these types of policies and measures, and carrying out achievable technical measures and demand side management, it will be possible to achieve a more than 6% reduction, without relying on "sinks" or the "Kyoto Mechanisms". Furthermore, by implementing these measures, it is possible to bring about a large reduction in energy costs that will lead to a revitalization of the economy.



The Results of this Project

Contents	Reduction
Energy Related CO ₂	-6.1%
HFC +PFC +SF ₆	-1.3%
Total	-7.4%

1. Japanese Government's Policy and its Problems

➤ Achievement of Year 2000 target is Hopeless

In 1990, according to the "Action Program to Arrest Global Warming", the government set a goal of stabilizing per capita CO2 emissions after the year 2000 at the 1990 level. However, in 1998 CO2 emissions had already increased approximately 5.6% from 1990 levels. It is forecast that emissions will further increase in 1999, so achievement of the target has become hopeless.

➤ Almost no policies since COP3

At COP3 in 1997, the Japanese government agreed to reduce emissions of six GHGs by 6% of the base year level (1990 for CO2, 1995 for HFC +PFC +SF6) by the year 2008~2012. Afterwards, in June 1998 the Japanese government adopted a "Guideline of Measures to Prevent Global Warming", but there are several problems with this guideline as listed below.

Rather than domestic actions, rely on sinks and overseas mechanisms

Instead of introducing new domestic measures, the government introduced a scheme that relies on various loopholes such as a 3.7% reduction using forests as sinks, and the use of the three Kyoto Mechanisms (Emissions Trading, Joint Implementation, Clean Development Mechanism). With regards to three fluorinated gases (HFC +PFC +SF6) they accepted a 2% (just looking at fluorinated gases a 50% increase in emissions (see table below).

Our Project	Contents		Government	
more than - 6.0%	Domestic Reduction	Energy Related CO2	± 0.0%	Unchanged since before COP3
± 0% (Not considered)		Methane, Nitrous oxide, non-energy related CO2	- 0.5%	
Not calculated		Innovative technologies, and the efforts of each social actor	- 2.0%	
more than - 0.24%		Fluorinated Gases (HFC +PFC +SF6)	+ 2.0%	Added since COP3
Not calculated	others	Sinks from forests, etc	- 3.7%	
Not use		Kyoto Mechanisms (Emissions Trading +JI +CDM)	- 1.8%	
more than - 6.0%	Total		- 6.0%	

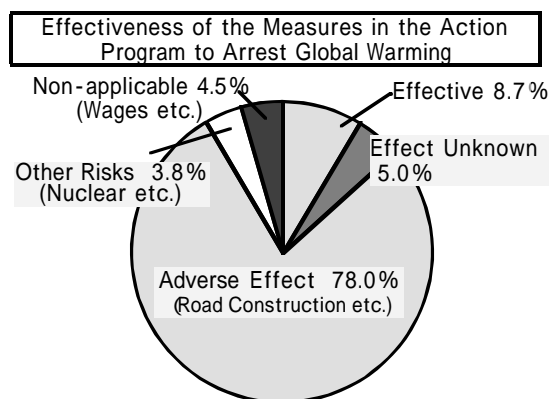
(A -6% reduction for HFC +PFC +SF6 becomes 0.24% if the 6 gases are made into the denominator)

There are very few new policies

Measures to reduce CO2 have not changed since October 1997 before COP3. Even after the government agreed to a 6% reduction according to the Kyoto Protocol, the target for energy related CO2 emissions to be stabilized (± 0%) at the 1990 level has not changed, and remains insufficient. In 1998 the Energy Saving Law was revised, and a revision of the Outlook for Long-term Energy Demand was carried out, but neither of these policies does anything more than rely on the construction of 20 new nuclear power plants to meet the "zero percent" policy. Furthermore, the Law Concerning the Promotion of the Measures to Cope With Global Warming, enacted in 1998, also can not be counted on to achieve concrete reductions. In other words, three years after COP3 the government has still not implemented sufficient policies to achieve the 6% reduction.

Climate change policy has been neglected, and retrogressive policies haven't been reformed

Mostly policies in the Guideline of Measures to Prevent Global Warming have been in place already and are unrelated to climate change. One extreme example is road construction. Claiming that the construction of roads will alleviate traffic jams, the government is pursuing it as a climate change measure, when in fact this has been identified as a policy that will only have an adverse effect. The reason why climate change policy is insufficient is because environmental policies including climate change are low on the list of priorities, and other policies such as public works have been given precedence.



(budgeted base, 1995)

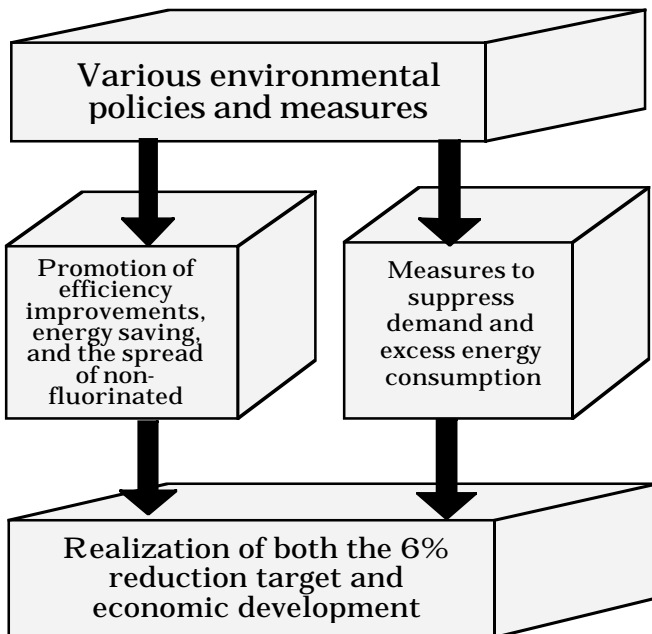
Opaque decision making process and no review and revision structure

The government's current plan to achieve the 6% target was worked out behind closed doors during the final hours of COP3. This plan was made the official government policy by way of the "Guideline of Measures to Prevent Global Warming", but the criteria for deciding this was unclear. As well, the review of the Guideline is done in each ministry and agencies' annual report, but no attempt is made to assess the appropriateness of the policies implemented. In addition, there's no structure to revise or strengthen the guidelines.

2. Achievable! 6% Reduction - The Result of the Project

Proposal to Achieve More than 6% Reduction

The present government policy does not act as a countermeasure for climate change, so we are proposing policies and measures which take the place of the government policy. We considered the possibility of policies and measures which could be immediately introduced in order to reduce energy demand and improve technical measures which would lead to efficiency improvements so as to definitely achieve a more than 6% reduction in both energy related CO2 and fluorinated gases by the year 2010.



Our Basic Principle

A 6% reduction plan that leaves room
 In order to ensure that the 6% reduction is certainly met, we have outlined measures that can definitely be achieved domestically. Uncertain measures (i.e. innovative technologies and accelerating the efforts of each social actor), have not been included in the 6% reduction.

Sinks and Kyoto Mex are not used
 There are large scientific uncertainties with regards to sinks, and because global consensus has not been reached on how to define and account for sinks in the protocol, we do not include them in our calculations. International Emissions Trading in the Kyoto Mechanisms is also not included in our calculations because this leads to Hot Air that is not a result of genuine reduction efforts. As well, Joint Implementation and CDM lead to an abatement of reductions within Japan, and even if these projects are deemed to be good projects, we have not included them in our 6% reduction boundary.

More than 6% reduction from CO2 and HFC ·PFC ·SF6, respectively
 (Non-energy related CO2, methane, and nitrous oxide are not included in this investigation)

Aim for a Sustainable Society
 The Kyoto Protocol calls for a 6% reduction, however the 2nd commitment period after 2013 will call for even larger reductions, so this investigation takes into consideration efforts to achieve a sustainable society in the mid to long term future.

The Result of this Project (Mt/CO2)

Contents	Base year emission	2010 Emissions outlook	Reduction
Energy Related CO2	1052.8	978.0	- 6.1%
CH4 ·N2O ·Non Energy Related CO2	122.0	122.0 (Not considered)	± 0.0%
HFC ·PFC ·SF6	48.5	32.3	- 1.3%
Total	1223.3	1132.3	- 7.4 %

If technical measures such as energy saving are carried out, and demand side management to restrain the energy demand in transportation and households sectors are promoted as soon as possible, it is possible to easily achieve a more than 6% domestic reduction by the year 2010 without relying on sinks.

Consideration of Technical Measures and Demand Side Measures

After considering various technical and demand side measures that can be immediately implemented, we determined that there are many countermeasures that will bring about larger reductions than in the government's prospects.

Main difference between the government plan and our proposal on CO2 reductions

Compared with Government policy, our proposal :	
Promotes more industry energy saving	Steel Industry 5.5% Improvement (Gov't = 0%) Cement Manufacturing Industry 3% Improvement (Gov't = 0%)
Assumes a more appropriate volume of material to be produced	Cement production volume 82 Mt (Gov't = 105 Mt)
Estimates higher energy saving improvements of appliances	Refrigerators 47% (Gov't = 30.4%) / Televisions 40% (Gov't = 16.4 %) / Gasoline vehicles 54.9% (Gov't = 22.8%)
Estimates a higher diffusion of hybrid cars	2.4 million cars (Gov't = 1million cars)

Past Emissions Results and Reduction Outlook

It became clear that if energy related CO2 and fluorinated gases were reduced, and technical and demand side measures were implemented, a more than 6% reduction was possible by 2010 with room to spare.

< Energy Related CO2 >				< HFC +PFC +SF6 >			
	1990	2010年		Gas	1995	2010年	
		Gov't	This project			Gov't	This project
Energy Conversion	77.3	81	80.0	HFC	19.8	30	15.2
Industry	490.1	461	424.9	PFC	11.4	13	10.6
Commercial	124.5	263	124.2	SF6	17.3	8	6.5
Household	138.2		138.7	合計	48.5	51	32.3
Transportation	212.4	249	210.2	Compared to 95		+ 5.2%	- 33.4 %
Total	1052.8	1053	978.0	(Mt/CO2)			
Compared to 1990		± 0%	- 7.1 %				

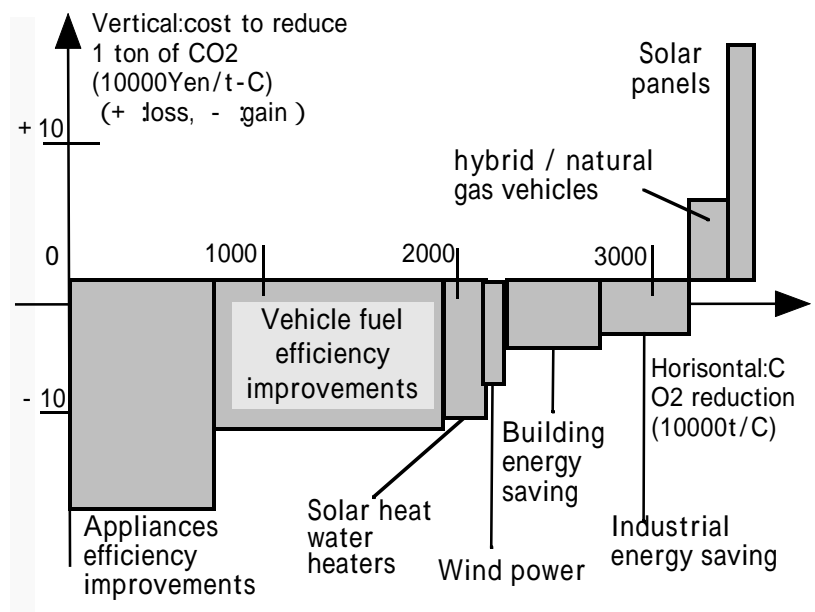
The Cost of Countermeasures and Savings Costs

There are costs at the time of introduction of a new technology, and energy consumption costs that are saved by using the new technology.

With regards to energy related CO2, as for the proposals in this project, after comparing all the known costs, it was determined that for an approximate 3 trillion yen investment, approximately 6 trillion yen could be saved in fuel costs.

Measures which save money and have large reduction are "appliance efficiency improvements" and "vehicle mileage improvements". Other than hybrid cars and solar panels the rest of the measures all lead to financial gains.

This study proves that climate change measures lead to economic gains.



3. Countermeasures, Reductions, Policies and Measures

The following chart outlines the efficiency improvement and demand side measures (A) examined in this project, the greenhouse gas emissions reduction amount (B) that can be achieved by the year 2010, and the policies and measures (C) that will have to be implemented in order to achieve these countermeasures.

GAS	Sector	(A) Efficiency improvement and demand side measures	(B) reduction (Mt/CO ₂)	(C) Policies and measures
Energy related CO ₂	Power Generation	Expansion of renewables and fuel switch from coal to natural gas	power generation 13.5	Renewable Energy Promotion Law and fiscal measures Coal tax and coal power per unit target
			improvement of per unit CO ₂ reduction from electricity 64.1	
	Factories	Improvements in energy efficiency for manufacturing factories Reduction of raw material production due to longer life and suppression of excess consumption	35.9	The strengthening of energy saving in factories and offices Change the Keidanren Environmental Voluntary Action Plan to a mandatory commitment
			18.7	Policies and measures which promote longer life for buildings and appliances, promotion of reusing, and a close examination of public works projects
	Buildings, electrical appliances	Improvement in the efficiency of electric products in households and offices Improvements in building insulation efficiency	27.3	Strengthening of energy saving for appliances and vehicles
			17.8	Inserting energy saving standard for buildings (commercial and residential) into the Building Standards Law and fiscal measures
	Automobiles	Improvements in vehicle fuel efficiency Reduction of car traffic volume	43.6	Strengthening of energy saving for appliances and vehicles Greening of the automobile tax system
			30.6	Traffic demand management road pricing and traffic limitation regulation
	Comprehensive measures	Reduction from Corporations and household	(direct reduction not considered)	Immediate Implementation (2002) of a carbon tax
	Fluorinated Gases (HFC +PFC +SF ₆)	Reduction of factory leakage, recovery and decomposition after use, shift to environmentally friendly alternatives	18.7	Regulations for factories and for manufacturing, enactment of a law that prohibits releases into the atmosphere and makes collection mandatory introduction of a tax based upon the global warming potential, and fiscal subsidies for shifting to non-in-kind technologies

(CO₂ reductions in this project are trial calculations based on business-as-usual scenario, and fluorinated gases reductions are based on the government policy. Furthermore, for the six greenhouse gases the total emission amount for the base year in the Kyoto Protocol was 1223Mt/CO₂.)

4. The Policies and Measures Proposed in this Project

- * Promotion and support of the spread of renewable energy by means of an electricity buying guarantee system
- * Restraint of coal use, and promotion of conversion to natural gas
- * Strengthening energy saving in factories, buildings, cars, office appliances and household appliances
- * Promotion of car traffic volume reduction and support for a shift towards public transportation use
- * Support for longer life use of buildings and appliances
- * Reducing and restraining the use of fluorinated gases, and support for a shift away from fluorinated gases
- * Immediate introduction of a carbon tax to encourage businesses and households to take climate change measures

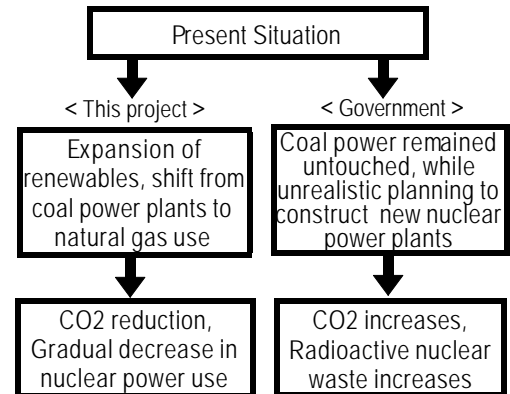
Policies and Measures for CO2 reduction

Renewable Energy Promotion Law and Fiscal Measures

For massive expansion of the renewable energy businesses such as wind, solar, biomass and small hydro power, it is necessary to immediately establish a legal system (feed-in tariff law) that guarantees that electricity produced from these types of energy is purchased at an appropriate price. Furthermore, it is necessary to provide financial assistance system to supplement the purchase price and to establish infrastructure.

Coal Tax and Coal Power Per Unit Target

The use of coal is being promoted price wise, because it costs less than other fossil fuels and is not taxed. In order to encourage fuel switch, we are proposing the introduction of (1) a tax at the same level as petroleum when the carbon contents are taken into consideration, and the introduction of (2) CO2 emission restrictions based on the power generation in order to increase the efficiency of coal fire power plants. Therefore, a fuel switch will be promoted, and it will be possible to take a different direction than what has been taken so far.



The Strengthening of Energy Saving in Factories and Offices

The voluntary targets outlined in the Energy Saving Law which aim to achieve a 1% improvement in the energy consumption per unit of factories and businesses have hardly been achieved. After first making clear the standards for applying the law, we propose response methods for not complying with the law such as publicizing the names of factories that have not achieved the standards and issuing improvement orders, and impose fines.

Change the Keidanren Environmental Voluntary Action Plan to a Mandatory Commitment

The Keidanren Voluntary Action Plan is positioned as the industrial sector measure in the government's policy, but there is no assurance of the efficacy of the voluntary targets. The target is to stabilize emissions ($\pm 0\%$) at the 1990 level, and is much less than the 6% reduction. In order to make industry actions certain, it is necessary that industries set numerical targets based on standards, and sign a mandatory commitment with the government. Companies that participate in the commitment should be exempt from application of the strengthened Energy Saving Law, and measures such as making public a list of the companies that do not sign the commitment should be taken. Also, after a solid monitoring measure is put into place, a review should take place every year. When the target has not been reached, the additional measures should be taken to ensure compliance.

Policies and Measures which Promote Longer Life for Buildings and Appliances, Reusing and Close Examination of Public Works Projects

To reduce CO2 emissions from high CO2 emitting raw material industries such as the steel industry and the cement industry, it is important to slim down this excessive and unnecessary portion. In order to lengthen the lives of buildings and appliances, labeling products and longer life policies implemented under extended producer responsibility, and supportive policies which encourage technology development and equipment investment are necessary. Also, there are the number of public works projects, which have high raw material consumption, so it is necessary to establish a mechanism to review these types of projects.

Strengthening of Energy Saving for Appliances and Vehicles

The "top runner approach" outlined in the Energy Saving Law has a problem because the standards are too low, and many appliances (air conditioning and heating appliances, faxes etc.) are exempt. In order to improve this situation we propose that the target value must be regularly reviewed, and standards for stand-by mode must be strengthened and the number of products included must be increased.

Inserting Energy Saving Standard for Buildings (Commercial and Residential) into the Building Standards Law and Fiscal Measures

Under the present Energy Saving Law, energy saving standards for buildings are only voluntary targets, and of all newly built buildings, it is said that not even 40% meet these standards. In order to make it 100%, we propose that these standards are inserted as requirements into the Building Standard Law. It is also necessary to provide subsidies so that cost of making buildings more energy saving can be quickly recovered.

Traffic Demand Management - Road Pricing and Traffic Limitation Regulation

In terms of measures for the transportation sector, which has ever increasing CO2 emissions, it is necessary to limit vehicle traffic, and shift use to other forms of transportation. In order to keep down vehicle use and get people to shift to public transport in the 3 major metropolitan areas (Tokyo, Nagoya, Osaka) we propose traffic demand management such as road pricing and traffic limitation regulation.

Greening of the Automobile Tax System

It is necessary to implement a green tax system that provides financial incentives for consumers so that they decide to buy fuel efficient vehicles. This would mean that taxes would be kept low on fuel efficient cars at the time of purchase, and throughout the life of the vehicle, while at the same time taxes for inefficient vehicles would be made more expensive.

Immediate Implementation (2002) of a Carbon Tax

The carbon tax that we propose here is not to directly expect a reduction that is necessary for the 6% reduction, but to support efforts by businesses and households and expect a ripple effect towards technological development and investment practices. Also, tax revenue can be used as a partial means of financing climate change policies and measures. The tax rate would be such that medium and households could save money if they saved energy, and there would not be a big financial burden. In the long term, it is necessary to promote the greening of tax finances in general, and this carbon tax would be the first step towards a comprehensive tax reform.

Outline of the Carbon Tax Proposal

[Tax Rate] 3000 yen t/C (Gasoline 2 yen/l)
[Tax Revenue] 1.1 ~ 1.2 trillion yen
[Revenue Use] Subsidies to industries climate change measures and the government's climate change budget etc. (At the time of introduction the revenue will be used for the promotion of the introduction of renewable energy, and the acceleration of industrial equipment depreciation. Furthermore, tax revenue will not be used for sinks projects and the international emissions trading.)
[Imports and Exports] Taking into consideration international competitiveness, a tax refund will be applied to exported products, and imported products will be taxed at an equivalent rate as domestic products.
[Review] A periodical review of the tax rate and use of the revenue will be carried out.

Policies and Measures for HFC • PFC • SF6

Regulations for Factories and Manufacturing, Prohibition of Releases into the Atmosphere, A Law which makes Recovering Mandatory

Man-made fluorinated gases should be phased out in the mid-term, but presently there are no domestic laws that prohibit the release of fluorinated gases or make their recovering mandatory. While taking into consideration for shift to phaseout, it is necessary to enact a law that prohibits releases into the atmosphere, puts into place regulations to stop leakages from factories and the industrial process, and makes recovering and decomposition mandatory based on the financial burden of producers. In addition, the use of sprays and fire extinguishers that directly release these gases into the atmosphere should be prohibited.

Fluorinated Gases Tax based on the Global Warming Potential (GWP), and Financial Support for Phaseout

To phase out fluorinated gases and switch to environmentally sound alternatives, it is essential to undertake technology development and provide financial assistance. Therefore, we propose the introduction of a tax which is proportionate to the GWP, and that the tax revenue is used on policies to shift to non-in-kind technologies.

5. Mechanisms to promote Climate change policy

In order to adequately implement policies and measures, it is important to devise a mechanism that promotes these policies. We propose, after abolishing the Action Program to Arrest Global Warming and its headquarters, the following measures.

Enactment of comprehensive Climate Change Law

It is essential to enact a law which would regulate the comprehensive climate change policy and guarantee a 6% reduction.

The Establishment of an Committee to Promote Climate Change Policy

The committee composed of administration, local governments, industries, experts, and environmental NGO's would deal with climate change issues. The committee would push aside the sectionalism between ministries, clarify policy standards under transparency, and check & review the state of progress.

A Comprehensive law concerning climate change policies

An committee to promote climate change policy

Check, review, and strengthening of each measures state of progress

Clarification of the standards to be used as measures

Decision of the carbon tax rate and use of tax revenue

Assessment of the demonstrable progress by the year 2005

6. Fast Fact about the the Proposals

Q : If these policies are implemented, will international competitiveness fall and lead to de-industrialization? What effect will it have on the economy?

A : There is no basis behind the theory that environmental policy is harmful to industry competitiveness. The reason why companies move their businesses overseas is labour costs etc., and there are very few examples of companies shifting their businesses overseas because of environmental measures. In this project, as a result of energy saving investment, it has been confirmed that fuel costs will be saved, and cost reductions can be gained. Investment in energy saving equipment will become active, and lead to a revitalization of the entire manufacturing industry. In addition, it can be expected that promotion of new environmental businesses such as renewables, and employment opportunities will also increase. In addition, the carbon tax in this proposal takes into account border coordination so as not to harm international competitiveness.

Q : Is it okay to tax coal and implement efficiency regulations?

A : Coal brings about climate change and causes air pollution. Compared to petroleum and natural gas, it is much cheaper, and therefore it is widely used. The reason for implementing a tax with the same heaviness as is presently applied to petroleum is to correct the existing distortion and make prices fairer. CO2 emissions efficiency regulations are based on the same principle as atmosphere pollution preventing regulations, but are applied in an effort to prevent climate change. There are many other choices for fuel.

Q : How is nuclear power dealt with in this proposal?

A : We assume that nuclear power plants that have operated for 40 years will be shut down. We also have no intentions of allowing any new nuclear power plant construction.

Q : GWP for fluorinated gases is high, so won't that mean a heavy tax?

A : The tax rate for fluorinated gases per GWP is the same as for CO2, and it's not specially high. One of the reasons why products which use fluorinated gases are so cheap is because the cost of recovering and decomposition these products, which should be included in the price, is not included in the cost.

Q : Why don't you use the Kyoto Mex or sinks?

A : Cost effectively speaking, it is quite possible to achieve the 6% reduction with only domestic countermeasures. Supposing that the Kyoto Mex was used less expensively, it would be meaningless because there would be a corresponding increase at home.

Kiko Network

(Tokyo)2-7-3 Nishikawa Bldg. Kojimachi,
Chiyoda-ku, Tokyo 102-0083 JAPAN

TEL 03-3263-9210, FAX 03-3263-9463]

E-mail kikitko@jca.apc.org