Keidanren
Policy & Action

Proposal for Future Global Warming Countermeasures (Provisional Translation)

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Keidanren

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Proposal for Future Global Warming Countermeasures

In November 2016, the Paris Agreement, a new international framework promising that all major emitters, including developed, emerging and developing economies, would engage in global warming countermeasures, came into force. Currently, parties are negotiating to work out detailed rules by 2018 towards its implementation in 2020. However, with the announcement made in June 2017 by U.S. President Trump that the U.S. would withdraw from the Paris Agreement, there is increased uncertainty regarding the effectiveness and international fairness of the Agreement.

In Japan, both the government and business community are taking measures to achieve the mid-term target for fiscal 2030 (26% reductions relative to fiscal 2013), but they have only come halfway and embrace many challenges. Regarding the long-term strategies that a decision of the Conference of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC) invites parties to formulate by 2020, the Ministry of the Environment's Long-Term Low-Carbon Vision Subcommittee and the Ministry of Economy, Trade and Industry's Long-term Global Warming Countermeasures Platform have both compiled reports this spring; and the government will likely begin full-scale discussions.

Considering such domestic and international circumstances, we are in an important phase in ensuring the effectiveness of measures to resolve global warming on a global scale. Reconfirming the business community's determination to make continued efforts to reduce greenhouse gas emissions both in Japan and overseas through the steady implementation of the Keidanren's Commitment to a Low Carbon Society, which is considered to be a pillar of Japan's efforts towards achieving its mid-term target,

we will present our view regarding future developments of global warming countermeasures from the perspective of harmonizing environment and economy.

1. The future of the Paris Agreement without U.S. participation

(1) Evaluation of the U.S. announcement to withdraw from the Paris Agreement and future approaches

The Paris Agreement is an epoch-making international framework that promises that all major emitters will pledge to take measures to deal with global warming. Therefore, we find it extremely unfortunate that the recent U.S. announcement to withdraw from the Paris Agreement and its submission of formal notice of its withdrawal to the UN in August will undermine the foundation of the Agreement. Keidanren appreciates the strong commitment to the Agreement expressed by Japan and other major economies at G7 and G20 meetings.

The Japanese government needs to continue to comprehensively analyze how U.S. climate change and energy policies will affect international competition on an equal footing and energy security as well as the impact that they will have on international coordination and cooperation on global warming countermeasures, and to address such impacts strategically. Not only is there time before the U.S. can officially withdraw from the Paris Agreement, the U.S. has declared that it will continually participate in international negotiations including the COP23 talks. Therefore, Japan should join forces with other major economies to persistently convince the U.S. to remain in the Agreement and maintain partnership with the U.S. in areas within the COP framework where they can be collaborative. Furthermore, given the U.S. announcement of its intension to support other countries in using clean and efficient fossil fuels and accessing renewable and other clean energy sources, Japan could also seek new way to cooperate with the U.S., including technological cooperation that would complement the Paris

Agreement, from the viewpoint of enhancing the effectiveness of global warming countermeasures that contribute to reducing greenhouse gas emissions on a global scale.

The Japanese business community will also continue to engage in dialogue and partnership with the U.S government and private sector through various forums including the COP.

(2) Measures to ensure the effectiveness and international fairness of the Paris Agreement

① Basic approach

Today, developing countries account for approximately 60 percent of global greenhouse gas emissions, and all emitters are required to contribute to reducing emissions on a global scale. Based on the agreement reached at the COP22 meeting in 2016, negotiations are underway to formulate detailed rules of the Paris Agreement by 2018, and one of the central issues is how the Agreement will treat developed and developing countries. With a view to ensuring the Paris Agreement's effectiveness and international fairness as well as to encouraging the U.S. to remain in the Agreement, Japan should make efforts to push back pressures based on developed/developing dichotomy to differentiate the detailed rules regarding important areas, including mitigation and transparency, market mechanisms and global stocktake. Furthermore, the Japanese government should maintain its position of opposing the opinion that the participation of the business community in COP meetings should be limited from a conflict of interest perspective, since such limitations would hinder fair and open discussion.

② International review (mitigation, transparency, global stocktake)

The Paris Agreement adopts a “pledge and review” approach under which parties “pledge” their national contributions, which are periodically exposed to international “review.” The same approach has been taken by the Japanese business community for over many years under the Keidanren's Voluntary Action Plan on the Environment and the Keidanren's Commitment to a Low Carbon Society and has been proven to be successful. Japan should proactively communicate its experience and knowledge to the world and contribute to rule-making.

Countries should make the most possible effort to set up quantitative targets based on total emissions as Nationally Determined Contributions (NDCs) and progress should be reported and reviewed under common rules. It should be noted that global stocktake should not be determined by backcasting from a certain level of desirable future cumulative emissions and that it should not be used to set limits on the discretion of each country to set up mid-term targets or to criticize the efforts of other countries.

③ International contribution

Japan’s international contribution is becoming increasingly important in the areas of overseas expansion of Japan’s advanced energy-saving low-carbon technologies, products and services, overseas transfer of energy-saving technologies and infrastructure systems, expansion of technologies and programs for the recovery and destruction of fluorocarbons to developing countries and supporting adaptation measures using disaster prevention-related technologies and knowhow. Japan should foster an environment that will facilitate business-oriented efforts, taking note of properly protecting intellectual property. Japan embraces large potential to contribute through its advanced technology as well as products and services, and it is important that to comprehensively visualize their avoided emissions achieved through Japan’s international contributions.

In relation to the above, the Paris Agreement includes a provision on market mechanisms. This provision applies to the Joint Crediting Mechanism (JCM) that Japan has promoted. It would be useful for Japan to facilitate the use of JCM by establishing simple and internationally common methodologies through negotiations regarding the guidelines adopted in the U.N.

④ Financial support

The Paris Agreement reaffirms developed countries' UNFCCC obligation to provide financial resources, while encouraging other Parties only to provide resources or support voluntarily.

In regard of donor countries and recipient countries, given the rapid growth of emerging economies beyond the 1990s, it is important that a framework that encourages monetary contributions from a wider range of sources instead of adhering rigidly to the conventional categorization of Annex I countries and non-Annex I countries. For the effective management of funds, a framework to evaluate how funds are used and what outcomes they have derived should also be considered.

⑤ Innovative technology development

In order to achieve the drastic long-term greenhouse gas reductions targeted under the Paris Agreement, innovative technology development is indispensable. It would be effective for countries to pursue ways to cooperate based on a shared understanding of the significance of engaging in innovative technology development through international conferences, including Mission Innovation, an effort to accelerate energy and environment technology innovation on a global scale, and the Innovation for Cool Earth Forum (ICEF) led by the Japanese government.

2. Japan's efforts and contribution to global warming measures on a global scale

(1) Japan's efforts and contribution to global warming measures on a global scale

① Promoting the Plan for Global Warming Countermeasures

When the U.S. recently announced its withdrawal from the Paris Agreement, it also stated that it would abandon its NDC commitments. Nevertheless, the Japanese government and business community should continue their efforts to achieve Japan's mid-term target of "26% reductions by fiscal 2030" which it has registered with the UN as its NDC, in accordance with the Plan for Global Warming Countermeasures. Japan's business community contributes to the achievement of the mid-term target by promoting the steady and even stronger promotion of the Keidanren's Commitment to a Low Carbon Society, which has been assigned key importance under the Plan for Global Warming Countermeasures.

The mid-term target is an extremely ambitious target that calls for additional improvements in energy efficiency equal to the upgrades made by Japan from the oil crises of the 1970s to present. The fiscal 2030 energy mix (nuclear: 20-22%; renewable energy: 22-24%; thermal: 56%) that served as a basis for calculating target levels must be steadily achieved. It is important that nuclear power plants whose safety have been confirmed be restarted, after gaining the understanding of the wide public, including local residents, based on careful explanation.

In order to achieve the mid-term target, follow-ups should be conducted by sector and policy instrument. The Ministry of the Environment should responsibly promote public campaigns effectively based on verifications of cost efficiency in order to reduce emissions in the household sector by 40 percent.

② Carbon pricing, etc.

There are proposals to introduce or enhance explicit carbon pricing instruments, such as emissions trading and carbon taxes, as a part of Japan's global warming countermeasures. Global warming countermeasures have direct impact on economic activity and people's lives and are closely associated with energy policies that aim to achieve "S+3E" (safety + i) energy security, ii) improved economic efficiency, iii) environmental soundness); and therefore, careful consideration of the balance among the environment, economy and energy is indispensable.

Explicit carbon pricing imposes direct economic burden upon companies, and may therefore negatively impact their economic vitality, deprive companies of their financial resources for investment in research and development and decarbonization, and thus hinder innovation. For many years, Japan has implemented many implicit carbon pricing instruments, including energy taxes, a feed-in-tariff (FIT) scheme for renewable energy, the Energy Saving Act, the Act on Sophisticated Methods of Energy Supply Structures and the Keidanren's Commitment to a Low Carbon Society. They have led to the successful achievement of the world's highest energy efficiency level and have thus contributed to CO2 emission reductions.

With approximately 90 percent of greenhouse gas emissions in Japan coming from energetic CO2, decisions on energy use by companies and individuals are generally affected by total energy costs, which include the price of the energy itself. A comparison of the carbon price calculated by adding carbon pricing instruments to the energy price reveals that the carbon prices for electric power and natural gas for industrial use in Japan are among the highest of all major countries, and therefore not inferior to other countries.

In light of the above, there is little need to further raise carbon prices in Japan and given the multiple serious drawbacks to emissions trading and carbon taxes, explicit

carbon pricing should neither be introduced nor enhanced. (Refer to Supplementary Notes for details.)

There is an increasing global trend to promote ESG investment and disclose climate change-related financial information, and such trends have also been observed in Japan. Investment and information disclosure is based on the judgment and voluntary efforts of investors and companies; and therefore, we should take note that investment and disclosure should not be needlessly obligated.

(2) Basic approach to formulating a long-term strategy

Parties are invited by COP decision to formulate long-term low greenhouse gas emission development strategies (long-term strategies) with a view to 2050 and communicate them to the UN by 2020. The Ministry of the Environment and the Ministry of Economy, Trade and Industry have both compiled reports on the basic direction of the long-term strategy this spring, and the government is likely to begin full-scale discussions towards formulating the long-term strategy.

Since the Paris Agreement is an international framework that aims to reduce global greenhouse gas emissions, it is important to contribute to the drastic reduction of greenhouse gases on a global scale, including domestic emissions. A continuation of conventional ideas, technologies and efforts will not be enough. Although Japan is the world's fifth largest emitter, it only accounts for 3 percent of global emissions; and therefore, it can only make a limited contribution through the reduction of drastic emissions. Japan should formulate an effective strategy that will contribute to significant emission reductions on a global scale and promote it through public-private partnership so that other countries will follow.

From this viewpoint, we will provide below our basic approach to formulating a long-term strategy. We request the government to take note of the opinions of the business community with sincerity when it formulates Japan's long-term strategy.

① Presumptions of a long-term strategy

(i) Pursue "sustainable development" on the premise of "harmonizing environment and economy"

In light of the significant impact that drastic long-term reductions of greenhouse gas emissions will have on industrial structure, the economy and people's lives, it is extremely important that the strategy is premised on "achieving both environmental and economic goals" and contributes to sustainable development at not only the domestic level but also the global level. Such perspectives are also in line with the Sustainable Development Goals (SDGs) and should be treated as core issue when discussing the long-term strategy.

(ii) Flexibly respond to various uncertainties instead of managing rigid targets premised on the "carbon budget"

The "carbon budget (maximum cumulative greenhouse gas emissions allowed to keep global warming to below a given temperature)" approach considers only greenhouse gas reductions and fails to consider economic growth and energy security. The "carbon budget" approach has not been agreed under the Paris Agreement and requires further accumulation of scientific knowledge regarding the total budget. Therefore, we should not rigidly set up or manage emission reductions and target scenarios by backcasting from a certain level of cumulative emissions. Instead, we should develop a scheme that can flexibly respond to the various uncertainties such as macro-economy and technological trends.

(iii) Constantly verify the validity of the long-term goal of "80% reduction by 2050" while clarifying that the goal represents Japan's "basic direction" for its long-term strategy

Achieving "80% reduction by 2050" is a long-term goal set up by the government before the Great East Japan Earthquake and fails to reflect the changes that have occurred to our country's energy situation after the earthquake. Therefore, its validity should be questioned. If Japan has no choice but to maintain its goal of "80% reduction by 2050," it should be made clear that as documented in the Plan for Global Warming Countermeasures (Cabinet decision of May 13, 2016)[i], the long-term goal only represents the "'basic direction' that should be faced under the three conditions and three principles" and should be distinguished from the mid-term goal of "26% reductions by fiscal 2030" which is underpinned by the energy mix.

(iv) Ensure compatibility with other important policy, including energy policy.

In order to pursue sustainable development on the premise of "harmonizing environment and economy," it is indispensable to ensure compatibility with the policy goals of various important policy agenda, including but not limited to global warming countermeasures. With approximately 90 percent of greenhouse gas emissions attributable to energy consumption, compatibility with the goal of energy policy to achieve "S+3E" is especially critical. Furthermore, drastic long-term reductions of emissions will require the continued use of nuclear power.

[i] Given the Paris Agreement, Japan aims to reduce greenhouse gases by 80% by 2050 as its long-term target under a fair and effective international framework with the participation of all major economies, leading international society so that major emitters will engage in emissions reduction in accordance with their respective capacities and by balancing both global warming countermeasure and economic growth. Such emission reductions are difficult to achieve by just continuing conventional efforts. Therefore, Japan will pursue resolution through innovation, such as the development and diffusion of innovative technologies that enable fundamental emission reduction, to the maximum extent possible; encourage domestic investment, boost international competitiveness and seek wisdom from the wide public; aim to achieve substantial emission reductions through strategic long-term efforts; and contribute to reduction on a global scale.

②Direction of Japan's approach

(i) Seek contribution on a global scale

The so-called "2℃ target" which is also included in the Paris Agreement is a global target that should be addressed at the global level. Therefore, while steady efforts should be made to achieve domestic reductions, global warming trends cannot be stopped through domestic efforts on the part of Japan alone, given its share of 3 percent in global emissions. Japan embraces numerous advanced energy-saving low-carbon technologies that it can take pride in; and therefore, Japan should contribute to avoided emissions at the global level through the marketing of products and services not only in Japan but overseas as well as overseas transfer of energy-saving technologies and infrastructure systems. Furthermore, it is also important to support developing countries implementing their adaptation plans by utilizing Japan's weather forecasting and disaster prevention systems.

In order to secure domestic and international understanding regarding such approaches, Japan should accelerate its contribution to reducing greenhouse gas emissions on a global scale through public-private partnership on even more proactive overseas expansion and on visualizing its contributions.

(ii) Seek contribution through entire product or service lifecycles or corporate value chains

Japan's high-function material and low-carbon products, services and infrastructure systems often reduce emission at the consumption stage in amounts that significantly exceed the emissions at the production stage. In association with global contribution, it is important to seek reduction through entire product and service lifecycles and through corporate value chains.

(iii) Seek innovative creation by harnessing the vitality of the private sector

The drastic long-term reductions of greenhouse gases represent a completely different phase from mid-term targets which are a bottom-up compilation of concrete measures. In addition to efforts towards achieving the mid-term target, Japan should seek incessant innovative creation focused on innovative technology development.

Innovation is sourced in private sector vitality, but long-term efforts in the private sector can be faced with various limitations. The government should not rely on introducing regulatory instruments such as carbon taxes and emissions trading that will deprive companies of their financial resources for research and development and undermine their enthusiasm towards investing in decarbonizing society. Instead, the government should prepare an environment to promote innovation, including enhancing government investment in research and development.

Supplementary Note: Basic Approach toward Carbon Pricing

The pros and cons of introducing of carbon taxes and emissions trading in Japan have been long debated among industry, academia and government. The Japanese business community has been consistently opposed to the introduction of such instruments, which would hinder the innovation indispensable for drastic greenhouse gas reductions. Given recent trends of debating the introduction of the two policy instruments in terms of carbon pricing, Keidanren has compiled an interim note on the basic approach of the business community toward carbon pricing.

1. Defining carbon pricing and status of adoption in Japan

(1) Definition and types of carbon pricing

Carbon pricing is a scheme that puts a price on carbon to internalize the external diseconomies of global warming due to greenhouse gas emissions and thus aims to encourage the reduction of greenhouse gas emissions. The OECD defines carbon pricing to include explicit carbon pricing, such as carbon taxes and the pricing of tradeable permits under a greenhouse gas emissions trading scheme, and implicit carbon pricing that reflects the social cost induced for one CO2-equivalent ton of emission reduction achieved as a result of effective policy measures.

Examples of government policy instruments for “explicit carbon pricing” include carbon taxes and emissions trading, which involve pricing carbon emissions exclusively for the purpose of coping with global warming. In addition, “implicit carbon pricing” instruments, which are not originally intended as measures to counter climate change but affect energy consumption and emissions, include energy taxes, support measures for renewable energy, energy-related regulations, etc. Furthermore, the business

community-led Keidanren's Commitment to a Low Carbon Society and internal carbon pricing can be considered examples of implicit carbon pricing by the private sector.

【Table】 Types of carbon pricing

	Policy instruments	**Instruments introduced in Japan**
Explicit CP	Carbon taxes, emissions trading schemes	Global Warming Tax
Implicit CP	Energy taxes, support measures for renewables, energy-related regulations, etc.	Petroleum and Coal Tax; energy taxes including the Gasoline Tax, feed-in-tariff (FIT) scheme for renewable energy, regulations including the Energy Saving Act and Act on Sophisticated Methods of Energy Supply Structures

（Source Keidanren secretariat）

(2) Status of adoption in Japan

Japan has implemented various policy instruments and measures at multiple levels, including the Global Warming Tax, which is an example of an explicit carbon pricing instrument, and many implicit carbon pricing instruments, including the Petroleum and Coal Tax and other energy taxes, a feed-in-tariff (FIT) scheme for renewable energy, regulations such as the Energy Saving Act and the Act on Sophisticated Methods of Energy Supply Structures, and the private sector-led Keidanren Commitment to a Low Carbon Society. In light of the definition and purpose of carbon pricing, it is inappropriate to limit discussions to explicit carbon pricing. Instead, carbon pricing should be addressed as a broad concept covering implicit policy instruments and measures and its effects should be discussed based on international comparisons of burden levels.

2. Issues to be considered when addressing carbon pricing

(1) Characteristics of global warming issues

Discussions on carbon pricing need to address the characteristics of the fundamental issue of global warming. While global warming issues involve a wide range of actors as emitters, because emissions are accompanied by external diseconomies at a global level, they are structurally associated with free-rider problems. Furthermore, despite advancements in the accumulation of scientific knowledge, climate sensitivity and global warming damage embrace various uncertainties; and therefore, it is difficult to quantitatively and appropriately evaluate the carbon budget and external diseconomies in detail.

In addition, because global warming countermeasures affect the economy and national life, countries implement various adjustment measures when designing explicit carbon pricing instruments, and consequently, the carbon price is not proportional to carbon in the case of many instruments.

In theory, the ideal response to global warming, an external diseconomy on a global scale, is to appropriately price carbon and globally equalize marginal mitigation costs across countries worldwide by means of carbon pricing, but it should be noted that the feasibility of such an approach is very low.

(2) Balancing environment, economy and energy

With approximately 90 percent of domestic greenhouse gas emissions attributable to energetic origin CO2, global warming countermeasures and energy policy, which aims to achieve "S+3E (safety + i) energy security, ii) increased economic efficiency, and iii) compatibility with the environment)," are inextricably linked. Therefore, balancing the environment, economy, and energy is extremely important in implementing global warming countermeasures and is an indispensable perspective in

discussions on introducing and enhancing explicit carbon pricing. For example, some point out that implicit carbon pricing is inefficient on grounds that the current Petroleum and Coal Tax rate is not proportional to carbon content. However, this evaluation is based only on the environmental aspect of carbon pricing and lacks balance.

Individual carbon pricing instruments are often challenged with tradeoffs with the environment, economy or energy. Since carbon pricing puts a cost on CO2 emissions, a realistic consideration of the balance between the outcomes expected of the implemented measures and the cost burden acceptable by society is called for.

(3) Country-specific circumstances

The advantages and impacts of introducing carbon pricing varies according to country-specific circumstances. An observation of countries that have introduced explicit carbon pricing reveals that discussions on whether or not to introduce carbon pricing should be based on consideration of the validity and feasibility of policy instruments, comprehensively taking into account country-specific macro-economic situations, industrial and energy structures, available amount of resources, energy prices, electric power mix, economic status, implementation status of measures, marginal mitigation costs levels, etc.

For example, arguments that "Japan is behind other countries in terms of its global warming countermeasures" just because other countries have introduced emissions trading schemes and other arguments that support the introduction of carbon pricing on grounds that countries with high effective carbon prices tend to feature high carbon productivity (GDP/CO2 emissions) without clarifying their causal relationship are not based on due consideration of country-specific circumstances.

(4) Verifying the effectiveness of the Global Warming Tax and other existing policies

Countries pursue an optimal policy mix based on country-specific circumstances; and therefore, existing implicit carbon pricing policy instruments tend to have different policy aims.

Japan has also developed a diversity of policy instruments, including the implicit carbon pricing instruments described above as well as instruments such as energy taxes and the Global Warming Tax that harness tax revenue. Particularly in Japan, the business community has proactively implemented global warming countermeasures through the Keidanren's Voluntary Action Plan on the Environment and the Keidanren's Commitment to a Low Carbon Society, which have proven to be significantly successful and are thus assigned importance by the government as a pillar of the main measures to be taken by the business community. Furthermore, such a voluntary action plan is a highly cost-efficient instrument because it enables companies, who are the main actors of implementing global warming, to voluntarily determine the best measures to take.

Regarding the need for additional carbon pricing, verifying the effects of existing policy instruments and measures in light of the original policy aim is a standard procedure of policymaking. The government should first announce the outcomes of verifying the effects of the Global Warming Tax and other existing policy instruments.

(5) International competitiveness and carbon leakage

When the government seeks to introduce or enhance carbon pricing, it is its responsibility to compare burden levels with other countries and give due consideration to the potential impact on its international competitiveness and economy in order to prevent adverse effects. Particularly when carbon prices vary among countries and regions, carbon leakage may occur.

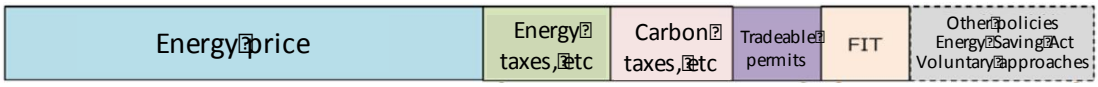
Given the global scale of global warming issues, it would be preposterous if leakage caused emissions to increase in one country despite reductions in another. It is difficult to read the actual impact that carbon pricing has on international competitiveness and carbon leakage, and it is thus important to carefully interview companies about their actual situation and conduct analysis based on the information gained. Comparisons should be made with Asia-Pacific countries, with which Japan has close trade relations.

Ideas to neutralize the impact that introducing carbon pricing will have on Japan's international competitiveness include border adjustment measures such as carbon tariffs. However, in addition to technical difficulties, such measures may provoke trade friction, including retaliatory measures, and thus would not be desirable in terms of free trade.

(6) Total energy costs, including not only tax burdens but also energy prices

As aforementioned, 90 percent of Japan's greenhouse gas emissions are attributable to energetic origin CO2. Energy consumption by companies and households is generally calculated based on not only tax burden amounts but also total energy costs, including energy prices. Discussions on carbon pricing should address not only explicit and implicit carbon prices but also the price paid for the energy itself.

【Table】 Total energy cost and composition

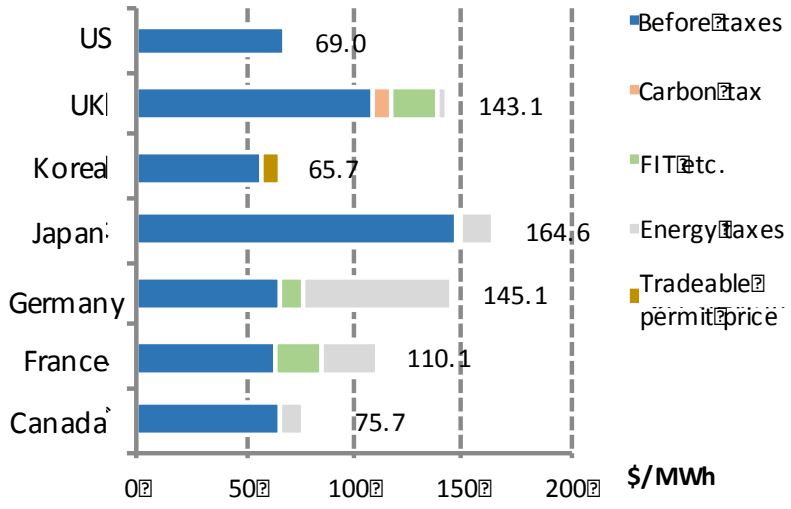


(Source: Ministry of Economy Trade and Industry, Report of the Long-term Global Warming Countermeasures Platform (April 2017))

For example, international comparisons of electric power for industrial use (per MWh, because per t-CO2 figures tend to be greatly affected by the power mix, which reflects national circumstances) and natural gas for industrial use (per t-CO2) reveal that the sum of the energy price, energy taxes (4,000 yen/t-CO2, including the Global Warming Tax at 289 yen/t-CO2), tradeable permit price, FIT[ii], etc., is the highest among all major countries. In addition, Japan embraces costs associated with a voluntary action plan, which is an implicit carbon pricing instrument.

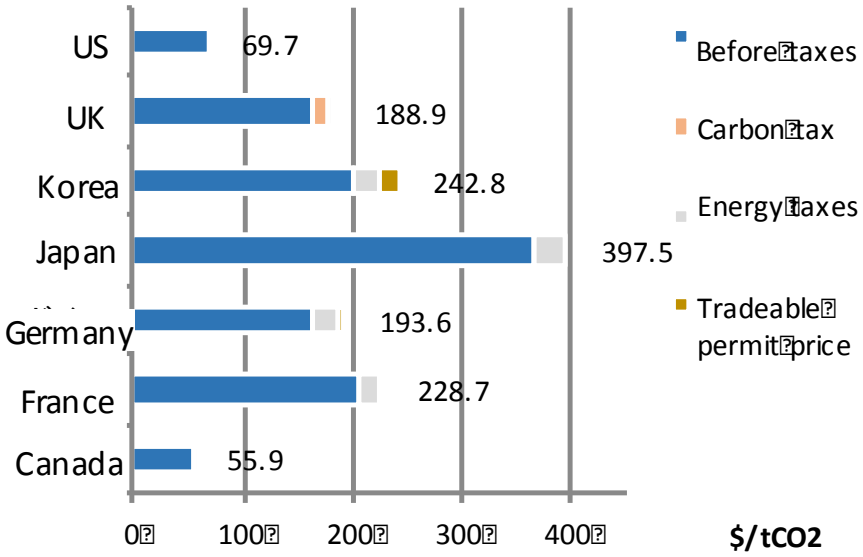
[ii] According to estimates, the CO2 price for Japan's FIT scheme is equivalent to approximately 50,000 Japanese yen/t-CO2 as of 2015

【Figure】Total carbon price per unit industrial electric power (2015)



(Source: Ministry of Economy Trade and Industry, Report of the Long-term Global Warming Countermeasures Platform (April 2017))

【Figure】Total carbon price per unit industrial natural gas (2015)



(Source: Ministry of Economy Trade and Industry, Report of the Long-term Global Warming Countermeasures Platform (April 2017))

Contentions that explicit carbon pricing should be introduced with reference to the scale of explicit carbon pricing and effective carbon price levels have not really taken Japan's circumstances into consideration. Given Japan's high level of total energy costs, which should actually be the target of international comparison, and the strong incentive to reduce emissions on the part of companies, we find no need to introduce additional carbon pricing instruments.

(7) Innovation

Japan's mid-term target of "26% reductions by fiscal 2030 relative to fiscal 2013" takes a bottom-up approach that adds up the effects of measures that Japan may take. The incessant creation of innovation is indispensable for the achievement of drastic greenhouse gas emission reductions in the long-term while harmonizing environment and economy. Discussions on carbon pricing should give due consideration to impacts on the creation of innovation.

Developing innovative technologies, renewing existing products, equipment and infrastructure to energy-saving low-carbon models, and transferring technology to developing countries require financial resources, which are premised on sustainable economic growth and the exertion of corporate vitality. Explicit carbon pricing will directly impose additional economic burdens on companies, who are important actors in innovation, and will thus not only adversely affect their economic vitality but also deprive companies of their resources for R&D and undermine their enthusiasm for investing in decarbonizing society. Furthermore, if Japan's positive trends towards economic recovery are hindered, Japan's power to create innovation will be impaired, and our national interests may thus be damaged.

(8) Government-led failure and administrative costs

Explicit carbon pricing may theoretically be cost-effective, but policy instruments often do not function according to theory but instead lead to "government-led failure" and enormous operational costs. Such realities faced in other countries should be seriously addressed.

Challenged with serious fiscal constraints, the Japanese government is responsible for using its limited resources efficiently. Japan should estimate the operational costs and cost-efficiency of each policy instrument and make comparisons with alternative policies when considering the introduction of carbon pricing.

(9) Japan's approach to global warming countermeasures

The "2℃ target" included in the Paris Agreement is a global target that should be addressed at the global level. Therefore, while Japan should naturally make efforts to achieve domestic reductions, global warming trends cannot be stopped through domestic efforts on the part of Japan alone, given its share of 3 percent in global emissions.

Unique approaches that Japan should take include continuing its incessant efforts to create innovation and at the same time contributing to the reduction of greenhouse gases on a global scale by engaging in the overseas expansion of its energy-saving technologies in practical use and the achievement of reductions through the global value chain of products and services.

Discussions on carbon pricing should address approaches not only to domestic measures but also to international contributions that are unique to Japan. Japan should ideally adopt policy instruments in line with such approaches.

3. Validity of introducing carbon pricing in Japan

(1) Emissions trading schemes

① Status of preceding overseas examples

The Plan on Global Warming Countermeasures provides that "careful consideration shall be given based on the burdens to be shouldered by domestic industry and accompanying impacts on employment, overseas emissions trading scheme trends and their effects, and evaluations of preceding major domestic measures to counter global warming (business community-led voluntary approaches, etc.)." Particularly, once emissions trading schemes are introduced, credits are counted as assets, thus making it difficult to abolish the policy; and therefore, extremely careful consideration is called for.

For example, the EU-ETS, the largest emissions trading scheme with long history of operation, continues to be challenged with difficulties such as surplus credits and low tradeable emission permit prices. Despite the incorporation of measures to diversify allocation methods among industries by auctioning permits in the electric power sector and allocating free permits according to benchmarking in sectors with risk of carbon leakage, it is far from being successful as it is now in terms of strengthening the competitiveness of the EU, creating employment, and introducing clean technologies. Furthermore, Korea launched a scheme in 2015, but a shortage of emission permit supply has led to constantly reduced market liquidity.

Such cases clearly represent the difficulties of operating emissions trading schemes according to theory.

②Comparisons with business community-led voluntary approaches

Instead of relying on regulatory measures, Japan has promoted voluntary approaches led by the business community centered on the Keidanren's Voluntary

Action Plan on the Environment in 1997 which evolved into the Keidanren's Commitment to a Low Carbon Society, launched in 2013. The government regards these efforts to constitute a pillar of the measures to be taken by the business community, and they contributed largely to Japan's reduction target (6%) by achieving reductions of 12.1 percent from 1990 levels, with revisions to higher target levels along the way, during the first commitment period under the Kyoto Protocol (2008-2012). Furthermore, recent follow-up outcomes reveal steady progress, with 4.7 percent reductions achieved relative to fiscal 2013 levels during the fiscal 2013-2015 period.

The industrial and energy conversion sectors, which would presumably be covered by an emissions trading scheme, are mostly covered under the Keidanren's Commitment to a Low Carbon Society; and therefore, it would be meaningful to compare emissions trading schemes with the Keidanren's Commitment to a Low Carbon Society when considering the introduction of the instrument.

【Table】Comparison of an emissions trading scheme and a voluntary action plan

	Emissions trading scheme	**Commitment to a Low Carbon Society**
Balancing environment, economy and energy	Built on environmental perspectives of achieving emission reduction targets. Issues including international competitiveness are resolved by applying exceptions.	Built on business decisions to balance the environment economy and energy, including corporate decisions on domestic and international market development, energy strategy, and technological development.
Reduction targets	Set up using a top-down approach. High levies are often imposed when targets are underachieved.	Targets are set up by each industry. Strong commitment by companies and industries, with progress checked in third-party reviews (pledge and review).
Reduction costs	In theory, the market decides reduction cost levels. Requires enormous political and administrative adjustment costs for emission allocation, as allowances will greatly affect corporate and industrial activity.	Cost-effective measures are individually selected from the viewpoint of corporate management. Involves no adjustment costs for allocation.
Range of reductions	Addressing domestic business operations, unexpected increases in production require securing emission allowances and avoided emissions at the consumer level or overseas are difficult to conceive.	Reductions are also possible through product lifecycle and supply chains as well as international cooperation on disseminating energy-saving and environmental technologies.
Innovation	Long-term investment in technology development is hindered by fluctuation of credit prices.	Long-term and stable investment in technology development is possible due to little impact of carbon price changes.

(Source Keidanren secretariat)

As exhibited above, emissions trading and the commitment to a low carbon society have a number of characteristic differences, but we will discuss two major points from the viewpoint of approaches to global warming countermeasures herein.

Firstly, while emissions trading schemes take a top-down approach to target-setting, the commitment to a low carbon society takes a pledge and review approach, as does the Paris Agreement. Under the Keidanren's Commitment to a Low Carbon Society, industries and companies, which know best about the future production outlook in each industry and the introduction status of best available technologies (BATs), can set up their own targets based on strong commitment and engage in reduction efforts towards target achievement under exposure to third-party review. Therefore, the framework of the commitment to a low carbon society is a highly effective global warming countermeasure in Japan, which has already achieved world-leading energy efficiency levels, in the aspect of advancing greenhouse gas reductions while also pursuing business operations.

Secondly, while emissions trading covers mainly domestic business operations, the Keidanren's Commitment to a Low Carbon Society pursues the following four pillars: (a) reductions through domestic business operations; (b) reductions through product life cycles based on co-operation with various actors; (c) contributions at the international level; and (d) the development of innovative technologies. As aforementioned, the Paris Agreement set up the so-called "2℃ target." For the achievement of long-term greenhouse gas reductions on a global scale, efforts including life cycle-based emissions, international contribution, and innovative technology development will increase their importance.

As the international community pursues drastic reductions on a global scale under the Paris Agreement, in light of preceding examples of emissions trading as well as Japan's national circumstances, Japan should continue to assign importance to the

Commitment to a Low Carbon Society instead of an emissions trading as a pillar of business community-led measures to counter global warming.

(2) Large-scale carbon taxes

① Price effects

A carbon tax imposes tax payments in proportion to carbon emissions, thus encouraging emitters to act to reduce emissions with consideration of tax rate levels.

Japan has already implemented various measures that have effectively reduced greenhouse gas emissions and is often said to have little room for additional reductions. Estimated to have stood at 57 US dollars/t-CO2 in 2010 and expected to reach 378 US dollars/t-CO2 in 2030, Japan's marginal mitigation cost is extremely high compared to that of other countries. Price elasticities of energy use are generally low, and according to estimates conducted by the Ministry of the Environment, the Global Warming Tax will only have a price effect of 0.2% (0.4-2.1% in terms of tax revenue performance) in 2020 relative to 1990 level.

Therefore, in order for Japan to harness price effects to reduce CO2 emissions, we would have to impose a high carbon tax rate based on its marginal mitigation price. However, this would also lead to a significant rise in energy costs. It would take much determination on the part of the general public to accept the introduction of a carbon tax, which would inevitably result in adverse economic impacts that cannot be ignored.

【Table】Marginal mitigation costs for achieving INDCs

	Marginal abatement cost ($/t-CO2eq)	
	Low	High
Japan： -26% relative to 2013 (2030)	around 380 (around 260 when estimated only for CO2 emissions of energy origin)	
US： -26%～-28% relative to 2005 (2025)	76	94
EU：40% relative to 1990 (2030)	210	
Switzerland：-40% relative to 1990 (2030)	380	
Norway：-40% relative to 1990 (2030)	70	
Australia：-26%～-28% relative to 2005 (2030)	33	
Canada：-30% relative to 2005 (2030)	166	
Russia：-25%～-30% relative to 1990 (2030)	1	7
China：-60～-65% CO2 emission intensity relative to 2005 (2030)	～0	～0
Korea：-37% relative to BAU (2030)	144	

(Source Keidanren secretariat)

② Impacts on international competitiveness

Given continued corporate efforts to reduce greenhouse gas emissions over many years and Japan's high marginal mitigation cost in an international context, an outstandingly high carbon tax would be required to assume price effects. However, this will result in serious consequences, including impairing the international competitiveness of industries, to a larger extent in structurally energy-intensive industries, and substantially worsening profitability, thus compelling industries to shift their production bases overseas.

If special measures, including exemptions from tax burdens, were to be implemented for the industrial sector in light of the potential impact on international competitiveness and employment, not only would intended policy effects be undermined, increased tax rates for the electric power sector would affect all industries. For example,

some estimates hold that if the Petroleum and Coal Tax and Global Warming Tax were to be replaced with a carbon tax of 100 U.S. dollars/t-CO2, electric power tariffs would increase by approximately 28 percent.

③ Impacts on household budgets

Estimates also hold that if a carbon tax of 100 U.S. dollars/t-CO2 were to be imposed upon the household budget, then annual energy costs and vehicle fuel costs would increase by 20 percent. This is equivalent to a 6.5 percent consumption tax hike; and therefore, with regard to the fact that energy spending tends to represent a higher ratio to total household expenditures in low-income households, the introduction of a carbon tax would have serious impacts on Japanese economy and national life.

④ Tax revenue performance

In light of the spirit of carbon pricing, we are extremely uncomfortable with discussions on the advantages of introducing carbon pricing instruments focused on tax revenue performance, because of the low price effect promised. If tax revenue performance is to be stressed nevertheless, careful analysis should be conducted on whether revenue from the existing Global Warming Tax is being efficiently and effectively used. Furthermore, tax revenue should not be discussed before clarifying what it will be used for. If the future calls for additional tax revenue, then the details of the measure to be taken using the tax revenue and its cost-effectiveness must be verified.

There are also views in support of allocating tax revenue to corporate tax reductions and social security. Such approaches will naturally undermine greenhouse gas reduction effects, but moreover, since progress in CO2 emissions reduction will result in decreased tax revenue, a carbon tax cannot be expected to provide a stable and sustainable financial source for social security in the long-term.

Given little promise of price effect, a carbon tax would have to feature high tax rates in order to ensure meaningful effects. However, we strongly fear that this will entail serious impacts on Japanese economy. Special measures to avoid such impacts and using tax revenue for policy aims other than emissions reduction have been suggested, but both ideas are problematic. Enhancing carbon taxes cannot be regarded as realistic policy option.

4. Conclusion

Discussions on carbon pricing should be premised on the approach that carbon pricing is not limited to explicit carbon pricing instruments, such as carbon taxes and emissions trading, but covers a wider range of instruments including those of implicit carbon pricing. Japan has already implemented various policy instruments at multiple levels; and therefore, discussions on whether or not to introduce new measures should comprehensively consider the characteristics of global warming issues, balancing the environment, economy and energy, the energy situation, industrial structure and other circumstances unique to Japan impacts on international competitiveness, and the cost-effectiveness of policy instruments, based on the total carbon cost, including costs accompanying new measures.

Given Japan's high energy costs and strong corporate incentive to reduce emissions, there is little need to explicitly raise carbon prices. In light of the many serious shortfalls of emissions trading schemes and carbon taxes, we continue to be opposed to both the introduction and enhancement of explicit carbon pricing in Japan.

With a view to drastically reducing greenhouse gas emissions on a global scale, it is important for Japan to continue its incessant efforts to create innovation and at the same time achieve reductions through the global value chain of products and services and engage in the overseas expansion of energy-saving technologies in practical use. We strongly expect the Japanese government to develop strategic policies that are realistic and effective so that Japan can make unique contributions to addressing global warming issues in way that ensures prosperous national life into the future with a view to industrial policy.