Keywords A to Z Vol. 34

# Keyword Carbon Pricing

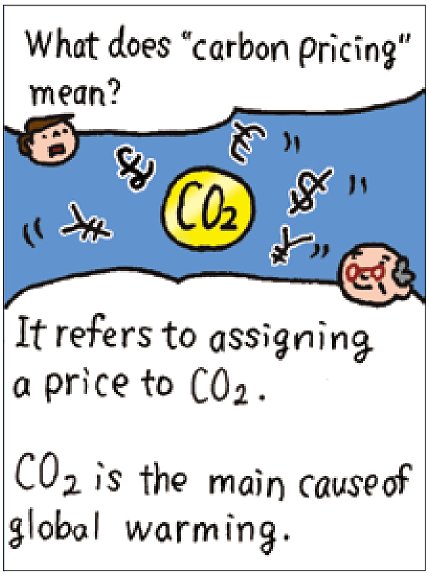
**A system with the aim of reducing $CO_2$ emissions, which are one of the main causes of global warming. In this system, a price is set on carbon so that reductions in $CO_2$ by companies and households can be visualized. The amount of reduction can be bought and sold, which motivates further reduction of emissions.**

## Pricing $CO_2$ encourages reduction of greenhouse gases

Global warming is an urgent issue around the world, since it affects the natural environment and people's lives in various ways. Global warming is thought to be caused mainly by a rapid rise in the atmospheric concentration of greenhouse gases (GHGs)*1 like $CO_2$, methane, and freon, as the use of fossil fuels like coal and petroleum increased following the Industrial Revolution in the 18th century.

To discuss measures for reducing GHGs, the Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change has met annually since 1995. At COP 21 in 2015 the Paris Agreement was adopted, in which the parties agreed to the goal of keeping the average global temperature rise in this century to well below 2°C as compared to pre-industrial levels, and to pursue efforts to hold the rise to 1.5°C. Also, each country set its own long-term goal for reducing GHG emissions.

In this way, measures for reducing GHG emissions have taken on a global scale, and carbon pricing was introduced as one of these measures. Carbon pricing "visualizes" invisible $CO_2$ emissions by setting a price on $CO_2$, one of the main GHGs, and in so doing it helps us to reduce the emissions, which are unavoidable for maintaining our comfortable lives.

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## Carbon taxes based on $CO_2$ emissions from fuel and electricity use

There are two commonly used methods for implementing a carbon pricing system. One is a carbon tax, which is imposed on companies that emit $CO_2$ through the use of fuel or electricity. The amount of tax is proportional to the amount of emissions.

Japan has taxation systems equivalent to a carbon tax. One of these is the Petroleum and Coal Tax that was introduced in 2003. This applies to crude oil, imported petroleum products, liquefied petroleum gas (LPG), gaseous hydrocarbons including liquefied natural gas (LNG), and coal. The taxation rate is defined by metric ton of $CO_2$ emissions for each product.

In addition, there are taxes similar to a carbon tax in our daily lives. Taxes levied on gasoline (volatile oil taxes, local volatile oil taxes), the fuel for automobiles, etc., is an example. Another example is a surcharge to promote renewable energy generation (a feed-in tariff, or FIT), which is included in the monthly electricity bill. In general, a FIT is based on a law on renewable energy that requires electricity distributors to purchase power generated from renewable energy, such as solar or wind energy, at a price defined by the government during a certain period. The purchase cost is borne by the people of the country.

## Selling $CO_2$ emission reductions as credits in the market

Another approach to carbon pricing is emissions trading systems. Japan promotes a baseline and credit approach in which the amount of $CO_2$ emissions reduction is a credit that can be traded in the market. Based on past $CO_2$ emissions, etc., the amount of emissions before the implementation of a reduction project is estimated and set as a baseline. If, after efforts at reduction, the new amount of emissions is below the baseline, the difference can be traded in the market as a credit. For example, if there is a system that emits 2,000 metric tons of $CO_2$ per year, and this is reduced to 1,800 metric tons per year by an energy-efficiency project, 200 metric tons can be traded as a credit. In order to claim the credit, certification from an outside organization is required. In Japan, the Joint Crediting Mechanism (JCM) for trades between countries is operated by the government. Also, there are voluntary credit arrangements operated by the private sector and non-governmental organizations.

Japan's Ministry of Economy, Trade and Industry is also considering the establishment of a new "carbon-neutral top league" and a carbon credit market as foundations for developing the carbon pricing system in the medium to long term. The carbon neutral top league would be a framework in which participating companies voluntarily set targets and take measures for $CO_2$ reduction. If a company's reduction exceeded its target, it would be able to sell the extra reduction as a credit in the carbon credit market, where high-quality domestic and overseas credits would be traded.

As we have seen, carbon pricing is a concept with very high economic rationality that gives a reward in the form of profits for successful efforts to face environmental problems. Since carbon pricing systems encourage emission reduction efforts, we can expect the further development of such measures.

*1 Greenhouse gas (GHG)
A general term for gases in the atmosphere that cause a "greenhouse effect" by absorbing part of the infrared radiation emitted from the Earth's surface.

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