

GX is the abbreviation for *green transformation*. Green transformation involves recognizing the achievement of carbon neutrality (reducing greenhouse gas emissions to net zero) as an opportunity for economic growth and reforming the socio-economic system to reduce emissions and improve industrial competitiveness.

## Transformation of society to achieve both decarbonization and economic growth

In October 2020 Japan announced a goal of carbon neutrality by 2050. Carbon neutrality means reducing greenhouse gas (GHG)\*<sup>1</sup> emissions to zero overall. Japan emits about 1.2 billion tons of greenhouse gases annually. In order to reduce this to zero, it is essential to take measures to reduce GHG emissions by revising energy usage and procurement and at the same time to increase GHG absorption through afforestation and forest management. The goal will not be achieved easily. In addition to extending existing efforts, there is a need to shift to industry based on clean energy.

However, the prices of electricity, natural gas, food, etc., have risen across the board in recent years. Behind this are the soaring prices of energy and resources. Since Japan relies on imports for many of these things, it is strongly affected by the international situation. Stable supply and efficient utilization of energy are indispensable for economic growth and development.

Green transformation (GX) is expected to solve various problems in society related to energy. GX is a phrase that combines green, which means environment-friendly, and transformation. It is an initiative to change the structure of industry and of the economy, recognizing the challenge of carbon neutrality as an opportunity for growth. By promoting industrial GX, starting with energy, the aim is to transform the socioeconomic system to reduce GHG emissions and enhance industrial competitiveness.

## Incorporating green policies and strengthening competitiveness

GX is a new term, but Japan has been taking various measures to combat climate change, including clean energy strategies and green growth strategies aimed at achieving carbon neutrality. GX aims to incorporate these existing “green” policies and systems and achieve decarbonization and economic growth and development simultaneously.

Because the development of new technology and the construction of mechanisms that contribute to the reduction of GHG emissions are costly, achieving GX may require, for example, public budget support and private investment, as well as deregulation for the creation of new markets. For this reason, the Japanese government has set five pillars for the development of systems and infrastructure: budgetary measures, regulatory and institutional measures, financial packages, gradual development of the GX League, and global strategy.

At the same time, regarding clean energy, the government indicated 11 specific areas for realizing GX such as hydrogen/ammonia, offshore wind power, and storage batteries, which are expected to grow in the future. Individual industries and companies have been striving to reduce GHG emissions, but carbon neutrality by 2050 is an extremely ambitious goal that cannot be achieved on its own. Therefore, assuming the mutual influence of GX-related industries and companies, the government is attempting to accelerate activities by indicating specific directions.

created by existing frameworks will be generated.

## GX League collaborates across industry boundaries

Of the five pillars mentioned above, the gradual development of the GX League is a completely new initiative. The GX League is an organization whose members work together to reduce greenhouse gas emissions and achieve economic growth. Approximately 679 companies are participating and have begun working on activities to promote GX across industry boundaries.

Full-scale operation is scheduled for 2023, and preparation and discussions have been underway since 2022 for three platforms (projects) designed respectively for future vision dialog, market creation and rule making, and voluntary carbon credit exchange. The future vision dialog platform is a place where a wide range of stakeholders from industry, government, academia, and citizens can gather to think about a sustainable future society. The platform for market creation and rule making is a place to work on making rules based on a vision of society in the future. The carbon credit exchange platform is a place to consider the formation of a market for trading GHG emissions and GHG emission reductions through the introduction of energy-saving equipment.

It is hoped that taking on GX challenges not only with existing policies but also with policies like the GX League will act as a catalyst in the industrial world, leading to decarbonization and economic growth at the same time.

\*1 Greenhouse gases (GHGs)

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.

\*2 ZEB

An abbreviation for *net zero energy building*. This is a building whose purpose is to reduce the annual balance of primary energy consumed in it to zero through energy conservation and energy generation, while also achieving a comfortable indoor environment.

\*3 ZEH

An abbreviation for *net zero energy house*. This is a house that reduces the amount of energy used in the home and creates energy with solar power generation, etc., so that the amount of energy consumed per year is net zero or better.

