

**Toward Realizing Carbon Neutrality by 2050 (“Society 5.0 with Carbon Neutral”)**

**—Determination and Actions of the Business Community—**

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Keidanren

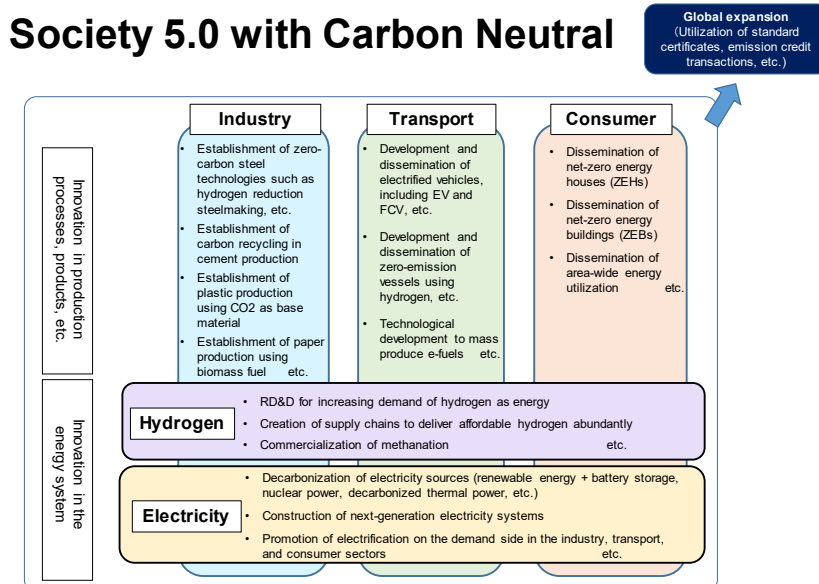
**1. Introduction**

During his policy speech in October this year, Prime Minister Suga declared to aim towards “carbon neutrality by 2050”.

The environment is the foundation of business activities and the daily lives of citizens, and realizing a sustainable society is the business community’s utmost concern. In a time of “climate emergency”, it was indeed an admirable decision that the Prime Minister declared a policy to sincerely take actions toward addressing climate change. The business community highly appreciates this decision and, in full collaboration with the government, will approach the challenge of “carbon neutrality by 2050” with unwavering resolve.

It goes without saying that realizing carbon neutrality by 2050 is a very challenging issue. Drastic changes in a way of energy utilization that has been practiced since the Industrial Revolution are indispensable. Further, it is necessary to innovate the production processes of key industries that have historically long supported human civilization. Moreover, the full-scale dissemination of innovative products contributing to decarbonization in the transport and consumer sectors, as well as lifestyle changes are needed. In other words, it requires the realization of a new socioeconomic system, “Society 5.0 with Carbon Neutral” so to speak, through the fundamental transformation of the system as a whole (image below).

This challenge has not been met by any country at this point in time, but is one that humanity cannot avoid going forward. The business community is fully prepared to play a pioneering role.



## 2. Challenges toward Realizing Carbon Neutrality and the Role of the Business Community

Aiming toward carbon neutrality by 2050, not to mention thorough energy efficiency improvement, there are various challenges in the industry, transport, and consumer sectors of the socioeconomic system, as well as energy transitions in the energy system including electricity and hydrogen.

### <Examples of Challenges>

#### [Electricity]

- Decarbonization of electricity sources (renewable energy + battery storage, nuclear power, decarbonized thermal power<sup>1</sup>, etc.)
- Creation of next-generation electricity systems
- Promotion of electrification on the demand side in the industry, transport, and consumer sectors

#### [Hydrogen]

- Research, development and demonstration (RD&D) for increasing demand of hydrogen as energy
- Realization of supply to deliver affordable hydrogen abundantly
- Commercialization of methanation

#### [Industry]

- Establishment of zero-carbon steel technology such as hydrogen reduction steelmaking, etc.
- Establishment of carbon recycling in cement production
- Establishment of plastic production using CO<sub>2</sub> as base material
- Establishment of paper production using biomass fuel

#### [Transport]

- Development and dissemination of electrified vehicles including EV and FCV, etc.
- Development and dissemination of zero-emission vessels using hydrogen, etc.
- Technological development to mass produce e-fuels

#### [Consumer]

- Dissemination of net-zero energy houses (ZEHs)
- Dissemination of net-zero energy buildings (ZEBs)
- Dissemination of area-wide energy utilization (smart energy network)

etc.

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<sup>1</sup> Such as high-efficient thermal power + CCUS, hydrogen-fired thermal power, etc.

As the entire society tackles these challenges, the business community will take a proactive role in 1) ensuring a stable supply of affordable, decarbonized energy including electricity and hydrogen, 2) establishing decarbonized production processes in the industry sector, 3) enabling a supply of innovative products and buildings that contribute to decarbonization, such as electrified vehicles and ZEHs/ZEBs, in the transport and consumer sectors.

### **3. Perspectives in Promoting Carbon Neutrality by 2050**

As well as setting the challenge toward carbon neutrality by 2050 as Japan's new growth strategy, the Suga administration advocates a policy to lead this challenge to the development of industrial structure and the socioeconomic system, thereby generating a "virtuous cycle of the economy and environment."

For the business community to engage in active innovation and investments and fulfill its role for carbon neutrality autonomously and smoothly, the perspective of keeping the "virtuous cycle of the economy and environment" running is extremely important.

Major countries and regions have positioned green growth as a pillar of their national strategies or industrial policies, and are embarking on this new competition<sup>2</sup>. If Japan remains an idle spectator to this emerging situation, it will be at a significant competitive disadvantage internationally to achieve green growth, let alone realize a "virtuous cycle of the economy and environment." This would put Japan at risk of suddenly losing its industrial and locational competitiveness.

Keeping this in mind, first, the challenge toward carbon neutrality by 2050 has to lead to strengthen Japan's industrial competitiveness by generating innovations and extending them into domestic and international markets. To this aim, it is essential to promote research and development as well as initial investment and create business environments which ensure the stable supply of affordable zero-emission energy.

Second, as a measure to stimulate demand in the COVID-19-stricken economy, proactive investments should now be promoted toward large-scale infrastructure including next-generation electricity and hydrogen supply systems, and in production facilities, transport equipment, and housing, etc. that enable energy efficiency and decarbonization. Improving the current economic environment is also important for encouraging autonomous investments from the private sector.

Based on these perspectives, the following specific actions should be implemented.

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<sup>2</sup> For example, the EU has announced that, through its COVID-19 recovery package, it would be investing about JPY 35 trillion in climate change measures. In addition, the U.S. President-elect Biden has pledged to invest more than USD 2 trillion in clean energy within the four years of his first term.

#### 4. Generating Innovation

As mentioned earlier, “Society 5.0 with Carbon Neutral” cannot be realized without generating innovation. As international competition with respect to green growth becomes more intense, the generation of innovation is a vitally important issue for strengthening Japan’s competitiveness going forward.

With respect to Keidanren’s “Challenge Zero” initiative started in June this year, approximately 170 companies and organizations have already announced about 360 innovation challenges involving generating innovation toward carbon neutrality and providing funding for companies actively engaged in these challenges. The business community will further expand and deepen the challenges of companies for innovation, while strengthening its international outreach.

As for innovations toward 2050 and the energy mix that considers such innovations, the government should clarify multiple future scenarios together with supporting technology and policy options available, and verify the challenges and costs. Then the government should take an approach to make focused investments in specific technology areas that are considered technologically and economically feasible<sup>3</sup>.

For particularly important technology areas, such projects should be nationalized and be provided with long-term and large-scale support. Specifically, mid-term milestones could be set at a particular year before 2050 (for example 2030), with clear and ambitious targets concerning price and performance shared among the public and private sectors. The government should then provide long-term and large-scale support drawing upon the national budget for companies taking on the challenge of innovating towards meeting the targets set. Given the high risk inherent to investments in research and development for innovations, the government should come up with a specific system design with a view to providing enabling environments that lead companies to move boldly forward with innovations without letting them scale back their challenges<sup>4</sup>. We highly appreciate a recent announcement made by Prime Minister Suga to establish a fund amounting to an unprecedented JPY 2 trillion to support innovations over the next 10 years. We have high expectations that it will be utilized to back up the bold measures taken by companies.

Furthermore, it is necessary to comprehensively promote strong support through the taxation system to back initiatives for innovation aiming toward carbon neutrality, large-scale government investments in social deployment of technologies concerned and associated infrastructure

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<sup>3</sup> Because of the difficulty in accurately assessing at present the socioeconomic system and innovation trends in 2050, due to uncertainty, it is necessary to avoid setting linear mid-term reduction targets back casted from 2050 and managing progress rigidly.

<sup>4</sup> It has also been pointed out that implementing a predictable, stable policy with a sufficient transition period would be effective for generating innovation, as opposed to a short-term, detailed government intervention (“The Third Green Innovation Strategy Meeting” Secretariat Material, 11 November 2020).

development, market creation, securing a level playing field to procure zero-emission energy, as well as regulatory and institutional reform.

Meanwhile, proper recognition needs to be made on the potential rise in costs and changes in industrial and employment structure associated with the transition toward carbon neutrality. Also due consideration has to be taken regarding how the costs ought to be borne by society as a whole, and how various support measures should be deployed for a smooth transition to decarbonization, including support to small- and medium-sized companies in supply chains.

## **5. Creating Next-Generation Electricity Systems with Investment Cycles**

Creating next-generation electricity systems will play an important role as a basis for the decarbonization of electricity and electrification of energy demand. However, new investments related to electricity are currently stagnant and the transition to next-generation infrastructure is not adequately progressing.

Among investments in the electricity area, investments in networks are gaining assistance with the “Act for Establishing Resilient and Sustainable Electricity Supply Systems” passed in June 2020. The government should clarify the future vision of electricity networks and promote investment cycles, while continuing to provide institutional and financial support for the efficient facility construction and utilization.

Regarding investment in electricity sources, institutionally supported renewable energies are putting downward pressure on wholesale electricity prices, seriously impacting the predictability of return-on-investment in unsupported electricity sources. As it stands, investments into large electricity sources, such as in large-scale hydropower, nuclear power, and decarbonized thermal power, will likely remain stagnant. It is necessary to reduce the risks associated with large-scale initial investment in new electricity sources to accelerate the decarbonization of electricity sources, and ensure the stable power supply for the future. Given that the construction of electricity sources requires considerable amount of time, measures must be urgently considered.

Nuclear power in particular is indispensable to achieve carbon neutrality by 2050. On the premise that operators will make ceaseless efforts to improve on safety measures under the supervision and cooperation of regulatory authorities, the government should take the lead in fostering public understanding of nuclear power. In addition to the restart and effective utilization of existing nuclear power plants whose safety has been confirmed, the government should clearly position the replacement and construction of new facilities as a national policy, thereby immediately promoting nuclear power. Aside from discussions on the restart of existing plants, discussions on the policy regarding the utilization of nuclear power going forward should also be started in a prompt manner. Issues would include research and development for new types of reactors, such as SMRs (small

modular reactors), over which international competition for taking the initiative is intensifying.

Although the price of renewable energy has been on a downward trend globally, there is an extreme lack of opportunities in Japan to gain access to inexpensive renewables on the demand side. As clients and financial institutions continue to make ever stronger requests to individual companies for decarbonization, this issue poses a major concern for the continuation of business activities in Japan for companies that are considering competing on the global stage which presupposes the use of renewable energy. It is necessary to immediately break away from unfocused support targeting all renewable energies, such as the current Feed-In Tariff (FIT) scheme, and mobilize public and private resources to develop an environment that encourages the adoption of competitive energy, thereby striving to increase the supply of renewable energy at a price comparable to prices in Europe and North America.

The business community will contribute to discussions on these issues from a practical perspective, based on the actual state of the business.

## **6. Promoting Sustainable Finance**

In recent years, there has been strong momentum among domestic and international financial institutions in the field of climate change for “sustainable finance”, which aims at creating a sustainable society through the mobilization of funds. From the perspective of promoting actions toward achieving carbon neutrality through financial means, security issuers are expected to implement active disclosure and dialogue, and financial institutions must make investments and loans based on the actual situation, rather than an undifferentiated and perfunctory evaluation.

Under these circumstances, it will be important to create a system, as an infrastructure of sustainable finance, composed of the development of a disclosure basis and the establishment of an evaluation method.

Regarding sustainable finance, the EU is considering a taxonomy that aims to promote financing mainly for technology whose greenhouse gas emissions are virtually at a level of zero (green technology). In addition to such green finance, there ought to be efforts toward mobilizing funds for a wide range of technologies and activities necessary for innovation and the transition toward a decarbonized society.

The “Climate Innovation Finance Strategy 2020” released by the government and the “Basic Approach to Sustainable Finance on Climate Change and Concrete Actions” compiled by the Working Group on Global Environment Strategy of Keidanren, advocate financing for all areas concerning “innovation”, “transition” and “green”. The messages therein should be materialized through cooperation with foreign governments and economic organizations in areas such as Europe, North America, and Asia.

## **7. Expanding Innovation Internationally**

Japan is expected to actively contribute to carbon neutrality at the global level through expansion of successful innovations for decarbonization to Asian countries and other parts of the world. For that, construction of an institutional basis is essential through the early conclusion of negotiations on the detailed rules of the Paris Agreement, looking ahead to the greater utilization of the Joint Crediting Mechanism (JCM), as well as the WTO negotiations on the Environmental Goods Agreement. At the same time, it is needed to improve the business environment in Asia which is important production bases and markets for Japanese companies. In addition, the creation of international frameworks such as the “Blue Dot Network” to certify high-quality infrastructure projects will be effective to ensure that the high quality of Japanese environmental technologies is recognized.

It should be noted that maintaining a comparative level for costs of domestic electricity and energy as international competitors is a prerequisite for Japan’s carbon neutral technology to win in the international technological competition, thereby acquiring business opportunities in international markets, and leading to the growth of the Japanese economy.

## **8. Conclusion**

This proposal demonstrated the business community’s determination and actions regarding carbon neutrality by 2050.

Recently, policy deliberations by the government have been considered positive overall, given the finalization of the “Action Plan of the Growth Strategy” by the Committee on the Growth Strategy and the announcement made by Prime Minister Suga in his press conference, indicating “green” as a pillar of growth. Toward the end of the year, the government is planning to compile an “Action Plan for the Green Growth Strategy” aiming toward carbon neutrality by 2050, through meetings such as the Committee on the Growth Strategy and the Green Innovation Strategy Promotion Conference. We strongly hope that, based on this proposal, the government will compile effective policies that show its resolve on these issues.

Furthermore, it is planned that the revision of the Strategic Energy Plan and that of the Plan for Global Warming Countermeasures will be discussed towards next year.

Going forward, Keidanren will enthusiastically consider these issues, mainly on its Committee on Environment and Safety and Committee on Energy and Resources, thereby intensively engaging in government discussions. Moreover, Keidanren will release a series of proposals regarding measures to realize carbon neutrality by 2050 and promote “Challenge Zero” and other proactive initiatives taken by the business community.