

Supplement on Energy
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Introduction

Japan and the United States share the common view that sustained engagement on trade and energy issues will support a strong and enduring bilateral relationship, one that remains pivotal to the future of the Asia-Pacific region. We recognize the potential for changes in policy approach by a new U.S. Administration, but also believe that open dialogue between public and private partners on issues of mutual interest will help strengthen the economic relationship. Therefore, we urge continued bilateral engagement on future energy challenges, policy solutions, and areas for collaboration between Japan and the United States.

There are notable differences between the strategic, security, geographic, and supply-demand aspects of energy in Japan and the United States. On the one hand, the United States benefits from an abundance of indigenous potential for both renewable and non-renewable sources of energy, energy export potential, strong productivity, and secure transportation routes. Japan, on the other hand, has focused on developing unique advantages and expertise in saving energy and increasing transportation and power generation efficiency. These characteristics underpin a complementary relationship in energy between both countries, which can facilitate further collaboration in Asia-Pacific amidst changes in global energy trends.

The Asia-Pacific region is a significant source of growing world demand for energy, and serves as a major destination for investment in energy projects by Japanese and U.S. companies. Access to affordable and secure energy drives economic development and is one of the most powerful catalysts for raising living standards. Although our two nations' energy positions differ dramatically, we believe that our countries share common important goals. To help realize the full potential of partnership on energy issues, the Japan-U.S. Business Council and the U.S.-Japan Business Council (hereinafter, the "Councils") make the following recommendations.

Paths to a Sustainable Energy Mix

Japan and the United States aspire to achieve a future energy mix that results in meaningful greenhouse gas reductions, while ensuring a secure, stable and affordable energy supply that drives economic growth. Both countries face challenges in expanding domestic coal fleets and maintaining existing nuclear capacity. These energy sources will remain essential to economic development. However, it will take an all-of-the-above approach pursued by governments and businesses in both countries to achieve an optimum future energy mix.

In Japan, METI released its “Long-term Energy Supply and Demand Outlook” plan in July 2015 that sets out Japan’s energy mix policy following the Great East Japan Earthquake of 2011. The document forecasts that by 2030, renewables will account for 22-24% of Japan’s power generation mix; nuclear at 20-22%; LNG at 27%; coal at 26%; and oil at 3%. Yet, some of the goals set by the Japanese Government in its energy mix plan, such as the target for nuclear power, face numerous challenges, including from local communities.

The Great East Japan Earthquake caused physical and mental suffering on a national scale, and it was not an easy task to establish this new energy policy. In order to achieve a realistic goal, discussions need to be held at the public-private level regarding the planning and restart of nuclear power reactors, as well as the balance in other energy inputs into Japan’s energy mix.

Nuclear Power Generation: Issues

In order for Japan to reach its target numbers by 2030 in its energy mix plans, the current situation and the future plans for nuclear power generation in Japan must be seriously and actively considered.

After reflecting on the nuclear incident, all nuclear reactors must now meet more rigorous safety standards before gaining permission to operate. As a result, as of October 2016, five reactors have passed these requirements and three are in operation: Sendai Nuclear Power Plant (2 reactors) and Ikata Nuclear Power Plant. More thorough explanations regarding the necessity of nuclear power in Japan are needed in order to improve public opinion on nuclear power.

In the United States, there is interest in sustaining domestic nuclear power generation, although construction of new nuclear power plants had been halted for a long period of time.

Japan is firmly committed to a policy whereby excess plutonium will neither be owned nor be used for non-peaceful purposes, and is based on promoting its fuel cycle policy and fast reactor development. Specifically, Japan's public and private sectors are actively working on initiatives such as the promotion of pluthermal power generation and the establishment of a legal framework for spent fuel reprocessing management.

The U.S. and Japan have been irreplaceable partners, each committed to nuclear safety and non-proliferation worldwide. Through the collaboration of U.S. and Japanese companies, it is to our common benefit to supply nuclear technologies to the world, not only for the sake of providing stable energy supplies to consumers, but also for purposes of national security, including non-proliferation. The Councils emphasize the importance of further enhancing our business cooperation and support the timely renewal of the "Agreement for Cooperation Between the Government of the United States of America and the Government of Japan Concerning Peaceful Uses of Nuclear Energy," which constitutes the bedrock of the cooperation.

Seizing the Opportunities of Liquefied Natural Gas (LNG)

Natural gas has a central role in the U.S. energy supply and is supported by its low cost. Gas is a significant energy resource in Japan and LNG has become an important part of Japan's national energy mix, serving as a stable and affordable input into electric power generation and as a cleaner alternative to other fossil fuels. LNG has the ability to compensate for load fluctuations in renewables, which can be affected by natural conditions such as sunlight hours and wind velocity. In addition, natural gas can provide low carbon environmental benefits at scale, and the increased use of natural gas in power plants in the United States has resulted in a historic reduction of national GHG emissions. The Councils support Japan's continued development of a diversified, balanced portfolio approach to LNG imports, including from the United States, Australia, and others.

Climate Change

The Paris Agreement, adopted during the COP 21 meetings last December, lays out an international climate change policy post-2020 and represents an important achievement in tackling global climate change issues. Japan's energy mix policy also aims to achieve its national commitment in the Paris Agreement to reduce greenhouse gas emissions.

The United States and China, which is the world's top CO₂ emitter nation, both took a large step by adopting the Paris Agreement. The Councils look to the Japanese government to also adopt the agreement and enforce a policy with clear, specific goals that will help Japan reach the targets specified in the agreement. The Councils encourage governments to actively and transparently find solutions, together with the business community, to prevent potential risks posed by climate change.

Both governments must focus on and commit to addressing the global climate change issue, while also taking into account the stability of their energy supplies and the opportunities for technological innovation. Expanding Japan-U.S. cooperation through dialogue on key topics such as renewable energy, hydrogen energy, energy-saving technology, energy storage, AI (Artificial Intelligence), and IoT (Internet of Things) is a positive step forward.

The Role of Coal and Carbon Capture Technology

Japan has valuable knowledge and skills regarding coal-fired power generation. Recently, however, opposition has grown in the United States and other countries towards the use of coal as an energy resource, leading to a decline in technological developments. However, with a continued steady demand for coal in Asia due to relatively low prices and abundant reserves in the region, demand for coal-fired power plants remains.

The Asian Infrastructure Investment Bank (AIIB), an international financial institution established by China, is using its funds to support the construction of new infrastructure in the Asia-Pacific region. Should Chinese companies use this vehicle to seek support for new orders of coal-fired power plants, this development could become a major obstacle to addressing climate change. In this event, further development and application of technologies that reduce CO₂ emissions while utilizing coal as an energy resource is one reasonable solution to this challenge.

In the United States, for example, CO₂ capture technologies are currently being utilized where emissions from the use of fossil fuels in electricity generation are captured and then stored underground in depleted oil and gas fields. Japan lacks proper CO₂ storage capacity, but possesses advanced technologies to capture CO₂. Both countries can collaborate on efforts to develop and diffuse affordable technologies in this arena to support countries that require coal power generation and mitigate risks posed by climate change in the future.

Similarly, IGCC (Integrated Coal Gasification Combined Cycle) technology, now under development, can also provide efficient use of coal and can contribute to a dramatic reduction of CO₂ emissions if used especially to support replacement of coal power generation in countries with a higher CO₂ emissions factor.

Utilization of Renewable Energy and Overcoming Challenges

Increasing utilization of renewable energy and steps to reduce fossil fuel power generation as a means to tackle climate change is a global trend. There is also a trend in countries of the European Union whereby increases in support for Feed-In Tariffs (FIT) have been accompanied by a rapid decrease in the price of electricity. This has led to a decrease in the frequency of operation of thermal power plants, thereby making it difficult to secure the revenue to maintain the management of thermal power plants. At times when electricity demand is low, power prices plummet due to the use of renewable power generation. Yet at times of peak load usage, these thermal power plants are needed to fill the gap in supply and demand to provide sufficient power generation output. As a result, maintaining steady management of the electrical grid becomes problematic unless steps can be taken to secure the financial soundness of larger thermal power plants that are needed during times of high demand.

One way of solving this issue is to take full advantage of power trading in the electricity market by implementing and promoting new products and ideas – such as demand response and energy storage systems.

The liberalized electricity market areas in the United States have already been building new wholesale market structures, such as capacity and ancillary markets, and putting them into practice. But there is also a great significance in close cooperation between Japan and the

United States through sharing experiences and working together to achieve a healthy electricity market, based upon fair competition.

Distributed Energy and ICT Technology

Both Councils acknowledge the importance of achieving enhanced energy conservation and that it must be pursued with a steady and continuous effort. With the spread of renewable energy and the liberalization of the electricity market, a new idea has been introduced whereby small and medium-sized power plants dispersed over a wide area, in addition to the operation of large capacity power plants, could mitigate power fluctuations from renewable energy sources. In addition, use of high-efficiency energy conversion through cogeneration is another method of distributed power generation which works well with large energy users such as factories.

In order to efficiently and effectively operate these distributed power facilities in the electrical grid, it is essential to constantly analyze data through the use of remote monitoring. This new service is currently being implemented in large power plants, as well as distributed renewable power plants, and is considered one of the key developments in the IoT business. Also, Japan over the years has cultivated ICT-based, energy conservation technology, not only on the generation side but also on the consumption side. Further development and implementation of these technologies will realize an integrated system with optimized energy demand and supply. To take full advantage of this trend, it is essential that limits not be placed on the cross-border flow of data. Data analysis-related services requires both cross-border transmission of data as well as the provision of economic value to a specific geographic target where there is ample power infrastructure, thereby achieving a win-win business scenario.

As a result, it is critical for both Japan and the United States to exercise joint leadership in setting and spreading the standard of ensuring the free, unfettered flow of data across borders in order to maintain remote monitoring of distributed and cogeneration facilities.