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Malaysia's Interests in Japan Pursuing Carbon Neutrality

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On August 26, I made a presentation titled "Japan's Strategic Energy Transition: Voyage in Uncharted Waters to Carbon Neutrality under the Impacts of COVID-19" in a webinar sponsored by the Universiti Tenaga Nasional Institute of Energy Policy Research (UNITEN/IEPRe) in Malaysia. I have served as Chair in the Energy Economics of Energy Commission at UNITEN since 2015. In the webinar, I reported Japan's 2050 carbon neutrality initiatives and discussions on the revision of its Strategic Energy Plan, which are of great interest to Malaysian energy policy and industry stakeholders, and had a moderated discussion with the moderator before exchanging views with participants, based on consultations with the sponsor.

It was very impressive to me that Malaysian energy stakeholders indicated their great interests in Japan's carbon neutrality initiatives and the revision of the Strategic Energy Plan through the moderated discussion and the exchange of views after my presentation. Malaysia is strongly conscious of the significance of the enhancement of climate change countermeasures and is interested in how to overcome cost hikes and other challenges accompanying the enhancement and how to realize a suitable energy transition over the long term. Malaysia, which has had close relations with and strong interests in Japan as indicated by its Look East policy in the past, apparently hopes to learn some lessons from Japan's initiatives. This may be the same case with the other members of the Association of Southeast Asian Nations or a wide range of Asian emerging market and developing economies. In the following, I would like to summarize the key points of my presentation and Malaysia's (and other ASEAN members' potential) interests in the Japanese initiatives, as indicated by the moderated discussion and the exchange of views.

In my presentation, I first explained the current situation in which Japan is trying to revise its long-term Strategic Energy Plan amid the global decarbonization trend accelerating since 2020 while the COVID-19 pandemic exerts various impacts on international energy markets. Then, I described what the Strategic Energy Plan is and pointed out key points for considering the sixth Strategic Energy Plan now under development. The key points included the 2050 carbon neutrality target announced in October 2020 and the April 2021 decision to raise the 2030 greenhouse gas emission reduction target to 46% (from 26% at present target). I explained the history in which the sixth Strategic Energy Plan has been drafted to achieve the so-called 3E's + S – energy security, environmental conservation and economic efficiency plus safety – under the GHG emission reduction target decided in a top-down fashion.

I then described prescriptions to raise the GHG emission reduction target including the enhancement of energy efficiency improvement for increasing target energy savings by more than 20% and the modification of the target power generation mix. In the modification, the power mix share is increased from 22-24% to 36-38% for renewable energy and cut from 27% to 20% for liquefied natural gas and from 26% to 19% for coal. The nuclear share is left unchanged at 20-22% and a new share of 1% is set for hydrogen/ammonia. I noted that the modified target power mix is

designed to not only achieve the GHG emission reduction target but also to raise Japan's target energy self-sufficiency rate from 25% to 30% and cut electricity cost increase as much as possible. Achieving the ambitious target power mix would represent a kind of a "fight against time", I noted, citing such difficult challenges as the promoted restart of nuclear power plants, the substantial increase in energy savings and the dramatic rise in solar photovoltaics and other renewable energy power generation within the next nine years. I also pointed out that substantial solar PV capacity growth under constraints on suitable sites/land for such capacity and the dramatic enhancement of energy savings would lead to cost hikes. I argued that these challenges would have to be overcome.

As for the 2050 carbon neutrality target, I emphasized that electrification would have to be promoted along with efforts to further improve energy efficiency, develop renewable energy into a major electricity source, maintain and utilize nuclear power capacity and achieve zero emissions in the power generation sector and that innovations such as the substantial expansion of CO_2-free fuels like hydrogen and ammonia and the introduction and utilization of negative emission technologies would be indispensable along with efforts to cut costs for innovative technologies, diffuse these technologies and develop relevant infrastructure. I then introduced a power cost analysis using multiple scenarios as discussed at an advisory council at METI and emphasized that how to hold down power cost increase would be significant for Japan while uncertainty, unknown and unpredictability become keywords for the future pathway to carbon neutrality.

In discussions after my presentation, questions came about the roles of the government, energy industry, society and citizens in realizing carbon neutrality. Then, the government was urged to work out an adequate long-term strategy, depict a roadmap for realizing carbon neutrality, implement regulations, market designing, rulemaking and guidance for the realization and play a central role in promoting research and development in view of the significance of innovations. The energy industry was requested to identify changes in financial markets and market environments amid the enhancement of climate change countermeasures, implement business strategies for surviving such changes and make investment required for cutting GHG emissions. Society and consumers were asked to transform their behavior for enhancing energy conservation and diffusing clean energy toward preventing climate change and become prepared to accept costs for enhancing climate change countermeasures.

A question came about recommendations to Malaysia and other emerging market or developing economies in Asia that are seriously considering enhancing climate change countermeasures, see the need for further economic development and growth, have unique energy supply and demand conditions and view affordable energy prices as significant. I then noted that Japan, as well as the European Union and the United States, is determined to make utmost efforts to reach carbon neutrality by 2050, has made strategic decision to give priority to preventing climate change and believes that it is extremely important for Malaysia and other Asian countries to enhance climate change countermeasures because climate change prevention serves global interests. I also pointed out that emerging market and developing economies should steadily tackle decarbonization under their realistic approaches based on their respective conditions and characteristics and that the Asia Energy Transition Initiative, which Japan offered at a meeting of Japanese and ASEAN energy ministers to provide ASEAN countries with support for formulating specific roadmaps to decarbonization, is extremely significant for considering future decarbonization initiatives in Malaysia.

Regarding the significance of innovations for decarbonization, questions came about why Japan emphasizes blue hydrogen and ammonia free from CO_2. As CO_2-free hydrogen and ammonia

can be produced with various methods, countries consider their respective strategies according to their characteristics. I noted that Japan places hopes on blue hydrogen and ammonia from fossil fuels due to high costs for producing hydrogen and ammonia from renewable energy in Japan and that it has a strategy to become the world's top runner in developing blue hydrogen and ammonia technologies and that it would have to cooperate with Malaysia as well as the Middle East, Russia and Australia in developing such technologies. The exchange of opinions regarding my presentation was extremely interesting.

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