

COP26 special

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Global efforts for a better tomorrow

For almost three decades, the U.N. has worked to bring as many countries together as possible on a regular basis for the global climate change summits known as COP, short for Conference of the Parties to the U.N. Framework Convention on Climate Change. These events have served to focus the world's attention on climate change more and more each year, increasingly reminding all concerned of the urgent need to take the issue as seriously as possible.

This year, the 26th United Nations Climate Change Conference, dubbed COP26, is being held through Nov. 12 in Glasgow, Scotland. Originally scheduled to take place in 2020, but postponed because of the COVID-19 pandemic, COP26 is of particular significance. At COP21 in 2015, the world's participants reached the Paris Agreement, which has the goal of limiting global warming to below 2 degrees C (1.5 degrees, ideally). Moreover, the countries involved agreed to come back every five years with an updated plan enshrining even greater ambitions, to the utmost extent possible. COP26, therefore, represents a chance to aim even higher, as the causes and effects of climate change weigh more heavily on our collective future than ever before.

A dynamic 2021 in Japan

Despite the challenges posed by the ongoing pandemic, the Japanese government has not rested on the previous efforts that embody its commitment to environmental improvement. In April 2021, for example, then-Prime Minister Yoshihide Suga explicitly stated Japan's commitment to lowering greenhouse gas emissions by 46% from fiscal 2013 levels by fiscal 2030.

In addition, new Prime Minister Fumio Kishida announced plans to make COP26 his first official overseas trip as prime minister. The leaders meeting is scheduled for Monday and Tuesday.

Another event of note this year was the Special Meeting of ASEAN Ministers on Energy and the Minister of Economy, Trade and Industry of Japan, which was held online on June 21. At the time, then-METI chief Hiroshi Kajiyama proposed the Asia Energy Transition Initiative, which provides support for ASEAN countries in many ways, helping them to achieve a transition to more environmentally sound ways of life without sacrificing economic growth. It is characterized by everything from energy-change road maps based on the actual needs and conditions of each country to financial support of \$10 billion

for specific projects, as well as plans for knowledge-sharing and improving business environments.

The government has also spent much of the year working on a revision of Japan's Basic Energy Plan. Of note, Japan aims to have renewables account for 36% to 38% of total power generation capacity in fiscal 2030, nearly twice as much as the 18% recorded in fiscal 2019.

One recent event of deep significance for Japan, and emblematic of its attempts to combat climate change, was Tokyo Beyond Zero Week 2021, a combined set of eight international conferences on energy and the environment held from Oct. 4 to 8. Reflecting Suga's October 2020 announcement of the goal of "reaching a carbon-neutral, decarbonized society by 2050," Tokyo Beyond Zero Week represented concrete steps in this direction.

Held both online and in-person in Tokyo, the eight conferences that made up TBZW brought together participants from Japan and the rest of the world to take on a kaleidoscope of vital issues. While an exhaustive list of all that was discussed is beyond the scope of this piece, a glance at some areas shows the wide array of topics that were addressed.

To ensure both growth and carbon neutrality, a need to examine the specific conditions in each nation and economy was stressed. Japan's progress with the key technology of carbon recycling was disseminated with the aim of further strengthening international cooperation and making advances in related technology. Another issue of note was how hydrogen can be utilized on a global scale, and ideas for building hydrogen-based societies around the globe were discussed. The long-term outlook for liquefied natural gas (LNG) and how to increase market transparency for this fuel were also brought up, as this energy source has been a promoter of stability and sustainable growth both in Japan and around the world. Ammonia was another zero-emission fuel that received attention, with an eye to international collaboration and efforts to expand the recognition and use of this energy source.

In addition to energy sources and technology, the role of financial mechanisms was an important matter of note during TBZW, and one that will only grow in significance in the years to come. The final conference of this eventful week brought together the leaders of advanced research and development institutes from the G20 nations. Cross-border collaboration among R&D bodies was encouraged to bring about further innovations in numerous fields.

A global effort

In 2021, U.S. President Joe Biden has sought to change the ecological policies of his predecessor Donald Trump, who had pulled America out of the Paris Agreement. Biden was quick to re-ratify the agreement, and in his first address to the United Nations, the new president also stated that America would be doubling its climate finance pledge by 2024, increasing funding for developing nations to \$11.4 billion by that year.

In April, Biden also promised that the U.S. would cut greenhouse emissions in half by 2030. Much of Biden's commitment to



After a year's delay, the COP26 climate summit is underway at the Scottish Exhibition Centre in Glasgow, Scotland. GETTY IMAGES

the environment will hinge on the giant \$3.5 trillion federal overhaul pushed by his Democratic Party, but it is facing possible cuts and controversies at home.

During a Russian Energy Week conference last month, Russian President Vladimir Putin stated that his country would aim to become carbon neutral by 2060. The announcement followed a June order by Putin to develop a carbon strategy, and the signing of a climate law in July that represented a move toward systems for green projects and carbon trading. Although Russia ratified the Paris Agreement, there has been little concrete action until recent developments there, as Russia remains the world's fourth-largest emitter of greenhouse gases. Another possibility being considered in Russia is a pledge to cut net carbon dioxide emissions by 79% from 2019 to 2050. However, this idea remains fluid and may or may not become a firm commitment.

Earlier this year in China, the nation's leading economic planning body was put in charge of the initiative to cut greenhouse gases. The nation's National Development and Reform Commission (NDRC) is now the central body working on this issue, reversing a 2018 move that had put

the Ministry of Ecology and Environment (MEE) in charge of greenhouse gas reduction.

The new NDRC plans to call for stepped-up vigilance on climate issues and also changes in the energy and metals sectors of the economy, which are responsible for large amounts of Chinese emissions. The MEE will still have a role to play as it works to keep factories in line by levying fines and implementing other methods. Dangerous pollutants, such as sulfur dioxide, are policed by the MEE, as is air quality.

Like Russia, China also has a 2060 goal for carbon neutrality. Much of the plan will involve a de-emphasis on coal as an energy source, and moves to step up investment in new, cleaner technologies.

Whether or not COP26 achieves its goals will be up to the nations that are attending. Despite the daunting challenges that continue to make climate change outcomes far from certain, hopes and goodwill remain high. As can be seen above, many of the world's major nations have been stepping up their efforts in recent years, giving cause for hope. Whatever the final outcome, the entire planet will be watching carefully as COP26 unfolds in the days ahead.




Left: In his first address to the United Nations, U.S. President Joe Biden urged global action against climate change and pledged the U.S. would double its financial support to developing countries. Right: Prime Minister Fumio Kishida is scheduled to attend the COP26 leaders summit in person on Monday, which will mark his first official overseas trip since taking office. POOL / GETTY IMAGES / VIA KYODO; KYODO



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Tokyo Beyond Zero Week

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Uniting paths to carbon neutrality

In October 2020, Japan pledged to reach complete carbon neutrality by 2050. The following April, it announced it would target a 46% cut in greenhouse gas emissions by 2030 from 2013 levels. This means Japan is set to take a leading role in decarbonization on a global scale through the creation of innovative technologies and the sharing of knowledge that will allow other countries to find new ways of reducing their carbon footprint.

This will be done in combination with the "Beyond Zero" initiative, which goes beyond carbon neutrality and actively seeks to proactively reduce carbon dioxide emissions.

During the first week of October, the Ministry of Economy, Trade and Industry (METI) held "Tokyo Beyond Zero Week 2021," a series of eight international conferences focusing on a variety of important topics related to achieving carbon neutrality, including:

- Asia Green Growth Partnership Ministerial Meeting (debut)
- International Conference on Carbon Recycling (third meeting)
- Hydrogen Energy Ministerial Meeting (fourth meeting)
- LNG (liquefied natural gas) Producer-Consumer Conference (10th meeting)
- Task Force on Climate-related Financial Disclosures Summit (third meeting)

- International Conference on Fuel Ammonia (debut)
- Innovation for Cool Earth Forum (eighth meeting)
- Research and Development 20 for Clean Energy Technologies Leaders' Session (third meeting)

Speakers at these high-level conferences included Fatih Birol (executive director of the International Energy Agency), who participated in the majority of the sessions, and Michael Bloomberg (U.N. special envoy on climate ambition and solutions), who spoke at the ICEF. Martin Keller (director of the National Renewable Energy Laboratory of the United States) and other representatives from G20 research institutes spoke at the RD20 conference, and Mark Carney (COP26 advisor and U.N. climate ambassador) was present for TCFD Summit 2021. Many other experts also contributed to the discussions over the course of the week.

Six of the conferences had previously been held separately. However, in 2020 METI concluded that holding the various events during the same week would increase the usefulness and impact of each. This was the first TBZW.

"The various conferences addressed inter-related themes and issues, and we thought that holding these discussions at the same

time in one location would make it easier for those attending to grasp the big picture," pointed out Michihiro Kishimoto, deputy director-general for industrial science, technology and environmental policy at METI. "By setting one week to cover all aspects, we can ensure more cross-collaboration and improve attendance, as it was difficult for participants from outside Japan to fly in for each separate conference... and of course this drop in flights also cuts down on carbon dioxide emissions."

In addition to the established conferences, TBZW 2021 saw two new opportunities for exchange debut: the Asia Green Growth Partnership Ministerial Meeting and the International Conference on Fuel Ammonia.

The Asian partnership is one example of how TBZW 2021 is going beyond Japan to reach the important goal of global carbon neutrality. "It is essential that both developed and emerging economies tackle the challenge together," Kishimoto said. "But we have to take each country's specific economic and geographical circumstances into account. This is why we want to include a variety of technologies and potential energy sources that can help countries transition more smoothly to carbon neutral options. There is not a single solution that suits every case."

The International Conference on Fuel Ammonia ties into this mission, as according to Kishimoto, "Ammonia has great potential as fuel, which could be a good pathway for other countries with limited options for fuel to lower their carbon emissions."

Japan shared its world-class technological expertise in hydrogen and ammonia-based energy and carbon recycling in individual conferences, and the TCFD conference on Oct. 5 discussed the financing needed to support these types of projects. "Having big dreams is great, but we need a strong base to succeed," Kishimoto said. "To achieve our goal of a decarbonized society, we need a strong backing of research, funding and both governmental and private-sector involvement. Tokyo Beyond Zero Week is the place to set those foundations."

After a year punctuated with recurring natural disasters across the globe, people and governments are now intensely aware of the



threat the world is facing. "Climate change is not only an environmental issue, but also an economic one," Kishimoto noted. The Japanese government wishes to show that it is also an opportunity to create breakthroughs and innovations that are not extensions of existing technologies, and to link them to new growth through the realization of a "virtuous cycle of economy and environment."

TBZW 2021 was held both in-person and online. While this format was originally put in place as a COVID-19 prevention measure, the organizers found that it had many benefits. The recorded sessions have made it possible for those with busy schedules, such as ministerial-level officials and businesspeople, to watch the discussions when it suits them. Not only does this make the event more open to new audiences, it also encouraged higher-level discussions thanks to the presence of high-ranking officials who were unable to travel to attend.

Kishimoto is excited about the new potential solutions and business opportunities that arise from global cooperation and the discussions at TBZW. "This is the serious challenge of our time, and we must approach it from all angles. As Mark Carney, the former head of the Bank of England, famously said, 'We need 50 shades of green,' in order to encourage a timely transition to a carbon neutral world."

The week of conferences ended just before the 2021 United Nations Climate Change Conference (COP26) in Glasgow. Japan will of course be taking part in this meeting, and plans to present the activities at TBZW as part of side events during the conference.



This year's ICEF infographic depicts forming pathways to achieve carbon neutrality and "Beyond Zero" together with young people. ICEF

Asia Green Growth Partnership Ministerial Meeting

Promotes various pathways and partnerships to achieve green growth in Asian countries through country-specific energy transitions, as energy demand in emerging Asian markets will need to keep up with rapid economic growth.

URL: <https://www.aggpm2021.org/english/>



Task Force on Climate-related Financial Disclosures Summit

The TCFD summit promotes green finance for disruptive innovation to tackle climate change. Japan leads international discussions to help the task force's recommendations get implemented to create a virtuous cycle of environment and growth.

URL: <https://tcf-summit.go.jp/indexEn.html>



International Conference on Carbon Recycling

Discussions on carbon recycling by representatives of industry, academia and government in various countries. Participants share advanced technologies and concrete efforts and announce future action, while confirming innovation acceleration in strengthening international cooperation.

URL: <https://carbon-recycling2021.go.jp/en/>



International Conference on Fuel Ammonia

The ICFA raises international awareness about the potential for ammonia as a fuel that does not emit carbon dioxide, and the need to establish a stable fuel ammonia supply chain. Japan shares its stance and builds a foundation for international collaboration.

URL: <https://icfa2021.com/en/>



Hydrogen Energy Ministerial Meeting

Participants share their efforts in accelerating hydrogen-related initiatives. Thanks to the IEA's Global Hydrogen Review 2021, participants can now access the most up-to-date information on global developments in hydrogen production and use to provide policy recommendations to decision-makers.

URL: <https://hem-2021.nedo.go.jp/en/>
<https://www.iea.org/reports/global-hydrogen-review-2021>



Innovation for Cool Earth Forum

The ICEF focuses on concrete and realistic discussions on how to achieve carbon neutrality by 2050, engaging leaders in industry, government and academia and focusing on five technological fields. Japan shares potential pathways to carbon neutrality in preparation for COP26.

URL: <https://www.icef.go.jp/>



LNG (liquefied natural gas) Producer-Consumer Conference

Shares the latest developments in the use of liquefied natural gas, aiming to promote cleaner use of the fuel and cooperation between producing and consuming countries to develop a stable and flexible LNG market.

URL: <https://www.lng-conference.org/english/>



Research and Development 20 for Clean Energy Technologies Leaders' Session

RD20 gathers leading R&D institutes in Group of 20 member countries, providing an opportunity to exchange knowledge and best practices related to clean energy technologies, and to explore the potential for international collaboration and joint R&D projects.

URL: <https://rd20.aist.go.jp/>



Japan set to take lead in achieving Asian net-zero goals

Japan is heading toward its goal of achieving net-zero emissions by 2050. But it is also determined to work toward another target — to help other countries, especially those in Asia, create a carbon neutral society.

Many developed countries submitted bold action plans for curbing greenhouse gas emissions to the United Nations ahead of this month's COP26 climate summit in Glasgow, but what seems to be essential is to also bring emerging economies onboard.

Part of Japan's effort to do this was a series of international conferences collectively called "Tokyo Beyond Zero Week 2021," held by the government between Oct. 4 and 8.

About 17,000 people attended TBZW 2021, where people from both the public and private sectors discussed various issues surrounding energy and the environment to achieve carbon neutrality and shared knowledge toward that goal.

"Today, it is necessary to realize global carbon neutrality in the earliest possible timing to achieve the goals of the Paris Agreement. Asia is no exception to this. Japan will actively contribute to achieve green growth in Asia and to accelerate its energy transitions," former Minister of Economy, Trade and Industry Hiroshi Kajiyama said in a video message at one of the conferences, the first Asia Green Growth Partnership Ministerial Meeting (AGGPM), on Oct. 4.

The seven other conferences held as part of TBZW 2021 were the third International Conference on Carbon Recycling the fourth Hydrogen Energy Ministerial Meeting, the

10th LNG Producer-Consumer Conference, the third Task Force on Climate-related Financial Disclosures (TCFD) Summit, the first International Conference on Fuel Ammonia, the eighth Innovation for Cool Earth Forum (ICEF) and the third Research and Development 20 for Clean Energy Technologies (RD20).

The need for action toward net-zero is an especially urgent task in Asia. According to the International Energy Agency, overall energy demand in Southeast Asia is expected to grow by 60% compared to 2018 levels by 2040, and fossil fuels would still represent some 80% of the total energy demand in 2040.

In addition, overall demand for electricity in the region is projected to double in the next 20 years, with fossil fuels accounting for around 70% of all power generated in 2040.

Given such projections, Japan proposed a comprehensive package of measures called the Asia Energy Transition Initiative (AETI) to support transitions in the Association of Southeast Asian Nations, at the Special Meeting of ASEAN Ministers on Energy and Japan's economy, trade and industry minister in June.

In addition to pledging \$10 billion of financing support for renewable energy, energy efficiency, liquefied natural gas (LNG), CCUS (carbon dioxide capture, utilization and storage) and other projects in Asia, Japan has asked those countries to formulate energy transition road maps toward implementing carbon neutrality. It will also promote an

Asian version of energy transition finance and support development and deployment of the necessary technologies through the creation and utilization of a ¥2 trillion fund.

Japan has also announced that it will help in the areas of human resource development and knowledge-sharing on decarbonization technologies under AETI.

"It's not that we are pressuring these nations to achieve net-zero by a certain year. Instead, we asked them to come up with their own target year to go carbon neutral and help them draw realistic road maps toward that goal," said Takeshi Soda, director for international affairs at METI's Agency for Natural Resources and Energy. "And we will finance projects and deployment of technology under the road maps."

At the AGGPM, ministers as well as delegates from 22 countries and international organizations welcomed Japan's initiatives during the conference.

They acknowledged the need for all countries to make efforts and contributions to achieve global carbon neutrality at the earliest possible time.

Behind this sense of urgency in emerging economies is the common dilemma of fossil fuel investment, in which investors increasingly withdraw from companies involved in extracting fossil fuels in a political attempt to slow climate change.

"If this divestment campaign continues, they can no longer expect financial assistance from international investors for their energy infrastructure, which is still necessary for their economic growth," Soda said.

The Chair's Summary also noted that "it is essential to establish a framework that financially supports technologies and projects contributing to energy transitions, and to explore the concept of 'Asia Transition Finance' by the 'Asia Transition Finance Study Group' led by private financial institutions."

With the cooperation of the Economic Research Institute for ASEAN and East Asia (ERIA), Japan has already started working with some ASEAN countries to help them come up with their own road maps.

Based on present and projected data, including energy mix, industry structure, renewable energy prices and power demand and supply, ERIA will come up with the best model for each country, showing how and when to adopt certain renewable energies, and propose the



Ministers and delegates from 22 countries and international organizations joined Japan for the First Asia Green Growth Partnership Ministerial Meeting on Oct. 4. MINISTRY OF ECONOMY, TRADE AND INDUSTRY

cheapest ways to achieve carbon neutrality.

Fatih Birol, executive director of the International Energy Agency, said in his opening remarks at the AGGPM that "there is no one-size-fits-all" for clean energy transitions and the pathway will be shaped by each country's circumstances and capabilities.

He also emphasized that three technologies — CCUS, low-carbon fuels (such as hydrogen and ammonia) and LNG — would play an important role in the energy transitions.

At the fourth Hydrogen Energy Ministerial Meeting, delegates from 29 countries, regions, international organizations and industry associations, as well as private corporate representatives, shared information on the latest hydrogen-related technologies, hydrogen supply chains and policy direction.

At the conference, the IEA announced that it had compiled Global Hydrogen Review 2021 to provide policymakers with advice and information on the latest global trends.

Many countries have already set hydrogen strategies because they realize that it will be extremely difficult to achieve net-zero without utilizing hydrogen technology. However, many challenges remain.

For example, Megan Woods, New Zealand's minister of energy and resources, said that for the hydrogen market to scale up, the cost of green hydrogen production must decline. For delivery, standards must also be established to enable safe

and low-cost transportation, she said.

In the private sessions, participants shared information about companies' initiatives in building hydrogen supply chains, examples of communities introducing hydrogen use and various challenges to achieve further market development.

As the role of sustainable finance increases, participants of the third Task Force on Climate-related Financial Disclosures (TCFD) Summit exchanged opinions to develop more effective climate-related corporate disclosures based on TCFD recommendations.

TCFD was established in 2015 to develop consistent climate-related financial risk disclosures for use by companies, banks and investors in providing information to stakeholders. Its recommendations are designed to help public companies and other organizations disclose climate-related risks and opportunities.

Since the last TCFD Summit in October 2020, more than 1,000 organizations became TCFD supporters, bringing the total to 2,529 worldwide as of Sept. 30.

At this year's summit, participants agreed that the role of asset owners is significant, and it is important to obtain commitments for carbon neutrality from investors through engagement rather than divestment.

Many also expressed the importance of corporate strategy on transition, which is expected to be disclosed in the TCFD framework as suggested in the newly

amended TCFD guidance.

The energy agency's Soda said that all the topics discussed during TBZW 2021, such as hydrogen, ammonia, LNG, research and development and TCFD, are integral elements in achieving carbon neutrality.

"The TBZW conferences were highly significant because the series of the conferences can contribute to promote the discussion and cooperation among many countries, including developing nations, toward achieving carbon neutrality at the earliest possible time," Soda said. "And when working toward that goal, they will try to keep the balance of three E's (energy security, environment and economic growth), which has been emphasized by the Japanese government."

As Japan is helping some countries with their road maps, Soda added that the next challenge after the conferences will be to actually secure the funding for projects included in the road maps.

"We hope to become a driving engine to lead Asia toward net-zero emissions. To do that, we must create a successful model for other countries to follow."

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Industrial Session

Theme 1: Hydrogen Supply Chain

Participants discuss building supply chains during private sessions at the fourth Hydrogen Energy Ministerial Meeting on Oct. 4 in Tokyo. MINISTRY OF ECONOMY, TRADE AND INDUSTRY