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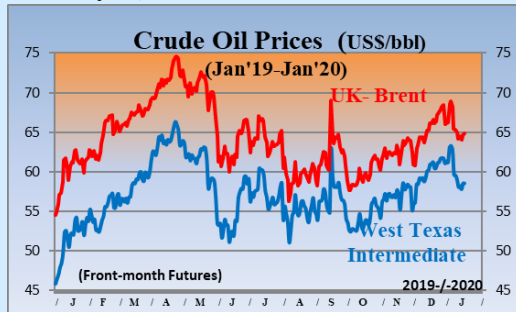
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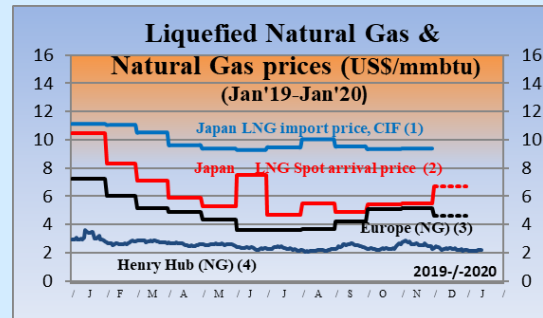
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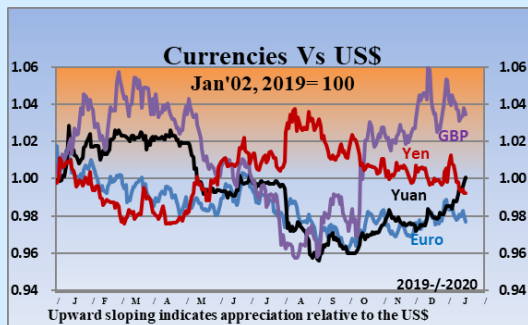


Source: DOE-EIA, Financial Times, NASDAQ

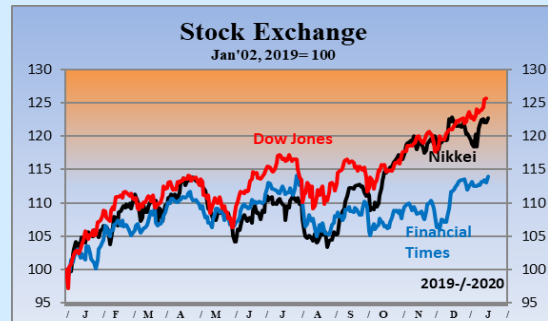


Sources:

- (1) Ministry of Finance "Japan Trade Statistics"
- (2) Ministry of Economy, Trade and Industry (arrival month basis)
- (3) Estimated by World Bank (Netherland Title Transfer Facility)
- (4) DOE-EIA, NYMEX (Front-month Futures)
- (5) Investing.com



Source: x-rates.com



Source: Financial Times

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2020 New Year Message
from
IEEJ Chairman & CEO Masakazu Toyoda

2020: A year for the global community to share a sense of unity

Happy New Year.

2020 is the year when the Tokyo Olympic and Paralympic Games will be held in Japan. Athletes will gather from around the world to compete in the skills they have honed as individuals and groups. I hope they will all do their best and that the global community can enjoy a sense of unity.

In climate action, however, we have yet to feel such sense of unity.

Despite several extensions, COP25 in mid-December 2019 failed to agree on the rulebook for the Paris Agreement, and only managed to “recall that the successive nationally determined contribution (NDC) of each Party will represent a progression beyond the Party’s then current NDC and reflect its highest possible ambition.” Calls for an ambitious agreement by island nations, least developed countries, and some Latin American nations faced opposition from some other countries. Meanwhile, global greenhouse gas emissions increased by about 4% by 2018 from 2015 when the Paris Agreement was initially forged.

How can we reach unity on an agreement? I suggest we start by returning to the original spirit of the Paris Agreement: First, the emissions reduction targets are voluntary; second, they are not legally binding; and third, they are based on a spirit of cooperation. These are the exact same principles underlying the spirit of the Asia Pacific Economic Cooperation (APEC). In the international community, you cannot make something function by forcing it onto someone. A goal can be met only when it is shared by everyone together. And APEC has been successful in raising its energy efficiency target.

I am aware that climate action is far more difficult than energy efficiency initiatives, in which each country can experience its outcome. This is because zero-carbon energies and technologies are limited. The speed of introduction of nuclear power has slowed since the Fukushima nuclear plant accident, except in a few countries such as China and Russia. This leaves renewable energies and energy efficiency as our only viable options. There are bold, ambitious claims that we can depend on renewable energy for our entire energy consumption. However, this may be feasible only in smaller countries with excellent natural conditions or a few wealthy countries and regions that can take climate action without worrying about the cost.

Since a few years ago, our Institute has been advocating the “2°C minimum cost approach,” which aims to meet the 2°C target by minimizing the total cost (“damage + adaptation cost + reduction cost”) rather than focusing only on minimizing “damage,” to address economic growth as well. This approach is based on the model created by 2018 Nobel laureate and Yale University Professor William Nordhaus, with adjustments made to achieve the 2°C target. The approach showed that by developing new technologies such as conversion of fossil fuels into hydrogen and CCU which recycles CO₂ itself, it would be possible to achieve the 2°C target in 2150 even if emissions do not halve by 2050 and the 2°C goal is temporarily



overshot. Speeding up the development of technologies and lowering their costs to make them affordable for emerging countries is the desirable path that climate action should follow worldwide.

Fortunately, a new sense of unity on climate action is gradually emerging. The Ministry of Economy, Trade and Industry (METI) has held two Hydrogen Ministerial meetings, in 2018 and 2019, on the importance of zero-carbon hydrogen. The first meeting reaffirmed the importance of international cooperation in technological development and regulatory harmonization through the Tokyo Statement, and the second released a list of specific measures as the Global Action Agenda. The International Energy Agency (IEA) released a report on hydrogen in June 2019, presenting an excellent overall picture.

The Japanese government released the Strategic Road Map for Hydrogen and Fuel Cells in 2014, and in Europe, many countries including Germany and the Netherlands have drawn up their own hydrogen strategies in recent years. In Asia, the Thai Ministry of Energy took the lead in organizing a hydrogen energy forum in Bangkok and is due to step it up this year.

The private sector is also moving quickly. The Hydrogen Council, which was established at the Davos World Economic Forum in January 2017 by the CEOs of 13 companies, had grown to over 60 companies by the time the G20 Energy and Environment Ministerial Meeting was held in Karuizawa in 2019. Hydrogen can be produced from fossil fuels and made “zero carbon” by using carbon capture and storage (CCS) technology or can be produced by electrolyzing water using excess renewable energy.

Needless to say, like any energy, hydrogen is not perfect. Further technological development is essential. One such technology is carbon capture and utilization (CCU), or carbon recycling. METI hosted the International Conference on Carbon Recycling during the second Hydrogen Ministerial Meeting in 2019 to share its importance.

The G20 is due to be held in Saudi Arabia in 2020. The country has recently begun to advocate the concept of the circular carbon economy, which aims to include not only hydrogen made from fossil fuels but also various CCU technologies. As an example, Saudi Aramco and Japanese companies, with the IEEJ’s involvement, are undertaking a project to transport zero-carbon ammonia to Japan for mixed combustion in thermal power plants to demonstrate reduction in CO₂ emissions.

Energy and environmental policies will not be effective unless the global community promotes them together with a sense of unity. This year again, the IEEJ will continue to deepen collaborative ties with major research institutes and companies both in and outside Japan, to actively make policy and strategy proposals for Japan, Asia and the world.

In closing, I would like to wish everyone a prosperous new year.



Summary

I. World Energy and the Environment

1. Oil

The key issues for the international oil market in 2020 are the outcome of the United States presidential election and the US-China trade negotiations, the possibility of supply disruption in oil-producing countries, and the impact of the IMO's tighter regulations on the sulfur content of bunker oil.

2. Natural Gas (LNG)

Development activities of LNG projects to start supply in mid-2020s should attract attention. International collaboration will be more important to take advantage of supply flexibility.

3. Coal

Demand for coal imports will continue to increase in 2020 but the supply-demand balance will be stable due to excess supply capacity. Spot prices are estimated at around \$70/tonne for steam coal and \$140-\$150 for coking coal.

4. Renewable Energies, Hydrogen and Others

For renewable energy, hydrogen energy, and carbon recycling, which are key options for decarbonizing the energy system, significant efforts are under way globally in a wide range of areas such as system design, technological verification, and international cooperation.

5. Nuclear Power

Belarus and other countries are introducing nuclear power with the technological support of Russia. It will be interesting to see the effects of this newly-introduced nuclear power on the electricity market and industry of those countries and their neighbors in 2020.

6. Energy Efficiency

In 2020, more regions are expected to take measures to contribute to demand response (DR) in the residential sector. Supported by the global trend of ESG investment, the expansion of zero-carbon buildings and green buildings will accelerate.

7. Policies Related to Climate Change

It has become less likely that any major country will raise its 2030 target in 2020. In the EU and the US, climate policies and trade and financial policies are being linked.

8. APEC's Energy and Environmental Initiatives

A major focus of APEC's energy-related cooperative activities in 2020 is expected to be the repositioning of energy security through reconstructing the Energy Security Initiative which was formulated in 2004.



1. Oil

Tetsuo MORIKAWA, Senior Economist, Manager
Oil Group
Fossil Energies & International Cooperation Unit

The key issues for the international oil market in 2020 include the outcome of the United States presidential election and the US-China trade negotiations, the possibility of supply disruption in oil-producing countries, and the impact of the IMO's tighter regulations on the sulfur content of bunker oil.

It is difficult to predict the outcome of the US presidential election, but if a Democratic candidate wins, there may be a dramatic shift from the Trump Administration's policies in many areas, though to different degrees depending on the candidate. In the oil sector, possible changes include more rigorous environmental regulations on the E&P and use of oil and the easing of sanctions on Iran. Such policy changes may lead to slower growth of shale oil production and increased production in Iran. It goes without saying that tougher regulations on E&P would put upward pressure on prices while stricter regulations on oil usage and the easing of sanctions on Iran would impose downward pressure.

In December, US stock prices reached record highs, driven by the effects of interest rate cuts, robust corporate financial results, and the US-China trade talks reaching a phase one trade deal. The US cancelled the fourth round of its trade tariff increase against China scheduled for December 15 and lowered the rates of some tariffs that it had already imposed. The ceasefire in the escalating trade war eased uncertainty about the global economy. However, it is not yet clear whether the phase one deal will be implemented, and the second phase of negotiations, which will center on structural issues such as excessive Chinese government subsidies for domestic companies, is expected to be even tougher. The trade war could flare up once again depending on the effectiveness of the phase one deal and the second phase of negotiations, exerting downward pressure on oil prices.

2019 saw a series of incidents in the Middle East that disrupted supply, notably the attacks on tankers in the Strait of Hormuz and the drone attacks on Saudi oil facilities. Anti-government rallies in Iraq are also a concern, though they have not yet had an impact on oil production. Production is also unstable in Libya, where the civil war continues. Unexpected supply disruptions in oil-producing countries (and associated price rises) could occur at any time, although the impact may depend on the process and result of the US presidential election.

Meanwhile, the IMO's strengthening of regulations on the sulfur content of bunker oil is expected to reduce demand for high sulfur fuel oil (HSFO) by as much as 2.1 mb/d in 2020. The price difference between HSFO and its regulatory-compliant replacements such as marine gasoil (MGO) and very low sulfur fuel oil (VLSFO) could widen further in early 2020. The demand for low-sulfur crude oil (light crude in most cases) is expected to increase to produce more regulatory-compliant bunker oils, though this would also depend on the spread of scrubbers (exhaust gas cleaning systems for ships). Accordingly, the change of price difference between heavy and light crude oils, as well as petroleum products, will be important. The Japanese refining industry is facing a decline in domestic demand, intense competition in the international product market, and pressure to decarbonize. While the rise in regulatory-compliant oil prices is an opportunity, the refining industry has to address, in addition to the above pressures, falling prices and demand for HSFO as a result of the IMO regulations, and needs to purchase more light crude oil to reduce HSFO production.



2. Natural Gas (LNG)

Hiroshi HASHIMOTO, Senior Analyst
Head of Gas Group
Fossil Energies & International Cooperation Unit

The LNG industry's attention in the year 2020 is focused on developments in LNG supply projects - whether development and construction activities will advance as planned for those projects that have already reached an investment decision to meet market requirement around the middle of the 2020s especially in emerging LNG markets, as well as those projects in Qatar and East Africa that are deemed to be approaching a point of no return and those projects in the United States that have obtained regulatory approvals but have not reached an investment decision yet. LNG marketing activities from those projects should be also in focus.

One of the features of LNG production projects in the last two years has been an increasing trend of supply portfolio buildings, where national and international upstream major companies finance a new project entirely on their balance sheets, or those major companies, as well as different LNG buyers, make LNG offtake commitments without specifying final destinations of LNG cargoes.

While the trend has developed along with proliferation of LNG importing markets, securing final consuming markets is still the key to successful LNG projects approaching the production stage. Thus, it is necessary to have fine-tuned views on future market growth, especially in emerging markets in Southeast and South Asia, as well as to develop those markets. Further involvement of Japanese companies and public financing supports are expected to play more roles. While additional ample supply capacity is expected to emerge in the LNG market, it is also important for Japan to establish practical technologies to extract methane hydrate resources in view of diversification of natural gas supply sources.

LNG deliveries from the United States to Japan have stepped up as five LNG export projects started up in the Lower 48 by the end of 2019. While LNG prices under many long-term contracts with linkage to crude oil prices were lower in 2019 than 2018, spot gas prices in the United States and Europe, as well as spot LNG prices in Asia, went down much faster. As LNG cargoes from the United States, whose prices were linked with gas prices there, were often advantageous in prices in the Asian market, they had downward effects on the Japanese average LNG import price. However, the transportation cost presents a challenge, as the shipping distance from the Mexican Gulf to the Asian market is much greater than the global average LNG shipping distance. There should be ways to optimise LNG transportation.

The gap between term-contract LNG prices and declining spot LNG prices in 2019 was the widest in the history. A major part of the increasing LNG production was directed to Europe, where players have abundant underground gas storage capacity. The Netherlands increased LNG import significantly in parallel with decline in domestic gas production. Thus, the international LNG market has been affected by the Dutch TTF gas hub price lately. Impacts of Russian pipeline gas supply to China, which started in late 2019, on the LNG market should be closely watched, too. International collaborations will be important to take advantage of increasing supply flexibility and changing LNG prices, as well as to abolish destination restrictions.



3. Coal

Atsuo SAGAWA, Senior Research Fellow
Fossil Energies & International Cooperation Unit

In 2019, while imports slowed worldwide for both steam coal and coking coal, production and exports remained strong, free from the impact of natural disasters, as supply capacities increased in major coal-exporting countries. As a result, the supply-demand balance eased, sending prices down for both steam coal and coking coal.

The spot price for steam coal (FOB, shipped from Port of Newcastle, Australia) fell after peaking at \$120/tonne in July 2018, falling further in 2019 to nearly \$60 in August from \$100 at the beginning of the year. The price gradually picked up thereafter and is around \$66-67 in December. Meanwhile, the spot price for coking coal (FOB, Australian premium hard coking coal), which was above \$220 in the fourth quarter of 2018, fell to \$190 in January 2019. The price hovered between \$200 and \$210 thereafter but started to decline in June and fell below \$130 in late September. The price then returned temporarily to \$150 but is around \$135 in December.

A year-on-year comparison of coal imports (January-October) of major countries in 2019 shows that steam coal imports increased by 18 million tonnes in India and 5.2 million tonnes in China, and by 19 million tonnes in Vietnam in ASEAN. Meanwhile, imports decreased by 3.1 million tonnes in Japan and 6.2 million tonnes in South Korea. Coking coal imports increased by 9.9 million tonnes in China but only slightly by 0.2 million, 0.2 million, and 0.5 million tonnes in India, Japan, and South Korea, respectively. Taiwan's imports increased by 0.7 million tonnes for steam coal and 0.2 million tonnes for hard coking coal for January through September.

Meanwhile, a year-on-year comparison of coal exports (January-October) of major countries shows that Australia's exports increased by 2.1 million tonnes for steam coal and by 4.3 million tonnes for coking coal, whereas US exports struggled due to declining international prices and decreased by 11.6 million tonnes for steam coal and 5.9 tonnes for coking coal. Exports decreased in Columbia and South Africa (mainly steam coal) in January through September by 9.8 million and 2.1 million tonnes, respectively, but increased in Indonesia (January through September) by 28.2 million tonnes, meeting the increase in steam coal imports by India, China, and ASEAN.

In the coal market in 2020, demand for imports is likely to continue to increase mainly in India and ASEAN. Steam coal imports will continue to grow in India, Vietnam, Malaysia, and the Philippines and coking coal imports will start increasing again in India as its economy picks up. China's imports are expected to remain unchanged as international coal prices will remain lower than domestic coal prices in 2020. Meanwhile, the coal market is likely to remain stable as major exporting countries have excess capacity for both steam and coking coal and can adjust supply to meet demand. Based on the above, coal prices are predicted to rise slightly for both steam and coking coal, with spot steam coal prices remaining around \$70, give or take \$5 to \$10 due to seasonal factors, and with spot coking coal prices in the \$140 to \$150 range.



4. Renewable Energies, Hydrogen and Others

Yoshiaki SHIBATA, Senior Economist, Manager
New and Renewable Energy Group
Electric Power Industry & New and Renewable Energy Unit

In Japan in 2019, discussions started on a fundamental reform of the FIT system for renewable energies, initiatives commenced by Japan and overseas to collaborate on hydrogen energy, and there was stronger global collaboration in carbon recycling led by Japan. This article presents the outlook for renewable energy, hydrogen energy, and carbon recycling in 2020.

The percentage of renewable energy in the world's total electricity output surpassed 25% in 2018, but 16% came from hydropower; wind power and solar PV accounted for just 5% and 2%, respectively. Renewable energy is expected to continue to expand in 2020, with the EU, major states in the US, India, and others set to raise their new renewable capacity targets. However, solar PV is shifting from power grid feed-in type to self-consumption amid the global post-FIT trend. In Japan, the "imbalance exception" for solar PV and wind power is due to be abolished and the detailed design of the FIP system is being drawn up as part of the post-FIT fundamental reform of the renewable energy system. Discussions on integrating renewable energy into the electricity market, which is the ultimate goal, will need to include enhanced technologies for predicting power generation and lowering the cost of batteries, which are essential for meeting the goal.

Regarding hydrogen energy, international collaboration will increase as specific actions to expand the use of hydrogen energy were presented at the Hydrogen Energy Ministerial Meeting. In Japan, a demonstration carrier ship for liquified hydrogen and methylcyclohexane will be launched with a view to establishing an international hydrogen supply chain. A Power-to-Gas demonstration projects will also start in Fukushima and Yamanashi Prefectures in coordination with the Tokyo Olympic and Paralympic Games. Outside of Japan, moves by ports and industrial zones to produce and supply large quantities of hydrogen will accelerate in Europe. Behind these moves is the aim to build "hubs" for supplying hydrogen as proposed in the IEA report, *The Future of Hydrogen*. The linking of electricity and gas networks for sector coupling is also expected to make progress. Meanwhile, moves related to hydrogen and ammonia are being made in Middle Eastern countries. In particular, Saudi Arabia, the host of the G20 meeting in November, is expected to step up its initiatives. Other Middle Eastern countries are also expected to launch efforts not only for the export of hydrogen and ammonia but also their domestic use.

In the carbon recycling area, Japan formulated its technological roadmap and forged a common global understanding by hosting the International Conference on Carbon Recycling in 2019. Research groups and funds were established and investments in ventures increased both in and outside Japan. Furthermore, discussions on establishing a circular carbon economy are deepening in Saudi Arabia ahead of the G20 meeting. These moves are likely to expand in 2020, but deeper discussions are needed, including conducting a life cycle analysis (LCA) to evaluate the net CO₂ reduction effect of a very wide range of individual technologies including fuels, chemicals, and building materials.

It will be interesting to track the progress of initiatives around the world in 2020 to decarbonize energy systems, alongside renewable energy, hydrogen, and carbon recycling.



5. Nuclear Power

Tomoko MURAKAMI, Senior Economist, Manager
Nuclear Energy Group, Strategy Research Unit

On December 5, 2019, the US Nuclear Regulatory Commission (NRC) extended the operating license of Turkey Point Units 3 and 4 to 80 years, enabling Unit 3 to operate until 2052 and Unit 4 until 2053. The NRC is also considering extending the lifetime of Peach Bottom Units 2 and 3 and Surrey Units 1 and 2 to 80 years. Existing reactors in the US have an average capacity factor of 93% (2018), which is high by international standards. If all 96 reactors operating as of December 2019 obtain permission to operate up to 80 years, the US will be able to maintain its nuclear output at nearly the current level till 2050.

Nuclear new build projects with technological support by Russian nuclear firms continue to proceed in emerging countries. On December 9, at Turkey's Akkuyu Nuclear Power Plant (ANPP) where construction of a Russian reactor VVER is under way, Rosatom's Turkish subsidiary Akkuyu Nuclear Power Plant (ANPP) and Turkey's grid management agency TEIAS signed an agreement to connect the plant to the domestic transmission network. Akkuyu Unit 1 aims to start operation in 2023, Unit 2 is under construction, Unit 3 is preparing to submit an application, and Unit 4 is in the planning stage.

At Belarus' Ostrovets Unit 1, which is also receiving technological support from Russia, a hot test (a functional test conducted with coolant temperature and pressure raised to near rated levels) started on December 11. This is the last step before loading fuel, and the plant is due to start commercial operation after test operation with fuel loaded. The Belarus government expects the plant to start generating electricity in the first quarter of 2020, at which time Belarus will become the world's 32nd commercial nuclear power user. The effects of introducing nuclear power in Belarus and Turkey on the market and industry in these countries and their neighbors must be monitored.

The use of nuclear power is being discussed not only in emerging countries. On December 13, the House Standing Committee on the Environment and Energy of the Parliament of Australia released a report calling for a partial lifting of Australia's nuclear moratorium policy. The Committee is considering nuclear power as an option for Australia's future energy mix and hopes to start an assessment on suitable technologies (reactor types). However, due to low public awareness of the country's energy situation, the report also states that the assessment will require communicating accurate information to stakeholders and establishing a transparent framework for discussion involving the community.

A similar proposal was also made at the international workshop on nuclear public acceptance held in Japan in November 2019; it is noteworthy that two completely different countries issued similar messages. Developments in the discussions must be closely monitored.



6. Energy Efficiency

Naoko DOI, Senior Economist, Manager
Energy Efficiency Group
Climate Change and Energy Efficiency Unit

This report discusses the energy efficiency situation of the world in 2020 focusing on the residential/commercial and transportation sectors.

There are moves to implement “demand response” (DR), which adjusts the supply-demand balance of electricity, in the residential sector using digital technology. DR in the residential sector is thought to be more costly than in the industrial or commercial sector as it involves working with a large number of smaller consumers. However, in 2019, Australia launched discussions to introduce a common mandatory IT standard for air conditioners, electric water heaters, pumps for pools in houses, and EV chargers sold in Australia to enable them to respond automatically to supply-demand adjustment requests, reduce costs, and control operation. In 2019, the US state of California amended “Rule 21” to require public utilities to be equipped with telecommunication functions so that they can control solar PV and storage facilities in homes. To contribute to the spread of DR in the residential sector, initiatives to develop new business models that incorporate energy efficiency must be monitored in 2020.

Regarding the promotion of zero-carbon buildings and green buildings, private-sector initiatives, in addition to goal-setting by national and local governments, will be important. Energy efficiency certifications such as LEED and Energy Star are third-party evaluations of building quality and are helping to improve leasing fee evaluations and lower vacancy rates. Some studies have shown that in the United States, LEED and Energy Star certifications add 6% for lease fees and 30% for resales. There are also initiatives for zero-carbon buildings led by architects. In the United Kingdom, the Royal Institute of British Architects launched an initiative and made a voluntary pledge in 2019 to achieve net zero carbon emissions in buildings by 2030. Such voluntary initiatives, in combination with the global trend toward ESG investment, will contribute to the expansion of zero-carbon buildings and green buildings in 2020.

The stock of electric vehicles (EVs) reached 5 million units in 2018, up 50% year-on-year. EV sales are likely to continue to increase this year, driven by (1) the ban on diesel cars in the city center in major European cities, and (2) policy measures in China and the US state of California and 13 other states that follow the state’s ZEV regulations. Meanwhile, less is being invested in charging infrastructure than in growing the EV fleet. In countries such as Norway where EVs account for 50% of passenger cars sold, 90% of owners charge their cars at home. Meanwhile, people who live in apartments or commute from the suburbs to the city center by EV need to have EV chargers in parking lots at their workplaces. In the North American market, there are forecasts that the number of EV chargers at workplaces will reach 510,000 units, matching that of public chargers. In the EU, the Energy Performance of Building Directive (EPBD) requires businesses with parking spaces for 20 cars or more to lay EV charger cables for 20% of their spaces by 2025. With policy support, charging infrastructure in the parking spaces of buildings is expected to expand.



7. Policies Related to Climate Change

Takahiko TAGAMI, Senior Coordinator, Manager
Climate Change Group
Climate Change and Energy Efficiency Unit

With the rulebook for the Paris Agreement mostly formulated in December 2018, the focus moved on to the update of the 2030 targets under the Agreement. COP25 held in December 2019 mainly discussed the guidance on cooperative approaches that involve the use of international transferred mitigation outcomes referred to in Article 6, paragraph 2, of the Paris Agreement, and the rules, modalities and procedures for the mechanism for mitigation activities established by Article 6, paragraph 4, of the Agreement, which had been carried over from COP24, but the Parties did not reach an agreement due to their different positions on using CERs issued under the CDM towards Nationally Determined Contributions (NDCs). Discussions will continue, with a view to adopting decisions at COP26 scheduled for November 2020. Regarding 2030 target levels, following an extremely difficult negotiation, the Parties only managed to agree on a decision that recalls the relevant provision of the Paris Agreement and urges Parties to reflect their highest possible ambition.

The Parties are required to submit their nationally determined contributions (NDCs) at least 9 to 12 months in advance of COP26, which will be held in November 2020 in Glasgow, UK. However, no major country including the EU, China, and India announced it will boost its 2030 target at the Climate Change Action Summit held in September 2019 in New York. It has therefore become less likely that any major country will raise its 2030 target in 2020.

In the EU, greener parties gained seats in the European Parliament election in May 2019. European Commission President von der Leyen proposed the European Green Deal in December 2019, and the carbon border adjustment mechanism will be considered throughout 2020. Furthermore, discussions are under way on taxonomy, a classification system for economic activities that are deemed to be environmentally sustainable, aiming to promote the issuance of green bonds and financial products, and incorporate sustainability into prudential rules for banks and insurance companies. The draft taxonomy excludes nuclear power, alongside coal-fired power, from the list of “sustainable activities” on the ground that no permanent and operating disposal site for high-level wastes exists yet. Progress in the discussions on the design of the carbon border adjustment mechanism and taxonomy will be important.

In the United States, the presidential election is the key focus of attention. Among Democrats, climate action is regarded as the top priority, and candidates are actively putting forward active climate measures. Several promising Democratic candidates are proposing to impose border carbon adjustments on imported goods. With the Republican Party also considering imposing a carbon tariff, the discussions on border carbon adjustments deserve much attention. Meanwhile, some consider that ESG finance may be hampering investment in energy infrastructure with the investors being reluctant to invest in fossil fuel-related activities. Future developments must be watched closely.

In China, the fourteenth 5-year plan (2021-2025) will be discussed, and the launch of a national emissions trading system is also receiving attention. The key points of the former are at what levels the intermediate 2025 targets will be set, and whether any new targets such as absolute value indicators will be introduced. For the latter, the key issues include allocation of emissions allowances, trial trading, and when the emissions trading system will start.



8. APEC's Energy and Environmental Initiatives

Kazutomo IRIE, Managing Director
President for Asia Pacific Energy Research Centre
(APEREC)

A major focus of APEC's energy-related cooperative activities in 2020 is expected to be the repositioning of energy security.

Within the APEC Energy Working Group, the US proposed in 2001 an Energy Security Initiative (ESI) as an instrument to comprehensively address energy security issues. This happened to be immediately followed by the 9/11 attack. In response, during the APEC Summit held in Shanghai in October of the same year, the ESI proposal was approved as part of an anti-terrorism statement.

The ESI proposal was repeatedly put up for discussion, and the measures to be taken were finally formulated in 2004. They were largely classified into short-term measures and long-term measures. The former included an assessment of the economic implications of high oil prices, Real-Time Emergency Information Sharing, the Joint Oil Data Initiative (JODI), sea lane security, and oil supply emergency response. The latter included energy investments; natural gas trading; energy efficiency; renewable energy; clean fossil fuel utilization; hydrogen and alternative transportation fuel options; methane hydrate; nuclear power; and petroleum infrastructure, crude oil and petroleum products. Subsequent meetings of the Energy Working Group addressed these measure items.

However, as the international community turned its attention in later years to global climate change, APEC's awareness of the problem also changed. For example, it started putting more emphasis on curbing global warming than energy security in promoting energy efficiency and renewable energy. In retrospect, among the ESI measure items formulated in 2004, the JODI and some long-term measure items (energy efficiency, renewable energy, natural gas trading, etc.) are still alive, but most of the short-term ones such as sea lane security, Real-Time Emergency Information Sharing and oil supply emergency response have been abandoned.

On the other hand, APEC started the Oil and Gas Security Initiative (OGSI) in 2014 based on a proposal from Japan, and the Energy Resilience Initiative in 2015 based on a proposal from the Philippines. Although both initiatives are actively being pursued, their relationships with the ESI are not clear.

The attack on oil facilities in Saudi Arabia on September 14, 2019, and the resulting temporary but huge tightening of supply, highlighted the geopolitical risks to the oil supply. Even though global climate change is attracting worldwide attention, the participants in energy-related international cooperative activities cannot neglect energy security. The APEC Energy Working Group has agreed to start discussing reconstructing the ESI. Japan, as a leading participant of OGSI and a country strongly interested in energy resilience, is likely to contribute to the reconstructing of ESI and the repositioning of energy security in the framework of APEC's energy-related cooperation.



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IEEJ e-Newsletter Editor: Yukari Yamashita, Director
IEEJ Newsletter Editor: Ken Koyama, Managing Director
Inui Bldg. Kachidoki, 13-1 Kachidoki 1-chome, Chuo-ku, Tokyo 104-0054
Tel: +81-3-5547-0211 Fax: +81-3-5547-0223



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