Carbon Neutrality Policies in Persian Gulf Countries

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Ending Oil Age

In the 20th century, oil-producing Persian Gulf countries took advantage of oil resources for accumulating huge wealth. In the early 21st century when oil and other fossil fuels were criticized for causing global warming, however, their situation turned around.

Gulf countries have acknowledged their dangerous dependence on oil resources and taken various initiatives to phase out the dependence in response to internal pressure and climate change. For instance, the United Arab Emirates in 2006 launched Masdar, also known as the Abu Dhabi Future Energy Company, which seeks to exploit renewable energy for achieving zero emissions. In 2009, the UAE announced a target of boosting renewable energy's share of its total power generation capacity to 7% by 2020. It then attracted the International Renewable Energy Agency (IRENA) for commercializing renewable energy technologies and promoting the sharing of knowledge about renewables to be headquartered in its capital city of Abu Dhabi.

Saudi Arabia for its part has promoted research on renewable and other new energy sources mainly at the King Abdul Aziz City for Science and Technology (KACST,) the King Abdullah Petroleum Studies and Research Center (KAPSARC) and the King Abdullah City for Atomic and Renewable Energy (KACARE.)

Then, however, Gulf countries' energy policies responded to their energy consumption expansion amid population growth rather than climate change. They attempted to hold down their domestic oil and natural gas consumption through the introduction of renewable energy and nuclear power plants and increase oil and gas export revenue, giving priority to economic benefits.

Oil-Producing Gulf Countries' Visions

Since the early 21st century, the Gulf Cooperation Council members released their respective national visions calling for reducing their dependence on oil and diversifying their economies. In Saudi Arabia, for instance, then Deputy Crown Prince Muhammad bin Salman (now Crown Prince and known as MbS) took the initiative in launching a bold economic reform project titled "Saudi Vision 2030 (SV2030)" in 2016. SV2030 emphasized the role of renewable energy but fell short of discussing global warming or climate change in its text. It pointed out responses to energy consumption expansion accompanying rapid population growth, instead of consideration to the environment. It set the initial renewable energy power generation target at 9.5 gigawatts. Under the King Salman Renewable Energy Initiative, the National Renewable Energy Plan and other later

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initiatives, however, the target renewable energy power generation for 2030 was raised to 58.7 GW, accounting for half the total power generation.

In oil-producing Gulf countries, fossil fuels have traditionally accounted for almost 100% of power generation. Given their long sunshine hours, however, it has been natural for them to pay attention first to sunlight as renewable energy before looking to wind and nuclear energy.

Symbolizing this trend was the NEOM smart city initiative announced by MbS in October 2017. The planned 26,500-square-kilometer NEOM smart city will be built along the Red Sea coast to generate power mostly with solar and wind energy. In January 2021, THE LINE project was unveiled as the core of the NEOM initiative, envisaging an eco city that would be 170 km long, have a population of one million without cars or streets and depend only on clean energy without CO_2 emissions.

The UAE for its part announced a new energy strategy in 2017, vowing to raise clean energy sources' share of its energy mix to 50% and improve energy consumption efficiency 40%. Both Saudi Arabia and the UAE are planning large-scale government reorganizations to respond to new energy strategies. Saudi Arabia has formed the inter-ministerial Supreme Committee for Energy Mix Affairs for Electricity Production and Enabling Renewable Energy Sector as its highest decision-making body for renewables, chaired by MbS.

Projects Beginning to be Implemented

Regarding solar photovoltaics, the UAE's Emirates Water and Electricity Company in 2019 launched the 1.177 GW Noor Abu Dhabi solar power plant, then the world's largest solar PV facility. In April 2021, Saudi Arabia opened the 300 MW Sakaka solar power plant as its first commercial solar PV facility.

As for other new energy projects, the UAE launched Unit 1 of the Barakah nuclear power station built by a South Korean consortium in August 2020 and Unit 2 of the same station successfully connected to the UAE's national transmission grid in September 2021. In Saudi Arabia, KACARE in June 2011 announced a plan to build 16 nuclear power plants by 2030.

Since 2020 when the COVID-19 pandemic started its global spread, oil-producing Gulf countries accelerated their energy transition further in view of a substantial contraction in oil demand. It is no accident that hydrogen has attracted attention as a clean energy in oil-producing Gulf countries. In September 2020, Saudi Arabia's state-run oil company Saudi Aramco and the Institute of Energy Economics, Japan (IEEJ,) launched a demonstration project to produce blue ammonia through the separation and capture of CO_2 from natural gas and transport it to Japan. In January 2020, Japan's Ministry of Economy, Trade and Industry signed a memorandum of understanding with Abu Dhabi National Oil Company on cooperation in fuel ammonia and carbon recycling. In this way, cooperation between Japan and oil-producing Gulf countries in the hydrogen/ammonia area began to make rapid progress. Oil-producing Gulf countries have proactively promoted cooperation in the hydrogen/ammonia area with China, South Korea, the United States, Germany and France, as well as Japan.

Oil-producing Gulf countries had initially given priority to green hydrogen and ammonia produced from renewable energy but have begun to focus on blue hydrogen and ammonia produced from their abundant fossil fuel resources including natural gas with CCS (CO_2 capture and storage) or CCUS (CO_2 capture, utilization and storage) technologies. They have long been interested in CCS and CCUS technologies for the effective utilization of fossil fuels. Among them, Saudi Arabia and the UAE have taken the initiative in this area.

Circular Carbon Economy

At meetings of Group of 20 leaders and energy ministers hosted by Saudi Arabia in September 2020, a Circular Carbon Economy (CCE) platform was approved to reduce, reuse, recycle and remove CO_2 emissions.

The CCE platform is seen as a decarbonization initiative communicated by Saudi Arabia to the international community. Furthermore, MbS announced the Saudi Green Initiative and the Middle East Green Initiative in March 2021, setting out ambitious targets to plant 10 billion trees in Saudi Arabia or 40 billion trees in the entire Middle East, to boost renewable energy's share of Saudi Arabia's power generation to 50% by 2030, to cut CO_2 emissions by 130 million tons through hydrocarbon technology for absorbing CO_2 and to reduce CO_2 emissions in the Middle East by 60%.

In the Middle East, Saudi Arabia and the UAE have seemingly taken a lead over others in promoting decarbonization. Among other countries in the region, Qatar has announced some energy efficiency improvements and renewable energy projects. Kuwait, though among oil-producing Gulf countries, has made no visible progress in decarbonization. Iran and Iraq may be too busy tackling serious domestic and external problems to consider full-blown carbon neutrality.

Net Zero by 2050 Roadmap

In May 2021, the International Energy Agency (IEA) released *Net Zero by 2050: A Roadmap for the Global Energy Sector* to achieve net zero CO_2 emissions by 2050 in the world. In the roadmap, the IEA cited measures required to attain net zero emissions by 2050, including an immediate halt to investment in new fossil fuel supply projects and others that are tough for the oil industry and oil-producing Gulf countries. Saudi Arabian Energy Minister Abdulaziz bin Salman branded the IEA report as a sequel to the Hollywood film "La La Land," concluding that the report was not worthy of serious consideration. This may be interpreted as indicating that oil-producing countries could fail to survive if the roadmap comes true.

Nevertheless, even the roadmap does not envisage zero oil consumption. As low-cost oil is projected to survive even though with oil consumption falling from 90 million barrels per day in 2020 to 24 million bpd in 2050, oil-producing Gulf countries are likely to increase their share of the global oil market temporarily. As a matter of course, crude oil prices are predicted to plunge to $24 per barrel in 2050 due to a substantial drop in oil demand, indicating that those Gulf countries

would have difficulties in maintaining “rent.”

Towards Carbon Neutrality

The problem is whether oil-producing Gulf countries could maintain their respective political regimes if they go in the direction of carbon neutrality. Excluding Kuwait, oil-producing Gulf countries are dictatorial monarchies. In this sense, their governments have a free hand in implementing large-scale political, social and economic reforms. However, the reason their governments have a free hand is that the governments or the regimes have distributed oil wealth to citizens. Oil-producing Gulf countries have already launched painful reforms including the introduction of value added tax (VAT.) In Oman, Bahrain and other financially weak countries among them, public discontent has been growing. Regimes failing to guarantee affluence for citizens could weaken.

Oil-producing Gulf countries must continue investing in fossil fuel development to maintain their oil and natural gas revenue. However, the European Union Taxonomy and other regulations are making fossil fuel investment from the West difficult. Oil-producing Gulf countries now can expect investment only from domestic players and China. They could break away from Western countries and come under growing Chinese influence.

Numerous Middle Eastern countries are trying to achieve carbon neutrality targets through technological cooperation with China as well as Western countries including Japan. They have produced no exclusive innovations for carbon neutrality, leaving their technological cooperation with advanced economies to remain important for the immediate future.

However, massive funds are required for such technological cooperation. Supported by wealth accumulated with oil and natural gas revenue, oil-producing Gulf countries have promoted various projects to phase out oil consumption and carbon emissions as described above. However, it is contradictory for them to sell fossil fuels to break away from dependence on fossil fuels. Furthermore, it is growing difficult for them to sell fossil fuels. They have reached a crucial stage.

In the 1930s, natural pearl industry that was life base for local people in the Gulf region was at the brink of disintegration. Oil rescued them from the crisis and has brought far greater wealth to the region. As the 21st century has started, however, the oil industry has begun to end. Ironically, however, oil is still the only remedy to the oil industry that has fundamentally supported Gulf countries.

“Saudi Arabia is no longer an oil country, it’s an energy-producing country,” Saudi Arabian Energy Minister Abdulaziz said in June 2021. The remark should be interpreted as indicating a hope for Saudi Arabia. If oil-producing Gulf countries fail to make a soft landing for achieving decarbonization, the entire Middle East may destabilize. To avoid such a development, Japan and other advanced economies should cooperate with the region.

Writer's Profile

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His specialized field of research is: Modern History of the Gulf, Jihadist movements and History of Science and Technology in the Middle East. After receiving an MA (Oriental History) from Keio University, HOSAKA became a Special Assistant of the Japanese Embassies in Kuwait and Saudi Arabia. Since then, he has held various posts in the field of the Middle Eastern studies, including Researcher of the Middle East Institute of Japan, Director of the JSPS Research Station, Cairo, and Professor of Kindai University. He joined JIME Center, IEEJ in 2005. He is currently Visiting Professor of Waseda University. He became President of Japan Association for Middle East Studies (JAMES) on April 2021.