
SOUTH KOREA'S CLIMATE CHANGE POLICY: ACHIEVEMENTS AND TASKS AHEAD

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Abstract

South Korea has accelerated its efforts over the years to address the issue of climate change and join the global community's collaborative climate action. As a middle-power country, South Korea has the unique opportunity to become an influential actor in the global effort to combat climate change. This article introduces South Korea's climate policy of the last three administrations, including the key initiatives and actions, as well as South Korea's role in the global climate community. By tracing the progress of South Korea's climate change policy, the paper aims to enhance the understanding of South Korea's advancing climate action at national and global levels. It then suggests policy directions on climate change for the new Yoon Suk-yeol administration in order for South Korea to become a leader in fighting climate change.

Introduction

The looming problem of climate change has not ceased to impact our societies, increasing the importance of establishing a sustainable community. The outbreak of COVID-19 expedited the discussion of a Green New Deal in many countries as a measure to boost the economies suffering from the aftermaths of the pandemic. South Korea (hereinafter referred to as Korea) has joined this global effort to address climate change, as it has become apparent that no country can go at it alone, and those countries neglecting climate change actions will face difficulties in exercising global leadership. As a middle power country, Korea has the unique opportunity to influence the global agenda of climate change and has begun to actively respond to the issue over the last 15 years. In this context, Korea has continuously taken steps to address climate change both at domestic and international levels, including by leading in the establishment of the Global Green Growth Institute, hosting the Green Climate Fund, and developing various national climate change policies and institutions.

This article introduces the climate policy of Korea's last three administrations, including the key initiatives and actions as well as the role in the global climate community. By tracing the progress of Korea's climate change policy, the paper aims to enhance the understanding of Korea's advancing climate action at national and global levels. It then suggests policy directions for the new Yoon Suk-yeol administration, in order for Korea to rise as a global climate leader.

II. The Lee Myung-bak Administration: Establishing the foundation for global leadership based on Low Carbon Green Growth (LCGG) Policy

On 15 August 2008, President Lee Myung-bak announced Low Carbon Green Growth (LCGG) as Korea's new national development paradigm. The LCGG aimed to reduce greenhouse gas (GHG) emissions and environmental pollution and simultaneously create new growth engines and jobs based on green technology and clean energy. This was the first time in Korean history that climate change was set as a key national agenda. Based on the new direction, President Lee actively took action in order to both establish domestically a greener institutional base and globally showcase Korea's climate ambition.

At this time, Korea was becoming more aware of climate change as an urgent issue and the strengthening of international regulations on GHG emissions among the developed countries.

By 2005, Korea was the 6th largest GHG emitter among the OECD countries, and the GHG emissions average annual increase rate ranked first among the OECD countries.² The industrial structure was highly energy intensive, focusing on heavy and chemicals, steel, and shipbuilding industries. Fossil fuel power generation accounted for approximately 60 percent of emissions. In addition, Korea was importing 97 percent of its energy, at a time when global energy demand was rising.³ While advanced countries were shifting away from carbon-reliant industries and setting green growth targets, Korea was falling behind in terms of green technologies, industries, and economic growth. The LCGG aimed to address exactly these deficiencies.

Korea's LCGG aspired to address climate change by energy and resource conservation and efficient use, new jobs creation by securing a new growth engine through clean energy and green technology R&D, and ultimately achieve growth by harmonizing the economy and environment.⁴ The Lee administration shifted away from seeing climate change as a social and corporate cost, but as an opportunity to revitalize Korea's economy. By integrating policies on energy, transportation, industry, and science and technology, LCGG focused on achieving sustainable development, heightening quality of life, and advancing environmental values. To drive LCGG, the Lee administration set the national vision to become a world-leading green power country by 2050 and established three national strategies and ten policy directions (Figure 1). To implement the vision and strategy, the government formulated the LCGG National Strategy Five-Year Plan and enacted the Framework Act on Low Carbon Green Growth.

Notable among the climate actions taken by the Lee administration are the creation of the Presidential Committee on Green Growth (PCGG), the introduction of the emissions trading scheme and a voluntary GHG emissions mitigation plan, and the establishment of global climate leadership. First, to better facilitate cooperation and coordination on LCGG policies among government bodies, the PCGG was created. Headed by two Chairpersons (the Prime Minister and a non-governmental expert appointed by the President), and consisting of Ministers from relevant ministries and experts from civil society, the PCGG deliberated on national LCGG policies and plans.⁵ Three subcommittees were created focusing on specific issue areas.⁶ To consolidate the basis for LCGG and the PCGG's activities, the Framework Act on Green Growth came into force in April 2010. This Framework Act outlined the foundations for Korea's pursuit of LCGG, including the basic

Figure 1

Korea's LCGG: 3 Strategic and 10 Policy Directions

 Climate Change Adaption and Energy Independence	<ol style="list-style-type: none"> 1. Effectively mitigate GHG emissions 2. Drive oil phase-out and strengthen energy independence 3. Strengthen climate change adaptation capacity
 Create New Growth Engine	<ol style="list-style-type: none"> 4. Advance green technology development and create growth engine 5. Make industry greener and foster green industry 6. Advance industrial structure 7. Create base for green economy
 Improve Quality of Life and Enhance National Standing	<ol style="list-style-type: none"> 8. Create green land and transportation 9. Green revolution of life 10. Become a global green growth model nation

Source: created by author based on PCGG, 2009.

principles, the national strategy for LCGG, the creation and functions of PCGG, realization of a low carbon society, and the achievement of green life and sustainable development.

Second, the introduction of the Korean Emissions Trading Scheme (K-ETS) is the Lee administration's chief achievement. The possibility of the K-ETS began to be discussed when the Framework Act on LCGG was introduced. This was unique in that the more conservative Lee administration actively pursued an ETS, which has been a tool more often advocated by the progressives. Despite the backlash from the business sector concerning increased costs, through Lee's leadership, the GHG and Energy Target Management System (TMS) was initially launched in 2012 as a transitional measure before the full implementation of K-ETS.⁷ To support K-ETS' effectiveness, the Greenhouse Gas Inventory and Research Center was founded in 2010 to collect and manage information on GHG emissions and facilitate a measurable, reportable, and verifiable process.⁸ The Act on Allocation and Trading of Greenhouse Gas Emissions Allowances was also enacted in 2012, near the end of Lee's term. This Act established the legal basis for K-ETS, which was finally launched in January 2015.⁹ At that time, K-ETS became the second largest carbon market following EU ETS, and the first national mandatory ETS in East Asia.¹⁰

Another example of the Lee administration's active climate action is the establishment of a voluntary mitigation target. At the 2009 Conference of the Parties (COP) of the United Nations Framework for Climate Change Conference (UNFCCC), Korea

was the first country among the non-Annex I countries to announce a voluntary GHG reduction goal of 30 percent from a business as usual (BAU) baseline by 2020. This pledge amounted to one of the highest levels of mitigation recommended to the developing countries by the Intergovernmental Panel on Climate Change (IPCC) at that time. Korea's announcement therefore received much attention from the international community.

Lastly, in addition to setting domestic climate policies, the Lee administration's greatest achievement can be found in its pursuit of global climate leadership through three global fora: 1) the Global Green Growth Institute (GGGI), 2) the Green Climate Fund (GCF), and 3) the G20. During the 2008 G8 summit held in Toyako, Japan, President Lee announced the plan to launch the East Asia Climate Partnership to facilitate climate change response measures between the developed and developing countries. The key focus here was to support developing countries' climate actions. At that time, the Project Catalyst Team, an analysis-based project in support of the Copenhagen climate process by a group of international experts, was exploring a new climate response centered on low carbon economy. Through a partnership between key experts of the Project Catalyst Team and the Blue House's Office of the Secretary to the President for National Future and Vision, the idea to create a new international organization on climate change was formed. During the 2009 Copenhagen Climate Change Conference, President Lee formally announced the establishment of the GGGI.

In June 2010, the GGGI was launched initially as an organization based on Korean law. During this transitional phase, Denmark and Australia became the first key members of the GGGI and created a strong green alliance. The GGGI became a treaty-based international organization in 2012, with 18 founding signatories, which has expanded to 43 today. The GGGI is operating successfully, supporting developing countries' formulation and implementation of their own green growth plans and strategies. The creation of such climate response measures can contribute toward each country's Nationally Determined Contributions (NDCs). The GGGI is an exemplary international organization in that it specializes specifically on helping the developing countries' implementation of climate measures. Korea's role in the inception of the GGGI was widely recognized by the international community.

Moreover, the Lee administration's strong climate leadership was showcased through the successful hosting of the GCF Headquarters. The GCF is a financial mechanism created by the UNFCCC in 2010 to serve as the world's largest climate fund that helps developing countries meet their NDCs. By actively promoting Korea's LCGG and the role it can play as a bridge between the developing and developed countries at various UN venues and bilateral talks, the Lee administration was able to win the bid to host the GCF against strong competition. The GCF continues to play its role as a financial international institution in assisting developing countries' mitigation and adaptation response, by not only utilizing public funds, but also more innovative blended finance that attracts private-sector capital.

The G20 Summit was also held in Seoul in 2010, during which Korea proposed green growth as a key agenda for discussion within the overall theme of global financial markets and the world economy. Driving talks on issues such as the structural reform of G20 countries and supporting the developing and least developed countries, the Lee administration was able to reflect the idea of green growth in the summit outcome, The G20 Seoul Summit Leaders' Declaration. This was the first time such an idea was agreed on by the G20 leaders in a final document. Among others, the Declaration reaffirmed the leaders' commitment to combat climate change, phase out inefficient fossil subsidies, and work with developing countries in capacity building, taking account of their national and regional circumstances.¹¹ Since then, climate change and green growth have continuously been discussed as crucial issues at G20 Summits.

III. The Park Geun-hye Administration: Climate response based on Science Technology and Information Communication Technology (ICT)

Coming into office in 2013, the Park administration proposed a national vision of "citizen happiness and new age of hope." To achieve this vision, five national targets were set: 1) creative economy centered on job creation, 2) customized employment and welfare, 3) lifestyle with creative education and culture, 4) safe and integrated society, and 5) establishing the base for the age of happy reunification. Among the national targets, creative economy was of the highest priority. Creative economy was a new economic growth paradigm that linked people's imagination and creativity with science and technology to foster job creation and economic development. During Park's inaugural ceremony, she suggested a creative economy as follows:

Creative economy fuses science and technology with industry, culture with industry, and blooms the flower of creativity at the boundary of the demolished wall between industries. Moving beyond simply expanding the existing market, new jobs and markets are created on the fused grounds. At the epicenter of creative economy is science and technology, and the information technology industry, on which I place key value.¹²

As can be seen, the Park administration placed its emphasis on fostering growth based on a creative economy, but not so much on the issue of climate change. The previous LCGG was discontinued by the Park administration. The PCGG that was created by the previous administration was transferred to the Prime Minister's office and renamed the Green Growth Committee, which indicated a step down in terms of authority.

This is not to say the Park administration neglected to take climate action. In 2014, the Action Plan for Future Growth Engine was announced, which outlined nine strategic industries and four base industries that would lead Korea's economic growth. Among the 13 key industries, the three strategic areas of smart vehicles, disaster and safety management smart system, and the new and renewable energy hybrid system were new industries capable of addressing climate mitigation and adaptation (Figure 2). Seen from this perspective, the Park administration can be said to have focused its climate policy on promoting industries that were based on low carbon technology that fused cutting edge science and technology with ICT. Moreover, the second Five-Year Plan for Green Growth and

the National Basic Energy Plan were prepared during President Park's term, which addressed issues of national GHG reduction and promoting renewable energy.

At the global level, the Park administration could not ignore the climate issue, and continued to follow the discussion on collective climate action. During the 2014 UN Climate Summit, Korea pledged \$100 million to GCF, the first non-Annex I country to do so. Also, as the Paris Agreement was adopted in 2015 and entered into force in 2016, the Park administration prepared Korea's NDC. One part of such effort was the announcement of the Strategy on Expansion of New Industries in the Energy Sector in 2015. This Strategy focused

on four areas: 1) revitalizing market for energy prosumers, 2) expanding low carbon energy generation, 3) increasing electric vehicle production, and 4) creating environment-friendly production processes, with the goal to reduce GHG emissions by 55 million tons by 2030. This resulted in an increase in solar PV installed capacity to more than 1GW by 2015, ranking seventh in the world, as well as creating one of the world's largest power transmission and distribution energy storage systems.¹³ Another part of such effort was the announcement of a new GHG emissions target to reduce GHG emissions by 37 percent compared to the BAU level by 2030.

Figure 2 The Action Plan for Future Growth Engine: 13 Industries

 9 Strategic Industries (Growth Engine)	Smart Vehicles	Fuse ICT and vehicles, including electric vehicles; create a smart vehicle ecosystem		
	5g Mobile Communications	Provide world's first 5G commercial service		
	Deep Seabed Offshore Plant	Secure relevant engineering technology; domestic production of key equipment		
	Smart Robot	Provide support for R&D; create pilot infrastructure for commercialization of smart robots		
	Wearable Smart Device	Commercialization of such product; develop technology for key components (ex. Semiconductors, smart sensor)		
	Immersive Contents	Create expert training system; link with other industries; expand share of global future contents market		
	Customized Wellness and Care	Develop system infrastructure, fuse IT with medical devices, and become world's top 5 customized wellness provider		
	Disaster & Safety Management Smart System	Develop disaster sensing/simulation technology, establish system that links artificial intelligence of things(AIoT) with sensor-based disaster and safety management		
	New & Renewable Energy Hybrid System	Combining wind, solar, geothermal energy; expand share to 10% in relevant world market by 2020		
 4 Base Industries (Platform)	Intelligent Semiconductor	Composite Materials	AIoT	Big Data

Source: created by author based on "Press Release: 13 Future Growth Engine," Ministry of Science, ICT and Future Planning, June 18, 2014. <https://www.msit.go.kr/bbs/view.do?sCode=user&mId=113&mPid=112&bbsSeqNo=94&nttSeqNo=1213931>.

Overall, although the Park administration pursued climate policy based on green technology and fostering new industries in the energy sector, climate change was never a central issue within the national agenda. Such lack of interest in climate change policy is echoed in Park administration's weak global climate action as the host country of the GGGI and GCF, which remained to be remedied by following administrations.

IV. The Moon Jae-in Administration: Pursuing Energy Transition Policy, Green New Deal, and Carbon Neutrality

Coming into office in 2017, President Moon focused mainly on changing the energy mix without considering the implications for GHG emissions reductions. The Moon administration's Energy Transition Policy aimed to innovate the overall energy structure by optimizing the energy mix in terms of safety by reducing nuclear power and fostering the renewable energy industry. As the Moon administration encouraged active civil society engagement in the government policymaking process, democratization of energy, which guaranteed the participation and interest of citizens in the power generation process, was a key facet of its Energy Transition Policy.

There were several reasons for pursuing energy transition. First, globally, the use of renewable energy was growing quickly. In particular, the European countries and advanced countries were actively setting policies to expand the share of renewables and natural gas and to increase energy efficiency. Second, by reducing the use of fossil fuels, Korea could limit the impacts of particulate matter, which was a major cause of health and environmental problems in Korea. Moreover, safety concerns due to the close proximity of nuclear power plants to large population centers could be addressed. Finally, prospects for new job opportunities related to renewables as well as heightened competitiveness of the new energy industries would have positive economic impacts.¹⁴

The energy transition policy was carried out systematically over Moon's term. Among the actions taken, the phase-out of nuclear power plants, the expansion of renewables, and the establishment of the 8th Basic Plan for Electricity Supply and Demand and the 3rd Basic Plan for Energy are notable. First, the Moon administration planned to phase out nuclear power plants, to reduce the number from 24 in 2017 to 14 by 2038. Plans to construct new power plants were cancelled, aging plants were

prohibited from extending their operating lifespan, and one plant shut down early. Also, with the expectation of increasing decommissioning of nuclear plants globally, there was a push for research and development of decommissioning technology, creation of a new decommissioning research institute, and to set measures to support small businesses within the nuclear power industry in making their transition.

The energy generation deficit created by reduced nuclear power was planned to be met by expanding renewable energy. Announcing the Renewable Energy 3020 Implementation Plan in 2017, the target to increase the share of renewable energy generation to 20 percent by 2030, compared to 7 percent in 2017, was set. In particular, wind and solar would make up over 95 percent of the newly installed capacity. To heighten public acceptance and participation, the government provided easy access to solar projects, designated renewable energy generating districts, supplied sites to businesses, and planned large scale renewable projects giving citizens incentives such as renewable energy certificates.

The 8th Basic Plan for Electricity Supply and Demand affirmed the Moon administration's energy transition targets and measures, detailing nuclear and coal phase-out, and expanding new and renewable energy. The 3rd Basic Plan for Energy aimed to further secure Korea's shift to clean energy. This Plan focused on five core agendas: 1) innovating the energy consumption structure by strengthening supply management by sectors, 2) expanding renewables to 30-35 percent by 2040, 3) expanding distributed generation and the role of local governments, 4) strengthening the global competitiveness of the energy industry, and 5) establishing the foundation for energy transition.

Despite the efforts on energy transition, the Moon administration's interest in climate change was seen as rather weak, particularly in terms of reducing GHG emissions. The situation took a turn in 2020, with the announcement of the Green New Deal and the ambition to achieve climate neutrality by 2050. The Moon administration's climate change policy surfaced prominently as part of measures to address Covid-19. The economic recession caused by the pandemic necessitated a new economic stimulation plan, including the Korean New Deal that was announced in July 2020. This New Deal consisted of a Digital New Deal and Green New Deal, as well as a strengthened social safety net. President Moon, in a keynote address, stated that the New Deal is a declaration on Korea's great transformation to a leading nation, and emphasized it

will transform Korea from a catch-up economy to a leading economy, from a carbon-dependent economy to a low carbon economy, and from an unequal society to an inclusive society.¹⁵

The Green New Deal aimed to expedite Korea’s shift to a low carbon economy. Globally, countries were already making this transition by addressing issues of climate change and energy security, and fostering green industries. On the contrary, Korea still needed to deal with problems of rising GHG emissions and its carbon-intensive industry structure. The Green New Deal was expected to create 659,000 jobs by investing 73 trillion Korean won by 2025, and reduce GHG emissions by 12.3 million tons, which accounts for approximately 20.1 percent of the mitigation target.¹⁶

In July 2021, an updated Korean New Deal 2.0 was launched. The revised Green New Deal set climate neutrality as a new priority area. This was in response to the recent global discussions on NDCs and carbon border adjustment mechanism, which raised the threat of tariffs on Korean exports. Accordingly, the

Moon administration planned to review and modify the GHG measurement and assessment system and develop a calculation method that is in line with international standards (Figure 3).

As mentioned above, the Moon administration pledged to achieve Korea’s carbon neutrality. President Moon first formally mentioned the 2050 carbon neutrality target during a National Assembly address in October 2020. On December 7, 2020, the 2050 Carbon Neutrality Promotion Strategy was announced, centering on a low carbon economic structure, constructing an ecosystem for new low carbon industries, a just transition to a carbon neutral society, and strengthening the institutional base.

As the Paris Agreement states that Parties should formulate a Long-term Low Greenhouse Gas Emission Development Strategy (LEDS) by 2020, the Ministry of Environment announced the 2050 LEDS on December 30, 2020. This Strategy stated Korea’s 2050 vision to achieve climate neutrality by 2050 and set five basic directions: 1) expand use of clean electricity and hydrogen, 2) innovatively heighten energy efficiency, 3)

Figure 3 Korea’s Green New Deal: Key Areas and Tasks

 <p>Green transition of urban, space, and everyday life infrastructure</p>	<ul style="list-style-type: none"> • Achieve zero-energy use in public facilities essential to public life • Restore terrestrial, marine and urban ecosystems • Establish clean and safe water management system
 <p>Expand low carbon and distributed energy</p>	<ul style="list-style-type: none"> • Raise energy management efficiency, build intelligent smart grid • Construct base for new and renewable energy expansion, support just transition • Expand distribution of green vehicles (electric and hydrogen fuel cell vehicles)
 <p>Build ecosystem for innovative green industry</p>	<ul style="list-style-type: none"> • Foster promising business leading in green industry; create low carbon industrial complex • Construct base for innovative green R&D and finance
 <p>Construct base to pursue carbon neutrality</p>	<ul style="list-style-type: none"> • Reorganize the GHG measurement and assessment system • Build system to reduce carbon from industry; prepare base for an efficient carbon sink management system • Create a citizen-driven system to achieve climate neutrality, such as promoting GHG emissions reduction in everyday life

Source: Created by author based on “Korean New Deal,” Ministry of Culture, Sports and Tourism, 2021.

commercialize future technologies such as carbon removal, 4) enhance industry sustainability by expanding the circular economy, and 5) strengthen carbon absorption measures. It also set visions and strategies by sector.

During Moon's term, Korea's NDC was updated twice. In December 2020, the previous reduction target based on BAU was changed to absolute emissions amount, reducing 24.4 percent compared to the 2017 level by 2030. This was to show Korea's strong volition to GHG mitigation, to increase transparency, and to gain trust from the international community. In October 2021, the 2030 target was heightened to reduce GHG emissions by 40 percent from the 2018 level.¹⁷ It also outlined sectoral mitigation strategies. According to the government, this was "the most ambitious level possible to achieve the goal of carbon neutrality by 2050 despite the country's manufacturing-oriented industry structure."¹⁸ In addition, the 2050 Carbon Neutrality Scenario was formulated in October 2021. This presented two scenarios for realizing Korea's carbon neutrality, including a forecast of specific policy directions, transition speed, and possible emission reductions. The newly updated NDC was submitted to the UNFCCC secretariat in December 2021.

To implement the updated NDC, domestic institutions were reorganized and newly created. In May 2021, the 2050 Carbon Neutrality and Green Growth Commission was launched.¹⁹ Created under the Presidential Office, the Commission acts as the control tower of Korea's carbon neutrality policy, deliberating major policies, plans, and its implementation. Consisting of officials and experts from public and private sectors, the Commission has contributed to preparing the 2050 Carbon Neutrality Scenario, updating the NDC, and enacting the Framework Act on Carbon Neutrality and Green Growth for Climate Crisis Response (Carbon Neutrality Act). Enacted in September 2021, this Act provides the legislative basis for implementing carbon neutrality. Korea is the 14th country to enact a national law on climate neutrality.²⁰

The Moon administration also began to actively participate in the global climate response. In addition to announcing a strengthened NDC, President Moon took part in various international fora and promised Korea's enhanced climate action. In April 2021, the Leader's Summit on Climate was convened by U.S. President Joseph Biden, where 40 world leaders gathered virtually to discuss tackling the climate crisis. There, President Moon announced the strengthening of Korea's

NDC to meet the 2050 net-zero goal, and the halting of public finance for new overseas coal plants. The following month, Korea hosted the P4G (Partnering for Green Growth and the Global Goals 2030) Seoul Summit. Under the theme of Inclusive Green Recovery Towards Carbon Neutrality, this was Korea's first multilateral summit centered on environment. During the opening ceremony, President Moon again emphasized Korea's commitment to climate response, multistakeholder partnership for climate action, supporting developing countries' green transition by expanding climate and green ODA by 2025, and creating a \$5 million trust fund dedicated to the Green New Deal within the GGGI. The Summit produced the "Seoul Declaration," which underscored the importance of public-private partnerships and scaling investments in market mechanisms.

The Moon administrations' efforts were continued in the G7, G20 and the UNFCCC. At the 2021 G7 Summit held last June, President Moon introduced Korea's action plan to become carbon neutral by 2050 and announced participation in biodiversity conservation and recovery efforts. At the G20 Summit held last October, the President introduced Korea's implementation of 2050 Carbon Neutrality and government's policy efforts, emphasizing the participation of the private sector and the cooperation between developing and developed countries. In November, President Moon attended COP 26 and presented Korea's strengthened NDC and the domestic climate measures that had been taken, as shown above. In addition, Korea joined the Global Methane Pledge in November 2021 and committed to participate in reducing global methane emissions.

The Moon administration's climate actions received mixed assessments. The revised NDC and domestic institutionalization of the net-zero target are laudable as they comprise a significant step forward. However, the Climate Action Tracker rated Korea's overall climate target and policies as "highly insufficient" and not enough to meet the Paris Agreement's 1.5°C temperature limit.²¹ Within Korea, it has been pointed out that the GHG emissions for 2021 increased 4.2 percent from the previous year according to an initial assessment.²² Also, it has been argued that if the carbon neutrality policies are pursued as is, it may lead to an increase in electricity prices, placing greater pressure on the economy and people.²³ Another criticism is that the widened participation by the civil society has led to a lack of expertise in government policymaking.

V. Conclusion and Policy Suggestions for the New Yoon Seok-yeol Administration²⁴

Over the last 15 years, Korea has substantially increased its climate ambition and formulated necessary national policies to achieve the set goals, albeit with some fluctuations. The Lee Myung-bak administration set LCGG as a national agenda and placed climate change at the fore for the first time in Korean history. At the same time, the Lee administration aspired to become a key player in the international climate community by hosting the GGGI and the GCF. The Park Geun-hye administration's climate policy regressed, with only slight attention given to climate response based on science technology and ICT. The Moon Jae-in administration initially did not prioritize climate change but the position shifted to formulate the Green New Deal and carbon neutrality target. While Korea has put in place many viable climate measures considering its energy intensive industrial structure, a big challenge still remains in meeting the target of 40 percent emissions reductions by 2030 under the current NDC.

President Yoon Seok-yeol's term started on May 10, 2022. During the presidential campaign, Yoon pledged to formulate a science technology- and data-based NDC as well as a realizable 2050 carbon neutrality plan. To achieve net-zero, Yoon pointed to investments in nuclear and clean energy technology. After the election in March, the Presidential Transition Committee stated that Korea will continue to actively participate in the global carbon neutrality goal and keep the ambitious target of reducing GHGs by 40 percent with actionable policy measures.²⁵ The Committee also identified risks of the previous policy under the Moon administration, such as an increase in electricity prices and the lack of communication between relevant stakeholders in formulating the carbon neutrality policy. To address these issues, the Planning Committees' Climate and Energy Team within the Presidential Transition Committee suggested five policy directions: 1) creating a reasonable carbon neutral energy mix and innovating the electricity generation system based on harmonizing renewable energy and nuclear plants; 2) advancing green R&D for green technology development and creating new carbon neutral growth engine; 3) pursuing green finance by expanding third party participation in emissions trading, linking environmental, social, and governance (ESG) management, and adjusting the tax system; 4) strengthening climate energy alliance and global cooperation with key countries largely by developing Cooperative Approaches Mechanisms under the Article 6 of the Paris Agreement with a combination of development climate finance and foreign investments; and 5) strategic restructuring of carbon neutrality and green growth

governance.²⁶ This was presented to the President elect for his consideration. We will have to wait and see what the Yoon Administration's climate action will look like.

The Yoon administration has much work ahead of them to further Korea's role in the global community as a rising climate actor. On the domestic side, first, details on Korea achieving the 40 percent GHG reduction target in its NDC will need to be revisited in consideration of the national circumstances as well as the latest global climate discussions. Korea should refrain from simply adopting foreign legislation and measures and instead aim to create a leading policy that reflects Korea's situation. For example, utilizing internationally transferred mitigation outcomes (ITMOs) may allow a more ambitious mitigation target considering Korea's small territory, lack of resources, and energy-intensive industrial structure. As President Yoon mentioned during his presidential campaign that he would reverse the phase-out plan for nuclear plants, the energy mix policy needs to be revised with strong presidential leadership that promotes an awareness of both renewables and nuclear energy as clean and safe energy sources.

Second, climate finance policy needs to be strengthened. ETS, a key carbon pricing instrument in Korea, has played a more regulatory and compliance function of achieving business' emission targets. The actual trading of emissions remains relatively low and ETS has less of a role as a market mechanism. Therefore, there is a need to strengthen the fundamental role of carbon pricing and market-based measures to transition to a decarbonized economy. In addition, standards for national green taxonomy as well as carbon data management should be further developed in order to provide a clear signal for private sector investment in carbon neutral technologies and industries.

Third, the President should show direct interest in the climate agenda and create a mechanism that facilitates cooperation and synergy among ministries. Relatedly, a control tower for global climate cooperation that is directly overseen by the President should be created at the sub-ministerial level within the Presidential Office to enhance Korea's global climate leadership. The existing Carbon Neutrality and Green Growth Commission aims to address policy coordination, but it does not exercise authority such as the White House National Climate Advisor within the White House Office.²⁷

At the global level, the Yoon administration should aim to consolidate Korea's position as a climate policy-leading nation. As climate change is expected to be a key agenda in the G7 Leaders' Summit in June and the G20 Leaders' Summit in October, Korea can prepare a strategic plan to share Korea's

climate agenda. This may include the creation or hosting of a new international organization or multilateral mechanism for developing countries, establishing a cooperative mechanism on ITMOs based on Article 6 of the Paris Agreement, and strengthening cooperation with developing countries, with a possible focus on REDD+ (reducing emissions from deforestation and forest degradation), and pursuing a new climate partnership with the Middle East countries.

Second, Korea can strengthen climate cooperation with the U.S., in addition to the EU. A climate alliance may be formed with the U.S., possibly by utilizing the Quad as a platform to cooperate on forestry and transport sectors in the ASEAN and Pacific region.²⁸ The EU can be engaged on issues of creating a multilateral normative process on carbon border adjustment, and collaborating on energy mix policy with Germany, the UK, and France. By assessing the risks of linking ETS and raising awareness of such assessment, carbon pricing can also be another area of cooperation with the U.S. and EU, as well as on hydrogen economy and on carbon capture, utilization, and storage (CCUS).

Lastly, climate cooperation among the Northeast Asian countries can be advanced. A Northeast Asian climate community that collaborates on renewable energy, super-grid, and Paris Agreement Article 6-based REDD+ may be one option. The existing cooperation on Northeast Asian marine environment can be improved by engaging on blue carbon sinks and GHG mitigation and ocean-based climate solutions. Further, a South-North Korea partnership on climate change centering on REDD+, green railroads, and renewables may be pursued.

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² "Green Growth Korea," Presidential Committee on Green Growth (PCGG), (2009), 10, accessed May 9, 2022 (in Korean), http://www.climate.go.kr/home/cc_data/policy/greengrowth_strategy.pdf.

³ "Green Legislation," Ministry of Government Legislation, accessed May 9, 2022 (in Korean), <https://easylaw.go.kr/CSP/CnpClsMainBtr.laf?csmSeq=543&ccfNo=1&cciNo=1&cnpClsNo=1>.

⁴ "Framework Act on Low Carbon Green Growth. Article 2.2. 11965," 2013.

⁵ The relevant ministries were: Ministry of Strategy and Finance; Ministry of Education, Science and Technology; Ministry of Knowledge Economy; Ministry of Environment; and Ministry of Land, Transport and Maritime Affairs.

⁶ The three subcommittees were: Subcommittee on Green Growth and Industry, Subcommittee on Climate Change and Energy, and Subcommittee on Green Life and Sustainable Development.

⁷ The TMS designated large emitting business entities, which were each given GHG emission mitigation and fossil fuel energy use reduction targets. These target business entities were obligated to report their reduction outcomes to the Ministry of Environment.

⁸ Regarding K-ETS' effectiveness, there are several issues that need to be addressed including ensuring the alignment of K-ETS with Korea's emissions reduction target and means to reduce free allocation of permits for firms.

⁹ "The Korea Emissions Trading Scheme," Asian Development Bank, (November, 2018): 7, <https://www.adb.org/sites/default/files/publication/469821/korea-emissions-trading-scheme.pdf>.

¹⁰ "Korea Emissions Trading Scheme," International Carbon Action Partnership, accessed April 5 2022, <https://icapcarbonaction.com/en/ets/korea-emissions-trading-scheme>.

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