

# Evaluation and Recommendations about the Carbon Neutrality Strategy of South Korea

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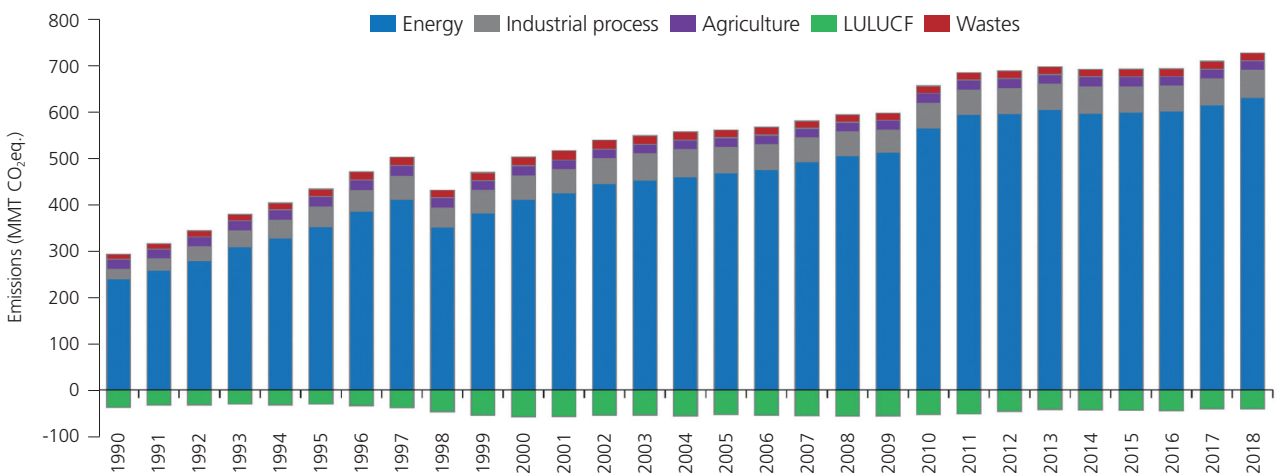
## Greenhouse Gas Emissions and Conditions in South Korea

South Korea is considered to be one of the largest greenhouse gas (GHG) emitters from around the world. According to the international science community, the Global Carbon Project (GCP), South Korea emitted 611 million tons of GHG in 2019, ranking 9th globally, just one place down from 8th in the previous year which was its all-time-high. In 2020, its emissions were further reduced by 7.3%, however that result is regarded as the impact of the COVID-19 pandemic and a relatively low temperature, rather than the efforts made by the current government policy.

Therefore, it is premature to say that the Republic of Korea (ROK) has made significant progress in bucking the trend of its overall GHG emissions as energy consumption consistently and continuously surged over the past five decades. In South Korea, total energy consumption has grown by an AAGR (Average Annual Growth Rate) of 6.2% from 17.0 million TOE in 1971 to 282.2 million TOE in 2018. During the same period, annual average energy basic unit has been improved by 0.6% while the total consumption continues to increase. In particular, electricity consumption per capita has gone up by an AAGR of 8.0% from 296kWh in 1971 to 11,082kWh in 2018. Entering the 2000s, the figure slowed down along with that of the industrial sector. In addition to that, the residential electricity consumption per capita grew slowly, and thus, the AAGR of energy consumption per capita reached 2.8% between 2000 and 2018.

In South Korea, its high GHG emissions per capita are blamed more on its manufacturing and export-oriented structures rather than individual consumption and lifestyle. Industries in Korea, such as steel, petrochemical, and automobile industries, are mostly energy-intensive forms of manufacturing, and thus created challenges when seeking to make systemic change in GHG emissions within a short period of time. For instance, the Korea Chamber of Commerce and Industry (KCCI) surveyed companies who joined the Emission Trading System (ETS) about the goal of "2050 Carbon Neutrality." Among the

[Figure] Trend of greenhouse gas emissions and absorption by sector in Korea



Source: 2020 National Greenhouse Gas Inventory Report of Korea, 54p

respondents, 57.3% answered that it was “challenging but the way to go” while 42.7% responded with that it was “practically infeasible.”

### **Brief History of Climate Change Policies in South Korea**

In South Korea, climate change policy began in full swing when the Lee Myung-bak administration took office in 2007. Lee’s government introduced ‘Green Growth’ policies in its early stage and actively promoted them at the 15th Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP15). However, the policies were to no avail as they failed to develop into legislation or concrete energy policies to practically reduce GHG emissions. Rather, these Green Growth policies focused on the “Four Major Rivers Project” which destroyed the environment, while national GHG emissions continued to increase. Given that, the international group analyzing climate change, the Climate Action Tracker (CAT), singled out the ROK as one of four climate villains around the world in 2016. According to the Climate Change Performance Index (CCPI) 2016, released by Germanwatch, a civic research institute in Germany, and Climate Action Network (CAN) Europe, Korea recorded a very poor score with a ranking of 54th among 58 countries surveyed.

In general, energy policies are the most relevant to GHG emissions among others, in Korea, however, there were other factors that were more important. After the 2011 Fukushima Nuclear Disaster in Japan, there was a call for the Korean government to revisit energy policies where nuclear power generation relatively accounted for a large share. Now, Korea operates a fleet of 24 nuclear reactors, which account for 30% of all electricity generation. Meanwhile, the Moon Jae-in government decided to shut down prematurely some aged coal-fired power plants, which however, was not carried out with the intention of mitigating climate change but to reduce fine particles as there had been growing concern over public health when the government took office in 2017.

Nonetheless, the Moon administration was keen to accept the 2015 Paris Agreement and the September 2019 climate strikes across the globe, and thus, it announced the “Energy Transition” policy, which phases out nuclear and coal energy sources. In 2020, as part of its efforts to overcome the COVID-19 pandemic, the government presented the “Korean Green New Deal” policy as well as pledging the “2050 Carbon Neutrality Strategy”. However, the nuclear phase-out and energy transition is leading to a fierce political conflict between the conservative and democratic parties (opposition and ruling parties) while an effective energy mix or detailed policies have not proceeded thus far. In order to enhance public awareness and a policy response, which are still poor despite the declaration of carbon neutrality, civic groups are acting in solidarity by launching nationwide organizations, such as the “Climate Crisis Emergency Action Network.”

## **Major Policies of the South Korean Government**

### **1) Energy Transition Policy**

The Moon Jae-in administration incorporated the “Transition towards safe and clean energy through a nuclear phase-out policy” into its five-year plan for state affairs in order to make changes to the energy mix. The president declared a “nuclear phase-out” as a new direction of the energy policy of Korea by delivering his congratulatory remarks at a ceremony marking the permanent closure of the Kori No.1 nuclear reactor on the 19th of June, 2017. In his speech, the president highlighted that new plans to build nuclear power plants would be annulled, aged nuclear power plants would be shut down as soon as possible without extension of their life, and clean and green energy would be actively nurtured so that it could be a new growth engine for the Republic of Korea.

In October of 2017, the government decided whether to continue the Shin Kori No.5 and 6 nuclear reactors project based on “public deliberation process.” The government assembled a committee, and among the panelists of the committee, 59.5% voted in favor of resuming the stalled construction of the two reactors while 40.5% in favor of abandoning them. However, as for the share of nuclear power generation, 53.2% agreed to cut reliance on nuclear energy, 35.5% voted to maintain the status quo, and 9.7% voted to expand it. Based on the results, therefore, the committee offered to the government the following recommendations: i) resuming the stalled construction of the Shin Kori No.5 and 6; ii) phasing out nuclear power generation as a new energy policy direction; and iii) urgently coming up with concrete action plans and implementing them as a complementary measure proposed by citizens of the committee.

Given the recommendations, the government announced the follow-up measures and a roadmap for energy transition (nuclear phase-out). According to the announcement, except the two reactors, Shin Kori No.5 and 6, the projects to build new nuclear power plants will be annulled; the aged Wolsung No.1 reactor will be shut down earlier than its designed life; and the share of renewable energy will increase from 7% to 20% by 2030, with the measures to offset the impact on local industries laid out.

However, even if the roadmap is fully implemented, when the two reactors are constructed and operated, nuclear power will continue to exist till the late 2080s, which technically means a very slow nuclear phase-out. Moreover, “fake news” spread by those opposing social forces and a low acceptance among local people do not lead us to be optimistic about the expansion of renewable energy. In addition, even though seven aged coal-fired power plants are to be shut down early, new seven plants with an even bigger capacity are being constructed after obtaining licenses under the previous administration. Therefore, GHG emissions from coal-fired power plants are expected to increase for a while.

## 2) Green New Deal and Carbon Neutrality Strategy of Korea

Korea has suffered through the pandemic brought about by a novel coronavirus since early 2020 when it spread throughout the world. While overcoming the pandemic, the Korean government still faced the challenge of tackling climate change. President Moon presented a new initiative where the country transforms itself from a carbon-dependent to a low-carbon economy and from a socially divided society to an inclusive one by adding the “Green New Deal” into the existing “Digital New Deal” and reinforcing the social safety net. He unveiled this stimulus package of the Korean New Deal, which seeks to create 1.9 million jobs and invest over 160 trillion won by 2025, among which 73 trillion won is allocated to the Green New Deal. The key projects of the Green New Deal include expanding green mobility (the supply of electric and hydrogen vehicles), fostering innovation in the green industry, promoting renewable energy, and turning public facilities into zero-energy buildings.

In parallel, the Korean government also announced it would join carbon neutrality agreement along with the global community. President Moon declared the agreement to “2050 Carbon Neutrality” in his speech at the National Assembly on the 28th of October 2020, and at the end of the year, he confirmed Long-term low GHG Emission Development Strategies (LEDS) during a cabinet meeting. He also made a

[Figure] Key Projects of the Korean Green New Deal



Source: website of the Ministry of Environment; <http://me.go.kr/GreenNewDeal/>

commitment to raising and presenting the '2030 nationally determined contribution (NDC)' within 2021. Despite such declarations and policy announcements, it is difficult to commend the Korean government on the actual outcome of the GHG reduction policies. After having being revised once in July 2018, the original target of the total national GHG emissions, which aims to reduce the 2030 BAU emissions projection by 37%, remains the same in the National Roadmap for Greenhouse Gas Reductions of Korea. However, given the GHG emissions of 657 million tons in 2010, the absolute 2030 target of 536 million tons amount to a reduction of a mere 19%, not 37%. Excluding figures, calculated from inexact effects or measures of reduction (10.3 mil.t reduced by the new energy industries and Carbon Capture, Utilization, and Storage (CCUS); 38.3 mil.t reduced by forest absorption and the use of internationally transferred mitigation outcomes (ITMO); and 34.1 mil.t, likely to be further reduced in energy sector), the 2030 reduction is projected to be 618.7 million tons, not 536 million tons, and thus, it amounts to a mere 5.8% reduction from 2010 emissions. Among the member states of the OECD, South Korea would be the only country setting such a low reduction target.

The Korean Green New Deal is a combination of existing projects and policies of major ministries, not a designed project aiming to respond to GHG reduction targets. Moreover, there is no estimate of the GHG emissions to be reduced by these green new deal projects.

President Moon first announced that the 2030 NDC would be set higher within this year and that Korea will end all public financing for new overseas coal-fired power plants investment at the Global Climate Summit, virtually held in April 2021. However, the president did not suggest an exact NDC level to be raised, and since overseas investments already put into coal-fired power plants were excluded, it is hard to say such a decision well reflects a strong commitment of the government to GHG reduction. Civic groups, including environmental activists, also point out that what is needed is not an abstract and principal declaration but a concrete statement, such as reducing emissions more than 50% over the next ten years till 2030.

In South Korea, one of the most important developments in its recent GHG reduction policies is the launch of the "2050 Carbon Neutrality Committee". The Korean government announced its creation as the presidential body right before hosting the Partnering for Green Growth and the Global Goals 2030 (P4G Summit) at the end of May 2021. This committee is integrated by the existing Committee on Green Growth and the National Council on Climate and Air Quality, and co-chaired by Prime Minister and an expert from the civic sector. It encompasses a wide range of sectors, including industries, energy, and R&D, consisting of more than 100 members, including 77 civilian representatives in addition to official members, who are ministers of each government department. They are expected to share their views on the government's climate change policies while serving in eight sub-committees, including climate change, energy innovation, economy and industry, green life, just transition, science and technology,

international cooperation, and public engagement.

Right after its launch, the committee is likely to touch on high-profile issues, like when to stop operating coal-fired power plants and supplying internal combustion engine cars, and raising the NDC level. Still, it remains uncertain whether the committee can secure authority and legally binding power as it has no legal ground. Also, some critics are worrying whether the committee is independent enough to decisively push forward with green transition policies since the majority of its members have been engaged in designing the existing energy and industry policies.

### **Evaluation and Analysis on the South Korean Government Policies**

In general, South Korea has made progress in decreasing its use of resources and improving individual environmental indices at a certain degree, compared to its economic growth. Still, policies intended to achieve carbon neutrality as well as GHG reduction are not successful or imperfect.

Even after declaring the 2050 Carbon Neutrality Strategy, the government did not come up with sufficient measures concrete and effective enough to achieve the target of 1.5°C and pay little attention to its progress. Figures in major sectors fell short of the reduction targets and the ETS as well presented a poor performance. But, they have been hardly evaluated within the government organizations. Also, projects, where the actual budgets are put, are highly concentrated on the development of new technologies and growth policies supporting businesses. It has resulted from an inappropriate framework, simply patched with the target of carbon neutrality without any mid-and long-term transition of the current energy-guzzling and export-oriented economic structures.

It is also attributable to the fact that ministries (ex. the Ministry of Trade, Industry, and Energy, the Ministry of Foreign Affairs, and etc.), which maintain their policy direction towards economic growth, export expansion, and conglomerates, have the upper hand in policy decision compared to the environment-related ministries. In addition, those ministries lack political leadership to buck the trend, leading to weak policy integrity among ministries and agencies. Even the integrity between the central and local governments is not so strong.

Furthermore, it is another downside that policy continuity and accountability cannot be assured under the political structure of South Korea. Within the single five-year term of the presidency, the administration tends to focus more on policies that are likely to present a visible outcome within its term. Therefore, it is difficult to put much effort into long-term policies, such as GHG reduction and energy transition, for which the administration needs to arrange uncertain processes while looking ahead to 2050. The National Assembly is also dominated by two large parties, established on growth and development policy orientation, and their counterparts like progressive parties and civic groups have weak political power.



In September 2020, a “special resolution declaring a climate emergency” was passed unanimously in the National Assembly. At the end of 2020, however, the “Special Act for the Construction of the New Airport,” expected to accelerate GHG emissions, was passed by both the ruling and leading opposition parties, which clearly presents inconsistency in the National Assembly.

One of the most problematic parts of the South Korean climate policies is that no strong message is being sent to the public and society. Instead of delivering the severity of climate crisis and inevitability to tackle, the Korean government emphasizes the current crisis can bring a new opportunity for growth and profits, implying as if the public and businesses may not be held accountable for it. And, intractable tasks, such as raising price of electricity and introducing carbon taxes, are not likely to be dealt under the current administration but might be delayed to the next administration.

Also, it has been pointed out that the administration does not consider the so-called “just transition,” which is to prevent workers and local communities from both negative impacts and burdens expected in the process of climate policy implementation and industrial transition. The Korean government has taken a much narrower approach by focusing mostly on fairness in process and post compensation rather than improving economic equality and justice.

Meanwhile, nuclear phase-out and energy transition policies were mainly driven by the personal commitment of President Moon without collective and institutional support from political circles and thus, they have shown structural weakness. That is why there is no consistency among policies of GHG reduction, nuclear phase-out and export, and nuclear waste disposal policies, which have called the criticism made by the opposition party. Nowadays, even in the ruling party someone openly speak out that the administration should slow down a nuclear phase-out to adapt to the climate crisis and make more investment into small modular reactors (SMR). Therefore, policies adapting to the climate crisis through energy transition are likely to take a backseat or sway further as the next presidential election nears.

## **Tasks and Recommendations**

In order to overcome the current situation, Korea government and society should be clearly aware of the fact that carbon neutrality is not something accomplished by ad hoc or partial measures, and thus, it is the way to go even if it takes enormous burdens and changes. Hence, more systemic transition policies, implementation, and management are necessary.

The administration should be reminded that not partial revision but an overhaul of the system is needed. In particular, the system of the energy-intensive industries needs to be minimized or shifted as the existing socioeconomic system of Korea is fundamentally unsustainable. Moreover, in that process, the principles of “climate justice” and “just transition” should be practiced as prescribed in the Paris Agreement.



Moreover, the administration should definitely seek for tools needed to achieve the above-mentioned goals. First, changes should be driven by massive government budgets and public projects. Unlike the current Korean Green New Deal, mainly invested by the private sector, public funds should be put into the areas, such as renewable energy, energy efficiency, public transportation, and public medical services. Second, strong regulations should be placed on the vested interests, including coal-fired power businesses. When offering public funds to them, the government should place clear requirements, such as adapting to climate crises, clarifying working conditions, halting new coal-fired power plant projects, halting production of combustion engine cars, and urgently implementing and reinforcing the energy efficiency grade of buildings. Third, efforts to realize climate justice and improve democracy should be followed. It is necessary to share sentiment on and enhance support for adapting to the climate crisis and build up adaptation and resilience in society at large by strengthening the capacity of workers, irregular workers, in particular, farmers, local residents, women, sexual minorities, migrants, and youth. Fourth, these tools should be backed by legislation and official agencies to ensure effectiveness. Currently, the National Assembly has held ongoing discussions over a bill to adapt to the climate crisis in order to replace the existing Framework Act on Low Carbon, Green Growth, and this bill should be passed without any mitigation or delay. Also, other follow-up legislation is needed to ensure a just transition and enlarge basic rights in society, such as labour rights.

Lastly, the response to the climate crisis should be taken more seriously in politics and society at large while preparing for the next presidential election from late 2021 to spring 2022, and the next administration should assure its connectivity and continuity. To do that, the following tasks should be clearly agreed upon and realized: i) based on the “carbon budget” to limit global warming to 1.5°C as presented by the Intergovernmental Panel on Climate Change (IPCC), the NDC level should be definitely raised within this year; ii) the projects to construct new coal-fired power plants and a new airport should be withdrawn so that they can send a clear message that the high-emitting industries no longer continue; iii) sectors offering green transition of the economy and eco-friendly jobs should suggest blueprints on expanding renewable energy and transportations, like railways, and making buildings energy efficient; and iv) the structure and authority of the 2050 Carbon Neutrality Committee should be strengthened and its rules and regulations should be rearranged so that GHG reduction and climate justice can be realized.

Although it is late, the government should not put aside important tasks, such as tax revision, adjustment of energy bills, and legislation for a nuclear phase-out. Among others, it is imperative to send a true signal to the public, society, the politics, local communities, businesses, and workers on the prospects of energy transition policies and their resulting benefits and downsides. The climate crisis should be regarded as a nationwide emergency, and budgets and administrative authority should be allocated and

managed accordingly.

In the end, the success of carbon neutrality in South Korea depends on the consistency, integrity, and accountability of policies. The Korean government and the public are faced with many challenges along with the entry into force of the Paris Agreement, the global wave of climate justice movement, and the efforts to overcome the COVID-19 pandemic. The COP 26, held in Glasgow in November 2021, and the period running up to the next presidential and local elections will provide valuable time to address these challenges and brace for the next step.

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