

# SOUTH KOREA'S ENERGY TRANSITION: A HALF-HEARTED START

South Korea is ranked 17th in the world for cumulative greenhouse gas emissions, most of which come from the energy sector. The country's policies for energy transition away from fossil fuels and nuclear power began with the expansion of participatory renewable energy. However, the new government has taken a step backwards from previous policies that aspired to a sustainable and carbon-neutral society.

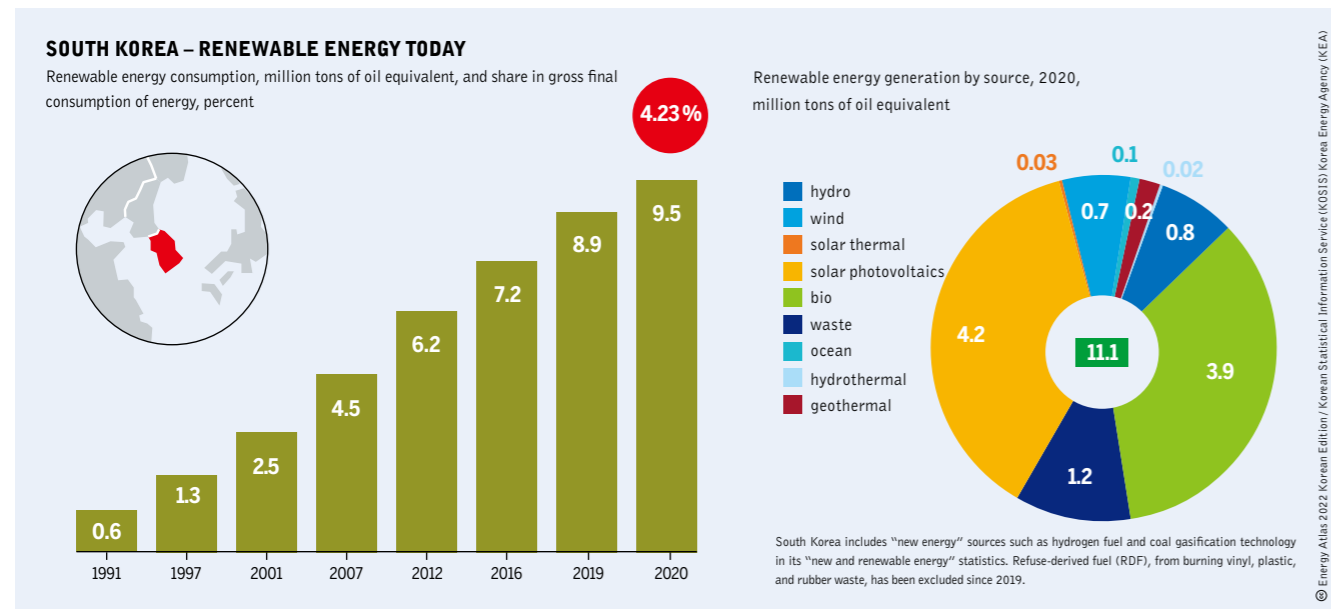
In October 2022, the World Meteorological Organization predicted in its annual State of Climate Services report that the world was not on track to meet the target set by the Paris Agreement, limiting the global average temperature rise to 1.5 degrees Celsius. Greenhouse gas (GHG) emissions need to be reduced by 43% below 2019 levels by 2030 to meet the target, but current pledges would only realize 30% of the necessary reduction. Although more than 130 countries, starting with the United Kingdom in 2019, have put in place "carbon neutrality" plans to achieve net zero carbon emissions by 2050, the assessment is that it is still difficult to prevent a rise above 1.5 degrees. The United Nations Environment Program's Emissions Gap Report 2022 estimates that the global temperature will rise by 2.4 to 2.6 degrees Celsius by the end of the century, even if countries meet their Nationally Determined Contributions. This means more aggressive action is needed to avoid an additional 1 degree Celsius rise. The share of electricity generation from solar thermal, solar photovoltaic and wind sources should be doubled over the next eight years. A rapid shift from fossil fuels to renewable energy is an urgent challenge for all countries around the world.

South Korea's per capita GHG emissions from coal-fired power generation are the second highest among G20 nations, and three times the global average, as of November 2022. According to a McKinsey Global Institute report, South Korea is the world's eighth largest emitter of carbon

dioxide, with per capita emissions more than double the global average. It also ranks 17th in cumulative greenhouse gas emissions, an indicator of its liability to reduce GHG emissions. The South Korean government declared its commitment to carbon neutrality in October 2020, established the 2050 Carbon Neutral Strategy and confirmed its Carbon Neutrality Scenarios, yet GHG emissions continued to increase by 3.5% in 2022 from the previous year. The country has implemented a strategy to expand renewable energy, but the share of renewable energy is still only 6.7%, about a quarter of the average among member nations of the Organization for Economic Cooperation and Development (OECD). Coal remains the largest source of electricity generation, accounting for 32%. Given this reality, South Korea needs to raise its national greenhouse gas reduction targets and expand its renewable energy, which remains stagnant. Evaluation on the current policies that have been put in place as well as examination of further efforts must be made are needed.

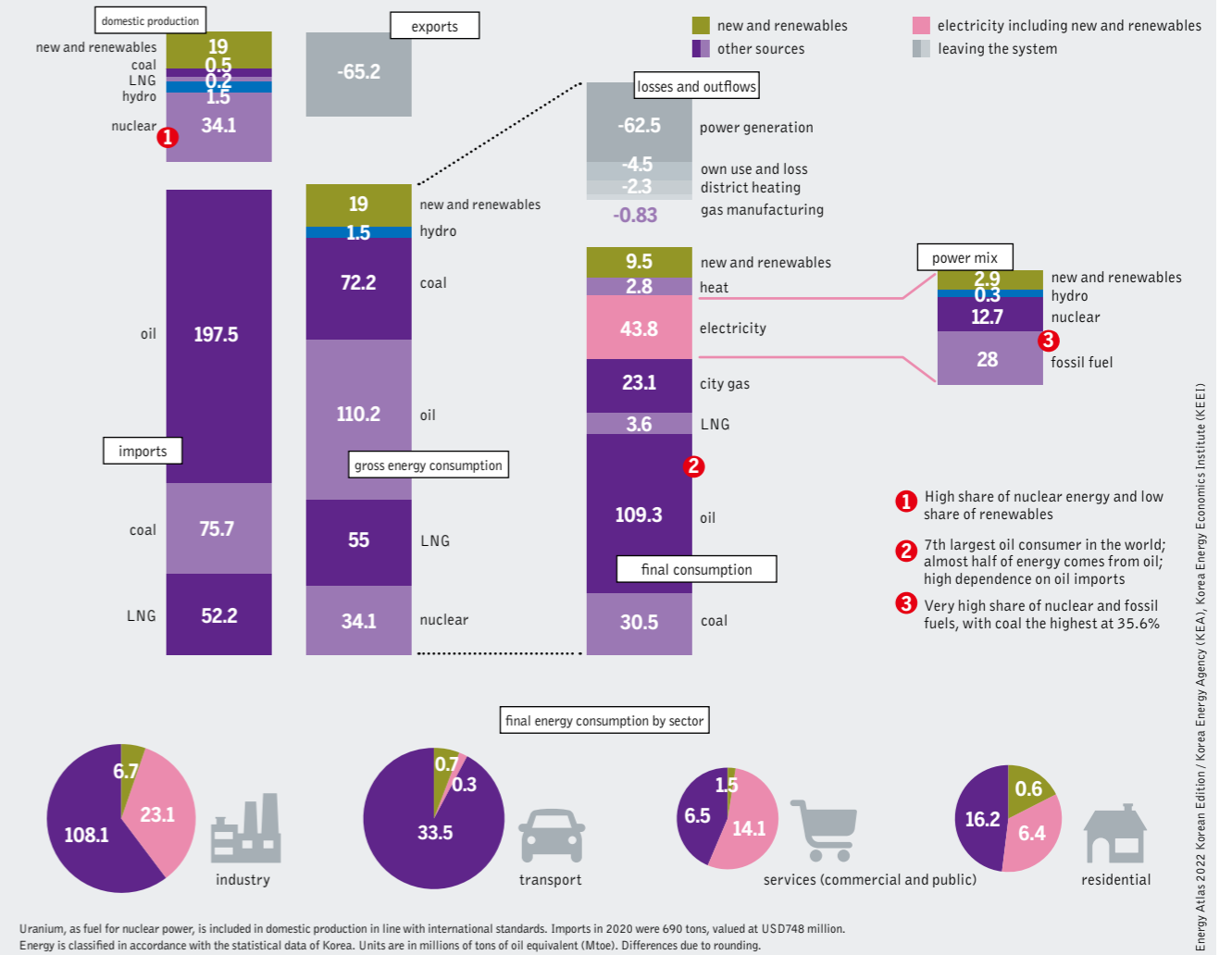
South Korea's steps toward energy transition began in December 2017, when President Moon Jae-in's administration developed the Renewable Energy 3020 Plan, with the goal of "transitioning to a participatory energy system that improves the quality of life". The plan went into effect in 2018, aiming to increase the share of electricity from renewable energy to 20%, and expanding cumulative capacity to 63.8 GW by 2030. The government addressed the need to reduce coal-fired power generation in its Third Energy Master Plan, which runs from 2019 to 2040. Also, tax rates were adjusted to favor green energy and by reducing incentives for the use of fossil fuels for power generation. These policies have led to a significant increase in newly installed photovoltaic capacity, from 1,362 MW in 2017 to 4,658 MW in 2020 and 4.8 GW in 2021. With the expansion of community

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## ENERGY FLOWS IN SOUTH KOREA

Total and share of new and renewable energy from production to consumption, 2020, million tons of oil equivalent, simplified representation



benefit-sharing schemes that invite local residents to participate in solar power projects and generate village income from the sale of electricity, people receiving "sunshine pensions" began to emerge. Farmers were encouraged to participate in renewable energy generation projects that contribute to their farm household income, thus coupling sustainable rural development and energy transition.

The goals of the Renewable Energy 3020 Plan were expanded in the upward revision of the Nationally Determined Contribution (NDC) to 30.2% renewables and 21.8% coal power, with the closure of over 24 ageing coal plants, by 2030. The Carbon Neutrality Scenarios finalized in October 2021 further expanded the plan, to increase renewable energy to 60-70% and completely phase out coal power generation by 2050. This was necessary to meet South Korea's responsibility in the international community and to address climate disasters that threaten the country's security. Despite practical issues such as cost, securing sites for solar and wind farms, and building a decentralized power grid, the plan was imperative for the survival of the planet and the sustainability of society.

However, this recently implemented energy transition strategy is already facing setbacks. In 2022, the new government finalized its Basic Plan for Power Supply and Demand, oriented toward a smaller share of renewable energy and a

*South Korea began its serious transition to renewable energy in 2018. However, the new government has backtracked with policies that reduce the share of renewables and increase that of nuclear power.*

larger share of nuclear power generation, citing the low feasibility of the previous plan. According to the 10th Basic Plan, renewable energy will account for 21.5% of electricity generation in 2030, a reduction of 8.7% from the revised NDC. In addition, the government has decided to reduce the mandatory procurement ratio of renewable energy for large power generators, which had encouraged the growth of renewable energy. It also announced the abolition of incentives for energy cooperatives, which served as a community benefit-sharing scheme, and the feed-in tariff program for small-scale operators.

As the world's 17th largest cumulative emitter of greenhouse gases, South Korea has a clear obligation to reduce its GHG emissions. This requires a greater impetus to its transition to renewable energy. An important element is grassroots participation by energy prosumers (consumers who produce, use, and sell their own energy), but it is also crucial to take action to correct policies that hinder the transition. Transition to renewable energy is a matter of survival for the country and the planet.