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South Korea to cut LNG in power mix to 9.3% in 2036, sharply raises role of nuclear energy

HIGHLIGHTS

Nuclear energy to form 34.6% of power mix in 2036

Coal's share to be reduced to 19.7% in 2030

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South Korea will raise its share of nuclear energy in the country's power mix to 34.6% in 2036 from 32.4% in 2034 and 23.4% in 2018 while sharply cutting roles of LNG and coal, in line with national efforts to reduce carbon emissions and power production costs, the Ministry of Trade, Industry and Energy said Jan. 12.

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Under the 2022-2036 Basic Plan for Power Supply, the share of LNG in the country's power mix will be lowered to 22.9% in 2030 and further to just 9.3% in 2036, compared with 29.2% in 2021 and 26.8% in 2018, the ministry said.

The Basic Plan also calls for cutting the share of coal in the power mix to 19.7% in 2030 and 14.4% in 2036, from 34.3% in 2021 and 41.9% in 2018.

The portion of nuclear energy in its power mix would rise to 32.4% in 2030 and further to 34.6% in 2036, compared with 27.4% in 2021 and 23.4% in 2018.

Renewable sources will be responsible for 30.6% of the power generation in 2036 and 21.6% in 2030, up from 7.5% in 2021 and 6.2% in 2018.

The move is part of the country's push to reduce its greenhouse gas emissions by 44% from 2018 levels by 2030 and reach carbon neutrality by 2050, according to the MOTIE.

"South Korea will actively use renewable energy sources and nuclear power plants and come up with a feasible and balanced energy mix amid the country's efforts to reach carbon neutrality," the MOTIE said in a statement.

The new power mix plan would add momentum to the nuclear-focused energy policy by President Yoon Suk-yeol, who has vowed to revive the nuclear power sector by reversing his predecessor's nuclear phase-out policy.

On Dec. 7, South Korea started commercial operations at the Shin Hanul-1 nuclear reactor with a capacity of 1.4 GW. The 1.4 GW Shin Hanul-2 reactor is scheduled to start up in September this year. South Korea is currently running 25 nuclear reactors with a combined capacity of 24.65 GW.

The MOTIE projected South Korea to need a total of 143.9 GW of power capacity by 2036 to meet maximum power demand of 135.6 GW and manageable demand of 118 GW for the year.

New power production facilities would be largely renewables-based, the capacities of which would rise to 108.3 GW in 2036 from 29.2 GW in 2022. Nuclear capacity would rise to 31.7 GW in 2036 from 24.7 GW in 2022.

Despite a smaller role in the power mix, LNG's power production capacity is set to climb to 65.6 GW in 2036, from 41.3 GW in 2022, which would be ready to operate when power demand rises in the peak seasons of winter and summer.

A total of 28 aging coal power plants will be converted to LNG power plants by 2036. The capacity of coal-fired power plants would be 27.1 GW in 2036, down from 38.1 GW in 2022, according to the Basic Plan.

To meet the target, a total of 17 coal-fired power plants will be retired while plans to build three large coal power plants would be scrapped, which will reduce the country's coal-fired power plants to 41 in 2030, from 58 currently.

"The country will push for power generation from hydrogen and ammonia, which would help reduce shares of LNG and coal," the MOTIE said, adding that the combined share of hydrogen and ammonia in the power mix would be 2.1% in 2030 and 7.1% in 2036, compared with none currently.