

2035 NDC and Carbon Neutrality in Korea

South Korea is pursuing ambitious climate goals through its 2035 Nationally Determined Contribution (NDC) and its long-term objective of achieving carbon neutrality by 2050. While national greenhouse gas (GHG) emissions have shown a gradual decline—reaching an estimated 691.6 MtCO₂eq in 2024—sectoral trends vary significantly. Emission reductions in the power sector have been driven by a declining share of coal and increased deployment of nuclear and renewable energy, whereas emissions from energy-intensive industries such as steel, petrochemicals, and cement remain challenging due to structural dependence on fossil fuels. The 2035 NDC targets a 53–61% reduction from 2018 levels, with particularly strong mitigation efforts in power generation and transport. Key strategies include coal phase-out, large-scale renewable expansion, electrification of transport, and the deployment of innovative industrial technologies such as hydrogen-based steelmaking and carbon capture, utilization, and storage (CCUS). A robust legal and institutional framework underpins these efforts, including the Carbon Neutrality Act, the Korea Emissions Trading Scheme (K-ETS), and the K-GX strategy, which aims to enhance the competitiveness of green industries. However, rising electricity demand—driven by electrification, high-tech manufacturing, and data centers linked to AI—poses significant challenges for energy security and grid stability. Addressing these challenges will require substantial investment, technological innovation, and coordinated public-private engagement, while also creating new growth opportunities in climate technologies and green industries.