Center for Global Sustainability

2035 NDC Assessment: Saudi Arabia

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This analysis is part of the Center for **Global Sustainability (CGS): Country Climate Ambition Project**, which presents a set of detailed, country-specific analyses in a consistent, robust, and integrated approach with the goal of informing individual country ambition and supporting the Paris Agreement's NDC process. With in-depth assessments of key emitting countries, the Country Climate Ambition project provides the latest summary—with regular updates—of analyses on plausible, High Ambition country pathways that are based on CGS's field-leading modeling, data-driven empirical analyses, deep country knowledge, international research collaboration, and strategic policy engagements. For additional analysis and information, please see our website: https://country-ambition.cgs.umd.edu/.

Summary

This assessment shows that Saudi Arabia's 2035 Nationally Determined Contribution (NDC) reflects a highly uncertain level of ambition, as it lacks absolute and quantifiable emissions reduction objectives. As a result, the new target does not represent an improvement in quality relative to the previous 2030 NDC. Saudi Arabia's latest NDC commits to reducing its greenhouse gas (GHG) emissions by 335 $MtCO_2e$ below an unspecified business-as-usual (BAU) scenario by 2040, with no target specified for 2035. In contrast, under the CGS *High Ambition* pathway, Saudi Arabia's emissions decline by 35-39% from 2023 levels by 2035.

In December 2025, Saudi Arabia released its latest NDC, which commits to reducing its GHG emissions by 335 $MtCO_2e$ below a BAU scenario by 2040, with no target specified for 2035.[1] The country aims to achieve net zero emissions by 2060.[2] The reduction target for the new NDC is calculated relative to a "Dynamic Baseline - Scenario 1," which assumes economic diversification alongside continued contributions from oil and oil-derivative exports. However, neither this scenario nor the underlying BAU pathway values are specified in the NDC.[1]

Saudi Arabia's emission trends are consistent across inventories. According to the country's 2024 Biennial Transparency Report (BTR),[3] total GHG emissions were 709 $MtCO_2e$ in 2021 (including Land Use, Land Use Change, and Forestry (LULUCF)), representing a 7% increase from 2019 levels (using the IPCC AR5 GWP-100). According to the BTR, LULUCF was a net sink, while energy accounted for 81% of emissions excluding LULUCF, followed by Industrial Processes and Product Use (IPPU) (12%), waste (6%), and agriculture (1%) in 2021. PRIMAP-hist[4] shows that emissions in Saudi Arabia have increased, rising by over 20% (4% per year on average) between 2018 and 2023. Furthermore, Saudi Arabia has one of the highest per capita CO_2 emissions at 15 tons per person annually, surpassing those of the United States and nearly double that of China.[5]

Emissions from the power sector are increasing due to a rise in gas generation from 224 TWh in 2019 to 288 TWh in 2024.[6] As of 2024, gas and oil accounted for 63% and 35% of Saudi Arabia's total electricity generation, respectively, while solar and wind contributed just 2% combined.[6] Solar and wind deployment has been slow, reaching less than 5 GW in 2024.[6]

According to our analysis, **Saudi Arabia's new NDC target is highly uncertain due to the ambiguous BAU baseline, making it difficult to estimate future emissions and compare them with current levels.** Similarly, it is not possible to determine whether the new NDC represents an increase in ambition compared to the previous 2030 target, which also relied on an unspecified BAU and aimed for a reduction of 278 $MtCO_2e$ by 2030.[7] While the new NDC claims an increase in ambition relative to previous submissions (20.5% from the 2030 NDC), these claims lack clear supporting data.

In comparison, **the CGS *High Ambition* pathway for Saudi Arabia shows declining emissions by 2035.** Under this pathway, total GHG emissions (including LULUCF) begin to decline rapidly after 2025 due to the high share of power sector emissions and the potential to scale up low-carbon generation, **decreasing by over 32-36% by 2030 and by 43-47% by 2035, compared to 2023 levels** from the PRIMAP-hist dataset. The 2035 emissions under the CGS *High Ambition* pathway decline by 36% from 2021 using the national inventory values, as they are lower than global inventory estimates**.**

The new NDC also reflects limited progress in quality compared to the previous 2030 NDC, as it lacks absolute, quantifiable reduction objectives and does not include targets for 2035, limiting near-term ambition. Furthermore, the new NDC is based on a scenario that assumes a continued strong role for fossil fuels. Higher reductions from BAU than those proposed would be possible if the emission scenario reflected a more diversified economy and significant transformations in the power sector.

Saudi Arabia has the potential to accelerate solar deployment, displacing oil-based power generation and eventually some existing gas generation, while halting the expansion of fossil fuel power plants. Additionally, the country has the potential to peak and begin reducing emissions in

the transportation sector, the second largest source of emissions,[5] as transport electrification has begun with the import of Chinese electric vehicles (EVs).[8]

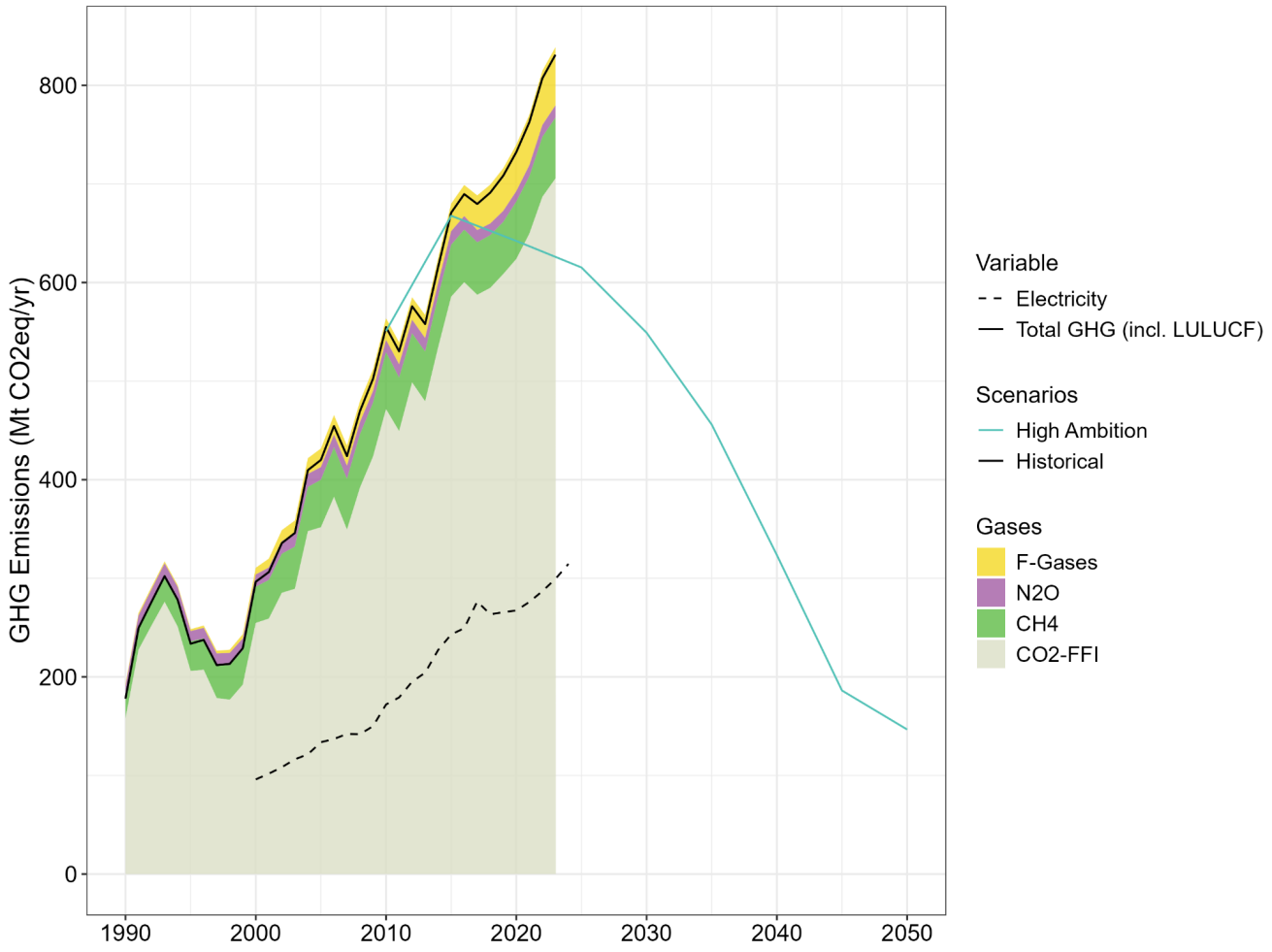

Figure 1. Saudi Arabia's GHG emission pathways (including LULUCF). Historical data is from PRIMAP-hist[4] (solid black line for total GHG, including LULUCF), Ember[6] (dashed black line for electricity GHG), and CEDS[9] (colored breakdown of historic GHG emissions, with F-Gases from PRIMAP-hist). CO_2 FFI refers to CO_2 from fossil fuel combustion and industrial processes. Pathways data includes LULUCF emissions and is based on the scenarios developed using the GCAM model from the NGFS Phase V with adjustments,[10] downscaled from the Middle East region. The shaded area represents +/- 2% of NDC base year emissions.

References

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