

## Kongres Container

# South Korea s wind solar storage and transmission integration



## Overview

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How will South Korea transform its energy sector?

The country has unveiled an ambitious plan to transform its energy sectors, aiming to generate 70 per cent of its electricity from carbon-free sources by 2038. South Korea aims to have 30 nuclear plants by 2038 and to more than triple its solar and wind power output to 72 GW by 2030.

Can South Korea's energy grid integrate variable renewables without coal?

Declined clean energy costs can reduce electricity supply costs by 23%–40% compared with 2022. Hourly dispatch simulations indicate that South Korea's grid can integrate high levels of variable renewables without coal generation or new natural gas power plants.

Does South Korea have an energy transition?

We thus present a comprehensive perspective on Korea's energy transition in the power sector. South Korea relies on imported fossil fuels for over 60% of its electricity generation, making it vulnerable to energy security risks and fuel price volatility.

Why is grid integration important in South Korea?

Overall, grid integration is crucial to facilitate the country's energy transition. South Korea's sole transmission and distribution grid operator, Korea Electric Power Corporation (KEPCO), is expanding its network across the country, particularly along the western coast, to accommodate the increasing demand.

Does South Korea need a power generation and transmission plan?

The increase in energy consumption resulting from the rapid development of the global economy is a major concern in several countries, including South Korea. The government should periodically formulate an effective power generation and transmission plan to address this issue.

Can South Korea decarbonize the power sector?

In South Korea the two main solutions pursued for the decarbonization of the power sector are nuclear and renewable energy. While the country has managed to establish itself as a world leader in nuclear power, it has not yet succeeded in significantly expanding renewable energy electricity.

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