Little known fact: The ninth largest carbon emitter in the world is South Korea. What is South Korea doing to cut its emissions? That answer, in brief, is that it has adopted the right kinds of policies, but may need to up its level of ambition. Even so, it compares favorably with the national governments in places like the U.S. and Australia.

Here's some background on the country for those whose knowledge mostly derives from watching reruns of MASH. South Korea is one of the world's great economic success stories, going from an impoverished agricultural country at midcentury to a developed country today. Currently, despite its relatively small population of about fifty million, it's the world's twelfth largest economy — about the same size as Russia's economy. It has also gone from being a military dictatorship to a robust democracy.

With economic growth have come carbon emissions. As of 2016, half of its total emissions are from the power sector, with 20% from industry and 15% from transportation, and

According to the Energy Information Agency, South Korea's power sector is heavily reliant on fossil fuels. Two thirds of generation capacity is based on fossil fuels, split evenly between coal and natural gas, with 17% nuclear, and 14% hydro and other renewables. 50% coal, 26% gas, and 25% nuclear. Renewables are relatively small, at only 6%, but growing rapidly, having doubled from 2010 to 2019. Actual generation is tilted a bit more toward fossil fuels and nuclear. The EIA reports that:

> "Fossil fuel sources accounted for about 69% of South Korea's electricity generation in 2019, and the share of nuclear power accounted for 25% . Coal-fired power, which is a baseload source, is the dominant fossil fuel used to generate electricity (40%), and natural gas-fired capacity is the second-largest source (26%)."

Almost all the fossil fuels are imported, so this dependence on fossil fuels translates into a vulnerability to shifts in global markets such as the price surges stemming from the Russian invasion of Ukraine.

South Korea has made significant international climate commitments. In 2021, South Korea set a target under the Paris Agreement of a 40% cut from 2018 levels by 2030. Last year, South Korea promised to halt financing for coal projects in other countries immediately. South Korea also agreed to join the Global Methane Pledge and cut emissions one third by 2030.

Briefly, here is what South Korea is doing in terms of implementation. A law on “green growth” requires carbon neutrality by 2050. An electricity plan published in December 2020 calls for a 2030 power of mix of one-third coal, with the remainder divided roughly equally between nuclear, liquid natural gas, and renewables. Critics argue that Korea needs to phase down coal much more quickly than that. Last year, South Korea strengthened its renewable portfolio standard to 25% renewables by 2034 The government hopes to reduce electricity consumption 14% by 2030.

Since 2015, South Korea has had an emissions trading system that covers the power sector and industrial sources. Heavy industry like steelmaking and shipbuilding are an important part of the country’s economy, and decarbonizing them will be a challenge. The government has also pledged that a third of new cars will be electric or hydrogen by 2030.

At the moment, South Korean climate policy is in flux. In March, the Conservative Party won a narrow electoral victory, making Yoon Suk-lyeol president. Yoon is committed to the “40% by 2030” national climate target. He is a strong believer in nuclear energy as a key part of the energy transition. What he does while in office remains to be seen.