

PRESS RELEASE

South Korea's bet on hydrogen may cost its commitment to the Global Methane Pledge

South Korea has one of the most ambitious hydrogen plans in the world. But the plan relies heavily on fossil gas, contrary to its climate goal.

September 14, 2022 – South Korea is jeopardizing its ability to meet its 2030 methane reduction target under the [Global Methane Pledge](#) due to the country's plans to massively expand fossil hydrogen, according to a recent [study](#) by Seoul-based Solutions for Our Climate.

In 2020, South Korea passed the first hydrogen law in the world, aiming to become a global leader in hydrogen vehicles and fuel cells. This is part of an international drive to use hydrogen to decarbonize hard-to-abate sectors, such as steelmaking and shipping.

However, greenwashing is on the rise as fossil fuel interests promote gas-based “blue” hydrogen as a low-carbon fuel. Unlike renewable-based “green” hydrogen, blue hydrogen is made from fossil gas, which releases massive amounts of greenhouse gas emissions. In 2020, [hydrogen demand](#) reached about 90 million tons globally, of which almost all were sourced from fossil fuels, resulting in 900 million tons of CO₂ emissions.

The climate impact of blue hydrogen hinges upon the effectiveness of carbon capture and storage (CCS). However, a recent [report](#) from the Institute for Energy Economics and Financial Analysis finds that there is a dearth of successful, scaled-up CCS projects and that green hydrogen is better than CCS. Even with the use of CCS, blue hydrogen is highly [emission-intensive](#) to produce.

CCS is only able to capture CO₂ at most 85 percent and does not include the massive amount of methane emissions during the lifecycle of gas production. Methane is 86 times more potent in warming the planet than CO₂ within the first 20 years of emission.

Despite such environmental concerns, South Korea is aiming for an annual production of 27.9 million tons of hydrogen by 2050, which includes “clean” blue hydrogen. In addition, over 80 percent of the country’s total hydrogen supply is expected to be imported. Hence, the “clean” nature of its hydrogen plan relies heavily on overseas energy plans and hydrogen development.

According to the government’s [First Basic Plan for Implementation of the Hydrogen Economy](#), South Korea plans to work with countries such as Australia, Canada, and

Chile for hydrogen production. However, Australia and Canada are currently under criticism for their expansion of fossil gas and blue hydrogen. It is important to note that South Korea is the world's largest [public financier](#) of overseas oil and gas, and such investment may rise with its hydrogen ambitions.

Within South Korea, the government plans to produce close to 90 percent of its hydrogen from fossil fuels by 2030, and 40 percent by 2050. The study finds that as a result, South Korea is expected to emit over 30 million tons of greenhouse gas emissions in 2030 alone under the government's hydrogen roadmap - *equivalent to around 6 million passenger vehicles*. This is 20 percent more emitting than burning fossil gas for the same amount of energy.

The Global Methane Pledge, signed by over 100 countries including South Korea, aims to reduce global methane emissions by at least 30 percent from 2020 levels by 2030. South Korea has pledged to lower its domestic methane emissions by 395,000 tons by the end of this decade. However, the country is expected to release over 183,000 tons of methane from hydrogen production and transportation, in addition to the likely huge amounts of emissions from imported hydrogen.

"Blue hydrogen is a critical part of the fossil gas supply chain. It is justifying South Korea's expansion of fossil gas and could lead to a long-term carbon lock-in, in the name of "clean" hydrogen," said **Dongjae Oh, the oil and gas finance program lead at Solutions for Our Climate**. The International Energy Agency [advises](#) that advanced economies decarbonize their electricity sector to be 1.5C-aligned. "South Korea's Hydrogen Roadmap started as a climate initiative, but it plans to ramp up its dependence on costly fossil fuel imports rather than investing in renewables."

Environmentalists are also taking action against greenwashing of blue hydrogen. For example, South Korean gas giant [SK E&S](#) and its Australian business partner [Santos](#) have both been legally challenged for making misleading claims about hydrogen as "clean" despite plans to burn large amounts of fossil fuels. Both companies are behind the highly controversial [Barossa gas project](#) that aims to supply blue hydrogen in South Korea and Japan.

"Blue hydrogen will undoubtedly pave the way for more fossil gas in Asia. We must be very selective about which sectors will benefit from hydrogen and only utilize renewable-based green hydrogen," said Oh. "We urge South Korea to leverage its technological and financial capacity to expand green hydrogen and renewables in the region, not more fossil fuels."

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Solutions for Our Climate (SFOC) is a South Korea-based group that advocates for stronger climate policies and reforms in power regulations. SFOC is led by legal, economic, financial, and environmental experts with experience in energy and climate policy and works closely with policymakers.

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