

New technology to turn fossil fuels into products does not emit CO₂

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Ohio State University engineers have invented a process to convert shale gas into products such as methanol and gasoline, all of which are now exhausted.

This new process can also be applied to coal and biomass to create useful products, researchers wrote in the journal Energy and Environmental Science.

Under certain conditions, this technology consumes all the carbon dioxide that it produces along with additional carbon dioxide from external sources. Researchers have also found a way to extend the life of particles to allow chemical reactions to convert coal or other fuels into electricity and useful products for commercial operations.



The team has discovered a new potential conversion mechanism, which helps lower the cost of capital in producing a gas fuel called syngas down to about 50% compared to traditional technology. This technology is called a chemical loop that uses metal oxide particles in high-pressure reactors to burn fossil fuels and biomass without the presence of CO₂ in the air. Metal oxide provides oxygen for this reaction.

Researchers said the chemical loop could act as a deterrent technology, which could provide clean electricity temporarily until renewable energy such as solar and wind became widespread, with affordable prices.

"Renewable energy is in the future. We need something more sustainable to wait until next 30 years or more, until solar and electricity, wind becomes popular technologies , " Liang said. -Shih Fan, who led the project said.

Engineers also developed this method to produce syngas, thereby providing building blocks for a range of other useful products including ammonia, plastic or even carbon fiber.

According to the researchers, this transition technology also means to provide the industry with the potential to use carbon dioxide as a raw material to produce daily useful products.

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