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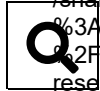
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UT researchers discover method to convert untapped oil into clean hydrogen energy source



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Oil Pumpjack, Midland, TX

Katy Nelson (https://thedailytexan.com/staff_name/katy-nelson/), News Reporter
September 14, 2021

Editor's Note: This article first appeared as part of the September 10 flipbook.

UT researchers discovered a way to convert untapped oil into clean hydrogen energy, which could change how cars are powered and lower pollution.

Researchers used a method of oil recovery, which utilizes oxygen to create a combustion reaction to produce the hydrogen and carbon dioxide while using filters to keep the carbon dioxide in the reservoir. The



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Hydrogen energy is considered a significantly cleaner resource than the petroleum that's currently used for combustion engines. Research associate Joshua Rhodes said that hydrogen burns similar to gasoline, but hydrogen creates water as a by-product instead of carbon dioxide with oil.

"Hydrogen is a secondary greenhouse gas," Rhodes said. "It can have the effects of a greenhouse gas, but its impact is much lower than something like methane or (carbon dioxide)."

Research program director Ian Duncan said it could take a long time for hydrogen to replace petroleum products. And even if all cars are converted to hydrogen energy, it will be very expensive. The researchers have not been able to exactly determine the cost to create the hydrogen energy.

Duncan said electricity could also utilize the hydrogen energy reaction they created with oil by using electricity as the catalyst to transport hydrogen throughout pipelines around the state.

"When you move electricity on the transmission pipeline you lose 20-25% of electricity because it gets wasted due to heat loss through the lines," Duncan said. "So you're losing it, whereas if you move the energy in the form of hydrogen, there's very little loss at all."

Additionally, more energy can be extracted using the hydrogen process. Duncan said more researchers can extract hydrogen energy from almost all the oil stored in fields, but traditional petroleum extraction can only retrieve half of the oil in fields.

"When you produce an oilfield about half of the oil is left behind," Duncan said. "You can't ever get it out of the ground, but you could convert it into hydrogen and you'd have a source of hydrogen that didn't depend on either



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funding to advance the project, Duncan said.

“It’s not going to be easy,” Duncan said. “But if we can make it happen then there would be a huge amount of energy in the United States that would suddenly become available in a very clean form.”

The Department of Energy recognized the team at a workshop in July. Mark Shuster, deputy director of research at the bureau of economic geology, said the team is hoping the department’s interest could lead to funding opportunities at UT.

Rhodes said the change from petroleum to hydrogen could be difficult, but the environment would be a lot cleaner.

“We will see an immediate increase in the local air quality,” Rhodes said. “A lot of haziness or smog (is) induced by the exhaust and they come out of vehicles so if all that were taken away, then the air would be a lot cleaner.”



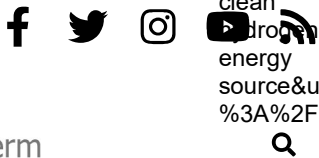
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