

# Carbon Capture Won't Save Oil and Gas

By Ian Palmer

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Emissions rise from the Royal Dutch Shell Plc Norco Refinery in Norco, Louisiana.

Luke Sharrett/Bloomberg

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If the world is [serious](#) about reducing greenhouse gases, the fossil fuel industry is the place to start. Fossil energies provide 83% of the world's energy and 73% of the world's greenhouse gases. The oil and gas industry alone provides 57% of the world's energy and 50% of the world's greenhouse gases.

A new report suggests that the fossil fuel industry is heading in the wrong direction with emissions. Conducted by the Stockholm Environmental Institute for the U.N., the [Production Gap Report](#) evaluated 15 large fossil-fuel-producing countries against the Paris Agreement, including Australia, Russia, Saudi Arabia, the U.S. and the U.K.

It notes that to keep temperature rise below 1.5 degrees Celsius by 2100 requires a 45% cut in total global greenhouse gas emissions by 2030, based on 2010 levels. Yet by 2030 these 15 countries are essentially ramping up fossil fuel production, not curbing it. The nations are planning to produce 110% more fossil fuels than would be compatible with a 1.5 C rise. By 2040 the excess grows to 190%.

Reducing greenhouse-gas emissions by transitioning to renewable energy is a major dilemma for energy companies because in the meantime the world still needs fossil fuels. If oil and gas production stopped immediately the world would starve. Food is transported by trucks, rail, and ships that run on oil and gas. If fossil-fuel production stopped completely, there would be no more electricity, heat and air conditioning, or power to drive businesses that manufacture steel and cement.

However one can already feel the sentiment around oil and gas changing. Depending on regulations, in the near future the oil industry must either cut back on production enough to meet the Paris climate goals or it must reach for an escape hatch and get rid of its greenhouse emissions using carbon capture and storage.

Carbon capture and storage—collecting greenhouse gases and burying them deep underground in a nonleaking rock layer—is promising technology. But it is unknown whether carbon capture can grow fast enough to meet the enormous challenge.

Robert Balch at New Mexico Tech says carbon capture and storage is the [only method](#) that can be scaled up to meet the requirements of the Paris Agreement. But doing so may prove prohibitively expensive. An infamous experiment called Petra Nova tested carbon capture from a power-plant chimney in Texas and used the collected bounty of CO<sub>2</sub> to produce extra oil from an old oilfield. The project closed down when the price of oil fell below \$50 per barrel. The extra steps of capturing and storing carbon proved to be an unbearable cost.

Currently, 65% of the carbon capture and storage market is in the U.S., with about 10% each in Europe, Australia, and the Middle East. ExxonMobil is storing 9 million metric tons of CO<sub>2</sub> each year, equivalent to the exhaust emissions of 11 million cars per year. Exxon plans to invest \$3 billion on 20 new carbon capture and storage facilities because the company sees it as an expanding industry and a way to keep pumping.

Occidental Petroleum is building a direct-air-capture wall of fans in West Texas that will suck in air and separate the CO<sub>2</sub> for underground injection in old oil fields. The company envisions a whole new line of business that will assist other companies to get rid of their CO<sub>2</sub>.

The U.S. and U.K. governments have offered funding to research and field-test carbon capture and storage, also seeing it as a necessity and an expanding industry.

However, last year carbon capture stored only a puny 40 Mt/year. The energy consultancy [Rystad predicts](#) the carbon capture industry will need to grow to 400 Mt/year by 2030, an increase of 10 times, and 8,000 Mt/year by 2050, a total increase of 200 times, to meet Paris goals of net-zero emissions by 2050. This would represent a 20% growth in carbon capture and storage year-over-year—a scenario that’s hard to fathom. The carbon capture industry would grow as big as the present oil and gas industry by 2050, according to Rystad.

The fossil-energy production gap will make this growth impossible to achieve. The cost of producing fossil fuels combined with paying for carbon capture and storage will make fossil fuels [more expensive](#) than renewables. Consumers will switch. With oil now trading [near \\$80](#) per barrel, it’s hard to see the U.S. oil and gas industry cutting back production voluntarily. The industry is leaning into carbon capture to get rid of greenhouse gases, but it is a temporary—and currently miniscule—solution to a persistent problem. Eventually, demand for fossil fuels will fall in the U.S. due to electrification of vehicles and renewable energy replacing fossil power plants, and this will change the game.

Carbon capture and storage is offered as a compromise between the fossil fuel industry and climate agendas, but it won’t be cheap enough or quick enough to save oil and gas.

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