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Exxon Mobil Promises Net-Zero Emissions For The Permian, But It's Unsure Footing On The Climate Path.



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Energy

I write on fossil energy, climate, and the transition to renewables.

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On December 6, Exxon Mobil announced its oil and gas operations in the

Permian basin would aim at net-zero emissions by 2030. What does this mean exactly?

Many countries and companies have adopted the Paris-inspired goal of net-zero GHG emissions by 2050. Net-zero isn't the same as actual zero. Net-zero means leftover GHG emissions must be removed from the air (called direct-air-capture) or collected before release into the air and burying them deep underground (called carbon capture and storage or CCS). Net-zero is an escape hatch because actual zero would be impossible to achieve by 2050.

Oil and gas will play a [critical role](#) for decades, especially as the world's population nears 10 billion, according to American Petroleum Institute. This has been echoed by other oil and gas leaders, including Exxon Mobil.

A larger question is how can companies like Exxon Mobil deal with the climate dilemma: oil and gas companies produce 57% of the world's energy and are responsible for 50% of global greenhouse gas (GHG) emissions.

Permian basin.

The Permian basin extends from West Texas into New Mexico where it's called the [Delaware basin](#). It's the premier shale oil and gas basin in the US and one of the biggest in the world. As assessed by the US Geological Survey, the Delaware sub-basin contained 46 billion barrels of oil and 281 Tcf of natural gas plus 20 billion barrels of NGLs (natural gas liquids).

In 2017, Exxon Mobil bought [Bass family's holdings](#) in the Delaware sweetspot for \$5.6 billion, and became a big player in the Delaware basin. In March of 2019, the company was making 200,000 boepd, but they announced [their goal](#) for the Permian was 1,000,000 boepd by 2024 —almost a fifth of total Permian production projected.

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Source of emissions.

There are three sources of GHG emissions in an oil and gas play that Exxon Mobil has to address. The first is flaring of wells, or burning of gas that doesn't have a pipeline to transport it to sales. The gas doesn't have as much value as oil, and an operator may decide it doesn't make financial sense to stop the well flowing oil and gas when the gas can simply be burned off. Across the world, 25% of such associated gas is flared or vented – an enormous waste.

Exxon Mobil plans to [reduce flaring](#) volumes 75% by end of this year, compared with 2019.

Since 2015, the World Bank has established a goal of zero routine flaring emissions by 2030. 49 oil companies have signed on, but [not Exxon Mobil](#). Shell, who joined previously, raised their goal by committing to zero flaring by 2025.

The second source of GHG emissions is [methane leaks](#) from wellheads, storage tanks, and pipelines. Methane is a more powerful warming gas, if it's not burned to CO₂, and compelling data collected by EDF (Environmental Defense Fund) have shown that plugging such leaks is the best way to slow global warming right now.

Exxon Mobil are setting up ground-based detectors at well sites in the

Permian basin, and when integrated with satellite data, will give a clearer picture of where the leaks are. Such methane leaks are more potent to global warming than is gas flaring because flares burn methane to CO₂ which is less warming than methane.

The third source of GHG emissions in the upstream oil and gas sector is from pumps and motors that burn diesel or gasoline fuel during wellsite operations. Fracking pumps burn a tremendous amount of diesel fuel because they pump, in a typical shale well, enough water to cover the grassed area of a football stadium to a height of about 40 feet.

One answer is to deploy gas turbines to provide part of the fracking power. Even lower emissions can be achieved by electrifying the equipment by purchasing wind or solar power. Exxon Mobil said they [would be looking](#) to “increase availability and reliability of carbon-neutral power in the region, including wind and solar.”

On The Climate Path.

Exxon Mobil, the second-largest oil company in the world, hasn't always been focused on climate change and reducing GHG emissions.

In a [news release](#), on March 5, 2019, “ExxonMobil XOM +1.2% said it has revised its Permian Basin growth plans to produce more than 1 million oil-equivalent barrels per day by as early as 2024 – an increase of nearly 80 percent and a significant acceleration of value.”

“ExxonMobil is actively building infrastructure to support volume growth. Plans include construction at 30 sites to enhance oil and gas processing, water handling and ensure takeaway capacity from the basin.

Construction activities include central delivery facilities designed to handle up to 600,000 barrels of oil and 1 billion cubic feet of gas per day and enhanced water-handling capacity through 350 miles of already-constructed pipeline.”

But Exxon Mobil are not on the current World Bank list of 49 oil companies that have endorsed zero routine flaring by 2030.

Chris James, founder of the hedge fund Engine No. 1, [said recently](#) at the Reuters Next Conference that Exxon Mobil has kept investing in new oil and gas projects, while other big companies like bp have begun divesting from fossil fuels and developing renewable energies.

Previously, Engine No. 1 had nominated to Exxon Mobil's board four people who had experience in energy transition, and three were elected earlier this year.

But James is still critical of the company. "This is a company that has lost its social license...It needs to look at the energy transition as an opportunity to be part of the solution instead of the problem."

And, referring to Exxon Mobil's workforce, "Management has prevented these engineers from unleashing the power they have to create value in the energy transition," James said.

On the other hand, Exxon Mobil have a lot of experience in CCS technology. An Exxon Mobil project in Wyoming injects CO₂ from a gas plant into 14 CO₂-EOR reservoirs. And six CO₂-EOR projects in Oklahoma and north Texas inject CO₂ obtained from ethanol, cement and fertilizer plants.

Since 1970, ExxonMobil [has stored](#) 20 Mt (million tonnes) of CO₂ – equivalent to 25 million cars exhausts in one year. The company is storing 9 Mt of CO₂ each year, equivalent to 11 million car exhausts each year, and plans to invest \$3 billion on 20 new CCS facilities – some to bury CO₂ from other industries, such as cement or steel plants.

ExxonMobil have formed a new business unit called Low Carbon Solutions. The company envisages a \$100 billion consortium of oil and gas

entities and government to capture then bury GHG under the Gulf of Mexico.

Takeaways.

Major oil and gas companies the world over are faced with a dilemma: They provide an outsize fraction of cheap and reliable energy that has benefited the world tremendously, but use of this energy has resulted in a disproportionate amount of greenhouse gas emissions that threaten the globe.

Each oil major is wrestling with how to cut back, and by how much, the GHG they are responsible for.

Exxon Mobil has identified one basin that will gear oil and gas operations to net-zero in just 9 years. This is part of a larger effort to cut GHG emissions in their upstream sector by 40-50% by 2030 (based on 2016 levels).

One headwind facing every oil and gas company is this: Making a transition to renewables entails 7-10 years to pay back investment. This is too long for profit-driven companies.

“A balance needs to be sought between investment recovery and climate action. We don’t have a model for this,” [said Hisham Zubari](#), Senior Advisor, National Oil and Gas Authority, Bahrain.



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