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The Permian natural gas problem is growing

Natural gas is flared, or burned off, at a plant in Garden City, Texas, in 2015. (Spencer Platt / Getty Images)

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America's top shale field is becoming increasingly gassy as drilling slows down, undercutting profits for explorers at a time when investors are demanding better returns.

Natural gas has long been a nuisance in the Permian Basin in Texas and New Mexico, where a massive glut weighs on prices, with crude producers sometimes having to pay to get it hauled away or burn it off in a controversial practice known as flaring. Now the problem is intensifying as wells age and fewer new wells are drilled.

Shale wells produce a spew of oil when they're first fracked, but over time, production falls — sometimes as much as 70% in the first year — and gas can more than double, becoming a bigger part of the mix.

It's an issue that's made worse when subsequent wells are drilled too close to the initial one or when there's interference from another producer's neighboring wells.

Diamondback Energy Inc. emerged in November as a victim of this phenomenon when it reported third-quarter well results that were disappointingly gassy. The percentage of oil was 65%, the lowest since at least 2011.

Then there's the fact that in recent years investments have shifted to the western part of the Permian Basin known as the Delaware, where output is much gassier than in the eastern Midland portion.

"Almost all, if not all, of the gas supply growth next year is coming from the Delaware Basin, whereas most other basins are staying flat or even decreasing," said Ryan Luther, a senior research associate for RS Energy Group Inc. "It's something that can be particularly challenging for the Permian operators because there is that pipeline constraint."

In April, gas traded at the Waha hub in West Texas dropped to minus $4.63 per million British Thermal units. In other words, producers had to pay to get their gas taken away.

Smaller producers with rising gas ratios have taken the hardest hit as prices tanked. Over the last year, Approach Resources Inc. has reported oil production that was less than one quarter of its total output. The company filed for bankruptcy protection in November.

Rather than pay to have more of their gas taken away, producers in the Permian are already burning off record levels of it. The Texas Railroad Commission, which oversees the oil and gas industry in the state, has granted nearly 6,000 permits this year allowing explorers to flare or vent natural gas. That's more than 40 times as many permits as granted at the start of the supply boom a decade ago.

Flaring gets rid of the methane, but it still releases carbon dioxide and other particulates into the air. The agency's tendency to approve all flaring permits is the subject of a lawsuit brought by pipeline operator Williams Cos. The company recently lost a case in front of the commission, arguing that producer Exco Resources Inc. should use Williams' pipeline system instead of burning off unwanted gas.

U.S. Energy Secretary Dan Brouillette put the Permian's gas problem down to infrastructure. "Even if we could capture the gas, it's not clear we could get it to the marketplace," he said last week. "We just need more pipeline capacity."

Not everyone agrees. "Pipeline capacity is going to end up helping, but it's not going to solve the issue," said Colin Leyden, senior manager of regulatory and legislative affairs at the Environmental Defense Fund in Texas. "Folks are absolutely fed up with the amount of waste and pollution coming from the Permian Basin."