Reuters Events

US OIL PRODUCERS SEIZE ON AI GAINS TO BOOST EFFICIENCY, SCALE

Image: REUTERS/Eli Hartman

INVESTMENTS AND APPLICATIONS

U.S. onshore oil and gas operators are doubling down on AI to increase productivity in exploration and production (E&P) and central operations in 2026-2027.

AI and advanced data technology are driving substantial value across core operations in the oil and gas sector. These technologies can optimize drilling, seismic data analysis and predictive maintenance and drive greater efficiency in midstream and downstream activities.

Majors like Chevron and ExxonMobil are investing in AI, along with smaller firms such as Devon Energy and SM Energy.

"For a large international oil company, these investments are anywhere from $20-to-$50 million on an annual basis," Nikhil Ati, Partner at consultancy group McKinsey, told Reuters Events.

The investment of the "typical large independent, I think this is in the range of $10-to-$15 million a year," Ati said.

AI and generative AI currently make up less than 20% of total IT spending by U.S. oil and gas companies but are expected to reach more than 50% by 2029, Deloitte stated in its 2026 Oil and Gas Industry Outlook in October 2025.

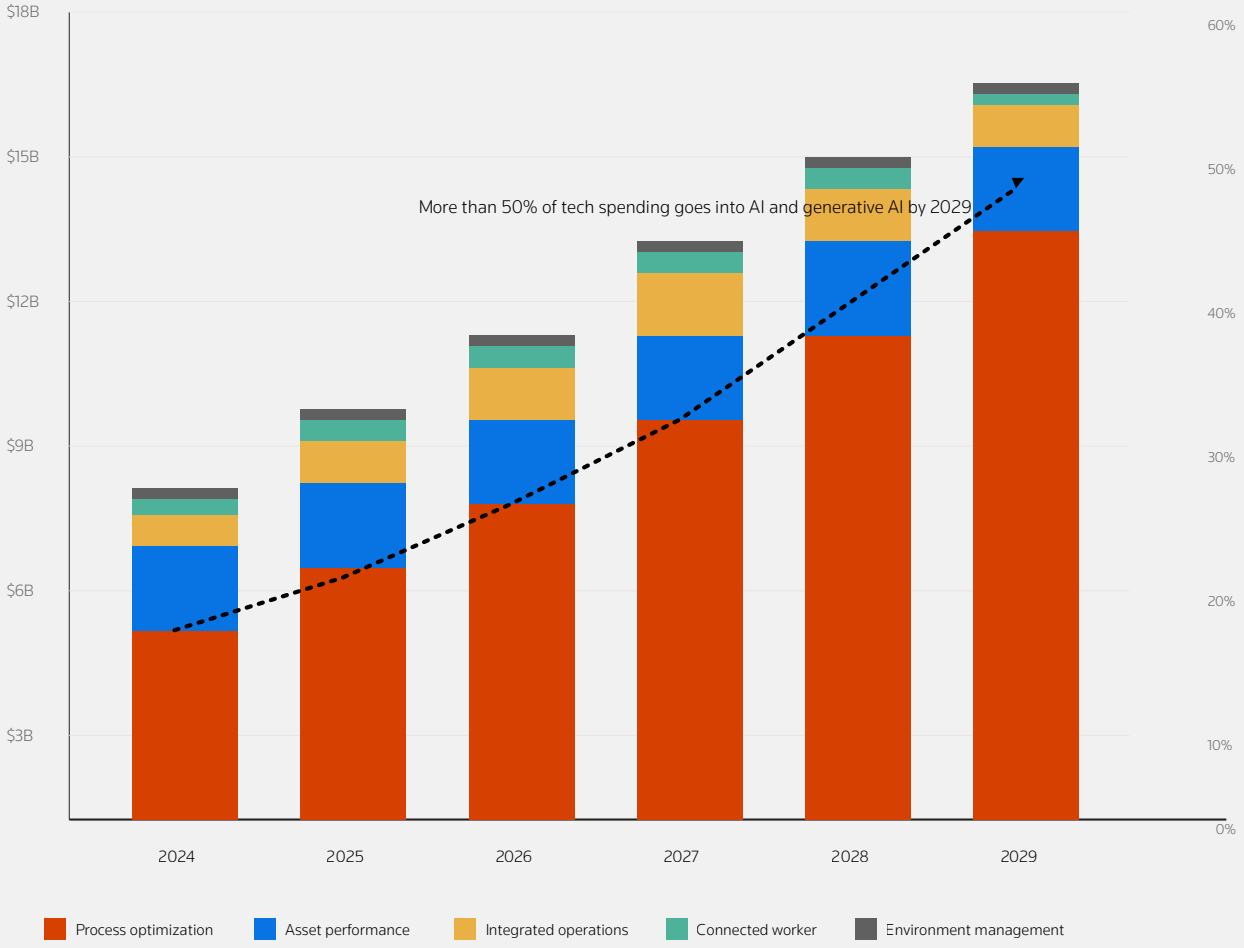
"They are integrating it into upstream operations and using it to explore operational efficiency improvements in processing, refining and other midstream/downstream operations," Kenneth B. Medlock, an energy economist at Rice University's Baker Institute for Public Policy in Houston, told Reuters Events.

"This can reduce cost by eliminating inefficiencies, such as better maintenance detection and operational improvements, and it can improve safety in facility operations and maintenance," Medlock said.

Key metrics for operators include production optimization, cost reduction and safety/environmental compliance. AI-enhanced seismic and geological data analysis can reduce dry well rates while AI insights can also improve reservoir recovery rates through better modeling and increase the lifespan of wells.

Image: REUTERS/Agustin Marcarian

FORECAST SPENDING ON AI BY US OIL AND GAS OPERATORS



Source: Deloitte 2026 Oil and Gas Industry Outlook

The rollout of AI comes amid a general decline in fossil fuel prices. Over the last two years, WTI oil price futures declined 22.7% to settle at $56.64 a barrel on Nymex on December 2 due to global production increasing faster than demand and concerns over a potential economic slowdown. AI and other technology will put further pressure on production costs in the coming years.

"We think that the technology that is in the pipeline can deliver $10 to $15 per barrel of breakeven production," Ati said.

"And that is sufficient to bring a material amount of tier two even tier three resources in the money at current oil prices," he said.

COMMERCIAL DEPLOYMENT

In 2026, some AI and data technologies could move from pilots to companywide deployment, according to Deloitte.

Companies are "deploying AI to include geosteering but also reducing nonproductive time, using machine learning and AI to predict anomalies, predict failures before they happen... several successful pilots in the industry have shown remarkable breakthroughs," McKinsey's Ati said.

Some pilots have been able to predict equipment failure with 80% accuracy, which will have a significant impact if they are scalable, Ati added.

President Trump is keen to support energy security and U.S. fossil fuel production while also helping Big Tech groups expand AI capacity, but the private sector is driving the demand for AI efficiencies.

"I would say this is mostly a market-driven issue, one that prioritizes productivity, profitability, and investor return. However, to the extent AI can be used to better monitor and/or address environmental issues, such as methane escape, then policy can push adoption faster," Medlock said.

Image: REUTERS/Ernest Scheyder

SM ENERGY CASE STUDY

"We began equipping our workforce with AI productivity tools two years ago and have steadily expanded that portfolio," Kendra O'Keefe, Senior Technology Director at SM Energy told Reuters Events.

SM Energy, an independent oil and gas company, has spent eight years integrating data-driven techniques, primarily in subsurface workflows using computer vision for core analysis and MVA (Multi-Variant Analysis) for completion design.

The company operates in the Midland Basin in West Texas, the Maverick Basin in South Texas, and the Uinta Basin in northeast Utah.

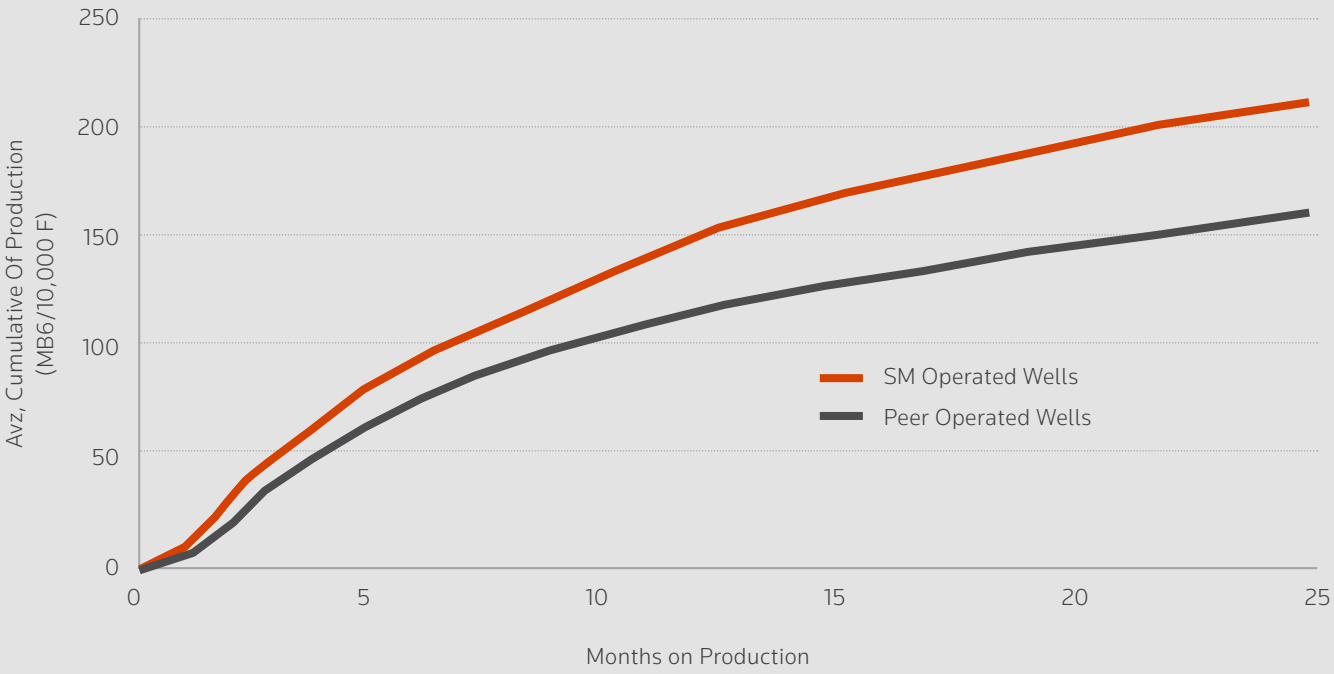
In November 2025, SM Energy and Civitas Resources announced they will merge in a $12.8 billion deal, including debt, to create one of the largest independent U.S. oil producers with a commanding footprint in the Permian Basin.

SM Energy prioritizes value creation rather than just cost savings and its data initiatives have led to higher-performing Midland Basin wells and de-risked new basin entry, O'Keefe said.

The company says total production from its Howard County wells in the Permian basin over a two-year timeframe was over 30% higher than its peers.

By adding AI, automation, and other emerging technologies, SM Energy expects to unlock increased production through optimization, accelerate its technical understanding of the subsurface, and deploy new production capabilities on previously untapped sites, O'Keefe said.

CUMULATIVE OIL PRODUCTION FROM SM ENERGY HOWARD COUNTY WELLS VS PEERS



Source: SM Energy

MERGERS AND ACQUISITIONS

M&A activity in U.S. oil and gas has been accelerating and should pick up in 2026 and 2027, Ati said, as U.S. oil production plateaus.

U.S. oil production is expected to average 13.58 million barrels a day in 2026, down slightly from a record 13.59 barrels a day in 2025 in the first annual decline since 2020, according to the November 2025 edition of the Energy Information Administration's Short-Term Energy Outlook.

"U.S. oil production, we believe, is at a bit of a crossroads, particularly in shale. We define the current environment to [be] Shale 3.0, and this is a phase which is defined by scale, where we see a lot of consolidation that has already happened and a lot more consolidation that will happen," Ati said.

In September, California Resources announced a deal to buy fellow independent oil company Berry Corp, hoping to create a bigger, more cost-efficient oil and gas producer in the country's most-populous state.

"We will not be surprised if we see a merger of the large companies. It may not happen in the next 12 to 24 months, but definitely this decade. That's a very real possibility," Ati said.

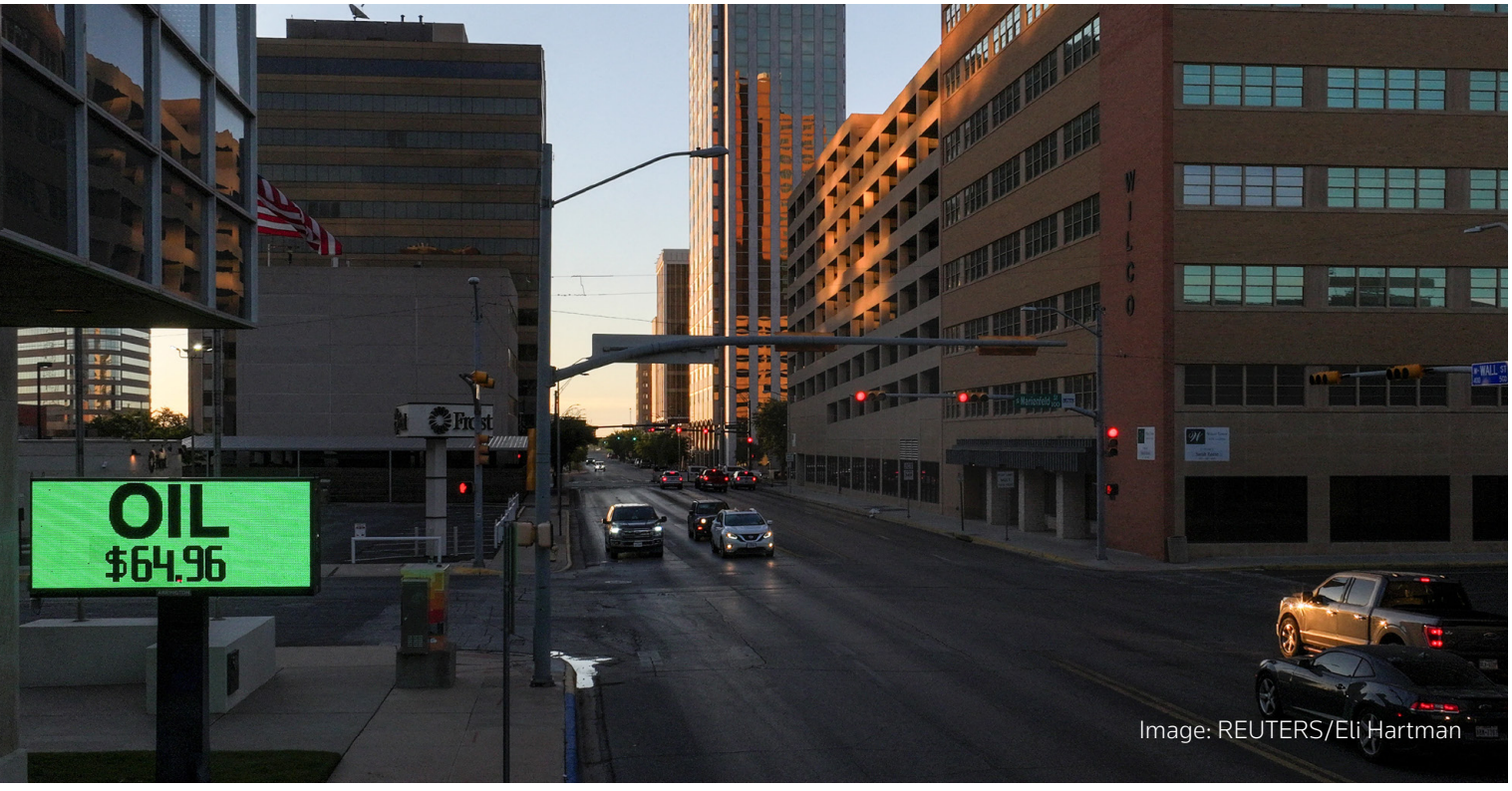
Investors are favoring disciplined spending and steady returns over rapid growth in an uncertain oil market, analysts say.

"M&A has always been, and will always be, driven by a desire to drive returns to capital," Medlock said.

Market consolidation will have ramifications for technology strategies, including AI.

"If a company thinks it can apply its technological capabilities or bring scale into an existing or potentially new operation, it will look to make an acquisition because it will be able to raise the productivity of the acquired asset plus, perhaps, its own assets," Medlock added.

– Mark Shenk, December 2025



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