



Why the environment for energy investing is improving

From the Field
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Key Insights

- Slowing productivity in U.S. shale suggests that the energy bear market is winding down.
- Cost inflation in oil field services could also contribute to higher energy prices.
- We see opportunities in select oil and gas producers as well as oil field services and equipment companies.



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The decade-plus bear market in oil and natural gas appears to be winding down, a scenario that would create a more supportive backdrop for energy investing in the coming years.

What's driving this change?

Growing evidence suggests that U.S. shale oil and gas productivity is likely in the process of peaking.

Why productivity matters in commodities markets

Many factors can affect energy prices in the *short term*—from geopolitics and weather conditions to the health of the global economy.

Our approach to investing in energy and other commodities focuses heavily on structural changes in productivity that drive prices over the *long term*.

These cycles typically last anywhere from 10 to 20 years and reflect the ebb and flow of two waves:

1. Rising Productivity: Game-changing technologies enable oil and gas companies to extract more commodity out of the ground at a lower cost. *This wave of productivity puts downward pressure on the industry's prevailing break-even costs, lowering the commodity prices needed to incentivize operators to pursue new projects. This is a bearish setup for commodities.*

2. Falling Productivity: The incremental gains in commodity output unlocked by these innovations slow and eventually roll over as the technology is maximized and underlying assets mature. New resources become harder to find or more expensive to develop, increasing prevailing break-even costs. *This scenario tends to increase the commodity prices needed to incentivize investment in new supply to balance the market. This tends to be a bullish setup for commodities.*

The U.S. shale oil and gas revolution unleashed a surge in productivity that dramatically altered the global energy landscape. But this wave appears to be cresting.

A potential slowdown in U.S. shale productivity

Three interrelated forces are driving an emerging downshift in U.S. oil and gas productivity.

- 1. Asset Maturity:** During the high-growth phase of the shale revolution, companies drilled through a portion of their prime inventory, or the areas that are likely to yield the most productive wells. *As the industry develops more of its second-tier inventory, some basins are experiencing declining productivity relative to earlier wells.*
- 2. Process Maturity:** Productivity improved by leaps and bounds in the earlier chapters of shale's growth story as operators honed their drilling and hydraulic fracturing techniques to flow more oil and gas from each well. *We believe that productivity per foot drilled*

has likely peaked. Recent productivity increases have been smaller and appear to come mostly from drilling at a faster pace and extending the length of horizontal wells. Here, mechanical constraints and the contiguous acreage owned by individual companies could be limiting factors on further progress.

- 3. Development Strategies:** Differences in how companies have developed their asset bases are also starting to make a difference. Even in tier-1 acreage, some operators are experiencing declining productivity because of prior strategic decisions regarding well spacing and how to target the various oil- and gas-bearing zones in these areas. *Concerns about preserving low-cost inventory could prompt some oil and gas producers to become even more disciplined in their spending on new wells and less responsive to the incentive of higher energy prices.*

Implications for oil and gas prices

The challenge is not that the U.S. is running out of oil and gas. Rather, the industry appears to be running out of the cheap oil and gas that drove the prolonged bear market in energy.

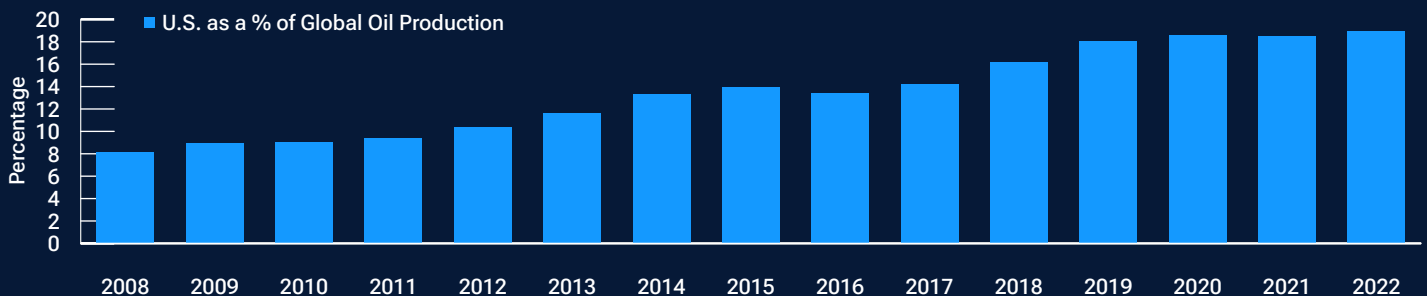
To the extent that shale productivity slows, it would cost the industry more money to maintain output levels, requiring a higher energy price to incentivize new supply (Figure 1 and Figure 2).

Although U.S. shale productivity appears to be peaking, near-term uncertainties warrant two caveats:

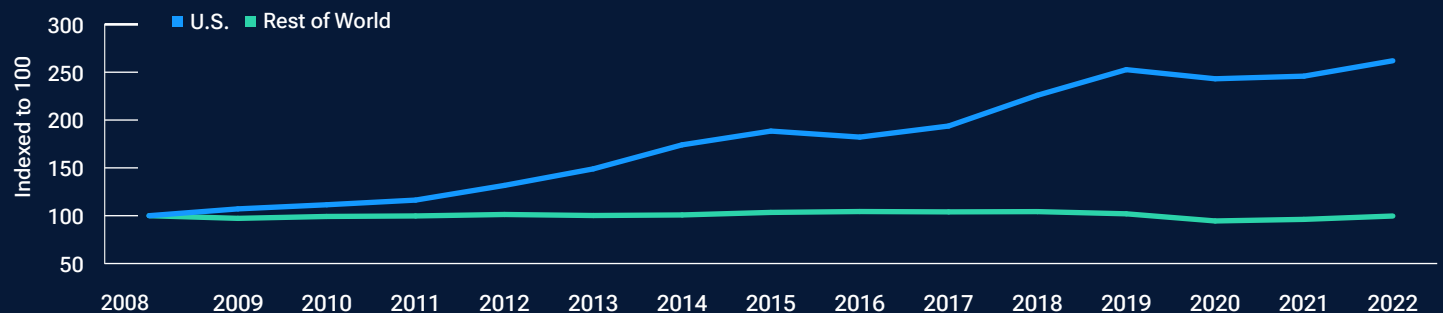
1. Questions remain about the timing, magnitude, and speed of the deterioration in U.S. shale productivity. We are monitoring developments on these fronts closely.

What Happens in the U.S. Oil Patch Matters Globally

(Fig. 1) U.S. last year accounted for almost 19% of global production*



(Fig. 2) U.S. production grew dramatically from 2008–2022*



Source: Energy Institute and BP via Bloomberg Finance L.P.

*Based on average daily production of crude oil, naphtha, and natural gas liquids, such as ethane and propane. Data reflect total production and therefore include offshore developments, legacy onshore fields, and shale plays.

2. Oil and gas prices are still cyclical, or sensitive to fluctuations in the economy. Energy prices could still come under pressure if economic weakness was to weigh on demand.

Reduced capacity in oil field services could be inflationary

The sustained productivity gains that U.S. shale enjoyed during the bear market in energy also reduced demand for services and equipment in two ways:

1. As shale operators flowed more oil and gas per rig, the number of active drilling rigs collapsed and the need for other oil field services declined. In turn, the resulting overcapacity weighed on prices for services and equipment.
2. The rapid growth and cost competitiveness of U.S. shale crowded out spending on exploring for new resources and developing offshore fields. Both activities tend to involve higher risks and costs than drilling in established U.S. shale plays.

In response to these pressures, oil field service and equipment companies slashed their spending and reduced excess capacity.

Falling productivity in U.S. shale would increase demand for oil field services and equipment, making it more expensive for the oil and gas industry to produce the incremental supply needed to balance the market.

We see the potential for a greater call on international and offshore projects to fill this gap.

However, scaling up an industry where head counts and capacity shrank significantly will be challenging.

The active fleet of deep-water drilling rigs, for example, has declined by roughly half over the past decade; the cost of reactivating stored rigs or building new ones would entail significant expense.

Significant consolidation has also occurred, suggesting that oil field service and equipment companies could have more discipline around adding capacity and better pricing power than in the past.

Bottom Line: Cost inflation in oil field services could also contribute to higher oil prices.

End of the energy bear market would create investment opportunities

After a prolonged bear market in oil and gas, energy stocks still appear under-owned and underappreciated.

The sector's weighting in the S&P 500 Index in recent years has generally been less than 5%. That's a far cry from 2007 to mid-2014, when energy consistently represented more than 10% of the large-cap index.¹

Where do we see opportunities?

- **Oil Field Services:** As shale productivity peaks, the combination of rising service intensity after years of capacity reductions and consolidation could set the stage for a favorable multiyear outlook.
- **Oil and Gas Producers:** We prefer companies with a higher mix of quality

inventory and a thoughtful approach to developing these assets. These names would benefit from low-cost production growth in an era of stronger energy prices.

Selectivity will be critical. Well-resourced portfolio managers who followed the energy sector closely throughout the bear market could be well positioned to add value.

What about electric vehicles and oil demand?

We closely monitor the rising adoption of electric vehicles (EVs) and the implications for oil demand. Gasoline accounts for about one-quarter of global oil consumption. By our estimates, EVs and battery hybrid EVs would need to exceed roughly half of global new car sales for oil demand to peak before 2030. Heavy transport—planes, freight trucks, and ships, for example—is a bigger challenge because this category accounts for about 40% of global oil demand. Decarbonizing these industries will be much harder because of the expense and the need for significant innovation. We are aware that concerns about peak oil demand could weigh on the valuations of energy stocks. At the same time, anticipation of this terminal risk could constrain investment in oil and gas development, even if the reality of peak oil demand takes longer to materialize. Such a scenario would drive energy prices and inflation higher.

¹ Source: Financial data and analytics provider FactSet. Data analysis by T. Rowe Price. Copyright 2023 FactSet. All Rights Reserved. See Additional Disclosure.

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