

Midstream: throughout 2023, we've detailed how midstream valuations remain heavily discounted vs. historical relationships to fixed income and assets like utilities and REITs, despite midstream's significantly lower debt and superior earnings growth over the last 5 years. How can we square midstream's low valuations – P/Es ~50% lower than market averages – with strong fundamentals? When debating midstream's discount, the impact of the energy transition is an unavoidable topic. What will electrification and decarbonization do to midstream infrastructure? For answers, we look to Norway, where the energy transition is more advanced (and expensive) than the transition here in the US. Below, we detail the surprising impact of Norway's energy transition on pipeline volumes and carbon emissions.

[Click here](#) for our new midstream white paper, which explores midstream's near-record excess earnings yields vs. fixed income.

Natural Resources: on October 11, years after acquiring XTO Energy for \$40 Billion in 2009 and the Bass Group's Permian acreage in 2017, ExxonMobil made its largest shale acquisition ever in a \$60 Billion deal for Pioneer Natural Resources (PXD). Many analysts and investors noted the deal's lack of significant financial synergies – instead, XOM management focused on PXD's shale asset base with its short-cycle production, capital flexibility and capital efficiency. Ironically, as recently as 2022, many prominent institutional investors were suggesting that shale was entering a period of accelerated and irreversible decline due to the energy transition. In response to this, we wrote a white paper in February 2022 - *The Twilight of the Energy Transition Becomes a New Dawn for Shale* – which outlined why shale's relevance would actually increase in the future, even in an environment of falling oil demand. The world's largest energy company appears to agree.

[Click here for our 2022 white paper on Shale's increased strategic importance in a time of ESG](#)

September 2023 Performance Summary and Market Commentaries

Please find below performance and commentary for our strategies – [MLP & Infrastructure](#) and [Natural Resources](#). Performance follows at the bottom of the commentary. For additional information, please contact us at (832) 241-6400 or info@recurrentadvisors.com.

MLP & Infrastructure

Performance review

During the month of September 2023, the Recurrent MLP & Infrastructure Strategy generated net returns of +1.72%, lagging the Alerian MLP Index's (AMZ) +3.24% return by +1.62%. Since the strategy's July 2017 inception, Recurrent's MLP & Infrastructure Strategy has outperformed the AMZ by +26.30% (+2.99% annualized), net of fees. Please see the performance section at bottom for more detail.

Midstream earnings are more discounted vs. bonds, REITs, and utilities compared to almost any other time in history – why?

Over the last several months, we've documented midstream's persistent valuation discount – which is

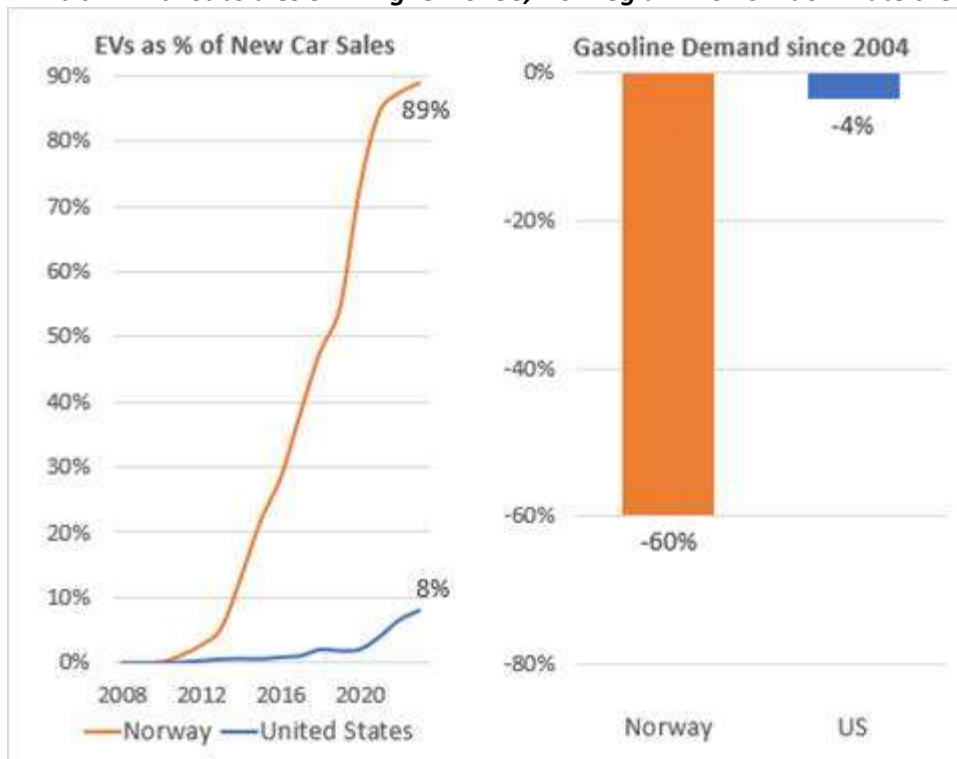
once again approaching record levels (effectively the widest they’ve been at any point outside of the worst moments of 2020), regardless of whether one compares midstream vs. bonds, REITs, or utilities. Given midstream’s seemingly superior fundamentals (declining debt leverage, strong earnings growth since 2018), why is midstream continuing to get cheaper on a relative basis? One potential explanation is a lingering concern over midstream’s “stranded asset” risk. What if midstream assets are effectively worthless as the world weans itself off of fossil fuels and North American shale drilling enters a terminal decline?

We’ve attacked this question from a variety of different angles: in 2017, as our EV white paper explained the challenges associated with transitioning to electric transport; and again in 2022 as our Shale white paper explained that ESG and the divestment movement will drive more, not less, short-cycle drilling for Shale resources. *(In light of XOM’s decision to add meaningful amounts of short-cycle resources via the acquisition of PXD, we revisit the argument within our short cycle white paper in our natural resources monthly note below.)*

We’ve used research to explain why energy transition/decarbonization is not a major risk for midstream assets – but reality is making a stronger case than we ever could

If our white papers have failed to persuade midstream skeptics, let’s leave the realm of research reports and step into reality. Today, in Norway, generous EV subsidies and a nearly 100% renewable grid have driven a much more rapid energy transition than is currently taking place in the US. Below, we see evidence that the Norwegian energy transition is having an impact: EVs are now nearly 90% of new car sales (and rapidly approaching 50% of the actual Norwegian car fleet). The US’s progress – EVs approaching 10% of sales – pales in comparison. And understandably, gasoline demand has cratered in Norway, down 60% vs. the US only shedding 4% of its gasoline demand.

Exhibit 1: With subsidies 3-4x higher vs. US, Norwegian EVs now dominate the market

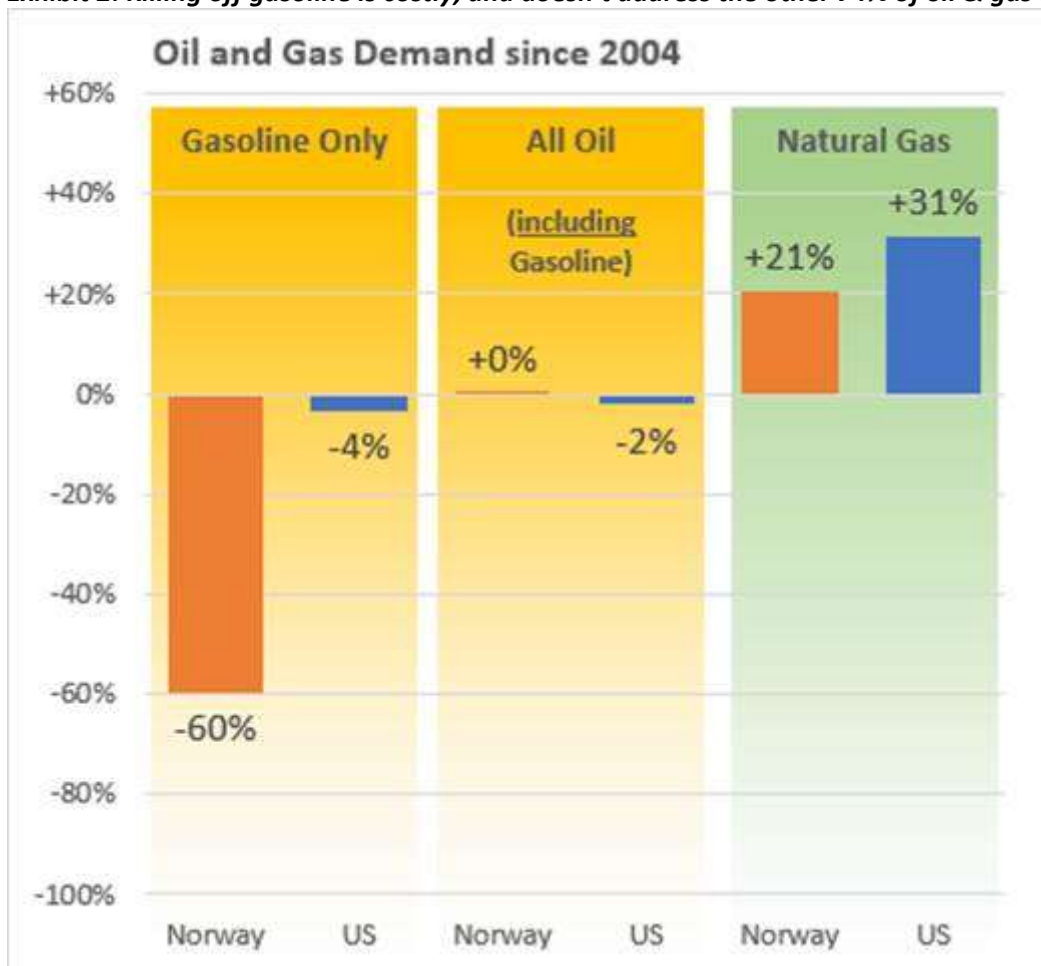


Source: EIA, Norwegian OFV, Recurrent research, Bloomberg. Data accessed 9/30/23.

Gasoline – despite its high visibility to consumers - is only a small part of the oil and gas landscape – the rest is growing

So, if you spend \$30,000 per car to push the adoption of EVs, in a country with a homogenous population and non-combative politics, it turns out that gasoline cars can be pushed to extinction – or at least to the endangered species list. **But gasoline is only 44% of US oil consumption – and 26% of US oil and gas consumption on an energy-equivalent basis.** This, of course, ignores the US’s large and growing energy export industry. Even before Norway’s EV push, gasoline was only 17% of its oil consumption and 11% of total oil and gas consumption. So eliminating gasoline and eliminating oil and gas are two different challenges, as we see below. In contrast to Norway’s moribund gasoline demand, we see that Norwegian total oil demand (including gasoline) has actually been more resilient than the US! And despite Norway’s highly renewable power generation industry, we see that Norway’s natural gas demand has continued to grow over the past 20 years.

Exhibit 2: Killing off gasoline is costly, and doesn’t address the other 74% of oil & gas demand



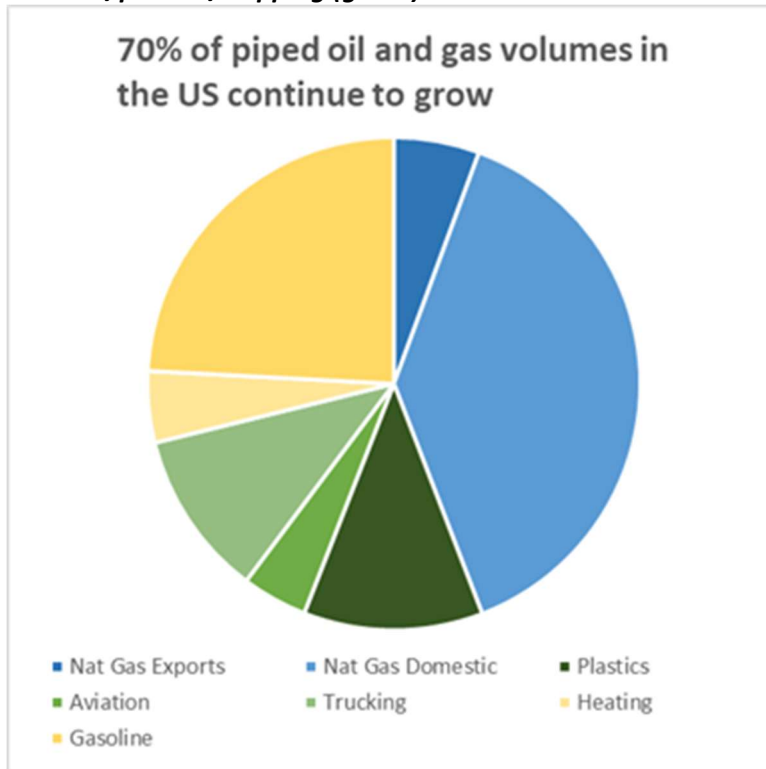
Source: EIA, Recurrent research, Bloomberg. Data accessed 9/30/23.

Combined oil and gas demand is growing robustly in the US... despite increasing EV adoption

So the bad news is that the EV movement appears to be an expensive experiment that primarily shifts oil and gas consumption from motor gasoline into other oil and gas products (while driving higher exports of oil and natural gas in both Norway and the US). As we see below, US pipelines (when adjusted

for differential energy content in natural gas and oil products) are primarily filled with products whose demand continues to grow.

Exhibit 3: Pipeline volumes continue to grow, driven by natural gas (blue) and aviation/plastics/shipping (green)



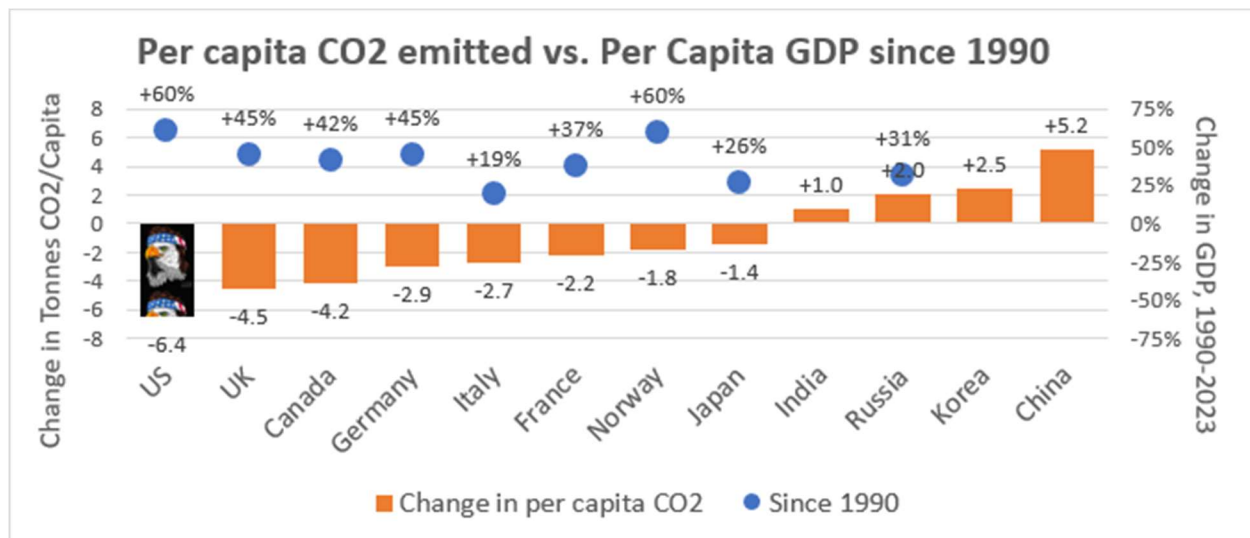
Source: EIA, Recurrent research, Bloomberg. Data accessed 9/30/23.

EV adoption doesn't appear to drive the pace of decarbonization – the US is driving down carbon with or without EVs

Well, the good news is that EVs don't appear to be a meaningful driver of decarbonization, so it is possible to decarbonize even with low levels of EV adoption. With a CO2-intensive manufacturing process that requires tens of thousands of miles of driving before "breaking even" with gasoline cars on a CO2-emissions basis, it's perhaps not a surprise that EV adoption doesn't appear to be a major driver of decarbonization. The better news is that the US energy mix – with gas as the dominant power fuel and key backup for an increasingly renewable grid – seems to be driving a powerful (and underappreciated) wave of decarbonization, despite the US lagging in EV adoption compared to more ambitious (and expensive) subsidization seen in the EU and Asia.

So, as seen in the graph below, perhaps the natural gas and petroleum liquids pipeline volumes seen in the US midstream market are not only resilient – they are also sustainable as a key driver of continued decarbonization in the global economy.

Exhibit 4: Despite lagging in EV adoption, the US has seen world-leading decarbonization while growing GDP



Source: EIA, Recurrent research, Bloomberg. Data accessed 9/30/23.

Natural Resources

Performance Review

During the month of September 2023, the Recurrent Global Natural Resources Strategy fell -0.22% net of fees, less than the S&P Global Natural Resources Index's -0.42% fall. The portfolio's overweight in energy significantly contributed to relative performance, as the industry was one of few areas of the market benefiting from positive absolute performance. Stock picking in the portfolio's aluminum and steel sectors detracted from performance, as economic forecasts weakened operational outlooks for portfolio companies.

Investment Discussion

Historically, oil project economics focused on "cost of supply" as the primary unit of measure. However, the increased cost of capital - driven by ESG and divestment movements - along with the longer-term potential for oil obsolescence required a change in project economics, with a greater emphasis on "time". As a result, the industry has shifted from megaprojects with long lead times and low costs per barrel, to "short cycle" projects with short lead times and higher costs per barrel. This is driven by a focus on returns (IRRs), instead of cost-based metrics (NPVs), incorporate not only a project's cost inputs but also the time value of money.

Our 1Q 2022 white paper titled "The Twilight of the Energy Transition Becomes a New Dawn for Shale", we outlined why shale production, as the premier global short-cycle production, would counterintuitively increase in relevance rather than decrease. Although shale ranks poorly on a cost-per-barrel basis, its uniquely short time-to-production would prove shale to be an increasingly valuable contributor to the global oil production mix, regardless of global demand.

In early October, ExxonMobil (XOM) announced the acquisition of Pioneer Natural Resources (PXD) a ~\$60 Billion transaction. In the past, ExxonMobil has made notable shale acquisitions, from the 2009 acquisition of XTO Energy to the 2017 acquisition of 275,000 Permian acres from the Bass family. XOM regularly makes acquisitions, but this time the language was different regarding three topics:

1) Short-cycle assets. *“To put this merger into context, our exposure to short-cycle barrels will increase to over 40% of our Upstream portfolio, from 28% today” - Exxon CEO Darren Woods, on the call announcing the PXD acquisition*

While much of the language outlining the Pioneer acquisition mirrored past acquisitions, the messaging with the Pioneer acquisition added noteworthy language. The second bullet point of the presentation notes that the Pioneer operations “transforms ExxonMobil’s Upstream portfolio” by “increasing short-cycle capital flexibility”. Throughout the presentation, ExxonMobil notes the value of “short-cycle” production, including the fact that short cycle barrels will comprise 40% of the combined upstream portfolio by 2027. The first paragraph of our 2022 white paper summarizes XOM’s rationale to buy PXD:

“Contrary to traditional supply-demand economics, oil projects are no longer focused on finding the cheapest barrels – the focus is now on high return barrels with the quickest paybacks. Defying many skeptics, Shale will represent a growing share of global supply growth in the next decade.”

2) Capital flexibility. *“...this increased short cycle opportunity comes with even greater capital and operational flexibility” - XOM CEO Darren Woods, PXD conference call*

One of the most desirable attributes of US Shale production is not only its “short cycle”, but also its small unit size per well. Whereas offshore projects require significant capital over many years – usually measured in the hundreds of millions of dollars - to bring an entire project online, shale wells are much smaller in scope. The combination of small unit size and short cycle allow operators to more finely tune the amount of capital to allocate, which can be increased or decreased as energy market conditions warrant.

3) Capital efficiency.

While not as much a point of focus, on the conference call XOM management alluded to the concept of “capital efficiency”. Over time, one of the most difficult challenges energy companies face is “fallow capital”, which is inherent to reinvesting in large oil projects. At large oil companies, most capital projects take many years to complete and subsequently earn profits. Large percentages of invested capital do not earn a return during years of planning and construction, causing “capital inefficiency”. XOM management’s discussion of shale’s “capital efficiency” focused on the idea that capital invested would deliver a return in months, rather than years or decades. For a large company undertaking capital

intensive projects, having a large and “capital efficient” portion of the portfolio would be a desirable attribute, especially as concerns about the energy transition persist.

While XOM outlined positive attributes of short cycle shale production, there are drawbacks as well. Notably, **Shale is quicker to ramp production, and quicker to fall, requiring higher sustained CAPEX to maintain production.** As we have noted in multiple white papers, shale production is quick to ramp, but also declines 70% in the first 12 months, and 20-40% annually for the next 5-6 years. In comparison, most long-term projects take years to first production and upon reaching peak production, decline at a 5-10% annual rate. As we wrote in February 2022:

“One clear implication, in our view, is that increased dependence on Shale means that more maintenance drilling will be required to offset Shale’s hyperbolic declines, requiring increased drilling capex even in the event of long-term demand destruction.”

Importantly, **the oil price must consistently remain high enough to incentivize higher cost shale production, despite the potential for falling oil demand.** As one of the highest cost sources of oil production with short cycle production, oil companies make capital spending decisions using relatively short-term oil price signals. This is different than conventional oil market interpretations. While in a traditional economic supply/demand construct, if global oil demand falls, volume and therefore price would fall. However, when incorporating time as a key decision variable, the shale production cycle is so short that the oil price must remain high enough to incentivize the constant reinvestment required to keep shale production flat.

As the headline of XOM acquiring PXD crossed the wires, many investors assumed future XOM/PXD synergies would be key to the deal’s success. Management commentary, however, focused on a broader strategic portfolio realignment, highlighting the unique attributes shale’s short cycle production bring to XOM’s portfolio, as we highlighted in our 2022 white paper.

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INVESTMENT ADVISORS

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