

What Will the Global Push to Net Zero Mean for Oil?

Under current policies, we expect no decline in oil consumption for years. Pay attention to whether government action going forward will meaningfully reduce demand for oil—through carbon taxes or subsidies for alternative energy sources.

JULY 28, 2021

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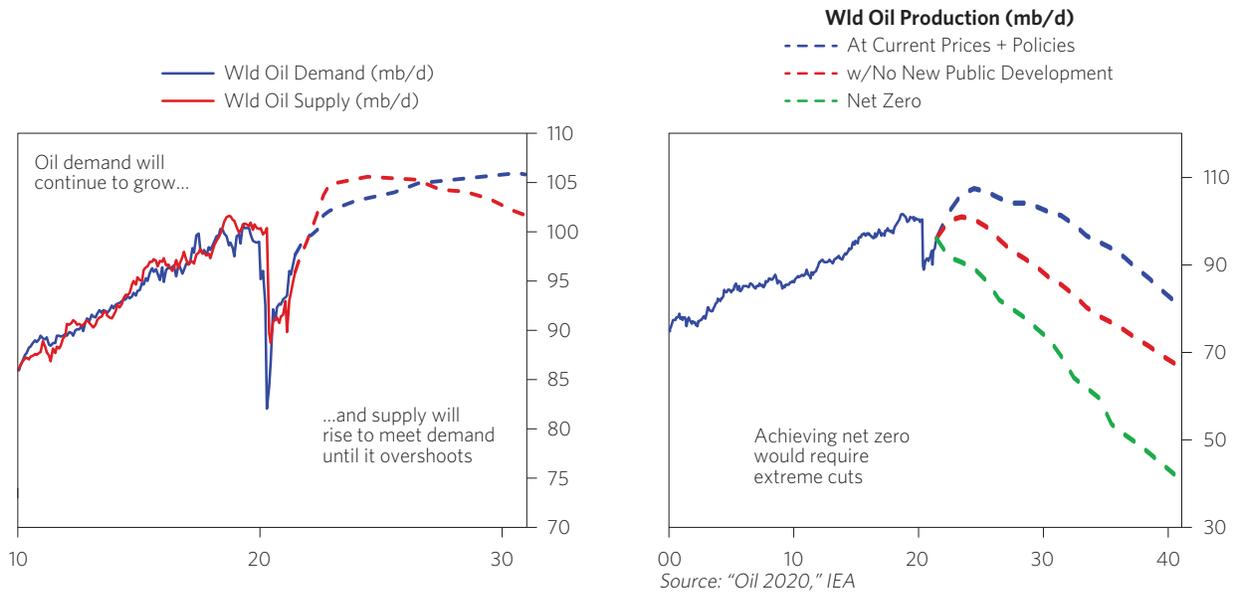
Most countries around the world have signed on to the Paris Agreement, committing themselves to achieve “net zero” economies by 2050; later this year, world leaders will be meeting in Glasgow to discuss the transition of the global economy away from emitting net new greenhouse gases that warm the planet into the atmosphere. Trillions of institutional dollars have made a net zero commitment to align their portfolios with the transition of the real economy away from fossil fuels as well. **All this activity raises the question: should investors pay any attention to the stream of plans, policies, and pronouncements on net zero?**

Although it’s far from the only relevant aspect for investors, in this report, we address this question through the lens of oil. Oil is the largest commodity market and the most relevant for investors because of its second-order impacts on equity, currency, and bond markets around the world. It is therefore important for any investor to examine efforts to combat climate change in the context of the oil market.

We think the big takeaways for investors are as follows:

- **Globally, governments are committed to a massive reduction in oil use.** 194 countries and the EU have signed on to the Paris Agreement, which commits signatories to achieve net zero economies by 2050. A net zero economy is one that does not emit net new greenhouse gases into the atmosphere. To state the obvious, achieving the goal of net zero greenhouse gas emissions likely requires a radical reduction in how much oil is used in the global economy, i.e., a transition from oil to sources of energy that don’t emit greenhouse gasses.
- **These high-level commitments have not yet translated to tangible policies; at current prices and policies, we don’t see global oil use declining in the next decade.** We expect oil demand to rise to new highs and production to rise to meet demand, and consensus estimates are for oil consumption to rise until 2030 and then largely flatten out rather than decline.
- **The dynamics of oil supply are such that it is difficult to imagine progress toward net zero occurring through a supply shortage.** Major oil producers are committed to continuing to pump and have the pricing power to be competitive even if a lower-priced alternative emerged.
- **Investors should pay attention to which shifts in policy can materially reduce oil demand.** If nothing changes, we’d expect moderately rising oil prices in the short-to-medium term as demand outstrips supply, incentivizing new supply to come online to meet it. This would mean that the world is moving away from rather than toward governments’ stated Paris Agreement goals. Alternatively, we could see a “transition shock”—i.e., policies that more aggressively reduce the demand for oil, by pricing carbon or subsidizing alternatives. Such policies, if they emerged, would not only have important influences on the oil market and the countries, currencies, and companies reliant on it—they would also affect the broader economy, as they may be inflationary or deflationary depending on the path to transition chosen by policy makers.

At current prices and policies, we expect oil demand to rise to new highs over the next decade and production to rise to meet demand (before overshooting a bit). To give a sense of the extremity of supply cuts that would be required to meet net zero goals, the chart on the right below shows how far from a net zero path we would be if all publicly traded oil companies (e.g., not state-owned) fully and permanently stopped all new development of oil. Of course, that would not be aligned with their current incentives and it is very far from their stated plans, and even such extreme action would be well short of governments’ lofty goals.



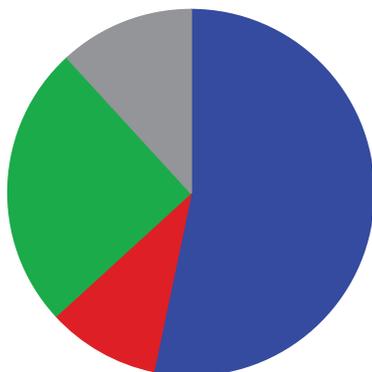
As with any market, examining the drivers of each player in order to predict their behavior enables us to build an understanding of how supply and demand will transpire going forward. We start with the incentives of the various oil producers in the market.

Oil Producers Are Willing and Able to Keep Pumping at Competitive Prices

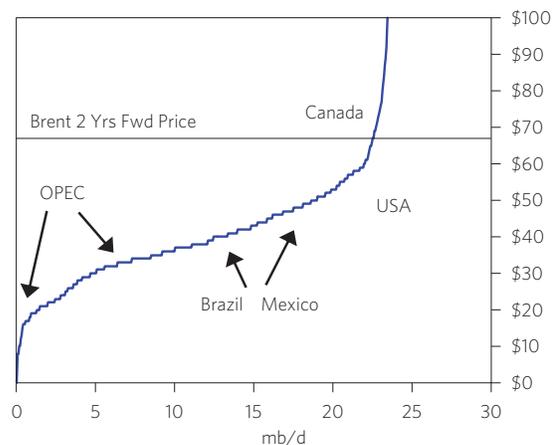
- OPEC+** (encompassing Saudi Arabia, Russia, Iraq, Venezuela, and 19 other countries) pumps over half the oil the world uses today and controls over half the proven oil reserves. OPEC+ countries will have incentives to pump oil for decades given the reliance on oil revenues to finance much of their fiscal spending. And since they are profitable to produce at much lower prices than today's, even if a significant alternative to oil emerged at a much lower price than today's, they would simply drop their price to compete. With low production costs and oil revenues remaining critical to fiscal budgets, it's not surprising that the Saudi oil minister recently vowed to drill **"every last molecule"**; Norway's prime minister (not in OPEC+, but another national producer) insisted last week that it would **keep drilling**. If they could get their proven oil reserves out of the ground "on demand," OPEC+ could supply the oil demanded by the world economy for a long time—precluding any meaningful progress toward net zero from the supply side.

Proven Reserves by Company (% Total)

■ OPEC+ ■ Majors ■ Other Public ■ Private + NOCs



World New Oil Production Breakeven Curve

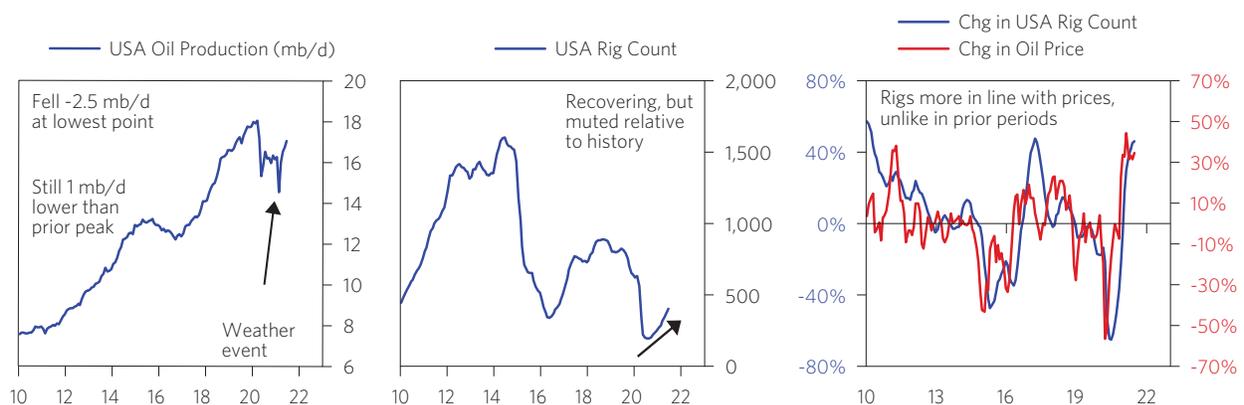


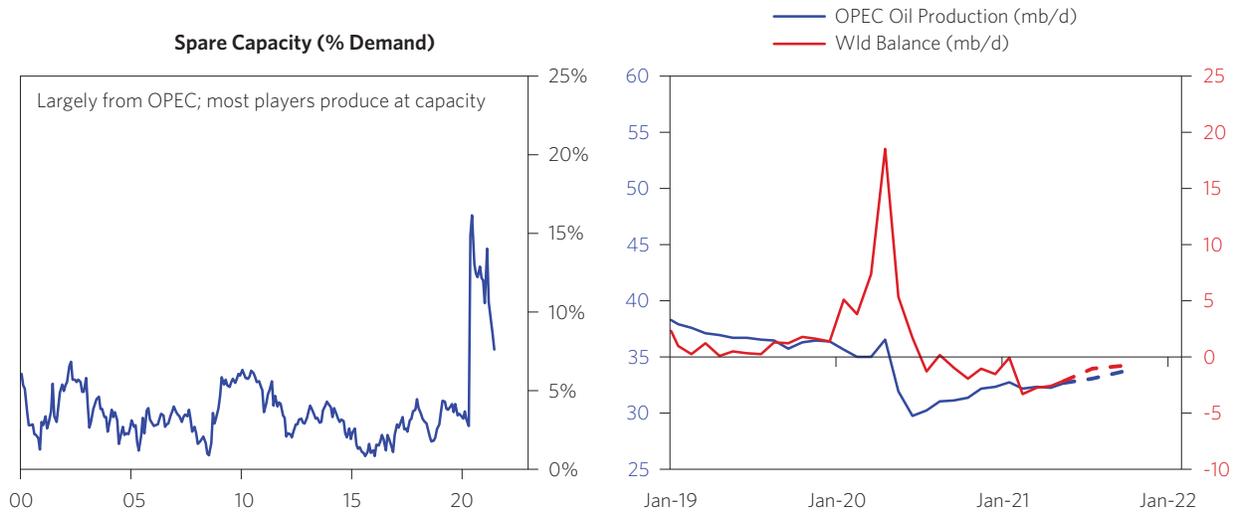
- In practice, OPEC+ has some “spare capacity” that they are able to bring online in the short term, and otherwise it takes 5–10 years to set up new capacity. But other players can step in rapidly to offset supply cuts. **US shale production** is unique in that it can ramp up very rapidly—it doesn’t require 5–10 years to bring online, just 7–9 months. Most of these players do little outside of shale oil production (so there isn’t much to persuade them to shift their business), and unlike a few years ago when they were expanding production at the expense of return on capital, today they can deploy cash flow into new projects while remaining free cash flow positive. It is hard to imagine why in today’s environment they wouldn’t have strong incentive to step in and earn a windfall by providing new supply if prices rise.
- **The “oil majors”**—the publicly listed large oil companies that receive the most shareholder attention—account for about 10% of the oil market. While they are most susceptible to shareholder action and most able to diversify into other businesses, as a small share of the market, they would need to make extreme cuts to supply in order to have much impact.

Adding these up, under the current incentive structure for global producers, **it is difficult to imagine a meaningful and sustained supply shortage that incentivizes oil consumers to switch to other energy sources under current policy initiatives.** That is not to say that developed world players proactively reducing new oil capex doesn’t have any impact—any reduction in capacity to pump oil tightens up the supply/demand balance on the margin. But supply cuts are only impactful if other players don’t come in to offset the decline. As shareholders disincentivize oil exploration, more new capex moves to private companies less susceptible to these pressures, and countries with large oil reserves from Saudi Arabia to Norway have expressed their intention to keep pumping. Significant taxation on US shale production would have the biggest impact, given their role as the swing supplier. Without disincentivizing US shale producers to come into the market and take advantage of high prices, hiccups in oil supply (relative to demand) will to a large extent be met by US players stepping in, limiting price rises and therefore limiting the incentives to shift away from oil.

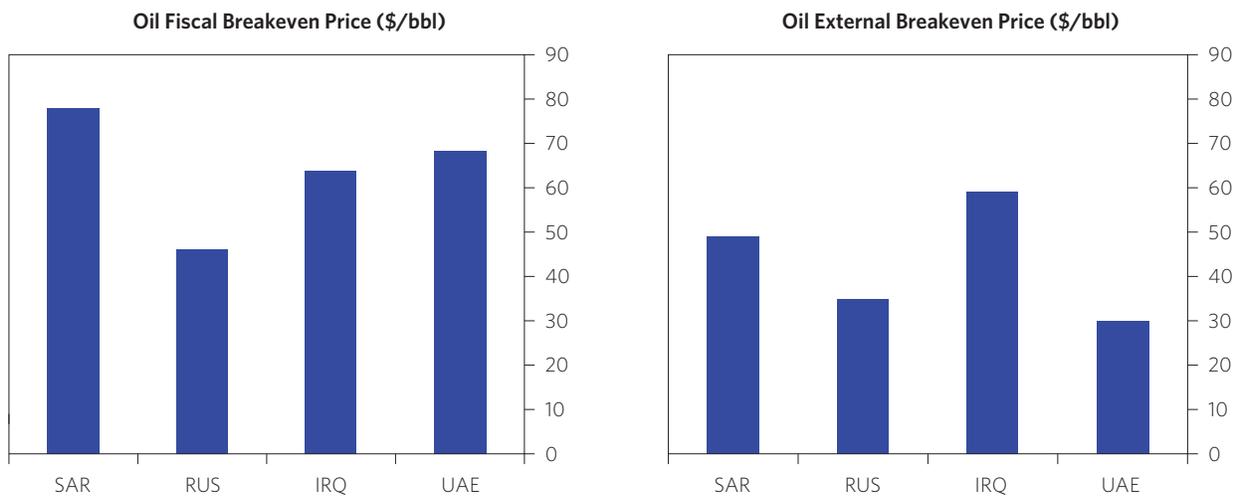
What Is Happening in the Oil Market Today Illustrates How Supply Cuts—Unless They Are Massive and Permanent—Don’t Reduce Global Oil Consumption

In recent months, US oil production fell steeply and has not yet recovered to its prior highs. But global oil consumption was not affected much as OPEC+ scaled up production in-line with the recovery in demand. While oil prices may have been modestly lower if US supply was higher, this has kept oil prices below the point of incentivizing any transition away from oil, and total oil consumed was not impacted by the cuts in US supply. This illustrates that for supply cuts to matter, they need to (1) be large enough to eat up all the spare capacity from OPEC+ and (2) not incentivize higher US shale production.

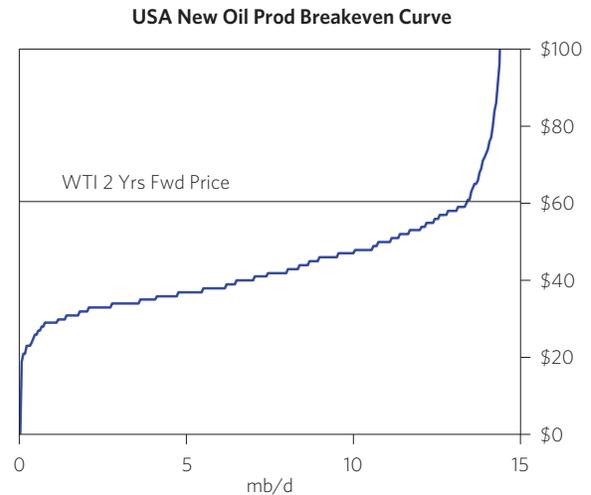
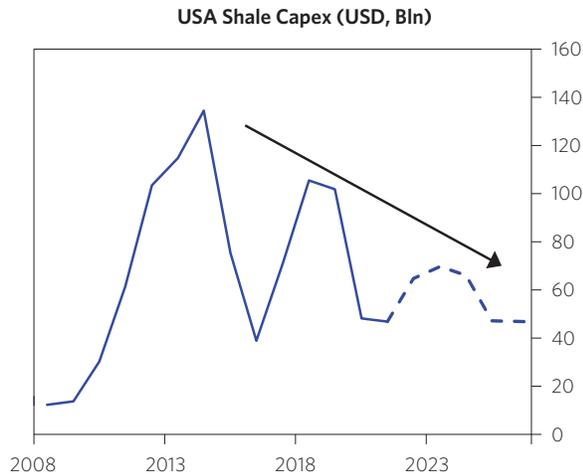




OPEC+'s goals, as they have signaled over the last year, have been to maximize oil prices and volumes to meet their fiscal budgets. For maximum revenue, they want the highest possible prices without incentivizing higher-cost producers to enter the market (US shale) or accelerating the energy transition away from oil. Effectively, this means they prefer prices around \$75/bbl, well above their production costs and allowing them to maintain their current fiscal budgets.



US shale is one of the only producers that is able to ramp up new supply very quickly, in less than a year. Reduced US supply so far has largely been driven by producers' desire to prioritize returns to shareholders and avoid being over-leveraged. But as supply for oil tightens, they will find strong incentives to expand supply again. As shown below, US oil production remains highly profitable at today's prices. Shale companies can both maintain capital discipline as well as expand production, capping any price pressures from reduced supply from other sources.

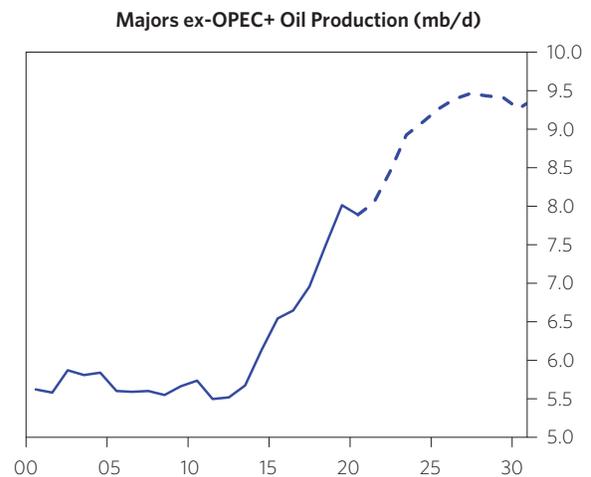


Most shale producers have little reason to exist if not to pump oil, so it is quite difficult for shareholder action to logically lead to the types of supply cuts that will matter given the fundamentals of the market. In contrast, the oil majors could more plausibly move to other businesses and have been under shareholder pressure to do so, but their current plans don't involve any meaningful cuts to their supply going forward.

“Large US-focused operators have already signaled for high single-digit growth next year, while ExxonMobil and Chevron aim for their previous ambitious growth targets in the Permian.

ConocoPhillips just announced its Permian drilling guidance of 4,700 wells over the next decade; on an annual basis, this would be more operated spuds than any other Permian producer since 2014.”

—Wood Mackenzie



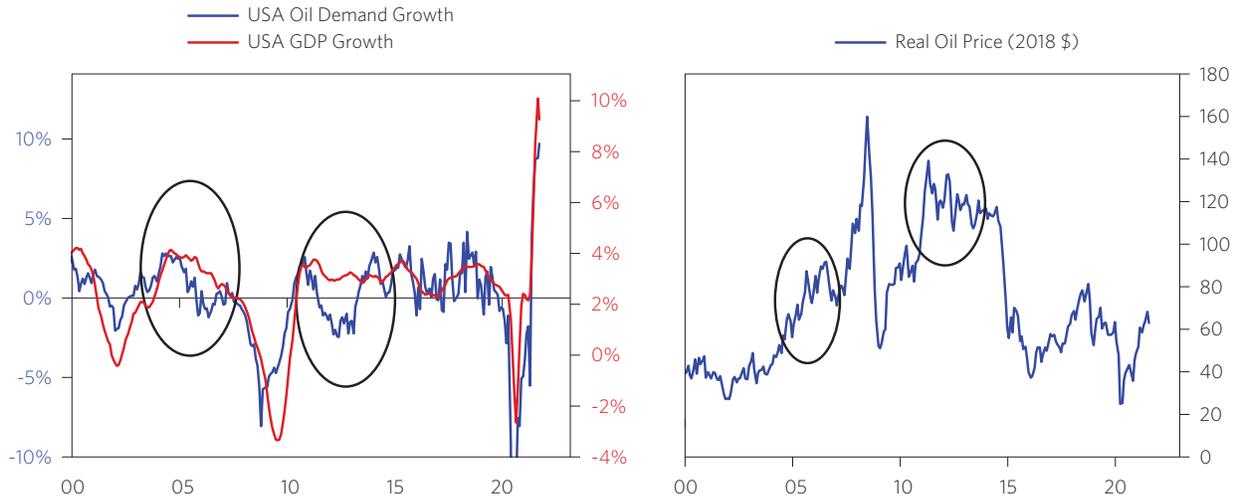
Current Policies Aren't Likely to Lead to Meaningful Cuts in Oil Demand Either

Consumers (households, businesses, etc.) will demand less oil if it is expensive relative to its alternatives. Oil consumers also want to know whether higher prices for oil are a sustained rather than short-term phenomenon, especially if it costs money to invest in switching (e.g., a new factory design, building, or car). So, in the near term, it would take big jumps in the price of oil to lead to structurally reduced demand.

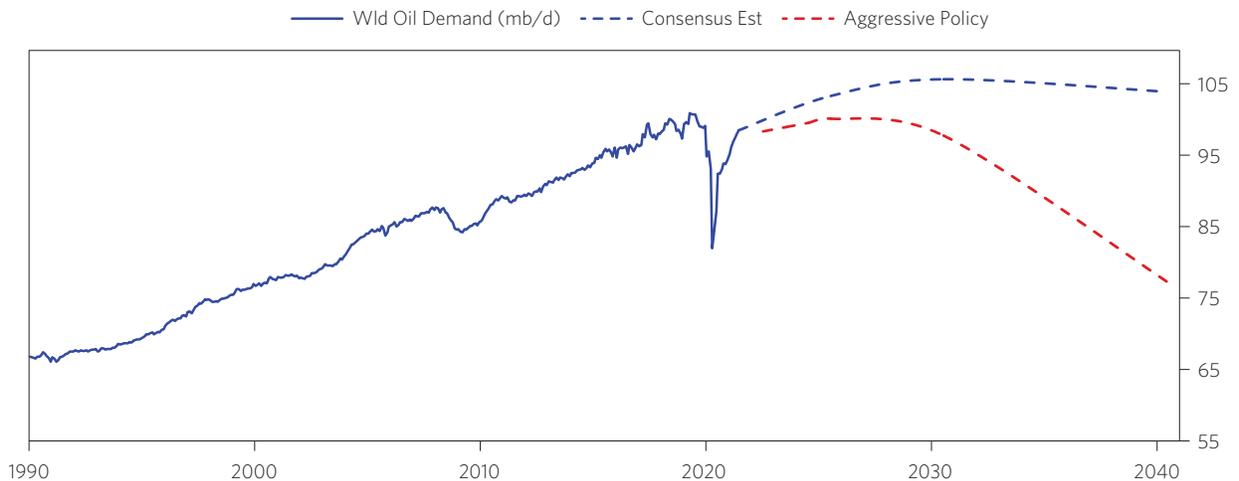
As a result, oil demand is more likely to fall through policy action (e.g., taxes, subsidies) or the development of cheaper alternatives than through supply pressures. Reduced supply makes oil expensive, with the revenue going to producers; carbon taxes make oil expensive for consumers but not producers, with the revenue going to governments, who can give the money back to consumers or invest in subsidizing alternatives. If oil is expensive through reduced supply, you keep incentivizing new suppliers to come in and take advantage of the

windfall (potentially through private companies less susceptible to climate action pressure, as we have seen in the most recent oil recovery). If oil prices to suppliers fall because of taxation or cheaper alternatives, fewer suppliers will want to enter, making price increases to consumers more permanent.

To illustrate how difficult it is to make a dent in oil demand quickly, the charts below show the oil price levels that were historically needed to begin incentivizing players to shift away from oil in the US. Historically, we have seen oil demand growth decouple from economic activity to the downside at times when oil prices rose above \$85–90/bbl.

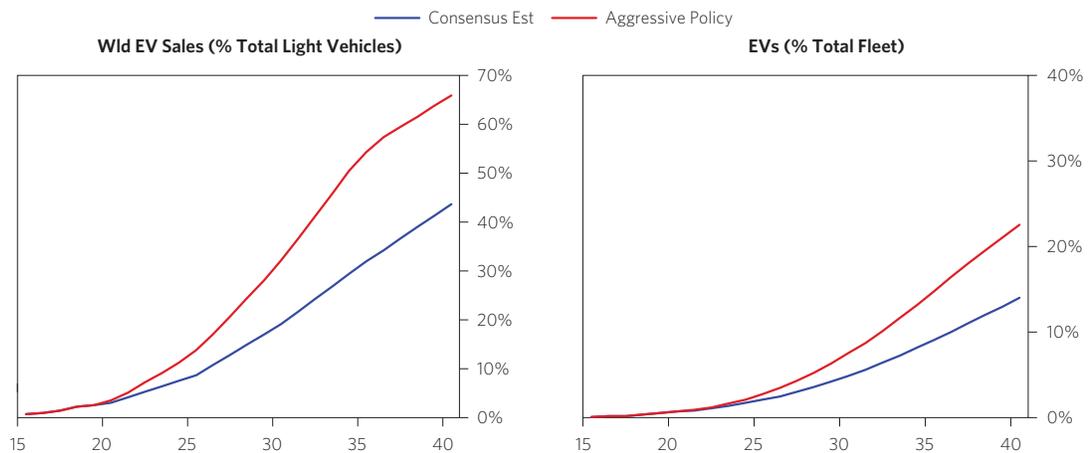


Of course, the fact that oil price increases did not seem permanent at those times slowed the impact (why invest in changing if it's a short-term spike in prices?), and aggressive policies can accelerate a transition away from oil in lots of ways. But, today, consensus expectations are that oil demand is likely to grow over the next decade, and almost all estimates we are aware of don't indicate a meaningful inflection point is likely before 2030. COVID-related changes and electric vehicle adoption over this time frame are expected to be small negative influences on oil demand.



The big thing for investors to watch out for is a transition shock—i.e., policies that more aggressively reduce the demand for oil, by pricing carbon or subsidizing alternatives. Such policies, if they emerged, would not only have important influences on the oil market and the countries, currencies, and companies reliant on it—they would also affect the broader economy, as they may be inflationary or deflationary depending on the path to transition chosen by policy makers. There are two main initiatives we think investors should be watching that could alter this picture:

1. **Favoring Specific Oil Alternatives:** For example, government subsidies and incentives could force a rapid shift to electric vehicles. As shown below, the shift to electric vehicles is just starting, and it will likely take time for the global auto fleet to turn over; aggressive rules could create a meaningful change in demand. Debates in Europe about when to outlaw cars with internal combustion engines reflect the scope for increased action.

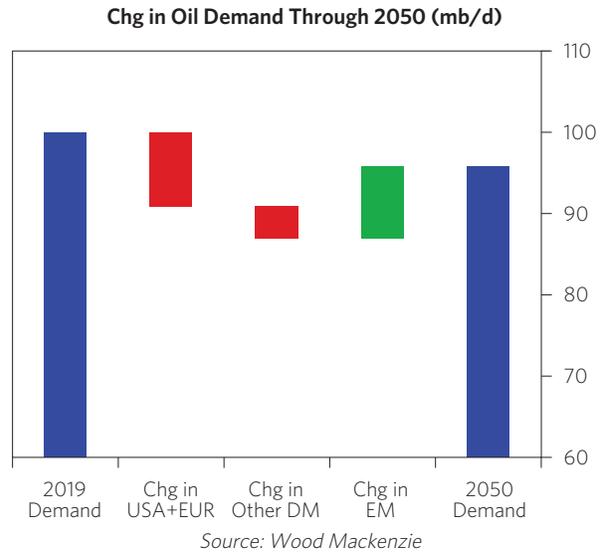
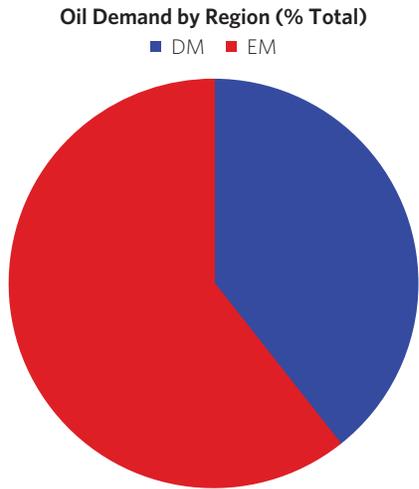


2. **Taxing Carbon Emissions:** A broader approach is simply taxing emissions. If oil prices to consumers rise due to taxes, price increases may seem more permanent, accelerating the transition; businesses will feel more certainty that it's worthwhile to invest in a switch if they need to pay for emissions certificates every time they touch oil. We are starting to see carbon pricing regimes, primarily in wealthy countries, but progress toward meaningful carbon prices is slow.

Scan of Carbon Taxes and Emissions Policies

| Economy | Details |
|---------|---|
| EUR | Emissions trading system in all EU and 3 non-EU countries. Several European countries have a carbon tax. |
| CHE | Carbon tax on fossil fuels (heating oil, natural gas). |
| GBR | Emissions trading scheme that applies to energy-intensive, power-generation, and aviation sectors. |
| KOR | Emissions trading scheme for facilities producing > 25k tons of greenhouse gas emissions. |
| JPN | Tax on oil, natural gas, and coal. |
| NZL | Emissions trading scheme that covers all sectors (ex-agriculture). |
| CHN | Recently launched emissions-trading program; will include companies in power sector, which in total account for a seventh of global carbon emissions (from fossil fuel combustion). |
| IND | Tax on coal. |

Most of the progress we see toward policies that reduce oil demand is in rich countries, while over half of global oil demand is in emerging markets—and all of the projected growth in demand going forward comes from these countries. This means that the bulk of oil demand is coming from countries where significant carbon taxes don't appear very likely. As oil prices fall as a result of reduced rich-country demand, OPEC+ producers will have the incentive to keep pumping and make the price just low enough to discourage consumers to switch. Creating carbon pricing only in Europe or other rich economies will not be enough, unless it leads to the development of cheaper alternatives to oil that are then economic for all countries to adopt.



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