Trend Macrolytics, LLC
Donald Luskin, Chief Investment Officer
Thomas Demas, Managing Director
Michael Warren, Energy Strategist

MACROCOSM

The Electric Future is Driven by Oil

Friday, February 19, 2021

Michael Warren and **Donald Luskin**

Hybrids will dominate new car sales. A renewed Iran deal is a bigger threat to oil prices.

Mission accomplished. But will it stay accomplished? As we predicted last year at catastrophic lows, oil prices have come all the way to pre-pandemic levels (see "On the WTI Crash" April 20, 2020, and more recently, see "Shale Survives, and May Soon Thrive" December 8, 2020). The big freeze in Texas has added a little bit of frosting on that cake (it might have been worse, had the pandemic lockdowns not left very high levels of global inventories). But the real reason why prices have made it into the lower region of our intermediate-term target range from $60 to $70 is that this is where global producers want them. OPEC-Plus and US producers are prudently pacing production to the recovery of post-lockdown consumption demand. As demand grows, so will production.

But we're going to have to lower our intermediate term price target now, to $50 to $60 to reflect the increasing risk of a potentially very serious bear case, which we've been warning about for months – that the Biden administration might resurrect the Iran nuclear deal (see, most recently, "A Boom in 2021… But What Could Make It Bust?" January 4, 2021). Yesterday the US announced it will participate in formal negotiations, at the invitation of the European Union. *It won't be easy to make a new deal*. But if it happens it would lead to the waiving of US sanctions, allowing Iran to flood the global market with 2 million barrels per day of crude. We have no idea to what extent, if any other OPEC-Plus members would cut their own production to make room for this, especially since Saudi Arabia will surely feel betrayed by this US accommodation to a regional super-rival. But *considering that global oil markets were glutted before the pandemic panic, and with Iran's production sidelined, there is the risk of a catastrophic oversupply in the absence of offsetting cuts in other producing nations*. We will have more on this as it develops.

Abbreviations used in this report

BEV: Battery electric vehicle
FCV: Fuel cell vehicle
HEV: Hybrid electric vehicle
ICV: Internal combustion vehicle
NEV: New energy vehicle (BEV+FCV+PHEV)
PHEV: Plug-in hybrid electric vehicle

This report, though, is primarily about another longer-term threat overhanging oil prices in the post-Trump world – the proliferating government mandates to convert to electric vehicles. Combined with the advent of fracking on the supply side, it's part of our long-standing secular view that oil prices should equilibrate back to their ultra-long-term inflation-

Update to strategic view

OIL: Oil prices got back to pre-pandemic levels and our price target of $60 to $70, on recovering demand and OPEC production discipline, helped by the Texas freeze. We are now lowering our target to $50 to $60, on the announcement that the US will engage in negotiations to renew the Iran nuclear deal, which could result in massive oversupply as Iran's production comes back on the market. On a more secular basis, the threat to prices is the electrification of mobility, egged on by government mandates. Politicized rhetoric is exaggerating the demise of internal combustion engines. China's failures in promoting electric vehicles shows that hybrids, with an internal combustion engine and a battery-powered drivetrain, are a necessary "bridge vehicle" to an electric future. In China in 2035, pure internal combustion vehicles will have no share of new car sales – but an internal combustion engine will be the dominant partner in hybrids that will be more than half the market, leaving oil a significant mobility fuel.

adjusted average price of about $38 (see "I Have Seen the Future, and It Fracks" February 24, 2015). *But as far as the next chapter of this long story is concerned, we think oil will have a surprisingly robust role to play even in a world of more and more electric vehicles. Most of the politicized rhetoric about it ignores the role of hybrid electric vehicles (HEV) – in which a gasoline-powered internal combustion engine is the senior partner alongside a parasitic battery-powered drivetrain. This points to a long-term role for oil as a mobility fuel even in a greener electric future.*

China's experience over a decade of mostly failed fleet electrification demonstrates this clearly.

- A broad but shallow executive order issued by Biden on his first day in office followed through, at least symbolically, on his campaign "climate plan" that would curtail oil and gas production and promote green alternatives. There's nothing in the order or the plan even mentioning that internal combustion engines would be phased out.
- But there's political demand for Biden to move in that direction. And around the world there are many nations, states and cities that have already made more explicit commitments. Yet even the strongest-seeming commitments, such as that of the State of California to ban internal combustion vehicle (ICV) sales after 2035 are less than meets the eye. Governor Gavin Newsom's press release doesn't disclose the reality that the actual executive order only establishes that ban as "a goal." *That's because it's harder than its advocates would like you to believe.*
- *Battery-electric vehicles (BEV) are more expensive than otherwise similar ICVs*. A case in point: two years ago, Volvo announced it would sell no ICVs in two years. As it has turned out, they are still selling ICVs, which are more than $20,000 cheaper than comparable BEVs (we covered this, and more, in "The Peak Oil Myth is Back (But This Time It's Demand)" July 12, 2017).
- Cost differentials can potentially by subsidized away, but it remains the case that consumers face further cost hurdles, including having to upgrade garage electrical outlets, and in some locales (such as California) pay more per-mile for electricity than for gasoline.
- Despite some improvement in battery technologies, BEVs have limited range, making them a non-starter for many mobility applications. On the road, it takes an unseemly amount of time to recharge the battery, even if a charging station can be found. Charging-stops could be hastened by hot-swapping the exhausted battery with a fully charged one, but so far there is no standardization on battery technologies or form-factors.
- *China has been a world leader in pushing top-down mandates for electrification of mobility. So they are ahead of us in having their hopes dashed by these and other practically realities, that are pointing toward the re-embrace of internal combustion engine as part of an HEV.*
- Despite leading the charge, so to speak, for electrification, China has not banned the ICV, no matter what you may have read in the media.

Contact TrendMacro

On the web at trendmacro.com

Follow us on Twitter at twitter.com/TweetMacro

Donald Luskin
Dallas TX
312 273 6766
don@trendmacro.com

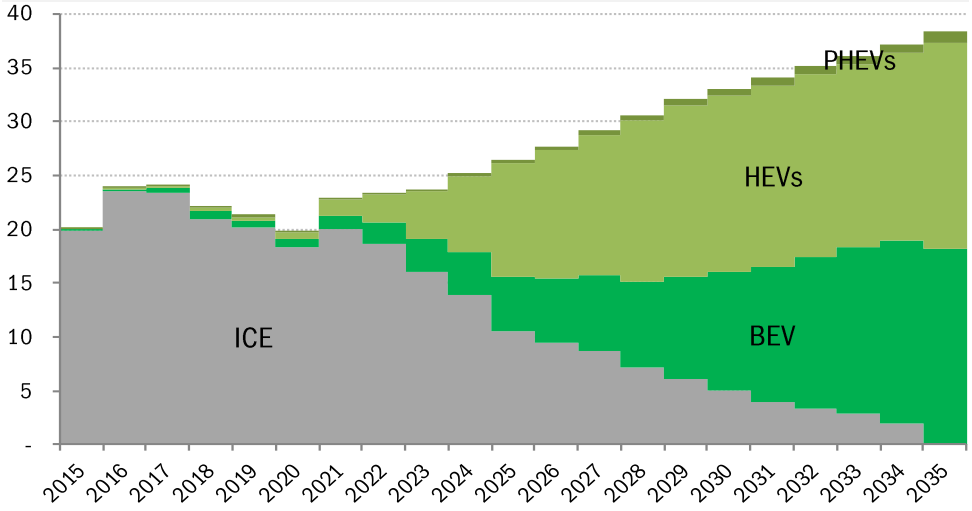
Thomas Demas
Charlotte NC
704 552 3625
tdemas@trendmacro.com

Michael Warren
Houston TX
713 893 1377
mike@trendmacro.energy

[About us]

- More than a decade ago, in early 2009, China launched a new energy vehicle (NEV) mandate to: 1) help domestic manufacturers develop battery electric powertrains that leapfrog the foreign competition and their internal combustion engines; 2) help secure China's energy future by reducing reliance on oil; 3) reduce air pollution; and 4) grow China's domestic economy and exports with NEVs and associated technology. The NEV mandate set cumulative sales targets of 500,000 by 2015 and 5 million by 2020.
- To meet its aggressive targets, the government announced initial subsidies to automotive manufacturers of battery-electric vehicles, (BEV), plug-in hybrid electric vehicles (PHEV) and fuel cell vehicles (FCV). A bevy of start-ups and established automakers received both federal and provincial largesse as they raced to churn out NEVs. Many provinces wanted to create a "winner" at their level with non-traditional automakers receiving sizeable grants, establishing local charging grids, and devising favorable laws to ensure that their NEVs would be successful.
- It took a year longer than expected, till 2016, to even pretend to hit the initial 500,000 NEV target. Many fraud inquiries were opened against smaller NEV producers at the provincial level for taking subsidies against reported sales that never took place. The federal government realized that its NEV strategy wasn't working, despite having spent more than $100 billion on subsidies.
- There are many reasons for this failure (again, see "The Peak Oil Myth is Back (But This Time It's Demand)"). But the bottom line is that, *after throwing the kitchen sink at the problem, the Chinese learned that a plethora of technological, infrastructural and consumer-preference issues were making the all-electric vision a bridge too far – there would have to be more of a role for the tried-and-true internal combustion engine*.
- In the second half of 2017, the Chinese federal government reduced the subsidies per vehicle by 20% and raised minimum range limits every two years. This tweak and subsequent adjustments helped eliminate many provincial automakers from receiving federal subsidies and upgraded the competency of the industry. The central administrators also set for the first time portfolio fuel efficiency standards across a manufacture's range, and required a minimum share of sales that must be NEVs. Automakers that don't meet the NEV sales share and fuel efficiency levels must buy credits from automakers that do.
- The authorities feared domestic automakers couldn't produce enough NEVs – even with multinational automotive company tie-ups – to reach production levels that would satisfy state-directed demand. So in 2018, the government changed the foreign investment law to allow non-domestic automakers to build fully-owned plants in China, receiving low interest loans and vehicle production subsidies to increase NEV supply to the domestic economy. Import tariffs for NEVs were also lowered from 25% to 15% to increase domestic sales.
- By 2020, subsidies were to be eliminated altogether for BEVs and PHEVs, and the domestic manufacturers would have to compete on their own merit (albeit with some cushion from the import tariff).

China new car sales (millions)



Source: Bloomberg, TrendMacro calculations

But when the pandemic hit the global economy, Chinese authorities decided to extend the subsidies (albeit at a lower level and even higher range thresholds) until 2022.

- *Now we get to the endgame*. China made a major policy announcement that didn't get as much attention as it should have in the US press: The Energy-Saving and New Energy Vehicle Technology Roadmap 2.0. The new vision included, for the first time, sales of HEVs – again, a primary internal combustion engine and a secondary battery-electric power-train. An expert panel proclaimed, "China should pursue a shift to being fully electrified for traditional cars over the next 15 years, rather than entirely banning the sale of fossil fuel-powered vehicles." *That amounts to a capitulation to the necessity of preserving the role of the gasoline-powered internal combustion engine.*
- *The breakthrough here may seem technical, but it is significant. Previously, plug-in hybrids (PHEV) had been included – that is, vehicles that are expected to run entirely on batteries charged on the power-grid, with a minimalist internal combustion engine on board as a back-up and range-extender. The non-plug-in hybrid (HEV), on the other hand, operates in reverse: its internal combustion engine is primary, and indeed creates the kinetic energy that charges the battery, which in turn powers an electric engine that opportunistically kicks in to contribute to overall fuel efficiency.*
- PHEV's have always been pipedream anyway. According to the International Council on Clean Transportation, fuel consumption from PHEVs is two to four times higher under real world conditions compared to expectations. Private owners and fleet vehicle users tend not to recharge as often as modeled. The internal combustion engine, intended only as a back-up, ends up getting used as the primary, so PHEVs don't end up being much more fuel-efficient than HEVs. And considering that they are more expensive than

HEVs, they really don't have much of a purpose going forward (please see the chart on the previous page).

- The fate of HEVs in China had been unknown because they were not part of the original decade-old NEV subsidies program. With the new Roadmap 2.0, though, the authorities now project that HEVs will make up more than 50% of the new car sales market in 2035 (again, please see the chart on the previous page).
- *China's move to formally embrace HEVs after a decade of ignoring them tell us that an all-electric future for mobility is far easier mandated than done*. Even for China, despite dominance in the raw material market for batteries, *BEVs remain much more difficult and costly to produce, and more expensive to consumers*. There remain many issues with battery technologies that will take at least a decade to sort out and make BEVs price-competitive with ICVs, or as reliable.
- And for China and other developing nations, where coal is the staple fuel of the electric power gird, *emissions from ICVs end up being less than those from generating the power for BEVs*. This means the roll-out of BEVs in developing nations, where most new car sales take place, is somewhere between difficult and impossible.
- *So from the standpoint of oil as a mobility fuel, the pure ICV looks like a goner in China. But in 2035 more than half of new cars sold will nevertheless have an internal combustion engine on board – as the dominant partner in an HEV* (again, please see the chart on the previous page).
- *China is the template for the world. Hybrids are the solid bet to be the "bridge vehicle" to get us to an electric mobility future.*
- HEVs are well proven in the real word – Toyota's Prius has been in production almost a quarter of a century. All major automakers sell hybrid vehicles in Europe, China and the United States today. They come in many sizes and flavors, from Honda's Insight that improves fuel economy 10-15%, to the Prius at up to 40%.
- *Yes, at the margin it would seem that even these levels of fuel efficiency will diminish oil demand. Then again, fuel efficiency of ICVs is improving all the time, too. But as efficiency improves, all else equal, the total cost of vehicle ownership falls to the point at which it becomes an option for first-time buyers in emerging nations – where the bulk of new car sales will be in the future. And drivers anywhere may choose to drive more miles than otherwise. So fuel efficiency is not a dead-weight loss against total oil consumption – indeed, for all we know, it could increase it – indeed, as efficiency has improved so dramatically over the last half century it always has.*
- *Be that as it may, oil consumption isn't going to fall to zero on some arbitrary future date dictated by some government. And in the meantime, in the short term, it is sure to rise sharply as the global economy comes out of lockdown.*

Bottom line

Oil prices got back to pre-pandemic levels and our price target of $60 to $70, on recovering demand and OPEC production discipline, helped by the Texas freeze. We are now lowering our target to $50 to $60, on the announcement that the US will engage in negotiations to renew the Iran nuclear deal, which could result in massive oversupply as Iran's production comes back on the market. On a more secular basis, the threat to prices is the electrification of mobility, egged on by government mandates. Politicized rhetoric is exaggerating the demise of internal combustion engines. China's failures in promoting electric vehicles shows that hybrids, with an internal combustion engine and a battery-powered drivetrain, are a necessary "bridge vehicle" to an electric future. In China in 2035, pure internal combustion vehicles will have no share of new car sales – but an internal combustion engine will be the dominant partner in hybrids that will be more than half the market, leaving oil a significant mobility fuel.