
WE NEED ENERGY STORAGE...AND COMPANIES ARE RESPONDING

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Recently, the following headline caught my eye:

‘Tesla Supplier Panasonic Plans Additional \$4 Billion EV Plant in U.S.’¹

Even in an environment with significant inflation, and a monetary policy that may continue raising rates for some time, significant capital expenditure continues within the battery space.

Panasonic is particularly notable because, in July 2022, it announced a plan to build a roughly \$4 billion plant in Kansas. Now, it is announcing another plan for a roughly \$4 billion plant in Oklahoma².

The concept of securing certain supply chains globally has been a major theme in 2022, even if it’s been obscured by inflation, US Federal Reserve activities or the possibility of a recession. Semiconductors have been a big focus on that list, but so have the batteries that support the ongoing adoption of electric vehicles.

Geopolitics are always in the background of these supply chain considerations. While Panasonic (Japan) and LG Energy Solution Ltd. (South Korea) have made announcements in 2022 about plans to build plants directly in the US, Contemporary Amperex Technology Co. (CATL)–China’s top electric vehicle (EV) battery maker–has not been able to do the same. There was a plan in place, but US-China tensions have recently intensified, leading to postponement³.

Whilst drafting this blog, another headline appeared:

‘Honda, LG Energy Plan \$4.4 Billion EV Battery Factory in U.S.’⁴

It’s certainly an area in focus.

Where is EV adoption in the US currently?

For the full US market, roughly 6% of new vehicles are electric. In California, this number was 16% in the second quarter of 2022⁵.

There is an interesting contrast between California and other states in the US. The

European Union (EU) announced that new cars must be free from emissions after 2035⁶. Many of the individual countries had already made similar plans. Norway's government has a plan to not sell any new petrol or diesel cars from 2025 onwards, and 70% of new cars sold in Norway in 2020 were electric⁷.

The individual states across the US, on the other hand, have not signalled commitments anywhere close to this, at least not yet...with the exception of (you guessed it), California!

New regulations applying to new cars, pickup trucks and SUVs would establish annual thresholds for the share of zero-emissions vehicles automakers must sell in the state each year⁸.

- 35% in 2026
- 68% in 2030
- 100% in 2035

The Clean Air Act of 1970 granted California a waiver to set its own environmental rules, and this allows for stricter standards than other states across the US. Other states can adopt California's rules. For those following politics⁹:

- The Trump Administration in 2019 stripped California of its waiver. Some companies still voluntarily sought to meet California's stricter standards, but there was a division.
- The Biden Administration then gave California back its waiver in March 2022, which allowed for these new rules.

Depending on the path of US politics, we'll have to see how the story continues to evolve but, with each passing year, it is doubtful that politicians would be able to fully stop the trend of EV adoption. Maybe it would slow and certain states would hold out, but even the automakers themselves are noting a desire to go fully electric in their production within the coming decades.

Hydrogen?

One thing we know about hydrogen is that the market loves to 'hype' this concept. Even though the full development of an infrastructure that would support use of hydrogen at scale will take years—possibly a lot of years—at the end of 2020 and start of 2021 many of the firms focused on hydrogen had sky-high valuations¹⁰. The market wanted to price these firms as though the potential had already been realised, so we know that returns have been much harder to come by in the space in most of 2021 and 2022 so far.

Plug Power is one such company and, on 25 August 2022, it agreed to provide 10,950 tonnes per year of liquid green hydrogen starting in 2025¹¹. 'Green hydrogen' refers to hydrogen that has been produced using renewable, carbon-emission-free energy. If Amazon wants to decarbonise its operations and use hydrogen to do it, it's important that the production of the hydrogen isn't simply moving the emission generation from Amazon's operations toward Amazon's energy suppliers. Amazon has committed to be net-zero in terms of carbon emissions by 2040.

As a rough guide, this amount of hydrogen that Plug Power would supply could power between 1,000 and 2,000 heavy duty trucks over the course of a year¹². It is an area of active debate and development regarding the best way to decarbonise heavy-duty trucks:

- Current lithium-ion battery technology could work, but batteries would be very heavy and the need to stop for charging could prove a challenge on longer-haul trips. Charging massive, semi-truck sized batteries could also take much longer than passenger cars.
- Hydrogen offers interesting alternative benefits but, currently, the discussion should focus on the supply chain. First, the infrastructure of hydrogen fuelling stations needs to be build out, securing the supply of hydrogen on major routes. Second, the production of hydrogen needs to be green, or else all the companies trying to use hydrogen as part of net-zero emissions plans would have to look elsewhere.

Our take on hydrogen for the moment is one of reasonable optimism, recognising the benefits but, at the same time, not getting too excited too quickly.

Conclusion: countries want to be energy independent

Decades ago, the only way countries could be energy independent was to find massive deposits of oil. While we still use fossil fuels globally, energy independence in the coming decades will likely look quite different, and the countries that secure the best possible energy storage technologies could be in the best position as they deploy all sorts of renewable energy technologies to power their needs.

To this end, there are going to be a lot of advances in regulations, energy storage technologies and all the while capital expenditures to build out all sorts of infrastructure and production capability.

Sources

¹ Source: Davis, River & Rebecca Elliott. "Tesla Supplier Panasonic Plans Additional \$4 Billion EV Battery Plant in U.S." Wall Street Journal. 26 August 2022.

² Source: Davis, 26 August 2022.

³ Source: Davis, 26 August 2022.

⁴ Source: Davis, River & Dasl Yoon. "Honda, LG Energy Plan \$4.4 Billion EV Battery Factory in U.S." Wall Street Journal. 29 August 2022.

⁵ Source: Colias, Mike & Christine Mai-Duc. "California Approves Rules to Ban Gasoline-Powered Cars by 2035." Wall Street Journal. 25 August 2022.

⁶ Source: <https://www.dw.com/en/eu-agrees-new-cars-must-be-emissions-free-after-2035/a-62296555>

⁷ Source: <https://www.statista.com/statistics/696187/electric-and-hybrid-cars-number-in-norway/>

⁸ Source: Colias, 25 August 2022.

⁹ Source: Colias, 25 August 2022.

¹⁰ Source: Bloomberg.

¹¹ Source: Palumbo, Angela & Al Root. "Plug Power Stock Jumps on Hydrogen Supply Deal with Amazon." Barron's. 25 August 2022.

¹² Source: Palumbo, 25 August 2022.

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