

Tesla's Lithium Refinery in Texas Ushers in a New Era for Critical Minerals Refining in the US

written by Matt Bohlsen | May 17, 2023

As [announced](#) on May 8, 2023, [Tesla Inc.](#) (NASDAQ: TSLA) has recently broken ground on their new lithium refinery in the greater Corpus Christi area of Texas, USA. The new, [more than US\\$1 billion](#) Tesla refinery will produce battery-grade lithium hydroxide ("LiOH") with targeted commissioning by the end of 2023. Given Elon Musk's track record, it may be more likely to shift into 2024.

The significance is that the new Tesla LiOH refinery will kickstart a new chapter for U.S. critical minerals refining in North America.

Tesla's Texas refinery will kick start a new chapter for U.S. critical raw materials refining in North America, starting with lithium

Currently, there are zero LiOH refineries in North America. Most are in China and there are two new refineries in Western Australia.

A Tesla LiOH refinery will have huge follow on benefits for Tesla and the North American supply chain, including:

1. North American or South American lithium spodumene mines

would be able to send their spodumene for processing to the Tesla LiOH refinery in the USA. This is a huge plus for all of these lithium projects as otherwise their material would have been sent to China for processing. This, therefore, supports a new lithium supply chain that can be independent of China.

2. Tesla can secure LiOH without outside help. Tesla currently has a spodumene [off-take supply agreement](#) with [Piedmont Lithium Inc.](#) (NASDAQ: PLL | ASX: PLL) from their joint venture with [Sayona Mining Limited](#) (ASX: SYA | OTCQB: SYAXF) at the North American (“NAL”) Lithium Mine in Quebec, Canada which has only very recently begun spodumene production. It would seem a rather obvious next step that Tesla would look to secure more lithium spodumene off-take as they grow their LiOH production. Tesla does have an [off-take agreement](#) with [Liontown Resources Limited](#) (ASX: LTR) from their Australian Kathleen Valley Project. But Tesla will need much more spodumene if it wants to produce ever greater amounts of lithium. We know Tesla plans to ramp up to 20 million electric cars produced per year by 2030 and yesterday Elon Musk revealed Tesla could potentially grow their energy storage business to 500GWh per year. Elon Musk stated at the [Tesla 2023 Shareholders Meeting](#) (52 min mark of the video): *“The Tesla Megapack is now more competitive than a natural gas peaker plant.....growing faster than our vehicle sales....I think long term.....stationary battery pack activity will be in excess of **500 GWh** a year...**the demand is quasi infinite.**”* Tesla plans to use lithium iron phosphate batteries, so the key element for Musk to source would be lithium.
3. Other companies will follow Tesla’s lead, not only in lithium but in several other battery materials, notably nickel, cobalt, and graphite.

Tesla Texas refinery to do more than just lithium

A small, yet important, part of the announcement [stated](#): *“In the future, we expect this facility to also process other intermediate lithium feedstocks, including recycled batteries and manufacturing scrap.”*

This suggests Tesla also plans to get into the lithium-ion battery recycling business. That part may also tie in nicely with yesterday’s [announcement](#) of JB Straubel being appointed to join the Tesla Board. JB Straubel is a co-founder of Tesla, but more recently he also founded and is the CEO of [Redwood Materials, Inc.](#), a company focused on recycling lithium-ion battery materials to source valuable metals such as cobalt, nickel, copper, and lithium.

The faster we can make battery packs, the faster we can move to a sustainable energy economy

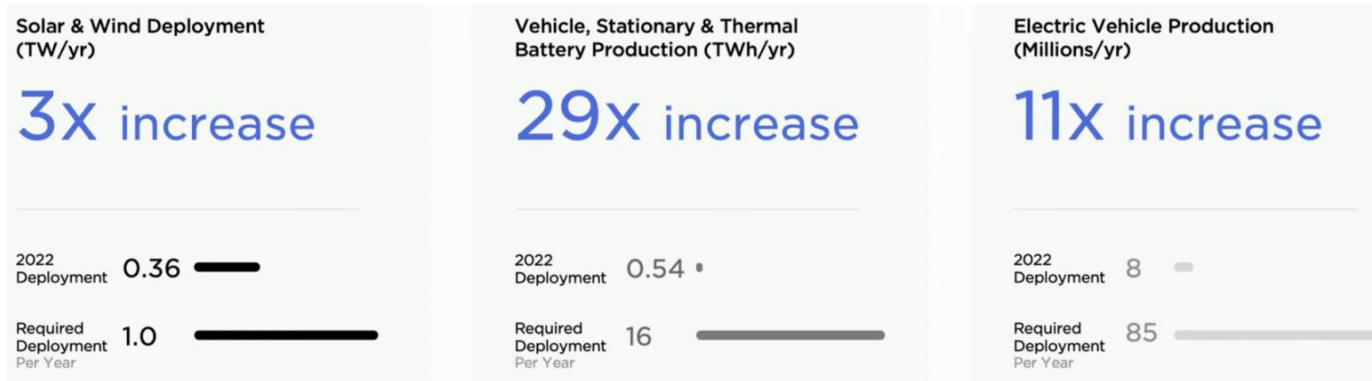
At the Tesla 2023 Shareholder Meeting, Elon Musk [stated](#) (32 min mark): *“The faster we can make battery packs, the faster we can move to a sustainable energy economy. That’s the fundamental limiting factor.”*

The chart below reinforces this showing in simple terms what Elon Musk described yesterday that **solar & wind production needs to increase by 3x/year, battery production by 29x/year, and battery electric vehicle production by 11x/year.**

Elon Musk has [previously stated](#) that the limiting factor to making more batteries is lithium. Now we can see why Tesla is spending more than US\$1 billion to get into the lithium refining business. Lithium mining and then refining are the choke points

to achieve a 100% renewable economy.

FIGURE 1: Tesla says solar & wind annual production needs to increase by 3x, battery annual production by 29x, BEV annual production by 11x (from 2022 levels)



Source: [Tesla 2023 shareholder meeting](#)

Closing remarks

A lot is happening very fast in the world of renewable energy and the electrification of transport.

Tesla Master Plan 3 and 2023 Shareholder Meeting has clearly defined what is needed to be done to move to a sustainable energy future. All of this is achievable and Tesla is way out in front with ever-increasing electric vehicle and stationary energy storage/solar factories and now a Tesla lithium refinery (under construction) and soon a battery recycling facility.

Tesla is rapidly gaining market share in the new renewable energy economy and is now securing their supply chain with a U.S. lithium refining facility.

May has been magnificent and the decade ahead looks to be very promising for investors focused on the greatest trends of our time – Renewable energy (solar/wind), lithium-ion battery energy storage, and electrification of the transport sector.

FIGURE 2: Schematic of Tesla's under-construction lithium refinery at Corpus Christi, Texas, USA

Lithium Refinery in Texas



60 GWh/year capacity

Starts commissioning end of 2023

Source: [Tesla 2023 shareholders meeting \(video\)](#)