



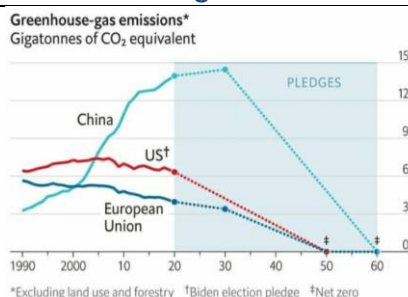
## Indonesia: Boost from nickel boom

Nickel is usually used as an alloy with other metal to improve their strength and resistance to corrosion such as in the production of stainless steel but is increasingly found a niche in batteries found in electric vehicle (EV) whereby nickel content in a battery can be as high as 80% for nickel cobalt aluminum (NCA) base compared to 8-10% in stainless steel. While the volumes used in batteries is still small (5%) compared to stainless steel production (70%), we can expect the proportion to change as the demand for EV increases. According to one forecast, there will likely be a structural nickel deficit over the next decade if demand from batteries continues to grow at current rate. There were only 17 000 electric cars on the world's roads in 2010. By 2019, that number had swelled to 7.2 million, 47% in China which is a leader in electrifying public and commercial vehicles and incidentally also has biggest global consumer of steel.

### Electric vehicles driving nickel demand

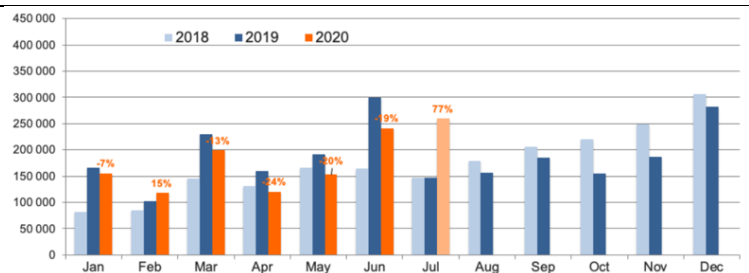
There is a gradual shift away from internal combustion engine towards more carbon-friendly vehicles including electric vehicles. The Paris Climate Change Accord signed in 2015 acts as a preamble towards global shift towards carbon neutrality (Figure 1). Globally, transport accounts for around a quarter of carbon dioxide (CO<sub>2</sub>) emissions with road vehicles accounting for three quarters of gas emissions from the transport sector. The increasing focus and shift to EV makes sense as global EV sales in July 2020 increased by 77% year-on-year. (Figure 2). Take for instance in the United Kingdom alone, plug-in EV sales (excluding hybrids) rose above 12% in October and was above 9% in the first 10 months of 2020 following news of the UK's plan to ban sales of new gas/diesel cars by 2030.

**Figure 1: Emission Pledges**

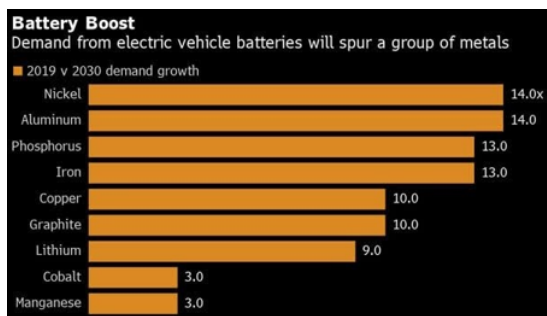


Source: Climate Action Tracker

**Figure 2: EV Sales (2018 – July 2020)**



Source: EV-Volumes



Source: Bloomberg NEF

A Tesla Model 3 EV contains about 30kg of nickel which is the most important battery fabrication component. It takes 7-10 years to bring new nickel mines into production. Currently, there are 89 million mt of nickel reserves worldwide. Growing demands for EV means that there could be a structural deficit for nickel in the next twelve years.<sup>2</sup>

Michael Beck – Regent Advisors

## Why Indonesia?

Indonesia is the world's biggest nickel producer accounting for 28.7% of worldwide nickel reserves and 32% of market share (817,000 tonnes). Furthermore, the government had in January 2020 enacted a nickel ore ban and made it mandatory for mining companies to build their own smelters before they can export. In the short-term, this would entail higher capex spending, but in the long run, would raise the value-add to nickel companies in the country.

Figure 3: Nickel Usage

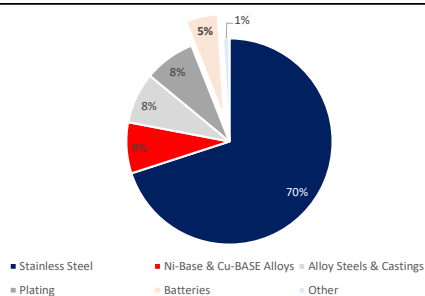
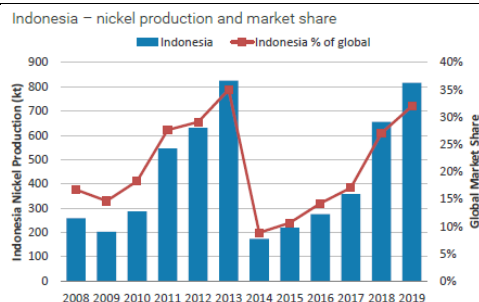


Figure 3: Indonesia Production & Market Share



Source: Nickelinstitute.org

Source: Morgan Stanley Research, Wood Mackenzie

## Investments in nickel smelters & battery plants

Following the state's ore ban, there has been a significant investment in smelting facilities with 48 smelters slated to be operational by 2024, compared to about a dozen currently, according to the Minister of Energy and Mineral Resource. Some of the new facilities will be used to process low-grade nickel (limonite) for batteries, while the more advanced high-pressure acid leaching (HPAL) plants are ongoing, notably led by PT Vale Indonesia with Sumitomo as its partner.

Furthermore, the government is also upping its ante in the battery department, with the formation of Indonesia Battery Holding (IBH) which will focus on EV battery production. Foreign investors such as leading EV manufacturer, Tesla, as well as South Korea's LG Chem and Hyundai Motor Group are also in discussions to set up EV battery plants in Indonesia. With investments in downstream products and the support of foreign investors including Chinese steel players such as Tsingshan Steel Indonesia, the outlook for the nickel sector looks upbeat.

### Sources:

<sup>1</sup> <https://www.iea.org/reports/global-ev-outlook-2020>

<sup>2</sup> <https://cleantechnica.com/2020/08/25/is-nickel-the-new-gold-tesla-ceo-elon-musk-comments-inspire-interest-in-nickel/>

<sup>3</sup> <https://indonesiawindow.com/en/indonesia-builds-48-smelters-to-increase-nickels-value-added/>

<sup>4</sup> <https://www.thejakartapost.com/news/2020/10/16/indonesia-sees-china-firms-lead-commitment-for-35b-nickel-investments.html>

<sup>5</sup> <https://electrek.co/2020/11/13/tesla-tsla-inches-closer-battery-factory-deal-indonesia/>

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