Does nickel hold the key to Indonesia's success in the EV industry?

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The Indonesian government announced in 2017 that it was drafting a new incentive policy aimed at supporting the development of electrified vehicles (xEVs) through the provision of preferential terms for local production. Known as the Low Carbon Emission Vehicle (LCEV) programme, the policy was finally ratified by President Joko Widodo in August 2019.

When compared to its ASEAN neighbours, however, Indonesia is lagging behind the likes of Thailand and Malaysia, which are currently spearheading growth in the region's xEV industry. Indeed, both countries have similar schemes in place for their respective public transport and PV sectors.

So why is Indonesia behind the curve in joining the regional push for vehicle electrification? The simple answer is price sensitivity. As material cost is a critical factor for manufacturers hoping to gain a competitive advantage in this embryonic sector, the government plans to establish a strong xEV manufacturing ecosystem, with a particular focus on battery production.

Nickel will form the basis of Indonesia's battery production ecosystem

To accelerate its global standing in the xEV market, Indonesia plans to maximise its position as a leading producer of nickel. The statistics indicate that Indonesia led the world’s nickel output in 2018. Other major producers were the Philippines, New Caledonia, Russia, Australia and Canada.

As a primary raw material, nickel has been widely used in a variety of xEV batteries, most notably in cathode formulations, i.e. lithium-ion (Li-ion), nickel-metal hybrid (NiMH), nickel-manganese cobalt (NMC) and nickel-cobalt aluminium (NCA).

Demand for nickel is set to rise in tandem with the global increase in xEV consumption, particularly as nickel offers the distinct advantages of delivering higher battery energy density and greater storage at a lower cost. The Indonesian government has recognised the value of this precious commodity and recently announced plans to end all nickel exports from January 2020, in order to accelerate the proliferation of a domestic nickel battery production industry.

This is a shrewd move by the government as making batteries easier and cheaper to acquire should entice more global OEMs to invest in hybrid and/or xEV production in the country, particularly as Indonesia is already the second-largest PV production hub in the ASEAN region.

Any investment will be considerable, however, as there are at least five different manufacturing processes required for a battery to become operational, starting with nickel ore smelting, followed by battery cell assembly, battery module assembly, battery pack assembly and, finally, assembly of the electrified vehicle.

Our view is that the LCEV policy is likely to induce foreign investment in Indonesia's burgeoning xEV industry. But nickel battery production alone will not be enough. A holistic approach will be required to generate sustainable consumer demand. If the government adopts the right approach, then Indonesia could rise to become one of the leading xEV sales and manufacturing hubs in the ASEAN region in the years ahead.