

Sustainability projects

Super-charging the global battery market

Just over a year ago, the West Australian government launched the Future Battery Industry Strategy, a plan to make the state a leading exporter of battery minerals, materials, technologies and expertise in a low-carbon future.

There have been more glamorous economic blueprints and more tantalising ambitions than to become “a central player in the global battery value chain”, but Premier Mark McGowan has embraced global demand for electric vehicles (EV) and energy-storage systems as a “once-in-a-lifetime opportunity” for his state.

In April 2019, it was announced that a \$135 million industry-backed research hub, the Future Battery Industries Cooperative Research Centre, would be based at Perth’s Curtin University.

Western Australia has substantial reserves of all the battery minerals used in the manufacture of rechargeable batteries for EVs, including lithium, nickel, cobalt, manganese, alumina and graphite.

To understand the economic potential of EV batteries, it helps to see batteries in their epoch-defining context: batteries will be as crucial to the automotive industry of the 21st century as the internal combustion engine was in the 20th century.

Bloomberg New Energy Finance makes this sobering assessment: “We see a real possibility that global sales of conventional passenger cars have already passed their peak.”

Bloomberg forecasts that by 2040, 57 per cent of global passenger vehicle sales will be EVs and will represent 30 per cent of the global vehicle fleet.

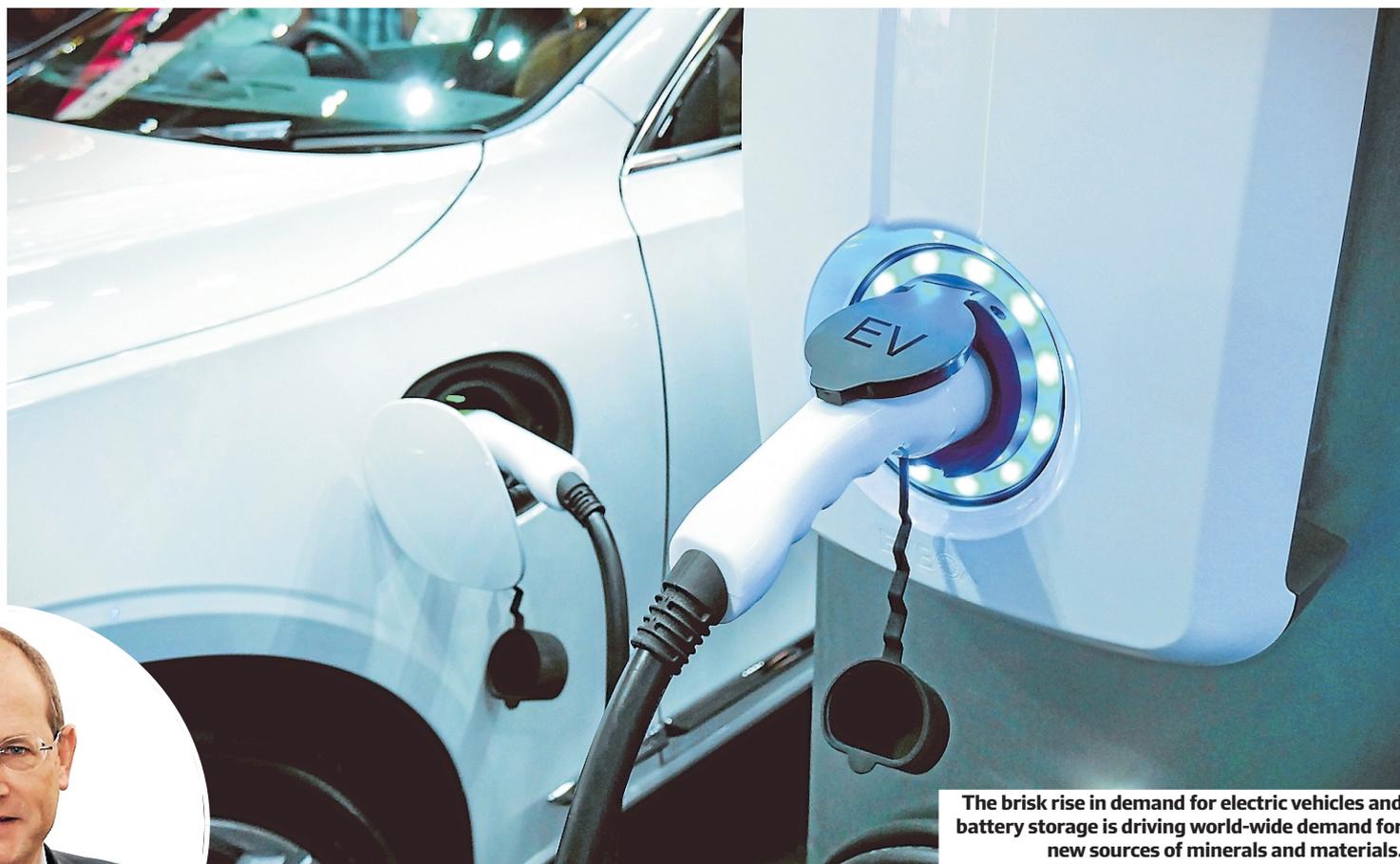
The rapid uptake of EVs and battery-based energy storage systems is driving global demand for new sources of minerals, materials and components.

Bloomberg says China will continue to lead in EV sales, accounting for 48 per cent of all passenger EVs sold in 2025 but this is expected to decline to 26 per cent by 2040.

In 2017, the European Union formed the European Battery Alliance to create a “competitive, innovative and sustainable” battery-cell manufacturing value chain in Europe. The alliance projects that the European battery market will be worth €250 billion (\$410 billion) annually by 2025.

The rise of EVs, coupled with Europe’s ambition to be a self-sufficient producer of battery cells, spells opportunity for Perth-based, ASX-listed EcoGraf (formerly Kibaran Resources).

EcoGraf proposes to build a processing facility in Kwinana, 30 kilometres south of Perth, that will produce high-purity battery graphite, suitable for use in lithium-ion batteries. The Kwinana plant will import natural flake graphite from existing producers around the world and use EcoGraf’s proprietary graphite purification technology to



The brisk rise in demand for electric vehicles and battery storage is driving world-wide demand for new sources of minerals and materials.



turn it into spherical graphite products for export to lithium-ion battery makers.

Battery graphite is used in the manufacture of anodes for lithium-ion batteries. It is a 99.95 per cent pure graphite product, which is shaped and purified to meet the stringent physical and chemical specifications required by battery-anode manufacturers.

EcoGraf managing director Andrew Spinks says customers increasingly seek alternative supplies of high-quality, responsibly produced raw materials.

“Our environmentally responsible purification technology will provide customers with sustainably produced, high-performance battery anode graphite.”

Andrew Spinks (inset above)

EcoGraf, which is also listed on the Frankfurt Stock Exchange, has an office in Untergriesbach, Germany.

Germany is at the centre of European ambitions to become a self-sufficient manufacturer of battery cells.

The German government has committed €1.5

billion to support large-scale battery-cell production.

German automakers are scrambling to build capacity. Volkswagen has acquired a 20 per cent stake in Swedish battery manufacturer Northvolt to build a battery cell factory in Germany.

Volkswagen expects to have 70 electric models on the market by 2028 under the Skoda, Audi, VW and SEAT brands.

BMW, which plans to have 25 EV models by 2023, has formed a technology consortium with Northvolt and Belgium materials technology company Umicore to work on the continued development of a value chain for EV battery cells in Europe.

EcoGraf is ideally placed not only to provide an alternative source of raw materials but also to satisfy the demand for clean, renewable energy for vehicle and industrial applications.

EcoGraf’s eco-friendly purification process does not use highly toxic hydrofluoric acid when cleaning natural graphite. Currently, 100 per cent

of the natural graphite used for batteries in China is cleaned by using hydrofluoric acid.

“As well as providing an alternative supply of battery graphite, EcoGraf will meet the growing demand from automobile and lithium-ion battery manufacturers for ethical, renewable energy,” Spinks says.

“Our environmentally responsible purification technology will provide customers with sustainably produced, high-performance battery anode graphite.”

EcoGraf’s battery graphite manufacturing project has a forecast up-front capital cost of \$US22.8 million (\$34.2 million) for an initial 5000 tonnes per annum (tpa) of battery-grade graphite, followed by an additional \$US49.2 million to expand production to 20,000 tpa. Production is scheduled to commence in 2021.

EcoGraf is also developing a multi-project natural flake graphite business, the Epanko Graphite Project, in Tanzania, to “complement and strengthen” EcoGraf’s battery graphite operations.

The Tanzanian project will provide customers with a long-term supply of high-quality graphite products for industrial applications such as refractories, recarburisers and lubricants.

“The combined EcoGraf battery and natural flake graphite businesses present a compelling opportunity for us to partner with customers and stakeholders across a range of graphite markets,” Spinks says.