Get Ready, Get Set, Go – EV Demand Raises the Boron Bull Flag.

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NASDAQ listed 5E Advanced Materials is building a vertically integrated boron products operation in California to supply growing EV and decarbonization demands

Today we take a look at the chemical element boron and at a NASDAQ-listed boron company with a globally significant boron resource in California. 'Boron' is element number 5 in the periodic table and its demand is growing as we move towards a green energy and electric vehicle (EV) future. That is because boron is lightweight, very hard (boron carbide), and has strong heat and corrosion resistance. It is also quite rare, making up just 0.001% by weight of the Earth's crust.

About 2.5–3.0% of an EVs weight is boron, or put another way there is about 46–50 kg of boron in the form of alloys in a passenger EV. Examples of boron use in EVs include high-strength boron–infused steel and boron containing magnets used in drivetrains. Boron alloys and compounds are also used in solar panels and wind turbines, in micronutrients and super fertilisers, in nuclear reactors, and in military applications such as boron-infused tank armor plating.

Boron demand is increasing especially in the areas of green energy (decarbonization applications). Boron demand is forecast to grow 10x by 2050, with a supply gap (deficit) forecast to

widen from the end of 2022. ~60% of global boron supply comes from Turkey and its state-owned assets and 85% of global supply comes from just two companies (Eti Maden & Rio Tinto).

Note: When you hear about electric motors being made with NdFeB permanent magnets, the 'B' refers to boron.

Boron uses

Source: 5E Advanced Materials company presentation

Boron supply gap forecast from end 2022 as demand increases and the new pipleine of projects supply is small

Source: 5E Advanced Materials website – Boron 101

5E Advanced Materials Inc.

5E Advanced Materials Inc. (NASDAQ: FEAM | ASX: 5EA) (5E) core business is founded on its low cost, light environmental touch, boron resource in Southern California, USA. According to 5E: "The Resource is designated Critical Infrastructure by the U.S. government and is the largest known conventional boron deposit globally."

5E is building a BORON^{+} Advanced Materials business that operates across the value chain from resource extraction, to refinement, to distribution. The business is backward integrated from customer product offering into processing and extraction methods. In other words, 5E finds the customer first and then works backwards from there.

The 100% owned Fort Cady Project in Southern California has a

Total Resource of ~327 million tons at 8.22% boric acid content and 323ppm lithium. The Total JORC Code Compliant Mineral Resource Estimate is 120.44 million tons at 6.51% B_2O_3, 11.57% H_3BO_3 and 344ppm lithium. Either way, it is a very large resource with a high boron content and some lithium by-product.

5E has already achieved an eDFS for Fort Cady and has all substantive permits in place. Next steps in 2022 will include a BFS, a small scale boron facility, and advancing off-take and potential partnerships. Beyond that production is targeted to begin by 2024+, subject to the above steps being completed.

5E's management and board have a wealth of relevant experience including CEO Henri Tausch having worked for Honeywell and COO Tyson Hall having worked for lithium giant Albemarle.

There are very few near term new boron projects, especially now that the Serbia government has blocked Jadar

Source: 5E Advanced Materials company presentation

Closing remarks

It is quite interesting that an EV has about the same amount of boron as lithium. As a critical technology material boron's use in rare earth permanent magnets is, indeed, critical. As an essential structural material boron's use in the many alloys and glass in an EV is necessary for light-weighting of the vehicle. While there are 100's of junior lithium miners scrambling to meet future lithium demand, there are very few companies focused on boron. Therein lies the opportunity. Even more important is the fact that 5E has a USA based project. It should not be overlooked, either, that 5E's boron deposit is the largest one known in the world.

5E has recently listed on the NASDAQ under the ticker “FEAM” so this should start to raise more awareness about the company and the ‘under the radar’ demand boom for boron potentially ahead as the green revolution takes off.

5E Advanced Materials Inc. trades on a market cap of US$801 million.