

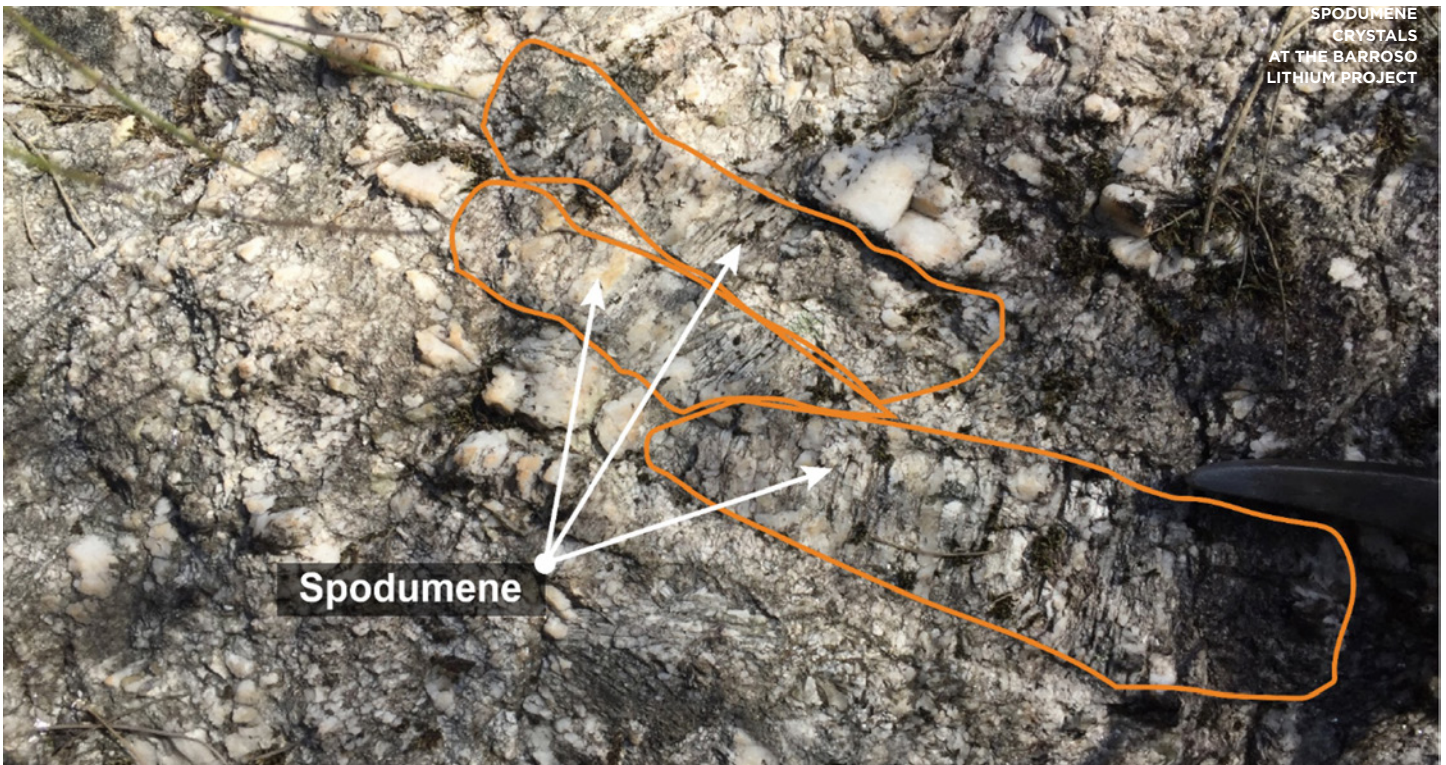
LITHIUM

Key Facts about Lithium

Lithium is a relatively abundant metallic element that is widely distributed in very low concentrations in various mineral compounds and salts in the earth's crust and seawater. Lithium is never found naturally in its elemental form, but it occurs in over 100 different, non-harmful mineral compounds.

Deposits which are economically viable to exploit are relatively rare and fall into three broad categories – hard rock (as at the Barroso Lithium Project), brines and clays. Production and processing techniques vary across these deposit types but the lithium raw materials they produce go on to be used in a wide range of products from ceramics to medicines and batteries. This fact sheet provides information about the production and uses of lithium.

The Barroso Lithium Project contains minerals of quartz, feldspar, spodumene and micas, with the lithium-containing mineral being spodumene. Spodumene is an inert, nonreactive, non-toxic, non-radioactive lithium mineral.



1. Why is a lithium Project being proposed in the Barroso area?

Portugal has the largest reserves of lithium in Europe (source: United States Geological Survey), and Savannah has shown through exploration that the C-100 Concession area has the largest deposit of the lithium-bearing mineral, spodumene, in Europe. This makes it an ideal location for a new producing operation to supply to supply both Portugal and Europe.

2. What will be produced at the Project?

The Project will produce spodumene concentrates, not lithium. The spodumene concentrate comprises crushed and ground rock in which the lithium oxide content has been increased or concentrated in a simple gravitational process mostly with water. This physical process will occur at the site of the Project.

A refinery then converts the spodumene mineral into a lithium salt – lithium carbonate or lithium hydroxide. Refining will not be done at the Barroso site but near the Portuguese coast or in other countries in Europe.

3. What is lithium used for?

The most important use of lithium chemicals is in the manufacture of rechargeable batteries for electric vehicles, mobile phones, laptops, and digital cameras. Lithium chemicals are also used in some non-rechargeable batteries for things like heart pacemakers, toys and clocks.

Lithium metal is made into alloys with aluminium and magnesium, improving their strength and making them lighter. Magnesium-lithium alloy is used for armour plating. Aluminium-lithium alloys are used in aircraft, bicycle frames and high-speed trains.

Lithium concentrates are also used in glass and ceramics including most everyday items found at home like plates, coffee cups and bathroom sanitary ware. Lithium is also important in the manufacturing of air conditioning and high-temperature lubricants.

Lithium is also a type of medicine known as a mood stabiliser and is an important medication and widely used for the treatment of anxiety and depression.

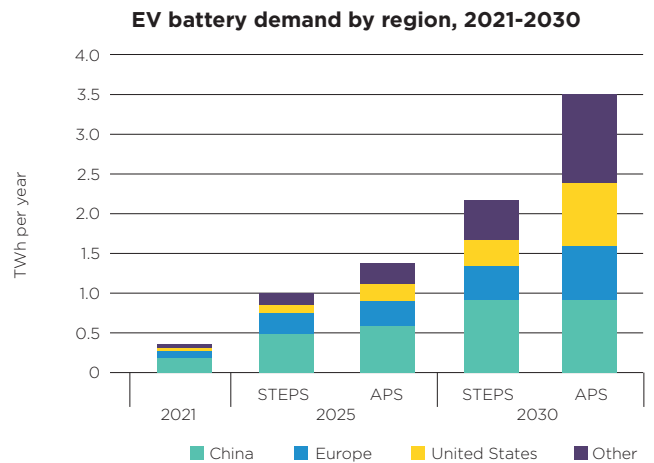
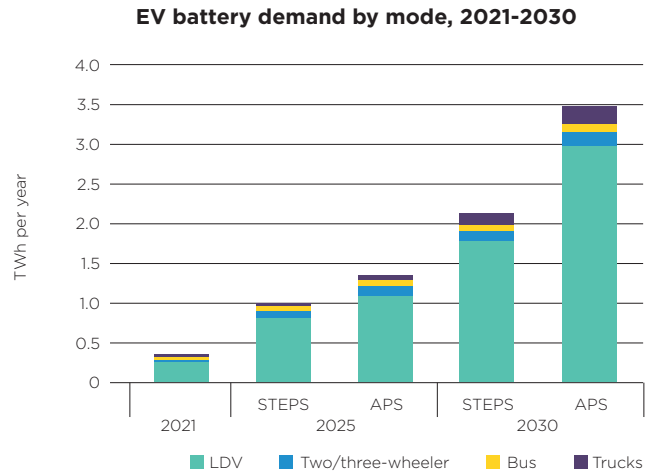
4. Why is demand growing for lithium?

To combat the effects of climate change a transition away from relying on hydrocarbons (coal, oil, gas, petrol and diesel) as our major source of energy and towards greater power generation from renewable sources, such as wind and solar is needed. Lithium-ion batteries are a proven technology, which can be used to store power generated by renewable sources, and provide power without any emissions in mobile applications, such as electric vehicles.

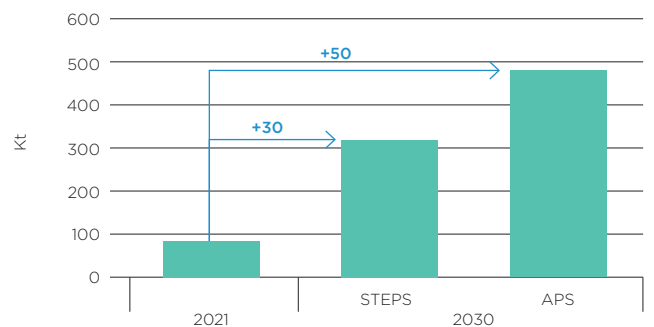
The International Energy Agency (IEA) estimates that demand for batteries from electric vehicles alone will increase between 6 and 10 times over this decade. As a result, the world must produce much more of the 'critical raw materials', including lithium, which make up the batteries.

For example, the IEA estimates that the world will need between 30 and 50 new lithium production projects, on average 60% bigger than the Project proposed by Savannah, to meet demand levels by 2030.

DEMAND FOR EV BATTERIES IS SET TO GROW 6-10 TIMES DURING THE 2020S (SOURCE: IEA)



THIS GROWING DEMAND WILL NEED 30-50 NEW LITHIUM PRODUCTION PROJECTS



STEPS = Stated Policies Scenario (Based on existing government policies and those under development)
 APS = Announced Pledges Scenario (assumes all 2030 targets and longer term net zero and other pledges are met)

If you would like more information or have any questions or comments, please visit or contact the Barroso Lithium Project Information Centres

Information Centre Addresses:

Boticas: Rua 5 de Outubro, nº26 , 5460-304

Covas do Barroso: Largo do Cruzeiro nº7, 5460-381

T : 276 413 042

E: centro.informacao@savannahresources.pt

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