

## Newsletter Third Edition on LinkedIn

### Progress in European Lithium – Barroso, Altmark, Dobra

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Welcome to this third issue of the Lithium Briefing from [thelithiumreport.com](http://thelithiumreport.com).

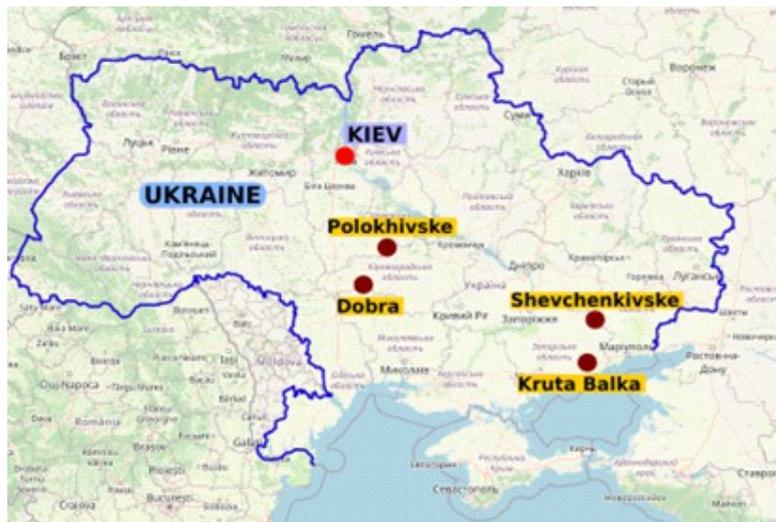
There have been three recent interesting announcements in Europe.

- In August, the Ukrainian Government issued a call for tenders for the Dobra lithium mine.
- In September Savannah Resources raised their resource estimate for the Barroso project in Portugal by 40%.
- And in late September, oil and gas company Neptune Energy announced that the underground Altmark brines in Germany contained a resource of 43 Mt LCE.

So is Europe improving its outlook for lithium production? Or are these just what the French call an *“effet d'annonce”*?

Let's have a closer look. The **Dobra** announcement is covered in Part One, followed by **Barroso** in Part Two and **Altmark** in Part Three.

## Ukraine issues tender for Dobra mine



*The Lithium deposits of the Ukraine. Shevchenkivske is the only pure spodumene deposit and now lies in Russian held territory. From “The Lithium Report 2025 – 2035: The Next 10 Years”.*

## Ukraine issues tender for Dobra mine

The **Dobra** resource is in central **Ukraine**, well away from any potential Russian sphere of influence. It is the **largest lithium deposit in the country**, holding about **3 million tonnes LCE** and the **grade** is good at 1.34% Li<sub>2</sub>O. However, **60% of the deposit** is made up of **petalite** and only 40% is spodumene. Petalite is generally only used for **glass and ceramics**, not production of lithium chemicals, because the lithium is difficult to extract. Recovery is generally 35 – 40%. Metso obtained 49% recovery in the laboratory from petalite from the Polokhivske deposit nearby. However this is only recovery to upgraded concentrate (3.45% Li<sub>2</sub>O): the concentrate then has to be processed in turn to extract lithium hydroxide or carbonate. **Overall yield** will therefore be in the region of **35 – 40%**.

It may be possible to **mine the spodumene separately** and any operator would target the spodumene first. The **spodumene** resource by itself would therefore be about **1.2 Mt LCE** if the grade is the same as the petalite.

There is also an ownership dispute over the property between the Ukrainian Government and European Lithium, who are also developing a lithium mine in Austria.

Petalite is not worthless though. The Bikita mine in Zimbabwe used to be the main supplier of petalite to western ceramics and thermal glass manufacturers. When Sinomine of China acquired the mine in 2022, they cut off the supply. This has led to renewed impetus to develop projects such as Separation Rapids in Canada to **replace the petalite supply**.

**Dobra** has the **second best grade in Europe** after Jadar in Serbia and is the third largest deposit in Europe which is why it is of interest but its main drawback is that it mostly consists of petalite and yield will be low. It would be better to supply the petalite for ceramics and use the spodumene for lithium chemicals.

Dobra contains about 100 Mt of ore. If 40% of that is spodumene, then extraction of 1 Mt of ore could be sustained for 20 years with a 50% mining factor. **Some 25,000 tpa LCE of spodumene concentrate** could then be produced.

## Neptune Energy Confirms One of the World's Largest Lithium Resources

In late September, oil and gas company Neptune Energy announced that the underground Altmark brines in northern Germany contain a resource of **43 Mt LCE**.

Neptune is an oil and gas company that operates the historical **Altmark gas field**, originally developed by the GDR. There are about **100 plus wells still in operation** with gas extraction progressively winding down.

Like many gas fields, such as in Siberia, the underground strata contain brine. The **average lithium content is 375 mg/l**, which is **twice as high** as at **Vulcan Energy's** project to the southwest in the "Oberrheingraben". The brine extracted with the natural gas reached a peak flow rate of 500,000 m<sup>3</sup> per year in 1988. The **GDR actually built a DLE plant** to extract the lithium using solvent extraction but the plant was shut when the Iron Curtain fell in 1989.

With gas production falling, **Neptune** are evidently looking at **replacing gas with lithium**. They obtained a production licence in April 2024 and are on their third pilot plant, to test different DLE technologies. That is a sound strategy since every DLE plant has to be tailored to the particular characteristics and chemistry of the brine.

Neptune want to build a **25,000 tpa LCE** plant by 2030. At 375 mg/l and assuming 80% recovery from the brine, that will require a flow of nearly 16 million m<sup>3</sup> of brine per year. Assuming 8,000 operating hours per year, that would be a brine flow of ~550 l/s, which could be easily achieved with **10 – 20 wells**.

Although DLE companies claim they can achieve 90% recovery, this is rarely possible for any extended length of time. With each recovery and stripping cycle, performance degrades.

The project has **three advantages** over the Vulcan project.

First, the lithium **grade** is **twice** as high so only half as much brine needs to be pumped for the same production.

Second, an extensive **network of well sites** connected by pipeline **already exists** across the region. Only twenty or so of those wells would be needed for lithium extraction (initially).

Thirdly, there is **no geothermal energy** involved, as yet. It is the geothermal component that has really bogged down progress at Vulcan. Apart from the **sheer cost**, with Vulcan's project running at **€30/W** for their small **31 MW** Organic Rankine Cycle plant, geothermal power can generate **earthquakes** and is strongly opposed for that reason in many parts of Germany. However, the process of reinjecting pressurised spent brine to maintain reservoir pressure is what causes the earthquakes.

We don't know if the Altmark brine comes out under pressure or whether it will have to be pumped out (requiring electrical power), but given the original water cut obtained with natural gas it appears to come out under gas pressure, not water pressure. This may mean that brine reinjection is not so critical as with a geothermal field and the earthquake risk may be lower.

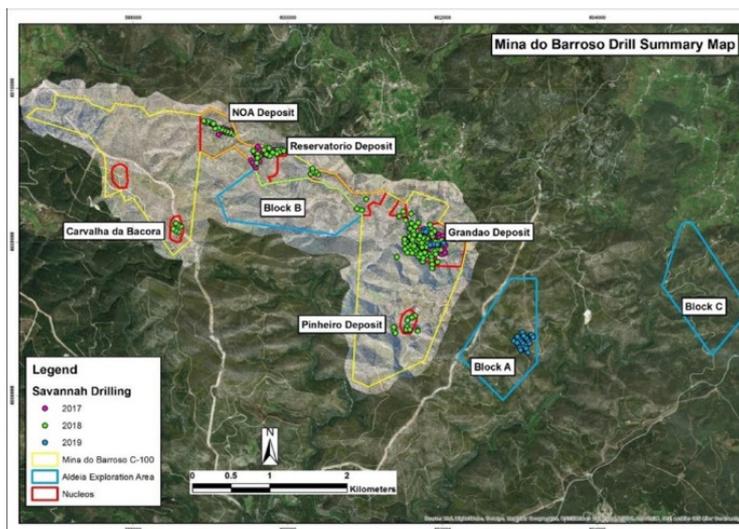
Assuming Neptune can obtain at least €1 billion and convince the public that they won't generate earthquakes, this project should be more straightforward to implement than Vulcan's "Zero Carbon Lithium" project.



*Neptune Energy Gas Well in the Altmark Field.*

[https://laf.sachsen-anhalt.de/fileadmin/Bibliothek/Politik\\_und\\_Verwaltung/MLU/LAF/Bilder\\_Dateien/projekte/Prj-Bilder\\_ab\\_2024/EEG\\_Bild1\\_20241211\\_Workover\\_Verf%C3%BCllung\\_Luftbild\\_Bild\\_Neptune.jpg](https://laf.sachsen-anhalt.de/fileadmin/Bibliothek/Politik_und_Verwaltung/MLU/LAF/Bilder_Dateien/projekte/Prj-Bilder_ab_2024/EEG_Bild1_20241211_Workover_Verf%C3%BCllung_Luftbild_Bild_Neptune.jpg)

## Savannah raise resource estimate for Barroso project by 40%



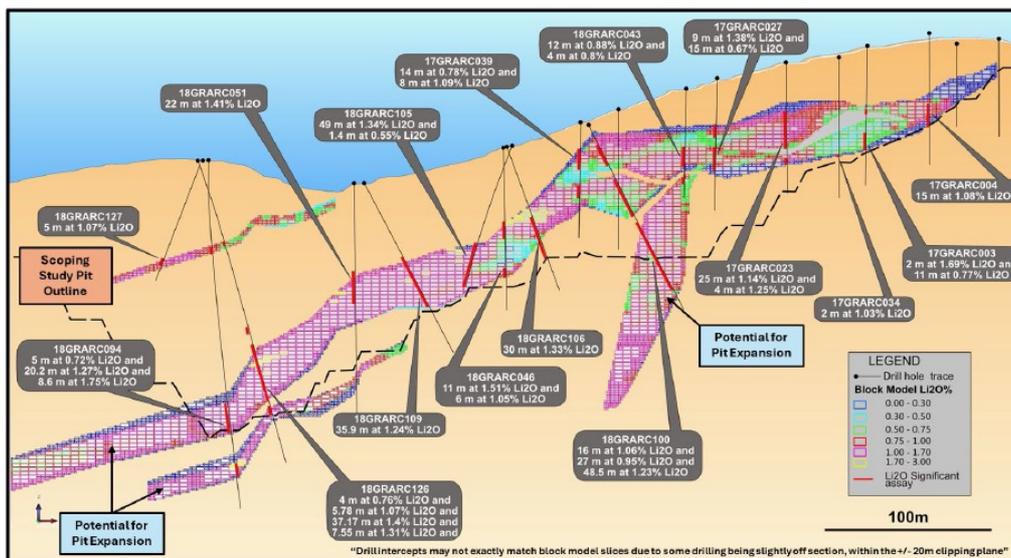
In September 2025 Savannah Resources issued a **resource update** for the Barroso project, increasing the resource by 40%. This had been on the cards for some time. The **total resource increased to 39.1 Mt @ 1.05% Li<sub>2</sub>O, or almost exactly 1 Mt LCE.**

The Barroso project actually **consists of five separate pegmatite bodies**, each of which will have to be worked with its **own open pit**. The **largest** deposit is called **Grandão** and so is the priority. It now contains 46% of the total resource since the latest update. Previously, in their **2023 scoping study**, Savannah indicated that Grandão contained **17.7 Mt** of ore. This latest resource estimate raises Grandão to **18.1 Mt**. So for practical purposes, the near term minable resource has **increased only marginally**.

In our report, we note that the potential mine life was quite short at only 14 years and the resource unfortunately rather small at only 727 kt but the grade is reasonable and if the resource size could be increased, this would be a very useful addition to Europe's lithium supply, since this is one of the few spodumene deposits known in Europe. *"If they could increase the resource to 40 Mt of ore, this would be 1.04 Mt LCE, putting it into the megaton category"*. This is now exactly what Savannah have done.

Geological maps have only been given for 4 of the deposits. When you look at the cross sections of the pegmatites, you can see that **Grandão and Reservatório** are both the **two largest deposits** and the **easiest to mine** because they descend into the ground at a fairly **shallow angle**. Grandão in fact parallels the surface of a hill. This will make the open cast mining much easier. The other two deposits go down almost vertically like a chimney so would be much more costly to mine.

Therefore the **project will certainly limit itself** to the two **Grandão and Reservatório** deposits initially, which together account for three quarters of the total resource.



*Cross section through Grandão pegmatite body, Barroso project.*

**Grandão and Reservatório contain 30 Mt of ore combined (77% of the resource).** The usual mining factor is 50%, i.e. it is considered that 50% of the ore in place can be recovered although Savannah are quoting 73% here. That may not be unreasonable, looking at the accessible profile of the pegmatite. If they can recover that percentage, then at the planned production of 1.5 Mtpa of ore, those two deposits would give a **mine life of 15 years**. The other two deposits, Pinheiro and NOA might not be worthwhile.

Savannah state that “the Barroso Lithium Project retains its position as the largest spodumene lithium resource in Europe” which depends on how you define Europe. **Jadar in Serbia** contains 136 Mt ore @ 1.8% Li<sub>2</sub>O or **6 Mt LCE**. That figure has not been updated since 2017 so it may increase as well once Rio Tinto start active development.

In our report, we also **stress the importance** of the investment by **AMG Lithium** in 2024 as a **major boost to the project**. AMG operate the **Mibra spodumene mine in Brazil** and are building a 20 ktpa **LHM refinery in Bitterfeld**, Germany, with ultimate capacity of 100 ktpa by 2030. This will be the **first lithium refinery in Europe**. The partnership brings major lithium expertise and resources to bear on the project and indicates confidence that the Barroso project will finally enter production.

More details and on AMG's involvement are in “The Lithium Report: 2025 – 2035: The Next 10 Years” in the chapter on the Barroso Lithium Project. See [thelithiumreport.com](http://thelithiumreport.com).