







ENERGY AND NATURAL RESOURCES

PORTUGAL HAS LITHIUM... AND WE KNOW IT!

Lithium supply security has become a top priority for technology companies in the United States and Asia and, worldwide, lithium production increased by around 13 percent from 2016 to 2017, reaching 43,000 MT last year.

Lithium minerals have seen a rise in demand and price since 2011, which became even greater in 2016, and the expectation is that this rise will continue along with the growing demand for electric vehicles. Lithium supply security has become a top priority for technology companies in the United States and Asia and, worldwide, lithium production increased by around 13 percent from 2016 to 2017, reaching 43,000 MT last year.

Portugal qualifies as one of the top 10 lithium producers of the world – in sixth position and there are already some concessionaires carrying out exploration and production activities, with the year 2017 registering a production of 400 MT.

The country is getting ready to exploit its lithium minerals' potential given the interest shown (in May 2017 publicly available information is that at least 30 applications for lithium prospection and research rights were made and the number has grown significantly since then) and the favourable economic climate.

At the end of January 2018, the Portuguese Government passed a resolution by its Council of Ministers approving the main strategic guidelines to exploit the potential of lithium minerals.

After assessing the best strategy, through the creation of a working committee involving representatives of associations and public entities connected to geological resources, at the end of January 2018, the Portuguese Government passed a resolution by its Council of Ministers approving the main strategic guidelines to exploit the potential of lithium minerals. This resolution is based on the report issued by the working committee – also subject to public consultation of the relevant stakeholders – which came to confirm that:

- Lithium and its compounds are used by a broad range of industries, including ceramics and glass, industrial lubricants, medical uses, Li-ion batteries, and the aluminium and steel industries, among many others; meanwhile, the market remains dynamic, with a high and sustainable demand impacting price rise;
- Although domestic geological potential is high, there is insufficient characterisation of the mineral occurrences and resource estimates, also as regards inferred resources, which should be developed by both the relevant state entities and private companies;
- There are no studies as to the benefitiation (laboratorial or industrial) to support a strategy based on the respective implementation so as to increase domestic growth; and
- There are no investigation or innovation initiatives in connection with the recycling of the lithium minerals from used batteries which, from a circular economy perspective, would reduce waste and the stress over lithium minerals in igneous rocks.





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The most relevant challenge identified by this working committee is to find a lithium transformation process, as lithium requires a very high purity - of 99.5% - to enable its use in electric vehicle batteries. The working committee also highlighted that domestic lithium minerals may be upgraded to produce concentrates for the lithium compound industry - obtaining high-graded lithium concentrates - and the ceramics industry, guaranteeing consistency of the lithium content.

The Portuguese Council of Ministers thus passed a resolution on the main strategic guidelines to promote the domestic potential of lithium minerals, which revolve around:

 Developing the geological knowledge that represents the starting point for lithium minerals exploitation by launching public tenders to award prospection and research rights, and rights for exploitation within previously designated areas revealing potential and comprising promising targets. The guidelines are also intended to ensure that the rights over areas to be attributed following the applications received take into account other factors which are detrimental to the viability of the development of the whole of the lithium related activities to their full extent.

It is further specified that the criteria for awarding the rights in question will be determined by order of the minister responsible for the sector (currently the Ministry of the Economy) and will give preference to the suitability of the work plans to the knowledge that already exists and the value of the investments to be made, in addition to the technical and financial capacity of the applicants jointly with the necessary compliance with environmental obligations.

- Assessing the possibility of installing two technological units with different aims (Mining-Metallurgical Experimental Unit and Pilot Demonstration Unit, the latter with a declared industrial character), whilst pondering their economic and financial sustainability in light of the necessary required investments, the volume of resources subject to treatment, their location and the applicable financing model;
- Promoting, within domestic, European and international financial instruments, investigation projects oriented towards the recovery of used batteries lithium minerals within a logic of supporting the principles of circular economy and minimising igneous rock use;
- Considering the necessary management of waste generated from these activities with an efficient use of the resources, bearing in mind environmental impacts of these activities; and
- Instructing the Minister of the Economy to proceed to the programming and scheduling of the integrated strategy for promotion of the Portuguese lithium minerals' potential so as to incentivise the activity of exploration and exploitation of this resource taking advantage of the favourable economic climate.



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PAULO QUINTAS Girassol Frio, 1999 (detail)

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Having said all this, and pending additional specific regulation, entities intending to carry out mining activities relating to geological resources into the public domain must enter into the appropriate concession agreement with the Portuguese State. The Government may direct concession proposals to specific private parties under public bid procedures in accordance with the applicable law.

The exploration and exploitation of other resources (such as mineral masses or water) is subject to a licensing prior to the filing of an application with the sectors' supervisory entity, the Directorate General for Energy and Geology (DGEG). Public authorities may only reject the application if the project in question is not viable or for other reasons, if justified in the public interest.

The concessionaires and licensees may assign their rights, upon complying with the conditions set out in the applicable legal framework and the relevant concession agreement, such as obtaining prior authorisation from the competent public authority.

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