

EMILI & YOU

Newsletter – January 2024



Electric Cars: An Asset for Ecological Transition

Numerous studies conducted over the past 10 years by organizations such as the WWF (World Wide Fund for Nature), the International Energy Agency (IEA), the French Environment and Energy Management Agency (ADEME), and the Intergovernmental Panel on Climate Change (IPCC) show that in most countries around the world, **emissions from electric cars are significantly lower than those from combustion engine vehicles**, across the entire life cycle, from production to recycling, including usage and maintenance. This is particularly the case in France (2 to 5 times fewer emissions) where electricity is low in carbon.

Combining electric vehicles with a shift in our modes of mobility (public transportation, carpooling, cycling, walking...) thus offers significant potential for decarbonizing land transport. The challenge remains to make electric cars more affordable (by developing, for example, lighter vehicles with smaller batteries) and to develop local supply chains for critical metals like lithium.



+40% in 1 year

This is the market share growth of electric vehicles that the European Union is expected to see between 2023 and 2024, according to the European Automobile Manufacturers Association (ACEA), which has just published its predictions on the occasion of COP 28.

The growth will be supported particularly by an increase in the range of smaller vehicles equipped with cheaper and smaller lithium batteries (such as the current Dacia Spring, Fiat 500, Peugeot e208, and the upcoming Renault 5 and Twingo models, VW Polo...).

The EMILI projet is going forward!

On June 26th, the first samples of lithium hydroxide were produced from the Beauvoir granite. The transformation process was successfully tested in the laboratory, and quality meets the highest global standards. In parallel, acoustic, landscape, and hydrogeological studies continue in the area, including the installation of new piezometers. The surveys conducted have confirmed the attractiveness of the deposit

and the electric vehicle market in Europe, particularly in France, remains dynamic. All conditions are therefore favourable to engage in the 2021 public debate led by the National Commission for Public Debate.



Alan Parte

Vice President Lithium Projects Imerys

Environment: France and Europe at the forefront of regulation

France’s environmental code is particularly strict, especially in the **areas of species protection and compensatory measures** (put in place to offset the impact of a development project on a natural environment when these could not be avoided).

On the specific case of water, the plan launched in 2023 brings France at the forefront of implementing concrete responses in terms of water conservation, availability, quality, and responses to drought crises. The protective measures of this plan are notably based on a **level of monitoring** unmatched anywhere in the world. As Laure Fontaine, Vice President of Environment at Imerys, points out: “In France, over **3,000 monitoring points allow for the assessment of the human activity’s impact on water**, both in quantity and quality. By comparison, Canada, which is 20 times larger than metropolitan France, only has 300 monitoring points.”



The installation of bird and bat nesting boxes is part of the compensatory measures implemented at the Beauvoir site.




The expert’s eye
Laure Fontaine,
Vice President of Environment at Imerys


“From 2025 on, Imerys is committed to publish all data related to the quantities of water used by the Group’s sites worldwide (withdrawals, recycling consumption, discharges) in compliance with the regulations. This will initially be communicated at Group level, and then at site level.”



The flow and level of groundwater are monitored particularly through measurements provided by piezometers.

The results of France in environmental rankings

The main international environmental performance indices aggregate indicators covering various themes such as **climate change, air and water quality, or biodiversity protection policies.**



Green Future ¹	9 th out of 76 countries
SDG ²	6 th out of 193 countries
Environmental Performance ³	12 th out of 180 countries

¹MIT Technology Review ²ONU-SDSN ³Yale University

The public debate is taking shape

As part of the public debate decided by the National Commission for Public Debate, which may take place in the first half of 2024, a Special Commission for Public Debate has been established by its president, Mr. Mathias Bourrissoux. The Commission aims at enabling public participation on various topics. One of the debates is expected to address the feasibility of

opening a lithium mine in France to meet the **challenges of climate change and to strengthen the battery sector in Europe.** The discussions will also help to understand what a 21st century mine could look like. The expression of a diversity of stakeholders shall bring varied insights on other topics, such as the impact of the project on its broader environment.

Europe: Lithium beneath the ground



3 questions to Blandine Gourcerol

Research Engineer in Metallogeny at the Bureau of Geological and Mining Research (BRGM)

Several lithium deposits are being studied in Europe, notably in Germany, Portugal, Spain, Finland, and the United Kingdom. The priority is to secure, on the one hand, independence from the current producing countries and, on the other hand, the industrial future of Europe.

1 – Are there other lithium deposits in Europe that are exploited or exploitable?

Additional deposits exist beyond those currently under evaluation. Recently, the BRGM documented about 600 concentrations related to rock formations and 180 associated with geothermal resources, thereby revealing significant lithium potential. However, the exploitation of these sites will depend on economic viability, environmental considerations, and the demand for lithium, particularly for electric batteries.

2 – What are the significant deposits in France?

In France, about forty sites containing lithium have been identified. Five of them have been officially classified as “deposits”, indicating their strategic interest for potential exploitation, including Beauvoir.

3 – Are further discoveries likely?

Lithium is present in many minerals and in various forms, suggesting the potential for more deposit discoveries. Progress in geological and mining research could lead to new findings, along with the increasing lithium demand for green technologies and electric vehicles.



50 years of lithium projects in Allier

The resolve to operate a lithium mine in Allier is not new! Back in the 70s and 80s, the use of alloys was considered due to their robustness, rigidity, and low density. The aviation industry was particularly interested in it for manufacturing the doors of commercial airplanes. The idea was widely shared and supported by elected officials from all sides. It was however abandoned as the transition to production proved to be complex.



Electric cars more than a century old!

Electricity was identified as a reliable solution for powering automobiles as early as the end of the 19th century! They quickly became successful in big cities where they were favoured for their silence and lack of pollutant emissions. In fact, it was an electric car – the “Jamais Contente” – that was the first to break the symbolic barrier of 100 km/h in 1899. However, their heavy and inefficient lead-acid batteries soon limited the development of electric vehicles in favor of combustion engines.

EMILI installs new water monitoring points

19 new piezometers are being installed inside and outside the Beauvoir site since early October. The goal is to better understand the aquifers and the flow of groundwater and surface water at the La Bosse site. Some will reach depths of more than 200 meters. They will complement the hydrogeological study initiated in 2022. Nearly thirty measurement points (wells, intakes, springs, rivers...) are already being monitored. They will enable the **measurement of the water table level, flow, and water quality according to each season**. Water mainly flows through the surface layers. The Beauvoir granite massif is extremely compact and not very fractured, as shown by the subsurface studies conducted

for over 3 years. Therefore, the volume of water seeping into the mine and needing to be evacuated should be low. These results will contribute to the hydrogeological model currently under development.



Why lithium in batteries ?

Lithium is a key component in the batteries of electric vehicles and numerous portable devices due to its **lightness** and high **electrochemical potential**. It has been used in batteries since 1991 and has gradually become widespread in all devices requiring a portable and rechargeable battery. Lithium enables these devices to achieve unique performance in terms of

Did you know?

Thanks to a very low self-discharge rate, lithium-ion batteries are not subject to the memory effect. Therefore, there is no need to wait for them to be completely discharged before recharging them. Lithium-ion batteries can withstand many charge and discharge cycles (between 500 and 1000 complete cycles).

power, battery life, and lightness within a compact size.

Minerals, with you in your daily life!

Imerys, a global leader in mineral specialties for the industry, offers solutions for a wide range of sectors, from construction and agriculture to consumer goods, food, packaging, and beverages. These products are conscientious about using natural ingredients with a low environmental footprint, sourced from sustainable resources.

You most certainly already have more than one Imerys product at home!

In the construction sector for instance, solar panels, dry mortars and plasters, adhesives and sealants, sanitary ceramics, floor coverings, paints, tiles, piping, and window frames utilize minerals produced and processed by Imerys. Numerous other consumer goods also use minerals for hygiene and health purposes, ranging from toothpaste and cosmetics to insecticides, including the packaging in which these products are contained.



Echassières shines globally thanks to its kaolin!

The kaolin extracted in Echassières is an essential component of your dishes and all your porcelain objects. It is also present in your car: paint, exhausts, bumpers, hoods, and tires are lighter thanks to it, which helps reduce fuel consumption.

