Europe

Lithium demand in Europe from the battery sector is expected to increase ninefold by 2040.

Annual lithium demand from lithium-ion battery applications in Europe is projected to climb from 37kt LCE in 2025 to 345kt LCE in 2040 representing a CAGR of 16% in consumption.

However, it should be noted that the growth is front-loaded during the forecast period, as the buildout of several domestic CAM production facilities are expected to be in place by 2030. The majority of CAM projects in Europe are targeting higher-nickel chemistries in favour of improved economics of production and energy density compared with iron-based chemistries.

As a result, lithium hydroxide will be the dominant form of lithium required for European CAM production between 2025-2040.

Europe is forecast to remain the second largest EV market globally, after China.

Although CAM production will remain the primary driver for lithium consumption, increasing EV sales and the desire to onshore production across the supply chain will incentivise new projects moving forward.

On a country-by-country basis, it is important to consider both the penetration rate and the size of the vehicle market to determine which countries are expected to account for most lithium-ion battery demand growth.

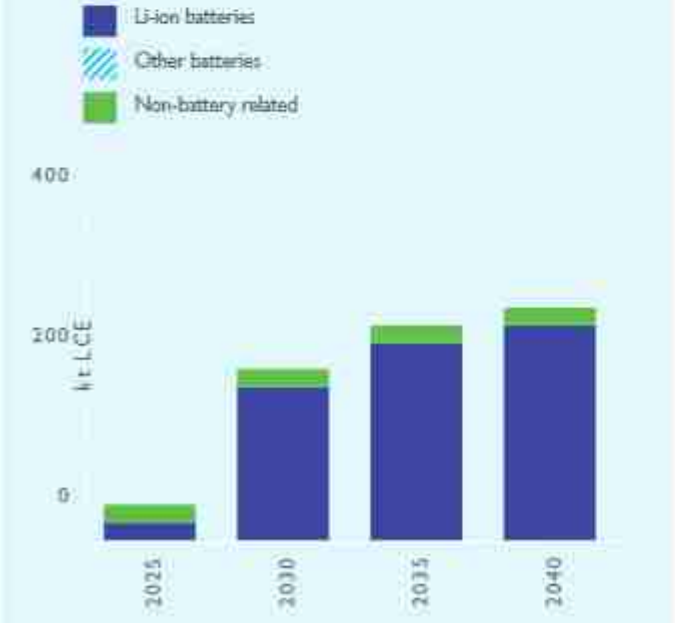
The countries with the highest penetration rates in Europe include Norway, Sweden, Denmark and Finland. These countries are global leaders of EV adoption, having set earlier phase-out targets for ICE vehicle sales, accompanied by aggressive charging infrastructure programs. Only China is comparable from a sale penetration perspective.

The largest vehicle markets for Europe are Germany, France and the UK, where the EV sales penetration rate was between 18-25% in 2024. These markets therefore represent the largest growth opportunity for lithium end-use to 2040.

Europe remains second largest lithium consumer globally across all applications.

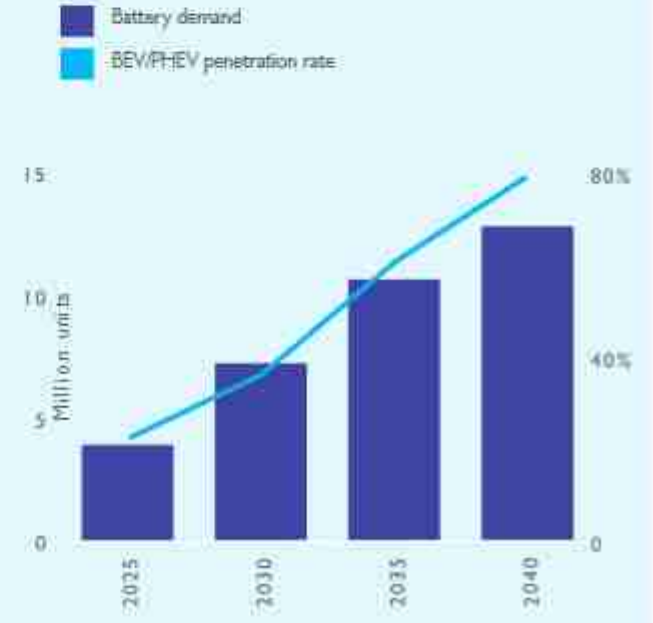
Including other lithium applications such as glass and glass-ceramics, total lithium demand in Europe is forecast to increase by 572% in the period between 2025 and 2040, reaching 362kt LCE. In the period to 2040, Europe is expected to remain the second largest consuming region for lithium behind Asia.

European demand for lithium by end-use sector



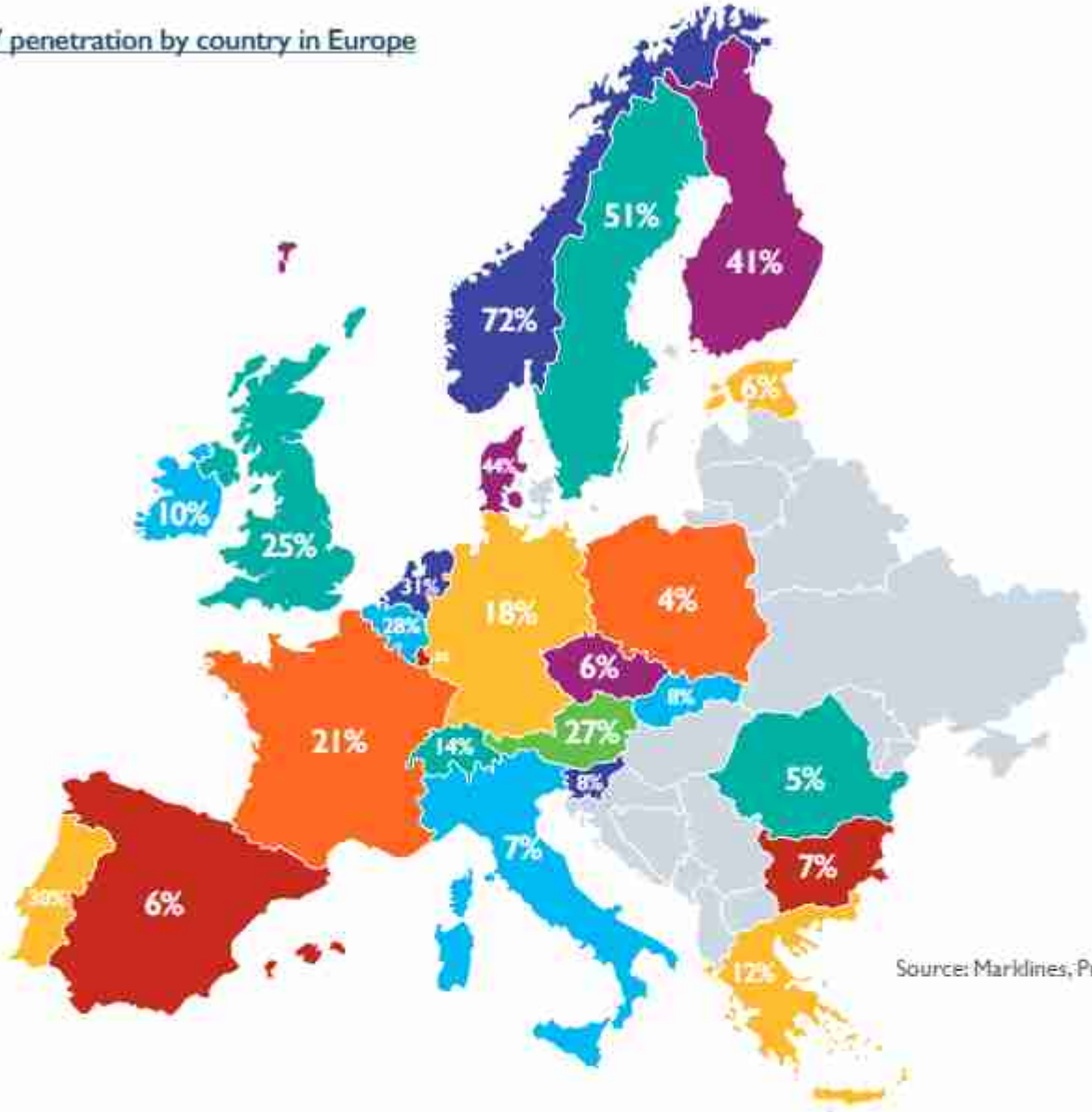
Source: Project Blue

European BEV/PHEV sales and penetration rates



Source: Project Blue

2024 EV penetration by country in Europe



Source: Marklines, Project Blue

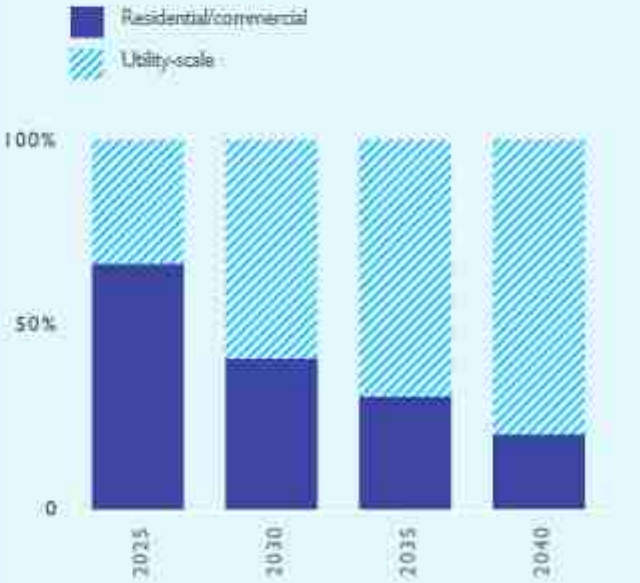
The European lithium-ion battery ESS market is expected to grow to 2040 as the region strives for grid decarbonisation, particularly through sector-specific policies such as the Renewable Energy Directive (2018) and the Electricity Market Directive (2019).

The markets for battery ESS projects often vary from one country to another, with differing incentives and market models impacting adoption.

Italy's Mechanism for the Acquisition of Storage Capacity (MACSE) offers incentives for both installation and operational costs, and as a result, Italy is expected to see continued expansions in battery ESS installations this decade. Moreover, the UK and Ireland will benefit from strong government support incentives, whilst Germany, Spain and Greece will see new lithium-ion market development through long-duration battery ESS auctions for new projects.

Towards 2040, the increased adoption of large-scale utility battery ESS projects will drive battery demand to new levels within Europe and reshape the market share between residential/commercial and utility-scale installations.

European battery ESS market share evolution



Source: Project Blue

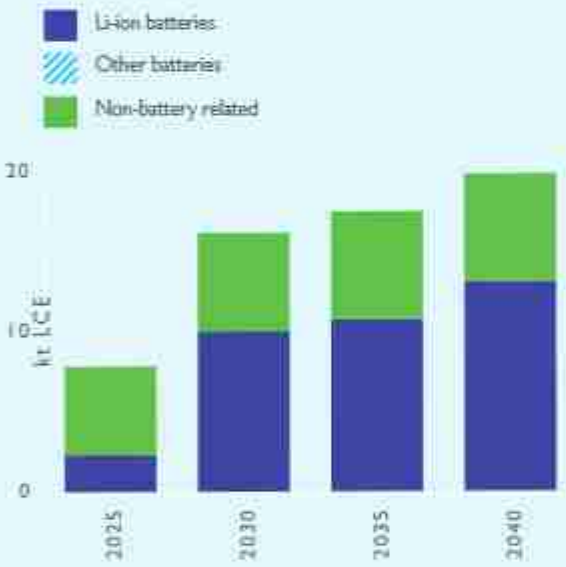
Rest of world

South America is a large lithium producer but small consumer.

Lithium demand in South America is expected to display strong growth rates to 2040, albeit from a very low base. South America lithium demand is expected to total 7.5kt LCE in 2025, largely from the ceramics and Li-ion battery industries which combined account for 68% of forecast demand.

By 2040, Li-ion battery applications are forecast to increase their share of South American lithium demand to 67%. However, total forecast demand of 18kt by 2040 is relatively subdued compared to North America, with fewer developers targeting production of cathode, anode and electrolyte materials in the region.

South America demand for lithium by end-use sector



Source: Project Blue

Between 2020-2024, BEV and PHEV sales grew with a CAGR of 140% across Central and South America, with Brazil accounting for most of the sales growth. Going forward, Central and South America should continue to see relatively strong EV sales growth, principally driven by fleet electrification.

Brazil is expected to remain at the forefront of electrification in the region owing to financial incentives and the introduction of affordable Chinese EVs to the market. In 2024, BYD, the leading Chinese EV maker, accounted for more than 80% of EV sales in Brazil, demonstrating the impact of high quality and cost-competitive EV models on the wider vehicle market.

Although EV import tariffs are returning for Brazil from 2024, the country remains a major target for Chinese OEMs to gain market share, which is meant to incentivize the onshoring of EV production but could also result in potentially greater price reductions on imported vehicles to remain competitive.

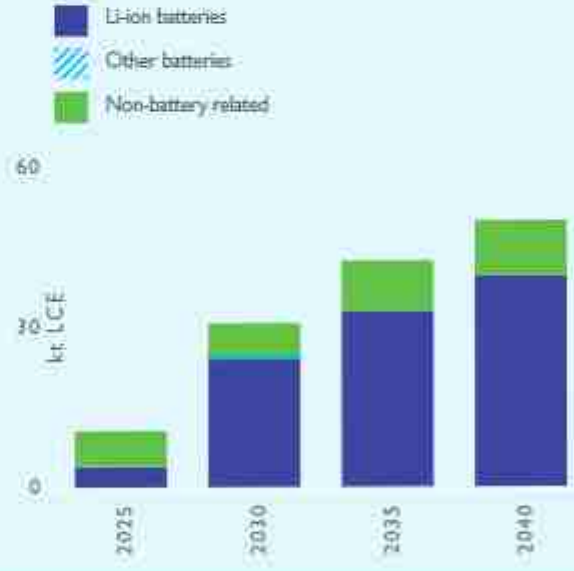
Middle East and Africa are starting to shift to batteries as lithium demand driver.

Lithium demand growth in Africa and the Middle East regions is supported by the ceramics, glass-ceramics and Li-ion battery industries in 2025, with these three end-use sectors accounting for 77% of forecast demand on 2025.

Overall demand in 2025 in Africa and the Middle East is forecast to total 9.7kt LCE, though is expected to show significant growth in the period to 2040 with the development of Li-ion battery manufacturing capacity and supporting infrastructure.

Demand volumes a are forecast to increase by a CAGR of 12% between 2025 and 2040, to reach 50kt LCE, with Li-ion battery applications forming 87% of total demand in the regions.

Middle East and Africa demand for lithium by end-use sector



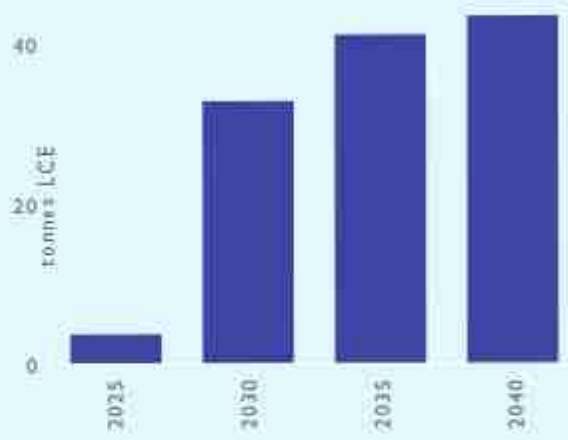
Source: Project Blue

Africa is set to be a key region for lithium demand from battery applications moving forward, with Morocco leading the charge.

Morrocco's strategic position geographically, and favourable trade agreements with the EU and USA, has led to the development of significant battery projects in the country. From 2025, Morocco's annual LFP CAM production capacity is set to rise to 160kt based on the current pipeline, which would require more than 37kt of battery-grade lithium carbonate every year.

Falling lithium-ion battery costs and the requirement for both residential and grid-level storage solutions have been attributed to a monumental rise in energy storge installations in Africa. Load shedding events in South Africa and the need for grid stabilisation in many African countries will lead to increasing demand for battery ESS solutions.

Morrocco's upside lithium consumption from CAM production



Source: Project Blue

Lithium-rich brine is concentrated in evaporation ponds for lithium compound extraction.

5. Conclusion: Lithium leadership

The road to a cleaner, electrified future is charging ahead - and lithium is in the driver's seat.

Ambitious decarbonisation goals and an explosion of electrified technology are powering a global surge in demand for lithium. Global consumption is expected to grow from 1.3Mt LCE this year to between 3.6Mt and 5.2Mt LCE by 2040.

Electric passenger vehicles will remain the biggest lithium consumers, thanks to their large battery packs and soaring sales. But it's not just cars: lithium-powered batteries are also becoming essential for balancing energy needs in both homes and massive power grids, especially with strong backing from governments and private investors.

Meanwhile, demand from portable electronics will stay steady, as innovative new devices keep consumers engaged. Other fast-growing sectors, like electric two- and three-wheelers, flying taxis (eVTOLs), and robotics, are opening up fresh, exciting markets for Li-ion batteries, pushing demand even higher through 2040.

Today's leading battery chemistries aren't going away anytime soon. They'll continue to dominate as ongoing innovations improve performance, increase energy density, and extend the driving range of electric vehicles. That means lithium carbonate and lithium hydroxide will remain critical ingredients in the battery world.

Looking ahead, next-generation technologies like solid-state lithium metal batteries are on the horizon. These cutting-edge systems need even more lithium, adding new layers to global supply chains and promising to amplify lithium demand for years to come.

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