

【欧州】 【Common, 自動車】

Common - Environmental Issues/Road - New legal instruments on environment for vehicles: The Council of the European Union and the European Parliament reach provisional agreement on new rules to make batteries' life cycle more sustainable

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【概要 : Summary】

Batteries are a central element of the further expansion of the Electric Vehicles' (EVs) production and market development in Europe.

Since there does not exist any significant battery production in Europe so far, this absence of a European battery production industry of significant size is increasingly seen as a disadvantage that could jeopardise the EU's position in the global EV manufacturing industry. Therefore, it is vital to establish a European battery cell development and production industry and to overcome the currently existing dependence on imports of battery cells from Asia and the US, and to reduce the competitive disadvantage for European automobile manufacturers.

Accordingly, one important goal is to establish a battery production industry in Europe to increase the independence from battery imports and thereby to also help securing the European automobile manufacturers competitiveness.

However, the concerns are not limited to the dependence on the battery cell production in third countries. The dependence also extends to the limited availability of raw materials for battery production and to the need to consider solutions for an environmentally friendly

recycling of end-of-life batteries. Therefore, the entire life cycle of batteries has to be considered when establishing an independent European battery production industry. Accordingly, the Proposal for a Regulation concerning batteries and waste batteries (COM/2020/798 final) intends to gradually introduce mandatory requirements under a new "cradle-to-grave" approach for the production, utilisation, and recycling of batteries of all categories. These battery categories include industrial, automotive, electric vehicle, light means of transport and portable batteries, among others. The new Regulation on batteries and waste batteries will also contain measures to consider the environmental impacts of batteries over their entire life cycle to ensuring that such environmental impacts of the batteries in or imported to Europe are kept to a minimum.

This includes an introduction of rules regarding the extraction of raw materials and the collection and recycling of batteries at the end of their life cycle. The final legislation based on Proposal (COM/2020/798 final) will introduce a Regulation framework for a more sustainable battery production industry in Europe and beyond.

【記事 : Article】**1. The need to establish a battery production industry in the EU**

In the EU, transport is responsible for about 25% of the EU's total GHG emissions and is the main cause of air pollution in cities (COM(2020) 798 final). Therefore, a strong increase in the electrification of passenger cars, vans, buses, and - to a lesser extent - trucks in Europe between 2020 and 2030 is considered necessary to significantly reduce GHG and other emissions from road transport (COM(2020) 798 final).

However, a further growth in the automobile market share for EVs is not only dependent on the production of automobiles and the expansion of necessary recharging infrastructure. The demand for batteries will grow rapidly in the coming years, notably for electric road transport vehicles and light means of transport using batteries for traction. This development makes the battery production an increasingly strategic element in the automobile manufacturing industry at the global level (Council of the European Union 2023). In fact, the European Commission expects the demand for batteries to further increase rapidly and the demand is set to increase 14-fold by 2030 (European Commission 2022a).

However, the global main battery producing industry for building the latest lithium-ion cells and batteries for automobiles is located in the US, China, and Japan and until recently, virtually all lithium-ion batteries came from China, Japan, or South Korea. Asia alone currently accounts for about 65% of global battery cell manufacturing and there is no significant lithium battery production in Europe. Against this backdrop, the absence of a European battery production for EVs could become a strategic disadvantage, which could significantly jeopardise the EU's position in the future automobile manufacturing, as EU automobile manufacturers would be highly dependent on the external producers in third countries. This would

risk the security of the supply chain, increased costs due to transportation, time delays, weaker quality control or limitations on the design. Therefore, since Europe has been missing the production of batteries it will need a greater independence from battery imports as an important building block in the European EV production.

Accordingly, to support the establishment of a European battery production industry, the European Commission launched the European Battery Alliance in 2017 to build an innovative, sustainable, and globally competitive battery value chain in Europe (European Commission 2022a). The industry-led European Battery Alliance's aim is to achieve strategic autonomy and efforts are centred on building a sustainable and vertically integrated battery value chain in Europe. Currently, the Alliance counts over 700 industrial and innovation members (European Commission 2022b). The Alliance intends to ensure a secure supply of green, safe, and high-performing batteries, while also gaining a significant share of the global battery market (European Commission 2022b).

Furthermore, the European Raw Materials Alliance (ERMA) was launched on 29 September 2020, as part of the European Commission's Action Plan on Critical Raw Materials, and the publication of the 2020 List of Critical Raw Materials (European Commission n.d.). The Action Plan looks at the current and future challenges and proposes actions to reduce Europe's raw materials' dependency on third countries. The European Raw Materials Alliance aims to build resilience and strategic autonomy for Europe's rare earth and magnet value chains. It will identify barriers, opportunities, and investment possibilities in the raw materials value chain, while also addressing sustainability and social impact (European Commission n.d.).

So far, 111 industrial battery projects are being developed across EU Member States, with the plan to build some 20 battery cells Gigafactories.

The aim is to meet 69% and 89% of the EU's increasing demand for batteries by 2025 and 2030 respectively, and the battery industry to be established in Europe is expected to be capable of producing batteries for up to 11 million cars per year (European Commission 2022b).

The total level of investment along the battery value chain amounted to €127 billion by 2021. An additional investment of about €382 billion is expected to create a self-sufficient battery industry in Europe by 2030 (European Commission 2022b). Recently, some of the European battery manufacturers like Northvolt, Volkswagen and Automotive Cells Company (ACC) are pushing into the market, and they are investing in the rapid development of production capacities. Mercedes-Benz and automotive group Stellantis, with Fiat Chrysler and France's PSA Group have joined France's ACC in announcing plans to build Gigafactories in Germany, France, and Italy (Electrical Energy Storage 2022). ACC and Sweden's Northvolt will benefit from support from the EU's Important Project of Common European Interest (IPCEI). In addition, there are other battery cell manufacturers including various start-ups and established manufacturers such as CATL (China), Tesla (USA), LGES and Samsung SDI (both from South Korea), which are also building some larger European battery cell production sites (Electrical Energy Storage 2022). In total, more than 40 cell manufacturers have announced plans to build battery factories in Europe.

Since the battery development and production play a strategic role in the further development of EVs, the main task is to transform Europe into a region with significant players in battery cells production as an essential building block for the new electric vehicles market and e-mobility.

2. The background of a new regulation on batteries and waste batteries

The increased demand on batteries is mostly driven by the electrification of transport, and

the expansion of the EVs market. The number of lithium-ion batteries, which contain various active materials and are therefore more complicated to recycle, is expected to significantly grow in the near future, especially due to the increased number of EVs on European roads (EEA 2021). In 2021, the number of battery-only electric passenger cars in the EU Member States reached 1.9 million, which is an increase of +76% compared with 2020 (Eurostat 2023).

Therefore, the EU needs to make sure to have enough batteries and that they are sustainable throughout their supply chains (Council of the European Union 2022). The need to introduce a regulation on battery production is also underlined by the "Fit for 55 package" of 2021, as the introduction of a regulation laying down stricter CO₂ emission performance standards for new passenger cars and vans, including the phasing out of vehicles with combustion engines by 2035, will further increase the pressure to develop the battery industry in Europe as well as legislation, which regulates the establishment of an environmentally friendly battery production and recycling (European Commission 2022b). However, the introduction of a battery production industry in the EU to reduce the dependence on battery imports also raises the question on how to secure the raw materials for battery production and how to recycle end-of-life batteries in an environmentally friendly way.

According to the European Environment Agency (EEA) (2021), over 1.9 million tonnes of waste batteries are generated annually in Europe. There exist huge variations between different battery types, and they contain a wide variety of materials, including critical raw materials and hazardous substances (EEA 2021). The expected further significant growth in demand for batteries will also increase the need to minimise their environmental impact, not only in the production process of battery cells, but also in the recycling of batteries (European Commission

2022a). Accordingly, the Commission identified the provision of a new legal framework for the battery industry as well as the diversification of supply sources and routes for battery raw materials and their recycling, among others (European Commission 2022b).

Since 2006, batteries and waste batteries have been regulated at EU level under the Batteries Directive (Directive 2006/66/EC), which was consolidated on 4 July 2018. Due to the increasing uptake of electric vehicles, and the expected future increasing demand for batteries, the European Commission proposed to revise the Directive 2006/66/EC. Furthermore, in the European Green Deal of December 2019, the European Commission confirmed its commitment to implement the Strategic Action Plan on Batteries and stated that it would propose legislation to ensure a safe, circular, and sustainable value chain for all batteries (Council of the European Union 2023).

3. The Proposal COM 2020/798 final on batteries and waste batteries

The European Commission's evaluation SWD(2019) 1300 final of the of the former Batteries Directive 2006/66/EC concluded that the directive delivered positive results regarding a better environment and promotion of recycling and better functioning of the internal market for batteries and recycled materials (SWD(2019) 1300 final, European Commission n.d.b). However, the evaluation also considered possible problems and limitations. The Directive 2006/66/EC had a relatively small number of measurable targets, which made the assessment of implementation and impacts rather challenging (SWD(2019) 1300 final). The evaluation noted that the Directive's limitations prevented it from fully delivering on its objectives, in particular related to collecting waste batteries and the efficiency in recovering materials. The Directive also lacked a mechanism to incorporate technological

novelties and new uses and therefore could not keep pace with technological developments (European Commission n.d.b). Therefore, considering new socio-economic conditions, technological developments, new markets, and new battery usages, the Commission proposed a new Batteries Regulation in 2020.

As a key achievement under the European Green Deal, the new law is expected to improve both, the circular economy and zero pollution ambitions of the EU (European Commission n.d.b). Batteries have to become more sustainable throughout their life cycle in particular for greening transport and to achieve climate neutrality by 2050. Batteries have to be long-lasting and safe, and at the end of their life, they should be repurposed, remanufactured, or recycled, feeding valuable materials back into the economy (European Commission 2020).

With its "Proposal for a Regulation of the European Parliament and of the Council concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020 (COM/2020/798 final), the European Commission presented a proposal that aims to strengthen the functioning of the internal market, promotes the circular economy, and reduces the environmental and social impact throughout all stages of the battery life cycle (Council of the European Union 2023).

Based on the proposal (COM/2020/798 final), the Commission intends to introduce mandatory requirements for all batteries (i.e., industrial, automotive, electric vehicle and portable) placed on the EU market (European Commission 2020). The Proposal COM/2020/798 final aims to make batteries sustainable throughout their entire life cycle, from the sourcing of materials to their collection, recycling, and repurposing. The legislation includes requirements such as using responsibly sourced materials with restricted use of hazardous substances, minimum content of recycled

materials, carbon footprint, performance and durability and labelling, as well as meeting collection and recycling targets. All these requirements are essential for the development of more sustainable and competitive battery industry across Europe and around the world (European Commission 2020, COM/2020/798 final). The proposed measures intend to lead to a circular economy of the battery value chains and promote more efficient use of resources with the aim of minimising the environmental impact of batteries.

The production of batteries with better performance is expected to make a key contribution to the electrification of road transport, to increase the uptake of electric vehicles and to facilitate a higher share of renewable sources in the EU energy mix to facilitate achieving climate neutrality by 2050 (European Commission 2020).

Under the Regulation, a new “cradle-to-grave” approach for increasing the sustainability of batteries will be gradually introduced from 2024 onwards (European Commission 2022a). To close the loop and maintain valuable materials used in batteries in the cycle for as long as possible, the Commission proposes new requirements and targets on the content of recycled materials and collection, treatment, and recycling of batteries at their end-of-life.

To significantly improve the collection and recycling of portable batteries, the current figure of 45% collection rate should rise to 65% in 2025 and 70% in 2030 so that the materials of batteries used at home are not lost for the economy. Other batteries, including industrial, automotive or EV batteries, have to be collected in full. All collected batteries must be recycled and high levels of recovery have to be achieved, regarding materials such as cobalt, lithium, nickel, and lead (European Commission 2020).

From 1 July 2024 onwards, only rechargeable industrial and electric vehicles batteries for which a carbon footprint declaration has been established can be placed on the EU’s market (European Commission 2020).

With these new battery sustainability standards, the Commission will also promote globally the green transition and establish a blueprint for further initiatives under its sustainable product policy.

4. Provisional agreement on the new rules for production, recycling, and repurposing of batteries

The new “cradle-to-grave” regulatory framework for batteries, which will include the entire life cycle of batteries from securing the raw materials over battery production to recycling and repurposing of batteries is a new approach to introduce sustainable requirements for batteries. The new legislation will be gradually introduced from 2024 onwards (European Commission 2022a).

For portable batteries, the recycling targets will be 63% in 2027 and 73% in 2030, while for batteries from light means of transport like e-scooters, the target will be 51% in 2028 and 61% in 2031. All collected batteries must be recycled and high levels of recovery have to be achieved, in particular of valuable materials such as copper, cobalt, lithium, nickel, and lead (European Commission 2022a). This will guarantee that valuable materials are recovered at the end of the batteries’ life and brought back in the economy by adopting stricter targets for recycling efficiency and material recovery over time. Material recovery targets for lithium will be 50% by 2027 and 80% by 2031. (European Commission 2022a)

Companies placing batteries on the EU internal market will have to demonstrate that the materials used for their manufacturing were sourced responsibly. Accordingly, social, and environmental risks associated with the

extraction, processing and trading of the batteries' raw materials will have to be identified and mitigated (European Commission 2022a).

In the European Parliament, the ENVI Committee adopted its report on the proposal on 10 February 2022, raising the level of ambition compared to the Commission's original proposal (European Parliament 2022). The ENVI Committee's report includes batteries for light means of transport (LMT), such as e-bikes and e-scooters, into the scope of the proposed regulation, among others (European Parliament 2022).

The Council of the European Union adopted a general approach on the proposal at the Environment Council on 17 March 2022. Thereafter, interinstitutional negotiations started and at the last trilogue meeting, held on 9 December 2022, the co-legislators concluded a provisional agreement on the new rules on batteries COM/2020/798 final (European Parliament 2022).

Within the Regulation's wider scope, different categories of batteries are distinguished in accordance with their design and use, independent of the battery chemistry. The classification into portable batteries, on one hand, and industrial batteries and SLI (starting, lighting and ignition) batteries for automotive applications on the other hand under Directive 2006/66/EC is further developed to better reflect new developments in the use of batteries.

Due to the quick growth of the market of electric road transport vehicles, batteries that are used for traction in road vehicles and which fell in the category of industrial batteries under Directive 2006/66/EC, are now classified in a new category of electric vehicle batteries (Council of the European Union 2023). Furthermore, also batteries used for traction in light means of transport, such as e-bikes and e-scooters, were not clearly classified under Directive 2006/66/EC. However, since they will constitute a significantly growing part of the market, those

batteries for light means of transport will enter in a new category of batteries, the LMT batteries (Council of the European Union 2023).

The provisional political agreement between the Parliament and the Council provides for mandatory minimum levels of recycled content for industrial, SLI batteries and EV batteries.

The Regulation sets an obligation for batteries to hold a recycled content documentation and introduces minimum levels of recycled contents of batteries, which are initially set at 16% for cobalt, 85% for lead, 6% for lithium and 6% for nickel (Council of the European Union 2022). The agreement also includes to set a recycling efficiency target for nickel-cadmium batteries of 80% by 2025 and other waste batteries of 50% by 2025 (Council of the European Union 2022).

The co-legislators also agreed to set the target for lithium recovery from waste batteries to 50% by 2027 and 80% in 2031, which can be amended through delegated acts depending on market and technological developments and the availability of lithium (Council of the European Union 2022). Furthermore, the provisional political agreement between the European Parliament and the Council sets targets for producers to collect waste portable batteries (63% by the end of 2027 and 73% by the end of 2030).

It also introduces a dedicated collection objectives of 51% by the end of 2028 and 61% by the end of 2031 for waste batteries for light means of transport (LMT batteries), (Council of the European Union 2022).

According to the Council of the European Union (2022), the new Regulation will ensure that end-of-life batteries will be properly collected and recycled to recover useful materials and to treat toxic substances properly (Council of the European Union 2022).

The Commission welcomed the provisional political agreement reached between the European Parliament and the Council of 9 December 2022, aiming to make all batteries placed on the EU market more

sustainable (European Commission 2022a). Since this new cradle-to-grave regulatory framework for batteries will require more detailed rules, secondary legislation will be adopted from 2024 to 2028 to achieve a fully operational regulatory framework for batteries and waste batteries (European Commission 2022a).

As next step, the provisional political agreement on the new Regulation on batteries (COM/2020/798 final) will be formally approved by the European Parliament and the Council of the European Union.

5. Conclusion

Batteries are at the centre of the expansion of e-mobility and the increasing share of EVs in the European automobile market. However, since European automobile manufacturers had a delayed start in the EV production also considerations of developing a meaningful battery production in Europe have begun late. There is no significant battery producing industry established in the EU so far, but since batteries are an essential building block for the increase of the EVs market share, Europe needs to establish a battery cells production industry of significant size to become independent from imports. However, the EU has also to secure the supply of raw material as well as organising an environmentally friendly recycling and recovery of end-of-life batteries. Therefore, the proposal COM/2020/798 final presented by the European Commission in 2020 to revise the EU Batteries Directive 2006/66/EC, contains rules to make batteries sustainable throughout their entire life cycle, from “cradle-to-grave”, including the sourcing of raw materials as well as the collection, recycling, and repurposing of waste batteries. The provisional agreement reached by the European Parliament and the Council of the European Union on 9 December 2022 on the proposal for a regulation on batteries and waste batteries is an important step to make the e-mobility more sustainable and to make the battery value chain

more sustainable. The provisional political agreement will now have to be formally approved. Thereafter, the Regulation will still require the introduction of more detailed rules and secondary legislation based on delegated acts to become fully operational and to make all batteries placed on the EU market more sustainable and safer for the environment.

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