European Automobile Clubs

Newsletter

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Green Deal: Sustainable batteries

On 10 December 2020, the European Commission proposed a revision and modernisation of the current 2006 EU legislation on batteries. The initiative was already announced in the Circular Economy Action Plan adopted in March 2020. The Commission sees sustainable batteries as key to the goals of the European Green Deal and the zero-pollution target as stated therein. They are needed to achieve or guarantee competitive sustainability, clean transport, clean energy, and the achievement of climate neutrality by 2050. The proposal addresses the social, economic, and environmental issues related to all types of batteries. The overarching objective is to ensure that batteries placed on the EU market are sustainable, efficient and safe throughout their life cycle. This means that batteries are produced with the lowest possible environmental impact and use materials that are extracted in full respect of human rights and social and environmental standards. Batteries must be durable and safe, and at the end of their life they should be reused, remanufactured or recycled, returning valuable materials to the economy.

The Commission proposes mandatory requirements for all batteries (i.e. industrial, automotive, electric vehicle and portable) placed on the market in the EU. Requirements such as the use of responsibly sourced materials with limited use of hazardous substances, minimum recycled content, carbon footprint, performance, durability, and labelling, as well as meeting collection and recycling targets, are essential for the development of a more sustainable and competitive battery industry in Europe and across the globe. Legal certainty will also be established to secure widespread investment to increase production capacity.

From 1 July 2024, only rechargeable industrial and traction batteries for which a carbon footprint declaration has been made may be placed on the market. To close the loop and keep valuable materials used in batteries in the European economy for as long as possible, the Commission proposes to set new requirements and targets for the content of recycled materials and the collection, treatment, and recycling of batteries at the end of their life. This would ensure that industrial, automotive, or electric vehicle batteries are not lost to the economy after their useful life. From 2027, there will be a requirement to disclose the proportion of recycled raw materials in these batteries, followed by requirements to use a minimum proportion of recycled cobalt, lithium, nickel, and lead starting from 2030. To significantly improve the collection and recycling of portable batteries, the current collection rate of 45 per cent should increase to 65 per cent in 2025 and 70 per cent in 2030, so that the materials in the batteries we use at home are not lost to the economy. Other batteries - industrial, automotive, or electric vehicle batteries - must be fully collected. All collected batteries must be recycled and high recovery rates must be achieved, especially for valuable materials such as cobalt, lithium, nickel and lead.

The proposed regulation establishes a framework to facilitate the reuse of batteries from electric vehicles, e.g., as stationary energy storage systems or integration into electricity grids as energy resources. The Commission is also pushing the use of new IT technologies, in particular the battery passport and the networked data room, to promote secure data exchange, greater transparency of the battery market and traceability of large batteries.

The proposal will now go through the ordinary legislative process in Parliament and Council.

Further Links:

- Commission proposal
- Commission press-release
- Commission Q&A

Good-to-Know: Battery Recycling: Developments and Challenges

The electric vehicle revolution, driven by the need to decarbonise private transport and improve air quality in urban centres, will not only

radically change the automotive industry. The associated battery industry and ultimately the waste and recycling industry are also facing fundamental changes. In this context, one category of batteries is playing an increasingly central role due to their energy storage capacity and low weight: lithium-ion batteries (LIBs, also known as lithium-ion accumulators). Basically, the individual small battery cells of a LIB consist of conductive aluminium or copper layers. Between them are an anode, usually made of graphite, and a cathode, the composition of which varies greatly depending on the technology: While currently many lithium iron phosphate batteries and lithium nickel cobalt aluminium batteries are still used, in the future mainly the lithium nickel manganese cobalt technology will be used in different compositions. Consequently, lithium, cobalt, nickel, manganese and graphite in particular will play an increasingly decisive role in the global raw materials market as important battery raw materials. So far, most LIBs have been sold in the consumer electronics sector, but future sales will increasingly be driven by electric vehicles.

Already in 2017, an estimated one million LIBs accounted for about six per cent of total demand for cobalt and nine per cent of total demand for lithium. This trend is particularly visible in China, where more than 73 per cent of global lithium cell production capacity was already in place in 2019, according to Bloomberg New Energy Finance, followed by the US, which is second with 12 per cent of global capacity. Global demand for batteries will increase 14-fold by 2030 and the EU could meet 17 per cent of this demand. In addition, the exponential global growth in demand for batteries will lead to a corresponding increase in demand for raw materials, especially cobalt, lithium, nickel and manganese, which will have a significant impact on the environment.

The increasing use of batteries will also lead to an increase in waste volumes. The number of recyclable lithium batteries is expected to increase 700-fold between 2020 and 2040. Establishing a suitable economic system for the disposal of WEEE (Waste Electrical & Electronic Equipment) and LIB waste therefore seems essential.

Great benefits and great challenges: Recycling LIBs

In general, when recycling batteries, a distinction must be made between pure reuse and the extraction of raw materials. After primary use in electric vehicles, for example, used batteries are expected to retain 60 to 80 per cent of their original capacity, which makes reuse in other applications such as grid storage possible. However, if the batteries no longer have any use, they must be disposed of and, at best, recycled. Recycling LIBs is a comparatively complex and sometimes very energy-intensive process. According to a study by McKinsey&Company, the industry is currently mainly concerned with the disposal of potentially hazardous used consumer electronics products instead of extracting the materials for reuse. With today's recycling processes, only cobalt, nickel and, to some extent, manganese can be economically recovered from active materials. McKinsey&Company estimate that 12 to 15 kilotonnes of cobalt and almost no lithium were recovered from recycling in 2017. Lithium has so far only been extracted in experimental pilot plants and mostly remains in the slag in previous plants.

An important factor in the economic viability of recycling lithium, nickel, cobalt and possibly manganese is that the materials continue to be used in cell chemistries in relatively high proportions. If the composition and proportion of the materials changes in the future, recycling could also become uneconomical here. In existing pilot plants, LIBs are first laboriously unloaded manually, dismantled, and then processed either pyrometallurgically (melting and extraction) or hydrometallurgically (leaching and extraction). In the thermal treatment, lithium can, for example, be washed from the subsequent slag or recovered from flue gas plants. In the hydrometallurgical process, on the other hand, materials are treated with acids and alkalis to

separate them from each other. Due to the energy-intensive nature of pyrometallurgical processes, it is more likely that the hydrometallurgical process will be developed further in the future. However, despite the fact that the recycling process is still costly, European countries are likely to have a strong interest in its rapid development: Some studies indicate that electric vehicles emit more greenhouse gases during production and less during the use phase compared to vehicles with combustion engines. Therefore, reducing emissions during production will be one of the main concerns in order to reap the emission benefits of electric mobility. In this context, the use of recycled materials is seen as a crucial method. In fact, according to a study by Tsinghua University, recycling electric vehicles can help reduce about 35 per cent of energy consumption and greenhouse gas emissions during the manufacturing phase. Moreover, in the case of LIBs, incorrect storage and disposal can mean not only a loss of important raw materials, but also environmental pollution and health risks.

But it is not only the environmental and health risks that are becoming increasingly relevant. The strong global demand for necessary raw materials can also lead to supply bottlenecks. Disruptions in the supply chain of raw materials can drive up material costs and thus reduce the benefit of learning effects in lowering battery prices. This was already the case in late 2018, when the price of cobalt more than quadrupled in 15 months, partly due to rising demand and partly due to political instability in the largest cobalt producer - the Democratic Republic of Congo. Although the price of cobalt has fallen since then, concerns about supply shortages and commodity price volatility persist. Thus, recycling represents an opportunity to reduce both supply risks and negative externalities in production as well as subsequent extraction of critical elements.

Parts of this article have already been published by the author in the Econet Monitor magazine of German Industry & Commerce Greater China/AHK Greater China Beijing.

Further Links & Sources:

- Lithium battery reusing and recycling: A circular economy insight
- Fraunhofer: Gesamt-Roadmap Lithium-Ionen-Batterien 2030
- Potential impact of the end-of-life batteries recycling of electric vehicles on lithium demand in China: 2010–2050
- McKinsey: Lithium and cobalt – a tale of two commodities
- Electric vehicle recycling in China: Economic and environmental benefits
- Evaluating the electric vehicle popularization trend in China after 2020 and its challenges in the recycling industry
- Transition to electric vehicles in China: Implications for private motorization rate and battery market
- FAZ: So werden Lithium-Ionen-Akkus recycelt

ECJ: Defeat devices

The European Union's top court ruled on 17 December 2020 that Volkswagen had broken the law by installing a so-called defeat device in its cars to cheat emissions tests and could not plead that it was merely to protect car engines.

The German carmaker admitted to having fitted millions of cars with the device, and it turned out that the use of the cheating software was not limited to the US. In Europe, it had been argued that the software could be justified by the fact that it helps to protect the engine over time.

The ECJ ruled: "A manufacturer cannot install a defeat device which systematically improves, during approval procedures, the performance of the vehicle emission control system and thus obtain approval of the vehicle." The case was examined by the ECJ after the Paris prosecutor's office launched a judicial enquiry into whether Volkswagen had deceived buyers of diesel vehicles fitted with the device.

The Court concluded that "software […] which alters the level of vehicle emissions in relation to the driving conditions which it detects and guarantees that emission limits are observed only when those conditions correspond to those

applied during approval procedures constitutes a defeat device. In addition, that software constitutes a defeat device even if an improvement in the performance of the emission control system can be observed, on specific occasions, in normal conditions of vehicle use." Such a device was only justified if it "allow[s] the engine to be protected against sudden and exceptional damage" and the "immediate risks of damage […] give rise to a specific hazard when the vehicle is driven." In a separate decision in summer 2020, the ECJ already ruled that EU consumers can sue in the country where they bought the vehicles equipped with the device.

Further Links:
- ECJ ruling

TRAN: European Data Strategy

On 1 December, the Transport Committee of the European Parliament (TRAN) dealt for the first time with the European Data Strategy presented by the European Commission in February or the opinion of the lead Committee on Industry, Research and Energy (ITRE). The ITRE Committee had published a draft report on a European strategy for data on 11 September 2020. The draft report welcomes in particular the European Commission's data strategy and considers it a prerequisite for the viability of European industries and emerging artificial intelligence, as well as an important step towards a democratic data society that will bring better services, growth and jobs. Furthermore, the draft report addresses, among other things, the new European framework for data governance, data access, interoperability and infrastructure, and scientific research. Moreover, the draft report highlights that global rules for the use of data are insufficient and therefore calls on the Commission to work with like-minded third countries to agree new international standards for the use of new technologies. Finally, the draft report calls for the free flow of data between the EU and third countries where data protection, security and other legitimate public interests are met, and encourages the Commission to negotiate new rules for the global digital economy, including the prohibition of unjustified data localisation requirements.

The rapporteur responsible in the TRAN Committee welcomed many of the amendments tabled and took the opportunity to present his own draft opinion, in which he put the protection of personal data at the forefront. The transport sector had to become more customer and environmentally friendly, especially through better data exchange. To this end, the existing legal framework had to be improved, especially with regard to cyber security, but also with regard to vehicles and data security. During the debate, some MEPs outlined their priorities for the European strategy on data use in the transport and tourism sectors, including a more proactive approach to data use to foster innovation in Europe and improved legal protection to allow citizens to benefit from data and create a better operating environment for SMEs and start-ups. Some MEPs recalled that the transport and tourism sectors already generate large amounts of data, which should be better used to make the sectors safer and cleaner. In this respect, Europe needs a legal framework that finds the right approach and balance to ensure data protection, taking into account who owns the data and the need to share data when and where it serves the growth of industries. Data should be used to develop the application of artificial intelligence in the field of smart, connected, and autonomous driving, by creating the right incentives and ensuring fair rules, and by stimulating a proper debate in society. Data sharing should also be enabled for research. It is important to create European standards based on the principles of accessibility, interoperability and reusability, including for data storage and processing.

Further Links:
- ITRE report
- TRAN opnion
- Commission press-release (February 2020)
- EAC Position Paper: Access to Vehicle Data

TRAN: Roadworthiness Package

The EU adopted the Roadworthiness Package in 2014 as part of the road safety policy framework, consisting of three pieces of legislation aimed at improving the quality of vehicle testing, harmonising requirements in roadside inspections and introducing the first European measure to combat tachomanipulation. Presenting his draft report, the rapporteur highlighted that the implementation of the package has shown an improved harmonisation of national procedures in the Member States and has helped to increase the quality of periodic roadworthiness tests, thus improving road safety standards.

His report contains a number of proposals for a future revision of the package with regard to the frequency and content of inspections, roadside inspections, training of inspectors, load securing and data exchange between Member States via a European vehicle information platform. The rapporteur also expressed that the roadworthiness framework should be made sustainable by introducing new mandatory advanced safety systems as part of the periodic roadworthiness inspection.

Further Links:

- TRAN report

Meeting Dates

Council

Transport, Telecommunications and Energy Council	03/06/2021
Competitiveness Council	25/02/2021
Council of Justice and Home Affairs	11/03/2021
Council of Environment	18/03/2021
Plenary	18-21/01/2021 (Agenda)

Committees

Environment (ENVI)	14/01/2021 (Agenda, tba)
Internal Market / Consumer (IMCO)	11/01/2021 (Agenda)
Justice & Home Affairs (LIBE)	11-12/01/2021 (Agenda)
Transport (TRAN)	11/01/2021 (Agenda)

EAC (internal)

(Hybrid) General Assembly in Berlin	23/03/2021