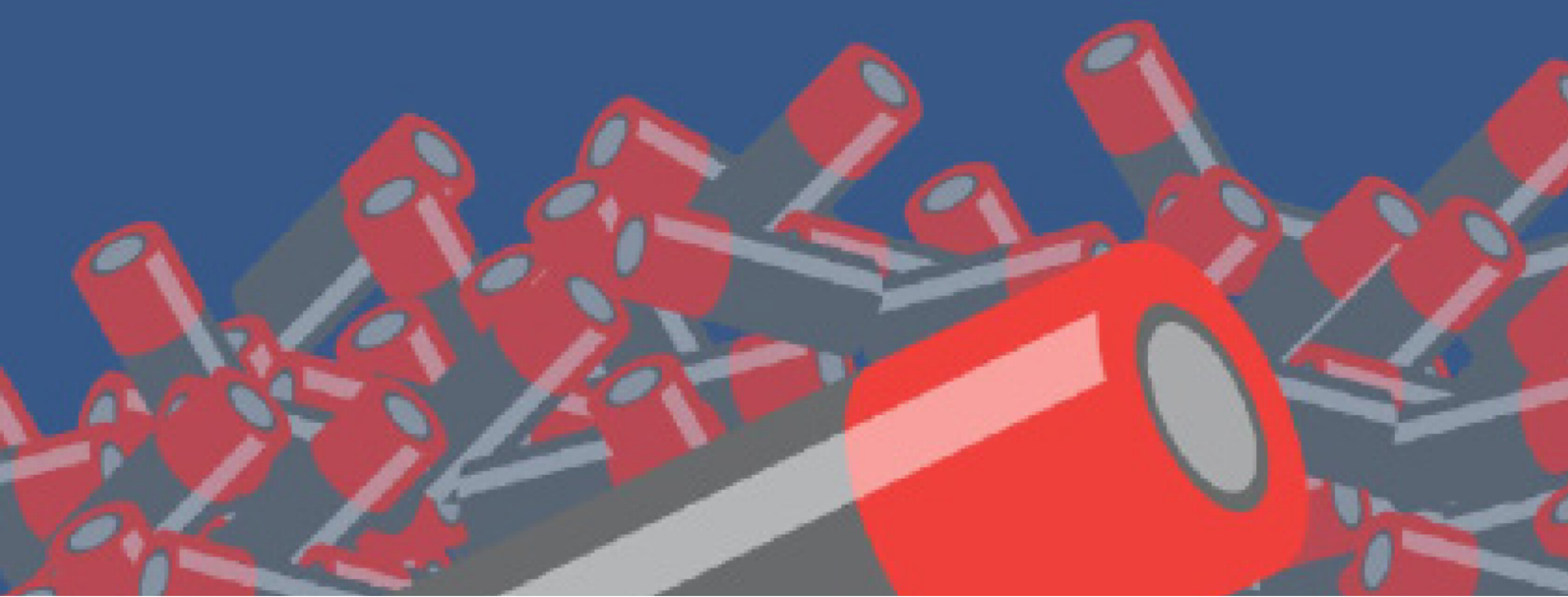
Nordic Council of Ministers

Batteries in the Nordics – Changing for Circularity

POLICY BRIEF



Contents

This publication is also available online in a web-accessible version at https://pub.norden.org/temanord2022-524

Recommendations for the Nordic Countries to Improve Circularity of Batteries

Pressures on the environment have been high in recent years both in the Nordics and globally. While technological development within batteries and the increased use of batteries are likely to reduce some of these pressures, others will increase, sometimes significantly, as more raw materials are needed and the energy consumption to produce batteries are high. The aim of this policy brief is to help the Nordics address these problems and promote the Nordics as a forerunner within lithium-ion batteries and circular economy.

Recommendations are:

1. to improve circularity of batteries and equipment with policy measures focusing on existing and known technologies, including batteries; and
2. to contribute to creating the right framework conditions for the Nordic countries to be centrally placed in an innovative, sustainable, and competitive battery ecosystem in Europe

The policy brief details the recommendations with 10 concrete activities and provides the Executive Summary from the study report. The brief has been made on the basis of the study "Batteries in the Nordics – changing for circularity" funded by the Nordic Working Group for Circular Economy (NCE) under the Nordic Council of Ministers.

The study has been carried out by Viegand Maagøe (Denmark) and IVL Swedish Environmental Research Institute (Sweden) from October 2020 to December 2021.

The policy recommendations for the Nordic countries to **improve circularity of batteries and equipment with policy measures focus on existing and known technologies, including batteries**, through these activities:

1. **Adopt the measures from the working documents for smartphones regarding relevant measures for batteries across all product groups containing batteries that fall under the Ecodesign Directive.** One of the most comprehensive sets of measures relevant for products containing batteries is found in the working documents for smartphones, where both Ecodesign requirements and energy label are proposed. Adoption of these measures can be a good example to be used when setting or reviewing requirements for other product groups.
2. **Create a new metric regarding battery performance, allowing manufacturers a higher degree of freedom to develop the best-suited batteries for the specific application**. Instead of setting requirements on cycles, it could be relevant to develop a metric that calculates the lifetime of the battery, which needs to fit the expected life of the product.
3. **Ensure interoperable batteries across product groups with batteries that have many similarities** in order that detachable rechargeable batteries can be used across a range of different products.
4. **Support the battery proposal**. The proposed Battery Regulation is quite comprehensive and covering many relevant areas. In the current policy process, the Nordics may discuss internally and with other Member States if common positions can be reached and how it can be supported.
5. **Use Green Public Procurement to increase the demand for sustainable batteries**, where the Nordics can suggest the European Commission and the GPP Advisory Group to include batteries in a technical study aiming at setting GPP criteria for batteries
6. **Support a far-reaching review of the Ecodesign directive and push for inclusion of the transport sector**, where the Nordics should push to remove the exemption for means of transport from the Ecodesign Directive – or at least that the exemption should not apply to batteries for means of transport. This can be fed into the current process of Sustainable Products Initiative amending or replacing the current Ecodesign Directive.

Policy recommendations for the Nordic countries **to contribute to creating the right framework conditions for the Nordic countries to be centrally placed in an innovative, sustainable, and competitive battery ecosystem in Europe** focus on these activities:

7. **Positioning the Nordic countries to benefit from sustainability requirements in the new EU Regulatory Framework for Batteries** proposed by the Commission and expected to be adopted during 2022. The Nordic countries should position themselves to support and subsequently benefit from the expected (i) rules on recycled content; (ii) measures to improve the collection and recycling rates of all batteries; (iii) progressively phasing out non-rechargeable batteries; and (iv) sustainability and transparency requirements for batteries (carbon footprint, ethical sourcing of raw materials, security of supply, and facilitating reuse, repurposing, and recycling).
8. **Preparing Nordic project developers for participation in the available financial support for European projects demonstrating and scaling up innovative sustainable battery technologies and business models**, which will include making public funding or financing for battery cells manufacturing projects available in order to incentivise, leverage and 'de-risk' private sector investment through Horizon Europe, Invest EU, LIFE and the Innovation Fund in support of innovative battery-related deployment projects.
9. **Facilitating Nordic research project participation in the improved European research and innovation funding opportunities for battery technology**, which will include making available, research and innovation funds (Horizon Europe) for battery-related innovation projects and – in the longer term – the launch of a large-scale Future Emerging Technologies Flagship research initiative, which could support long-term research in advanced battery technologies for the 2025+ timeframe.
10. **Working with TSOs (Transmission System Operator) and national energy market regulators to ensure that the necessary regulatory framework and pricing mechanisms allow for sustainable battery technology demonstration and scaleup** for battery technology for decentral storage of intermittent renewable energy. This is on one side essential for the electrification of large parts of the Nordic economies and meeting climate goals by 2030 and 2050 and on the other side provides a range of services which is not currently priced in the market (frequency response, reactive power, provision of inertia).

Executive Summary – Legal framework and relevant initiatives

The policy brief in the previous section summarises the policy interventions found and described in the study report "Batteries in the Nordics – Changing for Circularity". This executive summary gives a rundown of the remaining chapters of the report.

Introduction

The overall aim of the project is to promote the Nordic countries as a forerunner region in demanding and using sustainable design of consumer electronics, and to identify key opportunities, barriers, and challenges in the transition towards a more sustainable use of battery technologies, including the transport sector. The aesthetics of the design should meet with the overall sustainability: high quality, durability, and smart assembly for refurbishing.

The project is founded by the Nordic Working Group for Circular Economy (NCE) under the Nordic Council of Ministers. The project has been carried out by Viegand Maagøe A/S (Denmark) and IVL Swedish Environmental Research Institute (Sweden) in the period 20 October 2020 to 31 December 2021.

A reference group with representatives from the Nordics has been established, who provided valuable input to the study.

Legal framework and relevant initiatives

EU legislation and initiatives have a direct or indirect influence in the Nordics on batteries and the products containing batteries.

The **proposed new battery regulation** to replace the Battery Directive is expected to become an important driver for the circularity of batteries and for minimising the negative environmental impact of batteries. The current Battery Directive applies to all batteries placed on the market within the European Union and establishes objectives and targets (e.g., on collection and recycling); specifies measures (such as phasing out mercury or establishing national schemes for collection) and enables actions (e.g., reporting or labelling) to achieve them.

The directive has been the EU's best tool in ensuring recycling and beneficial environmental handling of batteries on the European market and have therefore also impacted the Nordic Member States' handling of batteries. Still, the directive does not ensure that all batteries are properly collected and recycled at the end of their life, increasing the risk of releasing hazardous substances and wasting valuable and critical resources. Also, the existing directive does not fully grasp the intentions of the circular economy. Therefore, a new battery regulation was proposed repealing the existing directive to better reflect circularity, improve sustainability, and keep pace with technological developments.

The proposed Battery Regulation (published on 10 December 2020) includes:

- introduction of a new category of electric vehicle batteries, alongside the existing portable, automotive, and industrial battery classes;
- progressive requirements to minimise the carbon footprint of EV batteries and rechargeable industrial batteries: a carbon footprint declaration requirement, applying as of 1 July 2024, complemented by classification in a carbon footprint performance category and related labelling (as of 1 January 2026); and a requirement to comply with maximum lifecycle carbon footprint thresholds (as of 1 July 2027);
- a recycled content declaration requirement, which would apply from 1 January 2027 to industrial batteries, EV batteries and automotive batteries containing cobalt, lead, lithium, or nickel in active materials. Mandatory minimum levels of recycled content would be set for 2030 and 2035 (i.e., 12% cobalt; 85% lead, 4% lithium and 4% nickel as of 1 January 2030, increasing to 20% cobalt, 10% lithium and 12% nickel from 1 January 2035, the share for lead being unchanged);
- minimum electrochemical performance and durability requirements for portable batteries of general use (applying from 1 January 2027), as well as for rechargeable industrial batteries (from 1 January 2026). The Commission would assess the feasibility of phasing out non-rechargeable portable batteries of general use by the end of 2030;
- a new obligation of battery replaceability for portable batteries; safety requirements for stationary battery energy storage systems;

- supply chain due diligence obligations for economic operators that place rechargeable industrial batteries and EV batteries on the market. For this requirement on responsible raw material sourcing (as well as for those related to the carbon footprint and the recycled content levels), the Commission proposal envisages mandatory third-party verification through notified bodies;
- increased collection rate targets for waste portable batteries, excluding waste batteries from light means of transport (65% by the end of 2025, rising to 70% by the end of 2030);
- as regards recycling efficiencies, increased targets for lead-acid batteries (recycling of 75% by average weight of the lead-acid batteries by 2025, rising to 80% by 2030) and new targets for lithium-based batteries (65% by 2025, 70% by 2030). The proposed regulation also envisages specific material recovery targets, namely 90% for cobalt, copper, lead and nickel, and 35% for lithium, to be achieved by the end of 2025. By 2030, the recovery levels should reach 95% for cobalt, copper, lead and nickel, and 70% for lithium;
- requirements relating to the operations of repurposing and remanufacturing for a second life of industrial and EV batteries;
- labelling and information requirements. From 1 January 2027, batteries should be marked with a label with information necessary for the identification of batteries and of their main characteristics. Various labels on the battery or the battery packaging would also provide information on lifetime, charging capacity, separate collection requirements, the presence of hazardous substances and safety risks. Rechargeable industrial batteries and EV batteries should contain a battery management system storing the information and data needed to determine the state of health and expected lifetime of batteries. This system should be accessible to battery owners and independent operators acting on their behalf (e.g., to facilitate the reuse, repurposing or remanufacturing of the battery);
- the setting up, by 1 January 2026, of an electronic exchange system for battery information, with the creation of a battery passport (i.e., electronic record) for each industrial battery and EV battery placed on the market or put into service;
- envisaging of the development of minimum mandatory green public procurement criteria or targets.

The **Ecodesign Directive** establishes a framework for setting ecodesign requirements on energy-related products such as household appliances, consumer electronics and information and communication technologies. In recent years, a set of resource efficiency requirements have been implemented in the Ecodesign product regulations including requirements on disassembly for repair and reuse and for products' built-in batteries. These include the regulations on computers and on enterprise and data centre servers and storage products and proposed requirements in the working documents for smartphones and tablets. These requirements can be highly relevant for circularity of the batteries themselves and also for extending the lifetime of the products using built-in batteries due to longer battery lifetime and possibility for easy replacement of the batteries.

Green Public Procurement (GPP) criteria for computers, monitors, tablets, and smartphones include requirements for built-in batteries related to product lifetime extension, energy consumption, hazardous substances, end-of-life management and refurbished/remanufactured products. Setting such requirements to batteries should create an economic incentive to produce and sell batteries with a longer lifetime. GPP also provides incentives to produce batteries with a high endurance and quality by making sure they are tested according to international standard i.e., EN 61960-3:2017.

Other relevant legislations include:

- The Waste Electrical and Electronic Equipment (WEEE) Directive
- EU List of Waste
- The Regulation on shipments of waste
- The Regulation on CE marking
- The Restriction of Hazardous Substances (RoHS) Directive
- The Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- The EU Conflict Minerals Regulation

Additional to the legislative initiatives, important other initiatives include the 2021 Industrial Strategy Update, where one strategic area is lithium-ion batteries (LIBs); and the Strategic Action Plan to develop a European battery value chain embracing raw materials extraction, sourcing and processing, battery materials, cell production, battery systems, as well as re-use and recycling. Furthermore, the European Commission supported the establishment of The European Battery Alliance (EBA).

Finally, EU has funding schemes for research, pilots, demonstrators, scale-up and roll-out in batteries, such as Horizon 2020, Horizon Europe, the Innovation Fund and Important Projects of Common European Interest (IPCEI).

Executive Summary – Today's practice regarding lithium-ion batteries

Production

LIB production is very complex and involves several steps, from mining to battery pack production. Extraction of metals occurs in different parts of the world; however, China is currently dominating cell production including cathode and anode production. Some raw materials are critical (high supply risks and very economic important) for EU including cobalt, graphite and lithium.

Metals are mined for the cathode, and they are refined to sulphates or in the case of lithium, sometimes used as hydroxide. After mining and refining, the active cathode material is produced. The extraction of metals is highly impacting the environment and people working and living near the extraction sites. The battery cell is constructed with the anode, cathode, electrolyte, separator, plastics, steel, copper, and aluminium. The cathodes are made of different chemistries depending on the application and the anode is usually based on graphite with the exception of LTO chemistry.

The trends for coming years for the battery chemistries in products is not only relevant for the raw material required at the production, but also for the volumes of batteries entering recycling. This is because the chemistries determine the amount of specific raw materials (e.g., cobalt and nickel), which can be recovered.

There is much research going on for new chemistries, and the main drivers are energy density increase to increase the range for cars, to reduce costs and to reduce the need for critical raw materials such as cobalt.

The key market sectors in the EU for LIBs are automotive and to a smaller extent portable devices. The growth for markets sold in each market in the coming 10–15 years will probably mainly be on the automotive side. Sales for pure electric (BEV) passenger cars are dominating the growth. Other important products – which are growing considerably up to 2030 – are passenger car PHEVs, busses, and LCV (light commercial vehicles). Also, batteries in power tools and tablet and smartphones have been sold more and will continue to increase until 2030.

Use

The main use is for automotive application and the second largest use is for portable devices, assuming that the pattern seen in Europe also applies for the Nordics.

For some usages, for example for power tools, high power and thus high C-rate (high current) is needed from the battery, but the energy storing capacity may be lower. Since it varies how much time people use the tool per use, the battery is often over dimensioned for private use.

For portable batteries for portable electronics such as smartphones, laptops, tablets, loudspeakers, the batteries are built-in and laymen often may not be able to replace them; especially for waterproof products.

Especially for replaced automotive batteries, typically, the batteries still have energy capacity left, which give opportunities for refurbishment or remanufacturing and achieving a second life in vehicles or in other application e.g. for energy storage in buildings or as electric grid support. As long as there is a market and a value of these second life batteries, a larger part of the technical lifetime of the batteries are likely to be achieved before scrapped.

For EV batteries, it is common to send for a second life for industrial or commercial energy storage. In Sweden for example, many used EV batteries are sent to the real estate market and used in the rooftops of buildings to store energy produced by solar panels. For electronic devices, the main approach currently is to fully replace the batteries with new ones rather than to repair old batteries.

End of life

After the user is no longer using the product and wants to scrap it, the ownership of the battery becomes of high importance. The Extended Producer Responsibility (EPR) for batteries means that the company placing the batteries on the market is responsible for their collection when they are scrapped by the consumer.

There are no legal requirements for the owner of a battery to send it for recycling when it is no longer used by the consumer, which is why many end-of-life batteries for consumer electronics may stay in with the original owner for many years instead of getting recycled. For EV batteries, like LFP batteries, batteries may be disassembled from buses and left in storage indefinitely until a purpose for them is found.

Many small batteries are not collected for battery recycling because they are integrated into the device and cannot be disassembled. They may therefore end up in electronic (WEEE) recycling instead where there is only little chance for the battery metals to be recycled.

EV batteries are supposed to be removed during the pre-treatment process to comply with the ELV Directive (Directive on end-of-life vehicle), and the percent of batteries for which it takes place should be high as it directly correlates with the stock available for the recycling industry.

Recycling

There is a lot of variation when it comes to recycling between what types of recycling is performed and what actors are involved. Even within the bigger recycling categories, such as hydrometallurgy or pyrometallurgy, there can be major differences in how companies perform the recycling. Differences that different actors in the recycling chain choose may include: what metals and other materials are recovered, what percentage of cobalt/nickel/lithium/manganese are recovered, what type of solvents are used in hydrometallurgical recycling and what type of pre-treatment is done.

The main categories of recycling today are hydrometallurgical or pyrometallurgic with subsequent hydrometallurgy. Both have different pros and cons with regard to costs, recovery efficiency, flexibility/adaptability to different battery chemistries, the need for a disassembly step, and energy use.

Pyrometallurgy means heating of batteries to smelt the metals while hydrometallurgy uses acids or bases for dissolving them. But first dismantling of parts and other pre-treatments need to be done. For hydrometallurgical recycling knowledge about the cathode chemistry is important why it is recommended to clearly mark the battery with this information, perhaps with electronic tags to facilitate sorting.

In battery recycling, the chemistry of the electrodes matters, especially the cathode. Most of the value is found in the cathode, which is where valuable metals such as cobalt, nickel, and lithium are found. Mobile phones, tablets and computers use Li-ion batteries with high-quality Co content (>12%), and this high Co concentration means that it is profitable both for the producers of these products and the recyclers to try to recycle the metals in these batteries. On the other hand, tool batteries usually contain around 6%, which is why it is not as profitable to handle (recyclers typically do not pay for these batteries but charge a fee for recycling them).

Currently, the volumes of batteries are not sufficient for hydrometallurgy of black mass in the Nordics. There are also other challenges that have to be overcome for a functioning LIB recycling.

The current battery directive does not place specific limitations on the recycled content of lithium-ion batteries, meaning that recyclers would usually recycle the easiest-to-recycle or most valuable materials. The proposal for the new regulation will likely require recyclers to introduce different methods of recycling in order to adjust the percentage of metals which are recovered.

One problem when reducing cobalt in the batteries is that the value for the recycler is reduced. LFP is therefore not recycled at all in Europe at the moment. This obstacle may be mitigated by the proposed battery regulation with its proposed recovery rates of cobalt, lithium, and nickel as well as the proposed recycled contents in the production of new batteries. The proposed directive will also force the companies in the battery supply chain to be more transparent regarding ensuring recyclability (enabling disassembly).

Executive Summary – Sustainability of batteries

Some may consider sustainability as another wording for environmental development, while others also consider the economic and social impacts. However, regarding batteries, it is important to consider all aspects of sustainability, as battery technology is a key cornerstone in the green transition towards a fossil-free society by replacing products, appliances, and transport means that requires fossil fuels.

It is important to consider all aspects of sustainability, which is in line with the Sustainable Development Goals (SDGs) that aims to: "ensure all human beings can enjoy prosperous and fulfilling lives and that economic, social, and technological progress occurs in harmony with nature." Sustainability and sustainable development are often referred to as the three Ps (People, Planet, and Prosperity).

People: There are significant social and environmental consequences in connection with the extraction of several of the raw materials in lithium-Ion batteries, particularly regarding conflict minerals. Minerals are considered conflict minerals if they are sourced from politically unstable areas and where the minerals trade can be used to finance armed groups, fuel forced labour and other human rights abuses, and support corruption and money laundering. There are several primary raw materials used to manufacture lithium-Ion batteries, which can have adverse impacts on its entire value chain. Cobalt is the most problematic raw material of all listed raw materials, as it is mined mainly in countries with poor regulation and disorganized small pits i.e., mining by hand using rudimentary and basic tools, often without adequate protective equipment. Over 50 percent of the world's cobalt is mined in the DRC (Democratic Republic of the Congo).

Planet: Batteries impact the environment both positively and negatively and environmental impact affects people. Both the pros and cons need to be considered in connection with the increased demand for different types of batteries to avoid rebound effects. The greenhouse gas emissions of producing a battery is about the same as the rest of the car itself, and thus the greenhouse gas emissions from production of an electric car are about twice as much as they are for a car that runs on only an internal combustion engine. In other impacts categories, it is clear that an electric car also produces significantly higher emissions of other types during the production.

Prosperity: Many of the Sustainable Development Goals aim to improve various areas related to the environment, people, and economic opportunities. Economic opportunities aim to provide decent work such as safe working conditions, living wages, compassionate leadership, and economic growth for those in specific communities. From a more strictly company perspective, the economic part is, of course, important. If a company has a deficit, it cannot continue to operate unless it somehow makes a turnaround. A company can focus on social and environmental impacts, but if they do not make any money, they cannot continue their liveable work (social and environment).

To ensure sustainability, the solution must be economically viable. Previously, companies were focused on profits obtained through a linear business model where higher sales equalled higher profits. The high-speed automatic assembly favours linear business models. Sustainability is a business approach to creating long-term value by considering how a given organization operates within the three Ps (People, Planet and Prosperity).

Sustainability is built on the assumption that developing such strategies foster company longevity. Without a focus on sustainability, it can be questioned how long the company can continue to operate as the expectations on corporate responsibility increases. Transparency becomes more prevalent, and more companies recognise the need to act on sustainability. Professional communications and good intentions are no longer enough as green claims are investigated, and greenwashing will hurt the reputation of the company.

Without a broad focus on sustainability, it may become increasingly difficult for companies to compete in the market. These considerations may increase the focus on the Nordics as a suitable place for production, as the green energy supply can help companies fulfil their sustainability goals and increase their market value.

Key barriers towards increased circularity today

Though there are numerous possibilities and advantages to the circular economy, still several barriers limit the increase in circularity. Key barriers include:

- **Company culture**, which often can be a major obstacle regarding shifting from a well-established linear economy to circular economy, changing the mindset of consumers, involving full-life-cycle collaboration, and changing mindsets within companies.
- Lack of **circular design** opportunities especially within the electronics and batteries due to the complexity of small components and compact products, which makes dismantling tricky for the recyclers or refurbishers and because batteries have varying dimensions, forms, and compositions of chemicals and metals, making it challenging to establish an efficient standardised system for battery recycling.
- Lack of **legislation**, which can inhibit CE, however the Nordics and EU are still ahead due to national regulation and coming EU legislation on batteries.
- Lack of **consumer interest and awareness** because some consumers simply like new items before their old ones are worn out, which is particular for trend-based, hi-tech and fast-paced products, such as mobile phones, which discourages manufacturers from making robust and more expensive products, as there is less market demand for such product for some product segments.
- **Low raw material prices** because the fluctuating price of raw materials, like plastics or metals, hinders the economic incentive for purchasing recycled materials when there are low raw material prices. This further discourages investments in improving the current recycling systems which could help reducing the prices of regenerated resources. Furthermore, some primary raw materials are subject to subsidies making the market price of recycled materials even more unfavourable.
- **Black battery market and illegal exports**, because between 30 and 40 percent of the EVs are exported before the end of their lives but the degree of illegal export is unknown because data on illegal export of WEEE is minimal. This leads to circularity challenges that include the batteries ending up for recycling in other parts of the world resulting in increased emissions for transportation, less efficient recycling facilities thus lower output quality, and lastly a reduced amount of recycled materials for the Nordic battery production industry.

Best practice and design for increased circularity

In this section, content is provided for separate handbooks for businesses and for consumers on best practice and design for increased circularity. For businesses, inspiration from concrete case examples is provided, while for consumers, specific advice on what they can do when purchasing and using the products.

For businesses

Many businesses are currently exploring the countless possibilities of working with circularity of batteries and battery-driven products through new business models and improved ways of using the batteries more efficiently. To unlock these innovative business potentials, new practices are needed in procurement, design, and production departments. The handbook contains inspiration for businesses for establishing these new practices. The basis for the inspiration topics is an evolution of the Ellen MacArthur Foundation's model, where the focus on business models is stronger.

Five business model types have been explored and case examples have been provided of companies that have adopted these approaches and initiatives that consumers can apply to support the circular economy of batteries. The models cover:

- **Circular supplies** that describe how to support sustainability and circular economy looking upstream in the value chain and demanding sustainable materials.
- **Resource recovery** that describes actions that can ensure reuse and recycling by applying actions downstream in the value chain.
- **Product life extension** that includes all the actions consumers and manufacturers can apply to increase the lifespan of products and components during the use phase.
- **Sharing platforms** that help to decrease the need for products by effectively sharing fewer amenities among more users.
- **Products as a service** where product ownership is never transferred to the consumer thus supporting maintenance, product life extension, and resource recovery.

For consumers

Consumers can support the development towards circularity of batteries and battery-driven products through new business models and improved ways of using the batteries more efficiently via their purchases and at the same time achieve economic benefits for themselves and help protecting the environment.

The handbook describes the principles behind circular design to better understand the following best practice recommendations and suggest what consumers can do via their action at the purchase situation and during use of the purchased products.

Circular ways to buying, using and disposing batteries are presented together with case examples of companies that have adopted circular initiatives within the five business model types described above. The models cover:

- **Circular supplies** that describe circularity in the materials that go into the products.
- **Resource recovery** that describes actions that can ensure reuse and recycling of batteries.
- **Product life extension** that includes all the actions that can increase the lifespan of battery products and components during the use phase.
- **Sharing platforms** that help to decrease the need for products by effectively sharing fewer amenities among more users.
- **Products as a service** where product ownership is never transferred to the consumer thus supporting maintenance, product life extension, and resource recovery.

About this publication

POLICY BRIEF: Batteries in the Nordics – Changing for circularity

ISBN 978-92-893-7315-9 (PDF)
ISBN 978-92-893-7316-6 (ONLINE)
http://dx.doi.org/10.6027/temanord2022-524

TemaNord 2022:524
ISSN 0908-6692

Cover photo: Viegand Maagøe

Published: 23/5/2022

Disclaimer

This publication was funded by the Nordic Council of Ministers. However, the content does not necessarily reflect the Nordic Council of Ministers' views, opinions, attitudes or recommendations.

Rights and permissions

Nordic co-operation

Nordic co-operation is one of the world's most extensive forms of regional collaboration, involving Denmark, Finland, Iceland, Norway, Sweden, and the Faroe Islands, Greenland and Åland.

Nordic co-operation has firm traditions in politics, economics and culture and plays an important role in European and international forums. The Nordic community strives for a strong Nordic Region in a strong Europe.

Nordic co-operation promotes regional interests and values in a global world. The values shared by the Nordic countries help make the region one of the most innovative and competitive in the world.

The Nordic Council of Ministers
Nordens Hus
Ved Stranden 18
DK-1061 Copenhagen
pub@norden.org

Read more Nordic publications on www.norden.org/publications