

In collaboration with
White & Case



Annex – Comparative Analysis of Legal Frameworks

COMMUNITY PAPER
DECEMBER 2020

Contents

3	1 The circular economy and the reuse, recycling and repurposing of batteries
4	1.1 The circular economy and batteries
4	1.2 Recycling, reuse and repurposing
5	2 Supra-national legal norms
6	2.1 Basel Convention
11	2.2 European Union
13	2.3 Organisation for Economic Co-operation and Development
13	2.4 Waigani Convention
14	3 National legal frameworks
15	3.1 Germany
16	3.2 China
18	3.3 Japan
19	3.4 Nigeria
20	3.5 United States
22	Abbreviations
23	Acknowledgements
24	Endnotes

Introduction¹

This Annex seeks to provide an overview of existing regulation of the cross-border transport of batteries, with a focus on lithium-ion batteries found in electric vehicles, forming the scaffoldings based on which the arguments in the Opportunity Statement called **Transboundary Movement of Used Batteries** (Creating a framework for safe and efficient circular battery management in harmony with transboundary waste regulations)

1

The circular economy and the reuse, recycling and repurposing of batteries

Sustaining environmental and economic value as long as possible



1.1 The circular economy and batteries

According to the European Commission, a circular economy is one in which the value of products, materials and resources is maintained in the economy for as long as possible and the generation of waste is minimized.²

Batteries³ are a core constituent of the energy sector, particularly in the context of electric vehicles. In the context of global efforts to decarbonize the road transport sector, electric vehicles, and the batteries that power them, are key components of that decarbonized future. The use of lithium-ion batteries has increased 15% between 2005

and 2015 and, supported by various government initiatives focused on the decarbonization of road transport, is projected to increase by an estimated 53% over the coming years, from a global industry worth \$65 billion to one worth \$100 billion by 2025.⁴

In terms of realizing the goals of a circular economy in the context of the battery sector, it is vital that there are clear, coherent and sustainable avenues available to recycle, reuse or repurpose batteries to try and sustain their value in the economy for as long as possible, rather than defaulting to disposal and landfill.

1.2 Recycling, reuse and repurposing

As discussed in the Opportunity Statement, each of the terms – “recycling”, “reuse” and “repurposing” – are often used interchangeably to describe the idea of using a battery that has previously been utilized for another purpose. Batteries that are capable of

repair, refurbishment or reuse, for example, are typically classified as “non-waste” items for the purposes of international law, including the Basel Convention.⁵



2

Supra-national legal norms

Batteries fall under the regulation of multiple supra-national treaties, which primarily operate on the basis of cooperation between State Parties. Herein we discuss the key multilateral agreements applicable to the classification and transport of electric vehicle (EV) batteries.



2.1 Basel Convention

“ The aim of the Basel Convention is to protect human health and the environment against the adverse effects resulting from the generation, management, transboundary movements and disposal of hazardous and other wastes.

The Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal (the “**Basel Convention**”)⁶ regulates the transboundary shipment of objects and substances classified as “hazardous” or “other” wastes across national borders. Batteries fall under the purview of the Basel Convention to the extent that they are considered a “waste”, as defined under the Convention.

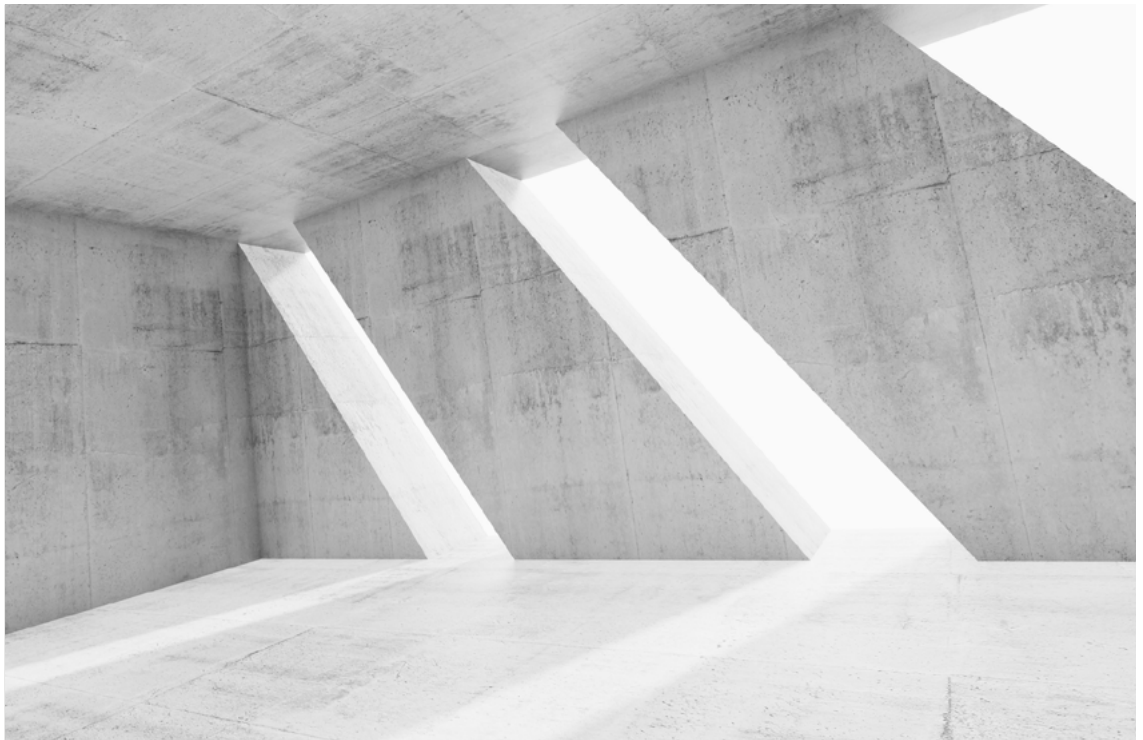
The Basel Convention was adopted on 22 March 1989 following public outcry after the discovery of deposits of toxic wastes in Africa that had been imported from abroad, with the goal to controlling the global movement of hazardous waste. Fifty-three States and the European Economic Community (“**EEC**”) – the pre-cursor to the European Union (“**EU**”) – were the initial signatories to its adoption. It entered into force on 5 May 1992. As of the date of this Opportunity Statement, there were 187 Parties to the Basel Convention.

Under the Basel Convention, Parties must follow notice, consent and tracking requirements for wastes being transported across national borders. Exporting Parties must provide written notice (or require the generator or exporter to provide written notice) to the competent authority of the other State concerned of any proposed transboundary

waste shipment. The content of that notification is harmonized under the Basel Convention in terms of the information requirements. Parties are also under a general obligation to report import bans or limits to other Parties, and not to trade in objects or substances covered by the Basel Convention’s auspices with non-Parties (e.g. the United States, which has signed but not ratified the Basel Convention) unless a specific agreement or arrangement is entered.⁷

The Parties have also adopted a Ban Amendment that entered into force on 5 December 2019, adding new trade prohibitions under a new Article 4A and a new Annex VII to the Basel Convention listing Parties that are members of the OECD,⁸ the EU and Liechtenstein. Parties listed in Annex VII that have ratified the Ban Amendment are obligated to prohibit all transboundary movements of hazardous wastes⁹ from OECD to non-OECD States.¹⁰ The entry into force of the Ban Amendment governs logistics for the management and recycling of hazardous waste between the Annex VII Parties that have ratified the amendment and non-OECD States.¹¹ It is important to note, however, that the Ban Amendment has already been implemented by the EU through the Waste Shipment Regulation¹² and by several Parties on a national level.





Scope of the Basel Convention

The aim of the Basel Convention is to protect human health and the environment against the adverse effects resulting from the generation, management, transboundary movements and disposal of hazardous and other wastes.¹³

The current scope of the Basel Convention is limited to “hazardous wastes” and “other wastes” intended for “transboundary movement”.¹⁴

“Transboundary movement”

Transboundary movement is defined as any movement of hazardous wastes or other wastes from an area under the national jurisdiction of one State to or through an area under the national jurisdiction of another State, or to or through an area not under the national jurisdiction of any State, provided at least two States are involved in the movement.¹⁵ The Basel Convention prohibits the export and transboundary movement of hazardous or other waste until the importing and transit States provide written authorization.¹⁶

“Wastes”

Wastes are defined in the Basel Convention as substances or objects that are disposed of or intended to be disposed of, or are required to be disposed of under national law.¹⁷

Disposal is in turn defined as any operation listed in Annex IV. Annex IV divides operation into two categories: operations that (A) do not or (B) may lead to the possibility of resource recovery, recycling, reclamation, direct re-use or alternative uses.¹⁸ As such, products or materials managed for final disposal or material recovery qualify

as “wastes” under the Convention, if they are hazardous or defined as “other wastes”, according to the Convention. It is important to note that the specific operations listed in Annex IV are not clearly defined. Over the years, Parties have developed a range of globally agreed technical guidelines to provide guidance on the specific operations listed in Annex IV.¹⁹ It is also worth noting that Annex IV is currently under review.²⁰

Most relevant to the transport of batteries, operations in Annex IV B include:

- Use as a fuel (other than in direct incineration) or other means to generate energy;²¹
- Recycling/reclamation of metals and metal compounds;²² and
- Recycling/reclamation of other inorganic materials.²³

If the intended disposition of any batteries is determined to be an activity covered by one of these operations, or any other operation listed in Annex IV, then the batteries are a waste that is potentially subject to the requirements of the Basel Convention. Parties will have to comply with the obligations of the Basel Convention regarding transboundary movement of waste if the batteries are hazardous or controlled as “other wastes”.

“Hazardous waste” and “other wastes”

The Basel Convention only applies to the transboundary movement of “hazardous wastes” and “other wastes”.

“ The Basel Convention is relevant to the transboundary flow of batteries to the extent that they qualify as wastes subject to control as “hazardous” or “other wastes”.

A. Hazardous waste

There are essentially two categories of hazardous waste under the Basel Convention:²⁴

– Annex I waste with an Annex III characteristic

The Basel Convention defines “hazardous waste” as any waste listed in Annex I of the Basel Convention **unless** it does not possess any of the characteristics contained in Annex III.²⁵ Annex I contains both a list of “waste streams” that will be considered hazardous²⁶ and a list of waste constituents that will render the waste containing them hazardous for the purposes of the Basel Convention.²⁷ Annex III contains a list of hazardous characteristics, e.g. wastes that are explosive, flammable, liable to spontaneous combustion, etc.²⁸ If a waste product is listed in Annex I and has one of the Annex III characteristics, it is a hazardous waste for the purposes of the Basel Convention.

– Annex III characteristics

Annex III contains a list of hazardous characteristics for the purposes of designating Annex I wastes as hazardous.²⁹ These include substances or wastes that exhibit the following characteristics: flammability, combustibility, oxidization, organic peroxides, acutely poisonous substances or wastes, infectious substances, corrosiveness, liability to give off toxic gasses, toxicity, eco-toxicity and substances or wastes capable of yielding another material possessing the Annex III characteristics by any means after disposal.

The potential hazards posed by certain types of wastes contained in Annex III are not exhaustive, however. Many countries have developed national tests that can be applied to materials listed in Annex I in order to decide if these materials exhibit any of the characteristics listed in Annex III.³⁰

– Annex VIII: presumptively hazardous wastes

To facilitate implementation of the Convention, the Parties adopted a list of presumptively hazardous wastes in Annex VIII. Under this, Annex wastes considered hazardous under Article 1(1)(a) for the purposes of the Basel Convention

are listed, although it may be possible to demonstrate that the wastes should not be classified as hazardous in specific instances using Annex III hazardous characteristics.³¹ Wastes classified as hazardous under Article 1(1)(a) are also subject to the Basel Ban amendment.

– Nationally defined hazardous waste

Any waste not considered hazardous under Article 1(1)(a) (covered by Annex I and Annex III) may be considered a hazardous waste if a Party defines it as such under domestic legislation.³² Each Party must, within six months of becoming a Party to the Convention, inform the Secretariat of the wastes (other than those listed in Annex I) that it defines as hazardous under its national legislation.³³ Once notified, any nationally defined hazardous waste will also be considered “hazardous waste” for the purposes waste trade with that country under the Basel Convention.³⁴ This means that individual Parties may be applying the Basel Convention regime to a broader range of wastes than those defined in the Convention and its Annexes.³⁵ The Convention clarifies how its control regime applies in the case of a transboundary movement of wastes where the wastes are legally defined as or considered to be hazardous wastes only by the State of import, the State of export or the State of transit.³⁶

B. Other waste

“Other wastes” are those that are included in Annex II of the Basel Convention.³⁷ The Basel Convention control obligations for hazardous wastes also apply with respect to these wastes. The wastes included in Annex II include:

- Wastes collected from households;
- Residues arising from the incineration of household waste; and
- Plastic wastes that are neither listed in Annex VIII and IX to the Convention.

The ban on trade in Basel covered wastes with non-Parties extends to “other wastes” listed in Annex II. However, the recently effective Basel Ban amendment (shipments from Annex VII to non-Annex VII countries) does not apply to these listed other wastes.

Basel and batteries

The Basel Convention is, therefore, only relevant to the transboundary flow of batteries to the extent that they qualify as wastes subject to control as “hazardous” or “other wastes”.

Lithium-ion batteries are not explicitly listed in Annex I or VIII of the Basel Convention; however, some substances commonly contained in lithium-ion batteries are listed:³⁸

In Annex I, Y32: Inorganic fluorine compounds excluding calcium fluoride, or Y15: Wastes of an explosive nature not subject to other legislations.³⁹

In Annex VIII, the Parties deemed the following items hazardous waste:

- A1160. Waste lead-acid batteries, whole or crushed;
- A1170. Unsorted waste batteries excluding mixtures of only list B [Annex IX] batteries. Waste batteries not specified on list B containing Annex I constituents to an extent to render them hazardous; and
- A1180. Waste electrical and electronic assemblies or scrap containing components such as accumulators and other batteries included on Annex VIII (paraphrased).

The above listing of hazardous batteries, however, is subject to a limitation insofar as any waste contained in Annex IX will not be considered hazardous provided it does not appear on Annex I and display an Annex III characteristic.⁴⁰ Of relevance to batteries are the following Annex IX entries:

- B1090. Waste batteries conforming to a specification, excluding those made with lead, cadmium or mercury;

- B1110. Waste electrical and electronic assemblies **not** containing components such as accumulators and other batteries included on Annex VIII (paraphrased); and
- B4030. Used single-use cameras with batteries not included on Annex VIII.

Of relevance for present purposes, therefore, is the transboundary movement of **waste batteries made of lead, cadmium or mercury**, all of which are subject to the Basel Convention. Traditional lithium-ion batteries, however, are not expressly listed as hazardous or other waste under the Basel Convention.⁴¹ Most lithium-ion batteries are likely to include one or more constituents in Annex I. Depending on the type of battery and the results of testing for hazardous characteristics, some waste batteries may qualify as hazardous wastes under the Convention.

In June 2020, a Basel Working Group published draft guidance on the applicability of the Basel Convention to lithium-ion batteries.⁴² Under this draft guidance, the Basel Convention has identified rechargeable lithium-ion batteries by their use and application and outlined a process for studying and collection data on lithium-ion batteries in EVs. However, this guidance is focused on creating an inventory of lithium-ion batteries once they are considered waste and does not deal with possible re-categorization.

Moreover, a number of countries regulate waste lithium-ion batteries as hazardous under national legislation for purposes of import and export, thereby triggering Basel controls and trade prohibitions under Article 1(1)(b).

Parties’ obligations under the Basel Convention

“ Under the Basel Convention, Parties have the right to prohibit the import of hazardous or other wastes.

The Basel Convention requires all Parties generally to ensure that the generation and transboundary movement of hazardous and other wastes is reduced to a minimum.⁴³ Parties must also ensure that adequate disposal facilities for the environmentally sound management of hazardous wastes are available (within the Party’s territory, to the extent possible).⁴⁴

Under the Basel Convention, Parties have the right to prohibit the import of hazardous or other wastes.⁴⁵ If they do so, the obligation falls on all other Parties to the Basel Convention not to allow the export of hazardous and other wastes to that country.⁴⁶ Under Article 11, notwithstanding the prohibition on trade with non-Parties, Parties may enter into bilateral, multilateral or regional

agreements regarding the transboundary movement of hazardous wastes and other wastes with Parties or non-Parties provided such agreements or arrangement do not derogate from the environmentally sound management of wastes required by the Convention.

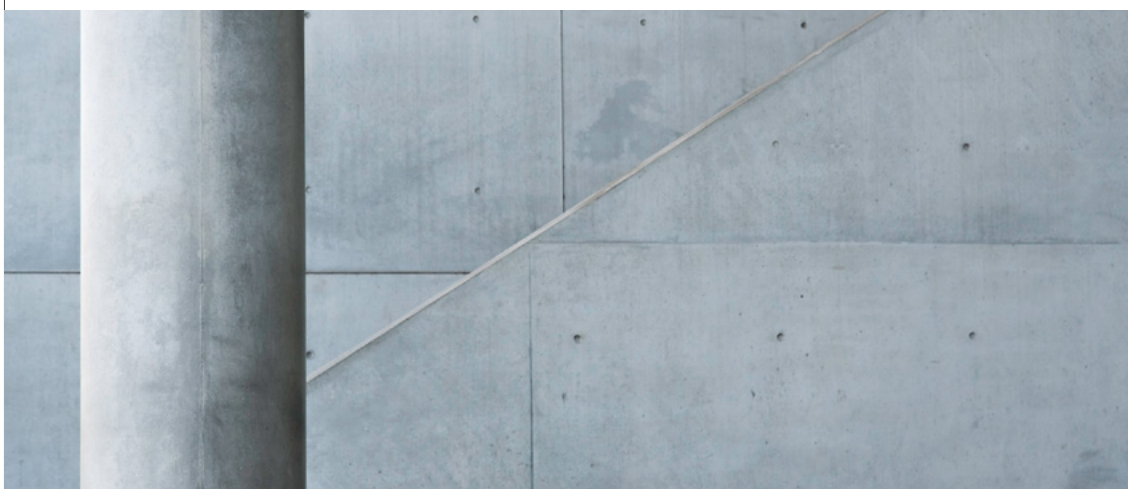
Otherwise, with respect to Parties that have not prohibited imports, the general obligation placed on Parties to the Basel Convention is to prohibit the export of hazardous and other wastes to any State that has not explicitly consented in writing to that specific import, or to any State where the exporting Party has reason to believe that the wastes in question will not be managed in an environmentally sound manner.⁴⁷

Parties must also ensure that hazardous waste is neither imported to nor exported from any non-Party.⁴⁸ In order to move hazardous wastes across borders therefore, for example waste lead batteries, the exporting State must provide information about the proposed movement to any States concerned in advance. That information will include the reason for the export, the exporter's details, the intended disposal site, insurance information, etc.⁴⁹ The importing State, and any State of transit that is Party to the Basel Convention, must provide written consent to the movement of the waste.⁵⁰

Parties are required to take appropriate measures to ensure that the transboundary movement of hazardous and other wastes will only be allowed where (1) the exporting State has technical

capacity, necessary facilities, or suitable disposal sites to allow for the waste to be disposed in an environmentally sound and efficient manner; (2) the wastes are required as a raw material for recycling or recovery industries in the importing State; or (3) the exporting and importing Parties have agreed to criteria which does not contravene the objectives of the Convention.⁵¹

Parties are also under a general obligation to require that hazardous and other wastes that are to be subject to transboundary movement are packaged, labelled and transported appropriately, in accordance with internationally recognized practices, and that such wastes are managed in an environmentally sound manner in the State of import.⁵²



Operation of the Basel Convention

The Basel Convention functions through a prior informed consent procedure for the transboundary movement of the hazardous waste. It does not apply to new or used products that are not wastes, nor does it apply to non-hazardous waste that is not covered by Annex II. Exporting Parties must obtain prior written consent from the importing State, as well as any State through which the waste will transit to reach the importing State.

The Basel Convention provides flexibility for Parties to implement the obligations of the Convention into their national legislation. In order to facilitate conformance with the Convention, the Parties have adopted various technical guidelines as consensus documents to elaborate on the operation of the Convention, better define environmentally sound management for various waste streams, and assist Parties in building their capacity to manage waste according to the aim of the Convention.

In 2002, Technical Guidelines on the Environmentally Sound Management of Waste Lead-acid Batteries were published.⁵³ In 2019, the Conference of the Parties to the Basel Convention adopted, on an interim basis, the “technical guidelines on transboundary movements of electrical and

electronic waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention”. These guidelines provide information about the distinction between waste and non-waste, which also applies to batteries. Additional guidelines on the classification of consumer batteries were developed under the mobile phone partnership (MPPI) and the partnership for action on computing equipment (PACE).⁵⁴

Enforcement of the Basel Convention among governments occurs through the good-faith cooperation of the Parties to monitor compliance and inform the Secretariat of any breaches by any Party.⁵⁵ On 10 December 1999, the Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements and their Disposal was adopted pursuant to Article 12 of the Convention. However, it will not enter into force until it is ratified by 20 Parties; to date, 12 Parties have ratified this Protocol. In the event of a dispute regarding the terms of the Convention that fails to be settled through diplomatic negotiations, Parties may go before the International Court of Justice or an arbitral tribunal to resolve the dispute.⁵⁶

2.2 European Union

The EU legal framework on batteries

The European Union (“EU”) legislation on waste batteries is embodied in the Battery Directive. In the EU, transboundary shipments of waste batteries are also subject to the Waste Shipment Regulation (“WSR”).

The Battery Directive

The central piece of EU legislation on waste batteries, and thus around the recycling of batteries, is the Battery Directive, which entered into force on 26 September 2006.⁵⁷ It operates by prohibiting the placing on the market of batteries containing some hazardous substances, defining measures to establish schemes aiming at high level of collection and recycling, and fixing targets for collection and recycling activities. The Directive also sets out provisions on labelling of batteries and their removability from equipment.

The Battery Directive functions by:

- Applying the principle of producer responsibility, generally making producers responsible for the costs of collecting and recycling waste batteries;
- Setting targets for the collection of portable batteries; and
- Setting minimum recycling efficiencies.

The Battery Directive applies to “all types of batteries and accumulators, regardless of their shape, volume, weight, material composition or use.”⁵⁸ The Battery Directive distinguishes three types of batteries – automotive, industrial and portable (broadly those which can be held in the hand, i.e. consumer batteries for appliances). Under the Battery Directive, it is producers that must bear the costs of collecting, treating and recycling EV batteries in relation to private, non-commercial vehicles.⁵⁹

Under the provisions of the Battery Directive, treatment and recycling of batteries may take place

outside the Member States concerned (or even outside the EU) provided that EU legislation on the shipment of waste is respected.

In April 2019, the European Commission published its evaluation of the Batteries Directive,⁶⁰ the results of which were used to prepare the European Commission report on the implementation and impact on the environment and the functioning of the internal market of the Batteries Directive (also published in April 2019).⁶¹

In May 2020, the European Commission published its Inception Impact Assessment, including its proposals for modernizing EU battery legislation, including the Batteries Directive. The Adjusted Commission Work Programme for 2020⁶² indicated that the Commission foresaw a proposal to either modify the Batteries Directive, or make a proposal for a new Regulation repealing the Directive would be published by the fourth quarter of 2020. That proposal is expected to encompass new end-of-life (EoL) and sustainability requirements. Once implemented, the new rules are expected to take effect, following an implementation period, from 2023.

Access to funding for developing the European battery sector is also obviously an issue of major import. In December 2019, the European Commission approved €3.2 billion in state aid to Belgium, Finland, France, Germany, Italy, Poland and Sweden to support research and innovation to support research and innovation into the sector. This Important Project of Common European Interest will leverage the public support granted under EU state aid rules to raise up to €5 trillion in private investments, and is set to last until 2031. This type of project, based on the state aid rules for the Important Project of Common European Interest, may provide a template for future projects of the same nature, with Germany understood to be putting together a similar proposal.



“ The European Commission aims to ensure a competitive, circular, sustainable and safe value chain for all batteries placed on the EU market in the context of the circular economy.

EU legislation on the transboundary shipment of wastes

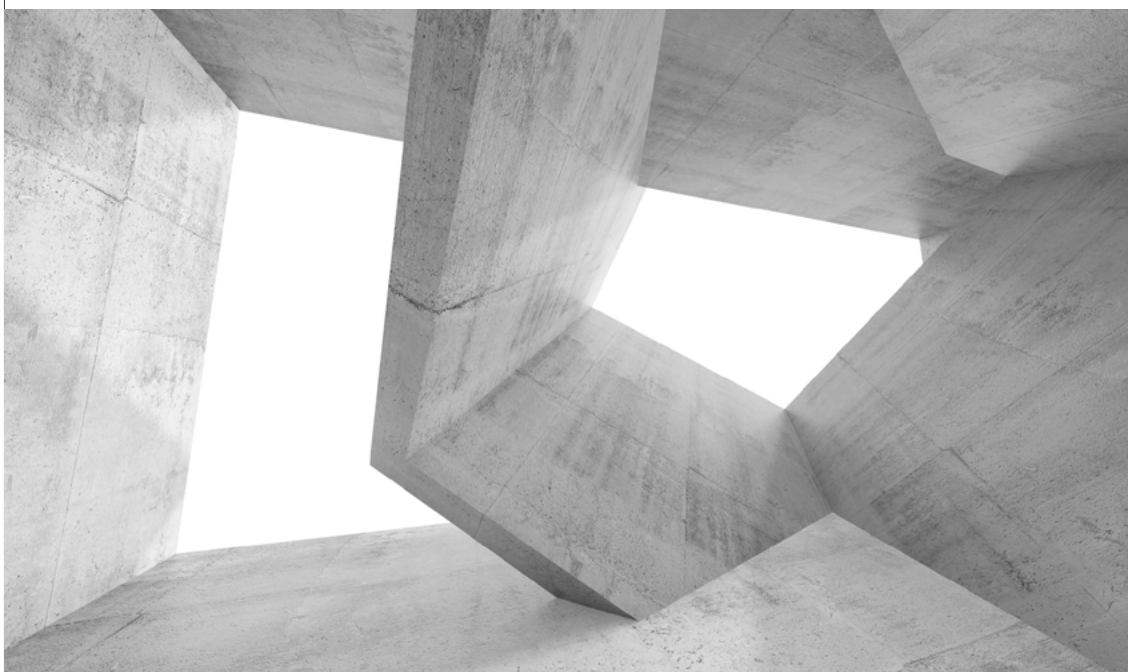
The European Union has a system to supervise and control the transboundary shipments of waste. That system is derived from the Waste Shipment Regulation (“**WSR**”).⁶³ Where the Battery Directive seeks to regulate what batteries can be put on the market and who is responsible for their EoL disposal or recycling (i.e. the product), the WSR is the means by which the European Union seeks to regulate the transboundary transport of waste, including batteries shipped for the purposes of disposal and recovery.

The WSR generally incorporated the provisions of both the Basel Convention and the OECD’s 2001 decision on the control of transboundary movements destined for recovery operations (see section 3.3 below). It applies to shipments between EU Member States (even where shipments are transited through non-EU Member States), imports into the EU from non-EU countries, exports from the EU to non-EU countries, and shipments transited through the EU between non-EU countries.

The Commission published its roadmap for the review and potential adaptation of the WSR in January 2017.⁶⁴ A public consultation was held on to assess the extent to which the Regulation

was effectively achieving its objectives from January to April 2018, with the results made public in August 2018.⁶⁵ Following on from that consultation, the Commission published a study developed in cooperation with a consortium of consultants supporting the evaluation of the WSR in May 2019.⁶⁶ An inception impact assessment was published in March 2020, along with a further study on the review process (launched in January 2020). Its purpose is part of the European Green Deal, Circular Economy Action and New Industrial Strategy. The Commission aims to ensure a competitive, circular, sustainable and safe value chain for all batteries placed on the EU market in the context of the circular economy. The Commission would lay down the conditions to ensure that a fully functioning a framework proposed by the Commission would define “sustainability requirements for batteries to be placed on the EU market”, including responsible sourcing of raw materials, hazardous substances, carbon footprint, mandatory level of recycled content and durability, reusability and recyclability conditions.⁶⁷

A public consultation on the review process was launched (closed on 30 July 2020).⁶⁸ The Commission’s final report on the consultation, including the proposal for a new regulation was published in December.



EU law in individual Member States

In European Union law, where Regulations are “directly applicable” (i.e. once they enter into force they automatically become the “law of the land” in every EU Member State), Directives must be transposed into domestic legislation by each Member State. As such, while the Battery Directive, for example, applies in every EU Member State it does not necessarily apply in the same way given that the way the Directive has been

implemented domestically may vary from Member State to Member State. Rather, much like the Basel Convention, the Battery Directive represents the minimum standard that individual Member States must transpose into their national law. By contrast, the Waste Shipment Regulation is directly applicable in every EU Member State and as such requires no further transposition by individual legislatures.

2.3 Organisation for Economic Co-operation and Development⁶⁹

In May 2002, the Organisation for Economic Co-operation and Development (OECD) adopted a revised legal scheme governing the transboundary movement of wastes for recovery in the form of Council Decision C(2001)107/Final on the Control of Transboundary Movements of Waste Destined for Recovery Operations (the “**OECD Decision**”). The OECD Decision is a multilateral agreement under Article 11 of the Basel Convention. The decision establishes controls for the import and export of hazardous waste for recovery operations between OECD countries, harmonizing with the Basel Convention waste lists in many respects. Notably, however, the OECD decision only applies to recovery operation of wastes, not to disposal operations. The OECD Decision is legally binding on OECD member countries.⁷⁰

Under the OECD Decision, wastes are defined as “substances or objects which are (i) disposed of or are being recovered; or (ii) are intended to be disposed of or recovered; or (iii) are required, by the provisions of national law, to be disposed of or recovered.”⁷¹ The OECD Decision incorporates the Basel Convention annexes of ‘hazardous wastes’ with some important exceptions,⁷² and defines “disposal operation” and “recovery operations” in line with the EU Waste Shipment Regulation.⁷³ Batteries, therefore, fall under the OECD Decision insofar as they are classified as hazardous waste under the Basel Convention.⁷⁴

The OECD Decision established the current OECD Control System, a tiered control system with two categories of waste, which regulates wastes within OECD member states:

- **Green wastes:** wastes that pose a low risk hazards to human health and the environment and are not subject to additional control other than those normally applied to commercial shipments.⁷⁵ This list, contained in Appendix 3 of the OECD Decision, includes the wastes listed in Annex IX of the Basel Convention, excluding Basel Entry B1110 “Electrical and electronic assemblies.”⁷⁶
- **Amber wastes:** wastes considered to be more hazardous and are subject to stricter controls agreed to by OECD Members.⁷⁷ This list, contained in Appendix 4 of the OECD Decision, includes the wastes listed in Annexes II and VIII of the Basel Convention.

The stricter controls for amber waste require (1) written notification to and tacit or written consent from the relevant authorities of the countries of export, import and transit prior to any movement of amber wastes; (2) a movement document accompanying each shipment of amber wastes from the point transboundary movement begin to the point of recovery; (3) a written contract between the exporter and importer; and (4) any applicable financial guarantees required under international and national laws.⁷⁸

2.4 Waigani Convention

On 21 October 2001, the Waigani Convention, formally known as the Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region, entered into force. The Waigani Convention, another example of an Article 11 agreement, is the regional implementation of the Basel Convention’s waste control regime for Pacific Island states. The 14 country Parties to the Waigani Convention are Australia, the Cook Islands, the Federal States of Micronesia, Kiribati, Nauru, New Zealand, Niue,

Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga and Tuvalu.

The Waigani Convention deviates from the Basel Convention in two key ways: (1) the Waigani Convention includes radioactive wastes, in addition to hazardous wastes,⁷⁹ and (2) the Waigani Convention has greater territorial coverage, extending jurisdiction to each Party’s exclusive economic zone,⁸⁰ which encompasses 200 nautical miles from a Party’s boundary (as opposed to the 12 nautical miles limit under the Basel Convention).

3 National legal frameworks⁸¹

An overview of national laws that illustrate the different approaches to waste



3.1 Germany

German federal regulation of batteries: take-back obligations

Batteriegesetz 2009 (applicable until 31 December 2020)

As an EU Member State, Germany is subject to the Battery Directive, which is transposed into German law by virtue of the *Batteriegesetz 2009* (“**BattG**”).⁸² Additionally, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety⁸³ has issued a statutory ordinance on the implementation of the BattG.⁸⁴

The BattG applies to all forms of batteries irrespective of their shape, composition or intended use.⁸⁵ It does, however, distinguish between automotive, portable and industrial batteries, much like the Battery Directive on which it is based; producers of automotive and industrial batteries are subject to different obligations than producers of portable batteries.

The BattG sets national targets for the collection rates for EoL batteries.⁸⁶ As provided in the Battery Directive, it also sets national recycling targets, including a 65% target for lead-acid batteries, a 75% target for nickel-cadmium batteries and a 50% target for other batteries.⁸⁷

Obligations under the BattG fall to varying degrees on importers, distributors, end consumers and public waste management authorities’ behaviour, but it is the producer upon whom primary responsibility for compliance with regulatory requirements is based. A producer is defined as any person who places batteries on the market for the first time.⁸⁸ The BattG codifies the principle of extended producer responsibility, requiring producers and importers to take back any waste batteries that they have placed on the market.⁸⁹ The BattG defines waste batteries as those batteries which meet the definition of waste within Germany’s Circular Economy Act, another piece of German federal legislation.⁹⁰ The Circular

Economy Act defines waste as any substance or object that its owner discards, intends to discard, or is required to discard.⁹¹

To fulfil these obligations, producers and importers may either use a joint recovery system to take back waste batteries or establish their own system (subject to approval).⁹² In support of this, the Joint Take-Back System for Batteries Foundation⁹³ was established in 2009 in Hamburg. At the beginning of 2020, the Joint Take-Back System for Batteries Foundation received its approval as a producer’s own take-back system. As a consequence, currently, there are only producer lead take back systems in place in Germany.

It is noted that although the BattG applies at a federal level in Germany, the BattG itself recognizes that individual states in Germany (*Bundesländer*) may impose additional criteria in terms of the recovery, reuse and disposal of EoL batteries beyond those required by the BattG.⁹⁴

First Amendment Act to the Batteriegesetz 2009 (applicable starting 1 January 2021)

In November 2020, the German parliament approved the First Amendment Act to the BattG,⁹⁵ which will enter into force on 1 January 2021⁹⁶ and will also repeal the statutory ordinance on the implementation of the BattG 2009.⁹⁷ The First Amendment Act to the BattG changes some sections of the BattG 2009 and also brings new obligations.⁹⁸ In the future, producers of batteries have to register with a single authority,⁹⁹ the so-called Foundation of Used Electronic Devices Register,¹⁰⁰ which in addition is also going to be the responsible authority to approve taking back systems for portable batteries. Also, the new provisions increase the principle of the producer’s responsibility.¹⁰¹ Starting in 2023, the producer’s

“ The Circular Economy Act defines waste as any substance or object that its owner discards, intends to discard, or is required to discard.



obligation to financially support the taking back systems, will also take into account ecological aspects in order to increase awareness and to ensure that producers will also take these aspects into consideration when producing batteries. When determining the amount of the financial support, the durability, reusability and recyclability of portable batteries shall also be considered.¹⁰²

In regards of lithium batteries, the producer is obliged to inform on the possible effects of the substances contained in batteries in regards of the environment and human health and in particular on the risks involved in handling batteries containing lithium. Other than this, there are no specific obligations on lithium batteries included in the Amended BattG 2009.¹⁰³

Regulation of the transboundary movement of EoL batteries in Germany

Additionally, the German Waste Movement Act¹⁰⁴ lays down supplementary provisions to the EU Waste Shipment Regulation (specifically regarding the allocation of competencies for enforcement). The fees for consent to a shipment through Germany are set out in the Ordinance on Waste Shipment

Charges,¹⁰⁵ although the fees for import and export of shipments are regulated at state level. The Ordinance on Fines for Illegal Waste Shipments contains a catalogue of administrative offences and sets out the legal foundation for the imposition of fines for contraventions of the provisions of the WSR.



3.2 China

Chinese battery policy

China has been slightly ahead of the curve on embracing the potential for EoL batteries to be managed in a way that contributes to circular economy principles. Indeed, of the 97,000 tonnes of batteries that reached recyclers in 2018, as much as 67,000 tonnes of those were designated for processing in China where over 30 companies operate battery recycling facilities.

China's Thirteenth Five-Year Plan¹⁰⁶ has a section on China's ambitions with respect to the circular economy, including its intentions to "encourage the circular use of resources between production and society, and accelerate efforts to recycle resources from refuse".¹⁰⁷ Under the auspices of that Five-Year Plan, China has taken it upon itself to:

- Improve the management of the used battery recycling industry;

- Promulgate management measures for the recycling of used lead-acid batteries; and
- Establish regional recycling networks for the recycling of used lead-acid batteries.

The Chinese Ministry of Ecology and Environment (formerly the Ministry of Environment)'s "Policy on Technologies for Waste Batteries Pollution Prevention" provides practical guidance on the collection, transportation, storage, maintenance, use and reuse of EoL batteries. Indeed, its "PRC Law on Prevention and Control of Environmental Pollution caused by Solid Wastes" explicitly encourages the recycling and reuse of 'solid wastes', which includes EoL batteries under Chinese Law.



Chinese regulation of batteries: recycling and reuse obligations

The Chinese approach to the regulation of batteries is based on different regulatory schemes corresponding to the classification of a battery (e.g. lithium-ion batteries, automotive batteries, lead-acid batteries, etc.). The system is predicated primarily on producer responsibility for recycling and reuse, although the importers and exporters of batteries are also required to ensure that batteries that they trade meet certain regulatory requirements (e.g. regarding mercury content). The primary duty, however, for compliance with applicable regulatory requirements rests with the producer (for domestic manufactured products) and importer (for imported products), respectively.

Given the rise of the EV automotive industry in China, the government has specifically enacted legislation regulating the recycling and reuse of EV batteries. In September 2019, Beijing issued a set of industry guidelines for EV battery recycling. As such, China has statutory definitions surrounding the further use of EoL batteries (although the vocabulary used is slightly different these can be understood to capture recycling, reuse and repurposing operations, as discussed in section 1.2 above):

- **Recycle** means the general term for the process of collecting, categorizing, storing and transporting waste/used automotive batteries;
- **Re-use** means the use of waste/used automotive batteries after recycling, including ladder utilization and regeneration utilization;
- **Ladder utilization** means the use of waste/used automotive batteries in other areas, including use at the first level and use at multiple levels; and
- **Regeneration utilization** means the process of disassembling, crushing, separating, purifying and smelting of the waste/used automotive batteries for resource utilization.¹⁰⁸

Car manufacturers are responsible for recycling EV batteries in cars and ensuring the proper utilization and disposal of those EV batteries.

Regulation of the transboundary movement of EoL batteries in China

China is a signatory to the Basel Convention and is therefore bound by its provisions. China has promulgated the National Catalogues of Hazardous Wastes and the Catalogue for Importation of Solid Wastes in accordance with the Basel Convention.

China has specific labelling requirements that attach to the transport of batteries, including particular requirements for lithium and rechargeable batteries.

Generally, China considers any “substance and article which has lost its original use values or is discarded or abandoned though has not yet lost use values or is included in the waste management system” as “waste”.¹⁰⁹ In particular, under the Identification Standard for Solid Waste, a substance/article (including product and commodity) is considered as “losing its original use values” if it “has been generated during consumption and use and could not continue to be used for its original purposes due to the end of its useful life”. In this regard, EoL batteries are likely to

be considered as “losing their original use values” so as to be classified as “waste” unless they are qualified for the exemptions below:¹¹⁰

- They are reused under their original use without further repair/reprocess or after being repaired/reprocessed at the place they are originally manufactured; and
- They are used for lab analysis or scientific research.

China prohibits the import of waste batteries in China under the Administrative Measures for the Import of Solid Wastes¹¹¹ as waste batteries are explicitly included in the Catalogue of Solid Wastes Subject to Import Ban. In addition, waste lead-acid batteries, nickel-cadmium batteries, mercury oxide batteries that are defined as hazardous wastes are subject to the Ministry of Ecology and Environment’s export approval set out in the Approval Measures on Exports of Hazardous Wastes.



3.3 Japan

Japan has transposed the Basel Convention through its Law for the Control of Export, Import and Others of Specified Hazardous Wastes and Other Wastes (the “**Japanese Basel Act**”).¹¹² The Japanese Basel Act’s definition of hazardous waste is based on the same definition in the Basel Convention (and the 2001 OECD Council Decision).

The Japanese Basel Act, together with the Foreign Exchange and Foreign Trade Act,¹¹³ stipulates that any person who intends to import or export a regulated product under the Basel Convention (including used lead batteries) must obtain approval from the Japanese Ministry of Economy, Trade and Industry (“**METI**”).¹¹⁴ The METI Minister requires notification from the Minister of Environment

confirming that the necessary measures have been taken in country receiving the hazardous waste before the METI can approve the export of the hazardous waste.

Furthermore, if a product falls under the definition of “waste” under the Waste Management and Public Cleaning Act (the “**WMPCA**”) any person who intends to import or export such product must obtain the same ministerial permissions.¹¹⁵ The WMPCA is applicable to the disposal of industrial batteries. Industrial batteries are recognized as waste where they become “unnecessary matter”. A battery is considered unnecessary matter (1) when it is no longer able to be used by the business operator, nor could it be sold to a third party, or

(2) upon court order. Industrial batteries fall within the scope of the “wide area certified recycling system” mandated by the WMPCA, which requires businesses to take responsibility for the proper processing of waste produced in the course of business activities. Industrial storage battery manufacturers have received wide area certification from the Ministry of the Environment.

Lithium-ion rechargeable batteries are subject to further regulation in the form of the Electrical Appliance and Material Safety Act.¹¹⁶ Under this Act, anyone wishing to import a lithium-ion rechargeable battery into Japan is required to:

- file a notification with the Ministry of Economy, Trade and Industry within 30 days from the commencement of such business operations;

- conduct a self-assessment (pursuant to the Ordinance of the Ministry of Economy, Trade and Industry); and
- prepare and keep a record of that assessment for three years.

Lithium-ion rechargeable batteries already installed in another product are not subject to this legislation.

Under the Act on the Promotion of Effective Utilization of Resources (the “PEUR”), small rechargeable battery manufacturers and machine manufacturers who use small rechargeable batteries are obligated to collect and recycle these batteries. The PEUR sets out specific recycling targets for each type of small rechargeable battery. Companies that fail to comply face monetary penalties.

3.4 Nigeria

Nigeria, a Party to the Basel Convention, has little by way of domestic legislation with respect to the regulation of batteries.¹¹⁷ Nor does Nigeria have any specific national policies on the recycling, reuse or repurposing of batteries. There are, however, several environmental regimes dealing with the rules relating to hazardous substances.

The National Environmental Standards and Regulations Enforcement Agency Act also makes provisions for the establishment of the National Environmental Standards and Regulations Enforcement Agency (“NESREA”), which is empowered to make regulations to ensure a clean and healthy environment. Although the Act makes no specific mention of batteries, it makes provision for “hazardous substances”, defined as any chemical, physical or biological and radioactive

material that poses a threat to human health and the environment or any such substance regulated under international conventions to which Nigeria is a party or signatory.

As Nigeria is a Party to the Basel Convention, the extent to which batteries would technically fall within these auspices is open to question. However, under the Nigerian Constitution, domestic laws must be enacted in order to give effect to any international treaty, including the Basel Convention. No domestic legislation implementing the Basel Convention has yet been enacted in Nigeria.

As such, the only regulations that apply to the import of batteries into Nigeria is derived from its general customs regulations.¹¹⁸

“As Nigeria is a Party to the Basel Convention, the extent to which batteries would technically fall within these auspices is open to question.”



3.5 United States

Federal regulation of batteries

While the United States has signed the Basel Convention, it is not a Party to it. The United States Senate provided its advice and consent to the ratification in 1992, but the United States has not ratified the Convention and no implementing legislation has been enacted.

However, within the US certain aspects of existing federal regulatory regimes on the safety, transportation and disposal of hazardous waste and environmental protection are relevant to battery recycling, reuse and repurposing. For instance, in 1996, the US enacted the “Mercury-Containing and Rechargeable Battery Management Act”¹¹⁹ to, among other things: facilitate the increased collection and recycling of nickel-cadmium and certain small sealed lead-acid rechargeable batteries; educate the public concerning the collection, recycling and proper disposal of such batteries; develop uniform national labelling requirements for regulated batteries, rechargeable consumer products and product packaging; and encourage persons who use rechargeable batteries

to participate in the collection for recycling of used Ni-Cd, SSLA, and other regulated batteries. This regime, however, is targeted primarily at portable batteries, rather than lithium-ion EV batteries.

Generally battery-relevant legislation in the US defines batteries by reference to their physical characteristics/chemical composition, rather than by reference to their intended use.¹²⁰ Hence, while there is no specific legislation at federal level mandating the recycling, reuse and repurposing of batteries as yet, the US Department of Energy (“**US DOE**”), has announced plans to invest \$20.5 million in lithium-ion battery recycling specifically. This is being done with the goal of boosting capture rates to 90% from a current rate of less than 5%.¹²¹ This initiative is intended to further the policy goals set forth in Executive Order 13817, which identified the need for “developing critical minerals recycling and reprocessing technologies” as part of a broader strategy to “ensure secure and reliable supplies of critical minerals.”



Federal regulation of the transport of batteries

The import and export of batteries in the US falls under the jurisdiction of multiple US government agencies. Generally, certain spent batteries are classified as hazardous waste and/or hazardous material under US Department of Transportation (“**US DOT**”) and US Environmental Protection Agency (“**US EPA**”). The US DOT, which governs the transportation (including transboundary movement) of hazardous materials, classifies lithium-ion batteries as “Class 9 miscellaneous hazardous materials” and lead-acid batteries as “Class 8 corrosive hazardous materials”.¹²² The US Pipeline and Hazardous Material Safety Administration, as sub-agency of the US DOT, maintains and publishes regulations applicable to the transport of batteries.¹²³

The transport of hazardous waste is also regulated by the US EPA under the Resource Conservation and Recovery Act (RCRA). Under this regulation, certain spent batteries¹²⁴ are classified as “universal waste”, which is a subset of hazardous wastes subject to reduced regulatory requirements. Any person engaged in the off-site transport of universal waste by air, rail, highway, or water is considered a “universal waste transporter” and must comply with any applicable hazardous waste requirements of the US EPA,¹²⁵ as well as with applicable US DOT regulations regarding transport for any universal waste that meets the definition of hazardous material set forth by the US DOT.¹²⁶

“Obligations for new EV batteries include a requirement that the retailer of any EV battery accept used lead-acid batteries as a trade in for a new lead-acid battery.”

State regulation of batteries

Domestic transport, as well as transboundary movement, of batteries is regulated at a federal level in the US. However, the US does not have any federal-level legislation mandating the regulation of recycling, reuse and/or repurposing of batteries at a federal level.¹²⁷ At individual state level, some states have sought to step into this field. As such, we consider three examples below in California, Florida and Michigan, three of the most active states in this area that have interesting features to their state regimes:

California

California has enacted legislation with respect to EV lithium-ion batteries requiring a consortium of state regulators called the Lithium-Ion Car Battery Recycling Advisory Group to develop policy recommendations for the state legislature of California aimed at ensuring that as close to 100% as possible of lithium-ion EV batteries in California are reused or recycled.¹²⁸

In the meantime, the recycling of batteries in California is governed by the California Lead-Acid Battery Recycling Act 2016. This legislation is drafted specifically to address recycling of lead-acid batteries, and thus, would only apply the EV batteries to the extent they have small lead-acid battery components

California has also enacted a statutory framework governing the transportation of hazardous waste similar to the federal scheme.¹²⁹ It requires California to “adopt regulations, consistent with federal law, concerning the transportation of hazardous waste from this state across international boundaries” at a state level. Presently, there are some differences between the California state regulations and US federal regulations, the most notable being that that California law classifies waste lithium ion batteries as hazardous waste, while such waste lithium ion batteries might not be classified as hazardous wastes under federal law.

Florida

Under the 2018 Florida Statutes, there are certain environmental control requirements applicable to

lead-acid batteries.¹³⁰ These define a “lead-acid battery” as a lead-acid battery designed for use in motor vehicles, vessels and aircraft, and includes such batteries when sold new as a component part of a motor vehicle, vessel, or aircraft, but not when sold to recycle components. As such, the requirements in the Florida Statutes with respect to lead-acid batteries only apply to the sale of new EV batteries, rather than those that are sold for the purposes of recycling, reuse or repurposing. Obligations for new EV batteries include a requirement that the retailer of any EV battery accept used lead-acid batteries as a trade in for a new lead-acid battery.¹³¹

Michigan

Michigan has a specific regime for lead-acid batteries, which it defines as storage batteries, used to start an internal combustion engine, or as a principal power source for a vehicle, in which the electrodes are grids of lead containing lead oxides that change in composition during charging and discharging, and the electrolyte is dilute sulphuric acid.¹³²

The range of obligations that attach to different actors in the value chain under Michigan law is quite varied. For example:

- **Individuals** are required to dispose of used lead-acid batteries by delivering used batteries to a retailer, a distributor, a manufacturer, or a collection, recycling, or smelting facility;¹³³
- **Retailers** are required to dispose of used lead-acid batteries by delivering used batteries to a distributor, or their authorized agent, a collection, a recycling or smelting facility, or a manufacturer;¹³⁴
- **Distributors** are required to dispose of lead-acid batteries by delivering them to a recycling or smelting facility;¹³⁵ and
- **Manufacturers** are required to dispose of lead-acid batteries by delivering them to a recycling or smelting facility.¹³⁶

Abbreviations

BattG	Batteriegesetz
EBA	European Battery Alliance
EEC	European Economic Community
EFTA	European Free Trade Association
EoL	end-of-life
EPR	Extended Producer Responsibility
EU	European Union
EV	electric vehicle
GBA	Global Battery Alliance
METI	Ministry of Economy, Trade and Industry
NSRR	North Sea Resources Roundabout
OECD	Organisation for Economic Co-operation and Development
OEM	Original Equipment Manufacturer
UK	United Kingdom
US	United States
US DOE	United States Department of Energy
US DOT	United States Department of Transportation
WEEE	waste electrical and electronic equipment
WMPCA	Waste Management and Public Cleaning Act
WSR	Waste Shipment Regulation

Acknowledgements

The Global Battery Alliance, hosted in the World Economic Forum, brings together leading businesses along the entire battery value chain with governments, international organizations, NGOs and academics to actively shape a battery value chain that powers sustainable development. Leaders from private companies, governments, civil society organizations and academia have been engaged for this report. The opinions expressed herein may not correspond with the opinions of all members and organizations involved in the Global Battery Alliance.

This Legal Annex has been produced in collaboration with White & Case and the support of the Global Battery Alliance Secretariat – all authors are listed alphabetically below. *Any views expressed in this publication are strictly those of the authors and should not be attributed in any way to White & Case LLP.*

Lead authors

Daniel Hagan
Partner, Washington, DC

Paul Harrison
Partner, Tokyo

Rebecca Hughes
Associate, New York

Salewudin Ibrahim
Associate, London

John Forbush
Associate, Washington, DC

Katie Kelliher
Associate, London

Saghar Khodabakhsh
Associate, London/New York

Petra Kistner
Associate, Düsseldorf

Josephine Levick
Associate, London

Opeyemi Longe
Associate, London

Kirsti Massie
Partner (formerly White&Case), London

Keisuke Nishimura
Associate, Tokyo

Chunlei Pang
Associate, Shanghai

Jane Rueger
Partner (formerly White&Case), Washington, DC

Z. Alex Zhang
Partner, Shanghai

Global Battery Alliance Secretariat

Mathy Stanislaus
Interim Director, Global Battery Alliance

Jonathan Eckart
Project Lead, Global Battery Alliance, World Economic Forum

Eleni Kemene
Project Specialist, Global Battery Alliance, World Economic Forum

We would also like to thank the [Global Battery Alliance Partners](#) for their comments and contributions.

Endnotes

1. NTD: Consider review/deletion depending on timing of publication.
2. Communication from the Commission: Closing the Loop – an EU Action Plan for the Circular Economy, COM(2015) 614/2.
3. For the purposes of the Opportunity Statement, batteries are understood by both the function and/or chemical make-up. Batteries for function include use in portable devices, electric vehicles, household goods and industrial needs. Batteries defined by their chemical make-up include lead acid, lithium-ion, nickel-cadmium, mercury, alkaline, carbon zinc and silver oxide. Generally, rules and regulations governing the transport of batteries categorize batteries based on chemical make-up.
4. World Economic Forum Global Battery Alliance webpage, <https://www.weforum.org/projects/global-battery-alliance>.
5. Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal (the “Basel Convention”), 22 March 1989, 1673 UNTS 126.
6. Ibid.
7. The agreement or arrangement must stipulate provisions which are not less environmentally sound than those provided for by the Convention in particular taking into account the interests of developing countries.
8. Only OECD parties that have ratified the ban will be required to implement national legislation or other measures to halt exports. To date, the US, Canada, Japan, Australia, New Zealand, South Korea, Russia, India, Brazil and Mexico have not ratified the ban.
9. All hazardous wastes destined for final disposal operations (Annex IVA) are covered, while hazardous wastes listed in the Annexes to the Convention – and not those defined nationally by a Party, destined for recovery operations (Annex IVB) are covered.
10. The Basel Convention Ban Amendment is available at: <http://www.basel.int/Implementation/LegalMatters/BanAmendment/Overview/tabid/1484/Default.aspx>.
11. Trade between Annex VII countries and between non-Annex VII countries, or shipments of hazardous waste exports from a non-Annex VII country to an Annex VII will not be affected.
12. Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste, OJ L 190.
13. Basel Convention, Article 4(2)(d) and epilogue.
14. Basel Convention, Article 1.
15. Basel Convention, Article 2(3).
16. Basel Convention, Article 6(1) & (2); see also, David P. Hackett, *An Assessment of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal*, 5 Am. University Int’l Law Review 291, 312 (1990).
17. Basel Convention, Article 2(1): “Wastes” are substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law”.
18. Annex IV, Section A.
19. See <http://www.basel.int/Implementation/TechnicalMatters/DevelopmentofTechnicalGuidelines/TechnicalGuidelines/tabid/8025/Default.aspx>.
20. See <http://www.basel.int/Implementation/LegalMatters/LegalClarity/ReviewofAnnexes/AnnexesI.III.IVandrelatedaspectsofAnnexes/tabid/6269/Default.aspx>.
21. R-Code: R1.
22. R-Code: R4.
23. R-Code: R5.
24. There are also certain general exceptions to the definition of hazardous waste, including wastes that belong to any category contained in Annex II (which broadly covers household waste), radioactive waste subject to other international control systems, and waste from the normal operations of a ship; Basel Convention, Article 1(2)-(5).
25. Basel Convention, Article 1(1)(a).
26. For example, wastes from the production and preparation of pharmaceutical products, waste mineral oils unfit for their originally intended purpose, etc.
27. For example, metal carbonyls, beryllium, beryllium compounds, zinc compounds, etc.
28. The other characteristics in Annex III include wastes that/are: emit flammable gasses when in contact with water, oxidizing, organic peroxides, poisonous, infectious substances, corrosives, liable to liberate toxic gasses when in contact with air or water, toxic, ecotoxic, or those which are capable after disposal of yielding another material that satisfies any of the foregoing characteristics.
29. Annex III uses the United Nations classifications from the United Nations Recommendations on the Transport of Dangerous Goods, New York, 1988.

30. As of the date of this Annex, Annex III was under review by the Basel Secretariat.
31. Suggest deleting this FN and referencing only the chapeau text to Annex VIII. [Subject to the exception that wastes which are listed in Annex IX will not be considered hazardous if they appear on Annex VIII, unless they also appear on Annex I and satisfy an Annex III criterion].
32. Basel Convention, Article 1(1)(b).
33. Basel Convention, Article 3(1).
34. Basel Convention, Article 1(1)(b).
35. National definitions of hazardous waste submitted to the Basel Convention Secretariat are available to access online here: <http://www.basel.int/Countries/NationalDefinitions/NationalDefinitionsofHazardousWastes/tabid/1480/Default.aspx>.
36. Basel Convention, Article 6(5).
37. Basel Convention, Article 1(2).
38. UNEP, Draft practical guidance on the development of an inventory of waste batteries containing lithium, June, 2020 (document UNEP/CHW/OEWG.12/INF/17, available from: [http://www.basel.int/TheConvention/OpenedWorkingGroup\(OEWG\)/Meetings/OEWG12/Overview/tabid/8264/Default.aspx](http://www.basel.int/TheConvention/OpenedWorkingGroup(OEWG)/Meetings/OEWG12/Overview/tabid/8264/Default.aspx)).
39. Lithium-ion batteries in some instances may be classified as Y15 for their capacity to explode or their flammability.
40. See chapeau to Annex IX.
41. While lithium-ion batteries are not currently subject to the provisions of the Basel Convention, a review of the annexes to the Basel Convention has been initiated by the Parties to the Basel Convention with a view to reviewing and updating those annexes, a process that could have waste classification impacts for lithium-ion batteries. Decisions are expected at the 2021 Conference of the Parties on this review.
42. UNEP, Draft practical guidance on the development of an inventory of waste batteries containing lithium, June, 2020 (document UNEP/CHW/OEWG.12/INF/17, available from: [http://www.basel.int/TheConvention/OpenedWorkingGroup\(OEWG\)/Meetings/OEWG12/Overview/tabid/8264/Default.aspx](http://www.basel.int/TheConvention/OpenedWorkingGroup(OEWG)/Meetings/OEWG12/Overview/tabid/8264/Default.aspx)).
43. Basel Convention, Article 4(2)(a) and (d).
44. Basel Convention, Article 4(2)(b).
45. Basel Convention, Article 4(1)(a).
46. Basel Convention, Article 4(1)(b) and 4(2)(e).
47. Basel Convention, Article 4(1)(c) and 4(2)(e).
48. Basel Convention, Article 4(5); Parties are also under a general obligation under Article 4(6) not to allow the export of hazardous or other wastes for disposal to any area south of 60° South latitude whether such wastes are subject to transboundary movement or not.
49. Basel Convention, Annex V A.
50. Basel Convention, Article 6(2) & (4).
51. Basel Convention, Article 9.
52. Basel Convention, Article 4(7) and 8.
53. These guidelines provide a comprehensive overview of best practices and principles for implementing lead-acid battery recycling programmes. Available from: <http://www.basel.int/Implementation/TechnicalMatters/DevelopmentofTechnicalGuidelines/TechnicalGuidelines/tabid/8025/Default.aspx>.
54. More information on PACE can be found at: <http://www.basel.int/Implementation/TechnicalAssistance/Partnerships/PACE/Overview/tabid/3243/Default.aspx>.
55. Basel Convention, Article 10.
56. Basel Convention, Article 20.
57. Directive 2006/66/EC of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EC, OJ L 266 (the “Battery Directive”).
58. Art. (2)(1).
59. Art. 8(4), 16(1)(b).
60. Commission Staff Working Document on the evaluation of the Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EC, SWD(2019) 1300.
61. Report from the Commission on the implementation and the impact on the environment and the functioning of the internal market of Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EC, COM(2019) 166.
62. Annexes to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Adjusted Commission Work Programme 2020, 27 May 2020, COM (220) 440.
63. Regulation 1013/2006 on shipments of waste, OJ L 190.

64. Accessible at: https://ec.europa.eu/smart-regulation/roadmaps/docs/2017_env_026_waste_shipment_evaluation_env.pdf.
65. See https://ec.europa.eu/info/consultations/public-consultation-evaluation-waste-shipment-regulation_en.
66. Study supporting the evaluation of Regulation (EC) No 1013/2003 on shipments of waste: Final Report, accessible at <file:///C:/Users/kellika/Downloads/KH0119507ENN.en.pdf>.
67. European Commission, *A Circular Economy Action Plan: For a Cleaner and More Competitive Europe* (2020), available at: https://ec.europa.eu/environment/circular-economy/pdf/new_circular_economy_action_plan.pdf.
68. See <https://circulareconomy.europa.eu/platform/en/news-and-events/all-news/review-waste-shipment-regulation-open-consultation>.
69. Discussions would centre on the 2001 Decision of the OECD Council on the Transboundary Movements of Wastes destined for Recovery Operations establishing the Multilateral Waste Agreement. This is considered an Article 11 Agreement under the Basel Convention.
70. OECD Guidance Manual for the Control of Transboundary Movements of Recoverable Wastes.
71. OECD Council Decision C(2001)107/Final, Chapter II.1.
72. See Appendix 1, OECD Council Decision C(2001)107/Final.
73. See Appendix 5A and 5B, OECD Council Decision C(2001)107/Final; OECD Guidance Manual for the Control of Transboundary Movements of Recoverable Wastes, page 11.
74. The OECD Decision does not incorporate the Basel Convention waste listing for e-wastes (which includes references to batteries). As such, the OECD hazardous/amber waste listings are narrower for electronics and some batteries than the Basel listings.
75. Subject to the exception that such Green waste may not be subject to Green control procedures if it is contaminated by other materials to an extent that (1) sufficiently increases the risk associated with the waste to render it appropriate for the submission to the Amber control procedure, when taking into account the criteria in Appendix 6 of the OECD Decision Or (2) environmentally sound recovery is prevented.
76. In lieu of B1110, the OECD Decision applies to (1) electrical assemblies consisting only of metal or alloys and (2) electronic scrap (e.g. printed circuit boards, electronic components, wire, etc.) and reclaimed electronic components suitable for base and precious metal recovery.
77. OECD Control System, <https://www.oecd.org/env/waste/theoecdcontrolsystemforwasterecovery.htm>.
78. Guidance Manual for the Transboundary Movement of Recoverable Waste, Section 5.
79. The Waigani Convention, Article 2.2.
80. The Waigani Convention, Article 2.4.
81. NTD: Subject to ongoing review and comment by local counsel.
82. A German language version is accessible [here](#).
83. Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit.
84. Verordnung zur Durchführung des Batteriegesetzes.
85. There is an exception for batteries used by the German armed forces, security authorities and in outer space.
86. BattG, section 16.
87. BattG, section 16.
88. BattG, section 2.
89. BattG, section 5.
90. Kreislaufwirtschaftsgesetz.
91. Circular Economy Act, Section 3.
92. BattG, Section 6 and 7.
93. Stiftung Gemeinsames Rücknahmesystem.
94. BattG, section 1.
95. Federal Gazette I (BGBl.), 2020, p. 2280.
96. First Amendment Act to the BattG 2009, article 3.
97. Verordnung zur Durchführung des Batteriegesetzes.
98. Amended BattG 2009.
99. Amended BattG 2009, section 31.
100. Stiftung Elektro-Altgeräte Register.
101. Implementing the Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste, which entered into force on 4 July 2018.
102. Amended BattG 2009, section 7a.

103. Amended BattG 2009, section 18.
104. Abfallverbringungsgesetz.
105. Abfallverbringungsgebührenverordnung.
106. The 13th Five-Year Plan for Economic and Social Development of the People's Republic of China (2016-2020); English translation available [here](#).
107. Ibid, section 5.
108. Interim Measures for the Management of Recycling and Utilization of New Energy Vehicle Power Batteries, Terms and Definitions Appendix.
109. Article 88, Law on Prevention and Control of Environmental Pollution caused by Solid Waste.
110. Identification Standard for Solid Waste.
111. China has been strengthening the restrictions of solid waste import with a target of implementation of an import ban in 2020. Up to now, only wastes listed in the "Catalogue of Automatic Licensing Import Solid Wastes that Can Be Used as Raw Materials in China" and the "Catalogue of Restricted Import Solid Wastes that Can Be Used as Raw Materials in China" may be imported.
112. Act No. 108 of 1992, as amended by Action No. 62 of 2017.
113. Law No. 228 of 1949; English translation available [here](#).
114. Article 4(1) of the Japanese Basel Act and Article 48(3) of the Foreign Exchange and Foreign Trade Act.
115. Law No. 137 of 1970; Articles 10 and 15(4)(5).
116. Law No. 234 of 1961.
117. We understand that the National Environmental Standards and Regulatory Enforcement Agency of Nigeria is in the process of drafting regulations on battery use. As of the date of this Opportunity Statement, such regulations are as yet unpublished.
118. Custom, Excise Tariff etc. (Consolidation) Act 1995.
119. 42 USC § 14301 *et seq.* (2012); a guide to implementation is also published by the US EPA and is available [here](#).
120. Although we note, Michigan uses a mix of intended use descriptions and physical/chemical characteristics, MCL 324.17101.
121. "Energy Department Announces Battery Recycling Prize and Battery Recycling R&D Center", *US Department of Energy*, 17 January 2019, <https://www.energy.gov/articles/energy-department-announces-battery-recycling-prize-and-battery-recycling-rd-center>; these plans include \$15 million to create a new Lithium Battery R&D Recycling Center in partnership with Argonne National Laboratory, the National Renewable Energy Laboratory and Oak Ridge National Laboratory, and \$5.5 million for use as prize money in a contest seeking "solutions to collecting, storing, and transporting discarded lithium-ion batteries for eventual recycling".
122. 49 CFR 172.101 (2019).
123. *See generally*, 49 CFR Parts 171-180, noting 49 CFR Parts 173.185 and 173.159 which specifically cover batteries.
124. Batteries not covered are spent lead-acid batteries managed under 40 CFR Part 266, Subpart G; batteries that are not yet considered waste under 40 CFR Part 261; and batteries that do not exhibit characteristics identified in 40 CFR Part 261, Subpart C and are thus not considered 'hazardous waste.' 40 CFR 273.2(b).
125. US EPA requirements for transboundary movement of hazardous wastes are set forth in 40 CFR Part 262, Subpart H.
126. Not all universal waste, as defined by the US EPA, meets the US Department of Transportation's definition of "hazardous materials". Movement of universal waste that is not hazardous material would only need to comply with the obligations under the US EPA regulations. 40 CFR Part 273 (2019); *see* 49 CFR 171.8.
127. We understand that a national approach is expected from the federal government in the long term.
128. Cal Pub Resources Code § 42450.5 (2019). The report is due to the California legislature prior to 1 April 2022.
129. Cal Health & Safety Code § 25150.2.
130. FLA Stat 2018, 403.717 Waste tire and lead acid battery requirements.
131. FLA Stat 2018, 403.708(12).
132. MCL 324.17101.
133. MCL 324.17102(1).
134. MCL 324.17102(2).
135. MCL 324.17102(3).
136. MCL 324.17102(4).



COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

The World Economic Forum, committed to improving the state of the world, is the International Organization for Public-Private Cooperation.

The Forum engages the foremost political, business and other leaders of society to shape global, regional and industry agendas.

World Economic Forum
91–93 route de la Capite
CH-1223 Cologny/Geneva
Switzerland

Tel.: +41 (0) 22 869 1212
Fax: +41 (0) 22 786 2744
contact@weforum.org
www.weforum.org