

Handling of lithium-ion batteries, etc. for
automotive use and facilitation of procedures
for export repatriation, etc.

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Economy, Trade and Industry

1. overview.

Act on the Recycling of End-of-Life Vehicles (Act No. 87 of 2002, hereinafter referred to as the 'Act'). (hereinafter referred to as the 'Law'). In order to ensure safety in the proper disposal of end-of-life vehicles and to facilitate procedures for the return of recycling fees in relation to the export of used vehicles, in accordance with the Law on the Recycling, etc. of End-of-Life Vehicles (2002, Ministry of Economy, Trade and Industry and Ministry of the Environment Ordinance No. 7; hereinafter referred to as the "Law"), the Law on the Recycling, etc. of End-of-Life Vehicles has been amended. The Ministerial Ordinance is hereby amended.) The Ministerial Ordinance shall be amended in accordance with the following provisions.

2.2 Handling of lithium-ion batteries and other batteries for on-board use

(1) Outline of the current system.

When a dismantler dismantles a used motor vehicle, it is required to separate useful parts from the vehicle and make them usable and otherwise recycle the vehicle (Article 16(1) of the Act).

One of the standards for recycling in the dismantling process stipulates that pre-recovered items (lead-acid batteries, tyres, waste oil, waste liquids and fluorescent lamps for indoor lighting) shall be collected and, to the extent technically and economically feasible, either recycled by the company itself or handed over to a company capable of carrying out such recycling as a business. (Article 9.1.2 of the Ministerial Order).

(2) Contents of the proposed amendments.

Add lithium-ion and nickel-metal hydride batteries to the list of pre-collected
goods.

(3) Reason for amendment.

The pre-collection goods are mandatory because, in addition to the fact that collecting

them in the dismantling process contributes to the effective use of resources, if they are not collected in the dismantling process, it is not only difficult to recycle them in the subsequent crushing process, b u t a l s o increases the amount of ASR (Automobile Shredder Residues) and, if they get mixed in ASR, makes ASR recycling difficult. The collection of ASR in the dismantling process is therefore obligatory.

Hybrid and electric vehicles with lithium-ion batteries have recently been put on the market and the amount of end-of-life vehicles generated is expected to increase in the future, but lithium-ion batteries need to be removed before crushing as they use flammable electrolyte and may rupture or ignite during crushing. The batteries need to be removed before crushing.

In addition, hybrid vehicles powered by nickel-metal hydride batteries have already been common for more than a decade.

However, as nickel-metal hydride batteries are currently traded for value and are collected in the dismantling process, but they use an alkaline electrolyte and the work safety hazard during crushing cannot be ruled out, it is necessary to clarify the system for their reliable collection together with lithium-ion batteries.

For these reasons, lithium-ion and nickel-metal hydride batteries for automotive use, as well as lead-acid batteries, should be added to the list of pre-collected goods.

(4) Remarks.

The safety of lithium-ion batteries for automotive use is maintained in the state of battery packs, where control management of charging, discharging, etc. is carried out, but if the battery packs are disassembled, etc., appropriate protective control may not be carried out and danger may result, so appropriate handling should be ensured even after removal. Therefore, proper handling should be ensured even after removal.

For electric vehicles and other vehicles already on the market, battery recovery schemes are being prepared by the automobile manufacturers who sell them. The recycling of used lithium-ion batteries should continue to be examined to ensure that they are recycled.

3. facilitation of procedures for export repatriation, etc.

(1) Outline of the current system.

If a vehicle is exported as a used vehicle instead of being used domestically, the owner can reclaim the vehicle recycling fee (Article 78(1) of the Act. Hereinafter referred to as 'export reclaim').

The documents required to be attached to such an application are (i) a copy of the export permit (ii) A copy of the bill of lading or a document relating to the contract of carriage by sea; and (iii) A copy of the certificate of provisional export cancellation registration or the certificate of notification of planned export (Article 76(2) of the Ministerial Order).

(2) Contents of the proposed amendments.

In order to facilitate the export refund procedure, etc., 'documents relating to the contract of carriage by air' and 'a copy of the certificate of registered matters, etc. or the certificate of inspection record matters, etc.' are also accepted as documents proving the fact of export.

(3) Reason for amendment.

(i) Additional documents relating to contracts for carriage by air

As the system for export repatriation had been established primarily for carriage by sea, only documents relating to vessels were stipulated as necessary attachments.

However, in some cases, such as when foreign automobile manufacturers conduct test runs of new vehicles in Japan, the export of vehicles by air transport

There are cases in which the importation or exportation of goods is carried out. In view of the purpose of the system, there is no probability to distinguish whether export repatriation should be allowed or not depending on the means of exportation, and therefore export repatriation should also be allowed in the case of air transport.

For this reason, documents relating to contracts of carriage by aircraft, such as air waybills, are added as documents relating to contracts of carriage in air transport.

(ii) Additional copies of certificates of registration matters or inspection record matters.

The current ministerial ordinance stipulates that the certificate of provisional export cancellation registration or the certificate of intended export notification are documents that can be used to confirm the owner of the vehicle at the time it was intended to be exported. However, as these are used as confirmation documents at customs clearance, they are not re-issued after export as there is no procedural need for them, and it has not been possible to retrieve the export if the documents are lost.

In view of this, a certificate of registered matters or a certificate of inspection record matters (limited to a document stating that the vehicle is scheduled for export or has been exported), which is a document that can confirm the owner at the time of vehicle export and can be reissued if lost, will be added to the list. This is considered to contribute to relief measures for those who lost their export cancellation provisional registration certificates, etc. because they were affected by the Great East Japan Earthquake.

supplementary
explanatory
material

Derived from end-of- life vehicles Ensuring the safety of lithium-ion batteries

**Japan
Automobile**

Manufacturers Association, Inc.

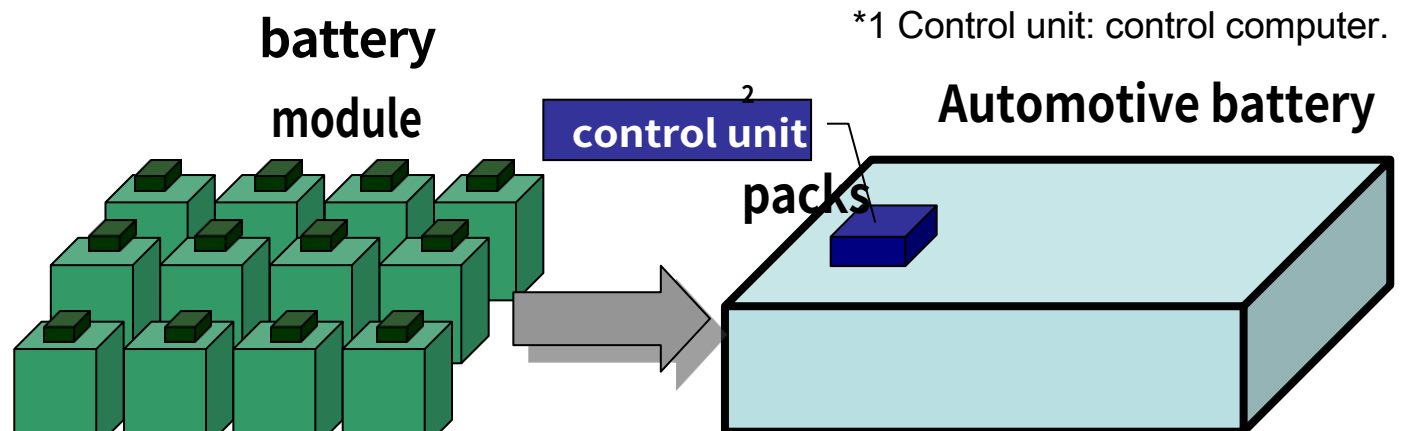
Example of lithium-ion battery structure for automotive drive

Lithium-ion batteries for automotive drives are used in the on-board condition.

Functionality and safety are guaranteed.

Lithium-ion batteries for automotive drives are generally made up of three layers as shown in the diagram below.

Each module also has a sensor unit, Automotive battery packs have a control unit*1 that bundles them together.



battery cell



A battery module is a collection of battery cells.

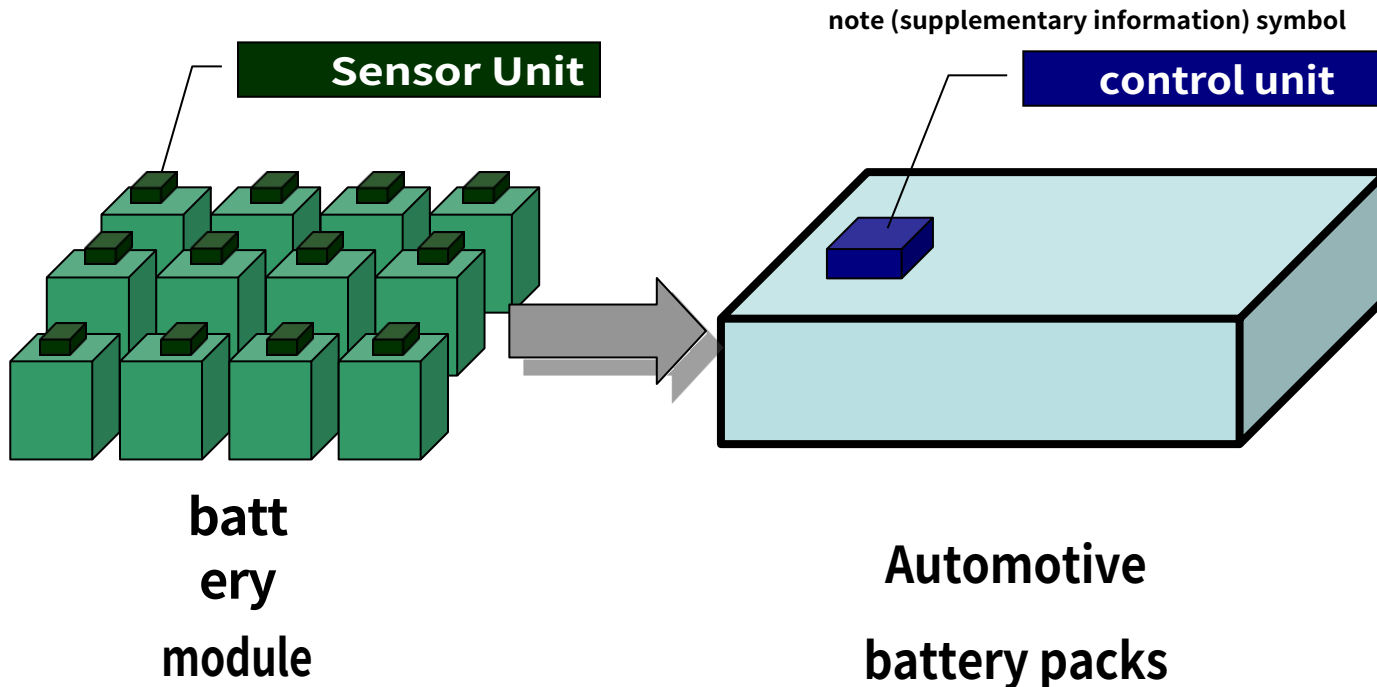
A battery pack is a collection of battery modules.

²In the diagram, the battery pack control unit may be mounted elsewhere on the vehicle body rather than on the battery pack.

The control unit of the battery pack may also serve as the vehicle body control unit.

control unit

The control unit also manages and controls the charging and discharging of the lithium-ion battery,
Stores charge and discharge status, etc.

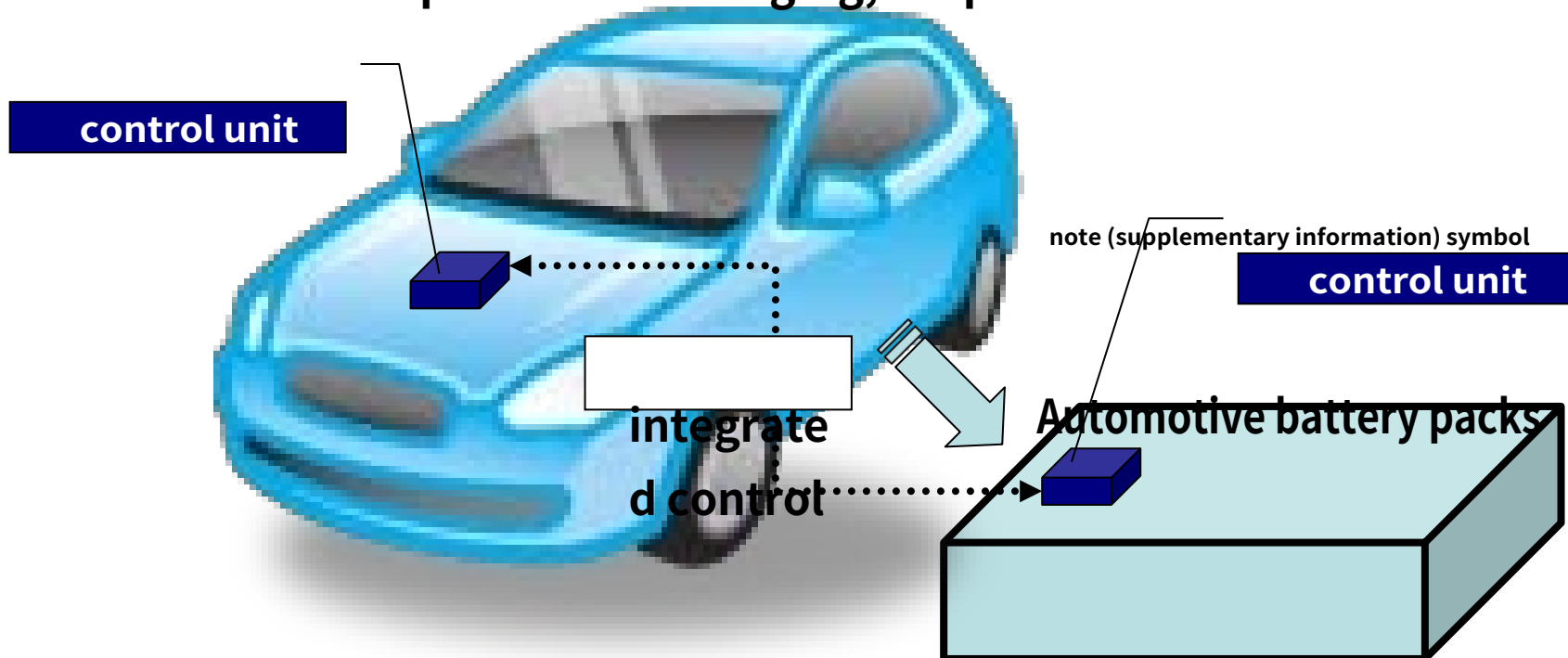


In the diagram, the control unit of the battery pack may be mounted elsewhere on the vehicle body instead of on the battery pack. In other cases, the control unit of the battery pack may also serve as the vehicle body control unit.

Example of integrated control with vehicle control unit

The control unit of the battery pack is linked to the vehicle-mounted control unit.

Comprehensive charging, output and other controls.

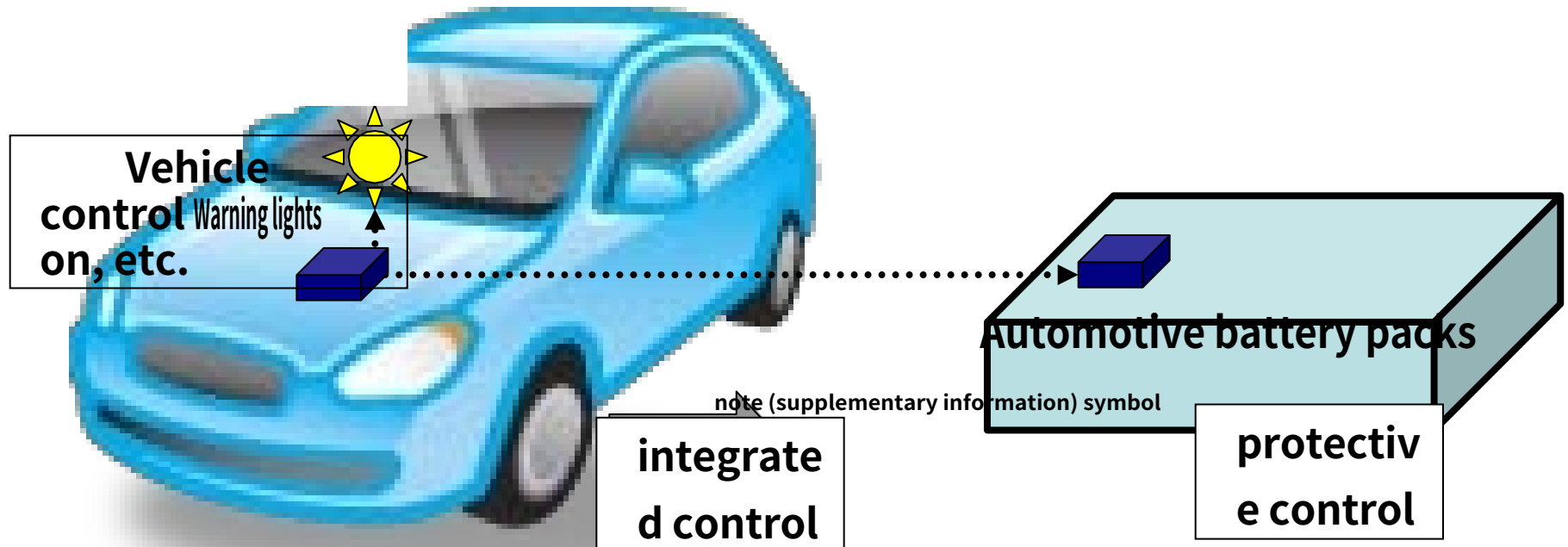


*** In the diagram, the battery pack control unit may be mounted elsewhere on the vehicle body instead of the battery pack.**

The control unit of the battery pack may also serve as the vehicle body control unit.

Example of integrated control with vehicle control unit

The control unit recognises when there are performance differences between cells, etc,
It has a protection function that provides comprehensive control to prevent some cells or modules from being overcharged or overdischarged or other abnormal conditions, and also prompts the user to service them.



*** In the diagram, the battery pack control unit may be mounted elsewhere on the vehicle body instead of the battery pack.**

The control unit of the battery pack may also serve as the vehicle body control unit.

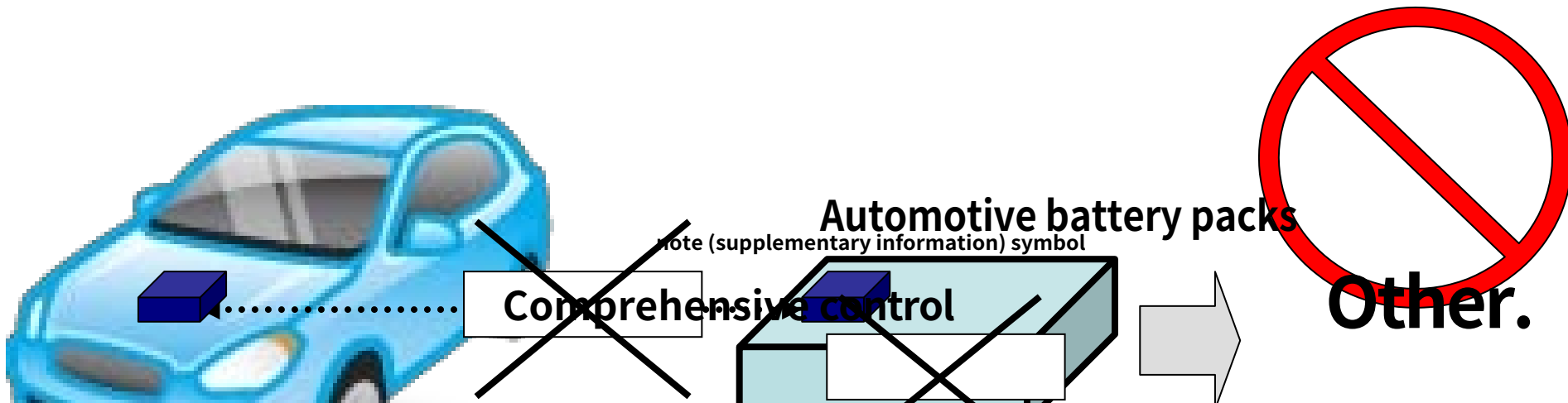
Restrictions on other uses

If the vehicle battery pack is unloaded from the vehicle and used on its own for other applications, the overall control with the vehicle side is lost,

~~Battery protection control may be lost.~~

~~For this reason, vehicle manufacturers are not allowed to use the vehicle in a state other than that in which it is installed in the vehicle.~~

The performance and quality of the battery pack in other applications is not guaranteed.



**protecti
ve
control**

use

In some cases, the battery pack control unit is not shown in the diagram, but is mounted elsewhere on the vehicle body. In some cases, the control unit of the battery pack may also serve as the vehicle body control unit.

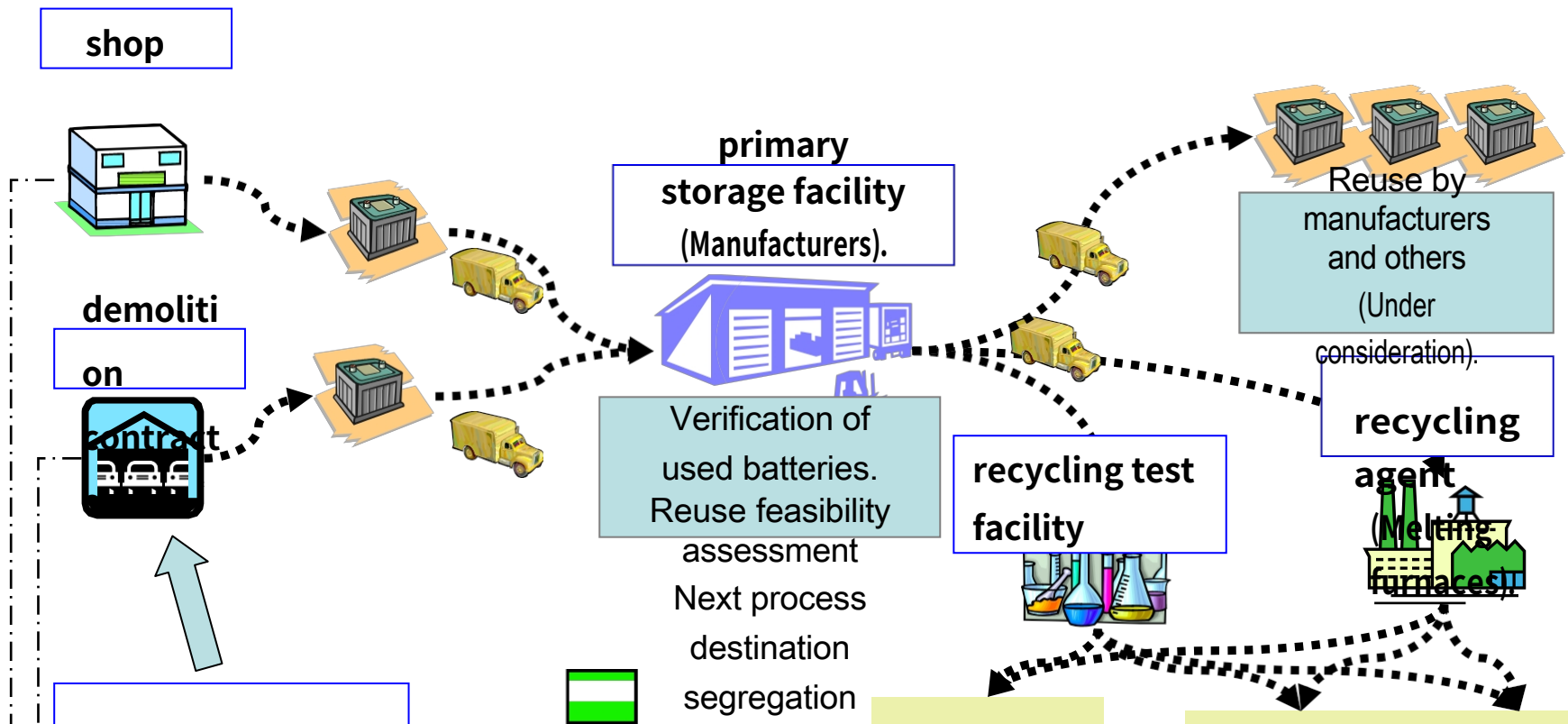
**When lithium-ion batteries
derived from end-of-life
vehicles are used on their
own, the battery's
protective controls do
not work and**

**Safety may be
compromised.**

... and upwards

Examples of existing recovery schemes

Car and battery manufacturers take back lithium-ion batteries from dismantlers and reuse, properly treat and recycle them themselves.



dismantling
labour
payment

carrier

Automobile or
battery
manufacturer

contact

Transport company
arrangements, etc.

recycled material

Lithium carbonate, cobalt,
manganese, nickel, etc.

copper

pavement
material