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What is the difference between an industrial battery and a stationary battery energy storage system?

In the context of the Batteries Regulation and its implementation, the precise definition of what constitutes an industrial battery (IB) versus a stationary battery energy storage system (BESS) is not only a matter of technical specificity but also of legal and environmental significance.

This distinction is paramount due to the specific requirements that are activated once a product is classified as a battery energy storage system.

1. What is a stationary battery energy storage system in the legislation?

Recital 15: Batteries used for traction in other transport vehicles including rail, waterborne and aviation transport or off-road machinery, continue to fall under the category of industrial batteries under this Regulation. The industrial battery category encompasses a broad group of batteries, intended to be used for industrial activities, communication infrastructure, agricultural activities, or generation and distribution of electric energy. Batteries which are given industrial uses after being subject to preparation for repurposing or repurposing, even though they were initially designed for a different use, should be considered to be industrial batteries under this Regulation. In addition to this non exhaustive list of examples, any battery that weighs more than 5 kg that does not fall under any other categories under this Regulation should be considered to be an industrial battery. Batteries used for energy storage in private or domestic environments, should be considered to be industrial batteries for the purposes of this Regulation.

Art. 3.1. (1) 'battery' means any device delivering electrical energy generated by direct conversion of chemical energy, having internal or external storage, and consisting of one or more non-rechargeable or rechargeable battery cells, modules or of packs of them, and includes a battery that has been subject to preparation for re-use, preparation for repurposing, repurposing or remanufacturing;

Art. 3.1. (8) 'battery with external storage' means a battery that is specifically designed to have its energy stored exclusively in one or more attached external devices;

Art. 3.1 (13) 'industrial battery' means a battery that is specifically designed for industrial uses, intended for industrial uses after having been subject to preparation for repurposing or repurposing, or any other battery that weighs more than 5 kg and that is neither an electric vehicle battery, an LMT battery, nor an SLI battery;



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Art. 3.1 (15) ‘stationary battery energy storage system’ means an industrial battery with internal storage that is specifically designed to store from and deliver electric energy to the grid or store for and deliver electric energy to end-users, regardless of where and by whom the battery is being used;

2. What is a Battery Energy Storage System in standardisation?

IEV¹ 631-01-01: *electrical energy storage (EES)* – electrical installation able to absorb electrical energy, to store it for a certain duration, and to release it.

IEV 631-01-02: *electrical energy storage system (EES system or EESS)* – grid-connected installation with defined electrical boundaries, which can include civil engineering works, energy conversion equipment and related ancillary equipment, comprising at least one electrical energy storage, which extracts electrical energy from an electric power system, stores this energy internally in some manner and injects electrical energy into an electric power system.

IEV 631-01-03: *battery energy storage system (BEES)* – electrical energy storage system with an accumulation subsystem based on batteries fitted with secondary cells.

IEV 631-02-04: *point of connection, <of an EES system> (POC)* – reference point on the electric power system at which an EES system is connected.

IEV 631-03-02: *primary subsystem* – EESS subsystem consisting of the components and subsystems that are directly responsible for storing electrical energy and extracting electrical energy.

Note 1 to entry: Generally, the primary subsystem is connected to the primary POC through the primary connection terminal, and comprises at least the accumulation subsystem and the power conversion subsystem (see Figure 1).

¹ The IEV is accessible under [Electropedia.org](https://www.electropedia.org)



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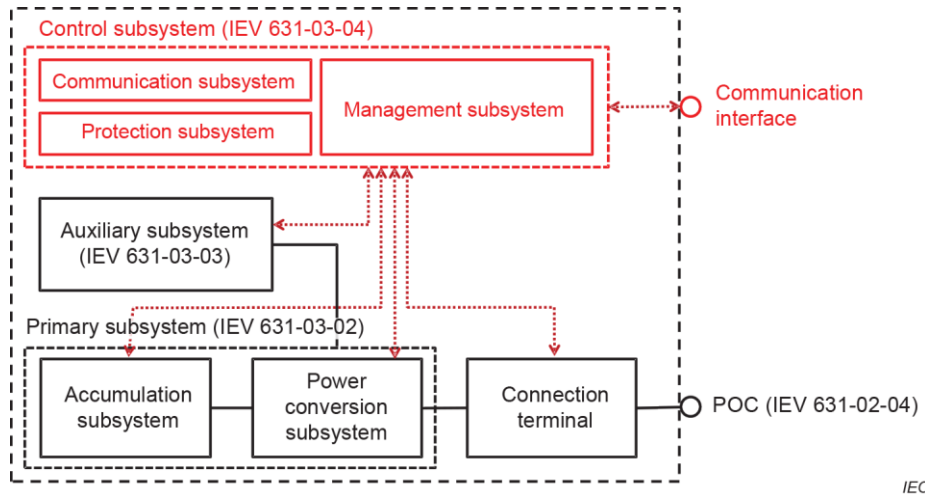


Figure 1 – EES system architecture with one point of connection type

Note see also IEC 62933-1 Ed. 2 *Electrical energy storage (EES) systems - Part 1: Vocabulary* (to be published)

3. What can we learn from the definitions in the legislation versus those in standardisation?

Art. 3.1 (15) of the Batteries Regulation tells us that industrial batteries with internal storage and a storage capability above 2 kWh have to fulfil certain additional requirements when they are used in stationary battery energy storage systems. These requirements apparently do not apply to industrial batteries with external storage, usually known as (redox) flow batteries.

These additional requirements apparently apply only to what in industrial standards is called an “accumulation subsystem” and where energy storage is based on batteries, but not to other parts of a stationary Battery Energy Storage System, namely those described in industrial standards on Energy Storage Systems (ESS) under such terms as “Power conversion system” and “Connection terminal” etc. (See Figures 1 and 2).

It may have to be discussed what the meaning of “specifically designed to store from and deliver electric energy to the grid or store for and deliver electric energy to end-users, regardless of where and by whom the battery is being used” is. Does it include off-grid solutions and behind the meter solutions?



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Figure 2 – Battery Energy Storage System

consisting of a Primary subsystem with a stationary battery serving as the Accumulation subsystem (right) and a Power conversion subsystem (left)

About EUROBAT

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EUROBAT is the association of the European Manufacturers of automotive, industrial and energy storage batteries. EUROBAT represents more than 90% of the automotive and industrial battery industry in Europe though its more than 50 members from across the continent. EUROBAT members and secretariat work with all stakeholders, such as battery users, governmental organizations and media, to develop new battery solutions in areas of hybrid and electro-mobility as well as grid flexibility and renewable energy storage.

Contacts

Olga Karline Henkele

Policy Manager – okhenkele@eurobat.org – (00) 32 2 761 16 12

