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INTERNATIONAL STANDARD

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Electrical energy storage (EES) systems – Part 1: Vocabulary

Systèmes de stockage de l'énergie électrique (EES) – Partie 1 : Vocabulaire

IEC 62933-1:2024-05(en-fr)

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Electrical energy storage (EES) systems – Part 1: Vocabulary

Systèmes de stockage de l'énergie électrique (EES) – Partie 1 : Vocabulaire

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRICAL ENERGY STORAGE (EES) SYSTEMS –

Part 1: Vocabulary

FOREWORD

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This second edition cancels and replaces the first edition published in 2018. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) addition (with revision) of the entries developed during the edition 1 stability period and, therefore, included only in other IEC 62933 parts;
b) addition of the entries developed during the edition 1 stability period and published in this document for the first time;
c) complete revision of the entries already present in edition 1.

The text of this International Standard is based on the following documents:

Draft	Report on voting
120/358/FDIS	120/367/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62933 series, published under the general title *Electrical energy storage (EES) systems*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

The purpose of this terminology document is to provide terms and definitions for all the publications under the responsibility of TC 120, that standardize electrical energy storage systems (EES systems) including unit parameters, test methods, planning, installation, operation, safety and environmental issues. An EES system includes any type of grid-connected energy storages which can both store electrical energy and provide electrical energy (from electricity to electricity).

All TC 120 normative documents are subject to revision; this part of IEC 62933 will be revised together with other TC 120 publications in order to avoid mismatches.

From the technical point of view, an EES system can be a complex multi-stage system with several possible energy conversions. Each stage is made by well standardized components (e.g. transformers, power conversion systems) or innovative components (e.g. new types of batteries). Several IEC product standards give definitions necessary for the understanding of certain terms used for these components. The International Electrotechnical Vocabulary (IEV, http://www.electropedia.org), the IEC Glossary (http://std.iec.ch/glossary) and the ISO Online Browsing Platform (OBP, http://www.iso.org/obp) allow online access to this information. This document completes the need for precise terminology by giving definitions necessary at the system level.

Without a strong standardization of EES system terminology, focal terms can have a different meaning in EES systems related to different storage technologies. This aspect is critical also from the market point of view. It impacts economics and this can become a barrier for tender processes. The correct comparison among different options is fundamental, therefore basic terms and definitions impact economic decisions.

Terms and definitions have been harmonized with the IEV, the OBP, the IEC Glossary and relevant IEC documents as far as possible. Definitions not included in this terminology document can be found elsewhere in other IEC documents.

The use of abbreviated terms has been optimized: on the one hand to avoid tedious repetition and on the other hand to avoid confusion. A minimum set of abbreviated terms was identified and used in the definitions, the other terms are written out in full spelling when needed. The widely accepted abbreviated terms are:

EESS – EES system – Electrical energy storage system

EES – Electrical energy storage

POC – Point of connection

In order to facilitate document usage, Clause A.1 offers a term index and Clause A.2 offers an abbreviated term index.

ELECTRICAL ENERGY STORAGE (EES) SYSTEMS –

Part 1: Vocabulary

1 Scope

This part of IEC 62933 defines terms applicable to electrical energy storage (EES) systems including terms necessary for the definition of unit parameters, test methods, planning, installation, operation, environmental and safety issues.

This terminology document is applicable to grid-connected systems able to extract electrical energy from an electric power system, store energy internally, and provide electrical energy to an electric power system. The step for charging and discharging an EES system can comprise an energy conversion.

2 Normative references

There are no normative references in this document.

3 Terms and definitions for EES systems classification

3.1 Fundamental concepts for EES systems classification

3.1.1
electrical energy storage
EES
electrical *installation* (IEV 826-10-01) able to absorb electrical energy, to store energy for a certain duration and to provide electrical energy

EXAMPLE An installation that absorbs electrical energy to produce hydrogen by electrolysis, stores the hydrogen, and uses that gas to produce electrical energy is an electrical energy storage.

Note 1 to entry: The term "electrical energy storage" can also be used to indicate the activity that an installation, described in the definition, carries out when performing its functions.

Note 2 to entry: The term "electrical energy storage" is generally not used to designate a grid-connected installation, for which *electrical energy storage system* (3.1.2) is the appropriate term.

Note 3 to entry: Energy conversion processes can be included during energy absorption, storage or release.

[SOURCE: IEC 60050-631:2023, 631-01-01, modified – minor editorial modifications in the definition and in the note 2.]

3.1.2
electrical energy storage system
EES system
EESS
grid-connected *installation* (IEV 826-10-01) with defined electrical boundaries, comprising at least one *electrical energy storage* (3.1.1), which extracts electrical energy from an *electric power system* (IEV 601-01-01), stores this energy internally in some manner and provides electrical energy to an *electric power system* (IEV 601-01-01), including grid-connection works and which can include civil engineering works, energy conversion equipment and related ancillary equipment

Note 1 to entry: The EES system is controlled and coordinated to provide services to the *electric power system* (IEV 601-01-01) operators or to the electric power system users.