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Electrical energy storage (EES) systems - Part 3-1:
Planning and performance assessment of electrical
energy storage systems - General specification

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN IEC 62933-3-1:2026 sisaldab Euroopa standardi EN IEC 62933-3-1:2026 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 09.01.2026.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN IEC 62933-3-1:2026 consists of the English text of the European standard EN IEC 62933-3-1:2026.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 09.01.2026.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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English Version

Electrical energy storage (EES) systems - Part 3-1: Planning and performance assessment of electrical energy storage systems -
General specification
(IEC 62933-3-1:2025)

Systèmes de stockage de l'énergie électrique (EES) - Partie
3-1: Planification et évaluation des performances des
systèmes de stockage de l'énergie électrique -
Spécifications générales
(IEC 62933-3-1:2025)

Elektrische Energiespeichersysteme - Teil 3-1: Planung und
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Energiespeichersystemen - Allgemeine Festlegungen
(IEC 62933-3-1:2025)

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 120/426/FDIS, future edition 1 of IEC 62933-3-1, prepared by TC 120 "Electrical Energy Storage (EES) systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62933-3-1:2026.

The following dates are fixed:

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IEC 60068-2 (series)	NOTE	Approved as EN IEC 60068-2 (series)
IEC 60068-3-3	NOTE	Approved as EN IEC 60068-3-3
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IEC 60721-2-2	NOTE	Approved as EN IEC 60721-2-2
IEC 60721-2-4	NOTE	Approved as EN IEC 60721-2-4
IEC 60721-3-3	NOTE	Approved as EN IEC 60721-3-3
IEC 60038	NOTE	Approved as EN 60038
IEC 60071-1	NOTE	Approved as EN IEC 60071-1
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IEC 60364-4-43	NOTE	Approved as HD 60364-4-43
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IEC 60364-5-52	NOTE	Approved as HD 60364-5-52
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IEC 61000-3-3	NOTE	Approved as EN 61000-3-3
IEC 61000-3-11	NOTE	Approved as EN IEC 61000-3-11
IEC 61000-3-12	NOTE	Approved as EN 61000-3-12
IEC 61000-6-1	NOTE	Approved as EN IEC 61000-6-1
IEC 61000-6-2	NOTE	Approved as EN IEC 61000-6-2
IEC 61000-6-3	NOTE	Approved as EN IEC 61000-6-3
IEC 61000-6-4	NOTE	Approved as EN IEC 61000-6-4
IEC 61000-6-5	NOTE	Approved as EN 61000-6-5
IEC 60870-5-101	NOTE	Approved as EN 60870-5-101
IEC 60870-5-104	NOTE	Approved as EN 60870-5-104
IEC 60870-6 (series)	NOTE	Approved as EN 60870-6 (series)
IEC 61850-7-420	NOTE	Approved as EN IEC 61850-7-420

INTERNATIONAL STANDARD

**Electrical energy storage (EES) systems -
Part 3-1: Planning and performance assessment of electrical energy storage
systems - General specification**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Electrical energy storage (EES) systems -
Part 3-1: Planning and performance assessment of
electrical energy storage systems - General specification**

FOREWORD

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IEC 62933-3-1 has been prepared by IEC technical committee TC 120: Electrical Energy Storage (EES) systems. It is an International Standard.

This first edition cancels and replaces the first edition of IEC TS 62933-3-1 published in 2018. This edition constitutes a technical revision.

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

- a) improvements regarding design and sizing of an EES system;
- b) adding "EES system decommissioning";
- c) adding "Inspection and test aspects";
- d) adding "Feasibility and permission";

- e) adding "Basic planned activities for feasibility study";
- f) adding "Aspects considered with regard to EES system decommissioning".

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

Draft	Report on voting
120/426/FDIS	120/442/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.

INTRODUCTION

IEC 62933-2-1 should be used as a reference when selecting testing items and their corresponding evaluation methods as well as principal parameters. The principal terms used in this document are defined in IEC 62933-1. Environmental issues are covered by IEC TS 62933-4-1. The personnel safety issues are covered by IEC 62933-5-1.

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1 Scope

This part of IEC 62933 is applicable to EES systems designed for grid-connected indoor or outdoor installation and operation. This document considers:

- necessary functions and capabilities of EES systems;
- sizing and design of EES system;
- operation of EES system;
- test items and performance assessment methods for EES systems;
- requirements for monitoring and acquisition of EES system operating parameters;
- exchange of system information and control capabilities required;
- maintenance of EES system.

Stakeholders of this document comprise personnel involved with EES systems, which include:

- planners of electric power systems and EES systems;
- owners of EES systems;
- operators of electric power systems and EES systems;
- constructors;
- suppliers of EES systems and its equipment;
- aggregators.

Use-case-specific technical documentation, including planning and installation specific tasks such as system design, monitoring, measurement, tests, operation and maintenance, are very important and can be found throughout this document.

NOTE This document has been written for AC grids, however parts can also apply to DC grids.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60721-1, *Classification of environmental conditions - Part 1: Environmental parameters and their severities*

IEC 61850 (all parts), *Communication networks and systems for power utility automation*

IEC 62351 (all parts), *Power systems management and associated information exchange - Data and communications security*

IEC 62443 (all parts), *Industrial communication networks - Network and system security*

IEC 62933-1:2024, *Electrical energy storage (EES) systems - Part 1: Vocabulary*

IEC 62933-2-1:2017, *Electrical energy storage (EES) systems - Part 2-1: Unit parameters and testing methods - General specification*

IEC 62933-5-1, *Electrical energy storage (EES) systems - Part 5-1: Safety considerations for grid-integrated EES systems - General specification*

ISO/IEC 27000, *Information technology - Security techniques - Information security management systems - Overview and vocabulary*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62933-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.2 Symbols

$\cos\varphi$	power factor
E	energy
E_C	energy storage capacity
η	efficiency
f	frequency
I	current
P	active power
Q	reactive power
S	apparent power
SOE	state of energy
SOH	state of health
U	voltage

4 General information about EES systems

4.1 Main functional aspects

According to IEC 62933-1 an EES system is a grid-connected installation with defined electrical boundaries, comprising at least one electrical energy storage unit, 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. An EES system can include civil engineering works, energy conversion equipment and related ancillary equipment. The EES system is controlled and coordinated to provide services to the electric power system operators or to the electric power system users.

4.2 Architecture of an EES system

The typical architecture of an EES system, which internally feeds the auxiliary subsystem, is given in Figure 1 a).