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TECHNICAL SPECIFICATION

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Electrical energy storage (EES) systems – Part 2-2: Unit parameters and testing methods – Application and performance testing

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRICAL ENERGY STORAGE (EES) SYSTEMS –

Part 2-2: Unit parameters and testing methods – Application and performance testing

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IEC 62933-2-2 has been prepared by IEC technical committee TC 120: Electrical Energy Storage (EES) Systems. It is a Technical Specification.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
120/249/DTS	120/264A/RVDTS

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 Technical Specification is English.

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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/standardsdev/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- withdrawn,
- replaced by a revised edition, or
- amended.
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INTRODUCTION

Considering the wide variety of applications of EES systems, it is becoming important to define the typical application of each EES system depending on its purpose and control types, and also important to define the corresponding performance testing methods and procedures of the EES system.

IEC 62933-2-1 describes the general specification of unit parameters and testing methods for EES systems, in which details of duty cycles for typical grid applications and the associated performance metrics and testing methods are not covered.

This part of IEC 62933 focuses on developing generic duty cycles for applications, identifying relevant performance metrics and developing performance testing methods and procedures for EES systems.

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ELECTRICAL ENERGY STORAGE (EES) SYSTEMS –

Part 2-2: Unit parameters and testing methods – Application and performance testing

1 Scope

This part of IEC 62933 defines testing methods and duty cycles to validate the EES system's technical specification for the manufacturers, designers, operators, utilities and owners of the EES systems which evaluate the performance of the EES systems for various applications. The following items are covered in this document. The energy storage devices and technologies are outside the scope of this document:

– application;
– performance testing methods;
– duty cycles for specific application.

This document will be used as a reference when selecting testing items and their corresponding evaluation methods.

This document considers applications such as:

- frequency control;
- primary/secondary/tertiary frequency control;
- fluctuation reduction of PV and wind farm;
- reactive-power voltage control;
- power quality events mitigation;
- peak shaving;
- renewable firming;
- back-up power;
- islanded grid.

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

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