



DPC: 22/30454701 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

Date: 20 April 2022

Origin: International

Latest date for receipt of comments: 04 May 2022

Project No. 2020/00499

Responsible committee: ESL/120 Electrical Energy Storage

Interested committees:

Title: Draft BS EN 62933-4-4 Ed.1.0 Electrical energy storage (EES) systems. Part 4-4: Standard on environmental issues battery-based energy storage systems (BESS) with reused batteries - requirements.

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD. THIS DRAFT IS NOT CURRENT BEYOND 04 May 2022

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop <http://shop.bsigroup.com> or from BSI Customer Services, Tel: +44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from <https://standardsdevelopment.bsigroup.com/>.

Responsible Committee Secretary: Ms Nicola Young (BSI)

Direct tel:

E-mail: nicola.young@bsigroup.com

Full document details: 22/30454701 DC

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
------------------	------------------------

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



120/272/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:
IEC 62933-4-4 ED1

DATE OF CIRCULATION:
2022-04-08

CLOSING DATE FOR COMMENTS:
2022-06-03

SUPERSEDES DOCUMENTS:
120/242/CD, 120/252A/CC

IEC TC 120 : ELECTRICAL ENERGY STORAGE (EES) SYSTEMS

SECRETARIAT:
Japan

SECRETARY:
Mr Hideki HAYASHI

OF INTEREST TO THE FOLLOWING COMMITTEES:
SC 8A, TC 21, SC 21A, TC 69, TC 77, TC 111

PROPOSED HORIZONTAL STANDARD:



Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.

FUNCTIONS CONCERNED:

☐ EMC

☒ ENVIRONMENT

☐ QUALITY ASSURANCE

☐ SAFETY

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Electrical energy storage (EES) systems- Part 4-4: Standard on environmental issues battery-based energy storage systems (BESS) with reused batteries – requirements

NOTE FROM TC/SC OFFICERS:

This CD has been discussed and modified by WG4 experts with the observations of 120/252A /CC.

Copyright © 2022 International Electrotechnical Commission, IEC. All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 General	8
5 Identifying environmental issues of EES systems	9
5.1 General.....	9
5.2 Guide for addressing environmental issues	9
5.3 Specific aspects resulting from the implementation of reuse batteries in a BESS.....	9
6 Environmental guidelines of EES systems	11
6.1 Environmental aspects resulting from a BESS with reuse batteries	11
6.1.1 General	11
6.1.2 Requirements at the design stage.....	11
6.1.3 Requirements at the procurement and acquisition stage	11
6.1.4 Requirements at the assembly and installation stage	12
6.1.5 Requirements at the operation stage	13
6.1.6 Requirements at the Maintenance stage	14
6.1.7 Requirements at the disassembly stage.....	14
6.1.8 Requirements for customer information	14
6.2 Guidelines on environment impacts on the BESS system.....	15
6.3 Guidelines on environment impacts from the BESS system.....	15
Annex A (informative) Battery Specific Emissions into Environment	16
Annex B (informative) Impact on the Environment of Emissions from the Reuse Batteries of a BESS.....	18
Annex C (informative) Reference to the IEC TS 62933-4-1 - Guidance on environmental aspects.....	19
Bibliography.....	20

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL ENERGY STORAGE (EES) SYSTEMS -
PART 4-4: ENVIRONMENTAL ISSUES ON
BATTERY-BASED ENERGY STORAGE SYSTEMS (BESS) WITH REUSE BATTERIES -
REQUIREMENTS**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC XXXXX has been prepared by subcommittee XX: TITLE, of IEC technical committee XX:XXX.

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

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

86

87 Full information on the voting for the approval of this International Standard can be found
88 in the report on voting indicated in the above table.

89 This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

90 The committee has decided that the contents of this document will remain unchanged until
91 the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data
92 related to the specific document. At this date, the document will be

- 93 • reconfirmed,
- 94 • withdrawn,
- 95 • replaced by a revised edition, or
- 96 • amended.

97

98 The National Committees are requested to note that for this document the stability date
99 is 20XX..

100 THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE
101 DELETED AT THE PUBLICATION STAGE.

102

INTRODUCTION

Introduction of renewable energy is progressing in the trend of decarbonisation aiming at reducing CO₂ emissions. These power generation methods have large fluctuations in voltage and frequency, which causes instability in the power supply. As the transition to renewable energy progresses, the grid becomes more vulnerable to sudden fluctuations in power generation or consumption. One of the effective methods for stabilization can be achieved by introducing a battery energy storage system (BESS). Given this background, it is expected that the use of BESS will increase. It is expected that BESS system will mainly be utilized to ensure the stability of the power grid as renewable energy systems are connected to electrical grid.

From the perspective of life-cycle thinking (LCT), it is necessary to consider the use of reuse batteries as one of the methods for acquiring storage batteries. Reuse batteries, however, are expected to be distributed in various form such as cells or modules and packs which consists of multiple cells. It is necessary to consider the environmental impact while applying various reuse batteries to BESS in situations where necessary and sufficient information cannot always be obtained.

Environmental issues on electrical energy storage (EES) systems) are described in IEC / TS 62933-4-1. The text complements from the perspective of reuse batteries.