PD IEC TS 62600-20:2019

BSI Standards Publication

Marine energy – Wave, tidal, and other water current converters

Part 20: Design and analysis of an Ocean Thermal Energy Conversion (OTEC) plant – General guidance

bsi.

National foreword

This Published Document is the UK implementation of IEC TS 62600-20:2019.

The UK participation in its preparation was entrusted to Technical Committee PEL/114, Marine energy - Wave, tidal and other water current converters.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2019

ISBN 978 0 580 97705 3

ICS 27.140

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 July 2019.

Amendments/corrigenda issued since publication

Date	Text affected

IEC TS 62600-20

Edition 1.0 2019-06

TECHNICAL SPECIFICATION

colour inside

Marine energy – Wave, tidal, and other water current converters – Part 20: Design and analysis of an Ocean Thermal Energy Conversion (OTEC) plant – General guidance

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 27.140

ISBN 978-2-8322-6915-2

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

MARINE ENERGY – WAVE, TIDAL, AND OTHER WATER CURRENT CONVERTERS –

Part 20: Design and analysis of an Ocean Thermal Energy Conversion (OTEC) plant – General guidance

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.

The main task of IEC technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a Technical Specification when

- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical Specification are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 62600-20, which is a Technical Specification, has been prepared by IEC technical committee 114: Marine energy - Wave, tidal and other water current converters.

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

Draft TS	Report on voting
114/286/DTS	114/299A/RVDTS

Full information on the voting for the approval of this Technical Specification can be found in the report on voting indicated in the above table.

A list of all parts in the IEC 62600 series, published under the general title *Marine energy - Wave, tidal and other water current converters*, can be found on the IEC website.

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

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

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

A bilingual version of this publication may be issued at a later date.

MARINE ENERGY – WAVE, TIDAL, AND OTHER WATER CURRENT CONVERTERS –

Part 20: Design and analysis of an Ocean Thermal Energy Conversion (OTEC) plant – General guidance

1 Scope

This part of IEC 62600 establishes general principles for design assessment of OTEC plant. The goal is to describe the design and assessment requirements of OTEC plants used for stable power generation under various conditions. This electricity may be used for utility supply or production of other energy carriers. The intended audience is developers, engineers, bankers, venture capitalists, entrepreneurs, finance authorities and regulators.

This document is applicable to land-based (i.e. onshore), shelf-mounted (i.e. nearshore seabed mounted) and floating OTEC systems. For land-based systems, the scope of this document ends at the main power export cable suitable for connection to the grid. For shelf-mounted and floating systems, the scope of this document normally ends at the main power export cable where it connects to the electrical grid.

This document is general and focuses on the OTEC specific or unique components of the power plant, particularly the marine aspects of the warm and cold water intake systems. Other established standards are referenced to address common components between the OTEC system and other types of power plants and floating, deep water oil and gas production vessels, such as FPSOs and FLNG systems. Relevant standards are listed within this document as appropriate.

The flow diagram, shown in Figure 5, illustrates the main design process associated with floating, shelf-mounted or land-based OTEC systems.