

**BUREAU OF INDIAN STANDARDS**  
**DRAFT FOR COMMENTS ONLY**

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*Draft Indian Standard*

**MARINE ENERGY – WAVE, TIDAL AND OTHER WATER CURRENT CONVERTERS**  
**Part 20 : Design and Analysis of an Ocean Thermal Energy Conversion (OTEC)**  
**Plant – General Guidance**  
(ICS 27.140)

Marine Energy Conversion Systems  
Sectional Committee, ETD 54

Last date for Comments – 02/03/2024

**FOREWORD**

(Formal clauses will be added later)

This Draft Standard which is identical with IEC 62600-20-2019 ‘Marine Energy – wave tidal and other water current converters Part 20 : Design and Analysis of an Ocean Thermal Energy Conversion (OTEC) plant – General Guidance’ issued by the International Electrotechnical Commission (IEC) is proposed to be adopted by the Bureau of Indian Standards on the recommendation of the Electrical Installation Sectional Committee and approval of the Electrotechnical Division Council.

The text of the IEC Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words ‘International Standard’ appears referring to this standard, they should be read as ‘Indian Standard’.
- a) Comma (,) has been used as a decimal marker, while in Indian Standards the current practice is to use a point (.) as the decimal marker.

| <i>International Standard</i>  | <i>Corresponding Indian Standard</i>  | <i>Degree of Equivalence</i> |
|--|---|------------------------------|
| IEC 60079-0:2017, Explosive atmospheres – Part 0: Equipment – General requirements | IS/IEC 60079-0:2017, Explosive Atmospheres Part 0 Equipment — General Requirements ( Third Revision ) | Identical                    |

In this adopted standard, reference appears to International Standards for which Indian Standards also exists. The corresponding Indian Standards, which are to be substituted, are listed below along with their degree of equivalence for the editions indicated:

The technical committee has reviewed the provisions of the following international standards referred in this adopted standard and decided that they are acceptable for use in conjunction with this standard.

| <i>International Standard</i> | <i>Title</i>  |
|-------------------------------|---|
| IEC TS 62600-1:               | Marine energy – Wave, tidal and other water current converters – Part 1: Terminology  |
| ISO 13628-5: 2009,            | Petroleum and natural gas industries – Design and operation of subsea production systems – Part 5: Subsea umbilical   |
| ISO 13628-11: 2007,           | Petroleum and natural gas industries – Design and operation of subsea production systems – Part 11: Flexible pipe systems for subsea and marine applications                      |
| ISO 19900,                    | Petroleum and natural gas industries – General requirements for offshore structures   |
| ISO 19901 (all parts)         | Petroleum and natural gas industries – Specific requirements for offshore structures  |
| ISO 19901-1,                  | Petroleum and natural gas industries – Specific requirements for offshore structures – Part 1: Metocean design and operating considerations                                       |
| ISO 19901-7:2013,             | Petroleum and natural gas industries – Specific requirements for offshore structures – Part 7: Station keeping systems for floating offshore structures and mobile offshore units |
| ISO 19902,                    | Petroleum and natural gas industries – Fixed steel offshore structures  |
| ISO 19903,                    | Petroleum and natural gas industries – Fixed concrete offshore structures   |
| ISO 19905 (all parts),        | Petroleum and natural gas industries – Mobile offshore units – Jackups  |
| ISO 19906,                    | Petroleum and natural gas industries – Arctic offshore structures   |
| ISO 21650,                    | Actions from waves and currents on coastal structures   |

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test, shall be rounded off in accordance with IS 2: 2022 ‘Rules for rounding off numerical values (*Second Revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## Scope

This standard general principles for design assessment of OTEC plants. 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 standard 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 standard 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.

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Note — The technical content of their document has not been enclosed as there are identical with the corresponding IEC standards for details, please refer the corresponding IEC 62600-20-2019 or kindly contact:

### Head

Electrotechnical Department  
Bureau of Indian Standards  
9, Bahadur Shah Zafar Marg,  
New Delhi-110002  
Email: eetd@bis.gov.in  
Telephone: 011-23231192 / 8284