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INTERNATIONAL STANDARD

Solar thermal electric plants –
Part 4-1: General requirements for the design of solar power tower plants

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FOREWORD

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IEC 62862-4-1 has been prepared by IEC technical committee 117: Solar thermal electric plants. It is an International Standard.

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

Draft	Report on voting
117/166/FDIS	117/169/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 62862 series, published under the general title *Solar thermal electric plants*, 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- withdrawn,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.

SOLAR THERMAL ELECTRIC PLANTS –

Part 4-1: General requirements for the design of solar power tower plants

1 Scope

This part of IEC 62862 specifies the general requirements for the design of solar power tower plants and covers the electric power system requirements, the solar resource assessment, the site selection, the overall planning, the layout of the heliostat field and the receiver tower, the layout of the power block, the collector system, the heat transfer, the thermal energy storage and steam generation system, the steam turbine system, the water treatment system, the information system, instrumentation and control, the electrical equipment and system, occupational safety and occupational health.

This document is applicable to the design requirements of newly built, expanded or rebuilt solar power tower plants employing steam turbines with molten salt or water-steam as heat transfer fluid. If other heat transfer fluids are employed, it is possible that the provisions set out in this document will need to be adapted.

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 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60034-3, *Rotating electrical machines – Part 3: Specific requirements for synchronous generators driven by steam turbines or combustion gas turbines and for synchronous compensators*

IEC 60034-16 (all parts), *Rotating electrical machines – Part 16: Excitation systems for synchronous machines*

IEC 60038, *IEC standard voltages*

IEC 60045-1, *Steam turbines – Part 1: Specifications*

IEC 60076-1, *Power transformers – Part 1: General*

IEC 60076-2, *Power transformers – Part 2: Temperature rise for liquid-immersed transformers*

IEC 60076-3, *Power transformers – Part 3: Insulation levels, dielectric tests and external clearances in air*

IEC 60076-4, *Power transformers – Part 4: Guide to the lightning impulse and switching impulse testing – Power transformers and reactors*

IEC 60076-5, *Power transformers – Part 5: Ability to withstand short circuit*