



TECHNICAL SPECIFICATION



Guidelines for the hosting capacity evaluation of distribution networks for distributed energy resources

INTERNATIONAL
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GUIDELINES FOR THE HOSTING CAPACITY EVALUATION OF DISTRIBUTION NETWORKS FOR DISTRIBUTED ENERGY RESOURCES

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

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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.

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.

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GUIDELINES FOR THE HOSTING CAPACITY EVALUATION OF DISTRIBUTION NETWORKS FOR DISTRIBUTED ENERGY RESOURCES

1 Scope

This document specifies methods for the evaluation of the maximum export capacity of distributed energy resources (DER) that distribution networks can accommodate. It provides guidance on the technical constraints that should be considered in evaluating hosting capacity, information required to be collected to undertake a hosting capacity evaluation, and evaluation methods.

This document is applicable to AC distribution networks operating at a nominal frequency of 50 Hz or 60 Hz.

This document does not specify allowable values of system parameters that can be impacted by the addition of DER on a distribution network, such as maximum or minimum voltage, maximum current, etc. These values are to be determined by the user, from international or national standards, local regulations or the like, and used as an input to the evaluation methods described in this document.

Options for increasing the hosting capacity of distribution networks are not specifically considered, although the identification of constraints to the hosting capacity will assist users in developing methods for increasing the overall hosting capacity.

This document is mainly used by distribution system operators (DSO) and other organizations with corresponding qualifications and capabilities. The evaluation results can serve the DER investors, DSO, energy sector regulators and other stakeholders as a decision-making basis.

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 60255 (all parts), *Measuring relays and protection equipment*

IEC 60364 (all parts), *Low-voltage electrical installations*

IEC 60834-1, *Teleprotection equipment of power systems – Performance and testing – Part 1: Command systems*

IEC 60909-0, *Short-circuit currents in three-phase a.c. systems – Part 0: Calculation of currents*

IEC 61000 (all parts), *Electromagnetic compatibility (EMC)*

IEC 61400-27-1, *Wind energy generation systems – Part 27-1: Electrical simulation models – Generic models*

IEC 61936-1, *Power installations exceeding 1 kV AC and 1,5 kV DC – Part 1: AC*

IEC TS 62749, *Assessment of power quality – Characteristics of electricity supplied by public networks*

IEC TS 62786-1, *Distributed energy resources connection with the grid – Part 1: General requirements*

IEEE 1547.4, *Guide for Design, Operation, and Integration of Distributed Resource Island Systems with Electric Power Systems*