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# TECHNICAL SPECIFICATION

**Wind energy generation systems -**
**Part 28-2: Decommissioning and preparation for recycling**

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# Wind energy generation systems – Part 28-2: Decommissioning and preparation for recycling

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

| Draft | Report on voting |
|---|---|
| 88/1182/DTS | 88/1194/RVDTS |

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.

A list of all parts in the IEC 61400 series, published under the general title *Wind energy generation systems*, 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– withdrawn, or

– revised.

# INTRODUCTION

The purpose of this document is to define the framework conditions of decommissioning and preparation for recycling of wind turbines, which includes the tasks and considerations of each of the steps of the process. The objective is to provide basic high-level information on the sustainable and efficient decommissioning and dismantling arrangements for wind turbines.

This document can be used by manufacturers, asset owners, governments, operators, recyclers and personnel involved in the decommissioning and preparation for recycling of wind turbines.

## 1 Scope

The scope of this part of IEC TS 61400-28-2 is the decommissioning and preparation for recycling of wind turbines.

This scope includes all the tasks and on-site considerations of the different process steps, from the beginning of the dismantling phase, material preparation and arrangement, and preparation for shipment to re-using or recycling facilities. Wind turbines in the context of this document include blades, hubs, nacelles, towers, foundations, generators, gearboxes, cables, electrical equipment, transformers, and any other equipment that can be dismantled from wind turbines and not listed before.

This document does not cover the offshore wind farms, balance of wind plants or actual re-use or recycling methods, which will be an industry on its own and driven by its own legal, environmental and economic forces. Balance of wind plants here includes roads, drainage, cabling to substation and grid, maintenance/spare part facility, civil and electrical substation or meteorological mast.

## 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 61400-1, *Wind energy generation systems - Part 1: Design requirements*

IEC TS 61400-28:2025, *Through-life management and life extension of wind power assets*

IEC TS 61400-30:2023, *Safety of wind turbine generators - General principles for design*

IEC Guide 109:2012, *Environmental aspects - Inclusion in electrotechnical product standards*

ISO 13315-1:2024, *Environmental management for concrete and concrete structures - Part 1: General principles*

ISO 13857:2019, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs*

ISO 22450:2020, *Recycling of rare earth elements - Requirements for providing information on industrial waste and end-of-life products*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

– IEC Electropedia: available at https://www.electropedia.org/
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