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IEC 61400-21-1: 2019

DRAFT TANZANIA STANDARD

(Draft for comments only)

Wind energy generation systems - Part 21-1: Measurement and assessment of electrical characteristics - Wind turbines

Draft for Stakeholders Comments

TANZANIA BUREAU OF STANDARDS

0 National Foreword

This draft Tanzania Standard is being prepared by the Renewable Energy Technical Committee, under the supervision of the Electrotechnical Divisional Standards Committee (EDC)

This draft Tanzania Standard is an adoption of the International Standard **IEC 61400-21-1:2019**, *Wind energy generation systems - Part 21-1: Measurement and assessment of electrical characteristics - Wind turbines*, which has been prepared by the International Electrotechnical Commission (IEC).

Terminology and conventions

Some terminologies and certain conventions are not identical with those used in Tanzania Standards; Attention is drawn especially to the following:

- 1) The comma has been used as a decimal marker for metric dimensions. In Tanzania Standards, it is current practice to use “full point” on the baseline as the decimal marker.
- 2) Where the words “International Standard(s)” appear, referring to this standard they should read “Tanzania Standard(s)”.

Draft for Stakeholders Comments

3. Scope

This draft Tanzania Standard includes:

- definition and specification of the quantities to be determined for characterizing the electrical characteristics of a grid-connected wind turbine;
- measurement procedures for quantifying the electrical characteristics;
- procedures for assessing compliance with electrical connection requirements, including estimation of the power quality expected from the wind turbine type when deployed at a specific site.

The measurement procedures are valid for single wind turbines with a three-phase grid connection. The measurement procedures are valid for any size of wind turbine, though this part draft Tanzania standard only requires wind turbine types intended for connection to an electricity supply network to be tested and characterized as specified in this standard.

The measured characteristics are valid for the specific configuration and operational mode of the assessed wind turbine product platform. If a measured property is based on control parameters and the behavior of the wind turbine can be changed for this property, it is stated in the test report. Example: Grid protection, where the disconnect level is based on a parameter and the test only verifies the proper functioning of the protection, not the specific level.

The measurement procedures are designed to be as non-site-specific as possible, so that electrical characteristics measured at for example a test site can be considered representative for other sites.

The procedures for assessing electrical characteristics are valid for wind turbines with the connection to the PCC in power systems with stable grid frequency.

NOTE For the purposes of this document, the following terms for system voltage apply:

- ✓ Low voltage (LV) refers to $U_n \leq 1 \text{ kV}$;
- ✓ Medium voltage (MV) refers to $1 \text{ kV} < U_n \leq 35 \text{ kV}$;
- ✓ High voltage (HV) refers to $35 \text{ kV} < U_n \leq 220 \text{ kV}$;
- ✓ Extra high voltage (EHV) refers to $U_n > 220 \text{ kV}$

