

Grid integration and grid connection properties of power generating units (PGU) and power generating plants (PGP)

Designation	Title	Rev. Nr.	Rev. Date	Flexible?
FGW TR 8	Certification of the Electrical Characteristics of Power Generating Units, Systems and Storage Systems as well as for their Components to the Grid	4	10.2010	<input checked="" type="checkbox"/>
		5	07.2011	<input checked="" type="checkbox"/>
		6	05.2013	<input checked="" type="checkbox"/>
		Anh. H	09.2014	<input checked="" type="checkbox"/>
		7	03.2016	<input checked="" type="checkbox"/>
		8	12.2016	<input checked="" type="checkbox"/>
		9	02.2019	<input checked="" type="checkbox"/>
In conjunction with the above mentioned certification programs:				
FGW TR 4	Demands on Modelling and Validating Simulation Models of the Electrical characteristics of Power Generating Units and Systems, Storage Systems as well as for their Components	5	03.2010	<input checked="" type="checkbox"/>
		6	05.2013	<input checked="" type="checkbox"/>
		7	04.2014	<input checked="" type="checkbox"/>
		8	03.2016	<input checked="" type="checkbox"/>
FGW TR 3	Determination of electrical characteristic of power generating units and systems connected on the medium, high and extra-high voltage grids	24	03.2016	<input checked="" type="checkbox"/>
		25	09.2018	<input checked="" type="checkbox"/>
VDE-AR-N 4105	Generators connected to the low-voltage distribution network Technical requirements for the connection to and parallel operation with low-voltage distribution networks		08.2011	<input checked="" type="checkbox"/>
			11.2018	<input checked="" type="checkbox"/>
CEI 0-16	Norma Italiana CEI 0-16 ed. 3, Reference technical rules for the connection of active and passive consumers to the HV and MV electrical networks of distribution Company	3	12.2012	<input checked="" type="checkbox"/>
		Erg. 1	12.2013	<input checked="" type="checkbox"/>
		Erg. 2	12.2014	<input checked="" type="checkbox"/>
12/X/STD (CONN)/GM/CEA	12/X/STD(CONN)/GM/CEA, Central Electricity Authority (Technical Standards of Connectivity to the Grid) Amendment		02.2019	<input checked="" type="checkbox"/>
DIN EN 50160	Voltage characteristics of electricity supplied by public distribution networks		02.2011	<input checked="" type="checkbox"/>

VDE V 0124-100	Grid integration of generator plants - Low voltage – Test requirements for generator units to be connected to and operated in parallel with low-voltage distribution networks		07.2012	<input checked="" type="checkbox"/>
			06.2020	<input checked="" type="checkbox"/>
BDEW-MSR	Technical Guideline "Generating plants to the medium-voltage network" Guideline for generating plants' connection to and parallel operation with the medium-voltage network; Status: June 2008 edition; with additions by the FNN Spring 2009 Ed.: BDEW and with 2nd supplement of July 2010 and 3rd supplement	3. Ergänzung	02.2011	<input checked="" type="checkbox"/>
FNN VDE	Set of specifications for directional reactive power and undervoltage protection, Issue February 2010		02.2010	<input checked="" type="checkbox"/>
SDLWindV	Ordinance on System services by wind energy plants (Systemdienstleistungsverordnung- SDLWindV); As of July 3, 2009, Federal Law Gazette 2009, Part I No. 39, Ed.: BMU		07.2009	<input checked="" type="checkbox"/>
TC2007	Transmission Code 2007; Status: August 2007, Ed.:VDN		08.2007	<input checked="" type="checkbox"/>
VDE-AE-N 4120 TAB	Technical requirements for the connection and operation of customer installations to the high voltage network		01.2015	<input checked="" type="checkbox"/>
VDE-AR-N 4120 TAR	Technical requirements for the connection and operation of customer installations to the high voltage network (TAR high voltage)		11.2018	<input checked="" type="checkbox"/>
VDE-AR-N 4110 TAR	Technical requirements for the connection and operation of customer installations to the medium voltage network (TAR medium voltage)		11.2018	<input checked="" type="checkbox"/>
VDN Richtlinie	VDN Guideline for Digital Protection Systems, 1st edition 2003, VDN Association of system Operators VDN e.V. at the VDEW		01.2003	<input checked="" type="checkbox"/>

IEC 61400-21	Wind Turbines – Part 21: Measurement and assessment of power quality characteristics of grid connected wind turbines	2	08.2008	<input checked="" type="checkbox"/>
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Type and project certification of onshore and offshore wind turbines and their components as well as small wind turbines

Designation	Title	Rev. Nr.	Rev. Date	Flexible?
IEC WT 01	System for conformity testing and certification of wind turbines: Rules and procedures	1	04.2001	<input checked="" type="checkbox"/>
IS/IEC 61400-22	Wind Turbines – Part 22: Conformity testing and certification	1	05.2010	<input checked="" type="checkbox"/>
IS/IEC 61400-22	Wind Turbines – Part 22: Conformity testing and certification	1	05.2010	<input checked="" type="checkbox"/>
IECRE OD-501	IECRE Operational document: Type and component certification scheme	1	05.2018	<input checked="" type="checkbox"/>
IECRE OD-502	IECRE Operational document: Project certification scheme	1	10.2018	<input checked="" type="checkbox"/>
DNVGL-SE 0441	Type and component certification of wind turbines	1	06.2016	<input checked="" type="checkbox"/>
DNVGL-SE 0190	Project certification of wind power plants	1	12.2015	<input checked="" type="checkbox"/>
DNVGL-SE 0073	Project certification of wind farms according to IEC 61400-22	1	12.2014	<input checked="" type="checkbox"/>
BEK Nr 73	Danish Energy Agency / Energistyrelsen 2013-01 Bekendtgørelse number 73, “Bekendtgørelse om teknisk certificeringsordning for vindmøller” (Erlass über ein technisches Zertifizierungsschema für Windenergieanlagen)	6	05.2013	<input checked="" type="checkbox"/>
GL-IV-1	Germanischer Lloyd Rules and Guidelines-IV- Industrial Services: Part 1 - Guideline for the Certification of Wind Turbines	7	10.2010	<input checked="" type="checkbox"/>
GL-IV-2	Germanischer Lloyd Rules and Guidelines IV: Part 2 – Guideline for the certification of offshore wind turbines	5	12.2012	<input checked="" type="checkbox"/>
BSH Standard 7005	Minimum requirements concerning the constructive design of offshore structures within the Exclusive Economic Zone (EEZ)	1	12.2015	<input checked="" type="checkbox"/>

MCS 006	Product Certification Scheme Requirements: Micro and Small Wind Turbines, DECC UK	7	07.2009	<input checked="" type="checkbox"/>
MCS 010	Product Certification Scheme Requirements: Factory Production Control Requirements DECC UK	8	02.2009	<input checked="" type="checkbox"/>
MCS 011	Product Certification Scheme Requirements: Acceptance Criteria for Testing Required for Product Certification, DECC, UK	?	01.2009	<input checked="" type="checkbox"/>
In conjunction with the above mentioned certification programs:				
IEC 61400-1	Wind Turbines - Part 1: Safety Requirements	3	08.2005	<input checked="" type="checkbox"/>
		3-am1	10.2010	<input checked="" type="checkbox"/>
IEC 61400-2	Wind Turbines - Part 2: Small wind turbines	3	12.2013	<input checked="" type="checkbox"/>
IEC61400-3	Wind Turbines – Part 3: Design requirements for offshore wind turbines	1	02.2009	<input checked="" type="checkbox"/>
IEC 61400-4	Wind Turbines – Part 4: Design requirements for wind turbine gearboxes	1	12.2012	<input checked="" type="checkbox"/>
IEC 61400-24	Wind Turbines – Part 24: Lightning protection	1	06.2010	<input checked="" type="checkbox"/>
DIBt 2012	German institute for structural engineering: Guideline for wind turbines, impacts and proof of structural integrity for tower and foundation. Schriften des Deutschen Instituts für Bautechnik, Reihe B, Heft 8		01.2012	<input checked="" type="checkbox"/>
DNV-OS-J101	Design of offshore wind turbine structures		01.2013	<input checked="" type="checkbox"/>
DIN EN 50308 VDE 0127-100	Wind turbines- Protective measures – Requirements for construction, operation and maintenance		12.2008	<input checked="" type="checkbox"/>
GL Wind TN 67	GL Wind Technical Note 067: Certification of wind turbines for extreme temperature	5	05.2013	<input checked="" type="checkbox"/>

Certification of condition monitoring systems of onshore and offshore wind turbines

Designation	Title	Rev. Nr.	Rev. Date	Flexible?
DNVGL-SE 0439	Certification of condition monitoring systems of onshore and offshore wind turbines	1	01.2016	<input checked="" type="checkbox"/>
GL-IV-4	Germanischer Lloyd Rules and Guidelines IV: Part 4 – Guideline for the certification of condition monitoring systems for wind turbines	1	04.2013	<input checked="" type="checkbox"/>

Certification of the continued operation of wind turbines

Designation	Title	Rev. Nr.	Rev. Date	Flexible?
DNVGL-SE 0263	Certification of lifetime extension of wind turbines	1	03.2016	<input checked="" type="checkbox"/>
GL-IV-1, Kapitel 12	Germanischer Lloyd Regulations and Directives-IV-Industrial services: Part 1, Chapter 12 - Guideline for the continued operation of wind turbines		01.2009	<input checked="" type="checkbox"/>
In conjunction with the above mentioned certification programs:				
DIBt 2012	German institute for structural engineering: Guideline for wind turbines, impacts and proof of structural integrity for tower and foundation. Schriften des Deutschen Instituts für Bautechnik, Reihe B, Heft 8		01.2012	<input checked="" type="checkbox"/>
DNVGL-ST 0262	Lifetime extension of wind turbines	1	03.2016	<input checked="" type="checkbox"/>