

Introduction on Certification and Testing of Wind Turbine in China

China General Certification Center (CGC)

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Zhang Yu

- Who's CGC
- Certification requirements and standards.
- Grid connection requirements
- Trends.



Who's CGC



More than A Certificate

- Accredited since 2008 by China National Accreditation Service for Conformity Assessment (CNAS) - a IAF member
- For wind turbine certification and type testing.
- According to IEC standards.



◎ 鉴衡认证中心 China General Certification Center
使认证创造价值 Creating Values Through Certification

Who's CGC

We focus on



Wind



Solar



Energy



Bio-energy



Low-carbon

For wind energy we provide:

- Standards Development
- Certification
- Testing
- Industry Study & Consulting
- Wind farm services (due diligence etc.)
- Training

- Founded in 2003 with the authorization of the government
- Earliest and biggest in wind
- Named as National Energy Lab for Wind & Solar Simulation, Testing & Certification
- Located in Beijing with 130+ employees.
- IEC TC 88 and CAC CBC member.

整机测试 Wind Turbines Testing :

- 功率特性 Power performance measurement
- 电能质量 Power quality measurement
- 载荷 Mechanical load measurement
- 噪声 Acoustic noise measurement

部件测试 Component Testing :

Rotor blade test facility:

- Static testing and Fatigue testing
- The blade length up to 100m
- Blade Material testing
- Generator, bearing and drive chain testing facility (under construction)



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Certification requirements in China



- IEC series standards
- Not compulsory
- Required by all the developers
- Design evaluation will do currently
- International certificate recognition well implemented

Main standards comparing with IEC

■ Main references for wind turbines :

IEC WT01, 2001	<i>System for Conformity Testing and Certification of Wind Turbines. Rules and procedures.</i>	GB/Z 25458-2010, NEQ
IEC 61400-22 Edition 1.0 2010-05	<i>Wind turbine-Part 22:Conformity testing and certification</i>	-
IEC 61400-1 Second Edition 1999-02	<i>Wind Turbine Generator Systems-Part1: Safety Requirements</i>	GB 18451.1-2001, IDT
IEC 61400-1 Third Edition 2005-08	<i>Wind Turbines-Part1: Design Requirements</i>	GB/T 18451.1-2012, IDT
IEC 61400-2 Second Edition 2006-03	<i>Wind Turbines-Part2: Design Requirements for Small Wind Turbines</i>	GB/T xxxxx-xxxx, IDT(just approved)
IEC 61400-3 First Edition 2009-02	<i>Wind Turbines-Part3: Design Requirements for Offshore Wind Turbines</i>	GB/T 18451.3-xxxx, IDT (Progressing)

Main standards comparing with IEC



More than A Certificate

■ Main references for wind turbines :

IEC 61400-11 Consolidated Edition 2.1 (incl. am1) 2006-11	<i>Wind Turbine Generator Systems-Part 11: Acoustic Noise Measurement Techniques</i>	GB/T 22516 – 2008, IDT
IEC 61400-12-1 First Edition 2005-12	<i>Wind Turbines-Part 12-1: Power Performance Measurements of Electricity Producing Wind Turbines</i>	GB/T 18451.2-2012, IDT
IEC TS 61400-13 First Edition 2001-06	<i>Wind Turbines Generator Systems-Part 13: Measurements of Mechanical Loads</i>	GB/Z 25426 – 2010, MOD
IEC 61400-21 Third Edition 2008-08	<i>Wind Turbines-Part 21: Measurement and Assessment of Power Quality Characteristics of Grid Connected Wind Turbines</i>	GB/T 20320-xxxx, IDT (just approved)
IEC TS 61400-23 First Edition 2001-04	<i>Wind Turbines Generator Systems-Part 23: Full-scale Structural Testing of Rotor Blades</i>	GB/T 25384 – 2010, MOD

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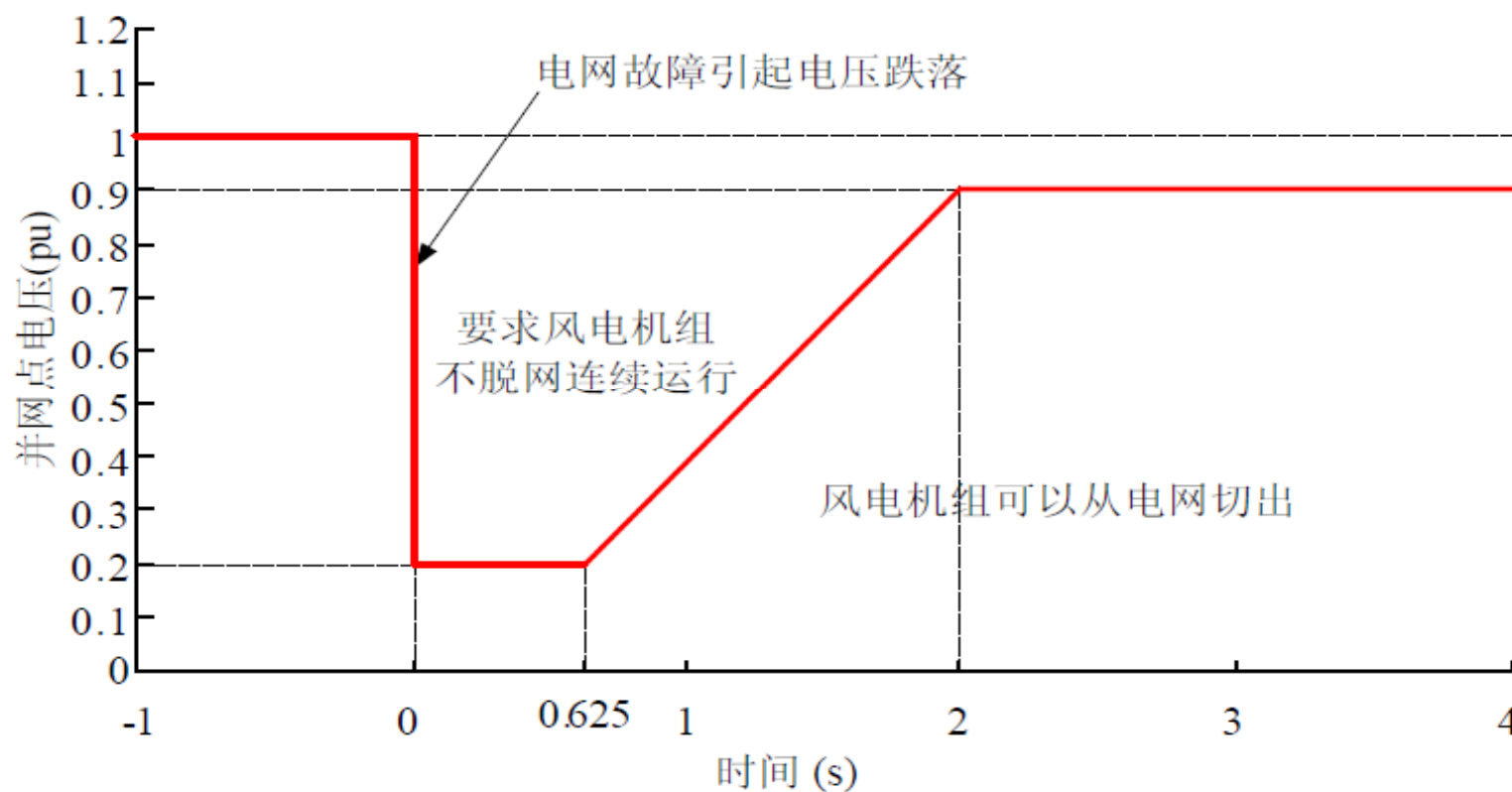
Situation

- Temporarily required by the government
- Work scope under discussion
- For the moment Power Quality, LVRT & Active/reactive power performance testing are required (by the end of 2014)
- Test labs: CEPRI and CGC

- IEC 61400-21-2008 Wind turbines - Part 21 Measurement and assessment of power quality characteristics of grid connected wind turbines
- GB/T 19963-2011 《Technical rule for connecting wind farm to power system》
- Q/GDW 392-2009 《 Technical Rule for connecting wind farm into power grid》

Requirements of LVRT

Basic requirements in GB/T 19963-2011

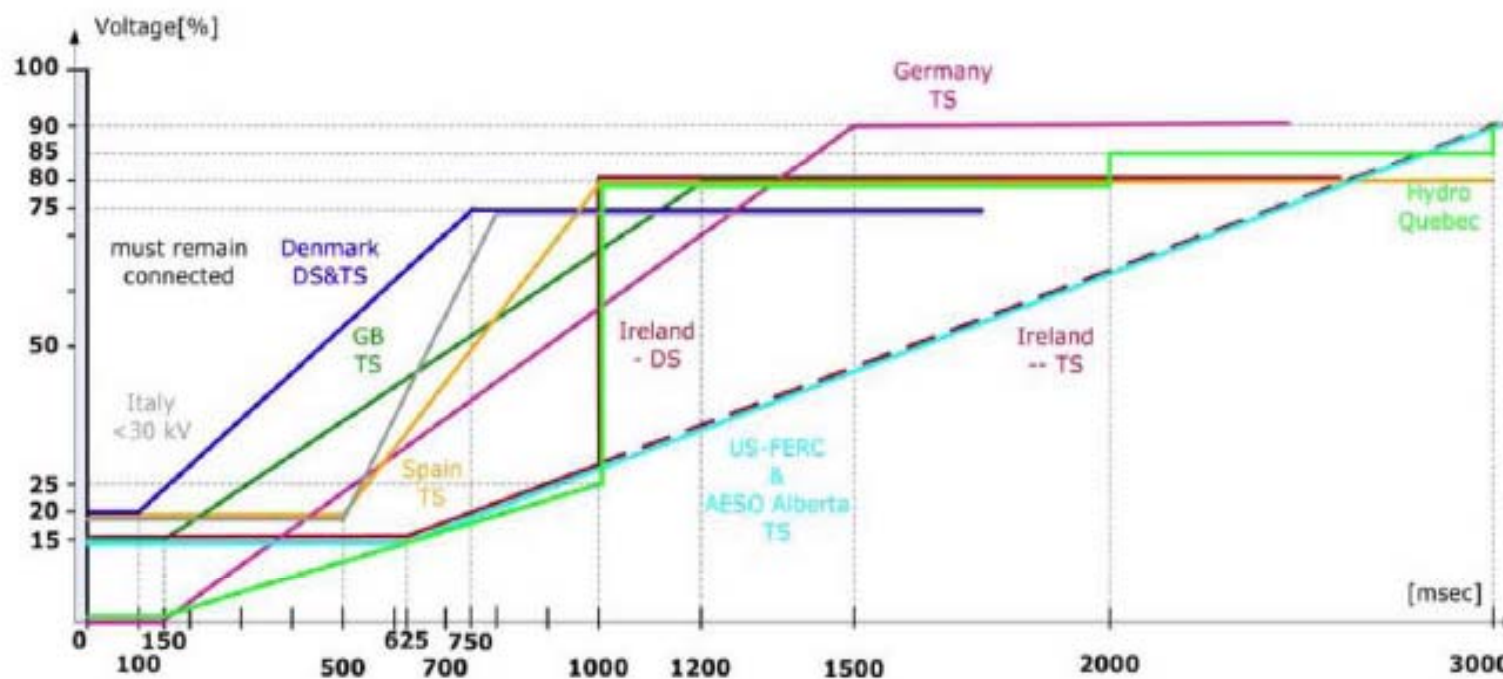


Requirements of LVRT



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Worldwide requirements



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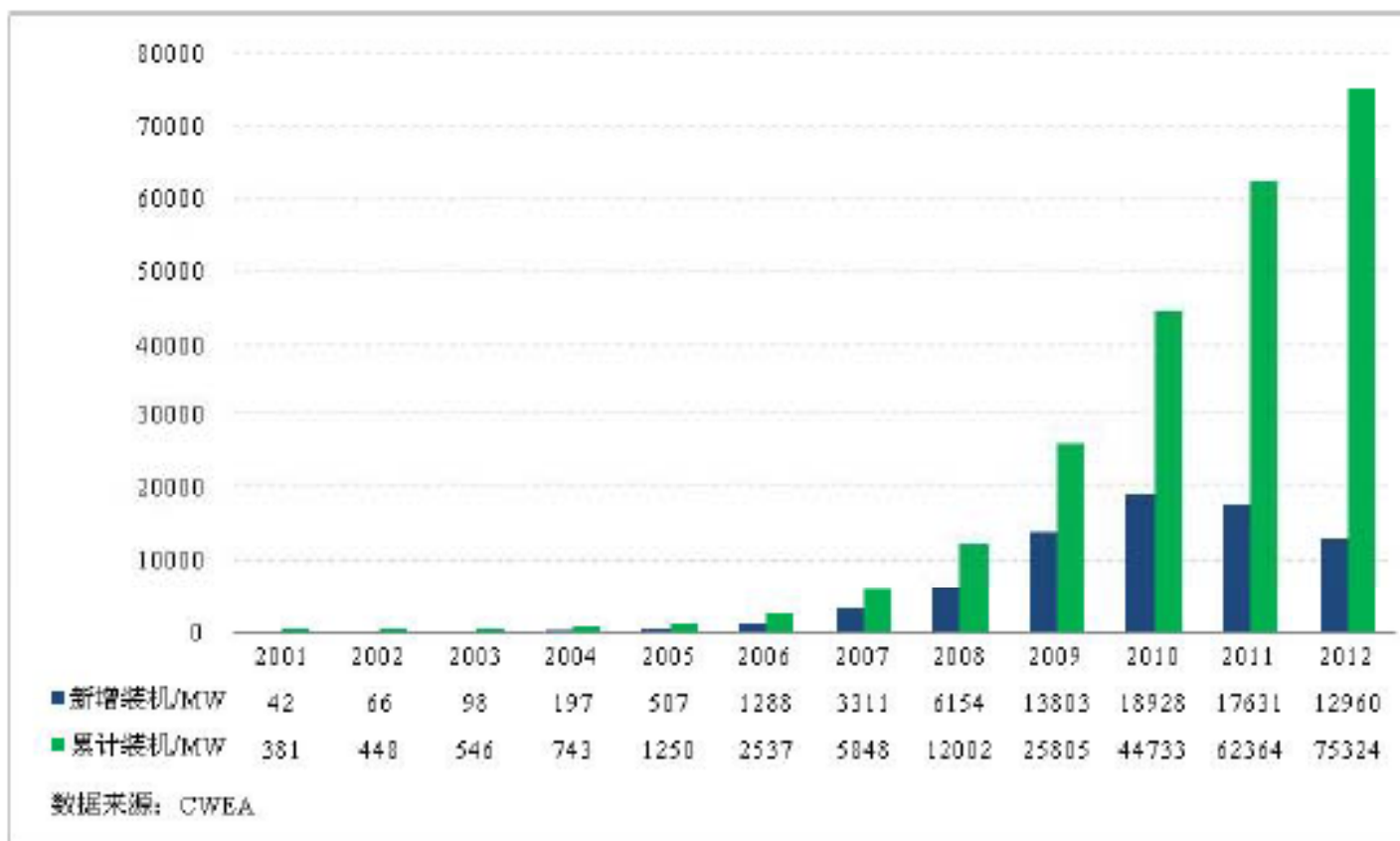


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Wind energy development in China



Wind energy development in China

- Plan of installation by the government (Sep, 2012)
- Unit: GW
- 2012 data from CGC

Year	2012	2015	2020
Onshore	74.9	99	170
Offshore	0.39	5	30
Total	75.3	104	200
Wind percentage	2%	3%	5%

National Standards

- New national standards are being developing
- As supplements to cover common environmental condition which the IEC standards don't. such as,
 - Low temperature;
 - High altitude;
 - Typhoon condition.
- No conflicts with existing IEC standards

Certification and other

- Type Certification will be required by the market
- Site-specific assessment may be demanded
- Requirements of grid connection will be finalized
- Wind power plants performance may be surveyed and data will be collected by a national supervisory center



Thank you

**China General Certification Centre (CGC)
Zhang Yu**

**Email: zhangyu@cgc.org.cn
Tel: +86 10 5979 6665ext.3111
Fax: +86 10 6422 8215
www.cgc.org.cn**