[Document reference]

BUSINESS PLAN

CENELEC/TC or SC	Secretariat	Date
88	Turkey	2022-07-04

Please ensure this form is annexed to the TC Report to the CENELEC Technical Board if it has been prepared during a meeting, or sent to CCMC promptly after its contents have been agreed by the Committee by correspondence.

TC or SC title: Wind turbines

A Background

The CENELEC Technical Committee 88 started its work as BTTF 83-2 and became a Technical Committee in 2001. Since then the European committee has agreed to meet regularly on a yearly basis.

The scope of CLC/TC 88 is the standardisation in the field of wind energy generation systems including wind turbines, wind power plants onshore and offshore and interaction with the electrical system(s) to which energy is supplied. These standards address site suitability and resource assessment, design requirements, engineering integrity, modelling requirements, measurement techniques, test procedures, operation and maintenance. Their purpose is to provide a basis for design, quality assurance and technical aspects for certification. The standards address site-specific conditions, all systems and subsystems of wind turbines and wind power plants, such as mechanical, and electrical systems, support structures, control and protection as well as communication systems for monitoring, centralised and distributed control and evaluation, implementation of grid connection requirements for wind power plants, and environmental aspects of wind power development. The CLC/TC 88 standards will be developed based on and in agreement with appropriate EN/IEC/ISO standards.

Furthermore, CLC/TC 88 activities are developed in order to achieve standards complying with national legislation but meeting European legislation and market needs, thus avoiding "barriers" within Europe in this time of expansion. The role of CLC/TC 88 is also intended at the supervision of IEC standardization activities during the preparation phase, just to adopt timely the standards which are necessary but complying with EU Directives.

B Business Environment

B.1 General

Wind energy has become the most cost effective new renewable energy source. Many reports show it being the lowest cost of any new installed energy.
The top five countries with new installed capacity are China, USA, Germany, Brazil and India.
Offshore wind energy is predominantly installed in Europe where more than 80% of all offshore wind is located. Although an emerging market it currently only represents a few percent of the overall installed capacity worldwide. China, Japan, South Korea and USA have released plans for significant deployment of offshore wind in the near future.

Reliability has increased dramatically but still needs to improve to reduce the cost of onshore and offshore energy.

Many countries are establishing grid interconnection and integration rules to facilitate grid stability as renewable energy increases penetration, especially locally. In general grid operators have been able to manage the new generation as long as the new offerings meet their interconnection requirements and can operate according to newly established integration rules.

B.2 Market demand

Almost all (multi-)megawatt scale turbines are now certified. Certification of major components has become common. IEC standards have become the basis for many of the certifications with significant content added from local national standards or private certification body guidelines.
Standards are used by the OEM's (Original Equipment Manufacturers) and consultants for design, testing laboratories for testing, Certification bodies for conformity assessment and certification and end user to reduce risk in the performance of the wind plants.

In several countries, compliance with the IEC standards, ideally through certification, are referred to in order to obtain building permit or incentives.

B.3 Trends in technology

Wind turbine suppliers are actively exploring technology updates to their existing product lines. Almost all are offering larger turbines to meet market demands. The average size turbines are greater than 2,5 MW with rotors larger than 100 m in diameter. Offshore turbines are trending towards 10 MW ratings with 15 MW turbines under design. R&D is beginning to focus on technologies that will allow larger turbines still.
As a result, transportation and installation has become a significant part of the cost of energy. Thus some R&D is focused on components that can be shipped in smaller loads and field assembled or manufacturing of large components on site.
Most OEMs operate internationally with design offices and manufacturing in multiple countries. Local manufacturing enables local content and reduced transportation costs.
A few new companies are exploring airborne wind turbines. If shown feasible this technology would require a specific set of standards to address their unique features.
The most recent trend is to have increased amount of turbine models available with different rotor sizes based on the same "platform", this leads to a better ability to tailor the wind turbine design to the local wind conditions even inside a wind plant.

B.4 Market trends

The major trend in turbine development continues to be increased size and rating for offshore installation – fixed or floating. Increase in variable-speed operation and the use of direct-drive generators are also noteworthy. Utilities are becoming more sophisticated in their ability to accommodate large penetrations of wind.

B.5 Ecological environment

The impact on the environment is virtually limited to noise and visual intrusion – in the case of offshore, visual intrusion only (in some cases). Significant reduction in the level of noise emission has virtually eliminated noise as an issue. Numerous reports of majorities that support wind farm developments indicate that the obstacle of visual intrusion onshore is diminishing.

B.6 Involvement of societal stakeholders

The stakeholders in the wind energy sector are mainly manufacturers of turbines, installers, designers, various associations, test laboratories, certification bodies, utilities, both government organizations and authorities at national and European level, each of these actors to their expertise and interest. The involvement of such entities is already on an ongoing basis by the standardization activity of the Technical Committees at National and European level, but also through the media. The involvement of the actors is of course pushed by European Directives, related national laws and legislative decrees.

B.7 Involvement of SMEs

Wind turbines are designed, installed and maintained by highly specialised small and medium enterprises (SMEs) and more generic large enterprises. For this reason it seems very appropriate the involvement of these entities in the work of standardization in the various European countries. National Technical Committees should take steps to promote domestic conferences and relevant training courses to encourage a wide participation of SME specialists.

C System approach aspects

There is no additional need for a systems approach. In a sense the wind turbine can already be considered a system, and the wind plant again is a system, TC 88 is able to cover all aspects of those systems. Beyond that wind plants are a part of the electrical energy supply system. To that end TC 8/SC8A and TC 88 have established a liaison.

The liaisons with IEC and ISO Technical Committees represent also an important means for the preparation of standards shared at European and international level. Furthermore, the connections with additional standardization entities (e.g. IEEE, ASTM, ANSI, UL, DNV) could supply a wider perspective to afford the increasingly large problems in wind turbines. Besides that, the involvement of national enterprise associations and national authorities are certainly critical success factors for the development of adequate standards. CLC/TC 88 will actively continue to promote the establishment of liaisons to other committees; cooperation with system committees and beneficial liaisons targeted to new emerging technology committees are in our focus, as well as the development of certification activities on wind turbines (in line with IEC RE).

D Objectives and strategies (3 to 5 years)

Several standards under TC 88 have significantly grown in size with each revision. The teams working on these revisions have also grown in size. It is thus prudent to look at how some of these documents can be split into smaller, easier to maintain documents. However generating more, smaller, documents then results in the need to increase management to manage the interfaces between the different documents. As the industry is maturing, most standards are showing an increased sophistication and refinement of design requirements and testing methods. It is expected that several of TC 88's standards will undergo revision in the next 3-5 years and that new standards will be added as their needs are identified by the national committees.

E Action plan

(see the program of work on the CLC/TC 88 home page for the latest work included in the programme).

Due to the financial restraints and limitations on time for international meetings, it is expected that more homework will be required to the participating experts and that electronic communication will play a much larger role in the work of standard preparation.

Publish all IEC standards, technical specifications and reports in a timely manner.

F Useful links to CENELEC web site

TC home page giving access to Membership, TC/SC Officers, Scope, Publications, Work programme [password-protected area].

https://standards.cencenelec.eu/dyn/www/f?p=305:7:0::::FSP_ORG_ID:1258461

Hacı Mehmet Akyar