STRATEGIC BUSINESS PLAN (SBP)

IEC/TC or SC	Secretariat	Date
TC 33	Italy	November 2012

Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

Title of TC
Power capacitors and their applications

A Background

Technical Committee N° 33 was formed in 1946.
The title and scope of TC 33 have been recently modified and the scope is defined as:
“To prepare International Standards for power capacitors and their applications”.
The responsibility of TC 33 is therefore to fulfil the requirements of the scope by issuing up to date standards.
The co-operation between IEC and CENELEC has made this more important. In practice, all of IEC standards regarding power capacitors and their applications have been adopted by CENELEC without modifications.
For the development of the technology, co-operation with CIGRE and IEEE is continuing.
Working groups
a) WG 3: Revision of IEC 60252 (AC motor capacitors);
b) WG 13: Series capacitors banks and protective equipment;
c) JWG 17A-(TC 33/SC 17A): Grading capacitors;
d) JWG 22F- (TC 33/SC 22F): Thyristor controlled series capacitors;
Maintenance teams
1. MT 18: Maintenance of IEC 61071 (Power electronic capacitors);
2. MT 19: Maintenance of IEC 60871 (Shunt capacitors for a.c. power systems having a rated voltage above 1000 V) and 61270 (Capacitors for microwave ovens)
3. MT 20: Maintenance of IEC 60358 (Coupling capacitors and capacitor dividers).
4. MT 21: Maintenance of IEC 60831 and 60931 (Shunt power capacitors having a rated voltage up to and including 1000 V) and 61921 (Low voltage power factor correction capacitor banks)
The total number of publications issued is 23 (they are listed in Section E).
TC 33 is currently developing 4 projects.
Liaisons
1. Cooperation with SC 17A: JWG SC 17A (TC 33/SC 17A): Grading capacitors.
2. Cooperation with SC 22F: JWG SC 22F (TC 33/SC 22F): Thyristor controlled series capacitors.

B Business Environment

B.1 General

The most important development on business environment during the last years has been the increasing participation of “new” countries to the works of TC33. China, India and Brazil are showing activity in comments to circulating documents and new works proposals

B.2 Market demand

The most important application of power capacitors is for power factor correction. In this application, the capacitors are connected in parallel or series to low voltage or high voltage networks. The relevant IEC standards are IEC 60831, IEC 61921, IEC 60871 and 60143.
Shunt power capacitors for network use can also meet the increased demand for the reduction of transient and , if in a filter circuit, of harmonics and, if switched in a controlled manner (e.g. electronically), they can stabilize and improve the use of the network.
Series power capacitors stabilize the transmission voltage, increase the transmitted power of the lines and control the powerflow in parallel lines.

Other important applications for power capacitors are: capacitors for a.c. motors (IEC 60252), capacitors for power electronics (IEC 61071), coupling capacitors and capacitors dividers for capacitor voltage transformers (IEC 60358), capacitors for microwave ovens(IEC 61270) and capacitors for induction heating and melting ovens (IEC 60110).
The customers of IEC standards regarding power capacitors connected to high voltage networks are prevalently great companies which produce and/or distribute electrical energy. Some of these larger companies are represented in the TC and/or in its JWG's; collaboration with users in development of standards for motor capacitors has been achieved through exchange of comments with TC 51.
The customers of IEC standards regarding other applications are generally but not always (i.e. domestic appliances manufacturers) small companies; their representation in the TC is quite problematic. Liaison with users committees are useful and necessary.
The IEC standards are widely used at the regional and national level. In practice they do not have important competing standards. The parallel voting system with CENELEC has had as a consequence the identity of IEC and EN Standards in the field of activity of TC 33.
New standards will be issued in the near future: the standard for grading capacitors and the standard for thyristor controlled series capacitors. Other proposals are in the table for Power filters and in general for power factor correction.

B.3 Trends in technology

The development of the dielectric and other components and materials, the knowledge of how to protect the capacitors and how to reduce the consequences in case of a failure have, during the last decades, resulted in smaller, more economical and more reliable capacitors.
Safety and environmental aspects, reliability, accuracy, predicted life time and electromagnetic compatibility of the capacitors have been addressed during recent years and will continue to be very important in the future activity.
The latest developments in the technology of film metallization have given much work to the Maintenance Teams of TC33 in the continuous effort to update standards.

B.4 Market trends

Power factor correction, expecially high voltage, is an important and growing part of the market of power capacitors, specially in rapid developing countries. The market for power electrononics capacitors is also increasing due to the use more and more important of electric vehicles able to reduce pollution in large cities. In contrary, the market of capacitors for fluorescent lamps is rapidly decreasing against the use of electronic ballasts. The market of motor capacitors is nearly stable: in fornt of a decrease in some applications, there is an increase in others.

B.5 Ecological environment

TC 33 standards, when opportune, prescribe precaution to be taken to avoid pollution of the environment by products contained in capacitors. Particular prescriptions have been given for polychlorinated biphenyls which were largely used in the past as impregnant.

C System approach aspects

Collaboration with users is an important matter of fact: TC 33 has correntlly established joint working groups with SC 22F and SC 17A and there are some experts of TC33 collaborating with TC 9, SC34 C and TC 61.

D Objectives and strategies (3 to 5 years)

Over a longer perspective, TC 33 foresee the following:
1. Greater demand for tests providing evidence of an undisturbed and defined lifetime of capacitors.
2. As the application of power electronics becomes more widespread, the committee will ensure that relevant standards are reviewed and updated as necessary to ensure that they meet the needs of the changing market requirements.
3. The strong increase of power generation and distribution mainly in new developing countries is requiring a large use of power factor correction capacitors and banks, both in high and in low voltage. This will maybe demand a revision of the relevant standards.

E Action plan

The work in the near future consists of the development of the subjects contained in the programme of work. Attention should be drawn to the increased number of Maintenance Teams: many standards need to be updated due to the recent developments in the field of metallized film technology.

F Useful links to IEC web site

TC 33 dashboard giving access to Membership, TC/SC Officers, Scope, Liaisons, WG/MT/PT structure, Publications issued and Work and Maintenance Programmes and similar information for SCs, if any.

Name or signature of the secretary

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