**STRATEGIC POLICY STATEMENT**

| IEC/TC or SC | Secretariat | Date |
|---|---|---|
| TC8 | Italy | 2008-01-18 |

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
SYSTEM ASPECTS OF ELECTRICAL ENERGY SUPPLY

**A. Background**

IEC formed a task force to look into standardization possibilities as a consequence of the liberalization of the energy market. IEC decided then to reorganize an existing TC8 with the purpose to analyze electricity sector evolution in the IEC member markets and take the necessary initiatives to ***create and maintain a system approach covering the whole electricity supply chain from production at various levels down to the utilization at the customer level***.

TC8 has been chartered to team with other IEC Technical Committees in order to comprehensively and consistently make a difference regarding the challenges of the electricity supply markets that are undergoing fundamental changes.

The present SPS is the result of subsequent submissions to SMB over the past years (Montreal Oct 2003, Paris Nov 2004, Rome Dec. 2006).

**TC8 scope**

To prepare and coordinate, in co-operation with other TC/SCs, the development of international standards and other deliverables with emphasis on overall system aspects of electricity supply systems and acceptable balance between cost and quality for the users of electrical energy. Electricity supply system encompasses transmission and distribution networks and connected user installations (generators and loads) with their network interfaces.

The following list contains a couple of examples on system related aspects and elements belonging to the overall process of electricity supply. The purpose of this non-exhaustive list is to illustrate, in which fields expertise is required within TC8, in order to enable the committee to properly fulfil its given task. It is not meant to be a list of items to be standardised.
Examples for main system aspects to be taken into account are the following:

***Terminology***
***Electrical system reliability***
- planning,
- operating limits (capability),
- adequacy,
- system security,

***Connection practices***
- generators,
- loads,
- system characteristics
- system planning data (different opportunities for connection),

***Operation***
- load/generation balance,
- protection and control,
- fault management,
- contingency planning,
- management of abnormal and emergency conditions (black-out, islanding)

– measurement and monitoring

***Network responsibility***
– operational safety,
– security.

***Metering***

***Data exchange and balancing***
– data acquisition and aggregation,
– settlement,
– exchange of data, identification schemes,
– billing,
– load profiles.

***Communication***
– operational safety,
– security.

***Charging mechanisms for use of public supply systems***

***Outsourcing of network related services***

***Characteristics of energy supply***
- Nominal values and ranges of variation of voltages, currents and frequencies of generation, transmission, distribution and utilisation systems.
- Parameters defining characteristics of energy supplied (continuity, voltage dips, over/under voltages, voltage unbalance, voltage fluctuations, harmonics, inter-harmonics) at the interfaces between HV, MV and LV networks and their users (system operators, generators and consumers).

**Ad Hoc Groups, Working Groups, Maintenance Teams and Project Teams**
*AHG 1: "Working method of TC8"* (disbanded)
*AHG 2: "Connection to electricity supply systems"* (disbanded)
AHG 3: "Characteristics of energy supplied"
*AHG4 "Publicly Available Specification projects"* (disbanded)
AHG5 "HVDC system aspects"
WG 1: "Terminology"
WG 2: "HV systems and transmission aspects"
WG3 " MV-LV systems and distribution aspects"
MT 1: "Maintenance of the standards IEC 60038 , IEC 60059 and IEC 60196 "
PT 1: "Connection of distributed generation to distribution network"

**Chairman Advisory Group**
CAG members are TC8 officiers and WG/PT/MT convenors. The scope is to define TC8 work program and strategy as well as evaluate new PAS proposals

**Liaisons**:
IEC/TC1, TC3, TC 9, TC 13, TC 17, TC 22, TC 28, TC 57, TC 64, TC65, TC 73, TC 77 and SC77A, TC 82, TC 88, TC 95, TC 99, TC 105, TC 108, TC 109, CISPR as well as other TCs (to be determined).
Cat- D: EPRI-TC8/WG2

**Co-operation via TC 8 WG's or PT's experts with others organizations:**
CENELEC, CIRED, EURELECTRIC, IEEE, IEEJ, NERC, ORGALIME, NAESB, EFET, EICTA, ETSO , Electric Power Research Institute and others including in particular consumers and regulators.
Formal liaisons could be established when needed.

**B. Environment**

**B.1 Business environment**

The electricity supply market is undergoing rapid changes, with many new actors and fundamental changes in processes, replacing a market with vertically integrated monopolies.
The relations between various parties are increasing in complexity. On another hand, in many parts of the world the infrastructures need to be renewed, and generally will grow to meet the demand.

There are many good ideas throughout the world but little or no application. This is due in part by the uncertainty inherent to re-regulation, and the daunting explosion of complexity.

Developments are happening quickly but separately in many technology areas, including communications, computing and sensing. Many types of equipment are becoming standardized. This is a necessity, but it is not sufficient. Putting them together need specific system approaches so that the entire “chain” provides the expected services. And it is necessary to deal with the electrical aspects together with the “intelligence” aspects at the same time.

**B.2 Market demand**

There is a need for standards to support opening the market to new actors, for new forms of business and better conditions for consumers, but at the same time increase the quality and availability, and more generally the dependability of supply. Although a lot of standards are in place or under development, it is necessary to improve the coordination between the existing committees involved and ensure that all necessary system aspects are covered, and develop the flexible framework.
Regulation authorities are interested in consensus documents that assist them to organize their activity, supervise the evolution of the market and make comparisons between operators and between countries. Consensus standards giving clear definitions of the essential characteristics and methods of measurement of the relevant parameters are desirable tools.
Clear and equitable definitions for the connection conditions are needed, for example, for the new forms of power generation and transfer.
There is a general demand for consensus documents and standards that can be a reference to:

- implement harmonized regulatory frameworks;
- specify and design flexible solutions that enable technical and commercial innovation;
- define the essential technical and economical characteristics, and methods of assessment and measurement;
- clarify the conditions to be respected by the different involved parties for fair sharing of responsibilities, and proper operations (power producers, grid operators, distribution network operators, system and equipment manufacturers, suppliers, consumers, authorities, industrial and private users...).

Active participation of representatives of regulating authorities and more generally from all concerned parties including consumers is expected.

**B.3 Trends in technology and trade**

Many energy markets have evolved from monopolistic environment to one with many actors.
New form of generation primarily based on renewable form of energy sources are being developed and are now being introduced into the electricity networks
Allowing a better connection of the end user to markets will allow new services and benefits. It will also allow new operating margins for example implementing demand response mechanisms, and enable energy efficiency to better respect the environment. Standardisation will also foster markets of needed advanced commercial solutions (networks automation, meters…) for the benefits of users.

**B.4 Ecological environment**

**C. Work programme**

**C.1 Current work**

1. WG1 will finalize a CD of part 60050-617 of IEC vocabulary relevant to "Organisation/market of electricity" that will be circulated to NC's. Afterward it will be given to TC1 to be circulated as CDV
2. AHG1, taking care of the comments received on 8/1209/DC, will provide to TC8, within 06-01, an outline of phase 1 tasks required to be undertaken/assigned by TC8 to appropriate WG's or AHG's (existing or to be established).
3. AHG2, taking care of setting up of PT1, is disbanded.
4. AHG3, will update the 8/1206/DC "Standardising the characteristics of electricity" taking care of received comments and will provide it TC8 to be circulated as DTR.
5. PT1 will provide to TC8, within 06-09, a first draft of the technical report relevant to "Current practices for the connection of "non dispatched" distributed generation (10 kW-10 MW) to distribution network (≤ 35 kV)".
6. MT1 will maintain the standards IEC 60038 Ed.6.2, IEC 60059 Ed.2.0 and IEC 60196 Ed.1.0 according with the schedule reported in section E.

**C.2 Resources/infrastructure needed**

Active participation of representatives of regulating authorities and more generally from all concerned parties is expected

**D. Future work**

AHG1 will provide to TC8, within 06-01, an outline of phase 1 tasks required to be undertaken/assigned by TC8 to appropriate WG's or AHG's (existing or to be established).

**E. Maintenance cycle**

| Publication no. | Date of publication | Review date | Maintenance result date | Responsibility (Maintenance Team) |
|---|---|---|---|---|
| **IEC 60038 Ed.6.2** | 02-07 | 06-12 | 2009 | MT1 |
| **IEC 60059 Ed.2** | 99-06 | 06-12 | 2009 | MT1 |
| **IEC 60196 Ed.1** | 65-01 | 06-12 | 2009 | MT1 |

Name or signature of the secretary

G. Valtorta (IT)