



STRATEGIC BUSINESS PLAN (SBP)

IEC/TC or SC TC 57	Secretariat Germany	Date 25.09.2014
------------------------------	-------------------------------	---------------------------

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 system management and associated information exchange

A Background

TC 57 was established in 1964 because of the urgent need to produce international standards in the field of communications between the equipment and systems for the electric power process, including telecontrol, teleprotection and all other telecommunications to control the electric power system.

Having to take into consideration not only equipment aspects, but more and more system aspects, TC 57 changed its title and scope in 1994 and again in 2003.

Today TC 57 standards are a critical subset of standards needed to realize the Smart Grid.

Scope of TC 57:

To prepare international standards for power systems control equipment and systems including EMS (Energy Management Systems), SCADA (Supervisory Control And Data Acquisition), distribution automation, teleprotection, and associated information exchange for real-time and non-real-time information, used in the planning, operation and maintenance of power systems. Power systems management comprises control within control centers, substations and individual pieces of primary equipment including telecontrol and interfaces to equipment, systems and databases, which may be outside the scope of TC 57.

The special conditions in a high voltage environment have to be taken into consideration.

Note 1: Standards prepared by other technical committees of the IEC and organizations such as ITU and ISO shall be used where applicable, as far as these standards or specifications fit consistently to TC57 communication architecture.

Note 2: Although the work of TC 57 is chiefly concerned with standards for electric power systems, these standards may also be useful for application by the relevant bodies to other geographical widespread processes.

Note 3: Whereas standards related to measuring and protection relays and to the control and monitoring equipment used with these systems are treated by TC 95, TC 57 deals with the interface to the control systems and the transmission aspects for teleprotection systems. Whereas standards related to equipment for electrical metering and load control are treated by TC 13, TC 57 deals with the interface of equipment for interconnection lines and industrial consumers and producers requiring energy management type interfaces to the control system.

Presently, TC 57 has the following working groups:

- WG 03 Telecontrol protocols
- WG 09 Distribution automation using distribution line carrier systems
- WG 10 Power system IED communication and associated data models
- WG 13 Energy management system application program interface (EMS - API)
- WG 14 System interfaces for distribution management (SIDM)
- WG 15 Data and communication security
- WG 16 Deregulated energy market communications
- WG 17 Communications systems for distributed energy resources (DER)
- WG 18 Hydroelectric power plants – Communication for monitoring and control

- WG 19 Interoperability within TC 57 on long term
- WG 20 Planning of (single-sideband) power line carrier systems
- WG 21 Interfaces and protocol profiles relevant to systems connected to the electrical grid
- AHG 8 IPv6

TC 57 has issued 130 publications and has 58 projects in development.

TC 57 has a broad base of technical expertise coming from 31 participating countries. The individual participation can be found on IEC website.

B Business Environment

B.1 General

The increasing competition among electric utilities due to e.g. the deregulation of the energy markets asks more and more for the integration of equipment and systems for controlling the electric power process into integrated system solutions for supporting the utilities' core processes. Former closed energy management systems will be opened to be able to exchange information with external systems not only for the planning, operation and maintenance of power systems but as well with business systems of system operators to optimize the use of the power system in the energy market. Consumers and distributed generation will increasingly play an active role in the power system management. Therefore equipment and systems have to be interoperable, and interfaces, protocols and data models must be compatible to reach this goal. Well-proven, international standards in the utility business are the basis.

B.2 Market demand

The customers of the standards developed by TC 57 are the power industry and the vendors of power systems control, protection and automation solutions. Both parties are actively represented in TC 57.

The standards developed by TC 57 are widely used worldwide (e.g. IEC 61850, IEC 60870-5, IEC 60870-6 and IEC 61968 / IEC 61970 / IEC 62325) and there is an increasing demand for recently issued standards (e.g. IEC 62351).

B.3 Trends in technology

The fast development of information technology and communication technology (ICT) has impact on the work of TC 57. TC 57 needs to carefully observe this development in order to early pick up possible solutions and to strive for short implementation times for the standards.

The meter is increasingly becoming the source of data required for power systems control, e.g. for distribution automation, load and generation management and demand response (Advanced Metering Infrastructure- AMI, smart grid, etc.). Therefore, the communication aspects of metering are of strategic importance for TC 57.

B.4 Market trends

The market asks for interoperable and future proof products and solutions. In the Smart Grid context, interoperability is seen as key enabler for automated power systems.

Moreover, the increasing needs for a better interworking between the power system dedicated to the utilities and home / building installations tends to adopt similar technologies on both side, at least in terms of communication systems (protocols, data).

Therefore TC57 has to adopt these market requirements into the current and future standardization work.

B.5 Ecological environment

Not applicable to the current work programme of TC 57.

C System approach aspects

TC 57 will actively continue to promote the establishment of liaisons to other committees, cooperation with system committees and beneficial liaisons targeted to new emerging technologies are in our focus.

TC 57 as supplier of standards	TC 4	Hydraulic turbines
	TC 13	Electrical energy measurement, tariff- and load control
	SC 17C	High-voltage switchgear and controlgear assemblies

	TC 38	Instrument transformers
	TC 88	Wind turbines
	TC 95	Measuring relays and protection equipment
System Committees (TC 57 as customer of standards)	TC 8	Systems aspects for electrical energy supply
	TC 65	Industrial-process measurement, control and automation
Other Committees (committees that produce standards used by TC 57)	TC 4	Hydraulic turbines
	SC 17C	High-voltage switchgear and controlgear assemblies
	TC 38	Instrument transformers
	TC 95	Measuring relays and protection equipment
Other Committees (committees that produce standards in neighbouring domains to be in liaison with for technical consistency)	TC 13	Electrical energy measurement, tariff- and load control
	TC 69	Electric road vehicles and electric industrial trucks
	TC 88	Wind turbines
	PC 118	Smart grid user interface
	TC 120	Electrical Energy Storage (EES) Systems

TC 57 has internal liaisons with the component committees TC 3, SC 3D, TC 4, TC 13, SC 17C, SC23K, TC 38, SC 65C, TC 69, TC 88, TC 95, PC 118, TC120, ISO/IEC JTC 1/SC 25 and ISO/IEC JTC 1/SC 27, as well as with the system committees TC 8, SC 77A, TC 65, and has external liaisons with ITU, CIGRE, UCAIug, ebIX, IEEE PES PSCC, ENTSO-E, European SGIS WG and OpenADR Alliance.

D Objectives and strategies

Objectives and strategy for the future work of TC 57 are derived from the following 5 major aspects of the business environment:

- Shortage of energy resources and increasing energy costs require efficient energy usage and optimization of energy management processes.
- Conversion of the power system for the increasing integration of renewable energy resources.
- By the decoupling of power generation, transmission and distribution, different actors need to communicate and interact along the value chain.
- The fast progress in information and communication technologies
- Strong demand for cyber security for the grid as critical infrastructure

Objectives:

- Provide smart grid interoperability standards for power system management and operation.
- Propagate and promote IEC 61850 as the Smart Grid core communication standard for power system automation of field devices and systems, both within and outside of substations (e.g. for distribution automation, distributed energy resources, monitoring & control in hydroelectric power plants and wind turbines).
- Propagate and promote the use of IEC 61968 and 61970 CIM standards for enterprise-level Smart Grid functions both within an individual utility enterprise as well as between utilities, transmission system operators (TSOs), and regional transmission operators (RTOs).
- Ensure interoperability and compatibility of TC57 standards in the long term, including backward compatibility, migration strategies and paths for legacy protocols
- Provide standardized communication means for system operators and other market participants to interface to the liberalized energy market, by allowing the multiple technologies to hide from the applications and by extending the Common Information Model (CIM) for the market place needs.
- Provide guidelines and standards addressing the more active role of consumers in managing loads and distributed energy resources, using CIM and IEC 61850 as appropriate.
- Provide standards addressing cyber security issues.
- Ensure that standards include relevant cyber security requirements and, as appropriate, cyber security technologies

Strategy:

- Apply use case and requirements oriented approach for standards development

- Use open proprietary structures for standardization of data exchange interfaces among IT systems and software applications, but avoid to standardize applications themselves
- Use state of the art standard information and communication technology platforms wherever available and applicable
- Ensure all TC57 standards address cyber security at appropriate levels
- Ensure quality and consistency of TC57 standards portfolio
- Consult WG 19, serving in effect as the technical architecture board for TC 57. Technical decisions that impact CIM, IEC 61850, security and power line carrier standards should be reviewed and commented on by WG 19

E Action plan

Concentrate on speedy completion of projects, under consideration of making complex standards manageable, making standards transferable to neighbouring smart grid domains, and ensuring high quality and consistency.

Continue to implement the Committee Good Working Practice (GWP) and improve the structure and the practical work with the TC 57 Collaboration Tools domain.

For detailed actions, refer to working program

F Useful links to IEC web site

[IEC/TC 57 dashboard](#) giving access to Membership, TC Officers, Scope, Liaisons, WG structure, Publications issued along with their Stability Dates and Work Programmes.

Name or signature of the secretary

Dr. Heiko Englert (Secretary)