

Strategic Plan
of
Study Committee B5:
“Protection and Automation“

2009 – 2014



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1 MISSION STATEMENT

The CIGRE B5 Committee is a worldwide platform for the elaboration and exchange of knowledge and information in order to facilitate the progress of engineering in the field of the power system protection and automation.

The B5 Committee delivers value by means of synthesizing state of the art practices, developing recommendations and disseminating the information on a worldwide basis.

The Committee covers within this scope principles, design, application and management of power system protection, substation control, automation, monitoring, recording and metering – including associated internal and external communications and interfacing for remote control and monitoring.

2 INTRODUCTION

The vision of CIGRE is that B5 Committee shall be recognized as the leading worldwide organization on protection and automation.

Through the participation of experts from all regions of the world, the Committee provides a global perspective on the issues and challenges facing the protection of electrical power system.

B5 should position itself as an independent analyzer of different solutions and provider of high quality unbiased publications and other contributions to the electrical supply industry.

Main target groups are:

- Top and medium local management and technical staff of utilities, suppliers and consultants.
- Universities and young engineers.

This Strategic Plan sets out the strategic technical directions to be followed by the B5 Committee over the period 2009 – 2014 in order to address the above factors and to follow the strategy of the CIGRE Technical Committee.

In addition, the Plan outlines the organizational strategy of the B5 Committee.

3 PRESENT FACTORS AND DRIVERS

Change in Secondary Technology and its requirements

- The introduction of IEC 61850 is changing the whole concept of substation secondary system.
- Protection, Monitoring and Control functions can now be integrated into a common system
- Utilities requires comprehensive Life Time management
- This new technology results in new opportunities of support for better network use and for reducing human errors by a higher degree of automation
- It also implies new roles, responsibilities and skills within the utility's organization

Enhanced Information Technologies offer new applications opportunities.

- Standardization is required in order to take full advantage of the new capabilities:
 - Communication adapted to, the protection requirement
 - More, better and standardized data

Change of network architecture

- The network architecture is changing because of
 - Introduction of new equipments
 - Emerging of Distributed Energy Resources
 - Deregulation
- Trends toward the unification of Transmission and Distributions network

4 CONTRIBUTIONS TO THE TECHNICAL COMMITTEE STRATEGIC PLAN

SC B5 supports and develops the following Technical Committee Strategic Directions

TECHNICAL COMMITTEE SD 4

NEW AND DEVELOPING TECHNOLOGIES

SD 4.1 - Identify and support improved concepts of P&SAS and highlight their potential contribution to the electrical power system

- Improve concepts of SAS
- Consideration of Cyber Security Constraints
- Metering aspects
- Internet and Remote access

SD 4.2 - Facilitate the adoption of new technological solutions by providing suitable CIGRE technical recommendations and supporting the subsequent IEC standardization process.

- Process Bus (architecture, reliability, transients and testing)
- Communication in 61850 between substations (interoperability)
- Requirements from users.

TECHNICAL COMMITTEE SD 5

SYSTEM DEVELOPMENT AND OPERATION

SD 5.1 - Analyse the implications of numerical protections and substation automation system and how these can be most efficiently applied.

- Establish Guidelines for numerical Protections
 - Protected objects
 - Controlled objects
 - Monitored objects
 - Requirements and specifications
 - Testing

SD 5.2 – Identify methods to improve the efficient utilization of existing assets.

- Life Time Assessment of P&SAS
 - Maintenance
 - Refurbishment
- Provision of data collection and processing for monitoring, recording and fault analysis (including Power Quality and Equipment monitoring)

SD 5.3 – Identify and promote methods to improve the reliability of P&SAS in order to maintain the supply reliability under the changes taking place.

- Standardization of schemes and functions of protection
- Application of Automatic and adaptive functions
- New approaches, tools and system to eliminate human errors
- Protections coordination
- New System Integrity Protection Schemes to improve network stability (Load Shedding / Restoration / SPS)

SD 5.4 - Analyse the protection implications of new generation technologies.

- New wide area protection and control systems (WAP&C) for Renewable energy and non conventional generation and devices.
- Network of the future and Distributed generation.
- Synchrophasor Applications.
- Impact of power electronics on P & SAS.

5 MAIN TECHNICAL DIRECTIONS

SCB5 gives high priority to the following topics

- Facilitate the adoption of new technological solutions by providing suitable technical recommendations and supporting the subsequent standardization process
 - o Improve concepts of SAS
 - Design & Testing
 - Communications
 - Clarification of requirements from users
 - Experience and feedback in IEC 61850
 - Awareness of roles and responsibilities
 - o Requirements from users
 - o Process Bus
 - o Metering
- Identify and promote methods to improve the reliability of P&SAS in order to maintain the supply reliability under the changes taking place
 - o New approaches, tools and system to eliminate human errors
 - o Protections coordination
 - o Standardization of schemes and functions of protection
- Analyse the protection implications of New Network Requirements
 - o Network of the future and Distributed generation

6 ORGANISATIONAL STRATEGY

- Improve the operation of the WG's.
- Increase the dissemination of knowledge by means of tutorials and workshops.
- Improve the quality of published documents and focus on the target audience.
- Increase the involvement of the younger members of CIGRE in SC and WG activities
- Increase B5 visibility with its participation in Regional Conferences

7 CONCLUDING REMARKS

- This Strategic Plan covers the period 2009 – 2014 but may be revised during that period if required.
- This Strategic Plan will be made available on the B5 website