

CIGRE Study Committee B3

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP ⁽¹⁾

WG N° B3.38	Name of Convenor : Gérald Buchs (CH) E-mail address: gerald.buchs@alpiq.com
Technical Issues # ⁽²⁾: 7, 10	Strategic Directions # ⁽³⁾: 2, 3
The WG applies to distribution networks ⁽⁴⁾: Yes	
Title of the Group: Management of risk in Substations	
<p>Scope, deliverables and proposed time schedule of the Group :</p> <p>Background:</p> <p>This proposed new WG “Management of Risk in Substations” will investigate the experiences of utilities in managing risks in existing AIS, MTS and GIS substations and will review how we can improve substation engineering processes and address issues, which may have potential for operational, environmental or personnel safety risk. Special care will be taken with respect to avoiding overlap with TB422 (Transmission Asset Risk Management), TB541 (Asset Management Decision Making using different Risk Assessment Methodologies), the new WGC5.15 “Risk Management in Evolving Regulatory Frameworks”, IEC 61936-1, IEC 61936-2 covering the topic of safety of substations and other related documents such as EPRI (Framework for risk assessment for substation equipment) etc.</p> <p>Scope:</p> <p>A questionnaire will be issued to investigate the practices and experiences of a number of utilities regarding management of risk assessment and mitigation in substations including operational and business risk, environmental and personnel safety risks. The results will be evaluated regarding further improvement opportunities in Substation Engineering related to risks, especially but not limited to:</p> <ul style="list-style-type: none"> • Incorrect operation and maintenance strategies leading to supply interruption or personnel risk as a result of component failure within a substation; • Risk mitigation practices implemented until a substation is uprated and upgraded. (including whole or partial replacement of older GIS under the unavailability of spares); • Disaster and fire recovery plans, minimizing impact within a substation for network benefit; • Sensitive material management during service life and dismantling and also for brown-field projects; • Management of Risks with respect to changing community environmental expectations; • Safety for construction, operation and maintenance during service life, refurbishment and dismantling; • Substation security; and • Skill Retention and transfer. 	

These risks will be investigated and categorized according to their relative importance and impact on the field of substation operation, business risk as well as on safety of personnel and the environment.

In conclusion recommendations will be made to reduce risk and to enhance the reliability and safety of the new substation engineering and design.

Deliverables : Technical Brochure publish : December 2017

Summary in Electra : October 2017

Tutorial : 2017

Time Schedule : start : March 2014

Final report : December 2017

Comments from Chairmen of SCs concerned :

Francisco Parada (SC C3) - I fully support the importance of the work that will be done by this new WG and SC C3 can help with expertise and knowledge on the environmental risk assessment (soon we will send a ToR for assessment regarding in detail this topic, following the best well-known international methodologies).

The SC B3 chairman agrees to a liaison member from SC C3 in this WG.

Approval by Technical Committee Chairman :

Date : 09/02/2014



⁽¹⁾ or Joint Working Group (JWG) - ⁽²⁾ See attached table 1 – ⁽³⁾ See attached table 2

⁽⁴⁾ Delete as appropriate

Table 1: Technical Issues of the TC project “Network of the Future” (cf. Electra 256 June 2011)

1	Active Distribution Networks resulting in bidirectional flows within distribution level and to the upstream network.
2	The application of advanced metering and resulting massive need for exchange of information.
3	The growth in the application of HVDC and power electronics at all voltage levels and its impact on power quality, system control, and system security, and standardisation.
4	The need for the development and massive installation of energy storage systems, and the impact this can have on the power system development and operation.
5	New concepts for system operation and control to take account of active customer interactions and different generation types.
6	New concepts for protection to respond to the developing grid and different characteristics of generation.
7	New concepts in planning to take into account increasing environmental constraints, and new technology solutions for active and reactive power flow control.
8	New tools for system technical performance assessment, because of new Customer, Generator and Network characteristics.
9	Increase of right of way capacity and use of overhead, underground and subsea infrastructure, and its consequence on the technical performance and reliability of the network.
10	An increasing need for keeping Stakeholders aware of the technical and commercial consequences and keeping them engaged during the development of the network of the future.

Table 2: Strategic directions of the TC (cf. Electra 249 April 2010)

1	The electrical power system of the future
2	Making the best use of the existing system
3	Focus on the environment and sustainability
4	Preparation of material readable for non technical audience