CIGRE Study Committee C2 – Operation and Control

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

WG* C2.35	**Name of Convenor : Ninel Cukalevski (Serbia)** **E-mail address**: ninelc@afrodita.rcub.bg.ac.rs
Technical Issues # (2): 5	**Strategic Directions # (3): 1 & 2**
The WG applies to distribution networks (4): Yes	
Title of the Group: Operations Performance, Training Goals and Operator Performance Measurement	

Scope, deliverables and proposed time schedule of the Group :

Background :

Due to growing power system and market complexities there are increasing challenges, for modern day TSO and DSO, related to power system performance, and consequently to operator training and its effectiveness.
These challenges can be identified best during the large system disturbances and blackouts, when actual demonstrated level of operator's performance might often be not up to the level. The problem is aggravated with the fact that the operator work goals, and thus their performance goals, are rarely explicitly defined and quantified with suitable KPI's and metrics.
Thus lack of feedback very much limits effectiveness of training and capability of its adaptation to individual needs.

Scope :

Based on Cigre work done so far, that was presented in the recent TB, vast amount of knowledge regarding operator training, was acquired and illustrated with several use-cases from around the world. Within it, issues of operator work performance were identified but without going to in to depth analysis how to quantify it and measure operators performance. This is from obvious reason because the issue is not a simple one.

The main scope of work of this WG is determined by two specific but related domains. The first one will be focused on **operations performance** and its relation with operator training goals, consequently with **operator performance** quantification and measurement. The second one will focus on operations personnel **e-learning/training**, its capabilities and practical results (including its effects on operator training performance) of its use within the electricity industry (TSO and DSO) as a state-of-the-art training delivery tool.

Within the **operations performance** and the **operator performance** domain/scope, **the main activities will include**:

- Review and identify existing utility practices in operations performance targets and their indicators setting.
- Review utility practice in operator training goals setting. Identify eventual indicators.
- Identify eventual mappings between the corporate level performance goals and operations performance goals and indicators.
- Identify possible mappings between the operations performance goals and operator training goals.

- Develop recommendations how to include these mappings and corresponding indicators in the training program development framework previously developed and presented in the WG C2.33 TB (No. to be defined).
- Interaction of Market Rules and Operator Performance.

Within the operating personnel **e-learning/training** domain, **the main activities will include**:

- Define terms, and review a broad field of e-learning/training.
- Explore and describe existing utility (TSO, DSO) operations personnel e-learning /training applications.
- Identify operations related issues suitable for e-learning/training methods and tools use, and their requirements.
- Identify possible impact of e-learning/training on operator training performance.
- Develop recommendations to utilities regarding introduction and use of e-learning/training methods and tools in operations personnel education and training.

Deliverables : Two Electra papers and two conference papers, i.e. one of each per domain.

Time Schedule : start : June 2013 **Final report** : 2016

The WG will start from June 2013 and be disbanded by June 2016.

Above defined activities will be performed on the phased manner, i.e. we shall start with the e-learning/training domain and proceed with the operations performance and conclude with the training performance. Publishing of the results reached will be also phased.

First year: Data collection and review of functionality and architectures of e-learning/training systems, especially their utility applications. Possible impact on operator training performance. Requirements and recommendations.

Second year: Collection and review of information about operations performance and its indicators. Relation to the corporate performance goals. Collection and review of information about operator training goals and performance. Documentation and publishing.

Third year: Identification of eventual mappings between operations goals and training goals. Possible training improvements, including those that can be achieved through e-learning/training. Recommendations and documentation of findings. Publishing.

Comments from Chairmen of SCs concerned :

Approval by Technical Committee Chairman :
Date :

(1) 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