



CIGRE Study Committee D2

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

WG* N° D2.36	Name of Convenor : Jan Piotrowski (PL) E-mail address: jan.piotrowski@eltelnetworks.com
Technical Issues # (2): 1, 2, 4, 5	Strategic Directions # (3): 1, 2, 3
Title of the Group: Communication solutions for information exchange in the smart delivery of electrical energy	
Scope, deliverables and proposed time schedule of the Group : Background : <p>The interest of Electrical Power Utilities for Smart Grid applications has grown substantially in recent years. Implementing the underlying information exchange infrastructure and the adequate blending of communication solutions and technologies are however some essential issues of concern, the objective being to avoid the pitfalls of excessive investment for unused communication capability or on the opposite side, insufficient communication capability for planned applications.</p> <p>The diversity of applications, their functional architecture and their respective requirements in terms of communication capacity and performance is such that there is no unique solution to cover all “smart grid” deployments. Moreover, applications are not generally deployed simultaneously but phased over time. Finally, communication requirements may be fulfilled in multiple manners and modes of service provisioning depending upon the applications to be covered, the physical segment of the architecture, and availability of solutions in each geographical location. The optimality of a communication solution in this context resides in the proper planning of the communication infrastructure and the appropriate blending of communication solutions in such a way as to obtain suitable capabilities at the appropriate evolution step.</p> <p>This working group aims to provide a comparison of experiences, assessments, implementation scenarios and migration plans for the communication infrastructure in order to prepare guidelines for the electrical power utilities who are planning the deployment and/or evolution of their telecom infrastructures for information exchange in the smart delivery of electrical energy.</p> <p>The present group shall focus on the assessment and analysis of the communication system, using as input available data on smart power applications’ service requirements and information system functional architecture. Numerous existing works already prepare at international level (e.g. Cigre, ITU-T, IEEE, IEC, etc.), as well as transnational, national or utility level documents (e.g. EC Task Force, CENELEC, NIST, EPRI, etc.) may be used as reference for this characterization. The working group shall coordinate its work with other Cigre working bodies undertaking the analysis of smart power applications and information systems.</p>	

Scope :

The scope of the Working Group shall include the following aspects:

1. Characterization of communication service models and service classes through a survey of applications (functional/physical architecture, bandwidth and performance requirements, expected evolutions).
2. Potential groupings and integration scenarios for communication services including maturity models and evolution scenarios for the communication infrastructure. Planning and time scheduling of communication capabilities.
3. Assessment of communication solutions and technologies for the characterized data exchange services
4. Maintaining and managing smart grid communications including both the management of systems and devices and the operation and maintenance of the communication network
5. Case Studies

Deliverables : Technical brochure with summary in Electra

Time Schedule : start : November 2012

Final report : November 2014

Comments from Chairmen of SCs concerned :

Approval by Technical Committee Chairman :

Date : 01/12/2012

A handwritten signature in black ink, appearing to read "M. Wald".

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

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	Interactive communication with the public and with political decision maker