

CIGRE Study Committee C6

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

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| JWG* N° C6.27/CIRED | Name of Convenor : Britta Buchholz (Germany) E-mail address: britta.buchholz@de.abb.com |
| Technical Issues # (2): 1, 5, 7 | Strategic Directions # (3): 3, 4, 5 |
| The WG applies to distribution networks (4): Yes | |
| Title of the Group: Asset management for distribution networks with high penetration of distributed energy resources | |
| <p>Scope, deliverables and proposed time schedule of the Group :</p> <p>Background:</p> <p>Significant increase in penetration of distributed energy resources on the one hand and regulation on the other hand pose new challenges to the distribution system asset manager:</p> <p>A large number of fluctuating generators makes the distribution task significantly more complex. New stakeholders, especially “grid users” enter the distribution system: not only consumers but also a large number of producers need to be considered in the short, medium and long term system design and asset management. Market designs change. Awareness building of the whole society on energy supply is crucial for success of a new distribution system. At the same time, budgets for investment and operation of the distribution system are strictly controlled and limited by regulatory bodies.</p> <p>Some aspects of these new challenges are covered in ongoing working groups, i.e. “Planning and optimization methods for active distribution systems” in C6.19 and “Hosting capacity of feeders” in C6.23. Regulatory issues and market design are discussed in Study Committee C5 in general. This working group will focus on asset management of distribution networks with high penetration of DER.</p> <p>Scope: Provide an international overview of current practices and lessons learnt in asset management of distribution networks with high penetration of DER and derive recommendations for asset managers and regulatory bodies.</p> <ol style="list-style-type: none"> 1. Overview of current practices and lessons learnt for asset management of distribution networks with high penetration of DER 2. Survey on expected new technologies in the distribution system 3. Coping with uncertainties: Scenario technique as basis for asset management 4. Design criteria 5. Regulatory framework including market design and grid codes, incentive based regulation <p>Deliverables : Technical brochure with summary in Electra, tutorial material</p> <p>Time Schedule : start : August 2012 Final report : August 2014</p> | |
| Comments from Chairmen of SCs concerned : Close collaboration with SC C1, Eric Rijks from C1 will serve as representative expert member. | |
| Approval by CIGRE Technical Committee Chairman : Date : | |



Approval by CIRED 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)

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| 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)

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| 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 |