

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

WG* N° A1.54	Name of Convenor : John Doyle (IRELAND) E-mail address: john.doyle@esbi.ie
Technical Issues # (2): x	Strategic Directions # (3): 2
The WG applies to distribution networks (4): No	
Title of the Group: Impact of Flexible Operation on Large Motors	
<p>Scope, deliverables and proposed time schedule of the Group :</p> <p>Background :</p> <p>Conventional power plants are increasingly required to operate flexibly to facilitate both larger penetration of renewable energy and commercial considerations of operating in peak demand periods. Cyclic operation including two-shifting, operating at minimum load, and fast ramp up/down have all become normal for many power plants, even from quite an early stage of plant life. Operational flexibility is crucial for commercial success of power plants.</p> <p>Cycling operation will result in more starting and stopping of auxiliary drives and this can result in a number of mechanisms which lead to deterioration of electric motor components. Typical failures that have been attributed to cycling operation include material fatigue arising from torque stresses on rotors during starting and stopping, and high starting currents causing thermal and electromagnetic effects.</p> <p>Scope :</p> <p>The scope will cover the following:</p> <ol style="list-style-type: none"> 1. Update work of WG A1.19 – Motor Failure Survey. User questionnaire. 2. Review International Standards, Application Guidelines, Design Trends 3. Review effectiveness of motor Testing and Commissioning, Monitoring and Diagnostics, and Maintenance in relation to impact of cycling operation 4. Make recommendations on application, design and maintenance. 5. WG should include at least users and manufacturers <p>Deliverables : Technical brochure with summary in Electra</p> <p>Time Schedule :</p> <ul style="list-style-type: none"> • TOR approval – September 2015 • Establish WG – December 2015 • Draft questionnaire – February 2016 • Final questionnaire – April 2016 • Initial findings from questionnaire and review – August 2016 • Draft report/guide – February 2017 • Comments by members and experts – April 2017 • Final report – September 2017 • Document Approval (Technical brochure with summary in Electra) – December 2017 <p>Start : December 2015 Final report : December 2017</p>	
Comments from Chairmen of SCs concerned :	
Approval by Technical Committee Chairman : Date : 27/09/2015 <div style="text-align: right; margin-top: 10px;">  </div>	

- (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