

CIGRE Study Committee A1

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG N° A1. 46	Name of Convenor: D. K. CHATURVEDI (India) E-mail address: dkchaturvedi@ntpc.co.in
Technical Issues # (2): 5	Strategic Directions #(3): 2
The WG applies to distribution networks (4): Yes	
Title of the Group: Guide on Use of Premium Efficiency IE3 (IEC 60034-30) Motors & Determining Benefits of Green House Gas Emission Reduction.	
<p>Scope, deliverables and proposed time schedule of the Group :</p> <p>Background :</p> <p>Concern for the environment is very important for all utilities as our energy resources are depleting with time and monitoring & controlling Greenhouse gas emission is becoming a major issue. Every energy unit consumed results in emission of Carbon Dioxide. Motors consume the major share of our electricity generation and the need of the hour is to develop measures to check energy consumption. Since manufacturing of IE3 motors is already mandatory in countries like USA and Canada, the Brochure shall provide guidance upon the benefits of switching over.</p> <p>This guide shall focus on the use of Premium Efficiency Motors and suggest the criteria for assessing the replacement of existing motors as well as those envisaged in a new project. It will also elaborate, by case studies on payback period, how existing and new industry might benefit from switching over to Premium Efficiency Motors. The Guide will also analyse the issues to be addressed when going for replacement in an existing plant. It will suggest a methodology to check the adequacy of associated electrical system i.e. Low Tension (LT) Transformer, Low voltage switchgear and Cable feeding the motor prior to implementing any plan for replacement. This guide will cover important topics like benefits of switching over to Premium Efficiency IE3 Motors including the design improvement, performance standards and cost economics.</p> <p>The guide will elaborate on the methodology to determine the efficiency improvement over existing motors and facilitate users to work out the energy saving by implementing Premium Efficiency Motors. This will be useful in determining Green House Gas emission reduction benefits subsequently.</p> <p>Scope :</p> <ul style="list-style-type: none"> • Appraise user on benefits of IE3 motor on performance, reliability and efficiency. • Analyse benefits of switching over to Premium Efficiency Motors from conventional aging motors in existing plants and of adopting them for new projects. • Address the issues associated with switching over in existing plant. • Provide a methodology to workout energy saving from switching over in existing projects • Elaborate on methodology to determine the efficiency improvement over existing motors 	

Deliverables: Technical Brochure with summary in Electra

Main Tasks and Time Schedule:

Start : October 2014 **Final report:** August 2016

- TOR approval – August 2014
- Presentation at Paris Meeting – August 2014
- Form WG – September 2014
- Draft outline (possible table of contents) of Guide – November 2014
- Preliminary sections distributed to SC-A1 members – January 2015
- Discussion and further schedule – SC Meeting - September 2015
- Draft of guide - October 2015
- Comments by members and experts – January 2016
- Final version of document – March 2016
- Document approval (Technical Guideline and summary for Electra) – Meeting in August 2016

Comments from Chairmen of SC concerned :

Approval by Technical Committee Chairman :

Date : 24/08/2014



- (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