



WORKING GROUP FORM

Study Committee: B3

WG number: B3.23	Name of Convener: Hiroshi Imagawa (JP)
Title: Guidelines for uprating and upgrading of substations	
Terms of reference	
Background: <p>More and more substations throughout the world are facing various requirements that lead to the necessity of renewal of existing substation equipment. There are many cases that require uprating and upgrading of substation equipment in addition to the renewal with the same technical specifications. For example, power system requirements to meet steady growth of the electricity demand and customer requirements of connecting new power generation make uprating of rated current and short-circuit current necessary. In other case, reductions of power transmission loss and system stability improvement require upgrading of voltage level. Reliability improvement requires change of substation scheme (busbar / protection), and so on.</p> <p>The objective of this WG is to review current practices and to produce a set of guidelines for uprating and upgrading of substation at each stage that planning, engineering, basic design, detailed design, project execution, etc.</p>	
Scope: <ol style="list-style-type: none">1. Review the various practices applied in the utilities regarding the following aspects;<ol style="list-style-type: none">(1) Uprating of substation<ul style="list-style-type: none">- Increasing rated current- Increasing short-circuit current- Changing voltage level etc.(2) Upgrading of substation<ul style="list-style-type: none">- Changing substation scheme (eg. single to double busbar)- Changing busbar material, insulator support- Upgrading auxiliary AC/DC services in substation- Upgrading equipment (CB, DS, and ES etc.) to meet with latest standard as necessary etc.2. Summarize points to be considered in uprating and upgrading substation at each stage that planning, engineering, basic design, detailed design, project execution, etc. <p>This Working Group will focus on pointing out the issues related to substation design not only equipment wise and how to deal with them after decision making of uprating and upgrading. The WG will cover all type of substation technologies such as AIS, GIS and MTS.</p>	
Deliverables and time schedule: <ul style="list-style-type: none">· Summary of WG activities in Electra before Paris meeting 2010· "Technical Brochure" will be delivered in 2011	
SCs /Target Groups concerned: <ul style="list-style-type: none">· Utility engineers, Asset owners, Consulting, Contracting companies, Manufacturers	

Approval by TC Chairman: Klaus Fröhlich

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