



## WORKING GROUP FORM

**Study Committee: B4**

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| <b>WG number: WG B4.54</b>  | <b>Name of Convener: R Sasmal</b> |
| <b>Title:</b> Guidelines For Life Extension of Existing HVDC Systems  |                                   |
| <b>Terms of Reference</b>   |                                   |
| <b>Background:</b> <p>There are a number of HVDC systems which are now over 25 years old (some of them over 30 years), and the number of old systems will increase over the next few years. As the equipment age, measures to extend the life of the equipment should be considered. The life extension measures should be implemented with minimum impact on the HVDC system and the associated networks whilst maintaining an acceptable level of reliability and availability. If life extension is not economical, the systems may be “moth-balled” or could be disposed of in an environmentally acceptable way.</p> <p>The life-extension may involve any of the following actions:</p> <ul style="list-style-type: none"><li>• Refurbishing the systems</li><li>• Selectively replacing aging components</li><li>• Phasing out the old facilities and potentially converting the systems to ac</li></ul>   |                                   |
| <b>Scope:</b> <p>The WG shall focus on the special components in thyristor based HVDC schemes, and shall have the following major tasks:</p> <ol style="list-style-type: none"><li>1) Identify the future performance issues associated with the ageing of special components of the HVDC systems.</li><li>2) Provide a guideline for technical life of the unique HVDC equipment or critical components (e.g. digital controls, converter valves, thyristors etc.).</li><li>3) Provide a guideline for determining economic life of various components in the converter station and for making replacement vs life extension decisions. The consideration of economic life will include capital cost, reliability/availability, cost of maintenance and the cost of power losses.</li><li>4) Identify various life extension measures for the major components at different stages of their useful life. Information will be obtained from projects which have already been refurbished, such that lessons learned from the projects can be reported in the Technical Brochure.</li><li>5) Identify the environmental issues with disposal of old equipment. If possible identify regulations applicable to disposal of the unique HVDC equipment or components.</li><li>6) Provide guidelines for changes to specifications of new systems to facilitate future changes to the systems and minimize the costs associated with life extension of new systems.</li></ol> <p>The WG will welcome liaison members from A2 and A3, to provide guidance and support in respect of equipment which is the responsibility of these SCs.</p> |                                   |

**Deliverables and time schedule:**

Commencement of the WG: 2010. Electra paper: 2013, Technical brochure: 2013.

**Other SCs/ Target Groups concerned by the work:**

· Utility engineers, Asset owners, Consultants, Contracting companies, Manufacturers

**Approval by Technical Committee Chairman: Klaus Fröhlich**

**Date** :08/11/2010