

**A.1.3.****Pre-selection of cable type and cable manufacturers for the Metrogrid project in Sydney Australia**

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1. Abstract

The pre-selection process of the most appropriate type of cable and pre-qualification of cable manufacturers adequately experienced to supply and install an EHV power cable system is a major challenge experienced by the electricity industry when planning large-scale urban power cable network upgrades.

For the 330kV MetroGrid Project in Sydney, TransGrid left open all options related to cable type and system design such as: XLPE, SCFF-PPL and SCFF-paper insulated cables and GIL.

The merits and weaknesses of the proposed systems were evaluated based on international experience resulting in the pre-qualification of four Applicants with SCFF-PPL type of cable.

2. Introduction

TransGrid is currently implementing a major infrastructure project known as "MetroGrid Project" designed to meet the forecast demand growth and internationally accepted reliability standards appropriate for the City of Sydney.

The main component parts of the project are:

- Construction of a new 330/132 kV indoor Substation at Haymarket in the Sydney CBD
- Upgrade of the existing 330/132 kV Substation in Sydney South
- Installation of a 330kV underground power cable to interconnect the two substations

In respect of the 330kV cable system TransGrid applied a two-stage tendering strategy as follows:

- (i) Pre-qualification of an unspecified number of cable suppliers capable to manufacture and install a 330kV U/G cable system that will meet

the specified performance requirements when installed in accordance with the specified requirements and nominated route particulars.

- (ii) Invitations to the pre-qualified cable manufacturers to tender for the complete works of supply and installation of the cable system.

This paper is presenting only the pre-qualification process - Stage (i).

The contractual documentation for pre-qualification was exclusively drafted to define the performance criteria of the cable system without specifying how that performance be achieved.

Nevertheless TransGrid indicated that cable manufacturers proposals be based on fully developed and proven cable technologies such as:

- Self Contained Fluid Filled, low pressure, paper insulated cable: SCFF-Paper
- Cross linked polyethylene cable: XLPE
- Self Contained Fluid Filled, low pressure, paper-polypropylene-paper laminate insulated cable: SCFF-PPL, and
- Gas Insulated Lines: GIL

3. Scope of the Pre-qualification Procedure

TransGrid's objectives for the pre-qualification procedure were as follows:

- To pre-qualify a sufficient number of cable suppliers to ensure that the most suitable cables and accessories would be competitively tendered for the supply and installation contract for the 330 kV cable circuit.
- To limit the number of pre-qualified cable suppliers thus avoiding unnecessary effort in preparing the full tender.