

Scope & Preliminary General Requirements for Substations, Rev No 3

3 SCOPE OF SUPPLY**3.1 General**

The scope of supply under the Contract shall include all equipment and material required to ensure satisfactory operation of the substation. All materials, parts and devices that are essential or necessary for the proper functioning of the complete installation shall be supplied, even if not explicitly called for.

Requirements described in the Requirements (A. Scope of Supply of Plant and Installation Services by the Contractor) of this section are equally applicable to all equipment specified in this section (B. Specification) and Schedule of Prices.

Before starting the design work, the Contractor shall visit the existing substation named under the contract to obtain all necessary information, drawings and documents for interfacing and modification works. The Contractor shall verify (measure) by his own measurement the grounding resistance (soil resistivity) and shall design the earthing installations. The cost of site visit shall be at the Contractor's own expense. The earthing system specified in this specifications document, if any, is only the bidding purpose, and not final.

After the plant and ancillary equipment have been erected and connected on site, the Contractor shall carry out to the satisfaction of KETRACO such tests as may be required to prove compliance with the specification, independently of any tests carried out at the manufacturers' works. Not less than thirteen weeks before any section of the plant is required to enter commercial service, the Contractor shall submit, for the approval of KETRACO, its detailed site test proposals for that section of the plant, together with details of the test equipment and methods that he proposes to use.

Subject to approval of the tests, these shall be written by KETRACO into an overall program of tests, which shall be issued to all directly concern prior to the starting date for the tests and familiarize himself thoroughly with the operation system of the Employer for executing his works under the Contract. The Employer will assist the Contractor in obtaining necessary information and permission.

Scope & Preliminary General Requirements for Substations, Rev No 3

The Contractor shall prepare a detailed shutdown procedure document (shutdown books) for review and approval by KETRACO and Kenya Power (KPLC). This shall clearly elaborate in stepwise manner how the energization of Mariakani & Dongo Kundu substation shall be executed considering the Mariakani substations shall be live including the transmission line links. The shutdowns shall be planned to ensure minimum interruptions to the network and shall be guided by the system operator depending on the network reliability.

The shutdown procedure shall be prepared and submitted by the Contractor sixty (60) days in advance to allow for detailed engagement with KPLC and network operator. During these 'live' tests the Contractor shall remain responsible for the performance of his plant. A record of the results of the tests in this category shall be made available to KETRACO. The Contractor shall submit to KETRACO for approval a list of recommended settings for all protection and other types of automatic equipment, not less than thirteen weeks before such equipment is required in commercial service. Where the settings involve discrimination with settings of an existing network or plant supplied under a separate contract, the relevant information shall be supplied to the Contractor.

Before the shutdown books for final energization of Mariakani & Dongo Kundu substation are finalized, the contractor shall confirm that all works, and activities have been fully executed. These include:

- i. Completeness of the erection and installation works.
- ii. Completeness of testing of the primary equipment and plant.
- iii. Completeness of testing of the substation protection and control systems
- iv. Completeness of testing of the substation auxiliary systems
- v. That the substation SCADA system shall be fully tested.
- vi. Validation and approval of protection settings and relay configurations (where applicable) for remote end substations.
- vii. Provision of marked up drawings for remote end substations showing the required modifications.
- viii. Confirm availability of all necessary labels to be updated at the remote ends.

Scope & Preliminary General Requirements for Substations, Rev No 3

Upon confirmation of finalization of the above, shutdown meetings to be attended by KETRACO, KPLC, Contractor and Employer's Representative shall be convened by KETRACO in liaison with KPLC and Network operator wherein the Contractor shall make a detailed presentation to the meeting on the shutdown plan.

Shutdown will be given only one circuit at one time and continuous shutdown period will not be possible. Hence the contractor should factor this in his construction and commissioning. All temporary works required for arranging the shutdown with Employer and National Control Center are included in Contractor's scope of work. Shutdown that results in total station outages for more than one day will not be possible.