

**MODEL TECHNICAL SPECIFICATION**  
**SECTION-SWITCHGEAR-INST**  
**(INSTRUMENT TRANSFORMERS)**  
**(REV. NO. 11)**

## **9.0 PRE-COMMISSIONING TESTS**

- 9.1 An indicative list of tests is given below. Contractor shall perform any additional test based on specialties of the items as per the field Q.P./Instructions of the equipment Supplier or Employer without any extra cost to the Employer. **The Contractor shall arrange all instruments**

**required for conducting these tests alongwith calibration certificates at his own cost.**

## **9.2 Current Transformers**

- (a) Insulation Resistance Test for primary and secondary
- (b) Polarity test
- (c) Ratio identification test - checking of all ratios on all cores by primary injection of current
- (d) Dielectric test of oil (wherever applicable)
- (e) Magnetizing characteristics test
- (f) Tan delta and capacitance measurement
- (g) Secondary winding resistance measurement
- (h) Contact resistance measurement (wherever possible/accessible)
- (i) Test for SF<sub>6</sub> (for SF<sub>6</sub> filled CTs) – Dew point measurement, SF<sub>6</sub> alarm/lockout check
- (j) DGA test of oil

**Dissolved Gas Analysis (DGA) shall be carried out twice within the first year of service, first within the first month of commissioning/charging and second between six months to one year from the date of commissioning/charging.**

CTs/IVTs must have adequate provision for taking oil samples from the bottom of the CT/IVT without exposure to atmosphere. Manufacturer shall recommend the frequency at which oil samples should be taken and norms for various gases in oil after being in operation for different durations. ~~Bidder~~/Manufacturer should also indicate the total quantity of oil which can be withdrawn from CT for gas analysis before refilling or further treatment of CT becomes necessary.

**Bidder shall supply 2 nos. oil sampling device for every 20 nos. oil filled CT supplied with a minimum of 2 nos. oil sampling device for each substation.**

## **9.3 Inductive Voltage Transformers/Capacitive Voltage Transformers**

- (a) Insulation Resistance test for primary (if applicable) and secondary winding
- (b) Polarity test
- (c) Ratio test
- (d) Dielectric test of oil (wherever applicable)

- (e) Tan delta and capacitance measurement of individual capacitor stacks
- (f) Secondary winding resistance measurement

For pre-commissioning procedures and formats for Current Transformers, Doc.No.: CF/CT/04/R-4 dtd-01.04.2013 and for Voltage Transformers, CF/CVT/05/R-4 dtd-01.04.2011 under POWERGRID document no. D-2-01-03-01-04 will be the reference document. **This document will be available at respective sites and shall be referred by the contractor.**

