

ISO Rule 502.11 (Substations)

Industry Workgroup Meeting

February 18, 2016

For discussions

- Under what condition do we require a shunt capacitor to be connected to a diameter between buses?
- Shunt capacitor banks must be solidly grounded with the neutral grounded at a single point

Yes No

- For multiple parallel capacitor banks which are switched back-to-back, each bank shall have a circuit breaker

Yes No

- For multiple parallel capacitor banks which are switched back-to-back, a TRV study must be conducted to determine if a capacitor reactor is required

Yes No

Shunt Capacitor Bank (cont'd)

- H-coupled capacitor banks must have unbalance protection, both alarm and trip function

Yes No

- Should we require that a TRV study be done for each project having capacitor bank(s) to determine the use of series reactors or other schemes (such as pre-insertion resistors) to limit the switching transient overvoltage and resonance?

Yes No

- Any other points from WG members?

For discussions

- For line connected shunt reactors – Should we prescribe minimum compensation level?
Yes No
- Should we limit the construction types of reactors to either gapped core type or magnetically shielded air core having fixed impedance?
Yes No
- Should we require reactor to have constant impedance up to, say, 1.5 times the rated voltage?
Yes No
- Under what condition do we require a shunt reactor to be connected to a bus or a tertiary winding?

Shunt Reactor Bank (cont'd)

- For line connected shunt reactors – Auto reclosing of a transmission line with line shunt reactors is prohibited unless it can be assured that the fault is in the line section

Yes No

- For line connected shunt reactors – Shunt reactors must be either solidly grounded or grounded through a neutral reactor

Yes No

- For line connected shunt reactors – Under what condition do we require a four legged reactor (if not four legged reactor, a separate neutral reactor)?

- For tertiary winding connected reactors – There must be a circuit breaker connected

Yes No

- Any other points from WG members?

- Do we need to specify anything to account for accuracy drift over time related to CVTs?
Yes No
- Do we need to specify minimum accuracy level for PTs?
Yes No
- Do we need to specify minimum over-voltage limits for PTs?
Yes No
- Do we need to specify minimum temperature rise (55°C or other values) for CTs?
Yes No
- Do we need to specify minimum over-current limits for CTs?
Yes No

CTs & PTs (cont'd)

- Do we need to have any special requirements on revenue class CTs and PTs?

Yes No

- Any other points from WG members?