DESCRIPTION OF 420KV GIS BAY MODULES & EQUIPMENTS

A. 420kV Gas Insulated Switchgear (One & half breaker Scheme)

The SF6 gas insulated switchgear (50 Hz) shall be of the indoor metal-enclosed type & configuration of different GIS modules shall be as specified below:

i) GIS Bus bar Module:

Three isolated phase, SF6 gas-insulated metal enclosed bus bar module, each set comprising of the following:

i. Three (3) no's individual bus bars enclosures running across the length of the switchgear to interconnect each of the bay modules in one and a half breaker bus system.

ii. One (1) number 3-phase, single pole, group operated isolator switches, complete with manual and motor driven operating mechanisms.

iii. One (1) number 3-phase, single pole, group operated safety grounding switches, complete with manual and motor driven operating mechanisms.

iv. Three (3) numbers 1-phase Potential Transformers.

v. Gas monitoring devices, barriers, pressure switches, UHF PD Sensors, Support structures etc., as required.

vi. End Piece (Interface) modules with isolating test link for Future extension **on both sides** of Bus bar module. The end piece module shall be designed in such a way so that future GIS module may be tested without extending voltage to existing bus by removing the test link. End piece (interface) module for both the buses shall be in one alignment.

vii. Three (3) numbers single phase, SF6 ducts (as required) inside GIS hall.

viii. Local Control Cubicle (if required separately).

ii) GIS Line Bay module:

SF6 gas-insulated metal enclosed Line feeder bay module, each set comprising of the following:

i. One (1) number 3-phase, SF6 insulated circuit breaker (#) with/without PIR complete with operating mechanism.

ii. Three (3) numbers 1-phase, 3-core, multi ratio, current transformers (CTA) on one side of circuit breaker.

iii. Three (3) numbers 1-phase, 2-core, multi ratio, current transformers (CTB) on other side of circuit breaker.

iv. Three (3) numbers, 3-phase, single pole, group operated isolator switches, complete with manual and motor driven operating mechanisms.

v. Two (2) numbers 3-phase, single pole, group operated safety grounding switches, complete with manual and motor driven operating mechanisms.

DESCRIPTION OF 420KV GIS BAY MODULES & EQUIPMENTS

vi. One (1) number 3-phase, single pole, group operated high speed fault making grounding switch, complete with manual and motor driven operating mechanisms.

vii. Three (3) numbers single phase, SF6 ducts inside GIS hall (up to the outer edge of the wall of GIS Hall).

viii. Gas monitoring devices, barriers, pressure switches, UHF PD Sensors, support structures etc., as required.

ix. Local Control Cubicle.

'#' As per BPS

iii) GIS Tie Bay module:

SF6 gas-insulated metal enclosed Tie bay module, each set comprising of the following:

i. One (1) number 3-phase, SF6 insulated circuit breaker (#) with/without PIR complete with operating mechanism.

ii. Three (3) numbers 1-phase, 3-core, multi ratio, current transformers (CTA) on one side of circuit breaker.

iii. Three (3) numbers 1-phase, 3-core, multi ratio, current transformers (CTA) on other side of circuit breaker.

iv. Two (2) numbers 3-phase, single pole, group operated isolator switches, complete with manual and motor driven operating mechanisms.

v. Two (2) numbers 3-phase, single pole, group operated safety grounding switches, complete with manual and motor driven operating mechanisms.

vi. Gas monitoring devices, barriers, pressure switches, UHF PD Sensors, support structures etc. as required.

vii. Local Control Cubicle.

'#' As per BPS

iv) GIS ICT Bay module (For 400kV side of 765/400kV ICT):

SF6 gas-insulated metal enclosed ICT bay module, each set comprising of the following:

i. One (1) number 3-phase, SF6 gas insulated circuit breaker without PIR, complete with operating mechanism.

ii. Three (3) numbers 1-phase, 3-core, multi ratio, current transformers (CTA) on one side of circuit breaker.

iii. Three (3) numbers 1-phase, 2-core, multi ratio, current transformers (CTB) on other side of circuit breaker.

iv. Two (2) numbers 3-phase, single pole, group operated isolator switches complete with manual and motor driven operating mechanisms.

DESCRIPTION OF 420KV GIS BAY MODULES & EQUIPMENTS

v. Two (2) numbers 3-phase, single pole, group operated safety grounding switches complete with manual and motor driven operating mechanisms.

vi. Three (3) numbers 1-phase, individual pole operated isolator switches, complete with manual and motor driven operating mechanisms.

vii. Three (3) numbers 1-phase, individual pole operated safety grounding switches, complete with manual and motor driven operating mechanisms.

viii. Three (3) numbers 1-phase, individual pole operated isolator switches, complete with manual and motor driven operating mechanisms for switching of Spare ICT through Auxiliary bus. The isolator must meet the operational requirement in terms of Phase-phase insulation withstand capability.

ix. Three (3) numbers single phase, SF6 ducts inside the GIS hall (up to the outer edge of the wall of GIS Hall)

x. Gas monitoring devices, barriers, pressure switches, UHF PD sensors, support structures etc. as required.

xi. Local Control cubicle.

v) GIS Auxiliary Bus module for Spare ICT Connection (For 400kV side of 765/400kV ICT):
Set of isolated phase, SF6 gas-insulated metal enclosed Auxiliary bus bars module for ICT bays, each set comprising of the following:

i. One (1) number 1-Phase, Auxiliary bus bar enclosure running across the length of the switch gear to inter-connect the spare unit of ICT with all ICT bay Modules through GIS Duct and provision of extension for future ICT.

ii. One (1) number 1-Phase, single pole operated safety grounding switch, complete with manual and motor driven operating mechanisms.

iii. One (1) number single phase, SF6 ducts inside the GIS hall (up to the outer edge of the wall of GIS Hall).

iv. Gas monitoring devices, barriers, pressure switches, UHF PD sensors, support structures etc. as required.

v. End Piece (Interface) module with Isolating test link for Future extension **on both side** of Auxiliary Bus bar module. The end piece module shall be designed in such a way so that future GIS module may be tested without extending voltage to existing bus by removing the test link.

B. 420 kV Gas Insulated Switchgear (Double Main Busbar Scheme)

The SF6 gas insulated switchgear (50 Hz) shall be of the indoor metal-enclosed type and configuration of different GIS modules shall be as specified below:

DESCRIPTION OF 420KV GIS BAY MODULES & EQUIPMENTS

i) GIS Bus bar Module Extension:

Extension of Three isolated phase, SF6 gas-insulated metal enclosed bus bar module, each set comprising of the following: -

i. Three (3) no's individual bus bars enclosures running across the length of the switchgear to interconnect each of the bay modules in Double Main Bus bar system.

ii. Gas monitoring devices, barriers, pressure switches, UHF PD Sensors, Support structures etc., as required.

iii. End Piece (Interface) modules with isolating test link for Future extension of Bus bar module on one side. The end piece module shall be designed in such a way so that future GIS module may be tested without extending voltage to existing bus by removing the test link. End piece (interface) module for both the buses shall be in one alignment.

iv. Three (3) numbers single phase, SF6 ducts (as required) inside GIS hall.

ii) GIS Extension piece (Interface) module for Main Busbar:

Extension of Three isolated phase, SF6 gas-insulated metal enclosed bus bar module, each set comprising of the following:

i. Extension piece (Interface) module, as required to extend existing Main Busbar.

ii. Gas monitoring devices, barriers, pressure switches, Support structures etc., as required.

iii. All associated consumable items (i.e., O-ring, adsorbents etc.) with supervision of existing OEM (as required).

iii) GIS Line Bay module:

SF6 gas-insulated metal enclosed Line feeder bay module, each set comprising of the following:

i. One (1) number 3-phase, SF6 insulated circuit breaker (#) with/without PIR complete with operating mechanism.

ii. Three (3) numbers 1-phase, 3-core, multi ratio, current transformers (CTA) on one side of circuit breaker.

iii. Three (3) numbers 1-phase, 2-core, multi ratio, current transformers (CTB) on other side of circuit breaker.

iv. Three (3) numbers 3-phase, single pole, group operated isolator switches, complete with manual and motor driven operating mechanisms.

v. Two (2) numbers 3-phase, single pole, group operated safety grounding switches, complete with manual and motor driven operating mechanisms.

vi. One (1) number 3-phase, single pole, group operated high speed fault making grounding switch, complete with manual and motor driven operating mechanisms.

DESCRIPTION OF 420KV GIS BAY MODULES & EQUIPMENTS

vii. Three (3) numbers single phase, SF6 ducts inside GIS hall (upto the outer edge of the wall of GIS Hall)

viii. Gas monitoring devices, barriers, pressure switches, UHF PD Sensors, support structures etc. as required.

ix. Local Control Cubicle.

'#' As per BPS

C. Gas Insulated Outdoor Bus Duct (GIB):

i) **420kV GIB:**

For making connections with outdoor overhead lines/Transformer/Reactor, Single Phase enclosed SF6 Gas Insulated Bus Duct (including support structure, gas monitoring device, gas barrier, pressure switch, UHF PD Sensor etc.) shall be provided. The GIB shall be measured in running meter as per actual at site and the same shall be paid as per unit rate quoted in Bid Price Schedule. This outdoor bus duct shall be measured from outer wall edge of GIS Building to centerline of SF6 to Air Bushing/SF6 to Oil Bushing (as applicable). SF6 gas duct inside GIS building are part of respective GIS Bay Module.

D. Gas Insulated SF6 to Air Termination:

For making connections with overhead lines/Transformer/Reactor, SF6 to Air bushing including accessories shall be as specified below:

i) **For 420kV:** SF6 to air bushings along with terminal connectors & support structure etc. as required for outdoor connections to connect GIS with overhead line/Transformer/Reactor.

***