B.02.04 OZONE DEPLETING SUBSTANCES AND FLUORINATED GREENHOUSE GASES

Sulphur hexafluoride (SF6) shall be used as a gas insulator and arc-quenching medium in the CCGT HV switchgears (Area A). This gas is suitable for this application given its excellent dielectric resistance and thermal properties. It is estimated that 110kg of SF6 will be required by the GIS switchgears, to be filled during the commissioning phase of the project. Minimal SF6 will be consumed by the switchgears during the operation phase of the project as the system is completely sealed. SF6 is listed as non-ozone depleting substance (ODS) but is listed as a fluorinated greenhouse gas, hence the requirements for use, recycling activities, containment and destruction shall comply with EC 517/2014. F-gases will not be used in the proposed CCGT steam cycle.

A small amount fluorinated compounds shall be used as refrigerant for air conditioning systems of the central control building, administration buildings, electrical and control rooms and FSU accommodation. The air conditioning system is typically based on gas refrigerant compression cycle. The fluorinated gas usage, recycling activities, containment and destruction shall comply with EC 517/2014 and EU 1005/2009.

Table 2 - Data on Ozone depleting substances & Fluorinated greenhouse gases.

Equipment code	Type of equipment	Use	Charge		Type of substance
			Kg	CO_2 (tonnes eq)	
EQ 1	CCGT HV GIS	Insulation	110kg	2500	SF6
EQ2	CCGT HVAC systems	Refrigerant	74	154.2	R410A
EQ 3	Regas HVAC systems	Refrigerant	150	313	R410-A
EQ	FSU Accommodation and miscellaneous HVAC	Refrigerant	572	1016.9	R407C
EQ 5	FSU inert gas generator refrigeration	Refrigerant	508.5	904	R407C
EQ 6	FSU Cold room system, workshop cooling HVAC	Refrigerant	139.5	547	R404A

There is no gas detection installed in the GIS building. Gas leakage is detected by system pressure monitoring on the low pressure scenario and then the circuit breakers will open.