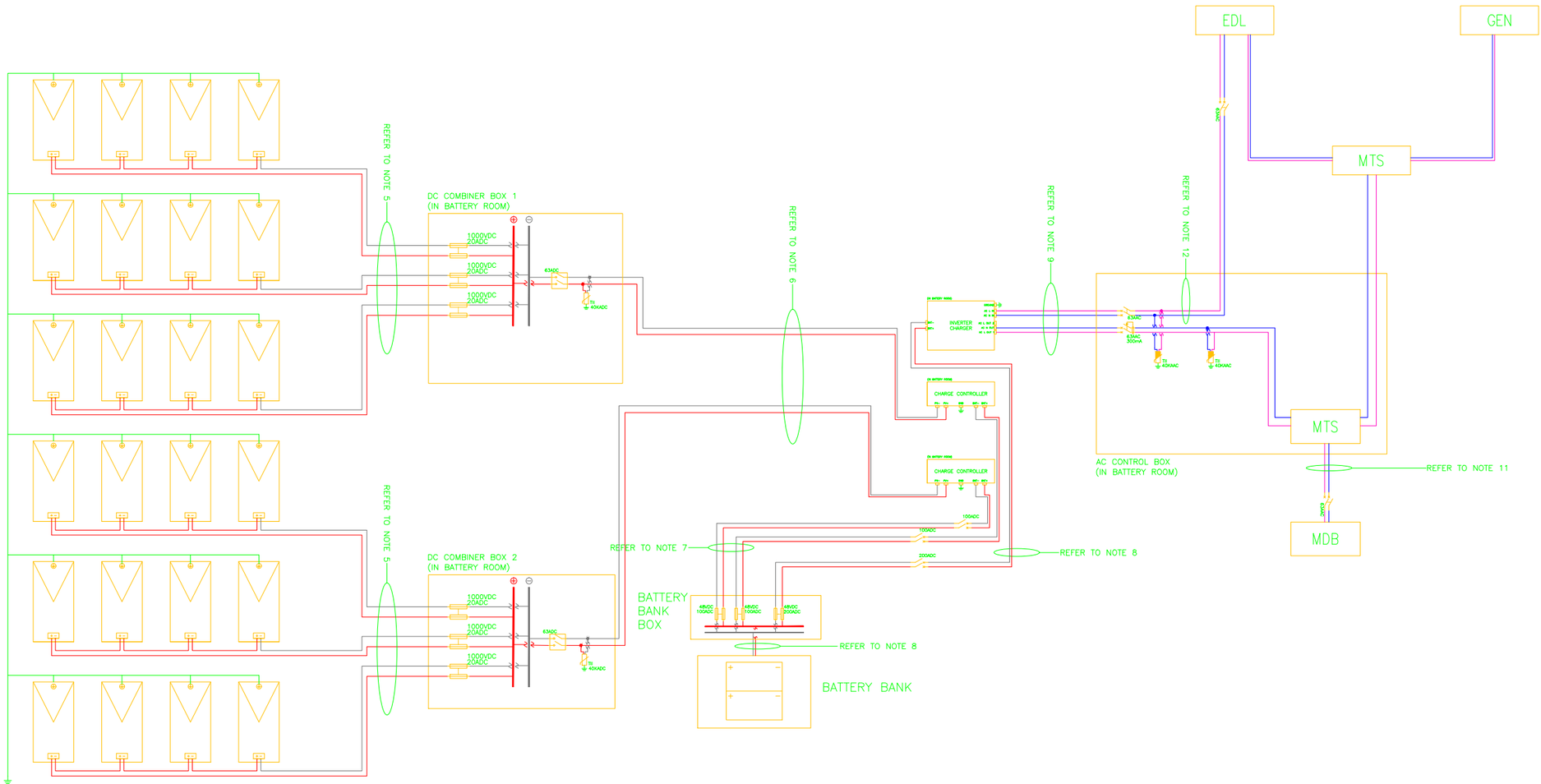

NOTES:

1. EVERY MODULE'S METALLIC FRAME MUST BE EARTHED BY CONNECTING THE FRAME TO THE METALLIC SUPPORTING STRUCTURE USING A 4mm² Cu/PVC/PVC PE CABLE.
2. EVERY METALLIC SUPPORTING STRUCTURE MUST BE EARTHED USING A 16mm² Cu/PVC/PVC PE CABLE.
3. EVERY PANELBOARD'S METALLIC ENCLOSURE AND METALLIC BACKSHEET MUST BE EARTHED USING A 4mm² Cu/PVC/PVC PE CABLE.
4. ALL NEW EARTHING POINTS TO BE CONNECTED TO A NEW EARTHING SYSTEM DEDICATED FOR THE SOLAR PV SYSTEM.
5. ALL PV CABLES SIZES TO BE 1C 4mm². CABLES TO BE KBE SOLAR PV1-F DC CABLE (OR EQUIVALENT). TÜV CERTIFIED (TÜV 2 PfG 1169/08.07), Cu TINNED CLASS 5 CONDUCTOR (ACC. TO IEC 60228), CROSSLINKED SPECIAL POLYOLEFIN, HALOGEN FREE, OZONE RESISTANT, WEATHER & UV-RESISTANT INSULATION & JACKET MATERIAL, 1500VDC MAXIMUM OPEN CIRCUIT VOLTAGE RATING (CONDUCTOR-CONDUCTOR, NON EARTHED SYSTEM), FLAME RETARDANT ACC. TO IEC 60332-1.
6. ALL PV CABLES SIZES TO BE 2x 1C 4mm². CABLES TO BE KBE SOLAR PV1-F DC CABLE (OR EQUIVALENT). TÜV CERTIFIED (TÜV 2 PfG 1169/08.07), Cu TINNED CLASS 5 CONDUCTOR (ACC. TO IEC 60228), CROSSLINKED SPECIAL POLYOLEFIN, HALOGEN FREE, OZONE RESISTANT, WEATHER & UV-RESISTANT INSULATION & JACKET MATERIAL, 1500VDC MAXIMUM OPEN CIRCUIT VOLTAGE RATING (CONDUCTOR-CONDUCTOR, NON EARTHED SYSTEM), FLAME RETARDANT ACC. TO IEC 60332-1.
7. ALL DC POWER CABLES FROM THE SOLAR CHARGE CONTROLLERS TO THE BATTERY BANK MUST BE 1C 25mm² UNARMORED Cu/PVC/PVC.
8. ALL DC POWER CABLES FROM THE BATTERY BANK TO THE INVERTER/CHARGER MUST BE 2x 1C 25 mm² UNARMORED Cu/PVC/PVC. THE BATTERIES POSITIVE AND NEGATIVE BUSBARS SHALL BE WELL SEPARATED AND SECURED FOR SAFETY PURPOSES.
9. ALL AC POWER CABLES TO/FROM THE OFF-GRID INVERTER MUST BE 2C 16mm² UNARMORED Cu/PVC/PVC, 0.6/1KV AND THE CORRESPONDING PE CABLES MUST BE 1C 16mm² UNARMORED Cu/PVC/PVC 0.5KV YELLOW/GREEN. ALL TO BE CONFORMING TO IEC 60502-1.
10. ALL INVERTERS CABLE GLANDS OPENINGS MUST BE TIGHTLY SEALED USING THE SUPPLIED INVERTER MATERIAL TO ENSURE AN IP65 PROTECTION LEVEL.
11. A POWER METER SHALL BE INSTALLED ON THE AC OUTPUT SIDE AFTER THE MTS TO DISPLAY AT LEAST THE VOLTAGE AND CURRENT READINGS.
12. A PHASE FAILURE/OVER UNDER VOLTAGE PROTECTION RELAY WITH A NORMALLY OPEN CONTACTOR SHALL BE INSTALLED ON THE AC INPUT SIDE OF THE INVERTER TO PROTECT THE SYSTEM.

LEGEND:

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MONOCRYSTALLINE PV MODULE: RATED POWER: 410Wp Vmp: 41.8Vdc , Imp: 9.79A DIMENSIONS(LW/W/D): 2015x996x40mm		SOLAR INVERTER: HYBRID INVERTER - 10kVA
	DOUBLE POLE DC FUSE WITH FUSE HOLDER. X REFERS TO THE VOLTAGE RATING (V). Y REFERS TO THE CURRENT RATING (A).		SOLAR CHARGE CONTROLLER 250V DC / 85A DC.
	DOUBLE POLE DC DISCONNECTING SWITCH. X REFERS TO THE CURRENT RATING (A).		DOUBLE POLE AC THERMAL-MAGNETIC MINIATURE CIRCUIT BREAKER. X REFERS TO THE TRIP CURRENT RATING (A).
	DOUBLE POLE DC SURGE ARRESTER. X REFERS TO THE SURGE ARRESTER TYPE (CLASS). Y REFERS TO THE NOMINAL DISCHARGE CURRENT RATING In (kA)		DOUBLE POLE AC THERMAL-MAGNETIC MINIATURE CIRCUIT BREAKER WITH A CLASS AC RESIDUAL CURRENT PROTECTION. X REFERS TO THE TRIP CURRENT RATING (A). Y REFERS TO THE EARTH LEAKAGE PROTECTION SENSITIVITY (mA).
	BATTERY BANK: NUMBER OF BATTERIES IN SERIES: 24 NUMBER OF BATTERIES IN PARALLEL: 1 BATTERY BANK VOLTAGE: 48V		DOUBLE POLE AC SURGE ARRESTER. X REFERS TO THE SURGE ARRESTER TYPE (CLASS). Y REFERS TO THE NOMINAL DISCHARGE CURRENT RATING In (kA).
			DOUBLE POLE DC CIRCUIT BREAKER. X REFERS TO THE TRIP CURRENT RATING (A).

REVISIONS:

REVISION NO.	DESCRIPTION	DATE
0	ISSUED FOR EXECUTION	03-04-23

CONSULTANT:

LCEC Engineering Office, 2nd floor Floor, Level 5 Bldg, President Elias Hraoui Avenue, Beirut, Lebanon
Email: energy@lcec.org.lb
Website: www.lcec.org.lb

CLIENT:

GIZ

PROJECT DESCRIPTION:

ROOF PV SYSTEM
KFARAAKKA – KOURA

DRAWING TITLE:

SLD

PROJECT PHASE:	DRAWING SCALE:	DRAWING DISCIPLINE:
EXECUTION	NTS	ELECTRICAL