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PREPARED BY:

مونکو ایران

Monenco Iran



C	INTERNAL REVISION	NIL	AZM	AKS	JVN	19.06.2021	DESIGNED BY	NIL	SIGNATURE
B	ACC. TO CLIENT COMMENT SHEET DATED:15 FEB 2021	NIL	AZM	AKS	JVN	08.02.2021	DRAWN BY	STT	
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REV	DESCRIPTION	DESIGN	DRAW	HEAD	APPR.	DATE	DATE:	30.11.2020	(DD.MM.YYYY)
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PROJECT:

KIMUKA

400/220kV SUBSTATION

DWG. TITLE:


UPS SINGLE LINE DIAGRAM

COVER

DWG. NO.: MT-TLD-KETCO-5393-DD-02-SD-256


SHEET: 1 OF: 4

CLIENT:



KETRACO

Karvy Electricity Transmission Co. Ltd.



THE WORLD BANK

IBRD · IDA | WORLD BANK GROUP

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KIMUKA

400/220kV SUBSTATION

UPS SINGLE LINE DIAGRAM

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C	<div>NOTES:</div> <div>1-NUMBERS AND RATINGS SHALL BE SPECIFIED AT DETAIL DESIGN STAGE BY EPC CONTRACTOR BASED ON CALCULATIONS SUBJECT TO CLIENT/CONSULTANT APPROVAL.</div> <div>2-AT LEAST 20 PERCENT OF EACH FEEDERS SIZE SHALL BE CONSIDERED AS SPARE FEEDER IN ADDITION TO FUTURES.</div> <div>3-THE MENTIONED SHORT CIRCUIT CAPACITY OF BUSBAR IS THE MINIMUM-VALUE, AND SHALL BE FINALIZED AT DETAIL DESIGN STAGE BY EPC CONTRACTOR BASED ON CALCULATIONS SUBJECT TO CLIENT/CONSULTANT APPROVAL.</div> <div>4-ALL MEASURING VALUES(VOLTAGE, CURRENT, REACTIVE POWER, ACTIVE POWER, FREQUENCY, POWER FACTOR, ENERGY, TEMPERATURE AND ETC) SHALL BE MONITORED THROUGH HMI AND ALL NECESSARY EQUIPMENT SUCH AS TRANSDUCERS SHALL BE CONSIDERED.</div> <div>5-ALL OF INVERTER INFORMATION SHOULD BE SENT TO HMI.</div> <div>6-THE CAPABILITY OF PARALLELING SHOULD BE SUPPLIED FOR 2 INVERTERS.</div> <div>7-ALL MCCBs/MCBs FOR FUTURE EXTENSION SHALL BE SUPPLIED.</div> <div>8-OPERATION OF ALL RELAYS SHALL BE SHOWN IN HMI.</div> <div>9-ALL MCCBs AND MCBs SHALL BE EQUIPPED WITH AUXILIARY CONTACTs.</div> <div>10-SIZE OF ALL CABLES SHALL BE DETERMINED AT DETAIL DESIGN STAGE BY EPC CONTRACTOR BASED ON CALCULATIONS SUBJECT TO CLIENT/CONSULTANT APPROVAL.</div> <div>11-SINGLE LINE DIAGRAM OF INVERTER SHALL BE SHOWN IN HMI WITH DYNAMIC COLORS.</div> <div>12-AUTOMATIC CHANGE OVER OPERATION (A.C.O) SHOULD BE DONE BELOW 4ms AND SUPPLIED BY INVERTER MANUFACTURER.(STATIC SWITCH)</div> <div>13-THE RANGE OF INVERTER SHALL BE SIZED (MINIMUM 6000 VA FOR A 10HR AUTONOMY PERIOD) CONSISTING OF DUAL INDEPENDENTLY OPERATION UNITS COMPLETE WITH ALL ACCESSORIES. THE CONTRACTOR SHALL PROVIDE SIZING CALCULATIONS FOR THE UPS LOADING AT DETAIL DESIGN STAGE SUBJECT TO CLIENT/CONSULTANT APPROVAL.</div> <div>14-THE UPS SYSTEM SHALL CONSIST OF DUAL INDEPENDENTLY OPERATING UNITS WORKING AS SHARING LOAD METHOD WITH ALL NECESSARY CONTROL, STATIC SWITCHES, MANUAL BYPASS SWITCH, ETC. NECESSARY FOR THE RELIABLE OPERATION OF UPS SYSTEM UNDER ALL OPERATING CONDITIONS OF THE SUBSTATION.</div> <div>15-SUITABLE FILTERS & STABILIZERS SHALL BE USED TO OBTAIN A PURE SINUSOIDAL WAVE OUTPUT.</div> <div>16-ALL SIGNALS REQUIRED TO CONTROL THE UPS SYSTEM SHOULD BE CONSIDERED/MONITORED IN SAS.</div> <div>17-IN NORMAL CONDITION THE UPS SHALL BE FED BY MAIN AC BOARD(OFF-LINE MODE OPERATION)</div> <div>18-INVERTER SWITCHING SHALL BE DONE IN AUTO & MAN MODE IN SYNCHRONIZING CONDITION.</div> <div>19-THE CONTRACTOR SHALL PROVIDE SUB-DISTRIBUTION BOARDS AS REQUIRED SUBJECT TO CLIENT/CONSULTANT APPROVAL.</div> <div>20-INVERTER OUTPUT EARTHING SYSTEM SHOULD BE "IT" TYPE & AN INSULATION MONITORING RELAY SHOULD BE USED AS THE RELAY OF ANSI CODE 64.</div> <div>21-LIGHTNING ARRESTOR SHALL BE CONSIDERED.</div> <div>22-MANUAL BYPASS SWITCH SHALL BE MAKE BEFORE BREAK.</div> <div>23-THE UPS SHALL BE SUITABLE FOR CONTINUOUS OPERATION AND SATISFACTORILY FUNCTION WITH A COMBINATION OF VARIATIONS OF THE INCOMING SUPPLY VOLTAGE OF 10% OF NOMINAL AND FREQUENCY OF 5% OF NOMINAL.</div> <div>24-THE UPS SYSTEM SHALL BE FED FROM 110V DC/415V AC SWITCHBOARDS BY TWO SUITABLE RATED MCCB CONNECTED TO THE SEPARATE BUS SECTIONS.</div> <div>25-MULTIPLICATION RELAYS WITH THREE CONTACTS FOR EACH ALARM OF THE UPS SYSTEM TO BE PROVIDED.</div> <div>26-THE CUBICLES SHALL BE COMPLETELY SELF-SUPPORTING, MADE OF A REQUIRED NUMBER OF STANDARDIZED, PREFABRICATED, VERTICAL SECTIONS BOLTED TOGETHER TO FORM INDOOR METAL CLAD, DUST-PROOF RIGID UNIT, DEGREE OF PROTECTION IP51. THE CUBICLES SHALL BE FREE STANDING, EQUIPPED WITH BOTTOM FRAMES SUITABLE FOR BOLTING TO THE FLOOR. STEEL SHEET THICKNESS SHALL NOT BE LESS THAN 2mm.</div> <div>27-ALL AC AMMETERS AND VOLTMETERS SHALL BE EQUIPPED WITH SELECTOR SWITCH.</div>								C																																																																																			
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