

	1	2	3	4	5	6	7	8	
A									A
B									B
C	KIMUKA 400/220kV SUBSTATION LVAC SINGLE LINE DIAGRAM								C
D									D
E									E

F



KETRACO
Kenya Electricity Transmission Co. Ltd.




1	2	3	4	5	6	7	8	
A								A
B								B
C								C
D								D
E								E
F								F

PREPARED BY:

موندکو ایران

Monenco Iran



								DESIGNED BY	NIL	SIGNATURE
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B	ACC. TO CLIENT COMMENT SHEET DATED:15 JAN 2021	NIL	AZM	AKS	JVN	20.01.2021	CHECKED BY	AKS		
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PROJECT:

KIMUKA


400/220kV SUBSTATION

DWG. TITLE:

LVAC SINGLE LINE DIAGRAM


LIST OF DRAWINGS

CLIENT:



KETRACO

Kenya Electricity Transmission Co. Ltd.



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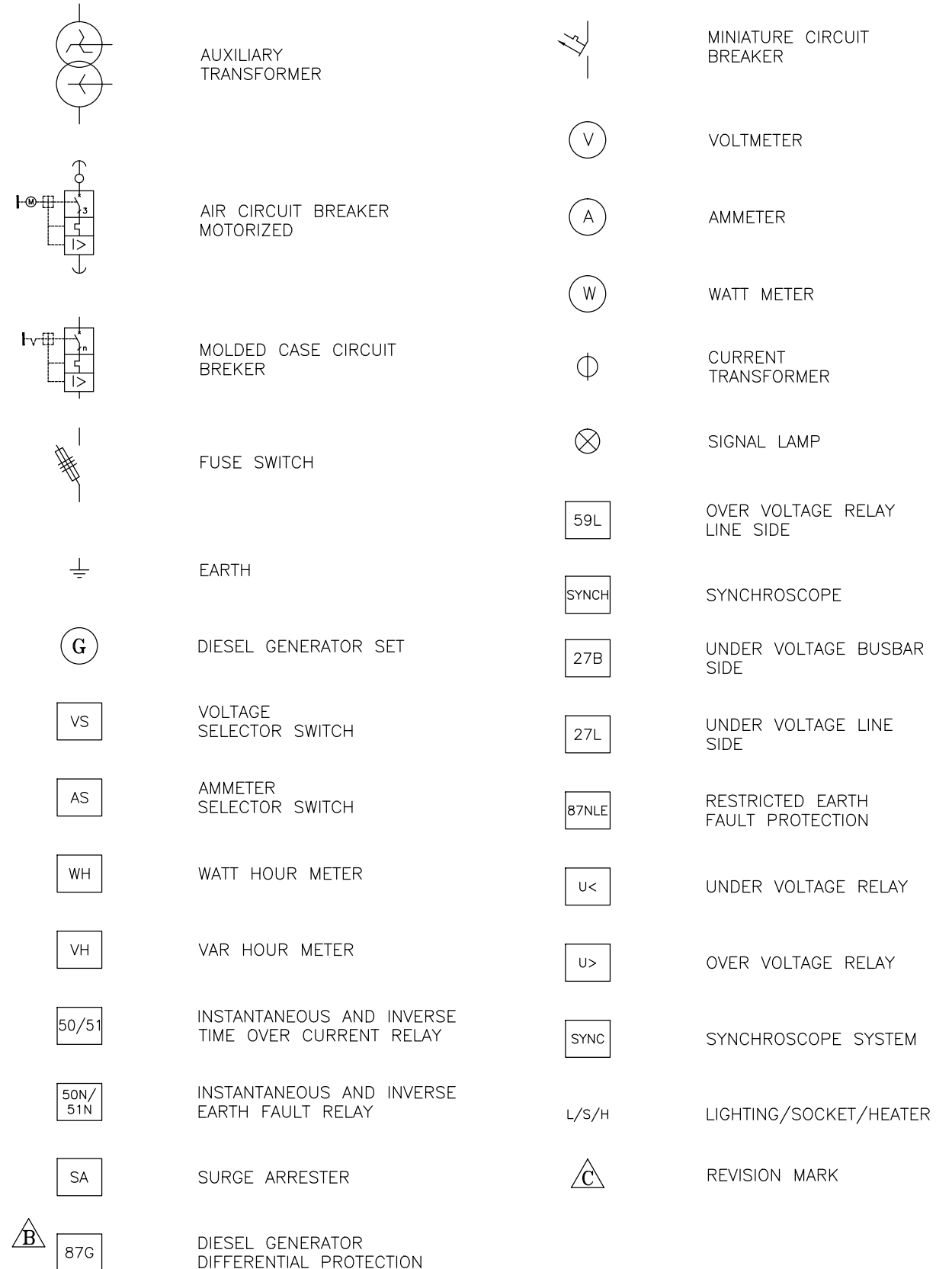
DWG. NO.: MT-TLD-KETCO-5393-DD-02-SD-101

SHEET: 2 OF: 4

NOTE:

- 1-NUMBERS AND RATINGS SHALL BE SPECIFIED AT DETAIL DESIGN STAGE BY EPC CONTRACTOR BASED ON CALCULATIONS SUBJECT TO CLIENT/CONSULTANT APPROVAL.
- 2-AT LEAST 20 PERCENT OF EACH FEEDERS SIZE SHALL BE CONSIDERED AS SPARE FEEDER IN ADDITION TO FUTURES.
- 3-SHORT CIRCUIT CAPACITY OF BUSBAR ARE THE MIN-VALUE, AND SHALL BE FINALIZED ACCORDING TO DETAIL DESIGN CALCULATIONS.
- 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.
- 5-LVAC SINGLE LINE DIAGRAM SHALL BE SHOWN IN OPERATOR WORKSTATION WITH DYNAMIC COLORS.
- 6-EMERGENCY DIESEL GENERATOR SET SHALL BE SUPPLIED COMPLETE WITH CONTROL, PROTECTION, METERING, INDICATION AND ANNUNCIATION SYSTEM.
- 7-ALL MCCBs/MCBs FOR FUTURE EXTENSION ;ACCORDING TO GENERAL SINGLE LINE DIAGRAM, WITH CORRESPONDENT SPACE SHALL BE CONSIDERED/SUPPLIED IN MAIN/DISTRIBUTION LVAC PANELS.
- 8-EACH ACB SHOULD BE MOUNTED IN ONE SEPARATE PANEL.
- 9-ALL MCCBs AND MCBs SHALL BE EQUIPPED WITH AUXILIARY CONTACT.
- 10-SIZE OF ALL CABLES SHALL BE DETERMINED AFTER CALCULATION AT DESIGN STAGE.
- 11-SPECIFICATION OF BUSBARS ARE 415/240V, 25KA/1SEC, 3P+N+E AND SHALL BE FINALIZED ACCORDING TO CALCULATIONS.
- 12-AT LEAST 1 AC PANEL SHOULD BE PLACED IN BCRs WHICH SUPPLIES BCR PANELS L/S/H, MARSHALING KIOSK AND HV EQUIPMENTS L/S/H AND ETC.
- 13-ALL NECESSARY MCB's FOR OUTPUT FEEDERS IN BCR LVAC PANEL SHALL BE PROVIDED.(PER MARSHALING, CB, DS, ES, HVAC, BCR LIGHTING AND ETC.)
- 14-DISTRIBUTION OF AC SUPPLY IN SWITCHYARD EQUIPMENT SHOULD BE RADIAL AND FROM RELATED MARSHALING PANELS.
- 15-ALL SIGNALS REQUIRED TO CONTROL THE AC/DC SYSTEM SHOULD BE CONSIDERED BY SAS.
- 16-ALL OF THE SIGNALS MUST BE MONITORED IN SAS.
- 17-INTERLOCK SHALL BE IMPLEMENTED BETWEEN MAIN CBs AND BUSCOUPLER CB. DG ONLY COMES ON WHEN THE MAIN SUPPLY CBs ARE OFF.
- 18-THE CONTRACTOR SHALL PROVIDE SUB-DISTRIBUTION BOARDS AS REQUIRED SUBJECT TO CLIENT/CONSULTANT APPROVAL.
- 19-THE BURDEN, RATIO AND ACCURACY CLASS OF CTs AND VTs SHALL BE ADEQUATE FOR CURRENT AND FUTURE SCOPE. THE MENTIONED VALUES TO BE FINALIZED AT DETAILED DESIGN STAGE BY EPC CONTRACTOR, SUBJECT TO RELATED CALCULATION APPROVED BY CLIENT/CONSULTANT.
- 20-THE INCOMINGS AND COUPLER CIRCUIT BREAKERS SHALL BE INTERCHANGEABLE WITH EACH OTHER.
- 21-THE SINGLE LINE DIAGRAM SHALL BE IN BLUE (NO. 166) COLOR FOR 0.415KV VOLTAGE LEVEL.
- 22-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. SHEET STEEL THICKNESS SHALL NOT BE LESS THAN 2 mm.

LEGEND



PREPARED BY:	
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PROJECT:

KIMUKA
400/220kV SUBSTATION

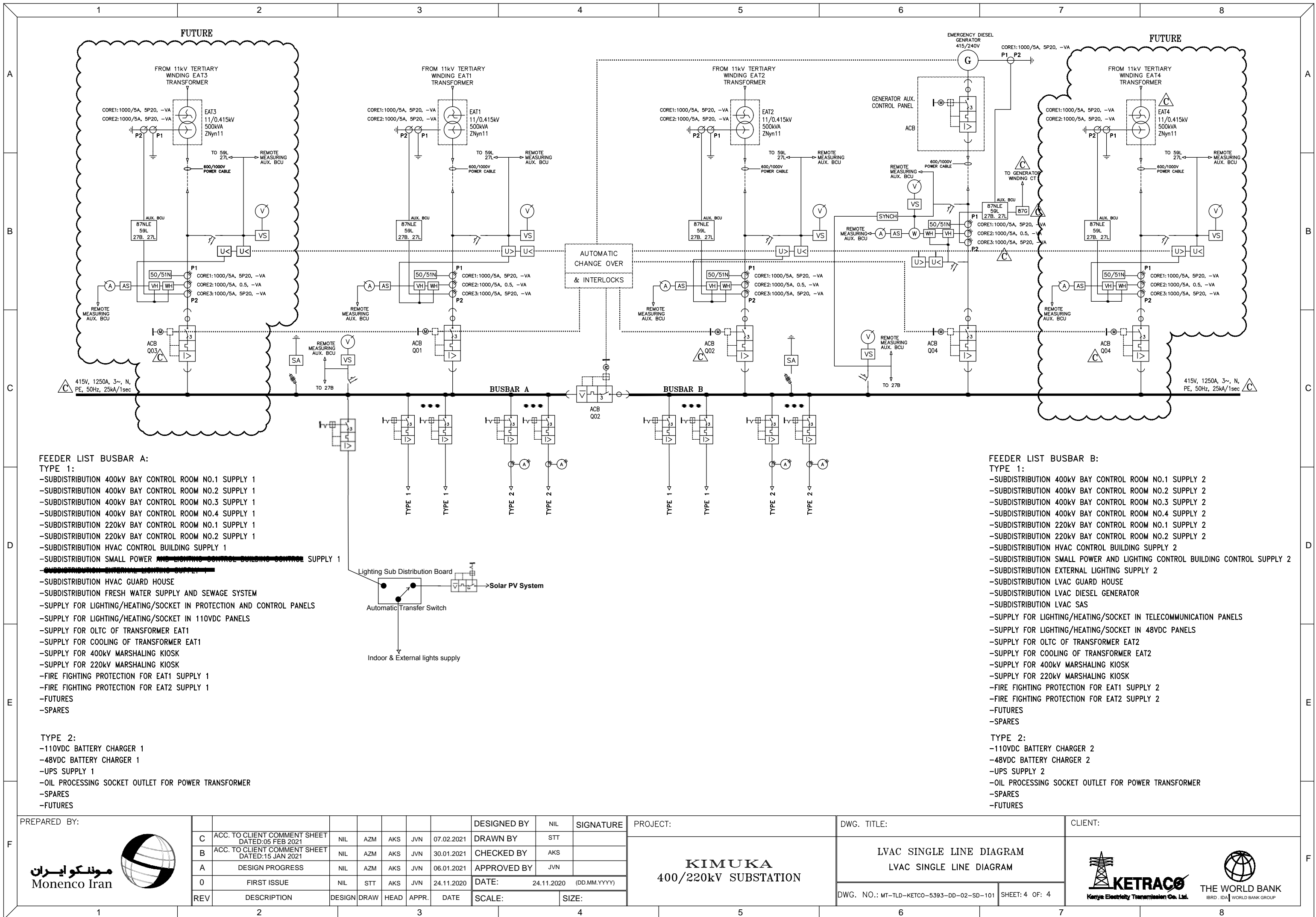
DWG. TITLE:

LVAC SINGLE LINE DIAGRAM
LEGEND & NOTE

DWG. NO.: MT-TLD-KETCO-5393-DD-02-SD-101 SHEET: 3 OF: 4




CLIENT:





- FEEDER LIST BUSBAR A:
- TYPE 1:
- SUBDISTRIBUTION 400kV BAY CONTROL ROOM NO.1 SUPPLY 1
 - SUBDISTRIBUTION 400kV BAY CONTROL ROOM NO.2 SUPPLY 1
 - SUBDISTRIBUTION 400kV BAY CONTROL ROOM NO.3 SUPPLY 1
 - SUBDISTRIBUTION 400kV BAY CONTROL ROOM NO.4 SUPPLY 1
 - SUBDISTRIBUTION 220kV BAY CONTROL ROOM NO.1 SUPPLY 1
 - SUBDISTRIBUTION 220kV BAY CONTROL ROOM NO.2 SUPPLY 1
 - SUBDISTRIBUTION HVAC CONTROL BUILDING SUPPLY 1
 - SUBDISTRIBUTION SMALL POWER AND LIGHTING CONTROL BUILDING SUPPLY 1
 - SUBDISTRIBUTION EXTERNAL LIGHTING SUPPLY 1
 - SUBDISTRIBUTION HVAC GUARD HOUSE
 - SUBDISTRIBUTION FRESH WATER SUPPLY AND SEWAGE SYSTEM
 - SUPPLY FOR LIGHTING/HEATING/Socket IN PROTECTION AND CONTROL PANELS
 - SUPPLY FOR LIGHTING/HEATING/Socket IN 110VDC PANELS
 - SUPPLY FOR OLTC OF TRANSFORMER EAT1
 - SUPPLY FOR COOLING OF TRANSFORMER EAT1
 - SUPPLY FOR 400kV MARSHALING KIOSK
 - SUPPLY FOR 220kV MARSHALING KIOSK
 - FIRE FIGHTING PROTECTION FOR EAT1 SUPPLY 1
 - FIRE FIGHTING PROTECTION FOR EAT2 SUPPLY 1
 - FUTURES
 - SPARES
- TYPE 2:
- 110VDC BATTERY CHARGER 1
 - 48VDC BATTERY CHARGER 1
 - UPS SUPPLY 1
 - OIL PROCESSING SOCKET OUTLET FOR POWER TRANSFORMER
 - SPARES
 - FUTURES

- FEEDER LIST BUSBAR B:
- TYPE 1:
- SUBDISTRIBUTION 400kV BAY CONTROL ROOM NO.1 SUPPLY 2
 - SUBDISTRIBUTION 400kV BAY CONTROL ROOM NO.2 SUPPLY 2
 - SUBDISTRIBUTION 400kV BAY CONTROL ROOM NO.3 SUPPLY 2
 - SUBDISTRIBUTION 400kV BAY CONTROL ROOM NO.4 SUPPLY 2
 - SUBDISTRIBUTION 220kV BAY CONTROL ROOM NO.1 SUPPLY 2
 - SUBDISTRIBUTION 220kV BAY CONTROL ROOM NO.2 SUPPLY 2
 - SUBDISTRIBUTION HVAC CONTROL BUILDING SUPPLY 2
 - SUBDISTRIBUTION SMALL POWER AND LIGHTING CONTROL BUILDING SUPPLY 2
 - SUBDISTRIBUTION EXTERNAL LIGHTING SUPPLY 2
 - SUBDISTRIBUTION HVAC GUARD HOUSE
 - SUBDISTRIBUTION LVAC DIESEL GENERATOR
 - SUBDISTRIBUTION LVAC SAS
 - SUPPLY FOR LIGHTING/HEATING/Socket IN TELECOMMUNICATION PANELS
 - SUPPLY FOR LIGHTING/HEATING/Socket IN 48VDC PANELS
 - SUPPLY FOR OLTC OF TRANSFORMER EAT2
 - SUPPLY FOR COOLING OF TRANSFORMER EAT2
 - SUPPLY FOR 400kV MARSHALING KIOSK
 - SUPPLY FOR 220kV MARSHALING KIOSK
 - FIRE FIGHTING PROTECTION FOR EAT1 SUPPLY 2
 - FIRE FIGHTING PROTECTION FOR EAT2 SUPPLY 2
 - FUTURES
 - SPARES
- TYPE 2:
- 110VDC BATTERY CHARGER 2
 - 48VDC BATTERY CHARGER 2
 - UPS SUPPLY 2
 - OIL PROCESSING SOCKET OUTLET FOR POWER TRANSFORMER
 - SPARES
 - FUTURES

PREPARED BY:										DESIGNED BY		NIL		SIGNATURE		PROJECT:				DWG. TITLE:				CLIENT:			
<div>مونئكو ائران</div> <div>Monenco Iran</div> <div></div>		C	ACC. TO CLIENT COMMENT SHEET DATED:05 FEB 2021				NIL	AZM	AKS	JVN	07.02.2021	DRAWN BY		STT		<div>KIMUKA</div> <div>400/220kV SUBSTATION</div>		LVAC SINGLE LINE DIAGRAM LVAC SINGLE LINE DIAGRAM				<div>KETRACO</div> <div>Kenya Electricity Transmission Co. Ltd.</div> <div>THE WORLD BANK</div> <div>IBRD · IDA · WORLD BANK GROUP</div>					
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