

EPESOL/EPEBARQ Design Projects Reference List (From 2002 to 2020)

Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
1	PFI Plant	Saba Power Plant, Pakistan (Subsidiary of El Paso Corporation)	6.6kV	-	Basler Make BE4-51	2002	Consultancy	Designed power factor improvement plant for 6.6kV system of the 135 MW power plants. Produced schematic drawings, interface drawings and complete commissioning instructions for the work at site. Prepared relay setting documents and time based plots for PFI plant protection relays coordination with existing system.
2	High Sensitive Earth Fault Protection System	Gareebwaal Cement	-	-	-	2003	Consultancy	Designed the high sensitive earth fault protection system for very low current earth faults in the electrical system of Gareebwaal Cement Pvt Ltd (local cement manufacturing unit) using special CTs and arrangement, supported by CT calculations. Project also included the study of generator protection system to rectify problem of differential protection indiscriminate tripping events due to improper CT connections.
3	PFI Plant	AES Lal Pir Power Plant	11kV	-	GE Make MIF	2004	Consultancy	Designed power factor improvement plant for 11kV system of the 370+372 MW power plant. Produced schematic drawings, interface drawings and complete commissioning instructions for the work at site. Prepared relay setting documents and time based plots for PFI plant protection relays coordination with existing system. Additionally designed automatic CT switching scheme for connection of single PFI unit to two different buses.
4	Generator Load Shedding Scheme	Sawan Gas Field, OMV Pakistan	-	-	GE Make F35	2004	Consultancy	Designed frequency based load shedding scheme, panel & interface drawings for generating system consisting of multiple generators working in parallel and associated priority based loads. System consisted of five synchronous generators (two on standby). Tripping of any one of the three remaining generators working in parallel caused the system to be overloaded and lead to complete shutdown. The scheme was designed using GE F35 (UR Series) modern protection system logic capabilities to gradually shed the load on generators in order to maintain the system frequency within safe limits. The scheme is flexible using software based selector switches to change the tripping sequence of the load.

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5	500kV Utility Substation Extension Project	SEPC China and NESPAK, Lahore	500kV	1	-	2004	Substation Schematics	The main contractor for the project was SEPC China and NESPAK was the consultant and the work included the addition of a new 500kV transmission line bay to the existing breaker and a half bus bar scheme, line shunt reactors, interface to the substation existing control, AC/DC auxiliary system, Event/Fault recording system and Telecommunication / SCADA system. Designed the following in this regard; Equipment Single line, Protection and Metering, Equipment Interlock Scheme, Current Transformer Accuracy Calculation, Voltage Transformer Accuracy Calculation, Signaling Point List, AC/DC auxiliary system, Broad Band System Integration - System Layout, System Layout – PLC, System Layout - Fiber Optics, System Layout – Radio, Substation General Layout, Substation Equipment Layout, Grounding Layout, Trench Layout, Sections Layout, Lightening Protection Plan, Switchyard Lighting Plan, Equipment Foundation Layout and SCADA Point List.
6	132kV Protection Settings Requisite Changes & Implementation	HCPCC, Pakistan (Subsidiary of El Paso Corporation)	132kV	5	Siemens Make 7SA511, SPAJ 140C, RP-351; ABB Make REL 511, SPAS 348C	2004	System Studies	Habibullah Coastal Power Plant HCPCC (135 MW) had a long standing dispute with WAPDA (local utility) over 132kV protection system including relay settings. Audited and analyzed their line protection, transformer protection, bus bar protection, generator protection, under frequency protection and protection relays coordination to recommend final protection scheme and settings which have now been implemented after approval from both the stake holders.
7	Design of Automated Digital Metering System	KAPCO Power Plant, Pakistan	-	-	-	2005	Consultancy	Designed automated digital metering system for generation backup metering, including setup of RS-485 LAN network of digital meters, communication converters, software and interfacing to the control room PC for online monitoring, control and data logging facilities.
8	ADP-59: Protection System Design	NTDC WAPDA (Local Utility)	132kV	-	GE Make D60, MIFII, DTP	2005	Panel Engineering	The project included design of 132kV transmission line and transformer protection system for our own in house manufacturing of fifteen protection panels.

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9	Over Current & Earth Fault Relays Time Coordination	Saba Power Plant, Pakistan, (Subsidiary of El Paso Corporation)	132kV, 15.5kV, 6.6kV	5	Siemens Make 7SA511, 7SJ511; Alstom Make KCGG140, MCHD-04, LGPG111; Basler Make BE1-50/51M-109	2005	System Studies	Relays in the system were non-coordinated and were producing indiscriminate tripping events. Studied & analyzed the over current & earth fault relay settings in terms of time coordination for 132kV, 15.5kV & 6.6kV system, proposed new settings with calculations & time based plots for relays coordination.
10	Generator Protections Retrofit Design	Engro Chemicals Pvt. Ltd. (Local Fertilizer Industry)	6.6kV	-	GE Make G30	2006	Consultancy	Designed complete schematics and preparation of commissioning instructions for the replacement of generator protection system older electro-mechanical relays with GE G30 numerical generator protection relay. Calculated equivalent relay settings to be done on the new unit.
11	Rectification of 132kV Breaker Synchronization Scheme	Saba Power Plant, Pakistan, (Subsidiary of El Paso Corporation)	132kV	-	-	2006	Consultancy	The circuit breaker closing caused generator tripping due to non-synchronized voltages on its two sides. Project included analysis of synchronization scheme of 132kV circuit breaker, recommended alternates and modifications for safe synchronization.
12	FESCO-115: Protection System Design	FESCO (Distribution Utility)	132kV	-	GE Make D60, MIFII, DTP	2006	Panel Engineering	The project included design of 132kV transmission line and transformer protection system for our own in house manufacturing of more than forty protection panels.
13	FESCO-134: Protection System Design	FESCO (Distribution Utility)	132kV	-	GE Make D60, MIFII, DTP	2006	Panel Engineering	The project included design of 132kV transmission line and transformer protection system for our own in house manufacturing of more than forty protection panels.
14	IESCO29: Protection System Design	IESCO (Distribution Utility)	132kV	-	GE Make D60, MIFII	2006	Panel Engineering	The project included design of 132kV transmission line protection system for our own in house manufacturing of protection panels.
15	LESCO-607: Protection System Design	LESCO (Distribution Utility)	132kV	-	GE Make D60, MIFII, DTP	2006	Panel Engineering	The project included design of 132kV transmission line and transformer protection system for our own in house manufacturing of more than eighty protection panels.
16	GSO/20: Protection System Design	MEPCO (Distribution Utility)	132kV	-	GE Make D60, MIFII, DTP	2006	Panel Engineering	The project included design of 132kV transmission line and transformer protection system for our own in house manufacturing of fifteen protection panels.
17	GSO/32: Protection System Design	MEPCO (Distribution Utility)	132kV	-	GE Make MIFII, MIVII	2006	Panel Engineering	The project included design of 132kV capacitor relay and protection panels.

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18	220 kV Protection System Design	NTDC (Local Utility) at Kala Shah Kaku G/S	220kV	-	GE Make D60, C60	2006	Panel Engineering	The project included design of 220kV (Breaker one and a half scheme) transmission line and transformer protection and control system for our own in house manufacturing of indoor protection and control panels and outdoor marshalling kiosks.
19	500kV Control Panel Modification Work	NTDC (Local Utility) at Rewat G/S	500kV, 220kV	2	-	2006	Panel Engineering	The project included design and implementation required to modify 220kV control panel for breaker and half dia of two transmission line bays into a 500kV control panel for breaker and half dia of one transmission line bay and one transformer bay.
20	WOR-11: 220kV P&C, MK	NTDC (Local Utility) for NKLP	220kV	-	GE Make D60, C60, T60, MIB, MIFII, Areva Make P443	2006	Panel Engineering	The project included design of 220kV protection, control and marshalling kiosks for line & transformer for our own in house manufacturing.
21	AC / DC Substation Auxiliary Supply Distribution Panels	NTDC (Local Utility)	-	-	-	2006	Panel Engineering	The project included design of 220VDC and 3 Ph 400VAC substation auxiliary supply distribution panels with automatic transfer scheme for two incomers feeding separate buses using motorized MCCBs at incomers and bus coupler.
22	Protection & Control Design	Rousing Engineering	132kV	-	GE Make DTP, MIFII	2006	Panel Engineering	The project included design of 132kV protection & control system for our own in house manufacturing of panels.
23	Analysis of Protection Settings	AES Lal Pir Power Plant	-	-	-	2007	System Studies	The project included analysis and recommended setting calculations of GE Make Over Current Relay type MDP200 installed at auxiliary dry type transformer.
24	Analysis of Frequency Protection Scheme	HCPC, Pakistan (Subsidiary of El Paso Corporation)	132kV	-	SFT-20, TPP60, HAR132C, RXFK	2007	System Studies	The project included review, analysis and inferences based on the study of existing frequency protection scheme and also include recommendations to avoid power plant isolation under utility tripping.
25	Electrical System Reliability Study	OMV Pakistan for Kadanwari Gas Field	0.4kV	-	ETAP	2007	System Studies	The project included following studies. <ul style="list-style-type: none"> - Generation Units Capacity Study - Load Flow Study - Short-Circuit Study - Supplying Feeders Capacity Study - Cables Capacity Study - ACB, Busbar Rating Study - Generator Protection Study

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26	Study & Analysis of 220kV Distance Protection System	UCH Power Plant, Pakistan (ESBI Contracting)	220kV	-	GEC Make SHNB-102, ABB Make LZ96a, RET316*4	2007	System Studies	Included study of distance protection system for 220kV transmission line and proposal of new settings supported by calculations. The line was re routed through a new Substation and the protection was required to be revised accordingly based on the actual philosophy.
27	STG-26: R&C Panels	QESCO (Local Utility)	132kV	-	GE Make DTP, MIFII	2007	Panel Engineering	The project included design and in-house manufacturing of 132kV line control panel CP30, CP50, RP4 and 11kV swgr for QESCO.
28	HESCO: 11kV Switchgear, AC/DC Auxiliary Supply Panel	HESCO (Local Utility)	11kV	-	GE Make MIFII	2007	Panel Engineering	The project included design and in-house manufacturing of 11kV Incomer, Outgoing, BC & AC/DC auxiliary supply panels.
29	ADB-08: 132kV, 220kV and 500kV Panels	NTDC (Local Utility)	500kV, 220kV, 132kV	-	GE Make D60, C60, T60, MIB, MIFII, F35, Areva Make P443	2008	Panel Engineering	The project included design and in-house manufacturing of 369 Nos. 132kV, 220kV and 500kV Relay, Control, Marshalling Kiosk, AC/DC, Event recorder, Fault recorder and P&V recorder Panels for prime grid stations of the utility on GIS and AIS with various bus configurations.
30	Substation Schematic Drawings	NTDC (Local Utility) for 220kV New Kot Lakhpat S/S	220kV, 132kV	1	GE Make T60, MIB, MIFII	2008	Substation Schematics	The project included complete grid schematic of NKLP grid station. Scope includes design, schematics, cable schedules and cable interconnection drawings for interconnection of 220/132kV, 240MVA power transformer at 220kV NKLP substation.
31	Substation Schematic Drawings	NTDC (Local Utility) for 500kV Gatti S/S	500kV, 220kV	1	GE Make T60, MIB, MIFII	2008	Substation Schematics	The project included complete grid schematic of Gatti grid station. Scope includes design, schematics, cable schedules and cable interconnection drawings for interconnection of 500/220kV, 600MVA power transformer at 500kV Gatti substation.
32	Substation Schematic Drawings	NTDC (Local Utility) for 220kV Bahawalpur S/S	220kV, 132kV	1	GE Make T60, MIB, MIFII	2009	Substation Schematics	The project included complete grid schematic of Bahawalpur grid station. Scope includes design, schematics, cable schedules and cable interconnection drawings for interconnection of 220/132kV, 160MVA power transformer at 220kV Bahawalpur substation.

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33	Substation Schematic Drawings	NTDC (Local Utility) for 220kV Bannu S/S	220kV, 132kV	1	GE Make T60, MIB, MIFII	2009	Substation Schematics	The project included complete grid schematic of Bannu grid station. Scope includes design, schematics, cable schedules and cable interconnection drawings for interconnection of 220/132kV, 160MVA power transformer at 220kV Bannu substation.
34	Substation Schematic Drawings	NTDC (Local Utility) for 220kV HalaRoad S/S	220kV, 132kV	1	GE Make T60, MIB, MIFII	2009	Substation Schematics	The project included complete grid schematic of Hyderabad grid station. Scope includes design, schematics, cable schedules and cable interconnection drawings for interconnection of 220/132kV, 160MVA power transformer at 220kV HalaRoad substation.
35	Substation Schematic Drawings	NTDC (Local Utility) for 220kV Ludewala S/S	220kV, 132kV	1	GE Make T60, MIB, MIFII	2009	Substation Schematics	The project included complete grid schematic of Ludewala grid station. Scope includes design, schematics, cable schedules and cable interconnection drawings for interconnection of 220/132kV, 160MVA power transformer at 220kV Ludewala substation.
36	Substation Schematic Drawings	NTDC (Local Utility) for 220kV Yousafwala S/S	220kV, 132kV	1	GE Make T60, MIB, MIFII	2009	Substation Schematics	The project included complete grid schematic of Yousafwala grid station. Scope includes design, schematics, cable schedules and cable interconnection drawings for interconnection of 220/132kV, 160MVA power transformer at 220kV Yousafwala substation.
37	Substation Schematic Drawings	NTDC (Local Utility) for 220kV Mangla S/S	220kV, 132kV	1	GE Make T60, MIB, MIFII	2010	Substation Schematics	The project included complete grid schematic of Yousafwala grid station. Scope includes design, schematics, cable schedules and cable interconnection drawings for interconnection of 220/132kV, 160MVA power transformer at 220kV Mangla substation.
38	Relay Setting Calculations	CMEC China for 132kV SAIF CCPP (Local Power Plant)	132kV	9	Areva Make P443, P543, P127, P746; Nanjing Nari Make RCS-985A	2009	System Studies	It included complete setting calculations for AREVA make distance protection, line differential, Transformer protection and over current/earth fault relays for its commissioning and connectivity with the utility.

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39	Substation Schematic Drawings	NTDC (Local Utility) for 220kV New Multan S/S	220kV, 132kV	5	GE Make T60, MIB, MIFII, D60	2010	Substation Schematics	The project included complete grid schematic of New Multan grid station. Scope includes design, schematics, cable schedules and cable interconnection drawings for interconnection for the addition of 3 Nos. 220/132kV, 160MVA power transformer at 220kV New Multan substation.
40	Substation Schematic Drawings	NTDC (Local Utility) for 220kV GIS Wapda Town S/S	220kV, 132kV	10	GE Make D60, C60, T60, MIB, MIFII, F35, Areva Make P443	2010	Substation Schematics	The project included complete grid schematic of Wapda Town grid station. Scope includes design, schematics, cable schedules and cable interconnection drawings for interconnection of complete GIS substation including 3 Nos. 220/132kV 160MVA power transformer bays, 4 Nos. 220kV Line bays and buscoupler bay at 220kV GIS Wapda Town substation.
41	Supply of 220kV Mangla Control Desk	Mangla Power Station (Hydal Power Station)	220kV	1	-	2010	Panel Engineering	The project included design and in-house manufacturing of 220kV control desk for Mangla Power Station.
42	Retrofit Solution for Synchronization of two 11kV Supplies	Kamra AMF	11kV	3	GE Make F35 / ETAP	2011	Consultancy	Scope included protection system modification, load flow study, short-circuit study, relay setting calculations, relay coordination study for synchronization of two 11 kV supplies at Kamra Aircraft Manufacturing Factory Kamra.
43	Turnkey Project for Installation of Line Differential and Over Current Relays	132kV Jinnah Hydro (Local IPP)	132kV	1	GE Make L90, MIFII	2011	Consultancy	Scope includes preparation of complete panels drawings, setting calculations, coordination study, installation, testing and commissioning of GE Make L90 and MIFII relays at site.
44	Generator Protection Retrofit Design	UCH Power Plant (Local IPP)	11.5kV	-	GE Make G60	2011	Consultancy	Scope includes preparation of complete schematics drawings, installation, testing and commissioning for the replacement of old Generator Protection relay type DGP with GE make G60 numerical generator protection relay.
45	Preparation of As-Built Drawings	ABB KSA	-	-	-	2011	International Design & Consultancy	Project completed on behalf of ABB (KSA)
46	CT/VT Adequacy Calculation of Complete Medium Voltage Switchgears	ABB KSA for Mattex Factory, Jubail, KSA	13.8kV	11	-	2011	International Design & Consultancy	Project completed on behalf of ABB (KSA)

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47	Modification of Control Desk	NTDC (Local Utility) for 500kV Tarbela S/S	-	-	-	2011	Panel Engineering	The project included installation of Metering, Control and Annunciation component in the limited space at Tarbela grid station.
48	Substation Schematic Drawings	NTDC (Local Utility) for 220kV Burhan S/S	220kV, 132kV	3	-	2011	Substation Schematics	Scope includes design, schematics, cable schedules and cable interconnection drawings for a new 220/132kV 160MVA power transformer bay, 2 Nos. 220kV Line bays and 132kV bay at 220kV Burhan substation.
49	Substation Schematic Drawings	NTDC (Local Utility) for 500kV Tarbela S/S	500kV, 220kV	1	GE Make T60, MIB, MIFII	2011	Substation Schematics	The project included complete grid schematic of Tarbela grid station. Scope includes design, schematics, cable schedules and cable interconnection drawings for interconnection of 500/220kV, 3 x 79MVA power transformer at 500kV Tarbela substation.
50	Substation Schematic Drawings	NTDC (Local Utility) for 220/132kV Ghazi Road Grid	220kV	-	-	2011	Substation Schematics	The project included complete grid schematic of ghazi road grid station. Scope includes design schematics for new IPCT's.
51a	110kV GIS Library S/S Makkah	M/s SSEM (Main Contractor) & M/s AJEC (Design contractor) KSA	110kV, 13.8kV	82	Siemens Make 7SD522, 7SS522, 7SS523; SEL Make 411L, 487E, 451, 351A; Schneider Make Sepam 80; Areva Make MFAC14, MiCOM P139, C264; GE Make C70; ABB Make RED670, REF615, REC670	2012	International Design & Consultancy	The project includes complete secondary engineering of 110kV GIS and 13.8kV switchgears including preparation of point list for SCADA and SAS, CT/VT Calculation, Cable Schedule, Interconnection drawings, Relay Setting Calculation and all other activities related to protection system including remote ends.
51b	110kV GIS Service Building S/S Makkah	M/s SSEM (Main Contractor) & M/s AJEC (Design contractor) KSA	110kV, 13.8kV	82	Siemens Make 7SD522, 7SS522, 7SS523; SEL Make 411L, 487E, 451, 351A; Schneider Make Sepam 80; Areva Make MFAC14, MiCOM P139, C264; GE Make C70; ABB Make RED670, REF615, REC670	2012	International Design & Consultancy	The project includes complete secondary engineering of 110kV GIS and 13.8kV switchgears including preparation of point list for SCADA and SAS, CT/VT Calculation, Cable Schedule, Interconnection drawings, Relay Setting Calculation and all other activities related to protection system including remote ends.

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51c	110kV GIS Security Building S/S Makkah	M/s SSEM (Main Contractor) & M/s AJEC (Design contractor) KSA	110kV, 13.8kV	82	Siemens Make 7SD522, 7SS522, 7SS523; SEL Make 411L, 487E, 451, 351A; Schneider Make Sepam 80; Areva Make MFAC14, MiCOM P139, C264; GE Make C70; ABB Make RED670, REF615, REC670	2012	International Design & Consultancy	The project includes complete secondary engineering of 110kV GIS and 13.8kV switchgears including preparation of point list for SCADA and SAS, CT/VT Calculation, Cable Schedule, Interconnection drawings, Relay Setting Calculation and all other activities related to protection system including remote ends.
51d	110kV GIS Bus Stand S/S Makkah	M/s SSEM (Main Contractor) & M/s AJEC (Design contractor) KSA	110kV, 13.8kV	82	Siemens Make 7SD522, 7SS522, 7SS523; SEL Make 411L, 487E, 451, 351A; Schneider Make Sepam 80; Areva Make MFAC14, MiCOM P139, C264; GE Make C70; ABB Make RED670, REF615, REC670	2012	International Design & Consultancy	The project includes complete secondary engineering of 110kV GIS and 13.8kV switchgears including preparation of point list for SCADA and SAS, CT/VT Calculation, Cable Schedule, Interconnection drawings, Relay Setting Calculation and all other activities related to protection system including remote ends.
52	132kV Metering Panels	M/s ABB Pakistan	132kV	2	-	2012	Panel Engineering	The project includes design and manufacturing of Metering Panels for 132kV Foundation-I/II Wind Farms.
53	132kV Relay, Control & AC/DC Panels	M/s ABB Pakistan	132kV	-	ABB Make REL670, REF615, RET615	2012	Panel Engineering	The project included design and manufacturing of Relay, control and AC/DC panels for 132kV AIS Khyali Bypass & GIS Sheranwala Bagh grid stations.
54	220kV Interface Cabinet	M/s ABB Pakistan	220kV	-	-	2012	Panel Engineering	The project includes design and manufacturing of interface cabinets for 220kV TT Singh and Okara grid stations.
55	220kV Interface Cabinet	M/s ABB Pakistan	220kV	-	-	2012	Panel Engineering	The project includes design and manufacturing of interface cabinet for 220kV Shalimar grid stations.
56	132kV Event and Fault Recorder Panels	M/s Alstom Grid Pakistan	132kV	16	GE Make F35	2012	Panel Engineering	The project included design and manufacturing of event and fault recorder panels for 132kV MES and Adayala grid stations.

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57	AC Auxiliary Supply Distribution Panels	M/s Chint Electric	220kV	-	-	2012	Panel Engineering	The project includes design and manufacturing of 3 ph 400VAC substation auxiliary supply distribution panels with automatic transfer scheme for three incomers (including emergency generator) feeding separate buses using motorized MCCBs at incomers and bus coupler.
58	220kV Synchronizing Panel (type C7)	M/s Chint Electric	220kV	-	-	2012	Panel Engineering	The project includes design and manufacturing of special synchronizing panel for 220kV grid station Rohri for one-and-a-half breaker scheme.
59	220kV Synchronizing Panel (type C7)	NTDC (Local Utility)	220kV	-	-	2012	Panel Engineering	The project includes design and manufacturing of special synchronizing panel for 220kV grid station Bandala for double-bus-single-breaker scheme.
60	Substation Schematic Drawings	NTDC (Local Utility) for 220kV GIS Bandala S/S	220kV, 132kV	20	GE Make D60, C60, T60, MIB, MIFII, F35, Areva Make P443	2012	Substation Schematics	The project included complete grid schematic of 220kV GIS Bandala grid station. Scope included design, schematics, cable schedules and cable interconnection drawings for interconnection of complete GIS substation.
61	Substation Schematic Drawings	NTDC (Local Utility) for 220kV Rohri S/S	220kV, 132kV	10	GE Make D60, C60, T60, MIB, MIFII, F35, Areva Make P443	2012	Substation Schematics	The project included complete grid schematic of 220kV AIS Rohri grid station. Scope included design, schematics, cable schedules and cable interconnection drawings for interconnection of complete AIS substation.
62	Relay Setting Calculations and Coordination Study	M/s Alstom Grid Pakistan for 50MW FFC Wind Farm, Jhimpir	132kV, 22kV	19	Areva Make P132, P139, P442, P543, P632, P746; Schneider Make DPX-1	2012	System Studies	Scope included protection relay setting calculations and coordination study of complete electrical system of wind power plant including overcurrent, line distance, transformer differential, transformer restricted earth fault, busbar differential and capacitor control relays.
63	Relay Setting Calculations	132kV SAIF CCPP (Local Power Plant)	132kV	4	Areva Make P443, P543, P127	2012	System Studies	It included complete setting calculations for AREVA make distance protection and line differential relays for its commissioning and connectivity with the utility.
64	Fire Protection System of Power Transformer Retrofit Design	500kV Rawat Grid (Local IPP)	500kV	-	-	2012	Consultancy	Modification work for fire fighting system of newly commissioned 450 MVA power transformer at rawat grid station.
65	Transformer Protection Retrofit Design	Liberty Power Plant (Local IPP)	15kV	-	GE Make T35	2013	Consultancy	Scope included preparation of complete schematics drawings, relay setting calculations, installation, testing and commissioning for the replacement of old Transformer Protection relay type DTP with GE make T35 transformer protection relay.

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66	Generator Protection Retrofit Design	Tarbela Power Station (Local Hydro Power Station)	18kV	-	GE Make G30	2013	Consultancy	Scope included preparation of complete schematics drawings, relay setting calculations, installation, testing and commissioning for the replacement of old Generator-Transformer Protection relay type DTH-31 with GE make G30 generator protection relay.
67	AC/DC Auxiliary Supply Distribution Panels	M/s TBEA	220kV / 0.415kV	-	-	2013	Panel Engineering	The project includes design and manufacturing of 3 ph 415VAC substation auxiliary supply distribution panels with automatic transfer scheme for three incomers (including emergency generator) feeding separate buses using motorized MCCBs at incomers and bus coupler and 110VDC substation auxiliary supply distribution panels for 220kV Kassowal Grid Station.
68	Substation Schematic Drawings	NTDC (Local Utility) for 500/220/132kV Sheikh Muhammadi S/S	500kV, 220kV, 132kV	11	GE Make D60, C60, T60, MIB, MIFII, F35, Areva Make P443; EM Relays	2013	Substation Schematics	The project included complete grid schematic of 500/220kV Sheikh Muhammadi grid station. Scope included design, schematics, cable schedules and cable interconnection drawings for interconnection of complete substation.
69	Load Flow Study, Short-Circuit Study, Reactive Compensation Study and Relay Setting Calculations and Coordination Study	M/s Alstom Grid Pakistan for Peoples Steel Mills Complex Karachi	132kV, 11kV	23	Areva Make P122, P120, CDG61, P121; Siemens Make 7SJ600; Toshiba Make MRI-1; Woodward Make BU1-AC / ETAP	2013	System Studies	Scope included load flow study, short-circuit study, and reactive compensation study of whole electrical system (both new and existing) of PSM. In addition to that scope also included protection relay setting calculations and coordination study of new electrical system of the steel mill including overcurrent & earth fault, transformer differential, and capacitor protection relays.
70	Relay Setting Calculations and Coordination Study	M/s Alstom Grid Pakistan for 56.4MW Zorlu Wind Farm, Jhampir	132kV, 20kV	19	Areva Make P543, P746, P642, P139, P132	2013	System Studies	Scope included protection relay setting calculations and coordination study of complete electrical system of wind power plant including overcurrent & earth fault, line distance, line differential, transformer differential, transformer restricted earth fault, low-impedance busbar differential and capacitor control relays.
71	Load Flow and Short-Circuit Study	M/s Alstom Grid Pakistan for 56.4MW Zorlu Wind Farm, Jhampir	132kV, 20kV	19	ETAP	2013	System Studies	The project included load flow and short-circuit study of complete electrical system of wind farm in ETAP.

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72	Tripping Analysis and Relay Setting Recommendations for 13.8kV Electrical System	M/s Delmon Products, KSA for Iffco Edible Oil Plant	13.8kV	8	ABB Make REF 615, REF542	2013	System Studies	Scope included nuisance tripping analysis of non-coordinated overcurrent and earth fault relays and resolution of same by revising existing relay settings and recommendations at 13.8kV system of plant.
73	Generator Protection Retrofit Design	FFBL Power Plant (Local IPP)	13.8kV	-	GE Make G30	2014	Consultancy	Scope includes preparation of complete schematics drawings, and supervision of installation activities for the replacement of old Generator Protection relay type DGP with GE make G30 numerical generator protection relay.
74	Generator Protection Retrofit Design	TNB Liberty Power Plant (Local IPP)	15kV	-	GE Make G60	2014	Consultancy	Scope includes preparation of complete schematics drawings, installation, testing and commissioning activities for the replacement of multiple generator protection relays with GE make G60 generator protection system.
75	Turnkey project for Installation of Line Differential Relay	NTDC (Local Utility) for 500kV Guddu New-Guddu New Line	220kV	-	GE Make L90	2014	Consultancy	Scope includes preparation of complete drawings, setting calculations, installation, testing and commissioning of GE Make line differential relay type L90 at site.
76	Generator Protection Retrofit Design	Tarbela Power Station (Local Hydro Power Station)	18kV	-	GE Make MIWII	2014	Consultancy	Scope included preparation of complete schematics drawings, installation, testing and commissioning activities for the replacement of anti-motoring generator protection relays with GE make reverse power relays type MIWII.
77	Yanbu - Madinah Ph. III Water Transmission System Project	M/s ABB, KSA	13.8kV	106	ABB Make REF620, REM620, RED615, RET620 / PSCAD	2014	International Design & Consultancy	The project includes CT/VT Adequacy Calculations, Insulation Coordination Study & Relay Setting Calculations for 04 No. 13.8kV Switchgears, for Yanbu - Madinah Ph. III Water Transmission System Project, for M/S ABB, KSA.
78	115kV GIS Marafiq SWRO Substation	M/s SSEM (Main Contractor) & M/s AJEC (Design contractor) KSA	115kV	5	Siemens Make 7SD522, 7SS522, 7SS522, 7SJ61, 7UT613; SEL Make 411L; Areva Make MFAC14	2014	International Design & Consultancy	The project includes secondary engineering of 115kV GIS portion of the substation including preparation of point list for SCADA and ANN, CT/VT Calculation, Cable Schedule, Interconnection drawings, Relay Setting Calculation and all other activities related to protection system including remote ends.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
79	AC/DC Auxiliary Supply Distribution Panels	M/s ABB	0.415kV	-	-	2014	Panel Engineering	The project includes design and manufacturing of 3 ph 415VAC substation auxiliary supply distribution panels with automatic transfer scheme feeding separate buses using motorized MCCBs at incomers and bus coupler. It also includes 110VDC substation auxiliary supply distribution panels for 220kV New Kot Lakhpat Grid Station for SVC project.
80	CT/VT Boxes	M/s Hyosung	220kV, 132kV	-	-	2014	Panel Engineering	Scope included design and manufacturing of 132kV & 220kV CT/VT Boxes for 220/132 kV Gujrat S/S.
81	Line Control Panel	IESCO (Local Utility)	132kV	-	-	2014	Panel Engineering	The project includes design and manufacturing of 132kV line control panels type CP30.
82	Protection Relay Panels	MEPCO (Local Utility)	132kV	-	GE Make D60, MIFII, 345	2014	Panel Engineering	The project includes design and manufacturing of 132kV line protection and transformer protection relay panels.
83	500/220/132kV Transformer Auxiliary Panels	NTDC (Local Utility)	500kV, 220kV, 132kV	-	-	2014	Panel Engineering	The project includes design and manufacturing of 500/220/132kV transformer auxiliary panels for NTDC.
84	Relay Setting Calculations	M/s Lalpir (Local IPP)	220kV	-	Areva Make P642, P643	2014	System Studies	The scope included relay setting calculations for transformer protection relays.
85	Generator Protection Retrofit Design	M/s FFC Ltd. for Goth Matchi Plant	6.3kV	-	GE Make G60	2015	Consultancy	Scope included preparation of complete schematics, setting calculations, installation, testing and commissioning activities for the replacement of multiple electromechanical generator protection relays with GE make generator protection system type G60 in redundant configuration for Generating Unit G-701.
86	Generator Protection Retrofit Design	M/s FFC Ltd. for Mirpur Mathelo Plant	6.3kV	-	GE Make G60	2015	Consultancy	Scope included preparation of setting calculations, testing and commissioning activities for the replacement of multiple electromechanical generator protection relays with GE make generator protection system type G60.
87	Relay Setting Calculations	M/s CWE for 50 MW Three Georges First Wind Farm Pakistan, Jhimpir	132kV, 33kV	24	Areva Make P141, P543, P632, P143, P746, P127	2015	System Studies	Scope included protection relay setting calculations and coordination study of complete electrical system of wind power plant including overcurrent & earth fault, line distance, line differential, transformer differential, transformer restricted earth fault and low-impedance busbar differential relays.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
88	Transformer Protection Retrofit Design	M/s AEG for Korangi II Power House (KESC)	220kV	-	GE Make T60	2015	Consultancy	The project included preparation of complete schematics, setting calculations, installation, testing and commissioning activities for replacement of 2 No. GE make transformer protection relay type 745 with 2 No. GE make transformer protection system type T60 at Korangi II power station. The existing system comprised of 3-winding 3-CT protection scheme whereas retrofit design included 3-winding 4-CT configuration for addition of 5MVA transformer with existing system.
89	Generator Protection Panels	M/s Siemens Pakistan for RYK Mills	11kV	-	GE Make G60	2015	Panel Engineering	The project included design and manufacturing of 2 No. generator protection panels for protection of 2 No. 15MW generators at RYK mills with auto-synchronizer facility.
90	CT/VT Junction Boxes	JDW Sugar Mills	132kV	-	-	2015	Panel Engineering	The project included design and manufacturing of 132kV CT/VT junction boxes for JDW sugar mills.
91a	Campsite Solar Parks & Building Rooftops Project	DHA City, Karachi	0.4kV, 1kV DC	-	-	2015	Panel Engineering	The project included design and manufacturing of DC combiner boxes, DC disconnecter boxes, AC collector panels for Campsite Solar Parks & Building Rooftops Project DHA City, Karachi.
91b	Campsite Solar Parks & Building Rooftops Project	DHA City, Karachi	0.4kV, 1kV DC	-	-	2015	Consultancy	The project included overall system design and integration from solar PV panels to AC collector DBs with development of electrical SLD, power cable sizing, power cable schedule and interface engineering of distribution system.
92	Relay and AC/DC Auxiliary Services Panels	HESCO (Local Utility)	132kV	-	GE Make 345	2015	Panel Engineering	The project included design and manufacturing of 132kV transformer protection panel and ACDC auxiliary services panel for HESCO (local utility).
93	CT Junction Box	Bahria Town	132kV	-	-	2015	Panel Engineering	The project included design and manufacturing of 132kV CT junction boxes for JDW sugar mills.
94	Changeover & ATS Panel, Combiner DBs	Dynamic Green	0.4kV	-	-	2015	Panel Engineering	The project included design and manufacturing of collector DBs, ATS panel and DCDB for PV system for Dynamic Green at Aitcheson.
95	Mashalling Kiosk (S2)	KAPCO Power Plant, Pakistan	220kV	1	-	2015	Panel Engineering	The project included design, manufacturing, installation, interfacing, testing & commissioning of 220kV marshalling kiosk type S2 for KAPCO (local power plant).

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
96	Mashalling Kiosk (S3)	KAPCO Power Plant, Pakistan	220kV	1	-	2015	Panel Engineering	The project included design, manufacturing, installation, interfacing, testing & commissioning of 220kV marshalling kiosk type S3 for KAPCO (local power plant).
97	Relay Setting Calculations	50MW Sapphire Wind Farm, Jhimpir	132kV, 33kV	16	Alstom make P543, P141, P632, P746	2015	System Studies	Scope included protection relay setting calculations and coordination study of complete electrical system of wind power plant including overcurrent & earth fault, line distance, line differential, transformer differential, transformer restricted earth fault and low-impedance busbar differential relays.
98	Relay, Control, Metering and AC/DC Auxiliary Services Panels	IESCO (Local Utility)	132kV	-	GE Make D60, 345, MIFII	2015	Panel Engineering	The project includes design and manufacturing of 42 No. 132kV line protection panels, transformer protection panels, line control panels, transformer control panels, metering panels and AC/DC auxiliary services panels for IESCO (local utility).
99	132kV Line Protection Panel	M/s Zonergy for Quaid-e-Azam Solar Park	132kV	-	GE Make L90	2015	Panel Engineering	The project includes design and manufacturing of 02 No. 132kV line protection panels for M/s Zonergy for Quaid-e-Azam Solar Park, Bahawalpur, Pakistan.
100	110kV Khandaq S/S	M/s SSEM (Main Contractor) & M/s AJEC (Design contractor) KSA	110kV, 13.8kV	82	Siemens Make 7SD522, 7SS522, 7SS523; SEL Make 411L, 487E, 451, 351A; Schneider Make Sepam 80; Areva Make MFAC14, MiCOM P139, C264; GE Make C70; ABB Make RED670, REF615, REC670	2015	International Design & Consultancy	The project includes complete secondary engineering of 110kV GIS and 13.8kV switchgears including preparation of point list for SAS, CT/VT Calculation, Cable Schedule, Relay Setting Calculation including remote ends.
101	Generator Protection Retrofit Design	Engro Fertilizers Pvt. Ltd. (Local Fertilizer Industry)	6.6kV	-	GE Make G30	2015	Consultancy	The scope included vetting of schematic drawings and setting file.
102	220kV Auxiliary Panels	KAPCO Power Plant, Pakistan	220kV	-	-	2015	Panel Engineering	The project included design, manufacturing, installation, interfacing, testing & commissioning of 06 No. 220kV marshalling kiosks and intermediate panels for KAPCO (local power plant).
103	Jabban Hydropower Substation Schematics	M/s Alstom Grid Pakistan	132kV	14	-	2015	Substation Schematics	The scope of work included interconnection schematics preparation for modification work in control and protection system of complete 132kV grid station of power station.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
104	Relay Setting Calculations and Coordination Study	M/s Attock Cement Pakistan Limited	6.3kV	8	ABB Make REG670, REF615	2015	System Studies	Scope included protection relay setting calculations and coordination study of complete electrical system of WHRS system including generator protection system.
105	Relay Setting Calculations and Coordination Study	49.5MW Hydrochina Dawood Wind Farm Project, Pakistan	132kV, 22kV	17	Alstom make P543, P141, P632, P746	2015	System Studies	Scope included protection relay setting calculations and coordination study of complete electrical system of wind power plant including overcurrent & earth fault, line distance, line differential, transformer differential, transformer restricted earth fault and low-impedance busbar differential relays.
106	Relay Setting Calculations and Coordination Study	M/s Alstom Grid Pakistan for 50MW Yunus Wind Power Project, Pakistan	132kV, 22kV	49	Alstom Make P543, P746, P642, P139; GE Make 350, F650; Fanox Make SIA-C, Siemens Make 7SR19, Nokian Make NC-12, MR Make Tapcon 230	2015	System Studies	Scope included protection relay setting calculations and coordination study of complete electrical system of wind power plant including overcurrent & earth fault, line distance, line differential, transformer differential, transformer restricted earth fault and low-impedance busbar differential relays.
107	Relay Setting Calculations and Coordination Study	M/s Alstom Grid Pakistan for 50MW Metro Wind Power Project, Pakistan	132kV, 22kV	49	Alstom Make P543, P746, P642, P139; Efacec Make TPU-S220-S, TPU-S220-U; Fanox Make SIA-C, Siemens Make 7SR19, Nokian Make NC-12, MR Make Tapcon 231	2015	System Studies	Scope included protection relay setting calculations and coordination study of complete electrical system of wind power plant including overcurrent & earth fault, line distance, line differential, transformer differential, transformer restricted earth fault and low-impedance busbar differential relays.
108	Relay Setting Calculations and Coordination Study	M/s Alstom Grid Pakistan for 50MW Gul Ahmed Wind Power Project, Pakistan	132kV, 22kV	49	Alstom Make P543, P746, P642, P139; Efacec Make TPU-S220-S, TPU-S220-U; Fanox Make SIA-C, Siemens Make 7SR19, Nokian Make NC-12, MR Make Tapcon 232	2015	System Studies	Scope included protection relay setting calculations and coordination study of complete electrical system of wind power plant including overcurrent & earth fault, line distance, line differential, transformer differential, transformer restricted earth fault and low-impedance busbar differential relays.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
109	Insulation Coordination Study	M/s Alstom Grid Pakistan for FFBL 60MW Coal Power Project, Pakistan	132kV	6	PSCAD	2015	System Studies	Scope included insulation coordination study of electrical substation to ascertain surge arrester ratings.
110	Load Flow Study, Short-Circuit Study, Motor Starting Study and Relay Setting Calculations and Coordination Study	M/s Siemens Pakistan for OGDCL KPD-TAY Integrated Development Project Phase-II	6.6kV	60	Siemens Make 7SJ8031, 7SJ6021 / ETAP	2015	System Studies	The scope included load flow study, short-circuit study, motor starting study and relay setting calculations and coordination study of complete electrical system.
111	Generator Protection Retrofit Design	M/s FFC Ltd. for Goth Matchi Plant	6.3kV	-	GE Make G60	2016	Consultancy	Scope included preparation of complete schematics, installation, testing and commissioning activities for the replacement of multiple electromechanical generator protection relays with GE make generator protection system type G60 in redundant configuration for Generating Unit G-702.
112	132kV Metering Panels	M/s Harvey Energy Limited	132kV	2	-	2016	Panel Engineering	The project included design and manufacturing of 132kV Metering Panels for M/s Harvey Energy Limited.
113	Load Flow, Short-Circuit and Harmonic Study	M/s China Machinery Engineering Corporation for Tenaga Wind Power at Jhimpir, Pakistan	132kV, 33kV	47	ETAP	2016	System Studies	The project included load flow, short-circuit and harmonic study in ETAP of complete electrical system of 132kV wind farm by Tenaga Wind Power at Jhimpir, Pakistan.
114	Preparation of As-Built Drawings	M/s Engineering Services, KSA	-	-	-	2016	International Design & Consultancy	The project included preparation of as-built drawings for various substations.
115	HiZ Busbar Protection System Retrofit Design	K-Electric Limited, Karachi	132kV	-	GE Make MIB	2016	Consultancy	The project included retrofit design, supply, dismantling of existing EM relays, installation, testing and commissioning of GE make high impedance protection system type MIB at 132kV Pipri West Grid Station in K-Electric System.
116	Distance Protection System Retrofit Design	K-Electric Limited, Karachi	220kV	14	GE Make D60, MIFII	2016	Consultancy	The project included retrofit design, supply, dismantling of existing EM relays, installation, testing and commissioning of GE make distance protection system type D60 and feeder protection relay type MIFII at 14 No. 220kV transmission lines in 05 No. grid stations in K-Electric System. The grid stations included were 220kV Lalazar, 220kV KCR, 220kV KDA, 220kV ICI and 220kV Baldia.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
117	132kV Protection Panels (RP3, RP4)	MEPCO (Local Power Distribution Utility)	132kV	26	GE Make D60, 345, 350	2016	Panel Engineering	The project included design and manufacturing of 17 No. 132kV line protection panels type RP3 and 09 No. 132/11kV transformer protection panels type RP4 for MEPCO.
118	Power Factor Improvement (PFI) Plant for LV System	A Manufacturing Facility in Lahore	0.415kV	1	-	2016	Panel Engineering	The project included design and manufacturing of power factor improvement plant for 0.415kV system for a manufacturing facility in Lahore.
119	Relay Setting Calculations and Coordination Study	M/s China Machinery Engineering Corporation for Tenaga Wind Power at Jhimpir, Pakistan	132kV	46	Alstom Make P543, P746, P632, P141	2016	System Studies	Scope included protection relay setting calculations and coordination study of complete electrical system of Tenaga wind power plant including overcurrent & earth fault, line distance, line differential, transformer differential, transformer restricted earth fault and low-impedance busbar differential relays.
120	Short-Circuit Study, CT/VT Calculations & Relay Coordination Study for Construction of WTP for Al-Wajeed Wells	ABB Electrical Industries Co. Ltd., KSA	13.8kV	13	ABB Make REF615, REF620	2016	International Design & Consultancy	Scope included short-circuit study, CT/VT calculations & relay coordination study for construction of WTP for Al-Wajeed Wells in KSA.
121	132kV 2-Line Metering Panel (MP2)	QA Solar, Pakistan	132kV	1	-	2016	Panel Engineering	The project included design and manufacturing of 01 No. 2-line metering panel for 132kV system for QA Solar, Pakistan.
122	132kV Protection, Control and AC/DC Auxiliary Services Panels (RP4, CP30, CP50, AC/DC)	HESCO (Local Power Distribution Utility)	132kV	33	GE Make 345, 350	2016	Panel Engineering	The project included design and manufacturing of 12 No. 132/11kV transformer protection panels type RP4, 02 No. 132kV line control panels type CP30, 13 No. 132/11kV transformer control panels type CP50 and 06 No. 415/240VAC, 110VDC auxiliary services panels type ACDC for HESCO.
123	132kV Protection and Control Panels (RP3, RP4, CP20, CP30, CP50)	FESCO (Local Power Distribution Utility)	132kV	54	GE Make D60, 345, 350/MIFII	2016	Panel Engineering	The project included design and manufacturing of 17 No. 132kV line protection panels type RP3, 10 No. 132/11kV transformer protection panels type RP4, 11 No. 132kV line control panels type CP20, 06 No. 132kV line control panels type CP30 and 10 No. 132/11kV transformer control panels type CP50 for FESCO.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
124	Relay Setting Calculations	M/s GE Grid Solutions for 500kV Switchyard at 1180 MW CAPP Bhikki	500kV	5	Siemens make 7SA52, GE make P546, P841, P141, P643, P143, P743, C264	2016	System Studies	The project included protection relay setting calculations for 500kV switchyard at 1180 MW RLNG based CAPP Bhikki. The scope included setting calculations for line protection set-1 & set-2, transformer protection, busbar protection, breaker failure protection, and synchrocheck relays.
125	Transformer Protection Retrofit Design for Generator Step up & Startup Transformers	M/s Lalpir Power (Local IPP)	220kV	2	Alstom make P642, P643	2016	Consultancy	Scope included preparation of complete schematics drawings, relay setting calculations, installation, testing and commissioning for replacement of Alstom make KBCH130 relay for backup differential protection of 24/220kV generator step up transformer (GSU) with Alstom make P643 relay and Alstom make KBCH120 relay for primary differential protection of 220/11kV start up transformer (SUT) with Alstom make P642 relay.
126	Relay Setting Calculations and Coordination Study	M/s Alstom Grid Pakistan for 50MW Yunus Wind Power Project, Pakistan	132kV, 22kV	49	Alstom Make P543, P746, P642, P139; GE Make 350, F650; Fanox Make SIA-C, Siemens Make 7SR19, Nokian Make NC-12, MR Make Tapcon 230	2016	System Studies	Scope included protection relay setting calculations and coordination study of complete electrical system of wind power plant including overcurrent & earth fault, line distance, line differential, transformer differential, transformer restricted earth fault and low-impedance busbar differential relays.
127	Relay Setting Calculations and Coordination Study	M/s Hamza Sugur Mills Limited, Rahimyar Khan	11kV	10	Siemens Make 7SJ8042, 7SJ6005, 7SJ6025, Shanghai Brilliant Automation Make BRN-751, BRN-752	2017	System Studies	Scope included protection relay setting calculations and coordination study of relays installed at 11 kV system including 2x generators.
128 a	220kV and 132kV Panels (Relay, Control, MK)	NTDC (Local Utility)	220kV, 132kV	61	GE Make D60, C60, T60, 350, P443	2017	Panel Engineering	The project included design and in-house manufacturing of 61 Nos. 220kV and 132kV Relay, Control, Marshalling Kiosks for 220kV grid stations of the utility.
128 b	Interface Engineering of 220kV ISPR, Ghazi Road, Sheikhpura and KSK Grid Stations	NTDC (Local Utility)	220kV, 132kV	5	GE Make D60, C60, T60, 350, P444	2017	Substation Schematics	The project included grid schematics of 220kV ISPR, Ghazi Road, Sheikhpura and KSK Grid Stations for addition of auto transformers. Scope included design, schematics, cable schedules and cable interconnection drawings for interconnection of newly added bays.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
129	132kV Protection and Control Panels (RP3, RP4, CP30, CP50)	DESCON (Local EPC)	132kV	16	GE Make D60, 345, 350	2017	Panel Engineering	The project included design and manufacturing of 4 No. 132kV line protection panels type RP3, 4 No. 132/11kV transformer protection panels type RP4, 4 No. 132kV line control panels type CP30 and 4 No. 132/11kV transformer control panels type CP50 for DESCON.
130	132kV Protection and Control Panels (RP4, CP50)	PESCO (Local Power Distribution Utility)	132kV	8	GE Make 345, 350	2017	Panel Engineering	The project included design and manufacturing of 5 No. 132/11kV transformer protection panels type RP4 and 3 No. 132/11kV transformer control panels type CP50 for PESCO.
131	132kV Protection, Control and AC/DC Panels (RP3, RP4, CP30, CP50, AC/DC)	PESCO (Local Power Distribution Utility)	132kV	56	GE Make D60, 345, 350	2017	Panel Engineering	The project included design and manufacturing of 16 No. 132kV line protection panels type RP3, 10 No. 132/11kV transformer protection panels type RP4, 19 No. 132kV line control panels type CP30, 9 No. 132/11kV transformer control panels type CP50 and 2 No. AC/DC auxiliary services panel for PESCO.
132	132kV Protection Panels (RP3, RP4)	MEPCO (Local Power Distribution Utility)	132kV	22	GE Make D60, 345, 350	2017	Panel Engineering	The project included design and manufacturing of 15 No. 132kV line protection panels type RP3, 7 No. 132/11kV transformer protection panels type RP4 for MEPCO.
133	Motor Protections Retrofit Design	FFBL Power Plant (Local IPP)	11kV	24	GE Make 869	2017	Consultancy	Scope includes preparation of complete schematics drawings, relay setting calculations and setting file preparation for the replacement of old motor protection relay type PS-451 with GE make 869 numerical motor protection relay.
134	Short-Circuit Study, CT/VT Calculations and Relay Settings for Northern Arabia Area UG Surface Facilities - System B, KSA	ABB Electrical Industries Co. Ltd., KSA	13.8kV	13	ABB Make REF615, REF620	2017	International Design & Consultancy	Scope included short-circuit study, CT/VT calculations & relay coordination study for construction of WTP for Northern Arabia Area UG Surface Facilities - System B in KSA.
135	132kV Protection, Control and ACDC Auxiliary Panels (RP3, RP4, CP30, CP50, ACDC)	DESCON (Local EPC) for MEPCO (Local Power Distribution Utility)	132kV	14	GE Make D60, 345, 350	2017	Panel Engineering	The project included design and manufacturing of 4 No. 132kV line protection panels type RP3, 2 No. 132/11kV transformer protection panels type RP4, 4 No. 132kV line control panels type CP30, 2 No. 132/11kV transformer control panels type CP50 and 2 No. ACDC auxiliary services panels for DESCON.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
136	132kV Protection and Control Panels (RP3, RP4, CP30)	HESCO (Local Power Distribution Utility)	132kV	18	GE Make D60, 345, 350	2017	Panel Engineering	The project included design and manufacturing of 7 No. 132kV line protection panels type RP3, 4 No. 132/11kV transformer protection panels type RP4 and 7 No. 132kV line control panels type CP30 for HESCO.
137	220kV Event and Fault Recorder Panels	GE Grid Solutions Pakistan	220kV	2	GE Make F35	2017	Panel Engineering	The project included design and manufacturing of 1 No. event recorder panel and 1 No. fault recorder panel for 220kV Ghazi Road grid station for M/s GE Grid Solutions Pakistan.
138	Design & Engineering for Control Protection System for 132kV System of 50MW Zephyr Wind Farm	M/s ABB Pakistan	132kV	5	ABB Make REC650, REL670, RET650, REB670, RED670	2017	Consultancy	The project included following activities for 50MW Zephyr Wind Farm for M/s ABB Pakistan: 1. Design and engineering of 2 No. 132kV line protection panels, 2 No. 132/22kV transformer protection panels, 1 No. 132kV bus coupler protection panel, 2 No. 132kV line + bus coupler control panels and 2 No. 132/22kV transformer control panels. 2. Trip logic design for 132kV system. 3. Relay and BCU configurations for 5 bays. 4. Design and manufacturing of 1 No. 2-line metering panel.
139	Transformer Protection Retrofit Design for Generator Step up & Startup Transformers	M/s Pakgen Power (Local IPP)	220kV	2	Alstom make P642, P643	2017	Consultancy	The project scope included preparation of complete schematics drawings, relay setting calculations, installation, testing and commissioning for replacement of Alstom make KBCH130 relay for backup differential protection of 24/220kV generator step up transformer (GSU) with Alstom make P643 relay and Alstom make KBCH120 relay for primary differential protection of 220/11kV start up transformer (SUT) with Alstom make P642 relay.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
140	South Offshore Area Power System Relay Coordination and Calibration Study	M/s Intech (Pvt.) Ltd. Pakistan for M/s Chevron Nigeria Limited	4.16kV, 0.48kV	11	1. GE Make 489, 750, 735, HGA; Basler Make BE1-50/51-106, BE1-51, BE1-50, BE1-50/51B-105, BE1-51/27R, BE1-40Q, BE1-32R, BE1-87G, BE1-46N, BE1-81O/U, BE1-27, BE1-59, BE1-25, Westinghouse Make IQ-1000-II, 290B038A09; Alstom Make MFAC14C, MCGG22, MCAG14 2. ETAP	2017	International Design & Consultancy	Following sites were included in the scope of work. 1. Delta PP 2. Delta South PP 3. Delta South WIP 4. Meji PP 5. Meji GGCP 6. Tapa PP 7. OKAN GGCP 8. OKAN NWP 9. OKAN PP+QP1+QP2 10. Delta South Quarters The project scope included following studies and activities: 1. Site survey (for sites 1-10) 2. Load flow study (for sites 1-6) 3. Short-circuit study (for sites 1-6) 4. Motor starting study (for sites 1-6) 5. Harmonics study (for sites 3 & 5) 6. Protection system setting calculation and coordination study (for sites 1-6)
141	Relay Setting Calculations for Distance Relay Type 7SA522	M/s Attock Cement Pakistan Limited	132kV	1	Siemens Make 7SA522	2017	System Studies	The project scope included relay setting calculation and parameterization study of distance relay type 7SA522 for 132kV transmission line for M/s Attock Cement Pakistan Limited.
142	132kV Metering Panels	M/s Hydro China International Engineering Company Limited Pakistan	132kV	3	-	2017	Panel Engineering	The project included design and manufacturing of 3 No. 2-line metering panels for TB 150MW wind power project Jhimpir.
143	132kV Capacitor Relay and Control Panels	LESCO (Local Power Distribution Utility)	132kV	10	GE Make 350	2017	Panel Engineering	The project included design and manufacturing of 5 No. 132kV capacitor relay panels and 5 No. 132kV capacitor control panels.
144	132kV Protection and Control Panels (RP3, RP4, CP20, CP30, CP50)	FESCO (Local Power Distribution Utility)	132kV	127	GE Make D60, 345, 350	2018	Panel Engineering	The project included design and manufacturing of following 132kV panels: 1. Line control panel type CP20 (17 No.) 2. Line control panel type CP30 (21 No.) 3. Transformer control panel type CP50 (21 No.) 4. Line protection panel type RP3 (36 No.) 5. Transformer protection panel type RP4 (32 No.)

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
145	132kV Protection and Control Panels (RP3, RP4, RP1, RP7, CP32, CP51, CP40) for New 132/11kV Punjab University GIS Grid Station	DESCON (Local EPC) for LESCO (Local Power Distribution Utility)	132kV	11	GE Make D60, 345, 350, P746	2018	Panel Engineering	The project included design and manufacturing of following 132kV panels: 1. Line control panel type CP32 (2 No.) 2. Transformer control panel type CP51 (2 No.) 3. Bus coupler control panel type CP40 (1 No.) 4. Line protection panel type RP3 (2 No.) 5. Transformer protection panel type RP4 (2 No.) 6. Bus coupler protection panel type RP1 (1 No.) 7. Busbar protection panel type RP7 (1 No.)
146	Harmonic Analysis	Continental Biscuits, Sakkhar, Pakistan	11kV	600	ETAP	2018	System Studies	The project included harmonic study of electrical system of Continental Biscuits for harmonic indices calculations.
147	Protection System Retrofit for Installation of Line Differential Relays	LDA (Lahore Development Authority) for LESCO (Local Power Distribution Utility) for Lahore Orange Line Train Project	132kV	16	GE Make L90	2018	Consultancy	Scope includes preparation of retrofit panel drawings, setting calculations, installation, testing and commissioning of GE Make L90 relays for following 132kV transmission lines at both end grid stations: 1. UET-PWR (132kV) 2. UET-Fatehgarh (132kV) 3. UET-Shalamar (220kV) 4. UET-Shalamar-II (132kV) 5. Shahnoor- Bund Road (220kV) 6. Shahnoor- Bund Road (220kV) 7. Shahnoor-Saidpur (132kV) 8. Shahnoor-Saidpur (132kV)
148	132kV Protection Panels (RP3, RP4)	MEPCO (Local Power Distribution Utility)	132kV	58	GE Make D60, 345, 350	2018	Panel Engineering	The project included design and manufacturing of 26 No. 132kV line protection panels type RP3 and 32 No. 132/11kV transformer protection panels type RP4.
149	132kV Metering Panels	M/s Coal Fired Power Plant (CFPP) Pakistan	132kV	2	-	2018	Panel Engineering	The project included design and manufacturing of 2 No. 2-line metering panels for M/s Coal Fired Power Plant (CFPP) Pakistan.
150	Protection System Retrofit for Overcurrent, Earth Fault, Voltage Restrained Overcurrent and Transformer Differential Relays	Tarbela Power Station (Local Hydro Power Station)	220kV, 11kV	51	GE Make 350, F650, T60	2018	Consultancy	Scope included preparation of complete schematics drawings, relay setting calculations, installation, testing and commissioning for the replacement of 51 No. existing electromechanical type overcurrent, earth fault, voltage restrained overcurrent and transformer differential relays at 11kV power distribution centers and 220kV supply transformers.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
151	220kV and 132kV Panels (Relay, Control, AC, DC, Metering) for 220/132kV Ghazi Road Grid Station	M/s GE Grid Solutions Pakistan	220kV, 132kV	58	GE Make P443, P841, P642, P643, P14NB, P543, D60, P746	2018	Panel Engineering	The project included design review and in-house manufacturing of 58 Nos. 220kV and 132kV relay, control, AC, DC, metering panels for 220/132kV New Ghazi Road Grid Station of the utility (NTDC).
152	400V DOL Starter Panel	M/s Kot Addu Power Company Limited (KAPCO, Local IPP), Pakistan	0.4kV	2	-	2018	Panel Engineering	The project included design and manufacturing of 2 No. 400V DOL starter MCC wall mounted panels.
153	Protection System Retrofit for 4.16kV System at SWCC Jubail Plant	M/s Abdel Hadi Abdullah Al-Qahtani & Sons Co.	4.16kV	161	GE Make 350, 339, 869, 850	2018	International Design & Consultancy	Scope included preparation of complete schematics drawings, relay setting calculations for replacement of existing electromechanical type relays at 4 auxiliary switchgears.
154	220kV Interface Cabinets and RTU Cabinets	M/s ABB Pakistan	220kV	4	-	2018	Consultancy	The project included design, manufacturing, installation, testing and commissioning of 2 No. 220kV interface cabinets and 2 No. 220kV RTU cabinets for Okara and TT Singh grid stations.
155	Design Services for Plant SLD Development	Continental Biscuits, Sakkhar, Pakistan	11kV	600	-	2018	Consultancy	The project included preparing plant SLD.
156	132kV Frequency and Voltage Protection System Design	M/s Coal Fired Power Plant (CFPP) Pakistan	132kV	1	GE Make P94V	2018	Consultancy	The project included design, supply, installation, testing and commissioning of frequency and voltage protection relays in the 132 kV feeders at existing protection panels as per FESCO and NTDC (local utilities) Specifications & Approvals.
157	132kV Protection, Control, Metering and ACDC Auxiliary Panels (RP3, RP4, CP30, CP50, MP2, ACDC)	M/s GE Grid Solutions Pakistan for M/s Power Cement	132kV	8	GE Make D60, 345, 350	2018	Panel Engineering	The project included design and manufacturing of 1 No. 132kV line protection panels type RP3, 2 No. 132/11kV transformer protection panels type RP4, 1 No. 132kV line control panels type CP30, 2 No. 132/11kV transformer control panels type CP50 and 1 No. ACDC auxiliary services panels and 1 No. 132kV 2-line metering panel type MP2.
158	Protection System Retrofit Design Fault Locators	M/s Pakgen Power (Local IPP)	220kV	2	Schneider make P442	2018	Consultancy	Scope included setting calculations, installation, testing and commissioning for replacement of existing fault locator with Schneider make P442.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
159	Educational Order for 500kV and 220kV Panels (Relay, Control, LCC, AC & DC)	NTDC (Local Utility)	500kV, 220kV	16	GE Make T60, P643, P14NB, P94VP, C60, 350	2018	Panel Engineering	The project included design and in-house manufacturing of 16 Nos. 500kV and 220kV Relay, Control, Marshalling Kiosks / Local Control Cubicles, AC & DC Auxiliary Services Panels for 500kV Gatti grid station of the utility. Panel types included R13, R14, R15, R16, R5, R6, R7, WC1, WC7, C2, 500kV S1, 500kV S2, 220kV S1, 220kV S2, 415VAC DB, 220VDC DB.
160	132/6.3kV Transformer Protection System Retrofit Design for Bestway Cement	M/s Bestway Cement Limited, Hattar Plant (Local Industry)	132kV	1	GE make 345, MIFII	2018	Consultancy	The project scope included preparation of complete schematics drawings, relay setting calculations, installation, testing and commissioning for replacement of Siemens make transformer differential relay type 7UT5 with GE make relay type 345, Siemens make overcurrent relay type 7SJ5005 with GE make relay type MIFII and Siemens make trip circuit supervision relay type 7TR9300 with Artech make relay type VDF10.
161	Load Flow, Short-Circuit and Relay Setting Calculations and Coordination Study	M/s Packages (Pvt.) Ltd. (Local Industry)	132kV	75	ETAP	2018	System Studies	The project included load flow, short-circuit and relay setting calculations and coordination study in ETAP of complete electrical system of Packages Limited.
162	Harmonic Analysis	M/s DG Khan Cement (Pvt.) Ltd. (Local Industry)	132kV	85	ETAP	2019	System Studies	The project included harmonic study in ETAP of complete electrical system of DG Khan Cement Limited.
163	Relay Setting Calculations and Coordination Study	M/s DG Khan Cement (Pvt.) Ltd. (Local Industry)	132kV	85	ETAP	2019	System Studies	The project included relay setting calculations and coordination study in ETAP of complete electrical system of DG Khan Cement Limited.
164	132kV Protection and Control Panels (RP4, CP50)	GEPCO (Local Power Distribution Utility)	132kV	20	GE Make 345, 350	2019	Panel Engineering	The project included design and manufacturing of 10 No. 132/11kV transformer protection panels type RP4 and 10 No. 132/11kV transformer control panels type CP50 for GEPCO.
165	Relay and AC/DC Auxiliary Services Panels	HESCO (Local Utility)	132kV	27	-	2019	Panel Engineering	The project included design and manufacturing of 132kV ACDC auxiliary services panel for HESCO (local utility).
166	Relay and AC/DC Auxiliary Services Panels	QESCO (Local Utility)	132kV	12	-	2019	Panel Engineering	The project included design and manufacturing of 132kV ACDC auxiliary services panel for QESCO (local utility).

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
167	132kV Protection and Control Panels (RP4, CP50)	DG Khan Cement (Local Industry)	132kV	2	GE Make 345, 350	2019	Panel Engineering	The project included design and manufacturing of 1 No. 132/6.3kV transformer protection panels type RP4 and 1 No. 132/6.3kV transformer control panels type CP50 for DG Khan Cement.
168	Generator Protection Training	M/s FFC Goth Machi (Local Industry)	-	-	GE Make G60	2019	Consultancy	The project included 5-day comprehensive theoretical and hands-on training program for FFC Goth Machi engineers.
169	Power System Studies	M/s FFC Mirpur Mathelo (Local Industry)	11 kV	300	Multiple Make Relays, ETAP	2019	System Studies	The project included load flow, short-circuit, motor starting, arc flash, relay setting calculations, protection coordination, and power system adequacy studies in ETAP of complete electrical system of FFC Mirpur Mathelo plant.
170	Generator Protection Training	M/s Maple Leaf, M/s Descon, M/s CFPP (Local Industry, IPP)	-	-	GE Make G60	2019	Consultancy	The project included 3-day comprehensive theoretical and hands-on training program.
171	PFI Plant	M/s Fauji Trans Terminal Limited (Storage Industry)	11kV	-	GE Make 350	2019	Consultancy	The project included power factor improvement plant for 11kV system for FTTL. Deliverables included schematic drawings, interface drawings, power and control cable schedules, relay setting calculations, PLC logic and PFC setting sheets.
172	132kV Protection, Control and AC/DC Panels (RP3, RP4, CP30, CP50, AC/DC)	TESCO (Local Power Distribution Utility)	132kV	35	GE Make D60, 345, 350	2019	Panel Engineering	The project included design and manufacturing of following 132kV panels: 1. Line control panel type CP30 (5 No.) 2. Transformer control panel type CP50 (10 No.) 3. Line protection panel type RP3 (5 No.) 4. Transformer protection panel type RP4 (10 No.) 5. AC/DC auxiliary services panel (5 No.)
173	Generator Protection System Studies	M/s Thal Industries for Layyah Sugar Mills (Local Industry)	132kV	14	Alstom Make P343, P341, CCUM21, VAEM21, VTT11, CAEM33, MVAPM32; DEIF Make AGC-4; Schneider Electric Make Vamp40	2019	Consultancy	The included review of existing protection scheme and relay settings for 25 MW & 16 MW generators and perform relay coordination of 05 No. of medium voltage feeders at power house.
174	Consultancy Services for Power System Evaluation and SRT System Design	Suriyya Azeem Trust Hospital	11kV	300	-	2019	Consultancy	The project included consultancy services for power system evaluation, SLD/documentation development and feasibility of installing solar roof-top PV system.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
175	Low Impedance Busbar Protection System	K-Electric Limited, Karachi	132kV	24	GE Make B90	2019	Consultancy	The project included preparation of complete 132kV panel schematics drawings, interface engineering, relay setting calculations, installation, testing and commissioning of low impedance busbar protection system for 24 bays of 132kV system at KE's Baldia Grid Station.
176	Retrofit of 220kV Control Panel Type C5	M/s CONSPAK	220kV	1	-	2020	Panel Engineering	The project included retrofit of 220kV control panel type C5 to cater customer needs.
177	Transient CT Calculations	M/s FFC Goth Machi (Local Industry)	11kV	1	-	2020	System Studies	The purpose of this study was to propose suitable protection class generator differential protection CTs having appropriate transient performance and perform adequacy calculations for newly proposed CTs in order to avoid nuisance tripping of turbo generator, TG-701, on external faults.
178	132kV Protection and Control Panels (RP3, RP4, CP30, CP50)	M/s SM Group of Industries Limited	132kV	6	GE Make D60, 345, 350	2020	Panel Engineering	The project included design and manufacturing of 6 No. 132kV Protection and Control Panels (RP3, RP4, CP30, CP50).
179	Generator Protection Retrofit Design	M/s ARL (Local Refinery)	11kV	3	GE Make P346	2020	Consultancy	Scope included preparation of complete schematics, setting calculations, installation, testing and commissioning activities for the replacement of multiple electromechanical generator protection relays with GE make generator protection system type P346 for 3 No. generators.
180	132kV Protection and Control Panels (RP3, RP4, CP30, CP50, CP20)	FESCO (Local Power Distribution Utility)	132kV	66	GE Make D60, 345, 350	2020	Panel Engineering	The project included design and manufacturing of 66 No. 132kV Protection and Control Panels (RP3, RP4, CP30, CP50, CP20).
181	132kV AC/DC Auxiliary Services Panel	M/s SM Group of Industries Limited	132kV	1	-	2020	Panel Engineering	The project included design and manufacturing of 1 No. 132kV AC/DC Auxiliary Services Panel.
182	132kV Protection, Control, Metering, Marshalling Kiosks and AC/DC Auxiliary Services Panels (RP3, RP4, RP1, RP7, CP32, CP51, CP40, MP1, MK-TL, MK-TF, MF-BC, MP1)	M/s Descon (Local EPC) for FESCO (Local Power Distribution Utility) for Fiedmc-II Project	132kV	5	GE Make D60, 345, 350, P746	2020	Panel Engineering	The project included design and manufacturing of 19 No. 132kV Protection, Control, Metering, Marshalling Kiosks and AC/DC Auxiliary Services Panels (RP3, RP4, RP1, RP7, CP32, CP51, CP40, MP1, MK-TL, MK-TF, MF-BC, MP1)

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
183	500kV, 220kV and 132kV Local Control Cubicles for 500/220/132kV Faisalabad West Grid Station	M/s GE Grid Solutions Pakistan	500kV, 220kV, 132kV	34	-	2020	Panel Engineering	The project included design and manufacturing of 34 No. 500kV, 220kV and 132kV Local Control Cubicles for 500/220/132kV Faisalabad West Grid Station
184	220kV and 132kV Protection, Control, Metering, Marshalling Kiosks and AC/DC Auxiliary Services Panels	M/s JSPDI for NTDC (Local Transmission Utility)	220kV, 132kV	72	GE Make D60, T60, C60, P643, P443, P14N, P746, P94VP	2020	Panel Engineering	The project included design and manufacturing of 72 No. 220kV and 132kV Protection, Control, Metering, Marshalling Kiosks and AC/DC Auxiliary Services Panels.
185	132kV Protection and Control Panels (RP4, RP5, CP50, CP60)	PESCO (Local Power Distribution Utility)	132kV	6	GE Make 345, 350	2020	Panel Engineering	The project included design and manufacturing of following 132kV panels: 1. 132/11kV transformer control panel type CP50 (2 No.) 2. 132/66/11kV transformer control panel type CP60 (1 No.) 3. 132/11kV transformer protection panel type RP4 (2 No.) 4. 132/66/11kV transformer protection panel type RP5 (1 No.)
186	Generator Protection System Studies	M/s Al-Moiz Industries for Al-Moiz Unit-2 Sugar Mills (Local Industry)	11kV	36	Alstom Make P343, P341, P127, P111, CCUM21, VAEM21, VTT11, CAEM33, MVAPM32; Schneider Electric Make Vamp40	2020	Consultancy	The included review of existing protection relay settings for 20 MW & 16 MW generators and perform relay coordination of 30 No. of medium voltage feeders at power house.
187	132kV CVT Junction Boxes	M/s Coal Fired Power Plant (CFPP) Pakistan	132kV	2	-	2020	Panel Engineering	The project included design and manufacturing of 2 No. 132kV CVT junction boxes for M/s Coal Fired Power Plant (CFPP) Pakistan.
188	System Engineering and Design of Solar Roof-top PV System on EPC Basis	Pakistan Maritime Security Agency (Govt)	0.4kV	1	-	2020	Consultancy	The project included design, installation, testing and commissioning of 5.76 kWp off-grid solar-rooftop system for PMSA Base, Ketu Bandar, Karachi on turnkey and EPC basis.

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
189	132kV Metering Panel	M/s Hydro China Internatioal Engineering Company Limited Pakistan (Local EPC)	132kV	1	-	2020	Panel Engineering	The project included design and manufacturing of 1 No. 2-line metering panels for 50MW Tricom Wind Power Project Jhampir.
190	Rotor Earth Fault Protection System	M/s RYK Mills (Local Industry)	11kV	2	GE Make GPMF-L	2020	Consultancy	The project included installation, testing and commissioning of rotor earth fault protection system for 2x11kV generators for RYK Mills.
191	20200817_FFC-Mirpur-Mathelo_Solar	M/s FFC Mirpur Mathelo (Local Industry)	11 kV	300	Multiple Make Relays, ETAP	2020	System Studies	The project included load flow, short-circuit, motor starting and transient stability studies in ETAP of complete electrical system of FFC Mirpur Mathelo plant for addition of 1MW solar.
192	132kV Protection and Control Panels (RP3, RP4, RP1, RP7, CP32, CP51, CP40)	M/s Descon (Local EPC) for DHA Multan (Local Housing Society)	132kV	7	GE Make D60, 345, P14N, P746	2020	Panel Engineering	Project included design and manufacturing of following 132kV panels: 1. 132kV line control panel type CP32 (4 No.) 2. 132/11kV transformer control panel type CP51 (2 No.) 3. 132kV bus coupler control panel type CP40 (1 No.) 4. 132kV line protection panel type RP3 (4 No.) 5. 132/11kV transformer protection panel type RP4 (2 No.) 6. 132kV bus coupler protection panel type RP1 (1 No.) 7. 132kV busbar & breaker failure protection panel type RP7 (1 No.)
193	132kV Protection and Control Panels (RP4, CP50)	M/s Techavia (Local Industry)	132kV	1	GE Make 345, 350	2020	Panel Engineering	The project included design and manufacturing of following 132kV panels: 1. 132/11kV transformer control panel type CP50 (1 No.) 2. 132/11kV transformer protection panel type RP4 (1 No.)
194	132kV Protection, Control and Metering Panels (RP3, RP4, CP30, CP50, MP2)	M/s RTCC (Local EPC) for M/s Din Textiles (Local Industry)	132kV	3	GE Make D60, 345, P14N	2020	Panel Engineering	Project included design and manufacturing of following 132kV panels: 1. 132kV line control panel type CP30 (2 No.) 2. 132/11kV transformer control panel type CP50 (1 No.) 3. 132kV line protection panel type RP3 (2 No.) 4. 132/11kV transformer protection panel type RP4 (1 No.) 5. 132kV metering panel type MP2 (1 No.)

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Sr.	Project	Customer / Location	Voltage Level	No. of Bays	Protection System / Software	Year	Tags / Category	Description
195	132kV Protection and Control Panels (RP3, RP4, RP1, CP32, CP51, CP40)	M/s Jaffer Brothers (Local EPC) for M/s FIEDMC (Local Govt Co)	132kV	4	GE Make D60, 345, P14N	2020	Panel Engineering	Project included design and manufacturing of following 132kV panels: 1. 132kV line control panel type CP32 (2 No.) 2. 132/11kV transformer control panel type CP51 (1 No.) 3. 132kV bus coupler control panel type CP40 (1 No.) 4. 132kV line protection panel type RP3 (2 No.) 5. 132/11kV transformer protection panel type RP4 (1 No.) 6. 132kV bus coupler protection panel type RP1 (1 No.)
196	132kV Protection, Control and AC/DC Auxiliary Services Panels (RP3, RP4, MCP30, MCP50, ACDC)	IESCO (Local Power Distribution Utility)	132kV	41	GE Make D60, 345, P14N	2020	Panel Engineering	Project included design and manufacturing of following 132kV panels: 1. 132kV line control panel type MCP30 (39 No.) 2. 132/11kV transformer control panel type MCP50 (2 No.) 3. 132kV line protection panel type RP3 (38 No.) 4. 132/11kV transformer protection panel type RP4 (2 No.) 5. 132kV AC/DC auxiliary services panel type ACDC (1 No.)