

WORK PACKAGE 1: ICT - ELECTRICAL INSTALLATION & SOLAR BACKUP SYSTEM					
NEC3 Option B					
Bill of Quantities as per below					
	Section No.1 PRELIMINARIES Bill No.1 Preliminaries GPW Work Package 1				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SECTION 1				
	PRELIMINARIES				
	BILL NO. 1				
	FIXED CHARGES ITEMS				
	Establish Facilities on Site				
1	Contractual Requirements	Sum	1		
2	Site Offices and Storage Sheds including temporary fencing.	Sum	1		
3	Ablution and latrine facilities	Sum	1		
4	Tools and Equipment	Sum	1		
5	Establishment of Plant on Site	Sum	1		
6	Electrical power and communications	Sum	1		
	OTHER FIXED CHARGES				
7	Remove contractor's site establishment on completion including making good and restoring the site to the satisfaction of the Client/Engineer.	Sum	1		
8	Site Offices and Storage Sheds	Months	3		
9	Site security (Allow two security guards) at all times	Months	3		
10	Ablution and latrine facilities	Months	3		
11	Tools and Equipment	Months	3		
12	Water Supply	Months	3		
13	Electric power and communications / cell phones etc	Months	3		
14	Company/head office overhead cost.	Months	3		
15	Living accomodation	Months	3		
16	Supervision	Months	3		
17	Quality management	Months	3		
18	Standing time due to Client causing delay. Interruption exceeding 5hrs will be considered of working day.	Sum	1		
19	Standing time due to Client causing delay. Interruption but not exceeding 5hrs will be a rate charge per hour	Sum	1		
	TIME RELATED CHARGES				
20	Construction supervision and monitoring	Months	3		
	Full compliance with OHS requirement and legislation	Months	3		
	Health & Safety Management				
21	Allow for the necessary Workman's Compensation Fund or FEM contributions for the duration of the project with and including renewals	Once Off	1		
22	Allow for the preparation and approval of project-specific H&S Plan & File [CR 7(1)(a)]	Once Off	1		
23	Allow for the implementation and maintenance of project-specific H&S Plan & File. [CR 7]	Months	3		
24	Allow for the appointment of a Part-Time Competent Construction Health & Safety Officer (SACPCMP Registered) to assist in the control of all health and safety related aspects on site as per CR 8(5)	Months	3		
25	Provide for appointment of responsible and competent person/s to manage and supervise the works and administer and enforce health and safety on site as per CR 8(1),(2), &(7)	Months	3		
26	Allow for provision of Basic Emergency Preparedness and Response equipment & at least Two (2) First Aiders	Once Off	1		
	Provide, supply and maintenance for each worker the following SANS approved personal protective equipment & clothing as per the site-specific risk assessments:				
27	Hard Hats (High Density polyethylene, & 6-point lining)	No.			
28	Overall / work suit (100% Cotton)	No.			
29	Rain suits	No.			
30	Safety boots/shoes (Steel-Toe)	No.			
31	Safety Gumboots (Steel-Toe)	No.			
32	Safety gloves	No.			
33	Ear Plugs/Muffs	No.			
34	Dust Mask (at least FF2 type)	No.			
35	Respiratory Protective Equipment	No.			
36	Safety goggles/ Eye Protective Equipment	No.			
37	High visibility reflective vests and/or bibs	No.			
38	Personal Fall arrest and rescue equipment with and including life lines and associated equipment	No.			
39	Temporary warning signs and symbols	No.			
40	SANS approved safety netting (orange color with minimum of 1,2 meters high)	Meter			
41	Allow for Pre-employment medical examinations	No.			
42	Allow for exit medical examinations	No.			
	Allow for all compulsory health and safety awareness programme (e.g. Inductions, toolbox Talks, Safety Promotions, Risk Assessment, First Aid, Fire Fighting, H&S related training, etc.)	Sum			
44	Provide Ablution Facilities and Eating Area for workers.	Months	3		
	Environmental Management				
45	Provide for adequate handling and storage of materials so as to minimize contamination of ground, air or water.	Months	3		
46	Provide for the adequate and safe collection and disposal of waste material from site by an approved method.	Months	3		
SUB-TOTAL A CARRIED TO FINAL SUMMARY					

PART B - ICT - ELECTRICAL INSTALLATION & SOLAR BACKUP SYSTEM							
Bill No	Item No	Description	Unit	Estimated Quantity	Supply	Install	Amount
		SECTION NO. 1 GENERAL ELECTRICAL INSTALLATIONS					
		Allow for protecting all existing work liable to suffer damage (i.e. walls, finishes, floors, windows, etc.) during the building operations, alterations, etc., and make good all work damaged with new material to match existing to the approval of the project manager					
1	Heading	SECTION NO. 1 BILL NO.1 - UPS INSTALLATIONS					
	1.1	Rackmount 150KW online double conversion 3phase UPS	No	2			
	1.2	Battery cabinet	No	2			
	1.3	Battery breaker kit	No	2			
	1.4	Batteries	No	2			
	1.5	Start-up service	No	1			
	1.6	Simple Network Management Protocol (SNMP)	No	2			
		SECTION NO. 1 BILL NO.2- GENERATOR					
	1.7	300kVA 3phase continuously rated diesel generator including sound and weather proof canopy, set mount ATS, base fuel tank, smart controller, Two fuel fill, delivery,Assembly,installation and commissioning	No	2			
	1.8	Shipping, Delivery, Assembly,Fuel and Factory Acceptance Test (FAT)	No	2			
Carried to Forward to next page							
		Description	Unit	Quantity	Supply	Install	Amount
Brought Forward from previous page							
		SECTION NO. 1 BILL NO.3- ELECTRICAL RETICULATION					
		Supply and delivery of PVC/SWA/PVC					
	1.9	120mm2 4 core cable	m	120			
	1.10	95mm2 4 core cable	m	120			
	1.11	50mm2 4 core cable	m	150			
	1.12	4mm2 3 core flexible cable with a male industrial socket out	m	250			
	1.13	4mm2 4 core flexible cable with a male industrial socket out	m	250			
	1.14	6mm2 4 core flexible cable with a male industrial socket out	m	250			
	1.15	6mm2 4 core flexible cable with a male industrial socket out	m	250			
	1.16	10 mm2 3 core flexible cable with a male industrial socket out	m	850			
	1.17	4mm2 PVC insulated 1 000 V grade hard drawn copper wire drawn into trunking and conduit and coloured as required	m	500			
Carried to Forward to next page							

	Description	Unit	Quantity	Supply	Install	Amount
	Brought Forward from previous page					
	Supply and deliver bare earth copper conductors					
1.18	95 mm2	m	120			
1.19	70mm 2	m	120			
1.20	35mm2	m	150			
1.21	2.5mm2	M	250			
	Termination inclusive of cable glands, lugs etc.					
1.22	120mm2 4 core cable	No	40			
1.23	95mm2 4 core cable	No	48			
1.24	50mm2 4 core cable	No	20			
1.25	4mm2 3 core flexible cable with a male industrial socket out	No	96			
1.26	4mm2 4 core flexible cable with a male industrial socket out	No	6			
1.27	6mm2 3 core flexible cable with a male industrial socket out	No	4			
1.28	6mm2 4 core flexible cable with a male industrial socket out	No	3			
1.29	10 mm2 3 core flexible cable with a male industrial socket out	No	72			
	Carried to Forward to next page					
	Description	Unit	Quantity	Supply	Install	Amount
	Brought Forward from previous page					
	SECTION NO. 1					
	BILL NO.4- :DISTRIBUTION BOARDS					
1.30	Additional 450A, 3p circuit breaker inside the main DB	Item	R 1,00			
1.31	New Generator synchronisation and auto-selector panel	No	R 1,00			
1.32	Local UPS Isolator panels	No	R 2,00			
1.33	UPS Server room DBs	No	R 2,00			
1.34	Mechanical DB	No	R 1,00			
1.35	Small Power -in Module or New UPS room	No	R 1,00			
	SECTION NO. 1					
	BILL NO.5- :POWER POINTS					
1.36	APC NetShelter Metered Rack PDU, 0U, 8.6kW, 208V, 3 phase, 30A, 36 C13, 6 C19 and 2 NEMA 5-20R outlets	No	R 16,00			
1.37	40A rackmount STS units for singe power supply IT devices	No	R 6,00			
1.38	16A Dedicated plug points	No	R 8,00			
1.39	Wireways	sum	R 1,00			
1.40	16A dedicated circuits complete with industrial sockets	No	R 8,00			
	MONITORING					
1.41	Netbotz Monitoring, including configuration	item	R 1,00			
	Carried Forward to section 2 Final summary					

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Solar Backup System (GPW Building Upgrade) Bills of Quantities

Below is the Itemized quotation for the Solar Backup portion of the GPW Building upgrade project. All item descriptions, unit prices, quantities, and total amounts are listed for clarity.

1 SOLAR PROFESSIONAL FEES

Item No	Description	Brand	Unit	Quantity	Unit Price	Total Amount
1.1	Provide for the design, testing, commissioning, and handover of a complete solar PV system, including all associated equipment and monitoring systems. Provide operation and maintenance services in accordance with the manufacturer's recommendations, including routine inspections, system testing, cleaning, fault identification, and performance monitoring to ensure optimal system operation for a period of 24 Months. Upon completion, provide comprehensive training to the Employer's designated personnel covering system operation, monitoring, routine maintenance, fault reporting, safety procedures, and emergency shutdown processes. Submit all operating manuals, maintenance schedules, warranties, as-built drawings, and training documentation to the Project Manager.		Sum	1		0

Carried to final summary Item No. 1

2 Inverter

Item No	Description	Brand	Unit	Quantity	Unit Price	Total Amount
2.1	Inverter (including related cabling)					
2.2	100kW 3 Phase Hybrid Inverter	Huawei SUN2000-100KTL-M2 / ATESS HPS 100kW	ea	1		R -
2.3	70mm ² 4 Core Al XLPE SWA Cable	Aberdare / Helukabel	m	200		R -
2.4	50mm ² Bare Copper Earth Wire	Aberdare	m	200		R -
2.5	No. 5 Steel Gland with Shroud (for 70mm ² cable)	nVent ERICO	ea	20		R -
2.6	70 x 12mm Lugs	DEHN	ea	20		R -
2.7	50 x 12mm Lugs	DEHN	ea	8		R -
2.8	200mm Galvanized Cable Tray (with brackets)	Generic	m	500		R -
2.9	Small Tools & Consumables (Inverter)		sum	1		R -

Carried to final summary Item No. 2

3 Solar Panels & DC Combiner

Item No	Description	Brand	Unit	Quantity	Unit Price	Total Amount
	Solar Panels and DC Wiring					
3.1	550W Mono-Crystalline Solar Panel	JA Solar / Trina Solar / Longi / Jinko	ea	192		R -
3.2	1000V DC Combiner Box (10 strings in, 4 out)	ABB / Schneider Electric	ea	2		R -
3.3	Waterproof Combiner Box (8 strings in, 4 out)	Weidmüller	ea	10		R -
3.4	Galvanized Wireway 50x50mm (with lid)	Generic	m	250		R -
3.5	10mm ² Single-Core PV Cable – Red	Aberdare SOLARDAC	m	2		R -
3.6	10mm ² Single-Core PV Cable – Black	Aberdare SOLARDAC	m	2		R -
3.7	MC4 Connector (Male/Female pair, 1000V DC)	Stäubli MC4	ea	100		R -
3.8	100x40mm UPVC Trunking (3m lengths)	Generic	ea	60		R -
3.9	Small Tools & Consumables (Solar Panels)	-	sum	1		R -

Carried to final summary Item No. 3

4 Solar PV Mounting Structure

Item No	Description	Brand	Unit	Quantity	Unit Price	Total Amount
	Mounting Structure for Solar Panels					
4.1	Structural and Civil Work for Steel Structure		sum	1		R -
4.2	Y-Rail 5.5m (30x30mm Aluminum Rail)		ea	500		R -
4.3	Y-Rail External Connectors		ea	60		R -
4.4	Middle Clamp (30–40mm module thickness)		ea	190		R -
4.5	End Clamp (30–40mm module thickness)		ea	40		R -
4.6	Angle Frame Baluster (750mm, with 2x M12 Nuts)		ea	224		R -
4.7	Baluster Angle Frame 1.5m (M12 hanger bolt)		ea	112		R -
4.8	Small Tools & Consumables (Mounting Structure)		sum	1		R -

Carried to final summary Item No. 4

5 Low Voltage Works

Item No	Description	Brand	Unit	Quantity	Unit Price	Total Amount
	Low Voltage Electrical Works					
5.1	Solar AC Distribution Board	Schneider Electric / ABB	ea	1		R -
5.2	Main DB Rearrangement (for grid-tie integration)	Schneider Electric	ea	1		R -
5.3	Labelling (AC/DC systems)	-	ea	1		R -
5.4	Commissioning with Energy Provider (CoT)	-	ea	1		R -
5.5	Certificate of Compliance (Electrical)		ea	1		R -

Carried to final summary Item No.5

6 Earthing and Bonding

Item No	Description	Brand	Unit	Quantity	Unit Price	Total Amount
	Earthing and Bonding					
6.1	Earth Resistance Testing (specialist)	nVent ERICO	sum	1		R -
6.2	10mm ² Green/Yellow Earth Conductor	Aberdare	m	2000		R -
6.3	Earth Bars and Test Points		ea	4		R -
6.4	Earth Rods 1.2m	DEHN / nVent ERICO	ea	8		R -
6.5	6mm ² Bonding Conductor (green/yellow)		m	96		R -
6.6	6x4mm Lugs with Screws		ea	192		R -
6.7	Earth Rod Clamps	nVent ERICO	ea	8		R -

Carried to final summary Item No. 6

7 Batteries						
Item No	Description		Unit	Quantity	Unit Price	Total Amount
Battery Bank and Accessories						
7.1	IES Battery – 200.70 kWh (280AH, 716.8V)	IES / Freedom Won / BYD	ea	1		R -
7.2	300A DC Battery 2-Pole Fuse	ABB	ea	5		R -
7.3	70mm² Single-Core DC Cable (Battery) – Red	Aberdare	m	100		R -
7.4	70mm² Single-Core DC Cable (Battery) – Black	Aberdare	m	100		R -
7.5	120mm² Single-Core DC Cable (Battery) – Red	Aberdare	m	20		R -
7.6	120mm² Single-Core DC Cable (Battery) – Black	Aberdare	m	20		R -
7.7	70mm × 10mm Lugs & Heat Shrinks	DEHN	ea	10		R -
7.8	120mm × 10mm Lugs & Heat Shrinks	DEHN	ea	4		R -
7.9	100×40mm UPVC Trunking (3m lengths)		ea	10		R -
7.10	Small Tools & Consumables (Batteries)		sum	1		R -
					Carried to final summary Item No.7	
Solar Backup Summary						
Section	Activity Description		Amount			
1	Professional fee					
2	Inverter					
3	Solar Panels & DC Combiner					
4	Solar PV Mounting Structure					
5	Low Voltage Works					
6	Earthing and Bonding					
7	Batteries					
SUB-TOTAL CARRIED TO FINAL SUMMARY PART C						

Section	WORK PACKAGE 1:FINAL SUMMARY	Amount
Part A	Preliminaries and Generals	
Part B	ICT - Electrical Installation	
Part C	Solar Backup	
	SUB-TOTAL 1 (Excluding Vat)	
	CONTINGENCY Add 5% contingency into the project budget and will remain available for allocation at the sole discretion of the Client. Any utilization of the contingency amount shall be subject to the Client's prior approval and may only be applied to unforeseen costs, variations, or additional project requirements.	
	SUB-TOTAL 2 (Excluding VAT)	
	ADD:CIDB B.U.I.L.D applicable to all infrastructure projects aligned to CIDB Grade 7 and above - Calculated at 2% of Sub Total 2	
	SUB-TOTAL 3 (Excluding VAT)	
	ADD:Value Added Tax at 15%	
	Total Carried to form of offer	