

# AGREEMENT - PROJECT TWILIGHT STAGE 1

## ANNEXURE 1 - THE REQUIREMENT

**PROJECT TWILIGHT**  
**OFF-GRID AC SOLAR POWER FOR THE ORTHODOX ARCHDIOCESAN MISSION SIERRA LEONE**  
DETAILED REQUIREMENTS (ENERGY NEEDS) FOR BUILDING A - GIRLS ORPHANAGE

**BUILDING A - PICTURE**



Building	Level	Room	Appliance Description	Appliance Quantity	Appliance Rating (Watts)	Appliance Peak Load (Watts)	Appliance Daytime Usage (Hours)	Appliance Nighttime Usage (Hours)	Appliance Daytime Consumption (Watt Hours)	Appliance Nighttime Consumption (Watt Hours)	Appliance 24HR Consumption (Watt Hours)
Name of Building	Ground or first floor	Name of the room containing appliance	Description of the appliance requiring power. GPO = General Purpose Outlet or Powerpoint	How many of this appliance	Hourly energy consumption of the appliance	Maximum energy consumption	Average daily use 7am-6pm (11hrs)	Average daily use 6pm-7am (13hrs)	Average daily Daytime energy consumption	Average daily Nighttime energy consumption	Average energy consumption every 24hrs
<b>BUILDING A - GIRLS ORPHANAGE</b>											
Girls Orphanage	Lower	Art Room	Ceiling Fan (3-Speed)	2	90	180	4.00	3.00	720	540	1,260
Girls Orphanage	Lower	Art Room	GPO1 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Art Room	GPO2 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Art Room	GPO3 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Art Room	GPO4 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Art Room	GPO5	1		0			0	0	0
Girls Orphanage	Lower	Art Room	GPO6	1		0			0	0	0
Girls Orphanage	Lower	Art Room	Light	6	15	90	0.00	2.00	0	180	180
Girls Orphanage	Lower	Art Storeroom	Light	1	15	15	0.25	0.25	4	4	8
Girls Orphanage	Lower	Bathroom 1	Light	5	15	75	0.25	0.25	19	19	38
Girls Orphanage	Lower	Bathroom 2	Light	1	15	15	0.25	0.25	4	4	8
Girls Orphanage	Lower	Entrance/Foyer	GPO1	1		0			0	0	0
Girls Orphanage	Lower	Entrance/Foyer	GPO2	1		0			0	0	0
Girls Orphanage	Lower	Entrance/Foyer	GPO3	1		0			0	0	0
Girls Orphanage	Lower	Entrance/Foyer	GPO4	1		0			0	0	0
Girls Orphanage	Lower	Entrance/Foyer	Light	5	15	75	0.00	4.00	0	300	300
Girls Orphanage	Lower	Library	Ceiling Fan (3-Speed)	5	90	450	4.00	3.00	1,800	1,350	3,150
Girls Orphanage	Lower	Library	GPO1 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Library	GPO2 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Library	GPO3 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Library	GPO4 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Library	GPO5 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Library	GPO6 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Library	GPO7 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Library	GPO8 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Library	GPO9 Wi-Fi Wireless Router	1	15	15	2.00	3.00	30	45	75
Girls Orphanage	Lower	Library	Light	10	15	150	0.00	3.00	0	450	450
Girls Orphanage	Lower	Music Room	Ceiling Fan (3-Speed)	1	90	90	4.00	3.00	360	270	630
Girls Orphanage	Lower	Music Room	GPO1	1		0			0	0	0
Girls Orphanage	Lower	Music Room	GPO2	1		0			0	0	0
Girls Orphanage	Lower	Music Room	GPO3	1		0			0	0	0
Girls Orphanage	Lower	Music Room	GPO4	1		0			0	0	0
Girls Orphanage	Lower	Music Room	GPO5	1		0			0	0	0
Girls Orphanage	Lower	Music Room	GPO6	1		0			0	0	0

Building	Level	Room	Appliance Description	Appliance Quantity	Appliance Rating (Watts)	Appliance Peak Load (Watts)	Appliance Daytime Usage (Hours)	Appliance Nighttime Usage (Hours)	Appliance Daytime Consumption (Watt Hours)	Appliance Daytime Consumption (Watt Hours)	Appliance 24HR Consumption (Watt Hours)
Girls Orphanage	Lower	Music Room	Light	5	15	75	0.00	2.00	0	150	150
Girls Orphanage	Lower	Music Storeroom	Light	3	15	45	0.25	0.25	11	11	23
Girls Orphanage	Lower	Office	Ceiling Fan (3-Speed)	1	90	90	4.00	3.00	360	270	630
Girls Orphanage	Lower	Office	GPO1 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Office	GPO2 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Office	GPO3 Computer	1	100	100	4.00	3.00	400	300	700
Girls Orphanage	Lower	Office	Light	2	15	30	0.00	3.00	0	90	90
Girls Orphanage	Lower	Outside	GPO1 Water Pump	1	370	370	2.00	1.00	740	370	1,110
Girls Orphanage	Lower	Outside Balcony	Light	5	15	75	0.00	4.00	0	300	300
Girls Orphanage	Lower	Outside Stairs Under	Light	1	15	15	0.00	4.00	0	60	60
Girls Orphanage	Lower	Storage	Light	1	15	15	4.00	2.00	60	30	90
Girls Orphanage	Lower	Store Room	GPO1	1		0			0	0	0
Girls Orphanage	Lower	Store Room	Light	2	15	30	0.50	0.50	15	15	30
Girls Orphanage	Upper	Bedroom 1	GPO1 Fan Floor Standing	1	60	60	4.00	8.00	240	480	720
Girls Orphanage	Upper	Bedroom 1	GPO2	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 1	GPO3	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 1	GPO4	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 1	Light	2	15	30	0.00	2.00	0	60	60
Girls Orphanage	Upper	Bedroom 1 Ensuite 1	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 1 Ensuite 2	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 2	GPO1 Fan Floor Standing	1	60	60	4.00	8.00	240	480	720
Girls Orphanage	Upper	Bedroom 2	GPO2	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 2	GPO3	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 2	GPO4	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 2	GPO5	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 2	Light	3	15	45	0.00	2.00	0	90	90
Girls Orphanage	Upper	Bedroom 2 Ensuite 1	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 2 Ensuite 2	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 2 Ensuite 3	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 2 Ensuite 4	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 3	GPO1 Fan Floor Standing	1	60	60	4.00	8.00	240	480	720
Girls Orphanage	Upper	Bedroom 3	GPO2	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 3	GPO3	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 3	GPO4	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 3	Light	4	15	60	0.00	2.00	0	120	120
Girls Orphanage	Upper	Bedroom 3 Ensuite 1	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 3 Ensuite 2	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 3 Ensuite 3	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 3 Ensuite 4	Light	1	15	15	0.00	1.00	0	15	15

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Girls Orphanage	Upper	Bedroom 4	GPO1 Fan Floor Standing	1	60	60	4.00	8.00	240	480	720
Girls Orphanage	Upper	Bedroom 4	GPO2	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 4	GPO3	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 4	GPO4	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 4	GPO5	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 4	GPO6	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 4	Light	3	15	45	0.00	2.00	0	90	90
Girls Orphanage	Upper	Bedroom 4 Ensuite 1	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 4 Ensuite 2	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 5	GPO1 Fan Floor Standing	1	60	60	4.00	8.00	240	480	720
Girls Orphanage	Upper	Bedroom 5	GPO2	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 5	GPO3	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 5	GPO4	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 5	GPO5	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 5	GPO6	1		0			0	0	0
Girls Orphanage	Upper	Bedroom 5	Light	3	15	45	0.00	2.00	0	90	90
Girls Orphanage	Upper	Bedroom 5 Ensuite 1	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Bedroom 5 Ensuite 2	Light	1	15	15	0.00	1.00	0	15	15
Girls Orphanage	Upper	Corridor	Light	3	15	45	0.00	4.00	0	180	180
Girls Orphanage	Upper	Kitchen	GPO1 Fridge Large (700L)	1	350	350	11.00	13.00	3,850	4,550	8,400
Girls Orphanage	Upper	Kitchen	GPO2 Iron Clothes	2	1,100	2,200	1.00	0.00	2,200	0	2,200
Girls Orphanage	Upper	Kitchen	GPO3 Kettle 2L	1	2,000	2,000	0.50	0.50	1,000	1,000	2,000
Girls Orphanage	Upper	Kitchen	GPO4 Rice Cooker 4L	1	600	600	1.00	0.00	600	0	600
Girls Orphanage	Upper	Kitchen	GPO5 Sandwich Press Large	1	1,500	1,500	1.00	0.00	1,500	0	1,500
Girls Orphanage	Upper	Kitchen	GPO6 Toaster 4-Slice	1	2,000	2,000	1.00	0.00	2,000	0	2,000
Girls Orphanage	Upper	Kitchen	Light	3	15	45	0.00	4.00	0	180	180
Girls Orphanage	Upper	Kitchen Balcony	Light	1	15	15	0.00	4.00	0	60	60
Girls Orphanage	Upper	Kitchen Storeroom	Light	1	15	15	0.50	1.00	8	15	23
Girls Orphanage	Upper	Living Room	GPO1 Fan Floor Standing	1	60	60	8.00	4.00	480	240	720
Girls Orphanage	Upper	Living Room	GPO2 Freezer Small (200L)	1	100	100	11.00	13.00	1,100	1,300	2,400
Girls Orphanage	Upper	Living Room	GPO3 TV Medium (55 Inch)	1	100	100	4.00	2.00	400	200	600
Girls Orphanage	Upper	Living Room	GPO4 Mobile Phone	1	10	10	2.00	1.00	20	10	30
Girls Orphanage	Upper	Living Room	GPO5 Mobile Phone	1	10	10	2.00	1.00	20	10	30
Girls Orphanage	Upper	Living Room	GPO6 Mobile Phone	1	10	10	2.00	1.00	20	10	30
Girls Orphanage	Upper	Living Room	GPO7 Wi-Fi Wireless Router	1	15	15	2.00	4.00	30	60	90
Girls Orphanage	Upper	Living Room	GPO8	1		0			0	0	0
Girls Orphanage	Upper	Living Room	GPO9	1		0			0	0	0
Girls Orphanage	Upper	Living Room	Light	6	15	90	0.00	4.00	0	360	360
Girls Orphanage	Upper	Outside Awning	Spotlight	1	60	60	0.00	4.00	0	240	240

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Girls Orphanage	Upper	Outside Balcony Side	Light	1	15	15	0.00	4.00	0	60	60
Girls Orphanage	Upper	Outside Stairs Entry	Light	1	15	15	0.00	4.00	0	60	60
Girls Orphanage	Upper	Outside Stairs Top	Light (New)	1	15	15	0.00	6.00	0	90	90
<b>TOTALS FOR BUILDING A - GIRLS ORPHANAGE</b>				<b>174</b>	<b>77</b>	<b>13,405</b>	<b>152.5</b>	<b>225.0</b>	<b>24,550</b>	<b>20,643</b>	<b>45,193</b>
				<b>APPLIANCES</b>	<b>WATTS AVERAGE RATING</b>	<b>WATTS PEAK LOAD</b>	<b>DAYTIME HOURS</b>	<b>NIGHTTIME HOURS</b>	<b>WATT HOURS OF DAYTIME USE</b>	<b>WATT HOURS OF NIGHTTIME USE</b>	<b>WATT HOURS OF 24HR USE</b>

END OF ANNEXURE 1 - THE REQUIREMENT

# AGREEMENT - PROJECT TWIGHLIGHT STAGE 1

## ANNEXURE 2 - THE SOLUTION COMPONENTS

**THE PROVIDER:** K A CONSTRUCTION COMPANY LTD

**THE SUPPLIER:** A A ENTERPRISES PTY LTD

**THE MISSION:** THE HOLY ORTHODOX ARCHDIOCESAN DISTRICT OF SIERRA LEONE

**THE BUILDING:** BUILDING A - THE GIRLS ORPHANAGE AT WATERLOO CAMPUS OUTSIDE FREETOWN IN SIERRA LEONE

**TBA:** To Be Advised

ID	SOLUTION COMPONENT	MANUFACTURER	MODEL	SPECIFICATION (Sizing)	QUANTITY	UNIT	RATE (\$USD)	AMOUNT (\$USD)
1	SOLAR PANEL 545 W HALF CUT LONGI	Longi	Hi-MO LR5-72HPH	Half-Cell Power Class 545W. Compliant with International standard IECC 61215	18	PCS	\$ 300.00	\$ 5,400.00
2	INVERTER 10KVA 48 VOLT	Felicity Solar	IVPL10048	Output Power 10000VA 8000W 48V	1	PCS	\$ 2,800.00	\$ 2,800.00
3	ASPIRO BATTERY 240 AH C10	Aspiro	ASTB 26000	Lead Acid Capacity 12V 240 AH	16	PCS	\$ 320.00	\$ 5,120.00
4	MPPT CHARGE CONTROLLER	Felicity Solar	SCCM12048	Max Solar Input 195V Max Current 100A	1	PCS	\$ 550.00	\$ 550.00
5	COMBINE BOX 36 WAY	TBA on ordering	TBA on ordering	TBA on ordering	1	PCS	\$ 80.00	\$ 80.00
6	GROUND MOUNTING RACK	TBA on ordering	TBA on ordering	TBA on ordering	1	PCS	\$ 1,700.00	\$ 1,700.00
7	50MM CABLE	TBA on ordering	TBA on ordering	TBA on ordering	5	M	\$ 25.00	\$ 125.00
8	M C 4 CONNECTOR	TBA on ordering	TBA on ordering	TBA on ordering	6	SET	\$ 5.00	\$ 30.00
9	3/4 CORRUGATED PIPE	TBA on ordering	TBA on ordering	TBA on ordering	2	ROLL	\$ 150.00	\$ 300.00
10	A/C SURGE PROTECTION	TBA on ordering	TBA on ordering	TBA on ordering	1	PCS	\$ 220.00	\$ 220.00
11	DC SURGE PROTECTION	TBA on ordering	TBA on ordering	TBA on ordering	2	PCS	\$ 250.00	\$ 500.00
12	6MM CABLE	TBA on ordering	TBA on ordering	TBA on ordering	300	M	\$ 2.00	\$ 600.00
13	MEGA FUSE	TBA on ordering	TBA on ordering	TBA on ordering	1	PCS	\$ 500.00	\$ 500.00
14	BUSBAR 4-WAY	TBA on ordering	TBA on ordering	TBA on ordering	2	PCS	\$ 125.00	\$ 250.00
15	ACCESSORIES EARTH	TBA on ordering	TBA on ordering	TBA on ordering	1	PCS	\$ 460.00	\$ 460.00
16	BATTERY RACK	TBA on ordering	TBA on ordering	TBA on ordering	1	PCS	\$ 450.00	\$ 450.00
17	10MM x 4 DC CABLE	TBA on ordering	TBA on ordering	TBA on ordering	60	M	\$ 13.00	\$ 780.00
18	25 MM DC CABLE	TBA on ordering	TBA on ordering	TBA on ordering	100	M	\$ 15.00	\$ 1,500.00
19	80x60 DISTRIBUTOR PANEL	TBA on ordering	TBA on ordering	TBA on ordering	1	LOT	\$ 450.00	\$ 450.00
20	INSTALLATION COST	N/A	N/A	N/A	1	NO	\$ 5,500.00	\$ 5,500.00
<b>TOTAL COST</b>								<b>\$ 27,315.00</b>

# Green Power to Home



AC  
LOAD  
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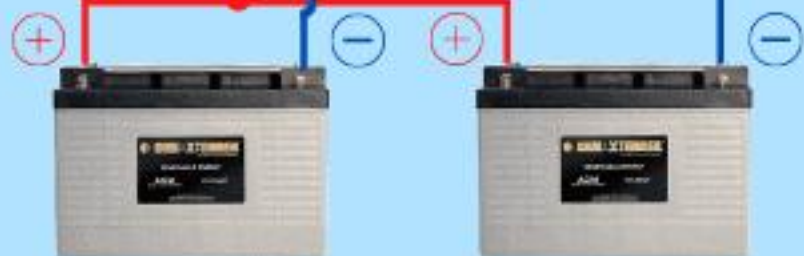
4 Inverter

2 Charge Controller

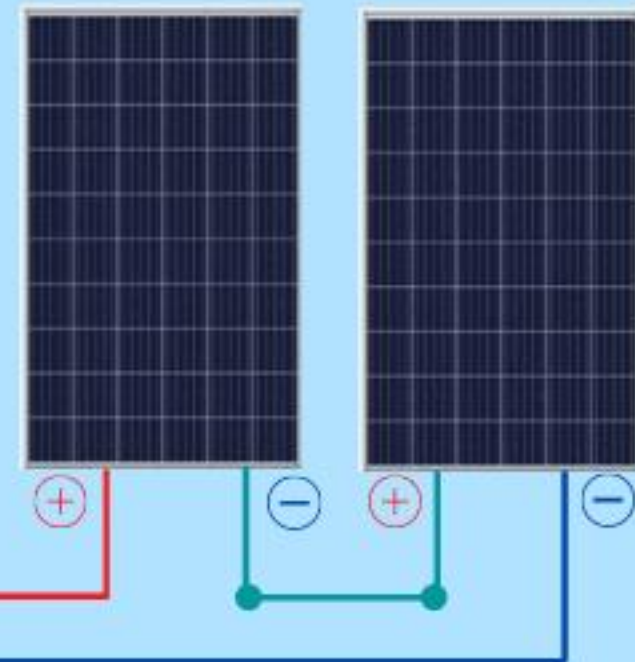
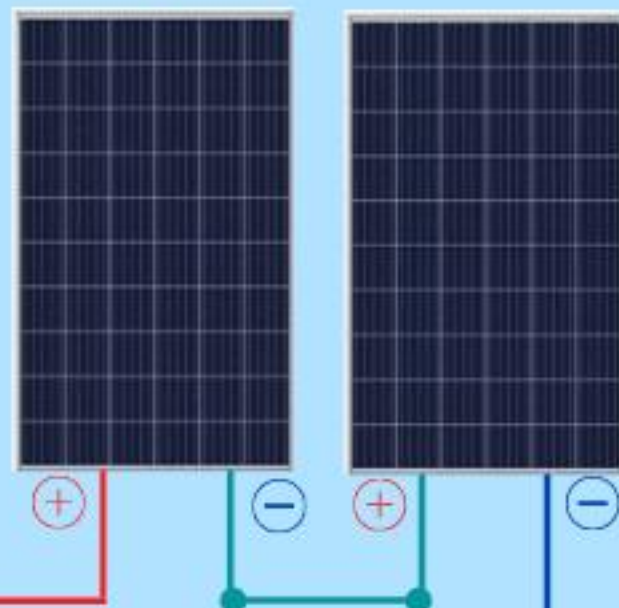


DC  
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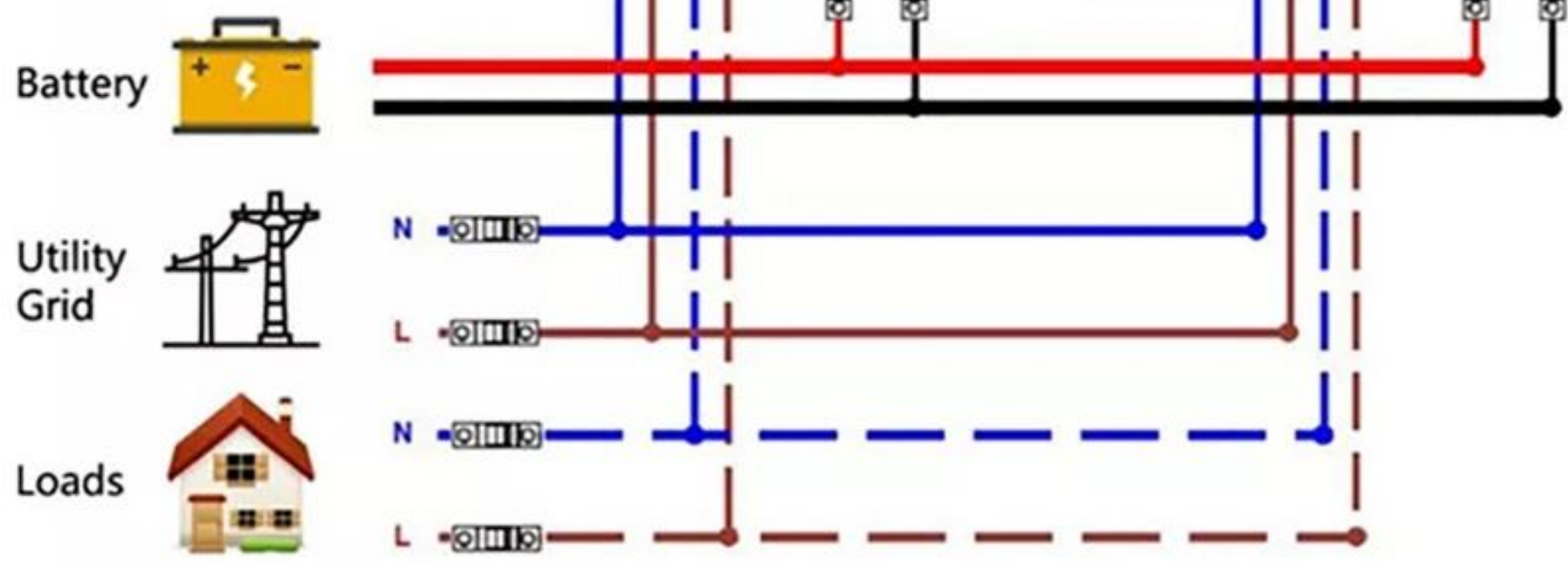
3 12V Battery



1 Solar Panel







### Communication Connection

