



**ManoCap  
Energy**



**AB Solar  
International**



► **Ab Solar International, Accra**  
[www.absolar-Africa.com](http://www.absolar-Africa.com)

**EPC + FINANCE FOR SOLAR, BASED IN GHANA**

▶ **References of major projects in Africa from 2016 to date :**

- Cargill Ghana, 565kWp Tema Free Zone Enclave ground and carpark
- Labianca Coldstore 385kWp Tema Fishing harbour road, roof mount system
- Danish Embassy, 30kWp Accra roof mount system
- ECPL Pharmacies, 190kWp 2x Accra roof mount systems
- Ecobank. 100kWp Abidjan Cote D'Ivoire roof mount system
- CDDA Coldstore 500kWp, Cotonou Benin roof mount system
- Goldfields GH 95kWp, Accra x 7 new build executive homes with roof mount
- CHAMPION SUPERMARKET 100kWp in Lomé Togo - Rooftop mounting
- Watchtower Ghana JW.org 150kWp ground mount system for head office ground mount
- Guinness Ghana 1MWp Accra including a "first in Ghana" custom-made roof
- Fair Afric (Choco factory) 265kWp Suhum including supply of gensets roof mount system
- MSC headoffice 430kWp ground mount and carpark
- Miro Plywood Ghana 500kWp roofmount
- KCCR 60kWp Kumasi, Hybrid system with battery storage
- Nectar freetwown SL 125kWp with 80kWh battery storage
- Special ice Accra 1.5MWp rooftop solar
- Invitolabs 400kWp rooftop in Ghana





## Projects in development

- Accra Brewery 2.25 MWp roof mount in Accra Start building June 2024
- Shankerdas Freetown SL 300 kWp roof top (under construction Q1 24)
- Justrite Lagos 5MWp solar for several supermarkets with battery storage (Huawei)
- Polytank Tema Ghana 2.5MWp roof mount (Start building April 2024)
- Kejetia Market Kumasi 2.2MWp with 600kWh storage roofmount solar



# So Why AB Solar International

- ▶ Solid references and very strong pipeline to be executed when financials are solidified
- ▶ Strong player in niche with significant growth
- ▶ Long standing business relations with key suppliers
- ▶ Technical procurement capability from 10+ years leadership in the EU market
- ▶ Supplementary products within energy saving to complement customers needs









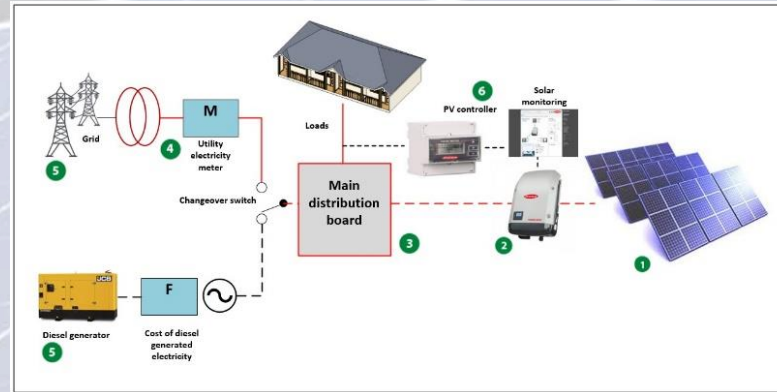




## How solar works

With a solar system you create a stable energy supply for your situation. We mostly provide the larger on-grid solar systems with a PV hybrid controller so that we also can control the diesel generator on site. So even with a power cut, and during the day, solar and diesel can run together. With the high energy cost in West Africa there is a huge money saving on your electricity bill.

- 1 Solar Panels
- 2 Inverter
- 3 Electrical Panel
- 4 Utility Meter
- 5 Utility Grid and / or Diesel generator
- 6 PV controller and Monitoring System



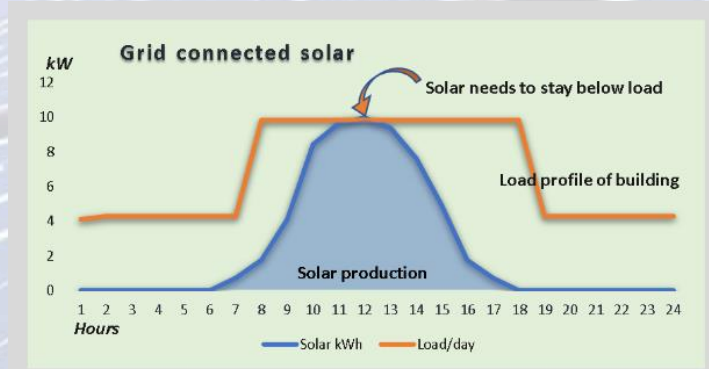
*Grid connected system without storage*

**There are 2 types of solar systems we generally offer.**

- Grid connected without battery storage.
- Grid connected hybrid system with battery storage and generator coupling

## Grid connected.

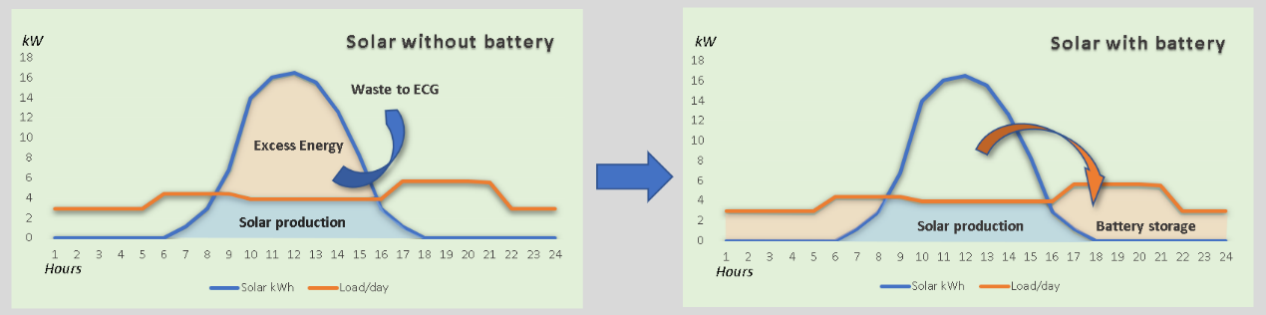
Below an example for an office. As you can see is that the solar (Blue line) stays below the yellow load line. We cannot feed back to the grid and therefore we need to stay below the load curve. On average this will mean we can install around 40-50% of the day need with solar energy. The other 50% you keep buying from ECG ( Energy supplier).



Grid connected solar

## Hybrid system with batteries

When the consumption during the day is to low but you want to benefit from solar energy in the time that sun is not shining we can install a hybrid system with storage. We then oversize the solar and store the excess energy in a Lithium Ion battery pack. For this we include a smart meter that measures the load. Once the solar is too low the energy from the battery will be used to supply power in the building. Once the battery is drained or power is to low, the grid will add additional power. During power cut we can determine emergency group that will have preferred energy from solar and battery. For larger systems we can add hybrid controller to sync the solar with existing generator.



Difference with or without storage



# Used equipment

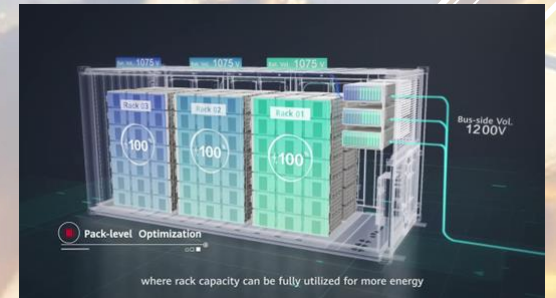
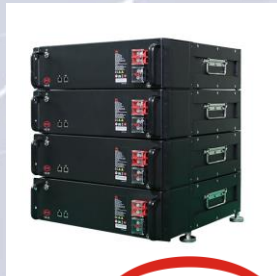
Solar panels  
(only Tier 1 products)



Inverters  
(Only A-brands)



Batteries  
(Low and high voltage lithium )





Mounting structures



AC and DC equipment  
(Only A-brands)



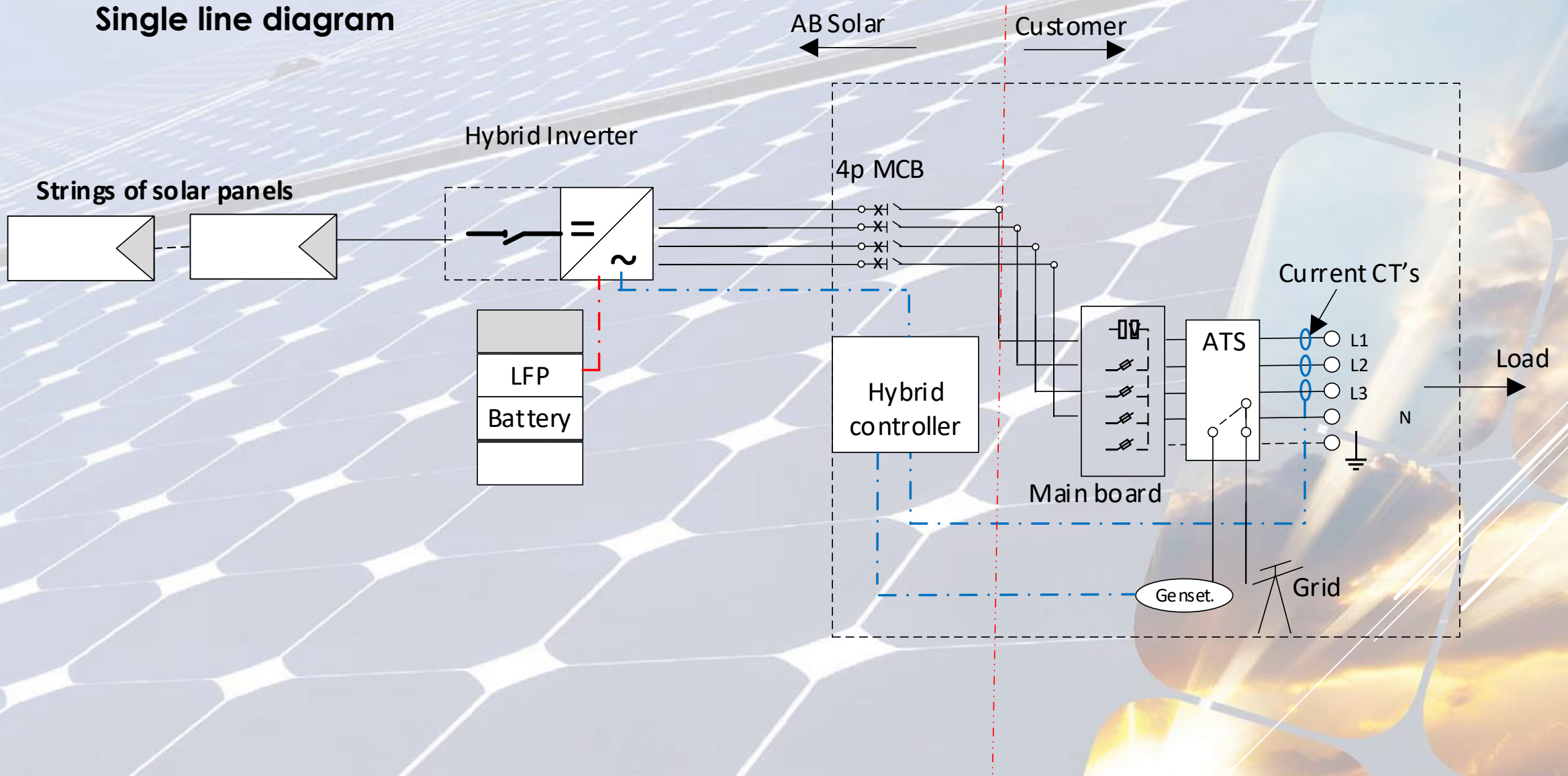
Safety and O&M



*Walkways and safety lines*



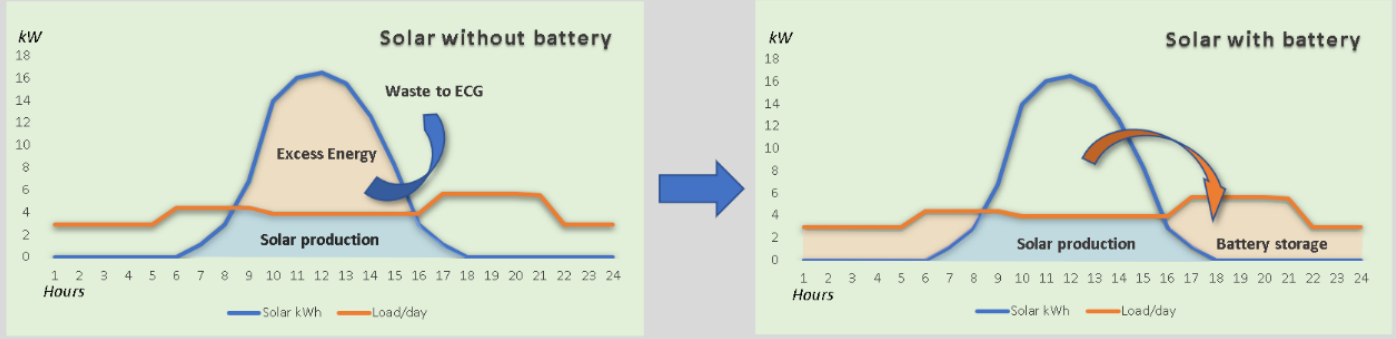
# Single line diagram





### Hybrid system with batteries

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### Example site based on 10.000kWh Consumption per month

To get a system that fits the customer we need to get some basic information to determine the correct size

- Google location of the project
- Energy bill for the last 6 months that states cost per kWh
- Size and amount of generators
- Running hours of genset per day and Amps that the genset is running on.
- Some site photo's

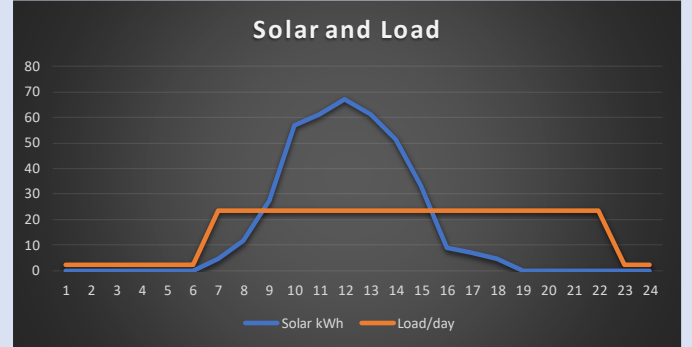
Load profile for factory / shop / day consumption

Hours	Solar kWh	Load/day	solar extra load.
1	0	2	2
2	0	2	2
3	0	2	2
4	0	2	2
5	0	2	2
6	0	2	2
7	5	23	19
8	12	23	12
9	28	23	-4
10	57	23	-33
11	61	23	-38
12	67	23	-43
13	61	23	-38
14	51	23	-28
15	33	23	-10
16	9	23	14
17	7	23	16
18	5	23	19
19	0	23	23
20	0	23	23
21	0	23	23
22	0	23	23
23	0	2	2
24	0	2	2
<b>394 kWh</b>	<b>385 kWh/day</b>	<b>-2 kWh</b>	

240 extra kWh for battery

394  
-2 kWh  
386  
from Genset saved with solar  
Based on 16 hours 23kWh 6 day operation  
143,754 kWh  
104,169 Wp  
240 kWh

Consumption  
Total solar production per year.  
Advised solar system  
Advised Battery system  
**10,000 kWh/month**





## Finance your solar installation and get cheaper energy from day one!

We supply a solar energy installation for your site, office, or other commercial building including long term lease to own finance (7-20 years) .

- *Minimum system size 150kWp up to 20MWp (larger can be discussed)*
- *No up-front investment needed. You start paying after installation of the solar.*
- *Fixed price per month without any surprises during the lease period!*
- *No escalation on price per year during the lease agreement.*
- *You pay towards an asset instead of paying to your energy company.*
- *After the lease period you own the system and get 100% and benefit from free solar energy.*

## Other renewable Energy “ build and/or finance” we provide:

- *Waste to Energy*
- *Biomass*
- *Greening up buildings*
- *Electric vehicle (EV) finance for cooperations.*



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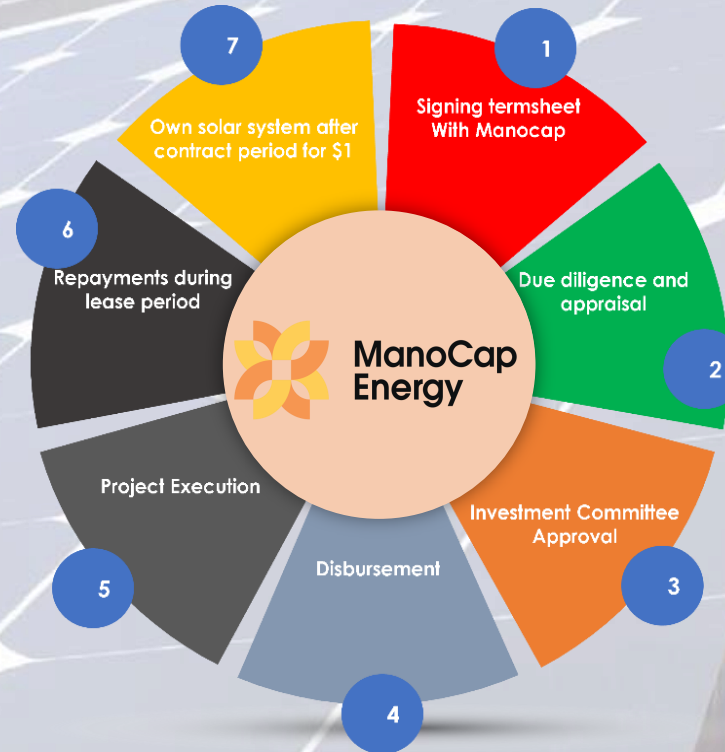




## What is included? :

- ✓ Operation and maintenance
- ✓ Solar panel cleaning by our team
- ✓ Replacement of broken parts
- ✓ Insurance of the solar system
- ✓ Construction assessment of roof
- ✓ Guaranteed solar performance
- ✓ If we don't supply the agreed power per year, you will be compensated.

## How it works:





## Our region

We are active in the West Africa market, meaning we can finance and assist  
In several countries.

- Ghana
  - Togo
  - Benin
  - Nigeria
  - Liberia
  - Sierra Leone
  - Guinea
  - Cameroon
- (Other countries are open for discussion)

# Thank you for your attention



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