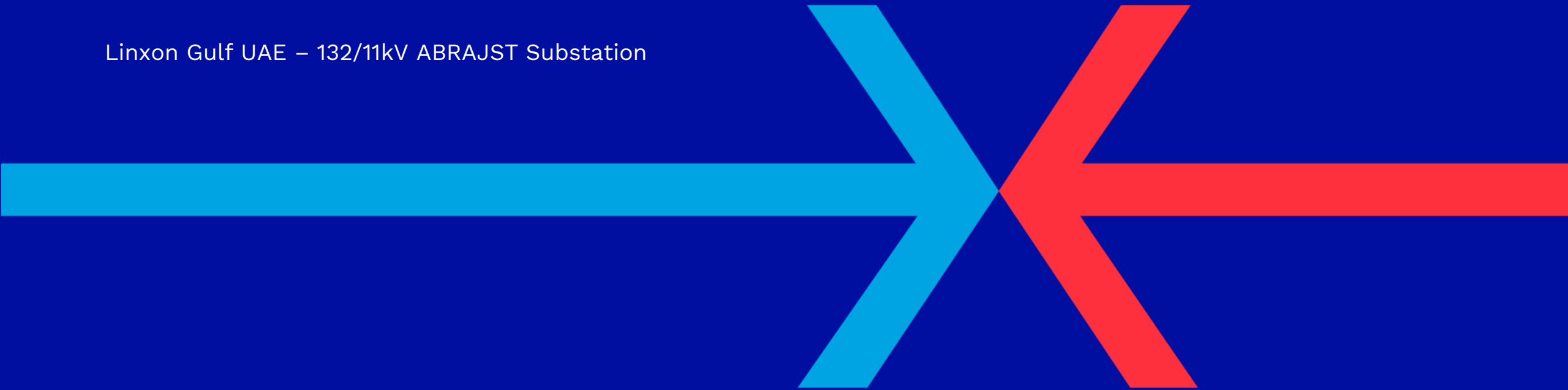


# Off-Grid PV Solar Diesel Hybrid System

132/11 kV Substation Site facilities

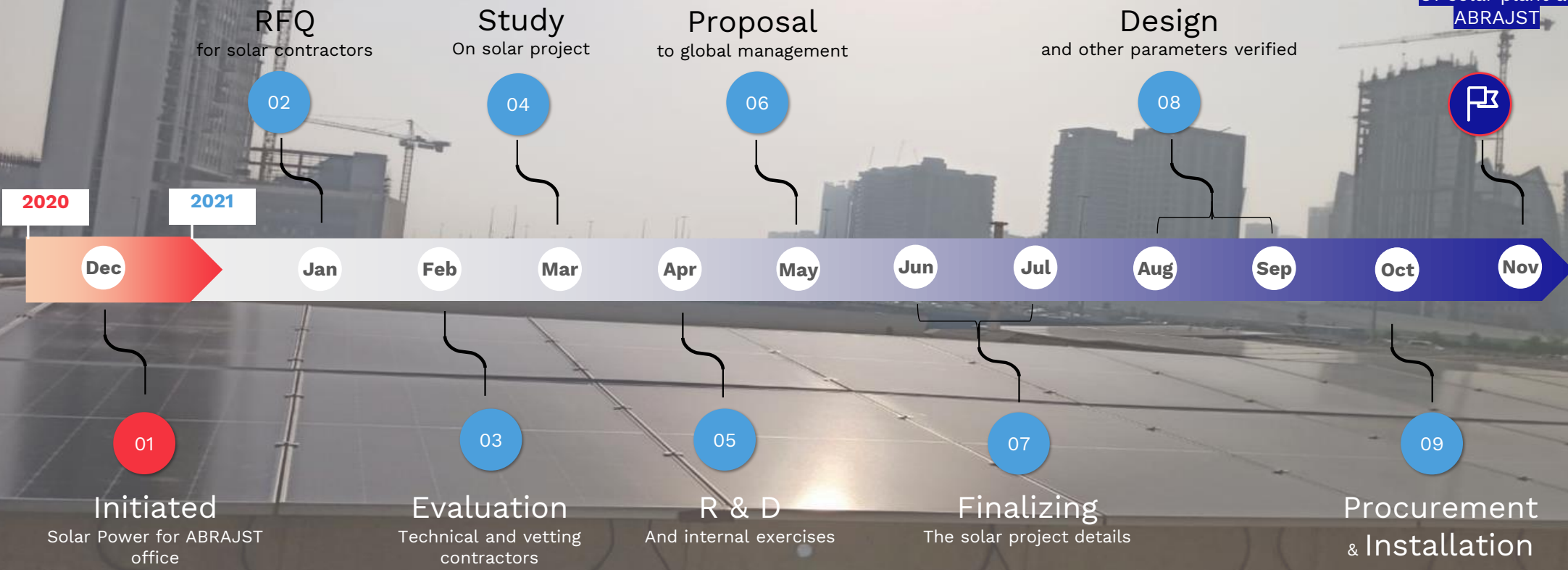
Linxon Gulf UAE – 132/11kV ABRAJST Substation



# Solar Project Timeline



switch on  
Energization  
Of solar plant at  
ABRAJST



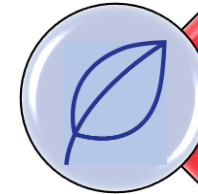
# Project Aspects

- Linxon Gulf LLC has decided to take a step ahead in the renewable energy, the first of its kind of EPC at **132 / 11 kV ABRAJST Substation**
- Project duration: **24 +2 months**
- Linxon UAE team presented a solar power proposal (hybrid solution) for site office facilities
- Linxon management and project operations backed up
- **DEWA Project Management supported and acclaimed the initiative**

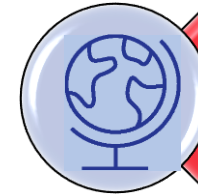
## SOLAR POWER IDEA



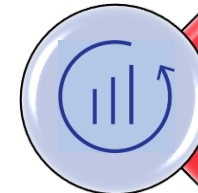
Pilot project -  
first in Linxon and  
similar EPC



Environment  
friendly-  
renewable energy



Building a  
sustainable  
solution



Studying and  
foreseeing cost  
reduction

# Efforts for Off-grid Solar Power initiative

## R&D on initiative

- Feasibility study carried out
- Local contractors engaged
- Study catered
  - Space
  - Sunlight and shadow
  - Energy required (kWhr)
  - Offices
  - Cost and expenses
  - Risks & contingency
  - Duration required
  - Intended use
  - Load requirement of site facilities
  - Type & combination of power resources
  - Switching philosophies to be implemented
  - Cost benefit analysis

## Challenges

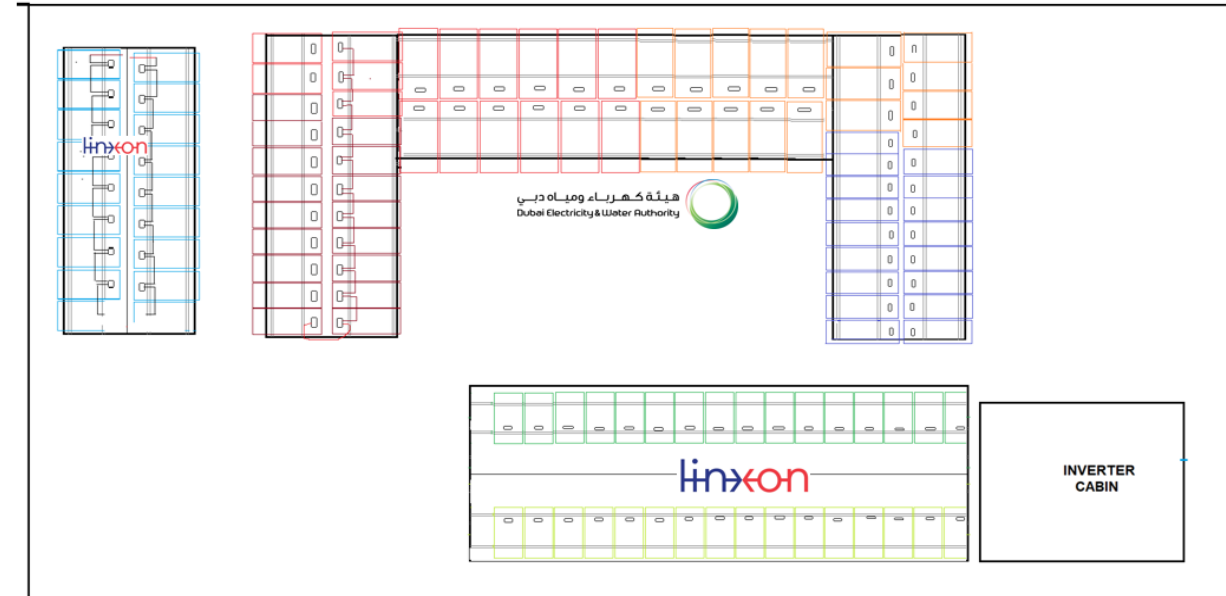
- off-grid – no distribution power from utility to ensure continuity of power
- Solar energy is intermittent and largely depends on weather
- Constraints with orientation of solar panels in the roof of existing site facilities cabins
- Shadow from near by high rise buildings



# Feasibility study

- 5 Portacabin site offices (Linxon & Client) + guard house + lighting
- Lights / sockets with A/C running in day peak power consumption is approximate 50 kW
- Solar Plant of **65 kwp** planned
- Using existing portacabin offices roof tops for solar panels installation.
- A battery bank of low capacity (120 Ahr) to cater the peak loads when solar power generation is not sufficient
- A low capacity DG (60kVA) to support the battery during off peak solar power generation
- The same 60kVA diesel generator can be used in case of any emergency with the installed changeover switch

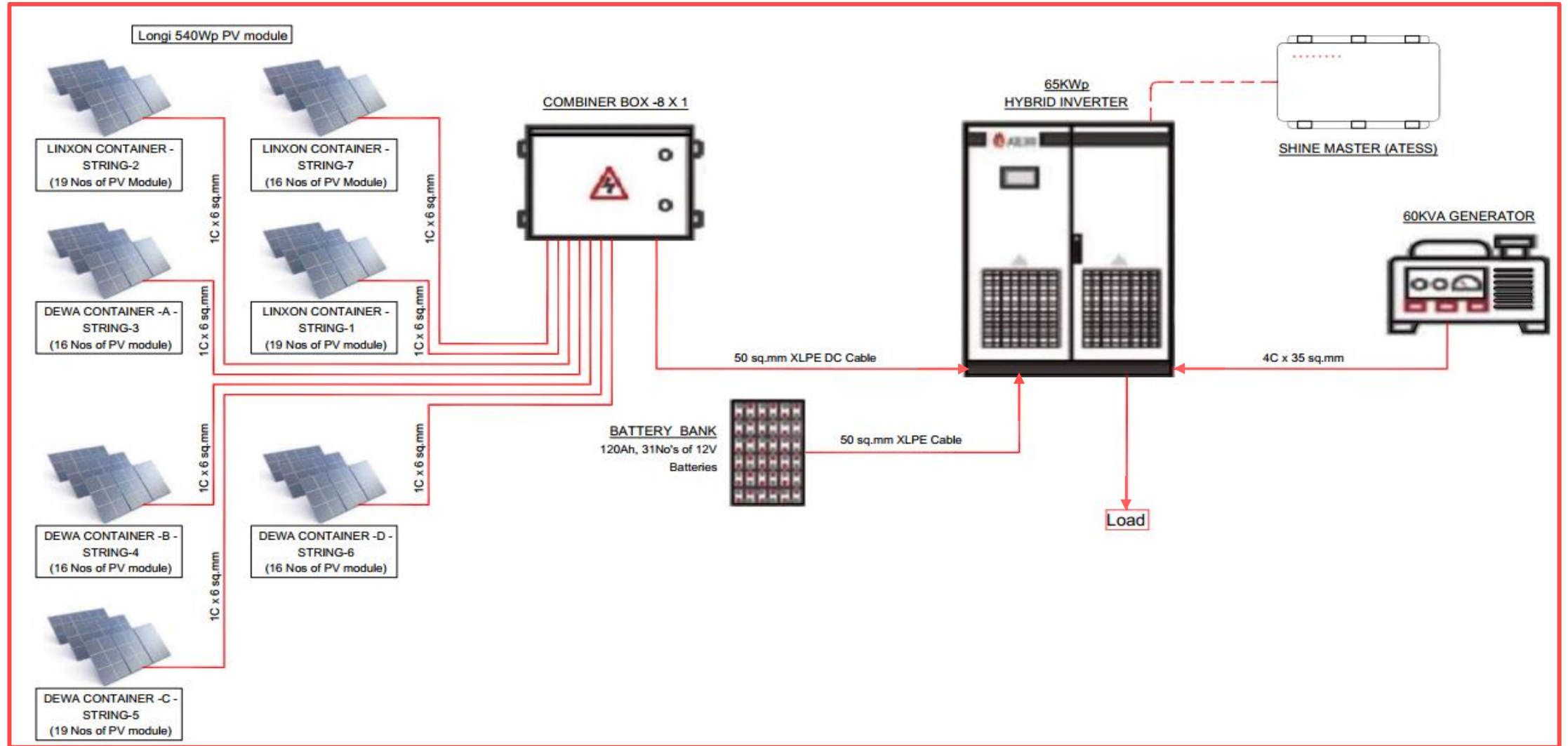
## SOLAR PANELS ON ROOF TOP



Abraj site office area



# System Block Diagram

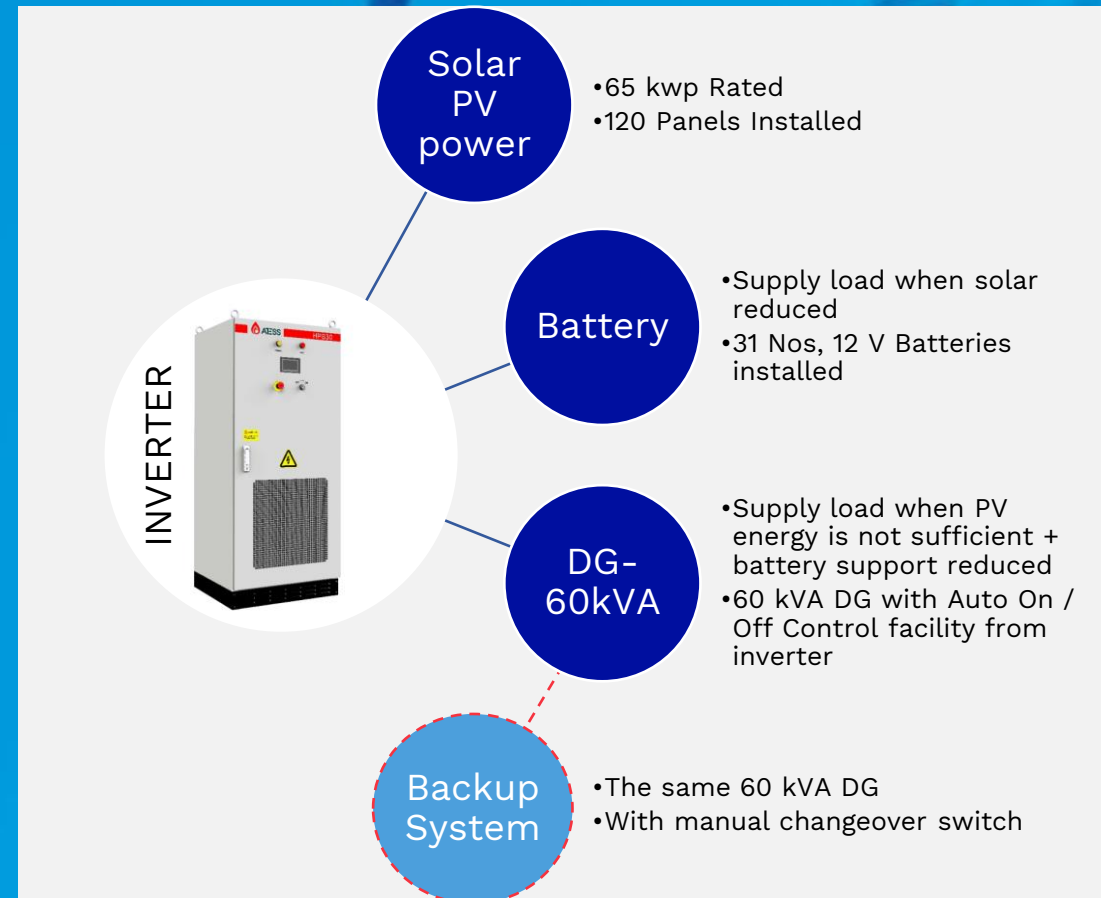


# Switching philosophy

## Sequence

- 65 kwp solar power shall meet the site facilities load during peak generation period of the day
- Supported by battery when generation reduces below the load requirement
- 60 kVA Diesel Generator triggered when battery is discharged up to the set volt level
- Off-grid PV Diesel Hybrid System Inverter switched off automatically when the diesel generator + solar combination could not meet the load
- 60 kVA diesel generator can be switched on through change over switch manually to supply the load when Inverter is under maintenance

## Power generation setup





Presentation to team



Inauguration - 25/11/2021



Switching ON



ABRAJST team



Clean energy Produced



Cake cutting event





# Summary

First off-grid PV diesel plant of this capacity - hybrid system, environmentally friendly & renewable energy solution in DEWA substation project (site facilities), Dubai, UAE

First-time implementation in Linxon global project sites

65 kwp solar plant capacity and is incorporated with solar panel, battery & DG combination

Plant can meet the complete site facilities load and for the night-time (security room, yard lighting etc.) Battery + DG system will take care of the requirement

Reduction of around **681 metric tons** of green-house gas for the whole project period

60 kVA DG can take care of the no generation scenario (i.e. fully cloudy or rainy situation, any maintenance / failure in the plant etc..)

Unique design of installing the solar panels on 5 x office container roofs top due Site space limitation

Entire system suitably designed for shifting & re-installation in any other typical project site with few changes

linxon

linxon