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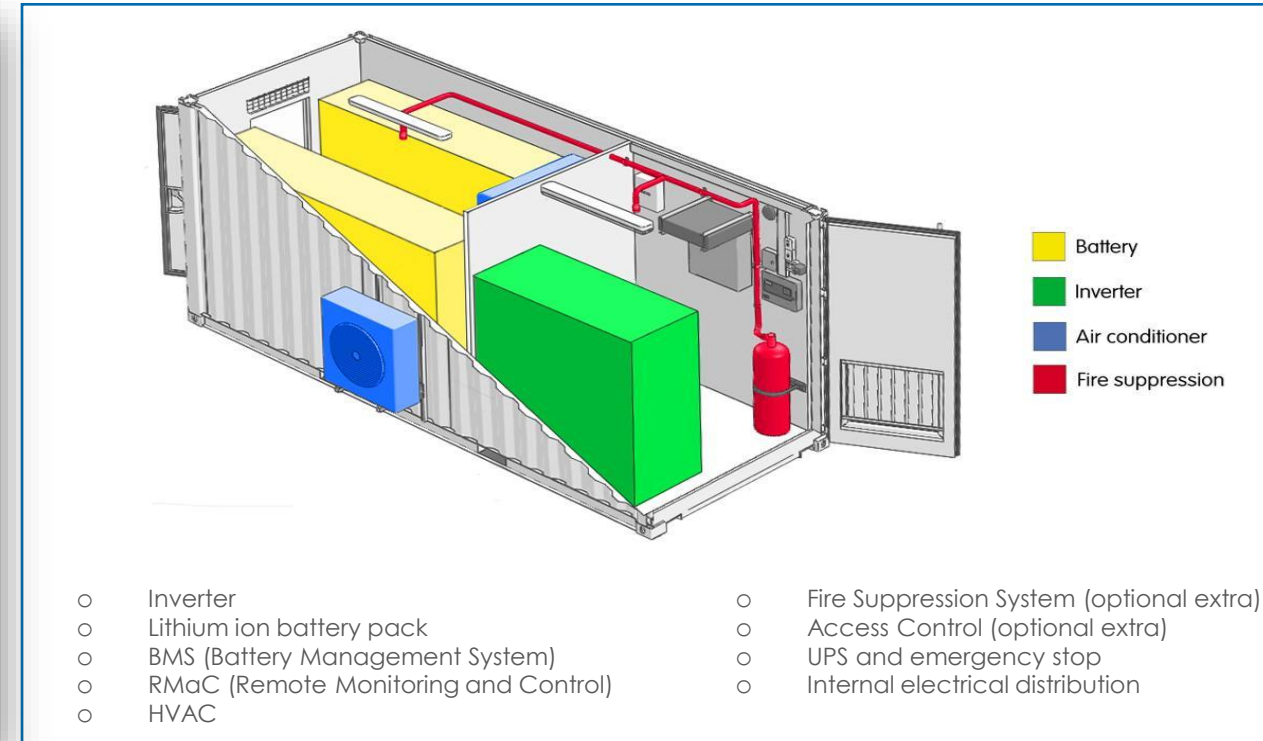
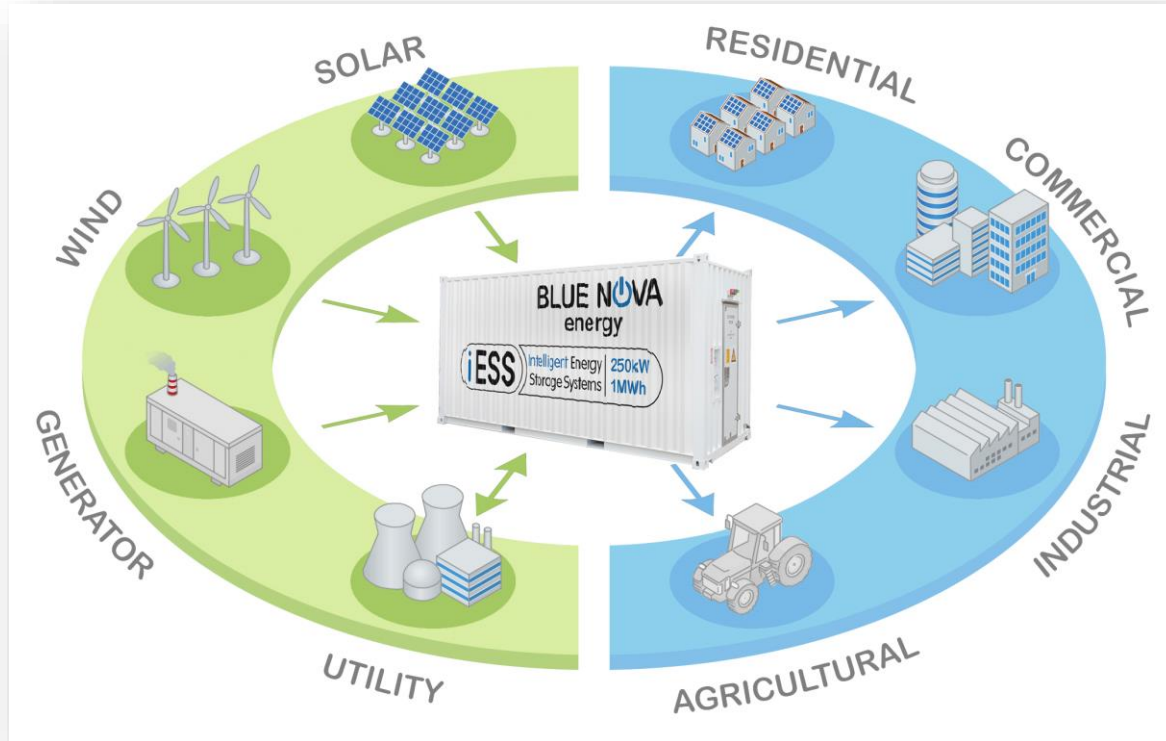
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# Company Profile

- Established July 2015
  - >20 MWh per month production
  - >12500 installations
- 51% acquired by JSE listed Reunert Group
- ISO90001 by end 2020
- Southern African focus for SESS
  - Cape Town factory
  - Pretoria Warehouse and support

# Introduction to iESS



## Application:

- Peak shaving
- Load shifting
- Voltage and Frequency regulation
- Micro-grid component
- Backup

# iESS Product Design

- Cell - selection criteria

1. Performance Warranty

- %DoD (Depth of discharge)
- Capacity Retention (at End of Life [EoL] )
- Cycles
- Temperature
- C-rating

2. kWh delivered under Warranty

3. Safety standards compliance – UL9540

4. Transportability – UN3480



CATL

瑞浦能源  
REPT

- >6000 cycles
- 10 year warranty

- Modules



## BN52V-280-14.5k

Cells	16
Capacity	280 Ah
Energy	14,5 kWh
Nominal Voltage	3,25 V
Minimum Voltage	2,9 V
Maximum Voltage	3,5 V
Weight	± 100 kg



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# iESS Product Design

- Inverters and String selections in containers

Inverter size (kVA/kW ; PF=1)	Input Voltage Range (Vdc)	String selections
50	352Vdc – 600Vdc	8 – 10 modules 116 – 146 kWh
100		
150		
250	500Vdc - 800Vdc	12 – 14 modules 174 – 204 kWh
500	600Vdc – 900Vdc	14 – 15 modules 204 – 218 kWh
1000		



- Maximum battery capacity
- 6m container – 1.7MWh
  - 12m container - 3.4MWh

# Inverter Compatibility



## ATESS HPS Series 30/50/100/150

- 352V – 600V
- Parallel up to 4 units

## ATESS PCS Series 50/100/250

- Built-in transformer
- 500V – 820V
- Parallel up to 4 units

## ATESS PCS Series 500/630

- Without built-in transformer
- 600V – 900V
- Parallel up to 4 units

## Kehua PCS Series 100/250/500kW

- 500V – 900V
- Parallel up to 18 unit



## Sunsynk & Deye 3 Phase HV Inverters

- 360V – 850V – 40kW
- 450V – 850V – 50kW
- Parallel up to 2 units
- Identical battery strings per inverter required



# iESS Reference Sites

## Mozambique

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Reference Site

Installation: iESS 150kW / 450kWh

Supplying:

Village

Application:

- Off-grid
- Integration with
  - Generator
  - Integration PV



## Pretoria – South Africa

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Reference Site

Installation: iESS 500kW / 1,3MWh

Supplying:

Commercial

Application:

- Integration with
  - Generator
  - Integration PV string inverters (Huawei)
- Cost reduction (running of generator)
- Reliability of supply



## Paarl – South Africa

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Reference Site

Installation: iESS 1.5MW / 4.5MWh

Supplying:

Commercial

Application:

- Integration with
  - Generator
  - Integration PV string inverters
  - Cost reduction (load factor demand management)
- Reliability of supply



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# TimBila Nature Reserve - Namibia



Installation: iESS 250kW / 975kWh  
Supplying:

Lodge and residential units  
(250km north of Windhoek)

Application:

- Off-grid
- Integration with
  - Generator (200kVA)
  - Integration PV string inverters (Huawei) (280kWp solar)

Generating power at less than  
R2/kWh for 15years

BlueNova's 1<sup>st</sup> export into Africa



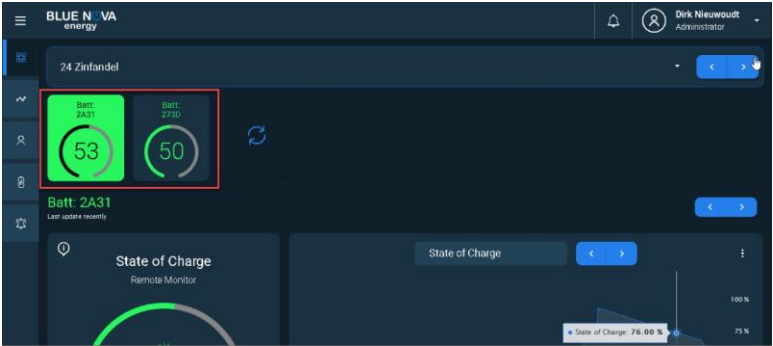
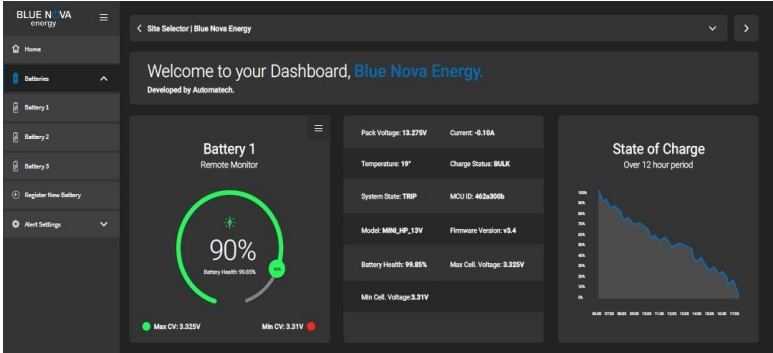
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# Monitoring and Control

## BMAC



## EMS



### Product Features:

- Local and remote monitoring
- Over the air firmware upgrades
- Record full performance history (warranty claims)
- Webpage graphing interface
- Dual CANBUS
- RS485 interface (Chinese inverters/chargers)
- High precision energy meter (load profiling)
- AC power monitor

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**iESS**

Intelligent Energy Storage Systems

Affordable | Reliable | Scalable | Efficient | Safe

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