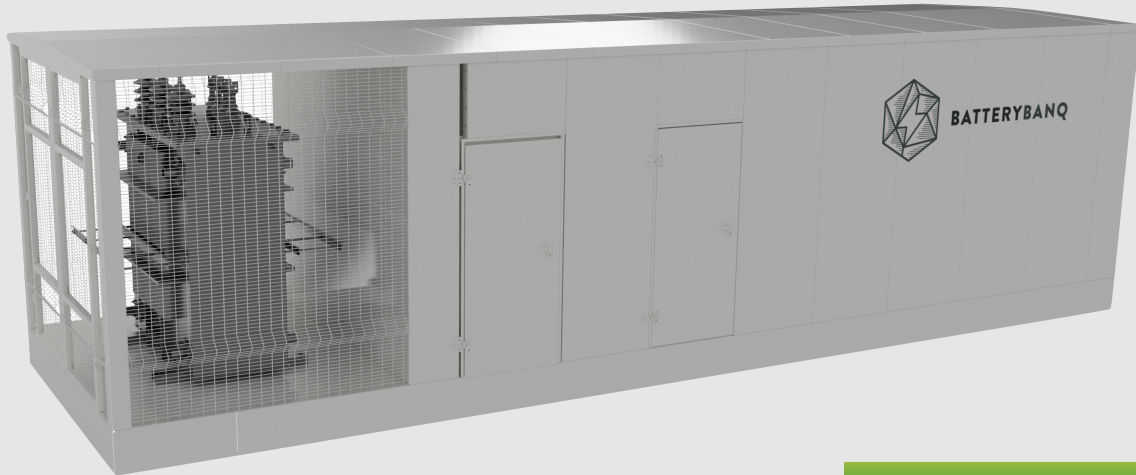




BATTERY BANQ

INTEGRATED LARGE SCALE BESS



EPC Power Inverter Range

BATTERY BANQ INTEGRATED BESS E-HOUSE: YOUR COMPLETE POWER SOLUTION

Key Features

- Complete Integrated Solution: Everything you need in one hassle-free package
- Intelligent e-House design with removable anti-static flooring and cable run management via wall panels and base structure (minimal visible conduits)
- Complete off-site system integration and configuration, including:
 - Battery Towers, Inverters, Main Distribution Panels and Breakers and Transformer(s)
- Integrated Communication System – RTU: Real-time monitoring and control
- Embedded Battery Management System (BMS): Protection, Cell Balancing and optimisation
- Energy Management System:
 - Automated Energy Flow Logic and Configuration
 - System Behaviour Logging and Reporting
- Locally Manufactured and Serviced: Johannesburg-made with full Service Level Agreement (SLA)
- Factory Acceptance Test and COC Done Before Installation: Certified and ready to go

Powerful Warranties

- 10-year warranty on batteries plus Energy Throughput Guarantee—peace of mind built in
- 5-year inverter warranty (optional 5-year extension)

Proven Applications

- Tariff arbitrage
- Renewable energy optimisation
- Energy security
- Power factor correction
- Diesel generator optimisation

Optional

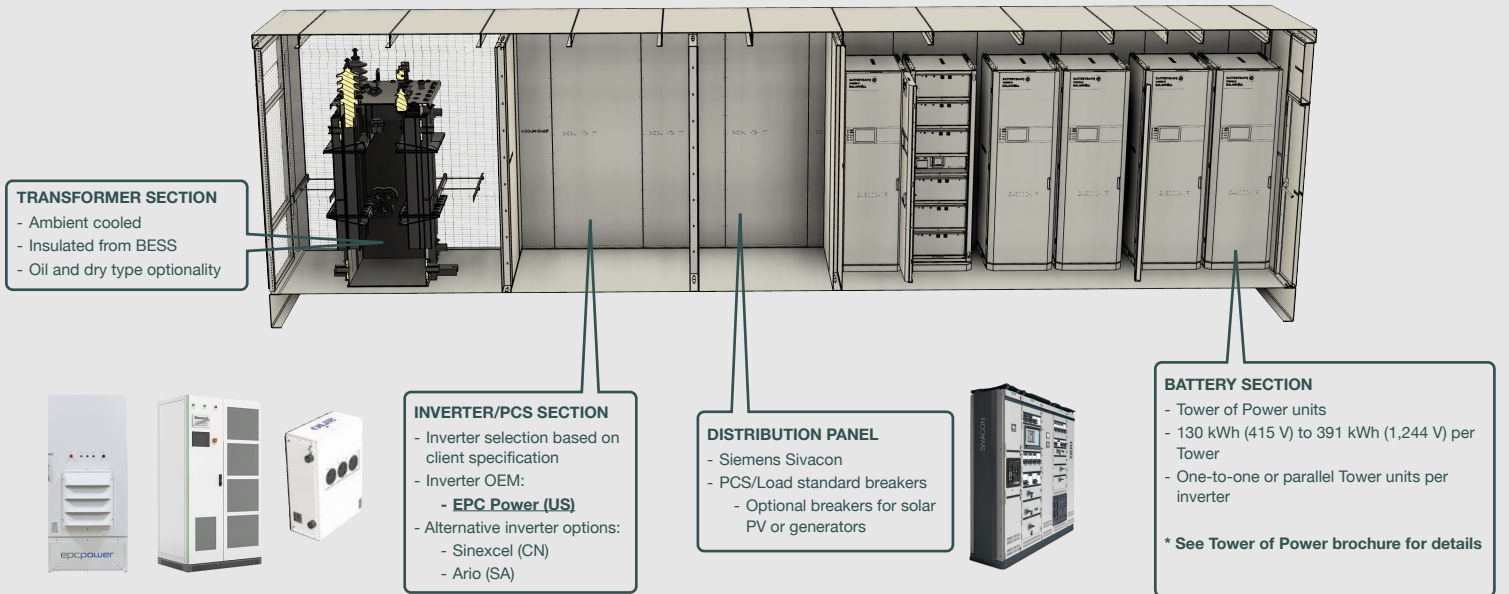
- Fire fighting system
- Alternative inverter integration

What's Excluded

- Site works, civil works
- Site cables and trenching to BESS unit



COMPARTMENT BREAKDOWN



BESS RANGE AND BATTERY TECHNICAL INFORMATION

BESS E-HOUSE RANGE

Product	BQ 1-0.5	BQ 1-1	BQ 2-1.5	BQ 4-3	BQ 6-4.5
Battery Capacity	1,076 kWh	1,076 kWh	2,152 kWh	4,303 kWh	6,455 kWh
Inverter Capacity	500 kW	1,000 kW	1,500 kW	3,000 kW	4,500 kW

BATTERY SECTION

Battery Module(s)	Balancell P34 (314 Ah, 32.6 kWh, 104 V, 202 kg)				
Product	BQ 1-0.5	BQ 1-1	BQ 2-1.5	BQ 4-3	BQ 6-4.5
Tower of Power "TP" Range	TP11/12	TP11/12	TP11/12	TP11/12	TP11/12
Battery Capacity per TP Unit	358.6 kWh	358.6 kWh	358.6 kWh	358.6 kWh	358.6 kWh
# of TP Units	3	3	6	12	18
# of TP Units per Inverter	3	3	6	6	6
Total Battery Capacity	1,076 kWh	1,076 kWh	2,152 kWh	4,303 kWh	6,455 kWh
Nominal Voltage (VDC)	1,144 V	1,144 V	1,144 V	1,144 V	1,144 V
Operating Voltage (VDC)	1,020 - 1,240 V	1,020 - 1,240 V	1,020 - 1,240 V	1,020 - 1,240 V	1,020 - 1,240 V
Tower of Power (Battery) Weight	8,748 kg	8,748 kg	17,496 kg	34,992 kg	52,488 kg

* THE TP11/12 "TOWER OF POWER" RANGE INCLUDES 11 BATTERY MODULES IN A 12 STACK BATTERY TOWER (ALLOWING EXPANSION OR AUGMENTATION OF CAPACITY)



E-HOUSE DESIGN AND FEATURES



- DEPLOYMENT PHILOSOPHY**
- Complete integrated BESS system
 - Rapid site deployment
 - Cold commissioning off-site
 - Parallel site works and termination preparation
 - Hydraulic deployment (no cranes or heavy lifting equipment if access allows)

- INTELLIGENT E-HOUSE STRUCTURE DESIGN**
- Removable anti-static floor panels designed for below floor cable management
 - Wall panel voids and laser cut endpoints for auxiliary equipment routing and termination

- SAFETY, MECHANICAL SEPARATION AND COOLING**
- Battery, Inverter/PCS, DB and Transformer isolation
 - 2 hour fire rated wall panels
 - 3mm battery module case with 3mm steel shelves (including voids) to prevent potential battery failure propagation
 - HVAC temperature management in Inverter/PCS section



BESS RANGE AND INVERTER/PCS TECHNICAL INFORMATION

BESS E-HOUSE RANGE

Product	BQ 1-0.5	BQ 1-1	BQ 2-1.5	BQ 4-3	BQ 6-4.5
Battery Capacity	1,076 kWh	1,076 kWh	2,152 kWh	4,303 kWh	6,455 kWh
Inverter Capacity	500 kW	1,000 kW	1,500 kW	3,000 kW	4,500 kW

INVERTER/PCS SECTION

Inverter/PCS	EPC PD500	EPC CAB1000	EPC CAB1000	EPC CAB1000	EPC CAB1000
Product	BQ 1-0.5	BQ 1-1	BQ 2-1.5	BQ 4-3	BQ 6-4.5
Nominal AC Voltage	480 VRMS	480 VRMS	690 VRMS	690 VRMS	690 VRMS
Nominal AC Current	1255 ARMS	602 ARMS	602 ARMS	602 ARMS	602 ARMS
AC Export / Import	500 kW	1,043 kW	1,500 kW	1,500 kW	1,500 kW
DC to AC Efficiency	>= 98.4%	>= 98.4%	>= 98.4%	>= 98.4%	>= 98.4%
DC Voltage Range	715 - 1,250 V	761 - 1,200 V	1,094 - 1,500 V	1,094 - 1,500 V	1,094 - 1,500 V
Maximum DC Current	750 ADC	1,400 ADC	1,400 ADC	1,400 ADC	1,400 ADC
# of DC Inputs	1	1	1	1	1



ENERGY MANAGEMENT

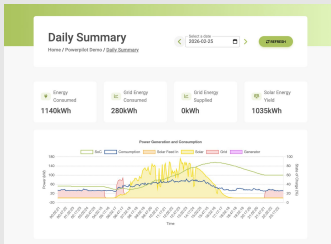
FULLY INTEGRATED

- Rapid deployment
- Mobile
- Minimal site works



DISPLAY AND INTERFACE

- HMI Screen for cell level BMS monitoring and EMS interface
- Integrated communications gateway (RTU)



BATTERY AND ENERGY MANAGEMENT SYSTEM "BMS AND EMS"



System Evaluation

- complete evaluation of inverter and solar system to identify inefficiencies and potential savings



Energy Monitor

- real-time remote inverter monitoring



Predictive Energy Optimiser

- dynamically fine-tune inverter(s) based on expected load shedding, historical usage trends and up-to-date weather forecasts
- non-essential loads can be automatically controlled based on available solar energy



CERTIFICATIONS AND STANDARDS

Battery and Tower of Power

P34 (32.6 kWh - 104 V) & Tower of Power Range

Cell Certifications (GB)

Certified to - GB31484, GB31485, GB31486, UL1973, MSDS UN38.3

Cell Manufacturing (ISO)

Certified to - ISO9001, ISO14001, TS16949

Battery Manufacturing (ISO)

Certified to - ISO9001

Electromagnetic Compatibility (CE)

Certified to - EN 301 489-1: V2.2.3, EN 301 489-2: V 1.1.0, EN / IEC 61326-1

Battery Standards (IEC)

Designed to meet - IEC 62485-6, IEC 63056, IEC 61619, IEC 62660-2

Battery Standards (UL)

Designed to meet - UL 2580

Tower Fabrication and Assembly (ISO)

ISO9001, ISO45001

Inverter/PCS

EPC PD 500 & CAB 1000

Safety

PD 500 (UL 1741:2021 | IEC 62477-1 | C22.2 No. 107.1-16)
CAB 1000 (UL 1741:2021 | IEC 62477-1 | C22.2 No. 107.1-16 | IEC 62909-1)

Utility Interconnect

PD 500 (UL 1741SA/SB | IEEE 1547 | VDE | AS4777.2)
CAB 1000 (UL 1741 SB | IEEE 1547-2018 | CA Rule 21 | Huawei Rule 14 | AS4777.2 | VDE-AR-N 4110/4120/4130 | EN 50549-2)

Battery Standards (IEC)

Designed to meet - IEC 62485-6, IEC 63056, IEC 61619, IEC 62660-2

Battery Standards (UL)

Designed to meet - UL 2580

Tower Fabrication and Assembly (ISO)

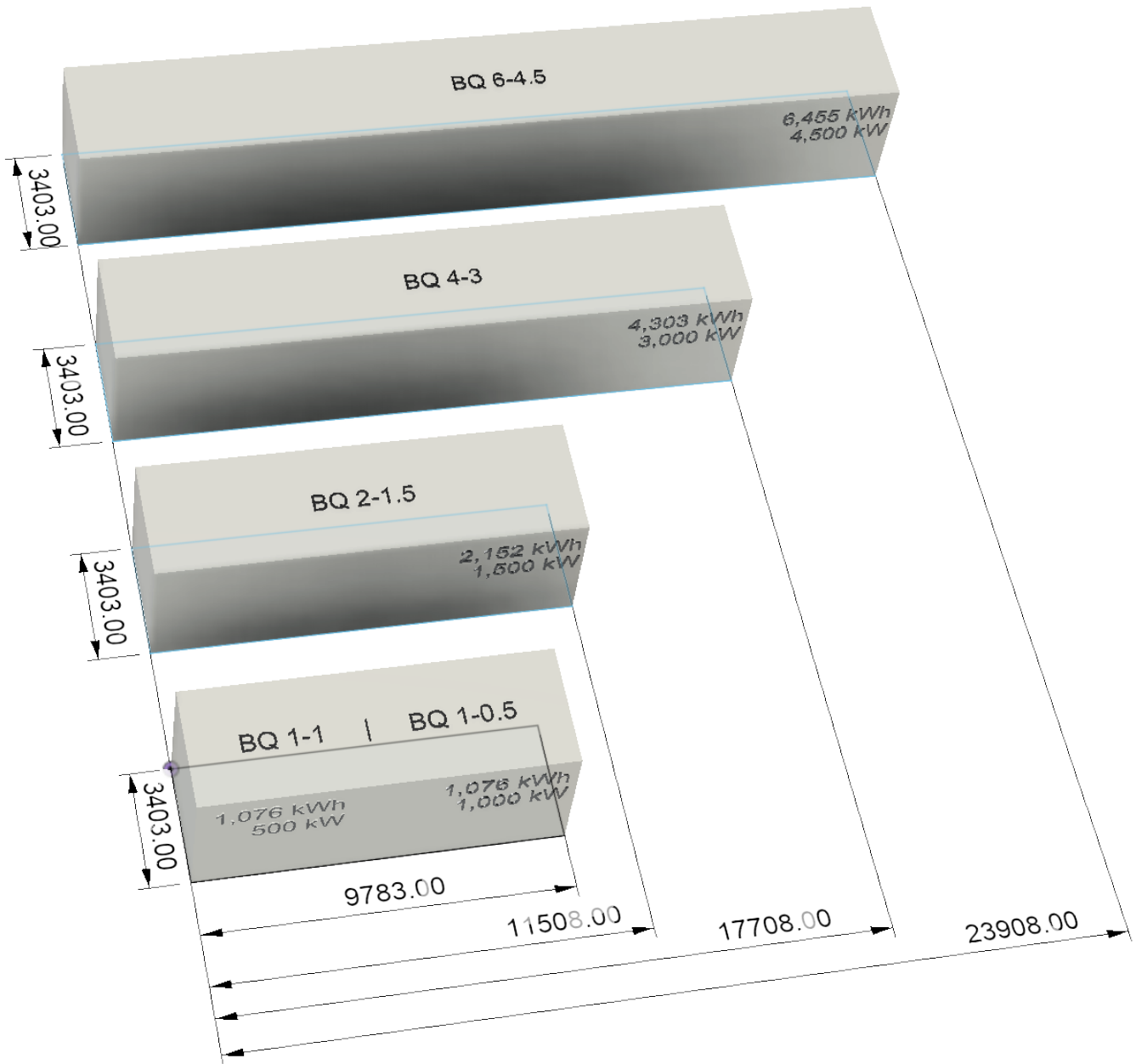
ISO9001, ISO45001

eHouse and Integration

Structure (incl. BESS, Inverter/PCS, DB and transformer integration)

ISO9001, ISO45001

BASE MODELS



Optionality :

- Design can be done as multiple buildings
- Building appearance can be customised i.e., colour, decals etc

Power up reliably, locally. Contact us today for your Tower of Power.



PRICE LIST (BASE MODELS)

* alternative client specifications and design changes can be accommodated

INCLUSIONS / EXCLUSIONS

Description	BQ 1-0.5	BQ 1-1	BQ 2-1.5	BQ 4-3	BQ 6-4.5
eHouse	Included - Structure, painting, component integration, factory loading / site offloading, FAT and full system testing				
Batteries	Included - Tower of Power units and integration to Inverter/PCS				
Inverter/PCS	Included - Battery and DB integration, HVAC cooling				
Master Distribution Panel	Included - Siemens Sivacon Panel (common AC bus) with: Inverter/PCS breaker Grid/Load connection breaker(s)				
Transformer	480/400	480/400	690/400	690/400	690/400

Notes:

- Transformer selection dependant on connection voltage i.e., step-up to 11 kV
- Dry type or oil cooled options available
- Optional structures for battery, inverter/pcs sections to be quoted on request

Exclusions:

- Client specific fire suppression requirements
- Transport to site
- Site works and connection
- Commissioning

PRICE LIST

Product	BQ 1-0.5	BQ 1-1	BQ 2-1.5	BQ 4-3	BQ 6-4.5
Battery Capacity	1,076 kWh	1,076 kWh	2,152 kWh	4,303 kWh	6,455 kWh
Inverter Capacity	500 kW	1,000 kW	1,500 kW	3,000 kW	4,500 kW
eHouse Cost (excl. VAT)	R 6,517,219	R 7,738,040	R 11,633,368	R 21,378,045	R 31,228,492
Cost per kWh	R 6,058	R 7,193	R 5,407	R 4,968	R 4,838

* prices subject to change (formal proposal on request)

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