



VECTENG[®]

ENERGY

Website

2025



VISION

Clean energy for a sustainable future



MISSION

To build & operate energy infrastructure using trusted technology in partnership with our investors & OEMs



IMPACT

Provide access to clean energy | Powering growth | Community development



VALUES

Excellence in our results | Demonstrate ethical leadership | Integrity | Diversity | Transparency



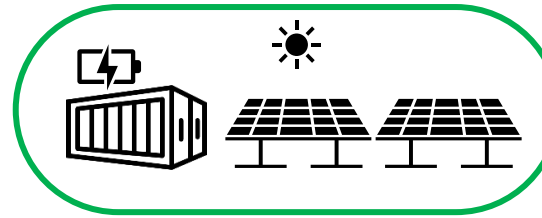
Since 2010 | **First IPP** in South Africa, RustMo1 (2012) | **First large scale C&I rooftop solar PV** project (2013) | **2 X projects in BESIPPPP**



100% Black Owned | Level 1 B-BBEE Contributor



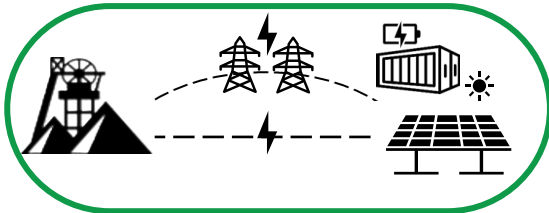
Strategic offices in **Johannesburg** and **Shanghai** with an international network



Solutions focused on Solar
Photovoltaic & Battery Energy Storage
Technology Systems

Renewable Energy Generation & Storage Solutions

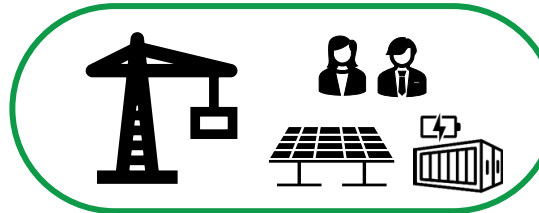
IPP



Energy is supplied at a rate (R / kWh):

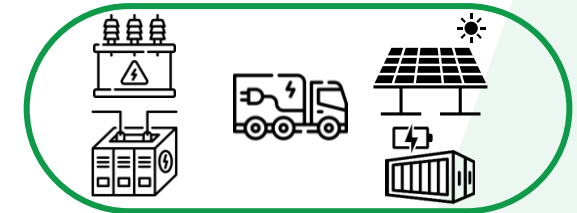
- **Behind-the-Meter** or;
- **Wheeling**

EPC + O&M



Engineering, procurement,
construction, compliance,
operations & maintenance for
client-owned projects

M&S



Supply of **Tier 1** technologies
with our **OEM partners**

DEVELOPMENT | FINANCE | ASSET MANAGEMENT

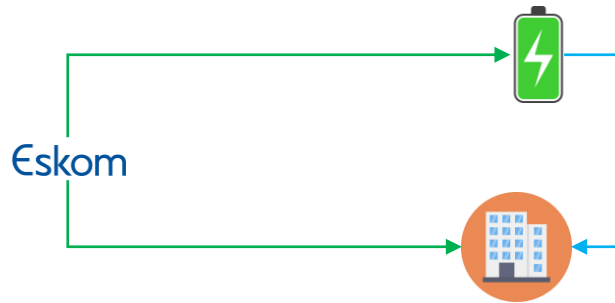
IPP - Independent Power Producer
EPC - Engineering, Procurement & Construction
O&M - Operations & Maintenance
OEM - Original Equipment Manufacturer
M&S - Manufacturing & Supply

BESS Configurations



Standalone BESS

- Connected to the Utility (Eskom) to optimise energy use & costs.
- Utility power is used to charge the BESS during low-tariff periods.
- Stored energy is discharged during high-tariff periods to reduce expensive grid consumption.
- Reduces electricity bills through energy arbitrage.
- **Enhances energy resilience for facility operations.**

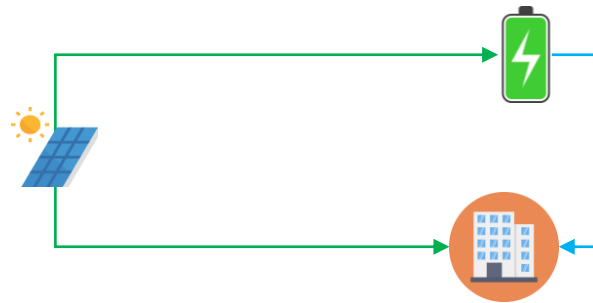


— Utility supplies power for operations and charges BESS during low tariff period

— BESS discharges during high tariff period

Hybrid BESS + Solar PV

- Integrate on-site solar PV and BESS for self generation and storage.
- Solar PV powers operations during the day and excess power charges the BESS.
- BESS discharges stored power during peak demand (high-tariff periods).
- Reduces reliance on expensive grid power.
- Reduced energy costs | Improved efficiency | Improved reliability.

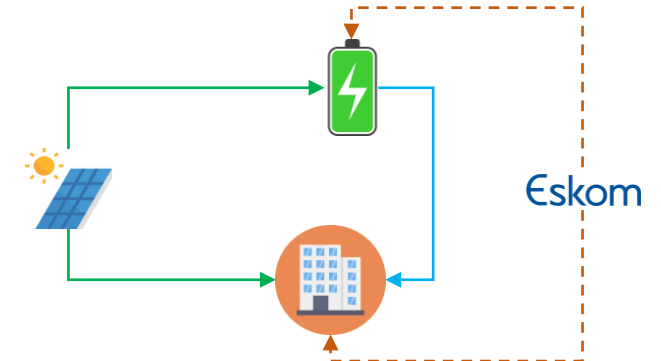


— Solar PV supplies power for operations in day time and excess charges BESS during peak generation

— BESS discharges during peak demand, when solar PV generation is low

Hybrid Grid-tied

- Combines solar PV, BESS & Utility power into a hybrid energy system enabling on-site generation and optimised energy storage.
- Draws power from the grid when needed while maximising self-consumption from solar PV and BESS.
- Reduced dependence on the grid and generators.
- Supports cost savings | Energy autonomy | Operational flexibility.



— Power for operations mainly supplied by solar PV and BESS

— BESS discharges during high tariff period

— Utility Power supply provides additional backup & reliability.

BESS enables energy optimisation, allowing your business to reduce energy cost expenditure

Strategy	Use Case	Benefit
Backup Power	- BESS provides power during outages (loadshedding). - Helps avoid using expensive diesel generators.	Cost Savings Energy Resilience
Improved utilisation of PV generation	Excess solar PV power charges the BESS. - BESS discharges when solar PV production is low, during peak tariff period.	Cost Savings Increased energy independence Enhanced grid stability Maximise use of PV
Load Shifting (Tariff Arbitrage)	- BESS charges during low-tariff (off-peak) periods. - BESS discharges during high-tariff (peak) periods to reduce energy costs.	Cost Savings Energy Efficiency Grid power optimisation
Peak Shaving	- Certain tariff structures can penalise customers for exceeding the Notified Maximum Demand (NMD) threshold. - Peak shaving using BESS involves discharging batteries during these periods to reduce the peaks of the energy demand & prevent these penalties.	Cost Savings Prevent Excess Demand Penalties

Key Criteria



BNEF Tier 1 BESS & Eskom approved

BESS Technology is recognised as Tier 1 by BloombergNEF. PCS technology approved by Eskom.



Bankability

Technology is globally recognised and trusted by lenders and project stakeholders, making it a bankable solution for large-scale investments.



Lifecycle Costs

Business case supported. Optimal costs over lifecycle of project. Warranties. Efficiency



Lithium-iron Phosphate (LFP) Technology

Cost-effective | High efficiency | High energy density | Fast recharge time | Extended life-cycle performance | Ideal long term investment choice.



Liquid-Cooled Technology

Improved thermal management | Enhanced safety | Improved performance | Extended battery life.



International Certifications

Compliance with all international safety, performance and quality standards such as UL | IEC | UN | GB | ISO | NFPA.



Thermal Management System

Liquid cooling technology as the main cooling system to ensure effective battery cooling and temperature uniformity in the containerized battery solution.



Fire Detection and Suppression

Detection and mitigation of fire risks such as thermal runaway with each containerized battery solution in accordance with industry specifications.



24/7 365 – Real time monitoring

Real-time monitoring of performance and operating condition of the battery system.



On site fire safety reticulation system

On site fire safety system designed by certified fire engineers accredited with SAQCC, SACPCMP, SAIOSH in conjunction with local fire departments.

Outdoor Battery System



GREAT POWER

Magna-UTL-373 (373 kWh_{DC}) | Magna-UTL-418 (418 kWh_{DC})

Application scenarios:

- Industrial parks,
- Zero-carbon parks,
- Production factories,
- Green transportation,
- Commercial services,
- Data centers, and
- Other high-power consumption settings.

Product Advantages

- **High safety** Passes UL9540A Unit-level test, preventing thermal runaway of battery cells. Can connect in series with PCS without risks of circulating current or inter-cluster short circuits.
- **Long lifespan** Liquid cooling system maintains core temperature difference <2°C, increasing cycle life by 30%.
- **High energy density** Actual discharge capacity exceeds 400 kWh, high returns
- **Easy scalability** Replaces container solutions, allowing for flexible layout. Easy to be installed: Each unit weighs under 4 tons, facilitating on-site hoisting and installation.
- **Easy maintenance** Modular design for convenient on-site maintenance.



IEC IEC 62619

IEC IEC 62933

IEC IEC 61000

UL UL1973

UL UL 9540A

GREAT POWER

Max-20HC-5000 (5 MWh_{DC})

Electric Power scenarios:

- Wind or solar photovoltaic power generation integration
- Mines, C&I, Intensive energy users
- Energy arbitrage (peak-valley price difference)
- Large load fluctuations

Product Advantages

- **High Safety** Compliant with UL 9540A, NFPA 855
- **High Energy Efficiency** Battery cell efficiency $\geq 96\%$; RTE 96% @ 0.25p, 95% @ 0.5p on DC Side
- **Easy installation** Integrated design in a 20 GP container
- **High Protection** IP 55 overall, IP 67 for battery pack, IP54 for high-voltage box, IPX5 for electrical compartment.
- **Cost effective** 50% increase in energy density for enhanced life-cycle returns



Reference Examples



37 MWh BESS
Industry - Metal Manufacturing
Use cases – Peak Shaving |
Energy Cost savings | Backup
Power



8 MWh BESS
Industry – Hospital
Use cases – Energy Cost
savings | Peak Shaving | Backup
Power



10.32 MWh BESS
Industry - Tech Park
Use Cases – Backup Power |
Energy Cost Savings | Peak
Shaving



4.3 MWh BESS
Industry - Stainless Steel
Manufacturer
Use Cases – Peak Shaving |
Backup Power | Energy Cost
Reduction



100 MWh BESS
Industry – Industrial Park
Use Cases – Peak Shaving |
Backup Power | Energy Cost
Savings



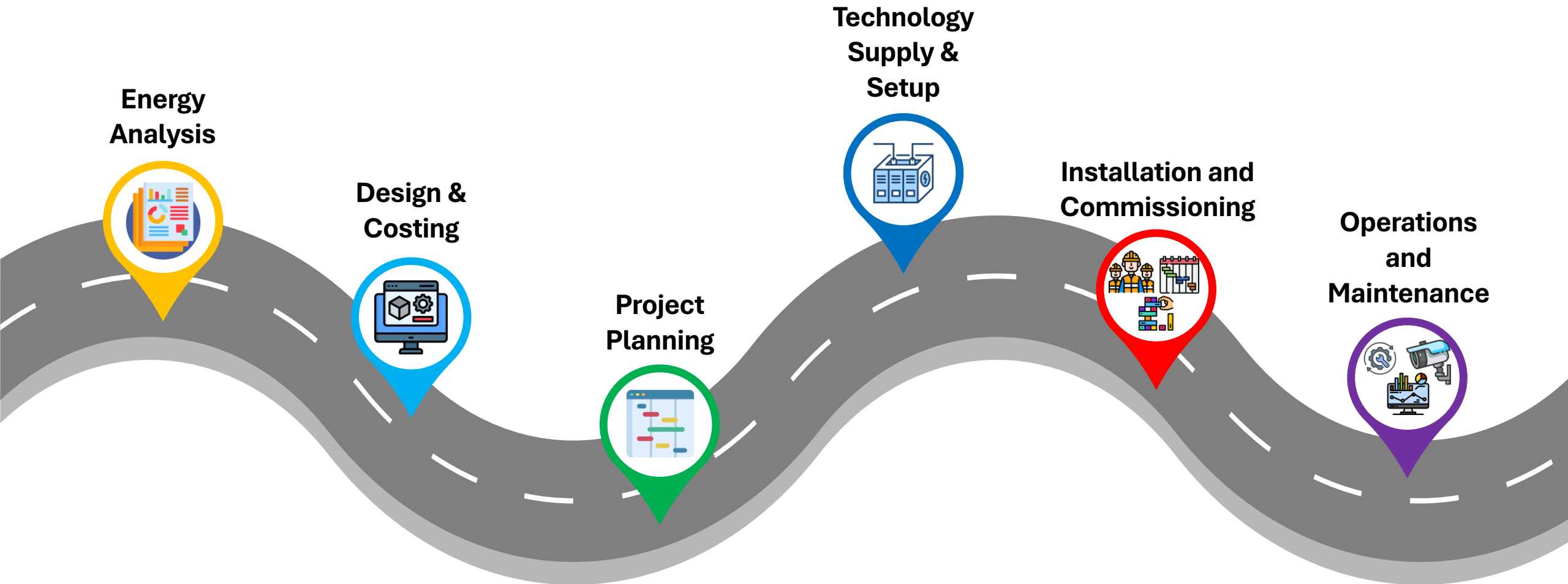
15 MWh BESS
Industry – Agriculture
Use Cases – Peak Shaving |
Backup Power | Energy Cost
Savings | PV Utilisation

Reference Videos – Utility BESS Projects











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