AceOn
AceOnGroup.com
Renewable Energy + Battery Specialists

Renewable Energy
&
Battery Solutions Provider

Offering Solutions for a Greener Future

This is AceOn Group

One of UK's Leading Battery Manufacturers

Manufacturing Battery Packs

Distributing Battery Cells

Residential Battery Storage

2nd Life Battery Storage

Industrial/Utility Battery Storage

Portable Battery Storage

30+ Years of Battery Manufacturing Experience

Entrepreneurism & Innovation at our Core:

- **Innovate UK Battery and Hydrogen Project**
  - AceOn is the lead partner in a £4.6 million project to develop battery and hydrogen technology to power marine vessels used for servicing offshore wind turbines in Northumberland.
- **2nd Life Energy Storage**
  - Repurpose 2nd Life EV Modules to create a portable energy storage product for Jaguar Land Rover.
  - The first company in the UK to disassemble and re-purpose electric Bus batteries into container Energy storage for 2nd life usage.
- **Built the First UK Manufactured Sodium Ion Battery Pack**
  - AMTE Power supplied AceOn with sodium-ion cells to build the first 12 and 43-volt battery pack manufactured in the UK for Off-Grid Energy Storage for Sub-Saharan Africa.
- **Faraday Battery Challenge Advisory Group member**
  - AceOn Group CEO, Mark Thompson is a member of the UK Government's advisory group influencing and shaping the UK Government Battery Policy.

InnovAceon
AceOn Design & Innovation Centre

AceOn ReNewLife+
RE-PURPOSED 2ND GENERATION ENERGY STORAGE

MANUFACTURED IN UK
GREEN SKILLS: GREEN JOBS

UKRI UK Research and Innovation

Why Choose AceOn Group

Renewable energy & battery solutions experts

- 30 years' experience.
- UK/European designed & manufactured solutions.
- End to end project management.

Comprehensive data modelling capability

- Proven modelling simulation software to design the optimum solution.
- Creating bespoke outcomes for every project.

Strong partner support

- Best in class partner network.
- Leaders in their respective fields.
- Deploying state of the art technology.

Future focus

- We look beyond current technologies to develop new solutions which future proof projects and support partners long-term.

Net zero support

- AceOn reduced CO_2 emissions installing solar pv and battery storage at UK HQ. site

Battery Energy Storage Product Range

Mobile Battery Storage

- Mobile power source.
- Diesel generator alternative.
- Silent power generation.
- Off grid, back-up power.
- Charge via Type 2 EV-charging socket (<22kW) or 3-Phase (16A, 32A, 63A) sockets (<30kW).
- Connection panel is switchable.

AceOn Li-ionESS Mobile80

30kW 80.6kWh

Commercial Battery Storage

- Integrated inverter & battery in GRP for Flex250/500.
- Pre-Integrated, factory built & tested in UK.
- Plug & play installation.
- EPC Power Inverter.
- Kore Power NMC Battery.
- 1C capable.
- UL9540A Fire Safety Certification.

Flex ESS250/500/1000

0.25/0.5/1MW+ 0.4-1MWh+

Light Industrial Battery Storage

- UK design & manufacture.
- Indoor (ID) & Outdoor (OD) battery rack options.
- Flexible battery storage size.
- 3-Phase AC coupled Inverter.
- Kore Power NMC Battery.
- 1C capable.
- UL9540A Fire Safety Certification.

Flex ID/OD

50/88kW 84.5-338kWh

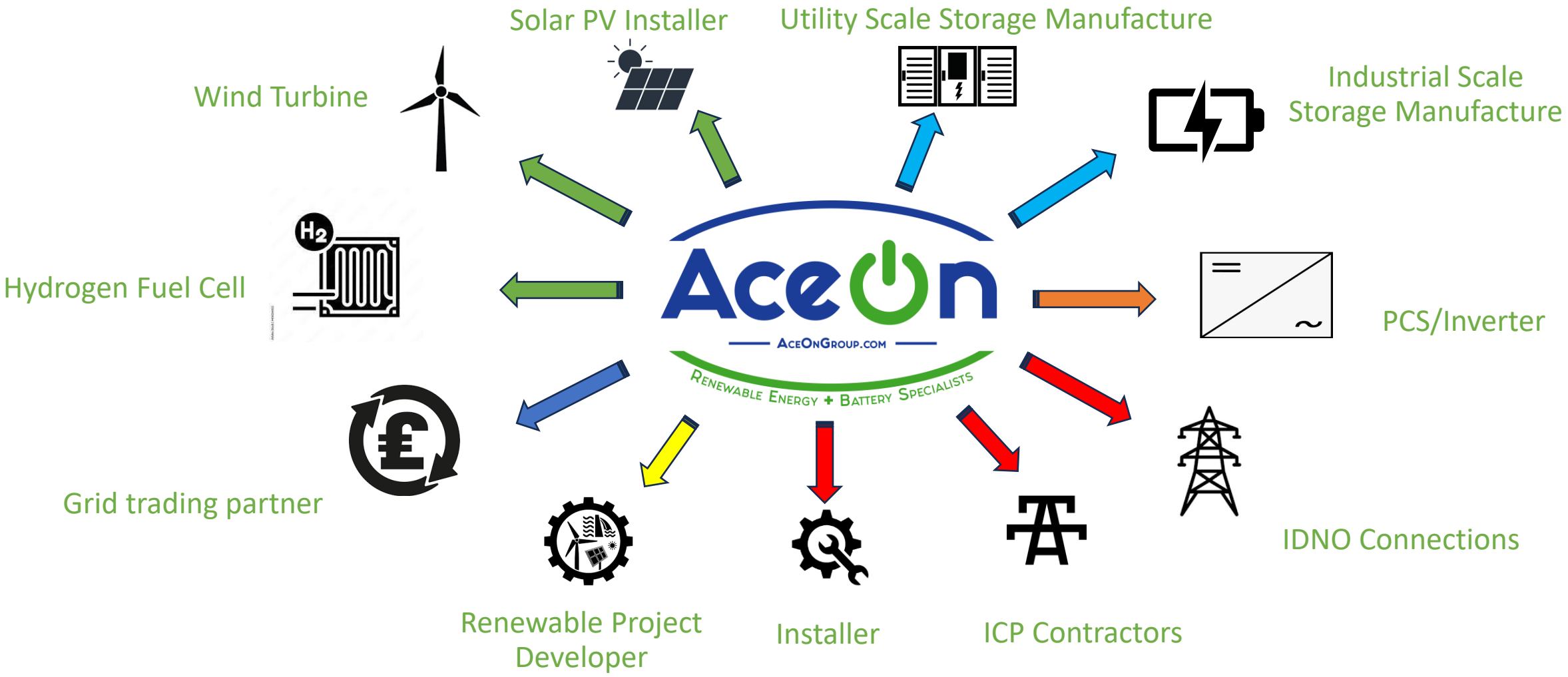
Utility Scale Battery Storage

- European design & manufacture.
- 20ft – 3.3MWh LFP BESS.
- 40ft – 6.6MWh LFP BESS.
- SMA PCS Inverter/Power Station.
- 0.5C, 1C & 2C Battery Storage available in LFP & NMC.
- UL9540A Fire Safety Certification.

20FT & 40FT BESS

1MW+ 1-200MWh+

Best in Class Partnerships



Deployment Options:

Solar/Wind Sponge Model

- Excess solar/wind is captured by the battery energy storage system (BESS).
- Battery storage is used when there is no renewable generation.
- AC & DC coupled generation connected to BESS available.

Increases self-sufficiency, limits export to grid, reduces energy bill

Energy Arbitrage Model

- Power is bought during off-peak hours (when grid prices are cheapest).
- It is stored and used during peak hours (when grid prices are highest).
- Our EMS can make alterations to adjust for change in tariffs.

Reduces your energy bill

Behind the Meter Model

- BESS connected to a load behind the meter.
- Can provide solar/wind model & energy arbitrage model.
- Our BESS can provide backup/UPS functionality.

Increases self sufficiency, limits export to grid, reduces energy bill, provides continual energy supply

Micro Grid Model

- Our inverters are grid following and grid forming.
- Match grid connected inverter to connection offer.
- Correctly sized BESS & Inverter on load side creates a grid connected microgrid.

Removes DNO grid restraint allowing as much generation to be installed as required

Grid Trading Model

- AceOn work with Grid aggregators who will take control of the battery to trade for revenue generation.
- Using AI intelligence, they will trade battery in markets such as Frequency Response (DC,DM,DR) & Wholesale Markets.

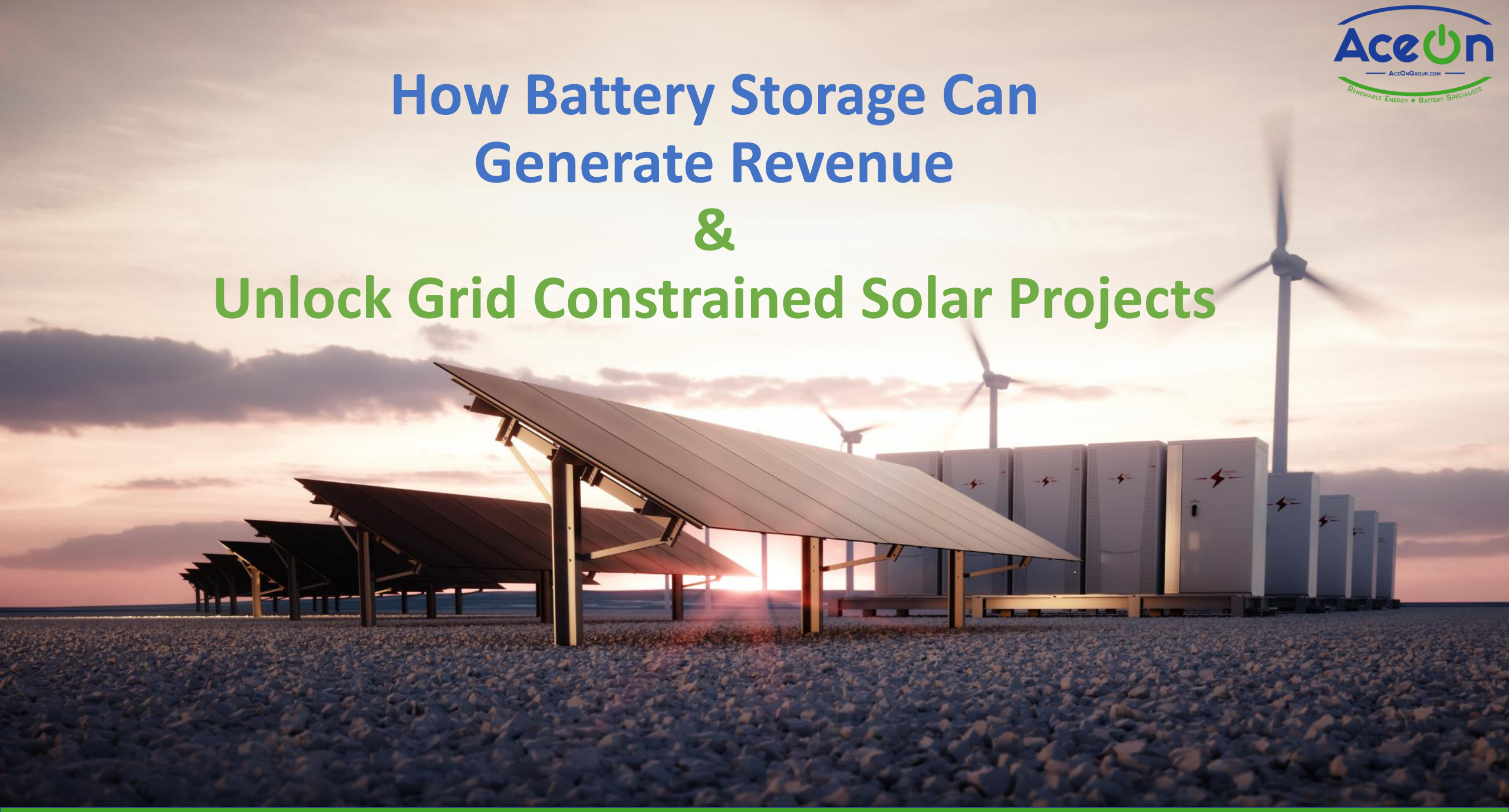
Increasing grid stability and revenue generating asset for 10-20 years

Front of the Meter Model

- AceOn can develop land to allow deployment of BESS and connect to grid only to trade battery to generate revenue.
- AceOn offer IDNO & ICP work.
- AceOn can arrange finance for the project.

Transforming non-revenue generating land into a financial asset for the next 10-20 years

How Battery Storage Can Generate Revenue & Unlock Grid Constrained Solar Projects



How can BESS Generate Revenue for Councils

Installing battery storage to trade on the frequency response and wholesale markets

- **Front of the Meter battery trading**
  - Trade battery assets in the Ancillary, Day Ahead, Intraday and Balancing Mechanism markets.
  - Providing smart optimisation of the battery via the wholesale market, purchasing electricity when its cheap and selling when its expensive.
- **Behind the Meter Battery Trading**
  - Can trade in the markets detailed above and assets can benefit from smart optimisation so individual load profiles and tariffs would need to be analysed to determine extra.
- **Self-fund or lease land**
  - If you were to self-fund you would receive 70-80% or grid trading revenue
  - If we fund you would receive 5-10% of grid trading revenue
  - Providing smart optimisation of the battery via the wholesale market, purchasing electricity when its cheap and selling when its expensive.
- **Battery Revenue Forecast 2024**
  - **Front of the Meter revenue generated;** up to £73,490 per/MW 1 hour battery.
    up to £106,703 per/MW 2 hour battery.

Requirements

- **Land ideally near substation**
- **Substation connection capability**
  - **500kW+ for grid trading full revenues**
  - **If only smaller connections (200kW) are available we can offer our Battery Box model through our partner where we lease the land from you for £1,000 per annum for 30 years.**

Grid Trading Partners

GridBeyond is leading the Global transition to a low-carbon and resilient electricity system for I&C customers

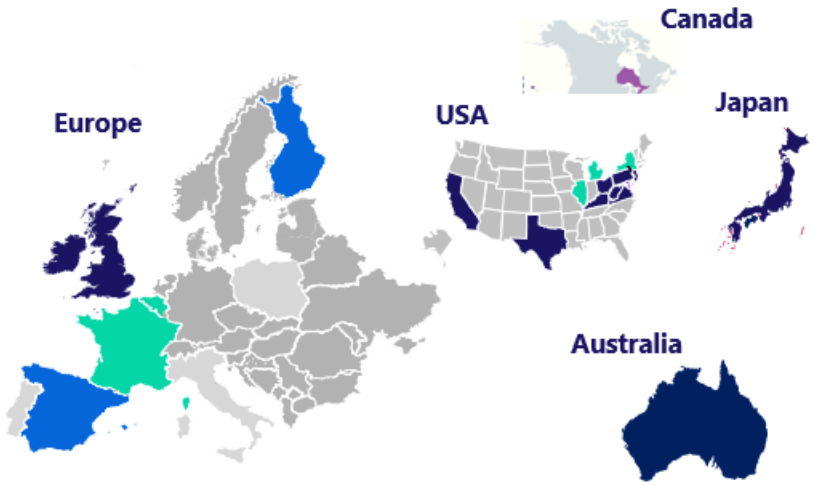
UK | Ireland | USA | Japan | Australia

400+ Customers | 500+ Sites

1,400+ MW portfolio with 700MW of flexibility under management.

~400MW's of battery storage under contract

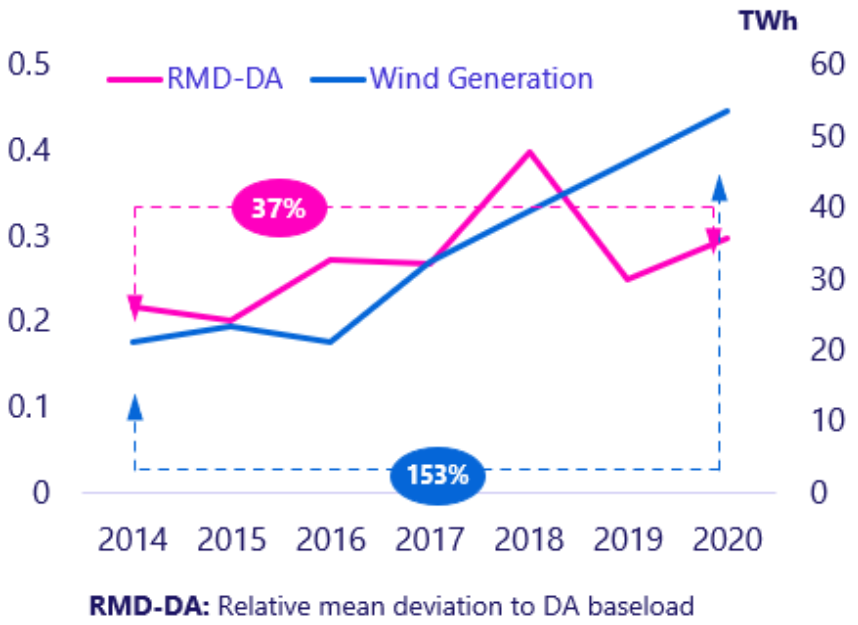
Where We Operate



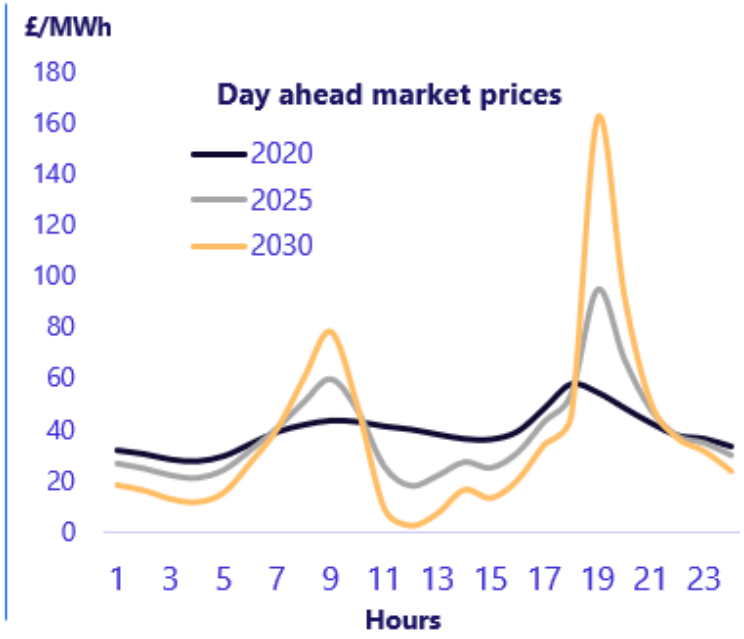
Some of our Partners/Investors

Market Trends

2021 to 2031: Market Arbitrage



RMD-DA: Relative mean deviation to DA baseload



Increase volatility

- Thermal phasing out
- End of TRIADS
- Increase on renewables

Our simulations

Annual volatility increase

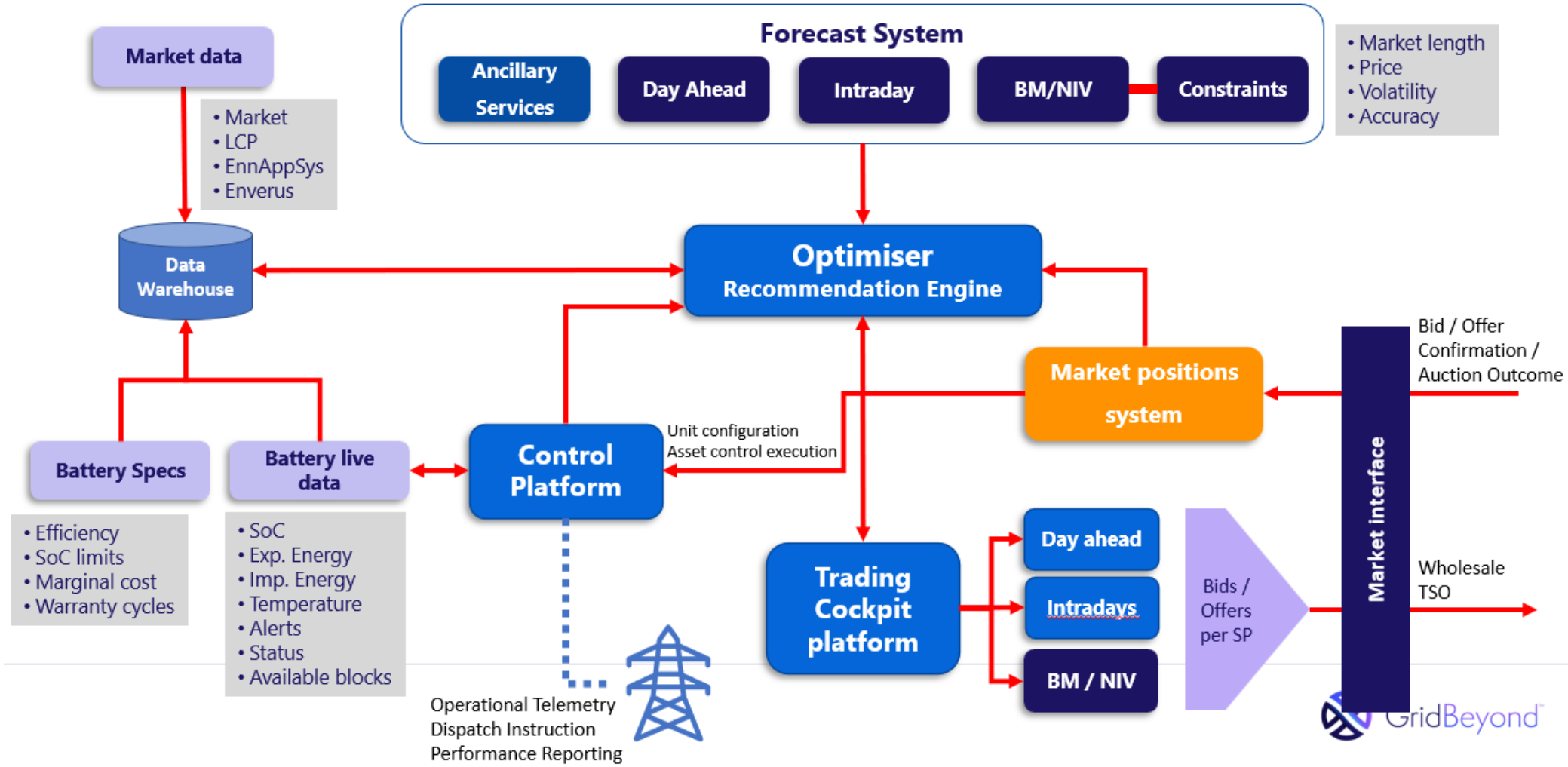
- Day ahead: 2%
- Intraday: 4%
- BM: 5%

Increase volatility

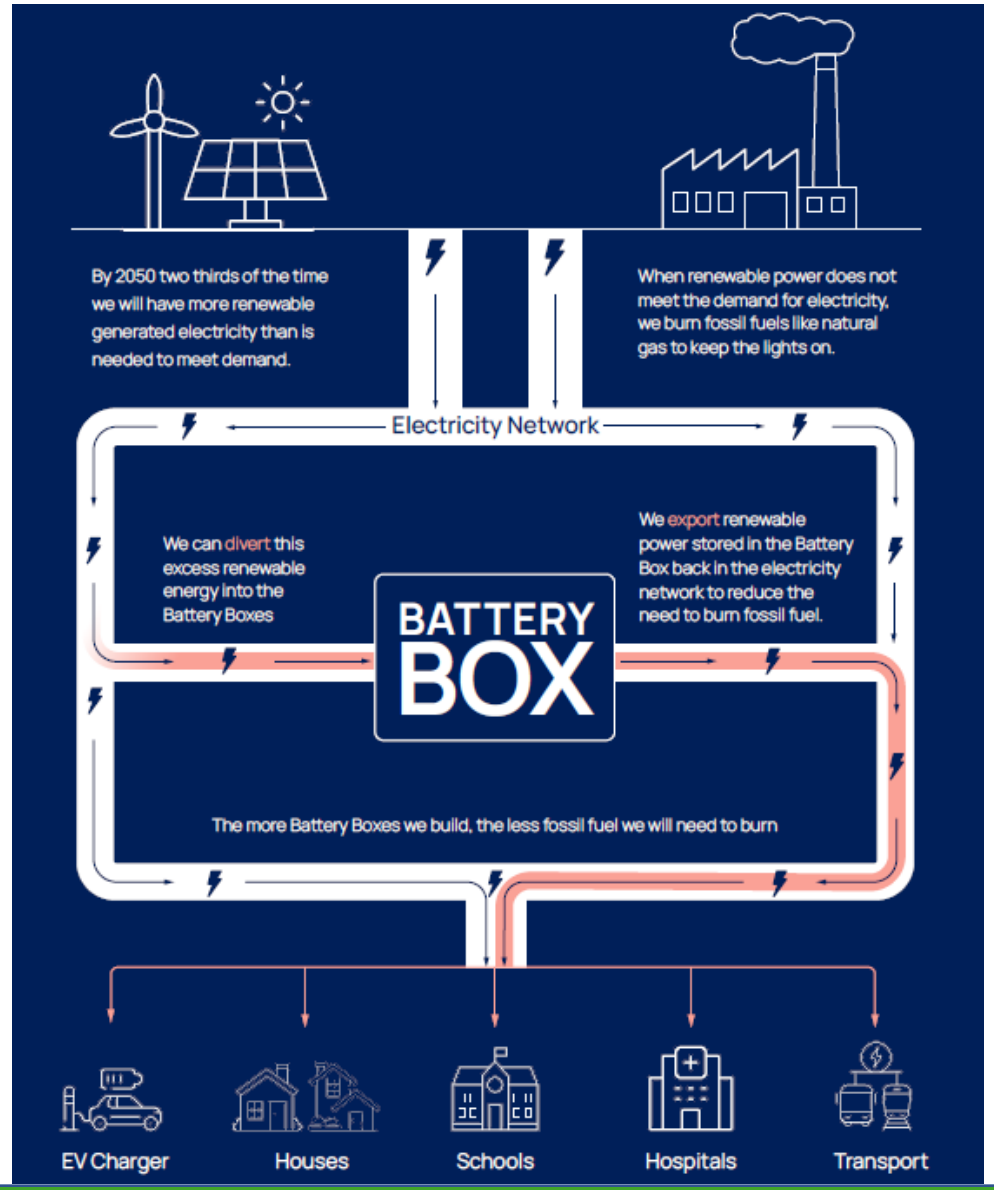
- Thermal phasing out
- High increase on renewables

Trading & Optimisation

Standalone Battery Overview



Battery Box for Grid Connection Restrained Areas



We need your land to install these essential pieces of equipment.

We are looking for companies, individuals and organisations with land to host a Battery Box and do their bit for the future whilst also making some money at the same time.

Roughly the equivalent size of just 2 car parking spaces, a Battery Box is a compact development meaning we can locate one almost anywhere, such as grass verges and unused land.

All we need is the permission to place a Battery Box on your land and we will take care of the rest. Leaving you to take advantage of one of our proposed incentives.

For grid constrained areas where only 200kW connection to the grid is possible, Battery Box is the perfect solution for you to generate revenue

Why do we need it?

With the UK's net zero target set for 2050, we all need to act now and work together to build a sustainable future. By hosting a Battery Box, you can help your own organisation and the UK as a whole.

1

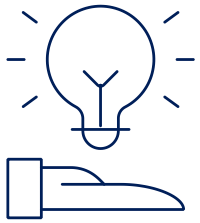
Fight climate change

Battery Box allows us to store excess renewable energy so we can use it when we need it most. This means we can reduce the carbon footprint of our electricity system.

2

Help Support Energy Security

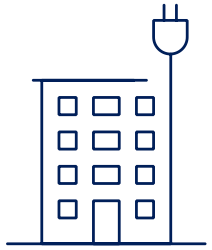
By maximising UK renewable energy sources, we can reduce reliance on imported oil and gas.



3

Support Local Networks and prevent power cuts

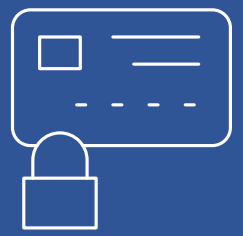
Energy stored on your land will be used to support local businesses, communities and organisations and reduce the risk of power cuts.



Landowner Benefits

You will be supporting the UK's energy future and by hosting Battery Box you can take advantage of one of the following options:

Option 1



Rent

Receive a payment of:

£1,000

Annual index linked rent reviews

per year for the next 30 years for each Battery Box we install

Option 2

Lump Sum

Receive a one-off payment of:

£10,000

upfront once construction is underway

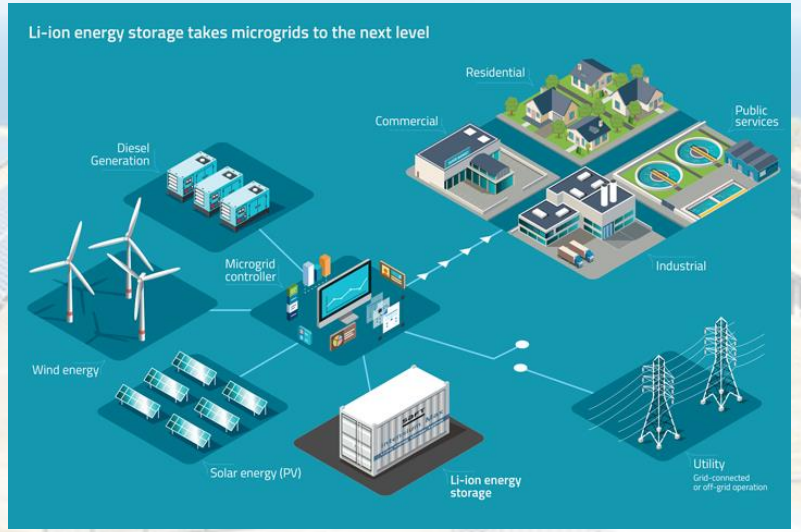
One Battery Box saves an estimated

~80Tonnes

of carbon per year

Microgrids

- **What is a Microgrid?**
  - A Microgrid brings multiple renewable energy sources together.
  - **How do Microgrids work**
  - They can draw energy from multiple sources.
  - They generate energy from solar panels, wind turbines, generators, or a combination of these methods.
  - The most efficient Microgrids then supplement their energy generation with energy storage, to provide an off-grid solution to users.
  - At the centre of any Microgrid is intelligent energy management software, which manages and controls the energy that is created, stored, and distributed.



- **Microgrid Advantages**
  - Grid independence - providing a localised source of renewable energy.
  - Improved efficiency - As Microgrids don't rely on centralised grids, they are more energy efficient, by circa 15%.
  - Long-term cost benefits, Environmentally friendly, create Revenue stream, provide resilience and security.
- **Grid Connected Microgrids**
  - A Microgrid that is able to easily connect to and disconnect from the grid to allow flexibility.
  - **<u>This solution solves the problem with constraints on the grid and the DNO constrained connection problem.</u>**

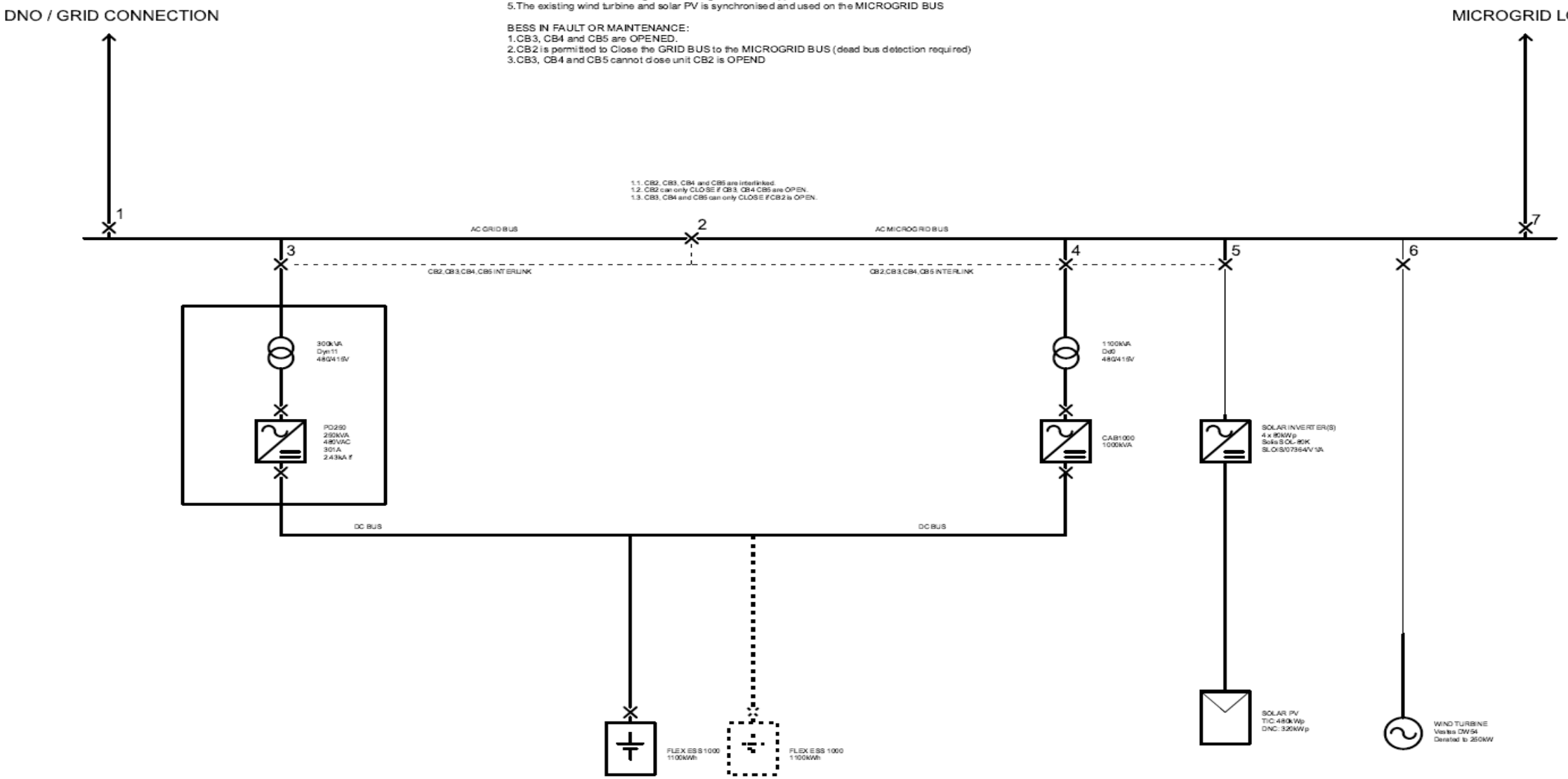
Microgrids will help solve DNO Constraints

- **Deploying AceOn technology means that there is a reduced risk of the DNO rejecting or restricting solar applications**
  - As our inverters can be **grid forming and grid following**, this means that they can
    - Work connected to the grid.
    - Create their own grid in **islanding mode**, allowing **any amount of renewables** to be installed.
  - **The setup would be as follows:**
    - Grid Side Inverter (only inverter required to be declared on G99/100 application).
    - Load side (Microgrid) Inverter.
    - Load side Battery energy storage system.
- **Operational requirements:**
  - Match the grid-side inverter size to **your max potential site import.**
  - **De-rate the export function** to match the agreed export connection with the DNO.
  - **Battery needed** to **formulate a new grid.**
    - **Battery** size will need as **minimum to be = or >** than the Load side grid forming inverters.
    - Load-side microgrid inverter will need to **match the site's peak power**.
  - Complete a battery sizing exercise to calculate excess solar overload.
    - To maximise self-consumption and identify any potential for the **import and storing** of cheap night-time energy.
- **Microgrid Tangible Benefits**
  - Forming the new grid that can be isolated from the main grid means that you can **deploy as much solar or other renewable generation as possible**.
  - When renewables aren't providing enough power, it means you can still use the grid as normal as it will switch into on-grid mode.

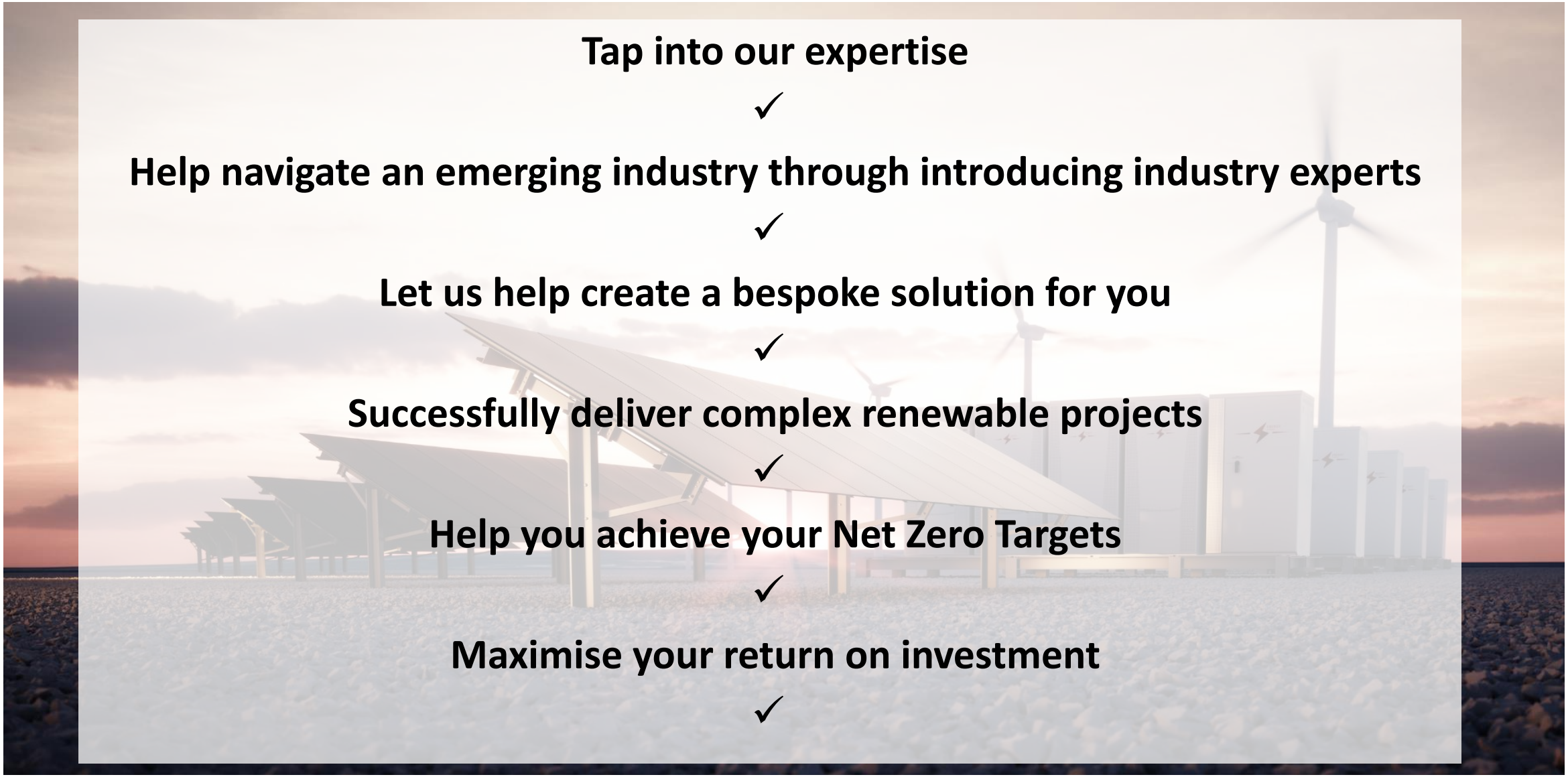
Microgrid Single Line Diagram

INDENDED OPERATION:
1.Grid feeds the BESS through CB1 and CB3 on the GRID BUS. CB2 Remains OPEN, isolation is made between the Grid Bus and Microgrid Bus.
2.PD250 synchronises to the GRID BUS and rectifies to the DC BUS
3.The CAB1000 inverts the DC BUS to supply the MICROGRID BUS
4.The BESS feeds the Microgrid Bus through CB4 and supplies the site loads.
5.The existing wind turbine and solar PV is synchronised and used on the MICROGRID BUS

BESS IN FAULT OR MAINTENANCE:
1.CB3, CB4 and CB5 are OPENED.
2.CB2 is permitted to Close the GRID BUS to the MICROGRID BUS (dead bus detection required)
3.CB3, CB4 and CB5 cannot close unit CB2 is OPEND



Partnering with AceOn Group



Tap into our expertise

✓

Help navigate an emerging industry through introducing industry experts

✓

Let us help create a bespoke solution for you

✓

Successfully deliver complex renewable projects

✓

Help you achieve your Net Zero Targets

✓

Maximise your return on investment

✓

Alex Thompson

Group Sales Director

at@aceongroup.com
+44 (0)779 170 7772

AceOn Group

Tel. +44 (0)1952 293 388

info@aceongroup.com

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