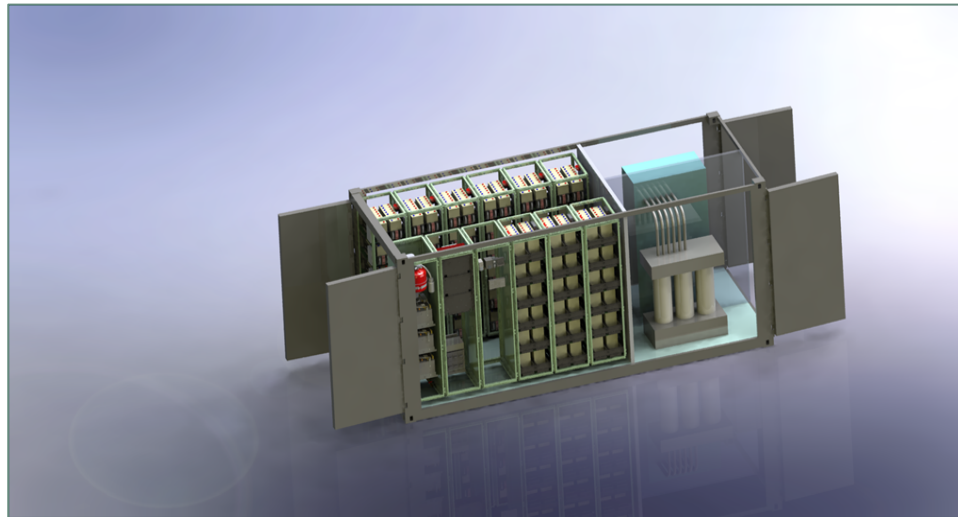


Technical solutions to allow high penetration of wind energy in island networks



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Grid Integration Partner for Freqcon in the Canary Islands

A high level of renewable penetration requires sufficient energy storage capacity to counteract intermittency...

Solutions for Island Networks

FREQCON POWER CONVERTERS

Power Converter Systems for Renewable Energy Applications (Wind – Solar – Battery Storage)

- Increased regulation of Reactive Power (dynamically)
- Injection of MVar
- Voltage Control
- Enhanced capabilities for DFIG and asynchronous wind turbine generators

FREQCON BATTERY STORAGE SYSTEMS

MW-scale Battery Storage for Renewable and Smart Grid Applications

- Frequency regulation



Battery Storage Systems with advanced Power Converters are the ideal solution to stabilise power networks with high renewable penetration

Frequency Stabilisation

Voltage Stabilisation

Short Term Operating Reserve

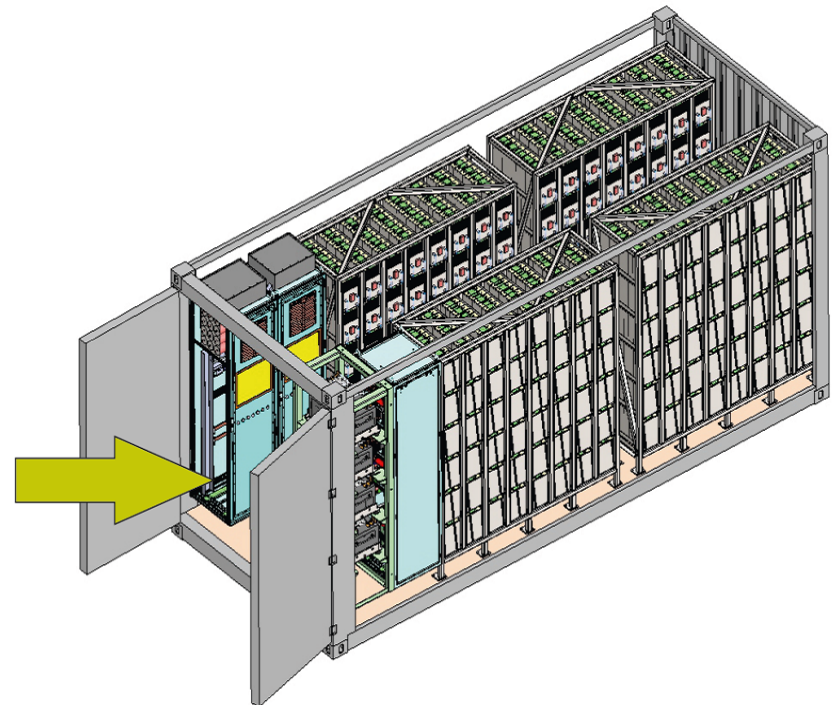
Reactive Power

Peak Shifting

Black Start Capability

Harmonic Compensation

Access to power circuits and control cabinets



How can Freqcon help to increase renewable penetration in the Canary Islands....?

Ireland as an example

- Target: 40% renewable (wind) penetration by 2020.
- At present 50% achieved at times.

Similar challenges may be faced by the network operators in the Canaries:

- Voltage control
- Generator protection systems based on rate of change of Frequency (df/dt)
- Reactive power control
- Reserve from conventional plant

Wind Farms or Solar PV arrays interested in demonstration projects or looking at improved performance of their installation by complementing the capabilities of their generators

System Operators looking for improved system security

Co-operation with universities (ULPGC, UL) and research institutes (ITER, ITC, etc)

THANK YOU!!

