

6th Edition



**Energy
Storage**
SUMMIT 2021

#StorageSummit

CASE STUDY: WHITELEE WIND FARM



Tony Gannon
Head of Project
Management
SCOTTISHPOWER
RENEWABLES



WITH THANKS TO OUR SPONSORS

Technology & Industry Diamond Partner

TrinaStorage

Platinum Sponsors



Gold Sponsor



Silver Sponsors



Bronze Sponsors



Supporting Sponsor



Exhibitors



Partners

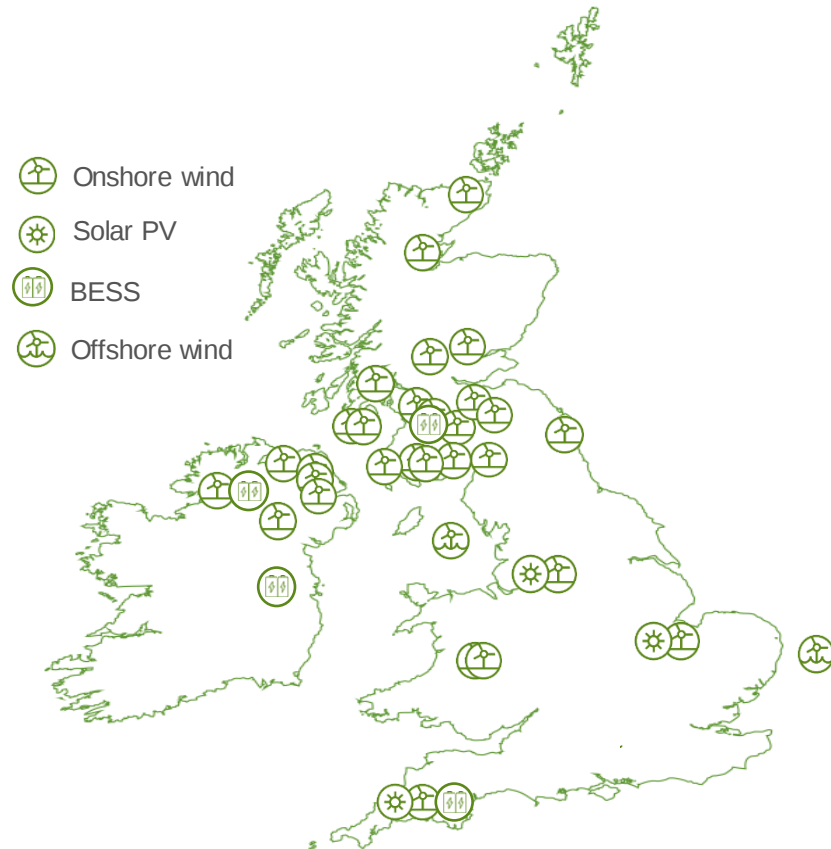


Editorial Partners



- Introduction to SPR
- 2020 Overview
- Co-location or Stand-Alone?
- Case Study: Whitelee Battery Storage Project
- What will the future bring?

Who is ScottishPower Renewables?



Owned by **Iberdrola S.A.** with worldwide subsidiaries

Largest onshore windfarm operator in the UK

Over 3GW in operation (41 projects) or construction (9 projects), incorporating multiple technologies ...

... with over 8GW more in the pipeline

- ~1GW installed UK capacity
- Batteries became “bankable”
- Revenue stacks becoming even more flexible
- Planning barriers to scale removed
- Institutional investment rather than utilities
- Visibility of aggregators increasing
- Alternative procurement and delivery strategies emerging

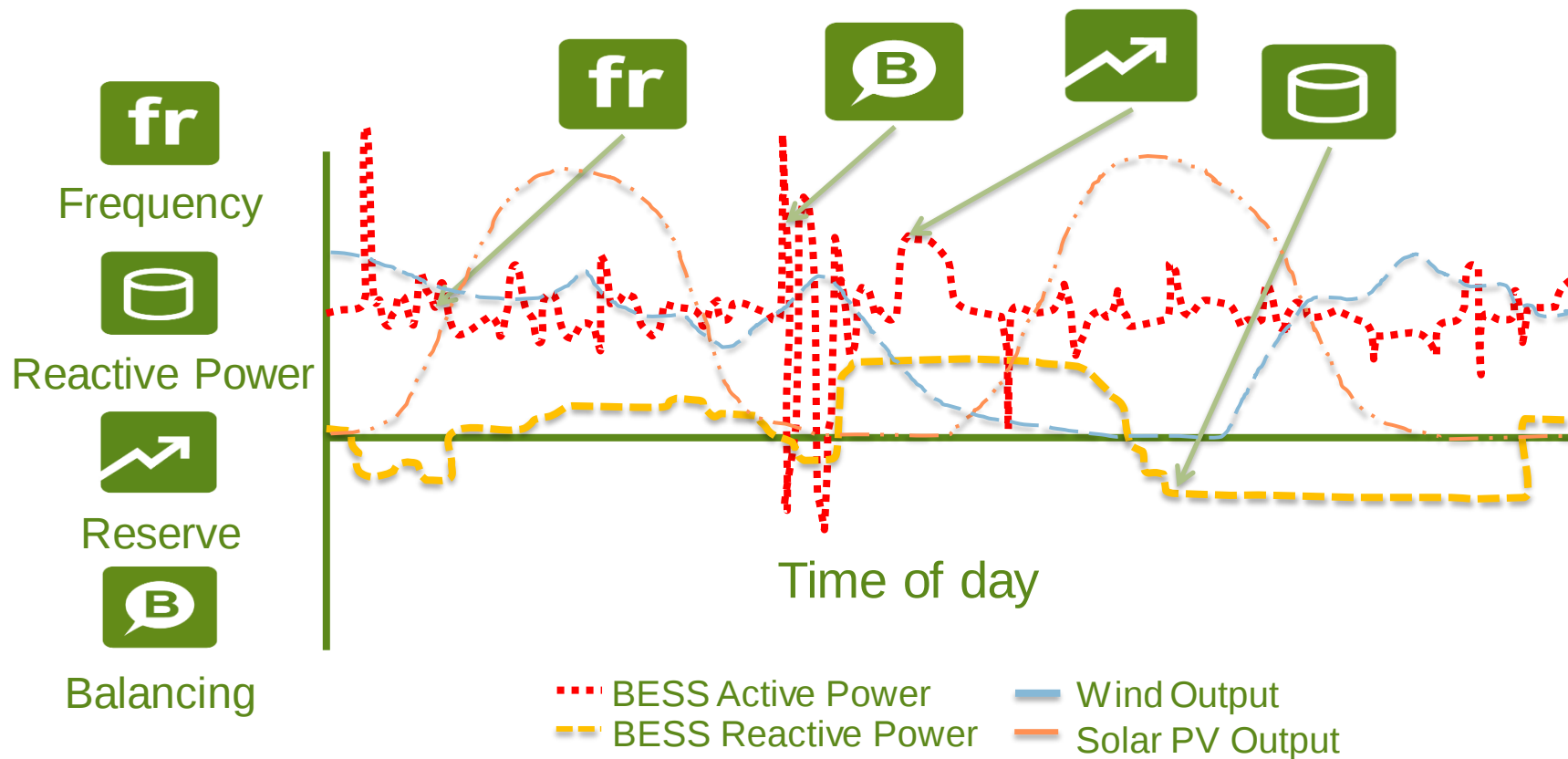
UK and Ireland leading the way!!

Co-Location

- + Grid availability
- + Ease of planning
- + Operational efficiency
- + Aligned with “generator philosophy”
- + Constraint/Curtailment management
- + Multi-technology grid services (such as VSM)
- Limitations on services
- Complex control systems

Stand-Alone

- + Targeted to areas of system stress
- + Optimal grid connection locations
- + Wider range of system services
- + Opportunity for additional locational services
- Higher CAPEX
- Increased delivery risk
- Lack of OPEX synergy
- Risk of stranded assets/ services/markets



Co-location – a complex but worthwhile challenge!

Whitelee BESS Project – The Concept







Project Characteristics

Capacity: 50MW/50MWh

Technology: Liquid Cooled Lithium-Ion

Total Investment: £21M

Key Suppliers

Batteries: CATL

Integration: Ingeteam S.A.

BOP: Think Energy

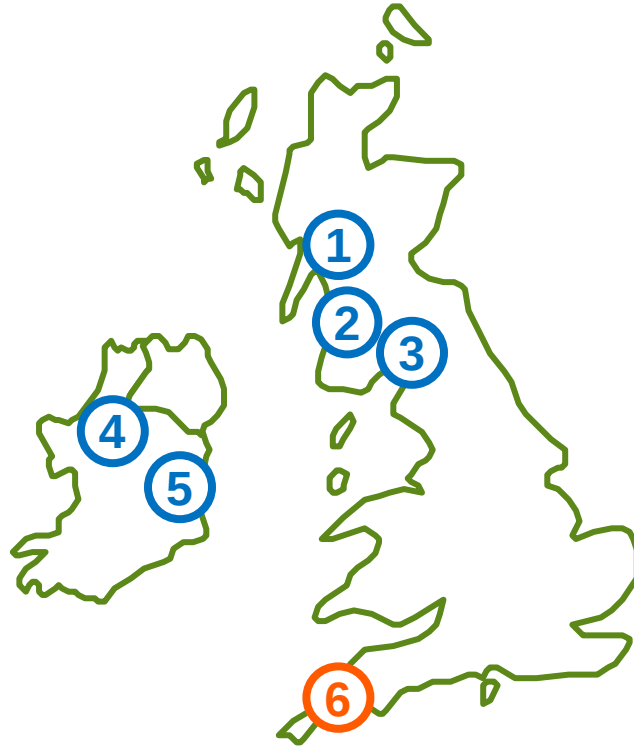
Switchgear: Schneider Electric

Challenges

Windfarm control systems

Site conditions

COVID-19!



- ① Whitelee BESS
- ② Dersalloch BESS
- ③ Harestanes BESS
- ④ Barnesmore BESS
- ⑤ Gormans BESS
- ⑥ Cornwall LEM BESS

Projects are targeted towards current markets or future markets of interest

- More Renewables = More Storage!
- < 2021 – services driven by power
- 2022 onwards – emergence of services driven by energy
- Constraint/Curtailment mitigation at a site/area/regional level
- Network reinforcement deferral likely to increase
- Longer duration = new technology opportunities!
- First UK “Mega Projects” to be constructed

STORAGE = FLEXIBILITY = OPPORTUNITY!!!

