

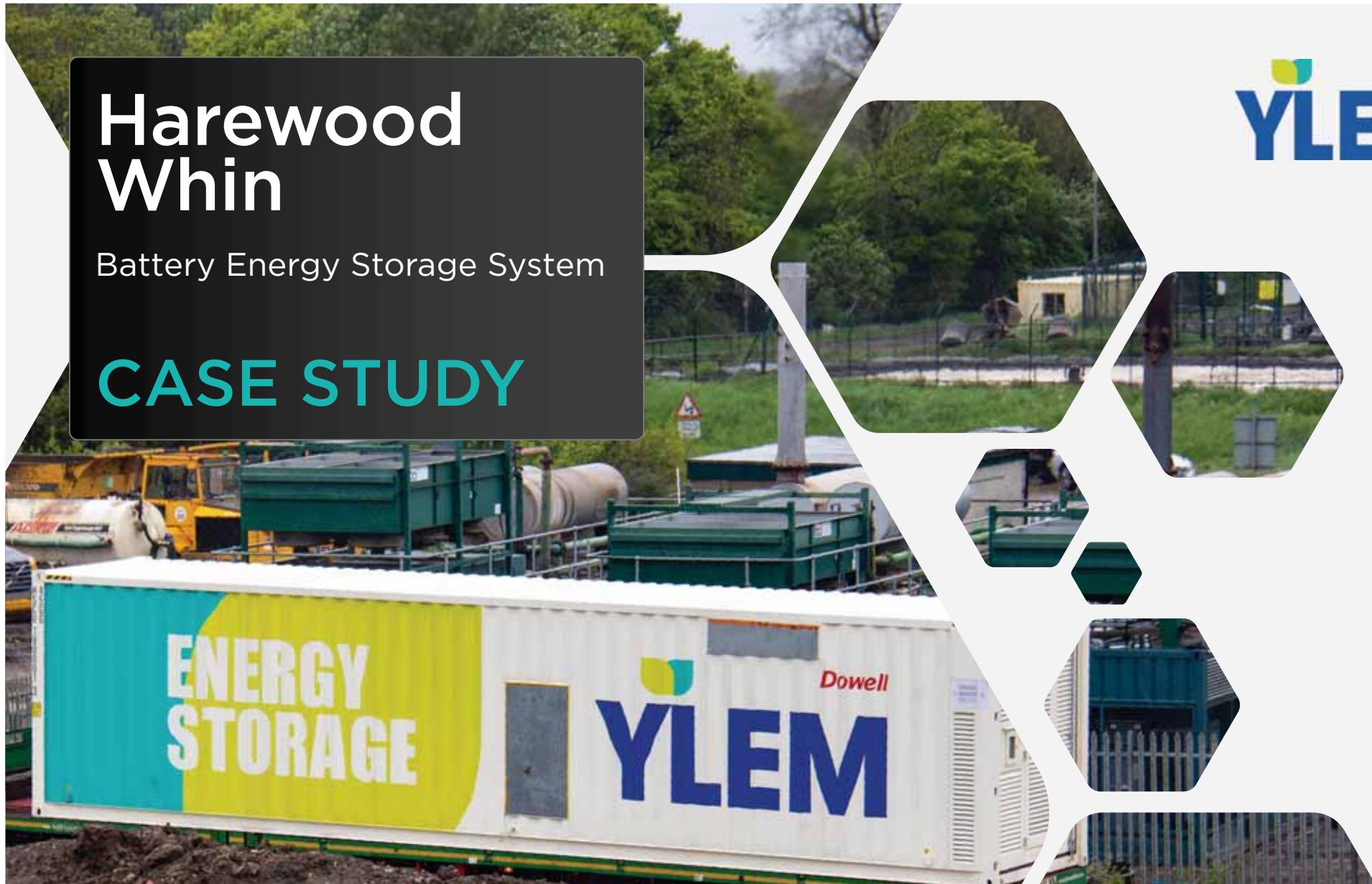
Harewood Whin

Battery Energy Storage System

CASE STUDY



YLEM



About Us

Ylem Energy Ltd is a leading independent power generation specialist that has, in the last three decades, seen its systems amass far in excess of 20-million hours of operation.

This unrivalled experience - much of which has been with the use of biofuels from landfill and AD sources - has led to the development of world-class capabilities that encompass every aspect of a power generation system from design, right through to the long-term operation and maintenance.

Ylem Energy's experience spans all industrial and commercial sectors – both public and privately owned.



Battery energy storage systems (BESS)



With Ylem Energy having expanded its portfolio of solutions to offer flexible generation, the addition of battery energy storage

systems was a

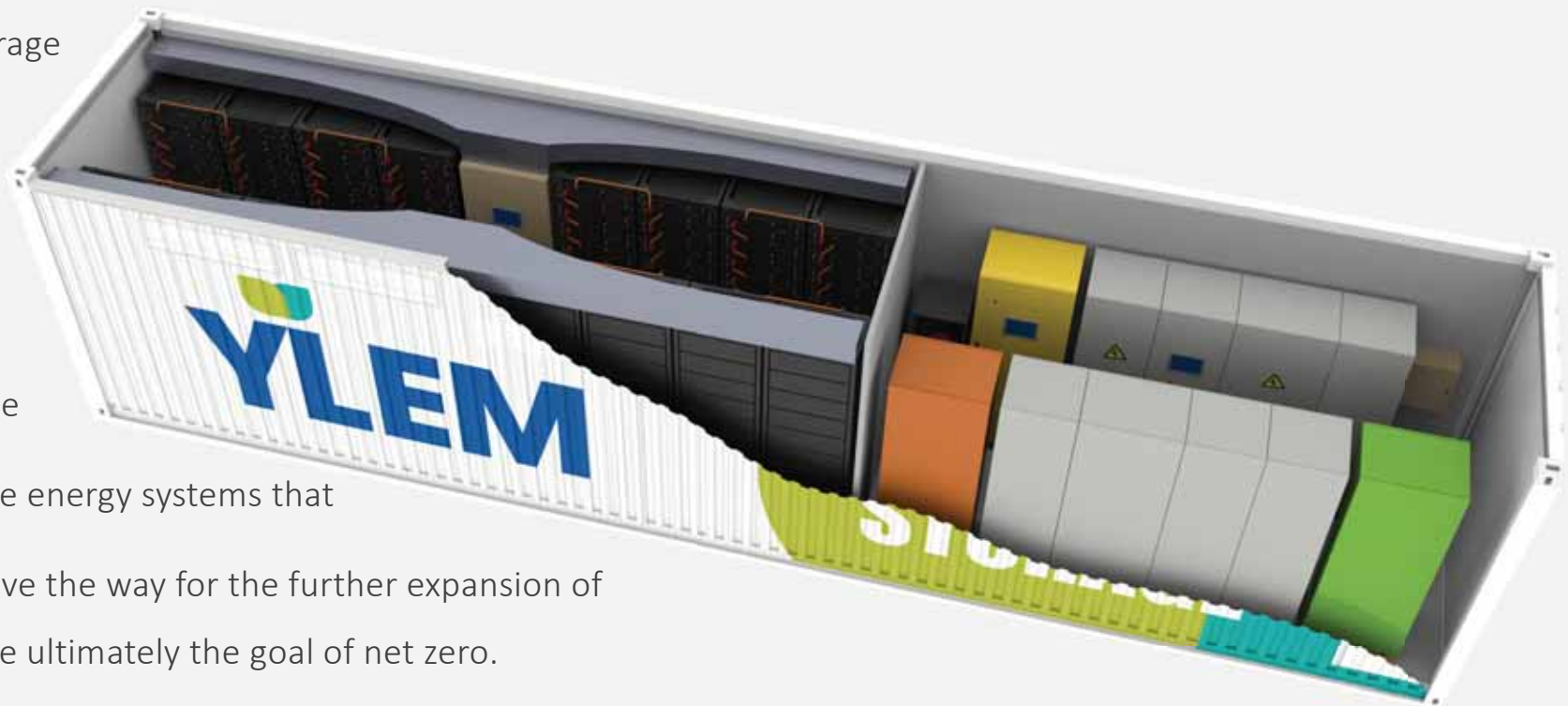
logical step. This

has enabled the

company to provide

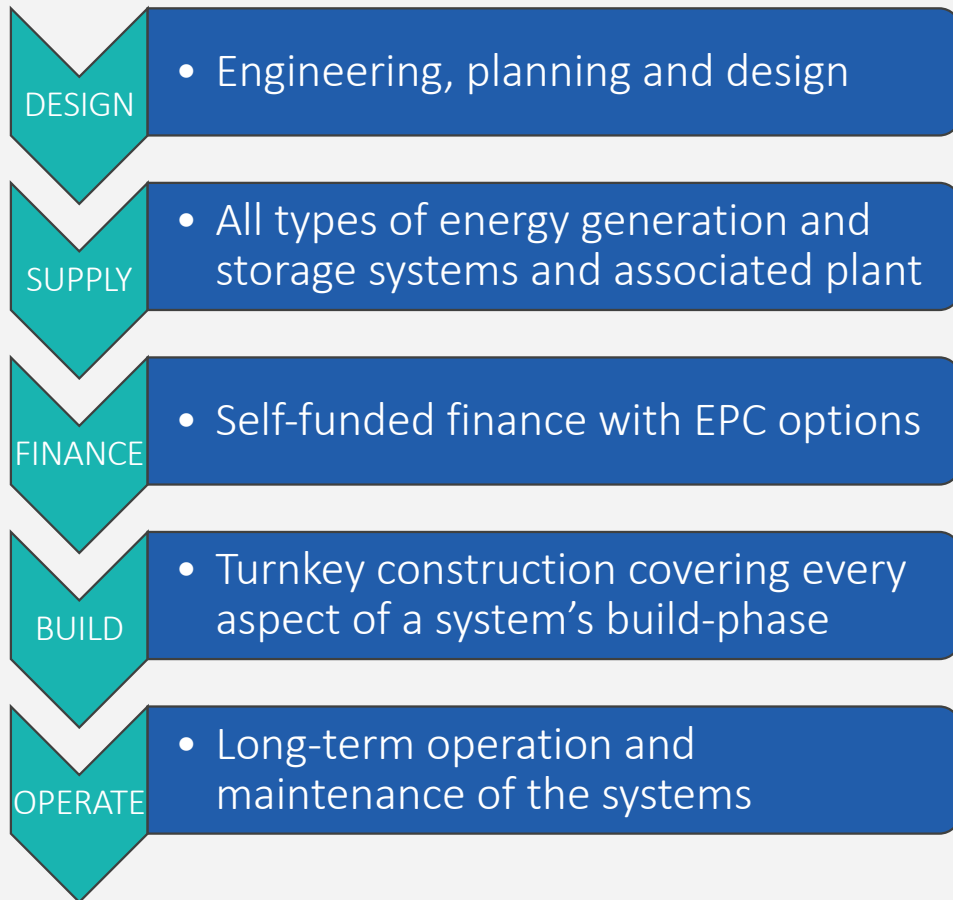
fully-funded flexible energy systems that

will help the UK pave the way for the further expansion of renewables and the ultimately the goal of net zero.



End-to-End Capabilities

Ylem Energy has developed enviable in-house capabilities that cover every step of a project's life:



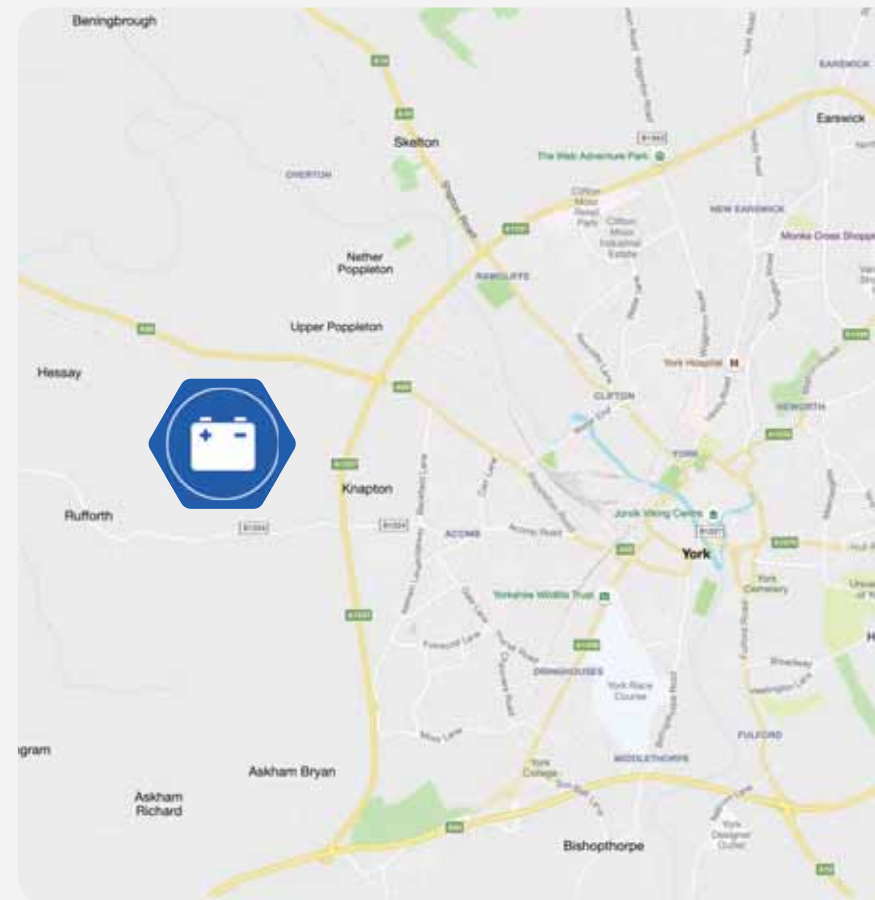
Harewood Whin BESS



One of many in its portfolio, Ylem Energy owns and operates a landfill gas generation system located on the western outskirts of the City of York.

The system was originally designed to export surplus power generated from the landfill gas to the grid. Ylem Energy identified an opportunity to co-locate a 1MW_e BESS with the site's generation system to enable it - for the first time in the UK - participate in balancing the national grid.

Rated at 1MW, the Harewood Whin BESS is a fully pre-packaged, containerised system manufactured by Shanghai Dowell Technology Co. Ltd (Dowell). Ylem Energy has an exclusive arrangement with Dowell for the use of its systems in the UK (sizes starting at 250kW).



Harewood Whin BESS



Designed by Ylem Energy's in-house team of engineers, construction commenced in the spring of 2019 by the company's in-house projects team. The BESS is pre-packaged and integrated into a modified 40-foot ISO shipping container. It was delivered to site in May 2019 and quickly positioned to enable the installation to proceed.

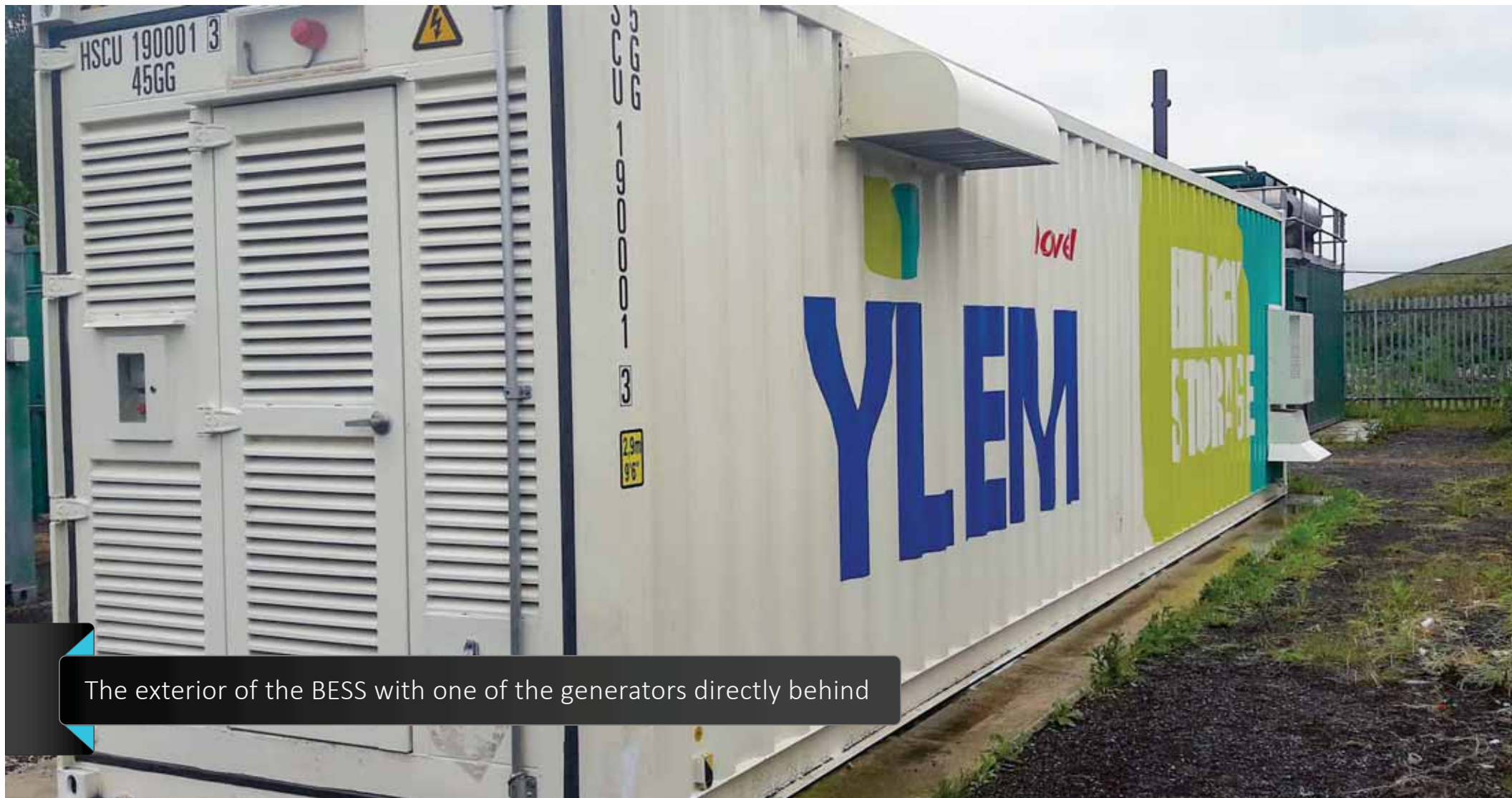
Build, Own, Operate ...

The Harewood Whin BESS was self-funded by Ylem Energy and it has joined the company's growing fleet of flexible generation systems.

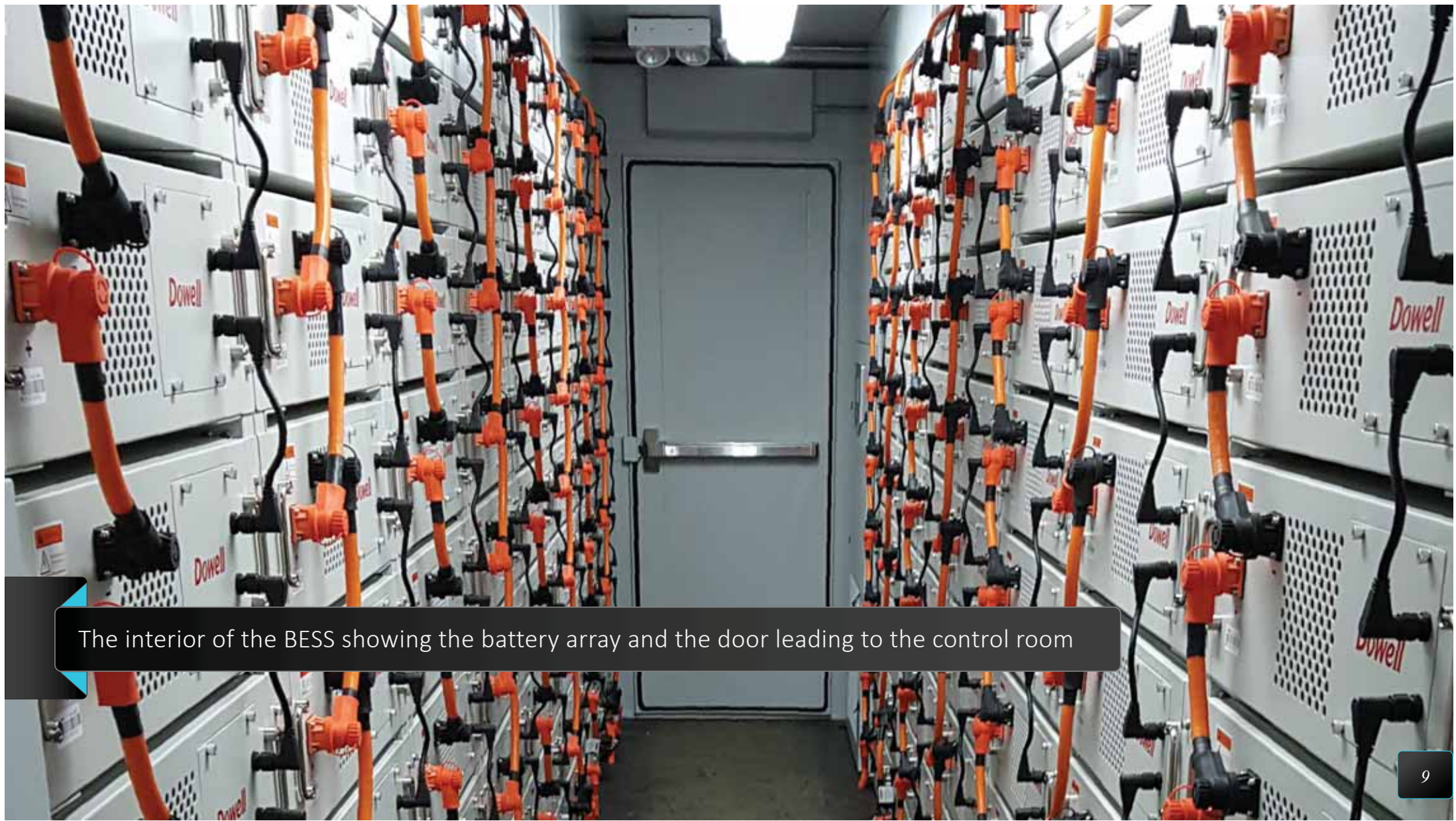




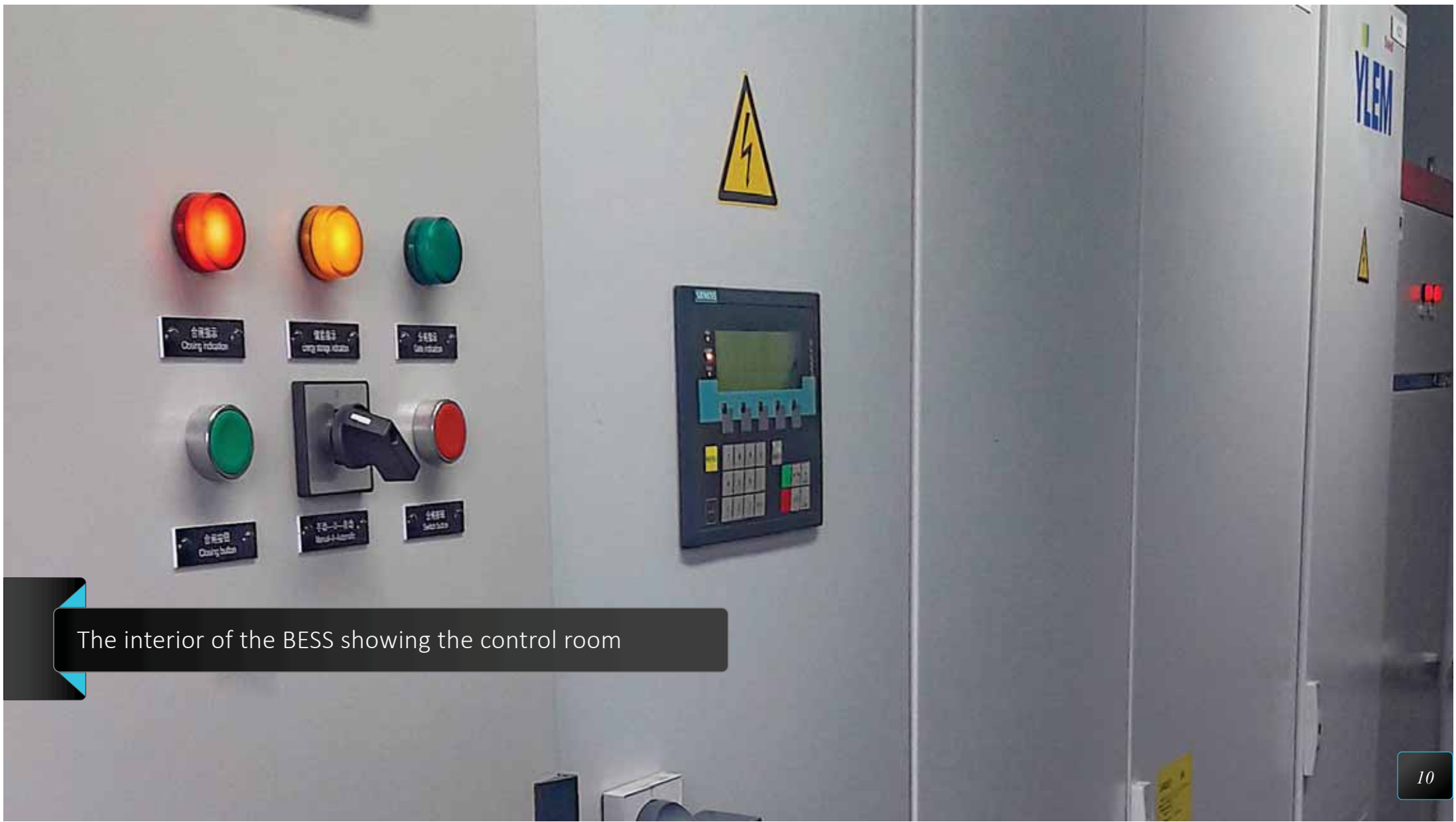
The BESS being lowered into position alongside the generators by Ylem Energy's team



The exterior of the BESS with one of the generators directly behind



The interior of the BESS showing the battery array and the door leading to the control room



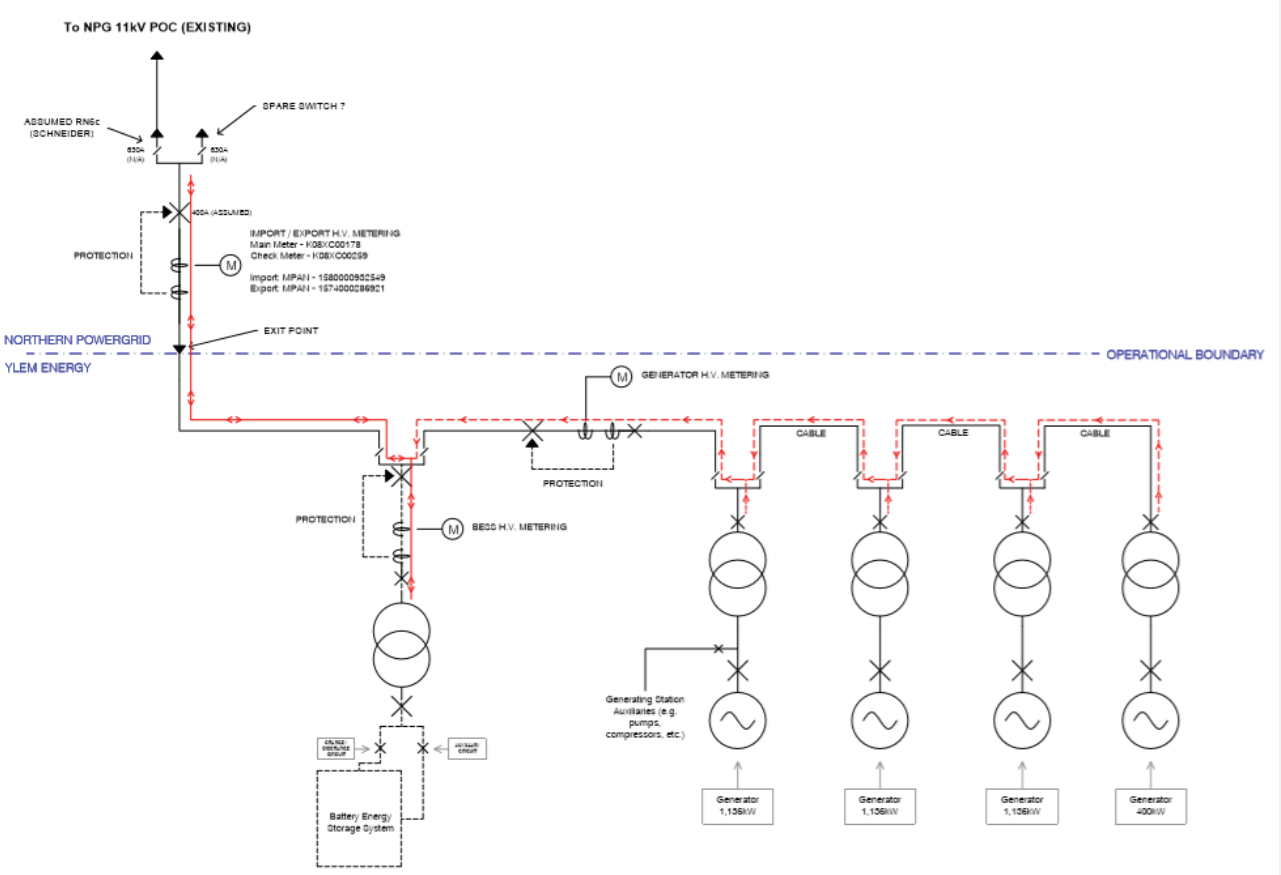
The interior of the BESS showing the control room

Harewood Whin BESS

The Harewood Whin BESS went live during the early summer of 2019 and in the ensuing months, the system has continued to successfully participate in the UK Frequency Response and Wholesale Markets.



Electrical Line Diagram

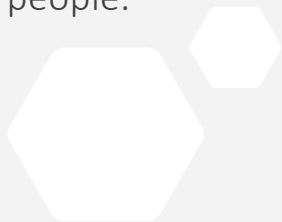


Ofgem

The Harewood Whin BESS is co-located with existing ROC-receiving landfill gas engines and has received all the appropriate derogations from Ofgem to continue to receive ROCs with the integration of the BESS.

Site Visits

We would welcome the opportunity to give a tour of the site and see the BESS in operation alongside the landfill gas generation systems. Due to the nature of our sites and the current COVID-19 restrictions, we have health and safety procedures that allow site visits for a limited number of people.







Evidence of operation

If required, we would be happy to provide evidence of the BESS's performance in the wholesale and frequency response markets – with relevant references from our aggregation supplier.





Thank You

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