

# Energy storage accelerates a clean electric future

## Pivot Power

### CASE STUDY



## Towards a net zero target – storage fuels renewable transport investment in the UK

In June 2019, the United Kingdom (UK) committed to reach a net-zero emission target by 2050. More ambitious than European Union-level regulations, the new goal requires the elimination of greenhouse gas emissions or requires those carbon dioxide emissions to be offset. As the first G7 country to make such an ambitious switch from fossil fuels, how will the UK achieve a transition towards clean energy to meet its target?

### Smart and flexible renewable technologies

As the global energy market moves towards more flexible and sustainable energy systems, energy storage will provide the needed flexibility and reliability to support renewables and a higher share of their integration, such as solar and wind, into the National Grid. Renewables, combined with flexibility and purpose-built energy management, are more economical than traditional generation.

### The great balancing act

Pivot Power, a UK company developing transmission-connected energy storage and high-volume power connections to provide essential capacity for rapid electric vehicle

(EV) charging, turned to Wärtsilä for energy storage solutions. Pivot Power has a 2 GW programme to develop, own and operate 40 sites across the UK with grid-scale energy storage and high volume power connections which will be directly connected to the UK high-voltage transmission system. In 2019, Wärtsilä contracted two 50MW / 50MWh projects to Pivot Power. Both projects, one to be located at Cowley in Oxford, and the second at Kemsley in Kent, mark a significant clean transport and low-carbon investment in the UK. Not only do the systems provide grid-balancing services to ensure the reliability of electricity generation and supply across the UK National Grid, but they also provide essential capacity for rapid EV charging infrastructure UK-wide.

“At Pivot Power, we are committed to enabling a clean electric future and accelerating the expansion of electric vehicles across the UK. These Wärtsilä energy storage systems allow us to harness cutting-edge technology to future-proof our investments in a changing energy market, supporting our long-term goal to reduce the UK’s carbon footprint and bring us closer to net zero.”

*Adrien Lebrun,  
Engineering Director at Pivot Power*

How can a system balance the unique demands of traditional and renewable generation?

The answer is a sophisticated techno-economic solution with modern design.

Each 50MW energy storage system supplied to Pivot Power employs Wärtsilä's GridSolv solution and GEMS software. One site includes innovative design for reduced site areas. GridSolv optimises storage technology, while the GEMS software leverages artificial intelligence, forecasting and machine learning to smartly manage various assets — storage, EV charging, grid fluctuations — in the UK market. The versatility of GEMS to optimise various assets in changing market conditions is particularly important, enabling Pivot Power to future-proof resources under a single portfolio and benefit from multiple revenue streams. Wärtsilä's sophisticated energy storage solution provides frequency regulation and grid-balancing services.

This is not the first time Wärtsilä has delivered balancing services to the UK grid. Wärtsilä has experience providing different solutions needed in the UK Energy market transition towards 2050 emission targets. In 2018, Wärtsilä successfully commissioned two 50MW Smart Power Generation plants in the UK to energy and services company Centrica; these projects generate balancing power for the National Grid. The difference in Wärtsilä's delivery to Pivot Power is the creation of infrastructure to provide essential capacity for rapid EV charging, as well as balancing services.

Delivering clean, smart and flexible power

In providing needed grid reliability in the UK energy balancing markets, the two systems will contribute to greater National Grid stability and flexibility. In turn, a more stable energy structure permits a growing share of renewables and renewable optimisation. The former directly reduces UK emissions, while the latter drives Pivot Power's specific goal to provide essential electricity capacity for rapid EV charging infrastructure throughout the UK.

These projects highlight the unique ability of storage to create and reliably deliver clean, smart and flexible power that reduces carbon footprints, improves route to market for clean power solutions and drives change.

A new scale of energy transformation in the UK has begun.

CUSTOMER Pivot Power

SITE SIZE 2 x 50MW / 50MWh

SITE LOCATIONS

Cowley, Oxford  
Kemsley, Kent

APPLICATIONS Balancing services for the UK National Grid, including:

- Frequency response
- Electricity market trading
- Reactive power and electric vehicle charging services

SCOPE OF SERVICES Engineered equipment delivery (EEQ)

DELIVERY 2020

THE CHALLENGE	WÄRTSILÄ'S SOLUTION	BENEFITS
Provide grid balancing services to the UK National Grid	Adding reliability to the grid via sophisticated storage and EV design	Reduces carbon footprint in the UK
Integrate renewables	Grid-balancing services to ensure the reliability of electricity generation and supply across the UK grid	Enables the growing share of renewables
Support transition towards low-carbon infrastructure	Future-proofing of assets under a single portfolio	Greater National Grid stability and flexibility

