

Decarbonising UK ports through electrification requires long-term planning and a strategic partnership

As the UK's maritime industry continues to play a vital role in global trade, the pressure to decarbonise an industry reliant on fossil fuels is increasing. If no action is taken to transition to renewable energy sources and low carbon alternative fuels, CO2 emissions from international shipping could account for 17% of global CO2 emissions by 2050.

The UK Government has set out its maritime strategy, stating that by 2050 zero emission ships will be commonplace and the UK will have taken a proactive role in driving the transition to net zero, capturing a significant share of the economic, environmental and health benefits associated with this transition.

Air quality and lower carbon emission targets are forcing the maritime sector to reduce emissions and begin the journey to net zero. Whilst electric shipping will be part of the global solution in the future, energy infrastructure technology is currently available for UK ports to begin decarbonising their operations.

The electrification of existing infrastructure will be crucial in this journey. Opportunities include providing shore to ship power for marine vessels, transitioning cranes, forklifts, tractors and other vehicles from petrol and diesel power to electric, and integrating new energy technologies such as renewable generation and hydrogen.

Hydrogen vehicles can be refuelled in minutes, eliminating the need for overnight charging. Hydrogen can be used to power heavy-duty road transport and could eventually be used to power ships, but these are at least a decade away. High-voltage energy infrastructure is required to enable green hydrogen production via electrolysis of water, and this will need to be considered alongside electrification.

These energy transition solutions will have a significant impact on electricity networks and will require a comprehensive energy infrastructure strategy to deploy sustainable technologies that will eventually replace equipment traditionally powered by fossil fuels.

To accommodate the increase in electricity demand, options include increasing the capacity of the connection to the distribution network, generating electricity locally using renewable resources like wind and solar, and using demand side response measures with flexible grid connections and energy storage using batteries or hydrogen.

For any port to incorporate these initiatives, it is important to take a whole system view of its energy requirements, develop long-term energy sourcing and infrastructure strategies and develop an integrated resource plan. This energy strategy will need to compare the cost of developing decentralised local energy solutions with the option of sourcing the energy from the grid.

Once a long-term infrastructure strategy is in place, comprehensive asset management and capital financing will enable the UK's ports to manage their networks more holistically and decarbonise their infrastructure and operations whilst maintaining certainty about costs and performance.

It can be daunting to know how to begin the journey and where to find expert help. Hitachi Energy and UK Power Networks Services have joined forces to provide smart energy infrastructure technologies and solutions to enable UK ports to begin their net zero journey. This partnership combines the strengths of two leading businesses serving the transport industry:

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- UK Power Networks Services – world-class engineering, capital finance and experience working in complex and critical infrastructure environments.
 - Hitachi Energy – global knowledge and renowned energy infrastructure products and technologies.

Our solutions will give UK ports control over their energy infrastructure and decarbonise their operations. We can deliver data-driven asset management, finance the upgrades, expansion, and modernisation of your assets, and assume responsibility for the operations and maintenance of your HV infrastructure.

For more information:

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