



**CUSTOMER:** University of Birmingham  
**INDUSTRY:** Hybrid, ferries  
**COUNTRY:** United Kingdom  
**ABOUT:** Nilar has collaborated with the University of Birmingham to convert a British Waterways maintenance craft into a hybrid canal boat for the future.

# The Ross Barlow Hybrid Canal Boat

Clean and silent hydrogen propulsion for the inland waterways

Nilar has collaborated with the University of Birmingham to convert a British Waterways maintenance craft into a hybrid canal boat for the future. The standard diesel engine of the boat has been replaced by an all-electric propulsion system with a hydrogen store that eliminates atmospheric, water and noise pollution – paving the way for more efficient and environmental transportation. The Nilar Hydride® battery technology played a vital role in the success of the project.



With the support of Nilar, The Ross Barlow project managed to combine a range of new technologies and apply them to a traditional mode of transportation. The boat is now travelling throughout the United Kingdom as a successful demonstration of how to combat pollution and resource depletion by long-term sustainable means.



Batteries can be charged using solar panels, wind and water generators.

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## The Solution

When looking for a suitable battery technology, lead batteries were dismissed for being too slow to charge, too heavy and too large. Li-Ion was not a viable option either due to safety concerns. The bi-polar Nilar Hydride® technology, on the other hand, proved very interesting for Harris and his team. The School of Metallurgy and Materials was conducting its own NiMH research, so Nilar turned out to be a perfect choice. Since Nilar could provide a solution that was more or less ready to go, the collaboration went smoothly and the boat was soon fitted with a 25 kWh battery bank – sufficient to power the entire boat – and a charger. Nilar also made sure that the supplied batteries could be “trickle-charged” using solar panels, wind and water generators.

When the conversion process was finished, the diesel engine of the boat had been replaced by an all-electric propulsion system, a battery stack and a metal hydride store linked to a proton exchange membrane (PEM) fuel cell. Nilar was present on-site during implementation to ensure that everything ran according to plan.

## The Result

With the support of Nilar, the Ross Barlow project managed to combine a range of new technologies and apply them to a traditional mode of transportation. The boat is now travelling throughout the United Kingdom as a successful demonstration of how to combat pollution and resource depletion by long-term sustainable means. There are about 3 540 km of navigable canals and rivers in the United Kingdom with numerous diesel-driven boats in the fleet. Many of them can take this next step towards more environmental-friendly transportation with the help of Nilar.

The demand for sustainable energy is rapidly growing and the development of effective energy storage technologies will be of paramount importance going forward. Nilar’s products are designed with this exact progress in mind and offer several crucial benefits for various industrial applications.

### About Nilar

Nilar was founded in 2001 as a research project by leading battery industry experts from Europe and the US. The company has been producing safe and environmentally-conscious Nilar Hydride® batteries for energy storage at commercial properties, private households, industrial plants and for use with the smart grid, since 2015. Nilar’s Hydride® energy storage solutions are robust with non-flammable electrolyte and durable with a low lifetime cost. The modular design supports scalability to handle the energy requirements of everything from small residential systems to large-scale electrical installations. With R&D departments in the US and Sweden, and a manufacturing plant in Sweden, Nilar is revolutionizing energy and power supply technology, and is taking automated battery production to the next level. [Read more at: www.nilar.com](http://www.nilar.com)