

# THE LAND ROVER LURCHES AHEAD

**The iconic Land Rover lurches from the past to the future as the British Army uses it as a testbed to better understand the impact of vehicle electrification on the battlefield.**

*By Anita Hawser*

**T**he Land Rover is to the British Army, what the HMMWV (Humvee) is to their US counterparts. Both vehicles are engrained in popular culture and at some point, most soldiers would have got to drive or ride in either vehicle.

The Land Rover, of course, has a lot more history behind it, having been a workhorse of the British Army since 1949, while the Humvee only came into service in the mid-1980s.

These days, the Land Rover, which was modelled on WWII jeeps, plays less of a frontline role and is used more for training. Most of the British Army's Land

Rovers are no longer in service except the Land Rover Wolf, which is based on the Defender model and is still used as a light military vehicle.

The Army is also looking to the future, putting out an RFI "seeking market information as to military light utility platforms ... to replace Land Rover and other similar vehicles as part of the General Support Utility Platform Programme."

But there is still life in the 75-year-old-vehicle yet, with four in-service Land Rovers — two protected and two general service — being adapted as fully electric vehicles under Project LURCHER.

In-service Land Rovers — two protected and two general service — are being adapted as fully electric vehicles under Project LURCHER (MoD/Crown Copyright)



The Land Rover may not be going to Ukraine or the frontline any time soon, but it is being used as a test vehicle to help the British Army better understand the applications and constraints of vehicle electrification technologies.

Last April, Babcock, was awarded a one-year contract on behalf of the Ministry of Defence to convert four in-service military Land Rovers, from diesel fuelled to electric vehicles (EV) using a drop-in kit and modified battery system.

Babcock is acting as a systems integrator on Project LURCHER, while the EV drop-in kit is provided by UK company Electrogenic, which designs and builds EV drivetrains for car manufacturers and for converting existing vehicles to electric drive, including classic Land Rovers.

George Woollard, head of R&D development programmes at Babcock, says Electrogenic had already converted around 20 or 30 Land Rovers before the MoD contract. "So, they had a pedigree and key technological features," he says. "They build all their batteries themselves and their bespoke vehicle control unit software was developed in-house."

Babcock knows the army's Land Rovers well. It provides through-life equipment support for the vehicles and has put forward

its General Logistics Vehicle (GLV), which it showcased at DSEI last year, for the RFI to ultimately replace the Land Rover.

Interestingly, when Babcock was building the GLV in its workshop, at the same time it was also working on the electrification of the Land Rovers for Project LURCHER. "There was this contrast between the new world and the old world," observes Woollard.

At the time of writing, Babcock was finalising the electrification of the last of the four EV Land Rovers. "We have already handed over two vehicles to the customer, the two armoured ones, which were the more complex conversions given that the armour adds more weight and is challenging to integrate the wiring," says Woollard.

One of the two EV armoured Land Rovers was recently displayed at DSEI in September, while another was put on show at the Tower of London, during an army event. "At both events, we received positive feedback from people, and they are excited to hear about the trial data once it comes out," says Woollard.

The four EV Land Rovers will be put through their paces by the Armoured Trials and Development Unit (ATDU) at MoD Bovington to test the vehicles' operational advantages and disadvantages. Trials are expected to start sometime in March/April this year. The vehicles' performance will be assessed over steep terrain, wading and towing, and different climate-related conditions.

While hybrid electric drives have been fitted to other Army vehicles such as the Jackal and Foxhound, Woollard says the Land Rovers are the first fully electrified vehicles to be trialled in a battlefield scenario by the army. "They are looking forward to exploring the different kinds of data points that will come out of the trials," he says, adding that preliminary feedback suggests several benefits compared to Land Rovers powered by Internal Combustion Engines (ICE).

Woollard says the challenge with the army's old Land Rover fleet is that there is a limited supply chain to support the

vehicles, so electrification is unlikely to be done at scale. He says Babcock's job is to support the vehicles through trials and understand the limitations and benefits of the EV platform. First impressions, appear promising.

Woollard says the electrified Land Rovers deliver a significantly improved driving experience. "The EV Land Rovers perform better off road than their internal combustion engine counterparts. There is less of a cognitive burden on the driver because of the lack of manual gears needed. A lower thermal signature, and lower acoustic signature, all of which have been proven, could also have a benefit on the battlefield."

One of the key areas the army is keen to understand better during the trials, says Woollard, is to have a vehicle that can offer more power and act as a kind of mobile charging device.

"One of the requirements of the LURCHER vehicles is the ability to offload power from the vehicle to charge auxiliary devices," Woollard explains. "So, in the future, you could have a portable power device, or mini-grid, whatever you want to call it, on the battlefield.

The ability to offboard power from an operational perspective could significantly reduce the burden of fuel demand at bases.

There are also fewer moving parts in an electric vehicle — ICE vehicles have 400 moving parts while EVs only have around 20 moving parts — so the logistics support required would be greatly reduced as well as the burden on fuel supplies. The ECM impact of electrification of the Land Rovers will also be assessed during the army trials.

"Everyone is looking at future technologies," says Woollard. "What's most exciting about Project LURCHER is that it incorporates new future technology onto an iconic platform so everyone can see the tangible benefits. I'm looking forward to seeing the results that will inform the future operational strategies of the military." ■

