

★ Electric revolution?

There will soon be even more all-electric commercial vehicles on the market, which means more decisions for operators. John Challen looks at some of the newer vehicles and their pros and cons



Once restricted to fleets concerned with getting milk to people's doors, electric vehicles are now evolving and proving increasingly popular with operators delivering a whole lot more. April's CV Show offered visitors their first chance to find out more about several new electric vehicles and the engineering behind them. The event played host, for example, to the debut of Citroën's Berlingo Electric, while Nissan showed a prototype of the e-NV200, the battery only version of its medium-sized van.

And with electric versions of Ford, Iveco, Mercedes-Benz, Peugeot and Renault vehicles already available, fleet managers looking to adopt battery power suddenly have a considerable range from which to choose.

Why go electric? Well these vehicles, especially the battery packs, have come a long way. The biggest change has been the substitution of nickel metal hydride (Ni-MH) batteries mostly with lithium-ion (Li-ion). These are smaller and lighter (although, in



Electrifying ride?

some cases, more costly) meaning that comparable pack sizes store much greater power and hence support more range. One hundred mile round trips are now entirely realistic, if drivers take it easy – which is all you can do in EVs' natural town habitats.

Factor in fuel cost savings, no congestion charges and a boost to your carbon footprint, through EVs' zero emissions rating, and the choice becomes appealing. There are, however, the issues of higher vehicle cost and managing longer journeys, motorways or 'A' roads, where battery power may fall flat. Unlike range-extenders – where the battery is matched to an ICE – there's no backup.

That said, with Nissan's EV experience through its LEAF all-electric car, national LCV sales manager Matt Dale believes the Japanese manufacturer is well set up to offer fleets full service. "The vast majority of dealers already have LEAF training and are certified. By the time e-NV200 is launched, all of them will be fully electric vehicle qualified," he explains.

Dale also points out that, since its van was originally built as an ICE-powered vehicle, removing the engine and inserting the electric motor minimised design and testing issues. "The batteries don't encroach on load space, because they are under the floor and the driver's seat, which also improves the e-NV200's centre of gravity," he says. And with the inverter housed under the bonnet, load space for its diesel and electric van variants is exactly the same.

For him, all this is about making electric vans mainstream. "We want people to have a mixed fleet of diesel and electric vans, because EVs won't fit everyone's needs equally," he argues. "In some cases the mileage is such that it is not cost effective to run an EV; it would be better to have a diesel. Commercial vehicles are working tools [and] we want them to be economically viable."

One operator that has made electric vehicles

New electric kids on the block

Citroën Berlingo Electric is the French manufacturer's second attempt at an electric vehicle, following the previous battery model, which was on sale from 1999 to 2005. The new vehicle combines a permanent magnet 49kW electric motor with a 22.5kW/h lithium ion battery pack, giving a range of 106 miles and a top speed of 68.75mph. Fast charging is now available, which means that after 35 minutes plugged into the mains, 80% of the battery's power has been replenished.

Like the Citroën, Nissan's e-NV200 has quick-charging capabilities. The alternative is a conventional full charge, which takes 12 hours. The vehicle is powered by a 24kW/h battery pack – borrowed from the manufacturer's LEAF car – and an 80kW ac synchronous motor, which provides 280Nm of torque. It, too, boasts a 100-mile range.



work very well is Network Rail. Previously running two diesel-powered Chrysler Grand Voyagers as shuttle vehicles, management at its Westwood development centre wanted to improve their green appeal while also bringing costs down.

Steve Duffy, business support manager at Network Rail, says that two Mercedes-Benz Vito E-Cell people carriers fitted the bill. "The vehicles operate as a shuttle bus service from the training centre to the train station and back," he explains. "They are in constant use from 7:30 to 10:30am, and then do nothing until taking people back from around 1.00pm. The gap in the middle of the day is used for recharging. Then, come 6:00pm, the E-Cells are on charge until 7:00am."

Staff at Mercedes-Benz handled the training, and Duffy says they made the drivers feel at ease. "We needed to know about charging properly, letting the batteries reach optimal level and how long they will last, depending on how the vans are driven," he recalls. "The guy from Mercedes-Benz knew everything about the vehicle, and was able to teach our drivers, in straightforward terms, how to get the best performance and economy."

What about savings? The cost of switching to EVs has not yet been calculated, but Duffy says software is on its way to monitor the numbers. Whatever happens, though, he believes that more EVs will be on their way to Network Rail.

"They might not be Vito E-Cells, but there is a desire for more electric vehicles," he confirms. "We have depots inside the London LEZ and we have to

ask ourselves if we really need a Vauxhall Combo that takes two men from the depot to an access point, when a Nissan e-NV200 would do the job." ¹⁵



Infrastructure initiatives

Having electric vehicles is one thing, but, without a charging infrastructure, they are near useless, especially for fleet managers wanting to run them close to their range. For the North East, however, things are looking up, courtesy of Zero Carbon Futures, a non-profit organisation born out of the former Regional Development Agency.

"We've learned a lot about how people use the vehicles. We have information on where people use charging points and at what times of day," says Dr Colin Herron, managing director of Zero Carbon Futures, adding that the data comes from prototype van usage.

Herron highlights two areas of development. "One is the public on-street charging points, which offer 3-7kW and there are 750 in our region. The other is quick chargers that deliver 50kW," he explains. "We're working on putting in another 220 of these across the country. We've got 12 in our region, so if anyone buys a van, there is the infrastructure to run it."

As a result of this investment, Herron explains, some councils now have more confidence and are building up their EV fleets.

Smith Electric fleet surpasses 700 vehicles

Smith Electric Vehicles says it has now produced more than 700 of its all-electric Edison and Newton trucks, and that, together, they have covered over five million miles. CEO Bryan Hansel believes that milestone confirms a growing demand for fleet electrification, driven by "significant economic and environmental benefits for short-haul fleets".

Medium-duty gas and diesel trucks, he insists, are expensive to operate and are one of the biggest contributors to urban pollution. He's referring to vehicles that typically travel on fixed routes of fewer than 100 miles per day from a central depot. These, he says, are ideal for conversion, with experience suggesting that switching to electric vehicle saves around 70% annually on fuel and maintenance costs.

"We do not think in terms of the truck," explains Hansel. "We think in terms of end-to-end fleet transformation and all its associated benefits. This delivers substantial economic and commercial benefits."

For him, short-term growth in EVs is all about short-haul urban transport, not least because "operator demand, logistical viability, political support and environmental benefit are all aligned".

