

Animal Crossing! A ZEBRA-funded Stagecoach East Volvo BZL meets a Cambridge trail giraffe at Cambridge North Station.
STEVEN KNIGHT MEDIA



Stagecoach's EASTERN PROMISE

Steven Knight speaks with Darren Roe, Managing Director, and his engineering team at Stagecoach East about all things electric, the impact of congestion and the passenger offering



Anyone visiting Cambridge over the last year cannot have failed to notice the sheer number of electric buses that ply their trade across the city, their MCV bodywork giving them stature such that they appear to tower over other road vehicles and stand out from the crowd of other Stagecoach vehicles going about their daily business.

It has now been around a year since Stagecoach East started to put a fleet of 30 electric buses into service on its five park & ride routes, before then replacing diesel buses on its busy Citi 2 route, which serves Milton, Cambridge North rail station, the city centre, and Addenbrookes Hospital, with electrics.

These 30 electrics were the first of the Volvo BZL/MCV double-deck product to enter service in the UK and demonstrate the pioneering approach that Stagecoach, through its DWS owners, now takes.

The buses were ordered through the Government-funded ZEBRA project with contributions from Cambridgeshire & Peterborough Combined Authority and the Greater Cambridge Partnership. Despite the funding, which Managing Director Darren Roe says is fundamental to making a robust business case, Stagecoach contributed £7.3 million of the £16.57 million total investment. A knock-on effect of the introduction of the electrics was that Stagecoach was able to re-deploy the 21 Euro VI Alexander Dennis Enviro400 MMCs previously used on the park & ride routes and displace older vehicles from its fleet. That included a large number of Scania/Enviro400 vehicles that had high operating costs and were not totally suited to urban city operation.

Stagecoach East was not totally new to electric buses in Cambridge. A 'toe-in-the-water' project in 2020 saw two BYD/ADL Enviro400 City vehicles join the fleet. They now operate alongside the Volvo BZL fleet. As a result, the 32 electric vehicles represent almost 30% of the total fleet of 107 buses operating from Stagecoach's Cambridge depot, with a further 21% of vehicles, including six buses used on the city's sightseeing tour, meeting Euro VI emission standards. Almost 60% of the buses operating



30% of the vehicles based at Stagecoach's Cambridge depot are electric, with some 60% of Busway services into Cambridge operated with Euro VI compliant buses. **STEVEN KNIGHT MEDIA**

A suite of Zenobē smart chargers allow all 30 Volvo BZLs to be on charge at the same time. **STEVEN KNIGHT MEDIA**



Plugged in and on charge. **STEVEN KNIGHT MEDIA**

Busway services into Cambridge also meet Euro VI standards. Darren is proud of the company's achievement in reducing emissions in the congested city.

Between 2019 and 2023, as a result of changing peak vehicle requirements through changing passenger numbers Stagecoach East reduced its diesel fuel use by 22% and in the year ending April 2024 that is set to reduce considerably given that the electric vehicles make up almost a third of the Cambridge-based fleet.

Impressive buses

Engineering Director Terry Absalom said he is 'extremely impressed' with the Volvo BZL/MCV product, that is meeting all of the company's requirements. "The learning curve for engineers was steep, but they have become extremely proficient in fault finding and repairs," he says. As well as being a much cleaner vehicle for engineers to work on, vehicle downtime has also been reduced. Service inspections are set to a 42-day cycle, a Group Standard within Stagecoach, against the 28-day inspection regime for diesel vehicles. On the day of CBW's visit there were no electric buses in the depot, although one was away for major collision repairs and one of the Alexander Dennis vehicles was away with BYD.

Since their introduction (and up to 9 April 2024) the Volvo BZLs have operated 996,887 miles (1,604m km).

Based on the current depot carlines for 28 of the 30 Volvo BZLs to be in service each weekday, the fleet is rostered to operate 24,502 miles (39,432km) a week. That equates to around 1.274 million miles (2,050 million km) of zero tailpipe emissions in Cambridge for the fleet each year.

Terry said that his team benefits from the shared knowledge base of both Volvo and MCV and that with nearby service centres for both companies the relationship with them is extremely good. He did point out that the operating range for the vehicles advised by Volvo was somewhat conservative, widely reported at around 190 miles (300 km) before any effects of regen are taken into account, and generally there have been no issues with the electric range of the vehicles once out in service. "We aim for at least 20% of remaining charge when buses return to the depot at the end of the day, but frequently see a slightly higher level," explained Terry. Charging is by Zenobē smart chargers which charge at different levels through the night. Details of bus departure times



are inputted when buses are placed on charge and the system, which uses green electricity, will then prioritise charging, which is typically completed in between four and five hours per vehicle.

The two BYD electrics use bespoke BYD charging units and the operating range is more seasonally affected on these two vehicles explained Terry. "These vehicles were built in 2019 and technology has moved on and significantly improved since then. There are only around five months of the year when we get optimum charging range from these two buses. Use of heating in winter and air-con in summer months significantly reduces their operating range between charging."

Driver education

As with any new technology there was an initial nervousness amongst some drivers when the Volvo BZLs were delivered, but feedback is that they really like driving them. The vehicles have few rattles and the extra weight through the batteries gives then additional stability, reducing the perceivable pitch and roll of the bus. Noise levels are reduced, and the heat pump technology uses fresh air for heating and ventilation. Colour destination equipment allows the route colours for the park & ride sites to be shown on the displays.

Drivers have adapted well to the different techniques needed when driving an electric

vehicle, but Darren and his team believe the time is now right to ensure that drivers are making best use of the charge range, which can be enhanced by power being put back into the battery storage through the drive train regeneration system.

This requires drivers to be fully aware of their surroundings and where possible lift off the accelerator and coast for short periods before applying the brake. It is during these periods of coasting that the regen system kicks in. The training team has spent time with National Express Coventry to see how it has assisted drivers in adopting the ideal driving style. National Express Coventry has been able to use the systems linked into ticket machines and link it into the Zenobē charging analytical data to capture information on regeneration recorded against individual drivers.

Darren's team has taken on board best practice from the National Express Coventry system but doesn't have the facility to automate the vehicle data against ticket machine information identifying individual drivers. Instead, the depot's GreenRoad champion is going out and observing driving techniques and then cross referencing against regen statistics from the vehicle monitoring system. Advice can then be given on what the driver can change to achieve upper levels of power regeneration. The reward is high. A 5% increase in regenerative power over a

12-month period could be worth around £1 million in saved power costs.

Electric future

I asked Darren whether increasing the electric fleet is still on the agenda following the failure to secure funding for vehicles for Peterborough under the recent ZEBRA2 competition?

"We have no plans to order any electric vehicles for Stagecoach East through Stagecoach-led capital investment. We need to work with the Combined Authority and partners. Investment in electric vehicles is commercially challenging without external support. But there may be opportunities to increase the fleet when perhaps electric vehicles with other Stagecoach companies are made available for cascade in the future," he answered.

As for Peterborough, the bid was also supported by a new bus depot. Darren says that work is still ongoing with Peterborough City Council to bring that project to fruition. He added that any new depot would be designed for future electric vehicle operation and could also benefit from green power generated from Peterborough's residents' and business waste.

The passenger offering

During our chat, Darren touched on the challenges of growing passenger numbers against a wide range of challenges.

OPERATOR UPDATE / STAGECOACH EAST

Buses in Bedford, as well as those operating on the Cambridge Busway, will receive QR code readers to speed up boarding time for users of e-tickets. **STEVEN KNIGHT MEDIA**



Darren Roe, Managing Director at Stagecoach East. **STEVEN KNIGHT MEDIA**

Passenger numbers have plummeted across the region post-Covid with a recovery being hampered by delays and cancellations caused by several factors, most outside of the control of Stagecoach.

Service frequencies on city routes in Cambridge and Peterborough were reduced from 10 minutes to 12 minutes and then in many cases are now based on a 20-minute frequency. The reality is that there are fewer passengers overall but more passengers using each bus. That in itself can make loading slower, and here Darren says there is more that his team can do. Smarter ticket machines are one option, but in the interim buses operating on the Busway and also from Bedford depot are being fitted with QR readers. This will allow the automatic scanning of e-tickets, rather than then having to be shown to the driver. This will also allow better data capture on bus use and as a benefit also help reduce fraudulent travel.

Longer term, Darren wants to make a promise to his passengers that they will never have to pay more than they need to for bus travel. That is likely to be based around fare capping for contactless payments. Stagecoach East was working on a national pilot scheme which was due to be launched in Peterborough in the summer of 2020, but it was scrapped as a result of the Covid pandemic.

An increase in ticket prices, other than single fares and Cambridge park & ride return fares was announced in April. Drivers on the park & ride route proactively ask how many passengers are in a group when they board, selling them the most appropriate ticket. On the weekly

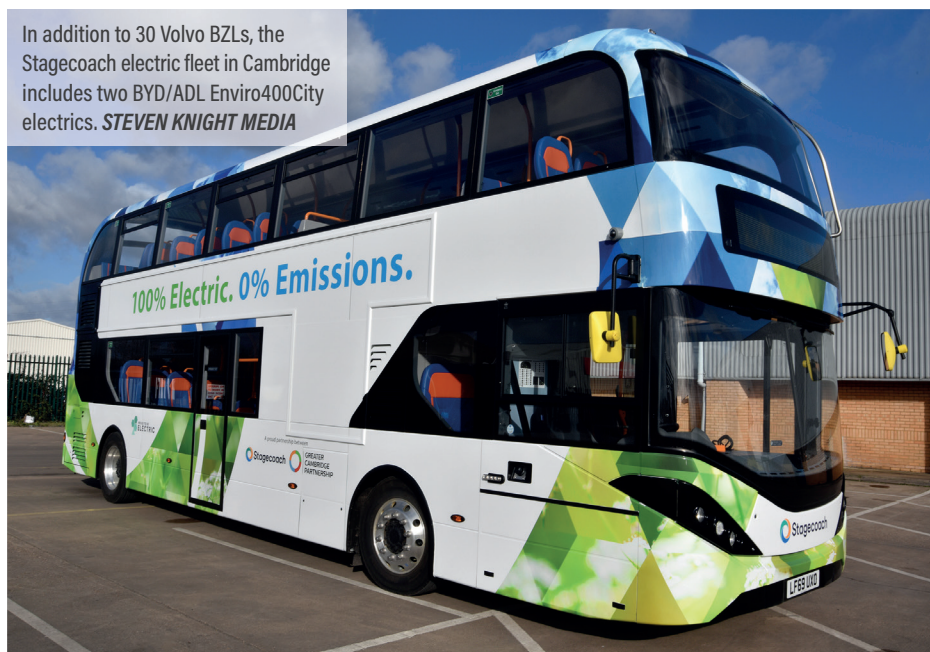
and longer period tickets, where prices have increased, Darren's team has tried to point out that over the last five years these tickets have increased at less than the inflation rate, so have effectively seen a reduction. However, it is unlikely that a passenger who has to pay an extra £1 for their ticket will recognise that scenario. It is a brave attempt at putting the increase into context, but one which might prove hard to sell to media, stakeholders, and customers.

One of the biggest challenges in terms of post-pandemic recovery is finding innovative ways to increase passenger numbers against the continuing trend of working from home and online shopping. "One area where we want to get passengers back on board is the concessionary travel market. The local authorities can help us

do that. There needs to be an awareness campaign. They can help with that. They spend quite a lot issuing the concessionary passes, so it is in their interest to help promote their use." Currently concessionary travel is only at around 65% of pre-pandemic levels and passenger journeys in the year to April 2023 came in at 27.3 million, a reduction of 17% on the 33 million recorded in the year to April 2019.

But there is also another issue at play that could scupper passenger number recovery at a stroke. It is something that Darren and his team are passionate about and are actively fighting the passengers' corner. Congestion is resulting in reduced bus speeds which ultimately results in longer journey times. "Road works and the disruption they cause are one issue but

In addition to 30 Volvo BZLs, the Stagecoach electric fleet in Cambridge includes two BYD/ADL Enviro400City electrics. **STEVEN KNIGHT MEDIA**



poor traffic management, irresponsibly parked vehicles, and reduced road space as a result of more cycle lanes is impacting on my ability to provide a reliable and punctual bus service,” he explained.

“We want to work with local authorities and councils to help us provide the best bus service we can, but to do that we need them to engage with us and support us. I am always available to meet with them. Offering free parking in the middle of an already congested city does nothing to promote use of the bus,” said Darren.

He continued: “When buses are delayed and the gaps between them gets bigger, we are constantly being told we should put more buses out there. If we added 10 more buses onto our Cambridge routes it would cost us £1.5 million a year and at an average revenue of £1.70 per passenger, we would have to carry an extra 882,000 passengers a year. Extra passengers who are currently just not there.”

The effects of congestion and the reduced passenger numbers has meant that Darren and the team have been forced to take some drastic measure over the last couple of years to help balance the books.



The management team at Stagecoach East is adapting best practice from National Express Coventry by improving driving trends to increase the levels of regenerative power. **STEVEN KNIGHT MEDIA**

The biggest drop off in passengers had been on inter-urban rural routes, which tended to be operated from small satellite depots. These operations could not be sustained and were withdrawn, although the Combined Authority did step in and awarded supported contracts which provided financial support.

I left Darren and the team and took a

quick ride on one of the Volvo BZLs; 12 months on from their introduction they remain a flagship product for Stagecoach East. It proved to be a smooth and quiet journey on a warm bus on a cold day which remained well presented, and it was maybe possible to work out when the driver was helping to recharge the electrical system. //

