Notes from E&E Select Committee Site Visit to Metroline Potters Bar Bus Garage – Wednesday 13 September 2023 – 11am – 12.00 noon.

E&E Members present:

Chair – Cllr Rob Broom
Vice-Chair - Cllr Adam Mitchell
Cllr Graham Snell
Cllr Jim Brown
Cllr Conor McGrath

Meeting with Metroline Bus Garage Manager, James Wright.

Members were shown the Mark 1 original electric buses 2019 model, the Mark II 2022 model and the electric charging points infrastructure at the garage.

The Metroline Garage operates buses under a Transport for London franchise model. They are paid per mile, not on the number of passenger journeys completed. James said that the franchising model is very expensive for the commissioning authority. However, the franchising model does give local authorities more say in local services , with a likelihood that more services would be sustained , which are marginal when trying to run at cost .

Metroline bus garage has a fleet of 109 Buses:
29 Electric
40 Hybrid
40 Diesel

There are 3 main manufacturers of electric buses serving the UK market:

Wright Buses a Northern Ireland based Company
An Anglo-Indian Company
BYD (Build Your Dreams) Chinese Company

Metroline buses are built by Wright Buses, Northern Ireland. Each bus costs circa £500k but can be cheaper if bought under a larger order. The lifespan of the electric bus is estimated over 14 – 16 years old, but this is uncertain given the unknown battery life. The Life cycle of a diesel bus is typically 12 years.

The first-generation electric buses (2019) have already been made obsolete by the second-generation model. The reason the first-generation model was not being continued was down to reliability issues. The batteries struggle to recharge in extreme weather conditions both hot and cold. Depending on the ambient temperature, in certain conditions safety features in the battery charging unit/batteries shut down if the ambient temperature is too hot (anything above circa above 30 degrees Celsius). Also, in extreme cold the charging capacity and range was greatly reduced.

There was a problem in the industry on settling on a universal charging infrastructure, all the main 3 companies had their own equipment and they were not compatible with each other. The industry was working towards a common type so that this would reduce costs and make the market more competitive.

The weight of the batteries was a problem. Mark 1 Electric Buses were 11 metric tonnes and Mark II were 13 tonnes. This causes problems in the mark 1 model, as all the batteries were housed over the rear axle, which caused difficulties for manoeuvrability, with a poor turning circle. In the Mark II model, although heavier, this had been overcome by displacing the weight around the vehicle (around the luggage rack at the front of the bus, behind the driver and under the stairs and in the rear of the vehicle).

The Charging period was between 6 to 8 hours and were done overnight.

The range of the vehicle varied. At best the second-generation mark II model was 175 miles, on a cold day this was reduced to 109 miles. The best performance of the first-generation buses was 150 miles. Electric Buses do not perform as well in hilly areas. Single deck buses and smaller buses perform very well with electric transmission. James Wright suggested that electric vehicles suit large cities where their range is limited, for rural areas electric range would be more of a challenge. Members concluded that given Stevenage's small geographic area smaller electric buses would suit 30 minute circular routes around the town, but bus routes that take passengers further afield to other towns in the county, such as Hatfield, St Albans and Watford may be less successful for electric vehicles.

Electric Buses were popular both with drivers and passengers. They are easier to drive, with no gears or clutch, but take a time to adjust to as the acceleration is very fast compared to hybrid and diesel buses. They are quiet and far less hot than diesel models which generate a lot of heat which is unwelcome in the hot summer months. Anecdotally, some passengers wait for the electric bus as the journey experience was far superior to the equivalent diesel with a cooler, quieter, smother ride.

The manufacturers and operators are clearly trying to make the use of buses a more pleasant experience. With small improvements like the USB points, and more space for wheelchairs, and more use of audio announcements for information on which stop the vehicle is at. There was an obvious pride in the cleanliness of the vehicle.

Regarding other power transmissions, at a separate Metroline garage there are 10 Hydrogen powered buses, but these are often off the road due to a lack of access to a steady supply of hydrogen fuel. The Hybrid electric and diesel models perform well. Metroline have no experience of using any biofuels in their vehicles. It was presumed that the reason they had not used this was down to the price point of the fuel compared to diesel.

Bus drivers take 2 months to train and Metroline had experienced the same recruitment and retention issues that Arriva had. Electric buses have speed limiters and telematics on board to regulate speed and monitor driving.