

Electric dreams

Can electric vehicles be used to transport goods rather than people, and help achieve cleaner urban logistics? **Matthew Noon** takes a look at the availability of electric freight vehicles and its implications for local energy grids

Whether it is apples for the school lunch, arthritis medication for your mother, milk for the fridge, new pipes for the plumber, or the delivery of the birthday gift from your brother, none of this could occur without vans or trucks to move the goods.

Vital to the functioning of our cities, but often overlooked in the day to day activities, the freight sector is essential to urban living. While a lot of consideration and thought has gone into reducing the impact of private motoring, particularly through improvements to public transport and cleaner vehicles, the freight sector has generally been left behind.

The European Commission's co-funded FREVUE project (Freight Electric Vehicles in Urban Europe) demonstrates how electric freight vehicles (EFVs) can achieve clean urban logistics. The project will show that EFVs can be an economically and environmentally efficient solution to achieving emission free urban logistics. FREVUE is now reaching its halfway stage and initial findings are extremely positive.

With a range of vehicles from small vans such as the eNV200, medium sized trucks such as the UPS/TNT vehicles and up to large 19t trucks Heineken truck these vehicles have been running for tens of thousands of kilometres with no difficulty and no tailpipe emissions.

Two key issues have already been identified that are of growing



importance and need to be resolved if we are to achieve the European Commission's goal of CO₂-free city logistics by 2030:

- 1 Vehicle Supply
- 2 Energy Grid

VEHICLE SUPPLY

The FREVUE project involves logistics operators from across Europe with fleets ranging from the tens into

the thousands of vehicles. As such, our partners are representative of all aspects of the industry.

The main problem that they have all faced however, particularly in the <3.5t range, is a lack of vehicle supply.

For anybody watching the commercial vehicle market, the potential for low or zero emission commercial vehicles is huge:



Rotterdam is one of Europe's most innovative cities in terms of its use of electric vehicle fleets (UPS, left, and refuse collection, above)

- Poor air quality in our urban areas is of increasing concern
- Corporate policy and environmental reporting is seeing more businesses focus on their environmental emissions along the whole value chain
- Cities across Europe are introducing low emission zones
- Urban duty cycles are well placed for electric vehicles due to the limited overall daily range requirements
- Depot based operations make introducing the charging facilities very simple
- Although currently depressed, prices (and volatility) in the oil markets significantly impact the cash

flow and balance sheet of operators whereas electricity prices are extremely low and stable.

The size of the commercial vehicle market across Europe is huge. 1.8 million new commercial vehicles were registered in 2014 with over 80 per cent (1.5 million) in the <3.5t range followed up by 280,000 in the 3.5t – 16t range. With large numbers of these used in urban operations the potential for manufacturers providing for this sector is huge. So where are they?

While the small electric van market is growing this segment is relatively limited to service industries and small parcels. The big potential is in the 3.5 to 7.5t range. When our partners have sought to buy electric vehicles in these sizes however, they have been hampered by a lack of supply. In fact, partners including global operators such as UPS and TNT have been forced to retro-fit existing vehicles rather than buying new.

As with any discussion concerning electric vehicles, the traditional chicken and egg problem also exists

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in this aspect of the market. While small manufacturers do produce vehicles in these sizes they are hampered by low volumes resulting in higher unit costs (after accounting for additional costs of batteries and motors) and they often do not have a robust after sales support mechanism comparable to other models. This, in most commercial settings, compromises the overall business case or introduces an unacceptable level of risk.

SO WHAT CAN BE DONE ABOUT IT?

Firstly, the main vehicle manufacturers (OEMs) need to be clear about their future plans for electric freight vehicles. If they do not see a commercial opportunity for themselves, this needs to be made clear so that the market can respond. Anecdotally, some logistics companies have said they are waiting until the major manufacturers produce the vehicles before committing. If that is not going to happen, this would allow smaller manufacturers to capitalise on this demand.

The average age of light and heavy-duty commercial vehicles on European roads in 2009 was 12 years. With only 15 years before the 2030 target date of CO₂ free urban logistics is reached, the vehicles that are now being introduced will, in all likelihood, be around by the target date. Unless significant numbers of new vehicles come onto the market in the next few years, we will either be faced with missing the target (except perhaps in leading cities) or imposing significant costs on the freight industry to adapt



Dutch logistics firm Bring use a fleet of electric Peugeot Partner vans

in a short period of time.

Secondly, leasing companies need to respond to the challenge and increase the number of EVs available. Many leasing companies have avoided EVs over concerns about maintenance and the expected residual value of the vehicles. There is growing body of evidence showing that maintenance requirements are particularly reduced compared to ICE vehicles which is also helping to lower costs. While some maintenance will still be required, a leasing agent with trained technicians can also address the after-sales support needs due to the greater volume of vehicles operated.

While residual value may still be a factor, new business models are being developed and as introduced by Nissan with the battery replacement schemes such as for the eNV200, allowing greater certainty.

Lastly, look to support and raise

awareness of leading freight generators who are now specifying zero emission electric vehicles for their logistic requirements. Whether that is in the luxury good sector such as Gucci's deal with TNT express or the local florist who delivers with an electric van, make customer demand underpin the transition.

ENERGY GRID

While the European and domestic policy agenda are promoting emission free vehicles, for which electric vehicles are perfectly suited, there is one significant threat to a successful transition – the energy grid.

One of the strengths of electric over other alternatively fuelled vehicles is that the refuelling infrastructure is already in place. The distribution network for electricity is comprehensive, effective and efficient, allowing for electric vehicles to be recharged wherever there is a socket. However,

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