

ELECTRIC DREAMS

The uptake of electric vehicles will be limited until a proper charging infrastructure is in place. Sara Bean talks to Giles Benbow of Actemium and Phil Russell of VINCI Facilities, who are working together to offer FMs practical, cost-effective solutions

So far the electric vehicle (EV) has been largely seen as a niche product, but it looks as if 2020 could be the year it goes mainstream. Most of the major automotive manufacturers are joining the likes of Tesla to produce fully (not hybrid) electric cars.

The costs are still higher than regular petrol and diesel fuelled cars, but this is changing. Registrations of battery electric cars have been increasing (see References, note 1), with year-on-year growth of 2,720 units. This is set to accelerate following Prime Minister Boris Johnson's announcement⁽²⁾ that the government plans to bring forward an end to the sale of new petrol and diesel cars and vans from 2050 to 2035 (or earlier if a faster transition is feasible) – and for the first time this policy is to include hybrids.

With the government promising to continue to work with all sectors of industry to accelerate the rollout of zero emission vehicles, and all major automotive manufacturers now working on electrifying their ranges, the next big step forward will be ensuring that there is an infrastructure in place to enable EV drivers to conveniently recharge their vehicles.

According to the latest statistics⁽³⁾, the total

number of UK locations with a public charging point is 10,815. However, a report by the Committee on Climate Change (CCC)⁽⁴⁾ argues that this is likely to rise to 27,000 by 2030. Now, with the government going all out to ban even hybrid cars, the Society of Motor Manufacturers and Traders⁽⁵⁾ has argued that “to encourage the adoption of electric vehicles, consumers must find charging as easy as, if not easier than, refuelling.”

This is where the facilities management sector can help. VINCI Facilities and Powertest are working in partnership with Actemium EV (a VINCI Energies company) to provide complete EV solutions across the UK. A recent high-profile project was a landside fast charging system and rapid charging at Birmingham airport to fuel a new fleet of all-electric Volvo buses – one of the first schemes of its kind in the UK.

Actemium has been working in EV charging infrastructure since 2011. During this time it has delivered the largest 450kW DC dealership charging network in the UK, 34 140kW high-performance charging sites for a major EV manufacturer, plus the largest single UK workplace charging site and an equivalent UK residential charging site.

Giles Benbow, e-mobility consultant for Actemium, has been involved in the installation of electric car charging points since 2012. He moved to Actemium in 2017, where his enthusiasm for EV is the motivation to ensure the installation of as many charging points as possible to facilitate the uptake of electric vehicles. “Electric vehicles offer significantly lower operational costs,” he says, “and can make a serious impact on the cost of running a fleet. “We have been involved within the e-mobility sector for many years, which has allowed us to refine and focus on what we do best. This includes high-performance charging, fleet and infrastructure planning, power readiness checks and the deployment of AC EV charging infrastructure in commercial and workplace environments.”

For the uninitiated, the idea of EV charging is daunting. Where is it best to recharge a vehicle – home, work, a car park or commercial charging station? And is the CCC right to suggest that 85 per cent of charging points will need to be fast or rapid chargers within the next 10 years?

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Rapid charging is talked about a lot, but it's worth noting that it's only feasible in non-residential locations. The size of the electrical infrastructure required to supply such a device means that rapid charging is not always achievable.

Says Benbow: “AC charging is a relatively simple device, which results in a comparatively low cost [to install]. A DC rapid charger is much more complicated as it handles the power conversion, and as it charges the vehicle quicker, requires a lot more power from the grid. This means that for home and workplaces, we tend to focus on AC charging. At home, usually, we only have access to 7kW. I also consider 7kW as a base level in any workplace environment, which offers around 100 miles of range on four hours of charge.”

WORKPLACE CHARGING

Actemium offers a full range of EV charging services, from initial planning including design to product selection, back office, electrical installation, and civil construction and commissioning. It works together with VINCI Facilities to provide maintenance and support.

Actemium's primary aim is to establish the level of power at the site, and this typically involves a site survey alongside the FM or energy manager. “Once we have determined the amount of power available on site,” says Benbow, “the first question is: what are we trying to achieve? The answer will differ from business to business. A vehicle in the workplace will have different requirements to a fleet of vans, for example.”

The answer to the question helps to set the parameters for the design of the charging array, establishing the baseline performance to meet the objective. “In some circumstances, it's entirely realistic to increase the electrical connection, should the existing supply be too small. However, this may prove to be impossible, uneconomical or completely unnecessary. We have a range of tools at our disposal to assess and deliver load-managed charging



solutions which can provide the required level of charging performance within the existing electrical supply capacity, avoiding potentially costly electrical upgrades.”

He adds: “There is no point trying to charge a car very quickly if it doesn't need to be used for a while – for instance, if it's going to be parked there for four or eight

FINANCIAL INCENTIVES

OLEV (Office for Low Emission Vehicles) is offering a workplace charging scheme that provides support towards the upfront costs of the purchase and installation of EV charge points for eligible businesses, charities and public sector organisations⁽⁷⁾. The scheme is voucher-based and offers a contribution of £500 for each charge point. There's also a plug-in car grant and home charging grant.



The enhanced capital allowance (ECA) scheme enables 100 per cent of installation and equipment costs to be written off against corporation tax in the first year. (An ECA allows a business to write off the whole cost of an asset against taxable profits in the year of purchase.)



hours while you're at work. People assume being futureproof requires fast chargers, but in my opinion we will inevitably have many electric vehicles on the road, so the most futureproof solution is one that can charge the greatest number of vehicles simultaneously. This approach can reduce the inconvenience to the driver and the business, as well as the wasted time of staff members managing their charging."

In addition to designing a charging array in line with the current business requirements, Actemium considers future expansion. "The expansion could be more chargers, or even better, increasing utilisation of the existing asset through software which can alter driver behaviour to encourage more considerate usage of the charging station."

In terms of cost, Benbow says that as a rough guide, in a typical workplace he will consider three to five per cent of parking spaces for EV charging, with average capital expenditure of £10,000 to £20,000. There are financial incentives for businesses interested in installing EV chargers⁽⁷⁾.

The other frequently asked question is how to pay for the power used, given that the end users might range from a director with his own car whose company picks up the tab, a staff member who pays, and a pool car which is invoiced directly.

"We don't want FMs to have to run around figuring all this out," says Benbow, "so we make the system as self-administering as possible, with mechanisms for charging users via smart, intelligent charging stations. These include a physical interface connected to a software suite that can identify drivers and charge the right people."



ELECTRIC FLEETS

Another increasingly important consideration for FM suppliers is the introduction of electric vans into their maintenance fleets. Mitie, for instance, has announced that 20 per cent of its fleet now comprises electric vans. However, the option of a wholesale switch to electric vans remains dependent on the commercial vehicle manufacturers coming up with suitable vehicles.

Says Benbow: "The problem we have at the moment is that consumer electric vehicles sell in more volume than commercial, and at a higher rate, so when you are developing battery technology, it's better to put it in the halo cars than it is to put it in a run-of-the-mill van. In terms of mainstream manufacturers, there is a limited number of viable vans on the market, all with ranges most suitable for inner-city driving. For a mass commercial fleet uptake the commercial vehicles need to develop beyond the city – they have to be fit for purpose.

"By contrast, commercial vehicles like buses have more space for batteries and well-defined routes, so it can be easier to customise the vehicle to the customer's requirements."

With the government using both a carrot and stick to incentivise individual drivers and car fleets to move to EV, we can expect the uptake of electric vehicles and the charging points needed to support them to increase exponentially over the next few years.

Phil Russell, Marketing and Sales Director at VINCI Facilities, says VINCI is responding to what its customers want

as well as looking at ways to embrace the EV revolution among staff and within its own fleet. "The investment is tied into so many factors which are beyond purely financial. It's around sustainability, being green and around your workforce benefits. All this has an invasive effect. This is why we ourselves are looking to upgrade our EV fleet, and we're also waiting for our staff to purchase EVs; once the demand is there, the infrastructure will follow."

VINCI will provide any consultancy required for clients supported by VINCI Facilities, says Russell. "It's important to us that we have Actemium as a subcontractor as part of our portfolio, and that trickles down to the FMs within the contracts. We're increasingly finding that with most of our contracts, there are discussions around EV charging."

As an EV driver since 2012, Benbow agrees. "In terms of the facilities management side of things, I can't see the direction of travel going any other way, especially when you look at the incentives and benefits such as low BIK [benefit in kind] and salary sacrifice schemes. It's such a simple argument to put forward to a company car driver that they can save three to four thousand pounds by choosing an electric car.

"The infrastructure won't be one solution, it will have to be diverse. But the point of mass adoption will be quicker than anyone is anticipating at the moment."

REFERENCE NOTES

- (1) www.smmmt.co.uk/2020/02/uk-new-car-market-falls-7-3-in-january-as-sector-demands-clear-plan-for-2035-ambition
- (2) www.gov.uk/government/news/pm-launches-un-climate-summit-in-the-uk
- (3) www.zap-map.com
- (4) www.theccc.org.uk/tackling-climate-change/reducing-carbon-emissions/how-the-uk-is-progressing
- (5) www.smmmt.co.uk
- (6) www.theccc.org.uk/2014/11/11/going-electric/
- (7) www.gov.uk/government/organisations/office-for-low-emission-vehicles