

Mapping a rapid chargepoint network for London

A consultation is currently underway on the proposed Ultra Low Emission Zone (ULEZ) for London. The ULEZ will help mitigate issues associated with road transport in the capital including pollutant emissions, congestion and noise. Encouraging businesses to switch to plug-in vehicles will be crucial to maximising the benefits of this scheme.

Transport for London has provided funding to the Energy Saving Trust to map a network of rapid chargepoint locations for commercial vehicles operating in the capital. We are seeking fleets operating either conventionally fuelled or plug-in vehicles to take part (at no cost) and help shape London's transport infrastructure.

This document explains:

- The Energy Saving Trust's experience in the plug-in vehicle sector
- The benefits of plug-in vehicles for businesses and the community:
 - Zero tailpipe emissions (both carbon dioxide and substances which reduce air quality)
 - Lower total operational costs when utilised correctly
 - Near-silent operation, improving quality of life in London
- What rapid charging involves and the additional advantages it offers
- How businesses operating commercial vehicles in London can benefit from participating in the Rapid Chargepoint Mapping program and who is eligible to take part.

Energy Saving Trust

The Energy Saving Trust is a social enterprise which offers impartial advice to businesses, public sector bodies, communities and households on how to reduce carbon emissions and save money. Within transport, we influence end users and the supply chain to reduce fuel use and consequently CO₂ emissions.

Our experience in the transport sector includes:

- 10 years delivering programmes on behalf of the Department for Transport to help fleets run more sustainable transport operations
- Delivering the *Plugged-in Fleets Initiative*, a program funded by TfL, DfT and OLEV to increase plug-in vehicle uptake by fleets. More than 60% of the 150 organisations with which we engaged have gone on to acquire a plug-in vehicle or are planning to do so.
- Preparing a report for TfL investigating the feasibility of a rapid chargepoint network to support the introduction of plug-in taxi and private hire vehicles.

Benefits of operating plug-in vehicles

Zero tailpipe emissions

Road transport is responsible for 32% and 27% of total PM₁₀ and NO_x emissions respectively in central London¹. It is estimated that long term exposure to fine particles had an impact on mortality equivalent to over 4,000 deaths in London in 2008². Pure electric vehicles emit zero tailpipe emissions, making them the ideal solution to reduce the impact of road transport on London's air quality.

Lower total operational costs

Plug-in vehicles typically cost 70% less in fuel than conventional alternatives. The Plug-in Van Grant, zero Vehicle Excise Duty, 100% discount from the London Congestion Charge (for vehicles under 3.5 tonnes) and 100% first year capital allowances for purchased vehicles all help reduce total costs of ownership. For many duty cycles, plug-in vehicles are cheaper to own and operate than petrol or diesel equivalents.

Near-silent operation

Plug-in vehicles are almost silent, reducing noise pollution and thereby enhancing the quality of the environment in city centres. This also makes them ideal for night time or early morning deliveries. Allowing more 'out of hours' deliveries can reduce the amount of freight on the capital's roads at peak times, increasing safety for vulnerable road users.



Nissan e-NV200 (left) and Isuzu / Paneltex Zeroed (right) pure electric vehicles

¹ Source: TfL modelling based on the LAEI 2010

² http://www.london.gov.uk/sites/default/files/Health_Study_%20Report.pdf

Rapid charging

London has around 1,400 chargepoints available through the Source London scheme. However, the majority of the Source London infrastructure provides a slow rate of charge which would not fully meet the needs of commercial vehicle operators. 'Rapid charging' involves charging a plug-in vehicle at a rate which would typically supply a medium sized van with an 80% charge in 30 minutes or fewer. This equates to increasing the vehicle's range by approximately three miles for every minute spent on charge.



Rapid chargepoints are compatible with all charging protocols and have tethered cables so drivers don't need to carry a cable in the vehicle.

Benefits of rapid charging

Access to rapid charging offers several additional advantages for commercial vehicle operators and urban planners:

- The limited range of plug-in vehicles on a single charge is no longer an issue given the speed at which vehicles can be recharged. The upper threshold to daily mileage is effectively removed.
- The low 'fuel' cost per mile offsets the high upfront vehicle cost. As more miles are driven, total cost of ownership is lowered compared to conventionally fuelled alternatives.
- Fewer chargepoints need to be installed in total than for a network of slow chargepoints. This diminishing overall impact on streetscape.
- Property owners and developers could host chargepoints and grant access to other users, recovering costs and reducing the amount of street furniture.
- Use of rapid charging technology could lead to the development of commercial vehicles with increased payload at a reduced cost

Project overview

Participating fleets will supply a minimum of one month's telematics or scheduling data recording vehicle movements in the capital. Working in partnership with vehicle optimisation specialists Route Monkey, we will analyse the data to show where rapid chargepoints could facilitate a cost-effective transition to plug-in vehicles. Isuzu and Paneltex are providing technical support for this project, allowing us to consider vehicles up to 12.5 tonnes GVW, in addition to OEM vehicles such as the Nissan eNV200.

Project objectives:

- Map where rapid chargepoints could help individual fleets to switch to plug-in vehicles
- Consolidate data from all participating fleets to map an optimised network across the capital and supply this to TfL
- Provide a tailored report for each fleet showing them where opportunities exist for plug-in vehicle adoption.
- Inform the market by sharing findings with stakeholders including vehicle and chargepoint manufacturers, property developers, land owners, central and local government, TfL and UK Power Networks.

Benefits of participation:

- Free analysis from vehicle optimisation and route scheduling experts Route Monkey
- A report showing where plug-in vehicles, supported by rapid charging, could be cost effective and practical for your fleet
- Enhance and publicise your green credentials by taking part in this forward-thinking program
- Get ahead of the curve in preparation for any potential emissions legislation in the capital and be ready to take full advantage of the latest EV technology.

Data protection:

- Data will be treated with the utmost confidentiality and no records of vehicle movements will be published.

Apply to take part

Applications are invited from fleets currently running plug-in vehicles, or fleets who would consider running them if appropriate vehicles and supporting infrastructure were available. Taking part in this project is free of charge and straightforward. To be eligible to take part, fleets must:

- Operate a minimum of 10 commercial vehicles, of up to 12.5 tonnes GVW.
- Operate vehicles partially or wholly within Greater London. Fleets could be based in London or based elsewhere but operate in London.
- Fleets must be able to supply telematics or vehicle scheduling data for a minimum of one month. This could be historical data or collated from the time of application.

For more information or to apply please contact Fergus Worthy at the Energy Saving Trust on **0207 654 2613** or email Fergus.Worthy@est.org.uk.