MAYOR OF LONDON

Mayor of London / Gnewt Cargo Electric Vehicle Trial

Baseline Report

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Executive Summary

The Mayor of London / Gnewt Cargo trial project (July 2017 to December 2019), examines the performance of a set of innovative electrical vehicles (EVs) used for delivery and logistics purposes in London.

The project is divided up into the following reports:

- **Baseline Report**
- Operational Costs and Environmental Benefits
- Key Barriers Report
- Charging Infrastructure Grid Report
- Q1 Environmental Update Report
- Q2 Environmental Update Report
- Q3 Environmental Update Report
- Q4 Environmental Update Report
- Q5 Environmental Update Report
- Q6 Environmental Update Report
- Q7 Environmental Update Report
- Operational Costs and Environmental Benefits refresh
- Charging Infrastructure Grid Report refresh
- Final Data Analysis Report
- Final Report

This report addresses the baseline exercise carried out using hired diesel vehicles (Nissan NV200 and Fiat Ducato) of an equivalent size to the electric vans to be used in this trial.

It is important to note that the trial EVs are not baselined in this report as they did not commence operations until November 2017.

Baseline data was initially collected over a six-week period during August and September 2017. During a review of the diesel data by Innovate UK during 2019 the robustness and accuracy of the original data for the diesel vehicles collected in 2017 was doubted. This was due to the relatively small data set collected as well as some doubts over the accuracy of the Fleetcarma fuel consumption data. Therefore LowCVP (working on behalf of Innovate UK) conducted an additional test on a Nissan NV200 in September 2019 to obtain further diesel baseline data. Arup have used this new diesel data to provide CO_2 emission factors and fuel consumption for the Nissan and then have estimated the figures for the Ducato.

The baseline data analysis has revealed the following key points:

- For the larger vehicles (diesel for Baseline purposes), fuel economy ranged between 10.7mpg to 35.3mpg, the average mpg for the diesel vehicles was calculated to be 23.45mpg.

- The cost of leasing and operating a diesel van for a year ranges between £9,785 and £10,725 based on the two models used in this baseline.
- The CO2 emissions for the Nissan NV200 were 204.0 gCO2/km and 265.2 gCO2/km for the Ducato.

Introduction

This report describes the baseline data established for the Mayor of London Gnewt Cargo electric cargo vehicle trial project (see Background section for project background) and details the findings from analysis carried out on the data collected from specific diesel vehicles to establish a baseline against which the trial EVs will be evaluated.

It is important to note that the trial EVs are not baselined in this report as the first trial vehicles did not commence operations until November 2017 with additional vehicles added thereafter.

Data was collected to support a number of environmental, economic and other key performance indicators (KPIs). This was completed for the hired diesel comparator vehicles (i.e. Fiat Ducato and Nissan NV200) and will be collected in the next phase on the Nissan Voltia, Nissan eNV200, BD Auto eDucato and Nissan Vic-Young EVs which are the focus of this trial.

Table 1 displays the relevant information associated with the leased diesel vehicles.

Table 1 Diesel baseline vehicles

Vehicle Information	**Diesel**	
	Fiat Ducato	**Nissan NV200**
		
Make	Fiat	Nissan
Model	Ducato 35 Multijet	NV200
Overall dimensions – length / width / height (mm)	4693 / 2050 / 2254	4400 / 1690 / 1860
Gross weight (kg)	3000	2000
Payload volume (m^3)	8.0	4.2
Emissions standard	Euro 6	Euro 6

Included in this report are data collection methods, analysis conducted, assumptions, detailed results and conclusions.

Background

The Mayor of London / Gnewt Cargo Ltd project, which ran from July 2017 to December 2019, examined the impact of larger EVs used for delivery and logistics purposes in London using a range of logistical, environmental and economic performance factors. Gnewt Cargo specialises in delivery of goods using electric, low emission vehicles.

At present, EV fleets tend to comprise purpose built small cars and vans (max. 3.5 tonnes). There is limited production and uptake of larger electric vans such as those comparable to the Mercedes Sprinter (capacity 8.5m³/ payload 1,035 kg). This is in part due to the low production/demand loop as vehicles are often custom built and are expensive to produce and purchase. This project examined the benefits/disbenefits of the introduction of larger EVs to London roadways.

The establishment of a baseline was the first phase of the overall project, intended to provide a comparison against which to gauge the performance of larger EVs during the trial. These impacts were measured, and the results can be found in the relevant accompanying reports. The electric cargo vehicles which formed the subject of this trial were the Nissan Voltia, Nissan eNV200, BD Auto eDucato and Nissan Vic-Young. To evaluate the performance of these vehicles, a baseline for comparison to equivalent size diesel vehicles was required.

To establish this baseline, Gnewt Cargo Ltd hired two appropriately sized diesel vehicles, of comparable size to the new EVs, (see Table 1) and fitted them with the Fleetcarma fleet telematics system. The diesel hire vehicles were operated from 1st August to 15th September 2017 and made deliveries in the following areas of London: Tottenham Court Road / Goodge St. / Fitzrovia, Liverpool St. / Moorgate. It was agreed during the project kick-off meetings that these locations provided a representative sample for the different business areas in London, considering various factors, such as congestion levels and building types.

An additional phase of baseline testing was conducted by LowCVP in September 2019. The test occurred outside London but replicated typical delivery cycles using a Nissan diesel NV200, fitted with the same data trackers.

Additional routes on the original schedule were not used during the trial due to the Fiat Ducato's size; older building infrastructure across some areas of London restrict the vehicle sizes that can deliver to a building. This is especially prevalent where personal deliveries are made and there is no dedicated space for short-term parking of 8m³ capacity vehicles. The routes the vehicles operated on had subtle differences reflective of the variances found across London. These routes were replicated during subsequent phases

of the trial towards the end of 2017 when the first of the new trial EVs commenced operation.

Data Collection Methodology

Data was collected from two main sources, the Gnewt Cargo telematics system operated by 'Fleetcarma' and Gnewt Cargo's own 'Management Information' – referred to as MI hereafter.

Fleetcarma

Fleetcarma is a Canadian-based Information and Communications Technology company which utilises GPS tracking and on-board telematics to automatically log metrics including, but not limited to, fuel usage and efficiency, distance travelled, driver behaviour and, greenhouse gas emissions.

Fleetcarma reports in real-time and static reports can be exported from the web interface covering a desired time-period. Fleetcarma data is automatically uploaded to the web interface meaning mistakes and missing data are rare.

One limitation, however, is that all data on the website is cumulative for the time scale selected. This resulted in a time intensive data extraction process as each weekly report had to be extracted individually; in total, 26 .csv extracts were exported.

The data from Fleetcarma was validated in on-road, delivery cycle simulations in September 2019.

Gnewt Cargo MI recorded driver start, and finish times and the number of parcels delivered by each vehicle each day.

Fleetcarma data was collected from August 2017 to September 2017 for the two diesel vehicles hired to establish the baseline.

Data collected covered the cumulative totals by week, as above.

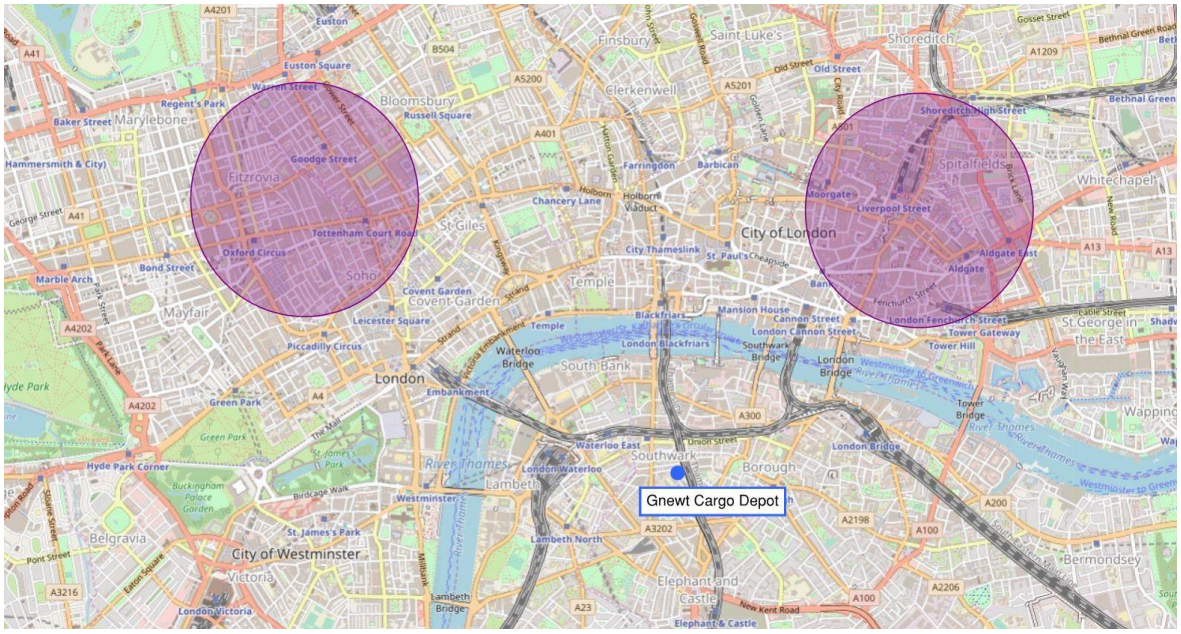
MI data was collected throughout the data collection period, August to September 2017 for the diesel baseline vehicles. This was sent to Arup by Gnewt Cargo in a daily report.

The diesel vehicles were driven in two different areas, each with geographical and infrastructure variances to ensure a comparison could be made with the electric fleet.

The areas covered were:

- Tottenham Court Road / Goodge St. / Fitzrovia – high density of medium to large businesses, largely within the congestion charge zone; and
- Liverpool St. / Moorgate – high-density office buildings (B1 class) within the congestion charge zone.

Figure 1 Map of diesel vehicle delivery areas throughout trial



Both datasets were collated in a custom-built workbook that knitted the two sources together using the registration number of each vehicle. This tool streamlined the data into an *average per metric per vehicle type*, allowing for a simple visual comparison of the range of vehicles.

Furthermore, a drivers' survey was completed by Gnewt Cargo drivers over the duration of the project to ascertain an understanding on how well all vehicles performed from a user perspective.

Challenges

Initial challenges were to streamline the large datasets into a fully comparable, tangible data source for future analysis. This problem was overcome via improved insight into the values, context and definitions of the raw data and clear definition of the required outputs.

Throughout the trial, other technical and logistical challenges were encountered:

- The diesel hire vehicles did not commence activity until August 2017; later than initially planned.
- The keys to one of the diesel vehicles were lost, hence it could not be used for a week.
    - To remedy these issues there was an extension of the hire period until the 15th September 2017 to ensure the required volume of data was acquired.

- Incomplete MI data was supplied by Gnewt Cargo - this was subsequently supplied where the data was available and not protected by the Data Protection Act (1998).
- Instances where Fleetcarma data was missing or incomplete - the arithmetic mean allowed for some data omissions and the reasons for the missing data were investigated by Gnewt Cargo with Fleetcarma.
    - It was subsequently confirmed by Gnewt Cargo that GPS data for short journeys (i.e. a vehicle moving from one building to another building close by) was not always captured due to the tracker device having insufficient time to pick-up the satellite signal.

Initially, clock in and clock out times were not available for the diesel hire vehicles as they were being driven by sub-contracted drivers – to address this, data was manually collected by Gnewt Cargo from the 11th to 15th September 2017.

Data Analysis

Analysis of the Fleetcarma and MI data was split into three main categories;

1. Fuel Usage
2. Time on the road
3. Capacity

Additionally, analysis of the lease cost of the various vehicles, the cost of fuel and environmental impacts was also undertaken.

These metrics allow for a comprehensive review of the various facets of the vehicles and how drivers interact with them.

The mean was used in all data analysis where vehicle types were grouped and was calculated using the raw data sets for improved accuracy.

Assumptions

Throughout the baseline data analysis, assumptions were made to ensure continuity throughout the project.

It was assumed that:

- Parcel size is a standard 'small parcel' (Max weight: 2kg, 45cm x 35cm) (Royal Mail) across all vehicles as they primarily comprise of personal deliveries and online shopping; Parcels were not measured or weighed as part of this project.
- All data distance data from Fleetcarma is correct;
- All the data from MI is correct;
- Drivers drive at the same average speeds; and
- Vehicles are maintained to run at the same standards, regardless of vehicle type.

Charging

At the time the Baseline was being created Gnewt EV fleet charging was completed by plugging the vehicles into a standard charging station[1]. Charging of the fleet was staggered with different start times used to draw electricity evenly from the grid. Charging did not apply to the diesel vehicles in the baseline data collection. The impact of charging larger electric cargo vehicles is covered in the business case report and also addressed in the Grid Analysis and Infrastructure report.

[1] Correct as per September 2017. Gnewt now employ a more sophisticated system.

Emissions Assessment Methodology

Overview

To demonstrate the pollution savings resulting from the use of EVs a baseline emissions assessment was undertaken to estimate emissions from the diesel light goods vehicles (LGVs) over the duration of the trial. These baseline emissions were used throughout the project for comparison purposes.

The assessment considered emissions of oxides of nitrogen (NO_x) and particulate matter less than 10 microns in diameter (PM_{10}). The overall approach to the emissions assessment comprised:

- Review of the Euro standards of the Gnewt Cargo diesel LGVs; and
- Review of NO_x and PM_{10} exhaust emission factors.

Exhaust Emissions

This section provides the results of the calculation of pollution emitted from vehicle tail pipes.

To calculate the weekly diesel vehicle NOx and PM_{10} exhaust emissions in grams, the total kilometres travelled per week were multiplied by the relevant exhaust emission factors from COPERT 5[2]. COPERT is a European database of emissions factors for all vehicle types at different speeds.

For this report, it was assumed that all vehicles had an average speed of 8.4kph. The selected speed of 8.4kph was taken from the observed average speeds of the diesel vehicles in the additional baseline conducted September 2019.

The baseline testing of the diesel vehicles in 2017 was considered insufficient to create a robust estimate of fuel economy, since only 15 days of testing of the NV200 diesel gave approximately 8-10km travelled per day. In addition, the accuracy of the fuel consumption data from the Fleetcarma telematics system was brought into question by LowCVP in 2019.

An additional phase of baseline testing was conducted by LowCVP in September 2019 outside London using an NV200, fitted with the same data trackers and a PEMS[3],replicating typical delivery cycles. The average CO_2 emissions for the NV200 were 204.0 gCO_2/km.

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[2] COPERT 5, https://copert.emisia.com/

[3] Portable Emissions Measurement System

Fuel use by the Ducato from the original baseline was 30% higher than the NV200 in the additional testing. Therefore, the Ducato CO_2 emissions are taken as 265.2 gCO_2/km.

To calculate weekly diesel vehicle CO_2 exhaust emission savings in kilograms, the total kilometres travelled per week were multiplied by the relevant exhaust emission factors[4].

Table 2 below provides the Euro standard exhaust emission factors used to calculate emissions for Gnewt Cargo's trial diesel vehicles. It is noted that both vehicles are in the same LGV class. For the Nissan NV200 and Fiat Ducato exhaust emissions, Euro standard 6 exhaust emission factors were used.

Vehicle exhaust emission factors are dependent on vehicle type, engine fuel type, Euro standard and average speed. Factors such as vehicle age and maintenance will also have an impact; however, these were not considered in this study.

Table 2 Exhaust emission factors for Gnewt Cargo's trial diesel vehicles. NOx and PM_{10} data was taken from COPERT 5 while CO_2 data was taken from the 2019 baseline tests

Vehicle type	Euro standard	Emission factor (g/km)		
		NOx	PM_{10}	CO_2
Nissan NV200	6	1.4	0.003	204.0
Fiat Ducato				265.2

[4] For this report the CO_2 exhaust emissions were calculated based on distance travelled. However, the Operational Costs and Environmental Benefits report adopts the DfT TAG methodology which reports the saved vehicle exhaust emissions as carbon dioxide equivalent. The saved emissions were calculated based on the gCO2e per litre of diesel and the energy use by the NV200 and Fiat Ducato.

Results

Project Data Analysis

Fuel Economy

The fuel consumption of each vehicle was recorded by Fleetcarma to understand how efficient the diesel vehicles are comparably in L/100 km. This figure has been converted to miles per gallon (mpg). To complete this exercise the conversion factor of 282.5[5] was divided by L/100 km per vehicle used over the baseline data collection period.

For the NV200 Fleetcarma gave average fuel economy of 23mpg and the Ducato showed an average of 17.8mpg. As mentioned above, further testing of the NV200 by LowCVP in September 2019, using a Fleetcarma tracker under a controlled simulation, showed a fuel usage of 35.3mpg.

Overall, when combining the fuel economy for all diesel vehicles across the baseline and simulated trial, economy ranged between 10.7mpg to 35.3mpg. Therefore, an average mpg for the diesel vehicles was calculated to be 23.45mpg.

Time on the Road

Time on the road was analysed to assess the operational parameters and limitations experienced by drivers. These were reviewed during operation of the trial EVs.

Table 3 summarises the average start/finish times and Table 4 shows the average loading and journey times.

Table 3 Average driver start and finish times

Vehicle Type	Average Time of Start duty	Average Time of Depot depart	Average Time of Depot return	Average Time of End duty
Diesel	07:18:07	10:10:55	16:13:07	17:12:18

Table 4 Average loading time and journey time

Vehicle Type	Load Time (hrs.)	Journey Time (hrs.)
Diesel	02:52	06:02

[5] AA Motoring. 2017. Calculating Fuel Consumption. https://www.aa.co.nz/cars/motoring-blog/calculating-fuel-consumption/

Capacity

The capacity of the hired diesel vehicles meant they did not need to reload during the day and provided the potential to deliver larger parcel types than those previously received by Gnewt Cargo from HUT Group and Hermes.[6]

It was expected that the efficiency achieved from the increase in size would be similar to that of the new, large EVs as they were of comparable size to the trialled diesel vehicles.

In September 2017, there were 53 Gnewt Cargo small EVs. Based on the average number of parcels delivered, the fleet left the depot with approximately 8,533 parcels daily. To continue a 'business as usual' operational model with new EVs that have a similar average capacity to the trialled diesel vehicles, Gnewt Cargo could theoretically reduce their fleet to 41 vehicles (a 23% reduction in vehicles) whilst delivering the same number of parcels.

Alternatively, Gnewt Cargo could retain the 53-vehicle structure but operate the larger EVs and deliver 10,971 parcels per day (207 per vehicle per day – as per the diesel trial vehicles' performance). This increase in parcel delivery capacity was created by drivers no longer having to return to the Gnewt Cargo depot to reload.

However, it must be considered that the **main limiting factor in delivery capacity remains 'how many parcels can a driver physically deliver'** in a working day? This remains dependent on the proximity of delivery locations to each other and to the depot.

An example of the data collected can be found in Appendix 2.

[6] Correct description of Gnewt Cargo parcel operations as at Baseline exercise 2017

Cost Analysis

In addition to the telematics data and figures reported by Gnewt Cargo, data was collected on the purchase, lease and associated costs of each vehicle type used throughout the trial. This reporting was extended to include the larger trial electric vehicles when they became operational in late 2017 and covered in the Operational Cost and Environmental Benefits report. The two diesel vehicle types used in the baseline can be found in Table 5.

Table 5 Vehicle cost evaluation matrix

Vehicle Information	2017 Baseline Diesel Vehicles	
	Fiat Ducato	Nissan NV200
Purchase Price	£22,554 (inc. VAT)	£19,422 (inc. VAT)
Vehicle Tax (per year)	£250	£250
Lease cost (per month)	£230	£200
Minimum lease term	3 years	3 years
Itemise running costs (per year based on 8,000 miles,)	£2,880	£2,300
Congestion charge (per year based on 5 days per week operating in zone)[7]	£2875	£2875
Maintenance cost (per year)	£160	£160
Tax band	K	E
Insurance Group and cost (per year)[8]	5/£1,800 (approx./per annum)	11E/£1,800 (approx./per annum)

In 2017, on a lease agreement, it would cost a fleet operator £10,725 per year (£893.75 per month) to operate a Fiat Ducato and £9,785 per year (£815.42 per month) to operate a Nissan NV200.

Environmental Analysis

This section presents the calculated emissions from the diesel LGVs over the duration of the trial.

To demonstrate the pollutant savings which, result from using EVs, baseline emissions were used for comparison purposes throughout the project. The baseline emissions were of greatest value and relevance once the trial of larger, diesel equivalent sized EVs began in late 2017.

[7] Shown as separate line item - exemption for EV's ends December 2025

[8] Information supplied by Gnewt Cargo

Calculated Emissions

NO_x, PM_{10} and CO_2 Exhaust Emissions

Tables 6 and 7 present the calculated weekly exhaust emissions for each vehicle based on the weekly travel distances. The exhaust emissions were used for comparison purposes in later stages of the project to determine the pollutant savings realised by the use of EVs. Table 6 presents the calculated weekly NO_x, PM_{10} and CO_2 exhaust emissions for the Nissan NV20. Table 7 shows the calculated weekly NO_x, PM_{10} and CO_2 exhaust emissions for the Fiat Ducato.

The emissions were calculated using the emission factors presented in Table 2 and the recorded travel distances[4]. Total emissions from the Fiat Ducato were higher due to the greater travel distance for this vehicle.

Table 6 Weekly exhaust emissions for Nissan NV200

Week beginning	Total travel distance (km)	Weekly exhaust emissions (g)		
		NOx	PM_{10}	CO_2
30/07/2017	4.0	5.7	<0.1	816.0
06/08/2017	33.3	47.0	0.1	6,793.2
13/08/2017	32.4	45.8	0.1	6,609.6
20/08/2017	21.3	30.1	0.1	4,345.2
27/08/2017	n/a	n/a	n/a	n/a
Average	**22.8**	**32.1**	**0.1**	**4,641.0**

Table 7 Weekly exhaust emissions for Fiat Ducato

Week beginning	Total travel distance (km)	Weekly exhaust emissions (g)		
		NOx	PM_{10}	CO_2
30/07/2017	26.0	36.7	0.1	6,890.0
06/08/2017	399.6	564.5	1.3	105,894.0
13/08/2017	357.0	504.3	1.2	94,605.0
20/08/2017	439.7	621.1	1.5	16,520.5
27/08/2017	149.9	211.7	0.5	39,723.5
Average	**274.4**	**387.7**	**0.9**	**72,726.6**

Conclusions

Below are succinct conclusion summaries for different criteria.

The Baseline is an important first part of the trial and all other reports that support this trial (as shown in the Executive Summary) have drawn from this report.

Fuel

- The NV200 has a higher fuel economy than the Ducato.

Productivity

- In September 2017, there were 53 Gnewt Cargo small EVs. Based on the average number of parcels delivered, the fleet currently left the depot with approximately 8,533 parcels daily. To continue a 'business as usual' operational model with new EVs that have a similar average capacity to the trialled diesel vehicles, Gnewt Cargo could theoretically reduce their fleet to 41 vehicles (a 23% reduction in vehicles) whilst delivering the same number of parcels.
- Alternatively, Gnewt Cargo could retain the 53-vehicle structure but operate the larger EVs and deliver 10,971 parcels per day (207 per vehicle per day – as per the diesel trial vehicles' performance). This increase in parcel delivery capacity was created by drivers no longer having to return to the Gnewt Cargo depot to reload.

Other

- One major consideration was that a fleet of larger EVs would alter the operational processes employed by Gnewt Cargo at the time of the Baseline's creation. This included challenges around delivering to narrow access streets. Implementation of the larger EVs had to account for a bedding in period for the drivers and was supported by standardising procedures for both sizes of EVs to ensure equivalent manageable payload.
- In 2017, on a lease agreement, it would cost a fleet operator £10,725 per year (£893.75 per month) to operate a Fiat Ducato and £9,785 per year (£815.42 per month) to operate a Nissan NV200.
- The CO2 emissions for the Nissan NV200 were 204.0 gCO2/km and 265.2 gCO2/km for the Fiat Ducato. Quarterly environmental reports assess the cumulative impact of the trial EVs on emissions savings.

Appendix A

Gnewt Cargo Driver Survey

The Gnewt Cargo driver survey seeks to understand how the user of the vehicles see performance metrics that affect the drivers comfort and overall driving style.

Survey

1. Please select the type of vehicle you have been driving:

   a. Electric Vehicle (EV)
   b. Conventional Internal Combustion Engine (ICE) vehicle

2. Do you always drive the same make and model of vehicle?

3. Please rate your experience of driving the [vehicle] on a scale of 1 to 5 (1 being very negative and 5 being very positive):

- Performance
- Reliability
- Range
- Maintenance
- Comfort
- Safety
- Ride and Handling
- Cargo Capacity
- Refuelling/Charging
- Parking
- Overall satisfaction

4. What do you like most about the [vehicle]?

5. What do you like least about the [vehicle]?

6. Do you have any additional comments about the [vehicle]?

Appendix B

Trial Data

Extract of Fleetcarma Raw Data

Vehicle	Odometer (km)	Total Distance (km)	Average Daily Distance (km)	Fuel Efficiency (L/100 km.eq)
YCA Nissan eNV200 2017	913	81.6	27.2	3.18
YCA Nissan eNV200 2017	1119	135	33.8	4.57
YCA Nissan eNV200 2017	1300	149.1	29.8	3.83
YCA Nissan eNV200 2017	1497	182.7	30.4	3.56
YCA Nissan eNV200 2017	1744	247.5	35.4	3.44
AXH (MECHANIC) Renault Kangoo Z.E. 2014	37262	29.8	6	1.87
FKF (FD) Baba Nissan eNV200 2014	20272.9	116.7	14.6	2.71
FKJ (FD - Davide) Nissan eNV200 2014	28186.1	90.1	11.3	4.58
FKK Nissan eNV200 2014	29061.1	36.5	5.2	3.63
FKL (FD) Spare Nissan eNV200 2014	41756	426.6	60.9	1.94
HWN (Hermes) Renault Kangoo Z.E. 2014	20900	99.5	12.4	3.98
HWP (Hermes) Renault Kangoo Z.E. 2014	18453	85.9	14.3	4.51
HWT (Hermes) Renault Kangoo Z.E. 2014	16331	23	11.5	3.24
HWV (Hermes) Renault Kangoo Z.E. 2014	16379	40.2	20.1	6.16
HXD (Hermes) Renault Kangoo Z.E. 2014	16206	149.2	18.7	4.24
HXE (DX) Renault Kangoo Z.E. 2014	24805	89.9	11.2	4.94
HXL (Hermes) Renault Kangoo Z.E. 2014	15025	177.6	22.2	3.65
HXO (Hermes) Renault Kangoo Z.E. 2014	17658	149.3	21.3	6.28
HXP (Hermes) Renault Kangoo Z.E. 2014	17010	184.1	23	4.11
HXR (Hermes) Renault Kangoo Z.E. 2014	18118	137.4	19.6	3.86

HXR BD Otto Ducato EV 2017		0		
HXS (Hermes) Renault Kangoo Z.E. 2014	20898	83.6	11.9	3.71
HXU (Hermes) Renault Kangoo Z.E. 2014	21455	114.7	22.9	5.55
HXV (Hermes) Renault Kangoo Z.E. 2014	15777	54.7	10.9	4.47
HXW (Hermes) Renault Kangoo Z.E. 2014	18005	0.1	0.1	26.88
HXX (Hermes) Renault Kangoo Z.E. 2014	19994	54.9	13.7	3.73
HXZ (Hermes) Renault Kangoo Z.E. 2014	16170	100.5	12.6	4.01
HYF (DX) Renault Kangoo Z.E. 2014	28533	142	23.7	4.84
HYH (TNT) Renault Kangoo Z.E. 2014	16535	0.4	0.1	11.26
HYL BD Otto Ducato EV 2017		0		
HYM BD Otto Ducato EV 2017		1.7	1.7	3.32
HZT (Hermes) Renault Kangoo Z.E. 2014	21143	110.3	15.8	6.06
HZU (DX) Renault Kangoo Z.E. 2014	29443	250.6	35.8	3.17
HZV (Hermes) Renault Kangoo Z.E. 2014	16462	158.1	19.8	3.8
HZW (DX) Renault Kangoo Z.E. 2014	26308	76.6	19.1	3.69

Extract of MI Raw Data

Date	Vehicle Reg	Successful deliveries	Attempted	Unsuccessful	Successful pickups	Successful collections
27.11.17	FKL	0	0	0	0	0
27.11.17	HXW	86	1	1	0	0
27.11.17	HXR	271	11	3	2	0
27.11.17	FKJ	58	52	0	0	0
27.11.17	HXT	113	5	0	0	1
27.11.17	UMU	395	14	7	10	3
27.11.17	SUBBIE	567	6	5	6	3
27.11.17	LCN	530	0	5	5	4
27.11.17	HWP	160	64	0	2	0
27.11.17	HZG	103	38	0	0	0
27.11.17	RNF	474	16	0	13	5
27.11.17	SUBBIE	916	0	0	2	3
27.11.17	HXE	117	3	0	0	0
27.11.17	UMM	267	1	0	3	0
27.11.17	UMT	338	0	0	5	1
27.11.17	SUBBIE	277	14	1	4	2
27.11.17	UNK	335	3	2	8	2
27.11.17	HYH	116	27	0	1	1
27.11.17	HXX	212	101	2	1	0
27.11.17	HZV	114	11	0	1	2
27.11.17	HXW	53	66	0	0	0
27.11.17	WWE	236	10	1	3	0

Extract of Arup Master Data

Vehicle	Number of weekly reports	Registration Number		Vehicle Type	Average Weekly Fuel Efficiency (L/100 km.eq)	Average Weekly Fuel Usage (L)	Average Weekly Electricity (kWh)
AXH (MECHANIC) Renault Kangoo Z.E. 2014	7	HN61 AXH	AXH	Electric	1.93	0.00	5.80
FKF (FD) Baba Nissan eNV200 2014	7	LC64 FKF	FKF	Electric	5.21	0.00	22.50
FKJ (FD - Davide) Nissan eNV200 2014	7	LC64 FKJ	FKJ	Electric	3.48	0.00	30.57
FKK (FD - Eigan) Nissan eNV200 2014	6	LC64 FKK	FKK	Electric	4.00	0.00	35.12
FKL (FD) Spare Nissan eNV200 2014	6	LC64 FKL	FKL	Electric	1.87	0.00	52.62
HWJ (Hermes) Renault Kangoo Z.E. 2014	5	LY14 HWJ	HWJ	Electric	4.44	0.00	-0.30
HWK (Hermes) Renault Kangoo Z.E. 2014	4	LY14 HWK	HWK	Electric	4.85	0.00	44.13
HWN (Hermes) Renault Kangoo Z.E. 2014	7	LY14 HWN	HWN	Electric	4.10	0.00	58.79
HWO (Hermes) Renault Kangoo Z.E. 2014	3	LY14 HWO	HWO	Electric	3.93	0.00	42.53
HWP (Hermes) Renault Kangoo Z.E. 2014	7	LY14 HWP	HWP	Electric	4.72	0.00	44.94
HWR (Hermes) Renault Kangoo Z.E. 2014	4	LY14 HWR	HWR	Electric	4.74	0.00	38.05
HWS (Hermes) Renault Kangoo Z.E. 2014	3	LY14 HWS	HWS	Electric	5.86	0.00	15.07
HWT (Hermes) Renault Kangoo Z.E. 2014	6	LY14 HWT	HWT	Electric	1,074.16	0.00	25.13
HWV (Hermes) Renault Kangoo Z.E. 2014	7	LY14 HWV	HWV	Electric	4.54	0.00	39.67
HXD (Hermes) Renault Kangoo Z.E. 2014	7	LY14 HXD	HXD	Electric	4.68	0.00	29.16
HXE (DX) Renault Kangoo Z.E. 2014	7	LY14 HXE	HXE	Electric	4.15	0.00	52.01
HXF (Hermes) Renault Kangoo Z.E. 2014	2	LY14 HXF	HXF	Electric	10.91	0.00	38.65
HXH (Hermes) Renault Kangoo Z.E. 2014	4	LY14 HXH	HXH	Electric	4.60	0.00	51.10
HXK (Hermes) Renault Kangoo Z.E. 2014	6	LY14 HXK	HXK	Electric	4.53	0.00	48.52
HXL (Hermes) Renault Kangoo Z.E. 2014	7	LY14 HXL	HXL	Electric	3.57	0.00	66.40
HXN (Hermes) Renault Kangoo Z.E. 2014	1	LY14 HXN	HXN	Electric	4.44	0.00	98.70

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