

Appendix A: Overview of the Requirement

IMPORTANT NOTE: Please note that market engagement responses may alter KCC's DRAFT requirements and/or proposed form of contracts. The KCC's FINAL requirements of will be shared with Candidates shortlisted to tender as part of the 'Invitation to Tender' stage of the upcoming procurement process.

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General Requirements

The electrification of Fastrack BRT services requires the installation of Opportunity Chargers and associated electric vehicle charging infrastructure (including new substations) to power the future electric Fastrack services at the following three Site locations:

Fastrack BRT Network	Site	Opportunity Chargers
Kent Thameside	Acacia Hall Bus Hub (Acacia Hall Car Park Dartford, Kent. DA1 1JB)	3
	Gravesend Bus Hub (Garrick Street, Gravesend, Kent. DA11 0DW) – <i>One way use as Gravesend Bus Hub is a Fastrack Terminus serving both Fastrack Routes A and B.</i>	2
Dover	Dover Priory Station (Priory Station Approach Road, Dover, Kent. CT17 9SB)	1

Note: More information about these three proposed Site locations for Electric Vehicle Charging Systems at the three Site locations can be found in **Annex A (Maps for Electric Vehicle Charging Systems)**.

Electric buses utilised for delivering Fastrack BRT services will need to be charged primarily using on-street Opportunity Chargers, but will also be partly charged and balanced by the bus operator's depot charger(s).

The on-street Opportunity Chargers need to be connected to an electricity source which can supply sufficient electricity to charge electric buses to support the Fastrack bus operations. This requires electric infrastructure to generate, store, convert (if necessary), and supply the electricity to the charger. Due to the volume of power required for the Fastrack operation a substation will be required. These elements will be referred as the **"Electric Vehicle Charging System"**. A visual illustration of the Electric Vehicle Charging System can be found in Annex A (Maps for Electric Vehicle Charging Systems).

There may also be the requirement for EV Charging Systems and/or additional Opportunity Chargers as the Fastrack BRT networks expand with new residential developments. This scope of the required **asset management services contract** will therefore include the ability for the Parties to, at any time throughout the 15 year Contract period, agree for KCC to place a Purchase Order / Works Order with the Supplier for any of the following services associated with Electric Vehicle Charging Systems:

- (a) Purchase of additional EV Charging System products and works activities.
- (b) Relocation of EV Charging Systems and/or Opp Chargers.
- (c) EV Charging System Equipment Removal and/or Disposal Services.

Note: See section 9 (Optional Associated Services) within the DRAFT Service Specification for asset Management and Maintenance Services.

Proposed Contract Particulars

It is currently proposed that two separate contracts are awarded to together cover the full scope of the requirements:

- (a) **NEC4 Engineering & Construction Contract (ECC), Option A (Priced contract with activity schedule)** – Contract for the completion of civil engineering and electrical works to install and energise the Electric Vehicle Charging Systems (including system design, purchase, installation, and testing) at each of the three Site locations; and
- (b) Separate **Asset Management Services Contract** for the long-term services relating to the on-going management, repair and maintenance, and support services for the Electric Vehicle Charging Systems at each of the three Site locations, where:
 - (i) **Service Commencement Date:** Electric Vehicle Charging Systems must be energised and tested completed at least one month prior to the planned commencement of Electric Fastrack bus services:
 - **Kent Thameside** – KCC is currently engaging with bus operators to push the changeover date from diesel to electric services (from April 2024) to **1 October 2024**.
 - **Dover** – While new electric Dover Fastrack services are currently projected to go live between 1 November 2023 – 1 January 2024, this electric bus service can rely on depot charging for a short interim period until the EV Charging System is ready to go live during **Summer 2024** (ideally by June 2024).
 - (ii) **Initial Contract Term:** 15 years effective from the Service Commencement Date.
 - (iii) **Contract Extension:** KCC shall have the right to extend the Contract Term on one or more occasion (by three months' notice in writing served by KCC on the Supplier) provided the aggregate of any such extensions do not extend beyond an additional 60 months.

Proposed Timescales *(subject to change based on feedback from this market engagement)*

Procurement (Competitive Procedure with Negotiation)	
Issue SQ and SQ period	February/March 2023
Tender period 60 days	March/June 2023
Tender Evaluation / Clarification / Negotiation	June/July 2023
Standstill Period and Contract Award	August /early Sept 2023

	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24
SC22192 (Electric Bus Charging Solutions)	Works Programme: Design & Pre-Construction Phase				Dover Construction Phase						Ongoing Asset Maintenance →				
					Kent Thameside Construction Phase										

Engineering & Construction Contract – Mobilisation (Design & Pre-Construction Phase)	
Starting date.	Early September 2023
Final works programme agreed.	September 2023
Contractor to start National Rail Easement process (12 weeks) – KCC/Contractor to start process with outline design.	September 2023
Contractor to finalise designs for the 3 sites – Contractor then approval by KCC (6 weeks).	September/October 2023
Contractor to place orders for Electric Vehicle Charging Systems, including Opportunity Chargers.	October 2023 (ASAP after Contract Award)

Contractor to submit KCC Planning application for three sites once designs agreed with KCC (2 weeks validation).	October 2023
KCC Planning application process for three sites (12 weeks).	October 2023 – January 2024
UKPN approval process with solicitor for easement for three sites.	September 2023 – January 2024
Network Rail approval process with Contractor for Dover & Gravesend sites (12 weeks).	September 2023 – January 2024

Engineering & Construction Contract – Dover Construction Phase

Access start on site (after approvals from KCC Planning Permission, UKPN, & Network Rail).	January 2024
Civil engineering works – ducting and cabling (5 weeks).	February/March 2024
Installation of Opportunity Charger and substation (4 weeks).	March/April 2024
Completion on site.	April 2024
Testing of EV Charging System with electric buses (5 weeks).	April/May 2024
Go live of Dover EV Charging System.	June 2024 (at earliest) Summer 2024 tbc by tenderers

Engineering & Construction Contract – Dartford Construction Phase

Access start on site (with Approvals from KCC Planning Permission and UKPN).	January 2024
Civil engineering works – Create Acacia Hall Bus Hub triangle, and install ducting and cabling from POC to substation, and from Substation to Opportunity Chargers (4 months).	February 2024 - May 2024
Installation of Opportunity Chargers and substation (2 months).	May – July 2024
Installation of Bus Shelters on Acacia Hall Bus Hub.	May – July 2024
Testing of EV Charging System with electric buses.	July/August 2024
Go live of electric Fastrack Kent Thameside bus services.	1 October 2024

Engineering & Construction Contract – Gravesend Construction Phase

Access start on site (with Approvals from KCC planning permission, UKPN, and Network Rail).	January 2024
Civil engineering works – ducting and cabling (8 weeks).	February – April 2024
Installation of Opportunity Chargers and substation (2 months).	April – May 2024
Testing of EV Charging System with electric buses (5 weeks).	June – July 2024
Go live of electric Fastrack Kent Thameside bus services.	1 October 2024

Summary of Current Expectations

1. The electric system is owned by KCC and generates sufficient electricity to support Fastrack BRT operations.
2. The infrastructure and electric system design maximises the opportunities available to create multimodal electric on-street “opportunity” charging infrastructure at strategic locations on the Fastrack networks.
3. The chosen ownership model allows KCC to access electricity at very competitive prices & allows KCC to own the electricity meter to sell the electricity from the new substation to future multimodal mobility hubs (future electric car club provider, future ebike hire provider, Network Rail/ Dartford future EV infrastructure in their car parks)
4. EV infrastructure needs to be in place at least one month before the start of the new electric Fastrack bus operating services to allow testing with buses & smooth operation from the beginning of the new Fastrack operations services contract:
 - Fastrack Kent Thameside – projected for latest 1st Oct 2024 (current Fastrack contract being extended to no later than end of Sept 2024).
 - Dover Fastrack – new service Start currently projected for Oct- Dec 2023 (the Dover service could start with depot chargers and move to Opp Charger when ready during Summer 24).
5. The Fastrack EV Infrastructure is using ZEBRA funding of 75% of the cost – a way of funding the 25% difference, we are assuming that Fastrack revenue will pay for this as part of the quarterly service charge during the contract. This assumes the Contractor will need to procure the EV infrastructure upfront and charge KCC quarterly over a period.

Design Requirements

Considering the specificity of each the Site locations, the Supplier must design Electric Vehicle Charging Systems which optimises the operational performance of the system, minimises overall life-cycle costs, poses the least risk to delivery timescales (with due consideration made to planning, land owner permissions, site clearance, engineering and construction works, etc.), and gives due consideration to KCC preference to minimise the footprint & visual impact of Electric Vehicle Charging Systems at each of the Site locations.

KCC will expect Tenderers to propose the most suitable on-Site location for the substation and size. Tenderers will be required to submit an outline design for each Electric Vehicle Charging Systems at each Site location as part of the tender response.

All designs must comply with all standards and requirements stated in the Scope and Specification documents.

The Electric Vehicle Charging Systems should provide KCC with total control of the total output of the substations, regardless of land ownership. KCC must have control of the electricity meter and the electricity output from the electricity meter at the substation. KCC must also have the ability to add more electricity meters to the substation in the event that KCC sells the electricity to third parties from the substation in the future.

Managed Repair and Maintenance, and Support Requirements

The Supplier is required to manage and maintain the Electric Vehicle Charging Systems, ensure they remain in good working order and warranties are maintained.

The Supplier is required to ensure that the Electric Vehicle Charging Systems enable the charging of EV vehicles as required by the Fastrack BRT operations for a period of 15 years from the commencement of the electric Fastrack BRT services.

The Supplier's performance will be measured against Minimum Performance Standards (MPS) set out in Performance Management of the Contract.

The Supplier is required to ensure supportive software is provided, functioning and accessible to KCC and shared with other key stakeholders.

The Supplier must produce performance statistics and participate with various groups and forums (such as, but not limited to FUMES) in accordance with the requirements set out in Contract Management & Reporting of the Contract.

DNO Connections for Electric Vehicle Charging Systems

A DNO connection to the main electricity network is required as close as possible to the proposed locations of the Electric Vehicle Charging Systems (including on-street Opportunity Chargers, cabinets, substation equipment, ducting, and cabling). As the **Distribution Network Operator ("DNO")** in the South East, UKPN own and operate the electricity supply for the South East.

KCC has received from UKPN a DNO **Point of Connection ("POC")** cost estimate (including proposed location of POC) for each Site location.

KCC has purchased the ability to connect to POC at Gravesend Bus Hub to enable the Supplier (acting on behalf of KCC) to connect the Electric Vehicle Charging System to the POC. The Supplier will need to work with the DNO and/or an IDNO/ICP appropriate to install the substation connecting to the DNO Point of Connection at each Site location.

Please refer to **Annex A (Maps for Electric Vehicle Charging Systems)**, which includes:

- (a) maps from UKPN showing the proposed location of the DNO POCs at each Site location:
 - (i) Acacia Hall Car Park, Lowfield Street, Dartford, DA1 1JB.
 - (ii) Gravesend Bus Hub, Garrick Street, Gravesend, DA11 0DW (*Please note: KCC's preferred POC location option, dependent on cost, is Option 2 – Clive Road*).
 - (iii) Dover Priory Station Approach Road, Dover, CT17 9SB.
- (b) UKPN's DNO Point of Connection Offer letters for each Site location.

Landowner Permissions

KCC is in the process of obtaining formal permissions from landowners of the sites where KCC plans to install Electric Vehicle Charging Systems for the Fastrack BRT networks:

- (a) **Acacia Hall Car Park, Dartford** – Dartford Borough Council (DBC) currently own the land on which the Electric Vehicle Charging System at Dartford needs to be installed, and KCC is in the process for acquiring this land from DBC by land transfer. This land transfer is expected to be concluded by Contract Award or by Start on site time.
- (b) **Gravesend Train Station Car Park, Gravesend Bus Hub** – Network Rail owns the land on which the Electric Vehicle Charging System at Gravesend needs to be installed. KCC is in the process of seeking to lease this land, or otherwise obtain the required permissions to utilise this land through Easement or Wayleaves. This process is estimated to take 12 weeks from submission of an outline design of the infrastructure. KCC has also signed a BAPA contract with Network Rail ‘Asset Protection & Optimisation’ (ASPRO) to support the delivery of the project and coordinate the Network Rail stakeholders. Additionally, some design and installation work has already been done as part of the Gravesend Bus Hub works that was completed during 2022. Ducting has been installed from Darnley Road along Barrack Row, then up into Garrick Street to the proposed Opportunity Charger location.
- (c) **Dover Priory Station Car Park, Dover** – Network Rail owns the land on which the Electric Vehicle Charging System at Dover needs to be installed. KCC is in the process of seeking to acquire to lease this land, or otherwise obtain the required permissions to utilise this land through Easement or Wayleaves. This process is estimated to take 12 weeks from submission of an outline design of the infrastructure. KCC has also signed a BAPA contract with Network Rail ‘Asset Protection & Optimisation’ (ASPRO) to support the delivery of the project and coordinate the Network Rail stakeholders.

It is KCC’s intention to continue to undertake easement/wayleaves/ lease process with Network Rail as required, and discussions with Dartford Borough Council, in parallel with this tender process over the coming months. KCC considers the risk of not obtaining the relevant permissions, or otherwise acquiring this land, to install Electric Systems in the three sites is to be relatively low.

KCC has contacted National Rail’s Easement and Wayleaves team in addition to their ASPRO team about gaining ‘Easement’ which will give KCC (and the Supplier) authorisation to install the Electric Vehicle Charging System, and have access to the Electric Vehicle Charging System for the duration of the contract period for maintenance purposes.

Landowner & permission process summary – current status:

	Dartford	Gravesend	Dover
Landowner:	Dartford BC currently with land ownership to be transferred to KCC in the coming months to KCC – ongoing engagement	Network Rail (with easement/BAPA to KCC)	
ASPRO Process:	-	Initiated by KCC - BAPA signed Nov 22	Initiated by KCC - BAPA signed Nov 22
Easement / Wayleave:	-	NR property contacted by NR ASPRO team Nov 22	NR property contacted by NR ASPRO team Nov 22

Land Ownership Options

It is KCC's intention to attain a legal interest in land required to procure the delivery of the Electric Vehicle Charging System. KCC is actively progressing discussions with relevant parties to use reasonable endeavours to ensure this can be delivered in timely manner alongside the work programme. However, there is a risk that KCC's internal governance processes and negotiation with landowners may create a possible delay in securing some of the legal documentation required in time for construction.

The Contractor must support KCC in procuring such legal interests as are necessary on the relevant sites in the long term but also support securing permission to construct and energised the system in the shorter term to match the work programme

If required to mitigate risk to delivery, the contractor should demonstrate willingness to enter into such legal documentation as is required in its own name in the short term which is capable of being transferred and/or assigned to KCC in the longer term.

The below scenarios could be envisaged:

Scenario 1	Kent Thameside		Dover
	Dartford	Gravesend	
Existing Landowner	Dartford BC	Network Rail	Network Rail
During 2023 before Civils works can start	KCC by land transfer from Dartford BC. By early Jan 2024	BAPA, easement & wayleaves agreements KCC with Network Rail KCC to initiate and new Supplier to finalise. By early Jan 2024	BAPA, easement & wayleaves agreements KCC with Network Rail - KCC to initiate & new Supplier to finalise. By early Jan 2024
Proposed future landowner arrangements before system can be energised according to UKPN	KCC by land transfer From Dartford BC. By June 2024	KCC by long term lease arrangement with Network Rail 50 years or 99 years for substation. By May 2024	KCC by long term lease arrangement with Network Rail 50 years or 99 years for substation. By March 2024

Scenario 2	Kent Thameside		Dover
	Dartford	Gravesend	
Existing Landowner	Dartford BC	Network Rail	Network Rail
During 2023 before Civils works can start	Dartford BC lease arrangement to allow KCC to build Acacia Hall bus hub and install equipment; OR Dartford BC still owns the land. By early Jan 2024	BAPA, easement & wayleaves agreements KCC with Network Rail KCC to initiate and new Supplier to finalise. By early Jan 2024	BAPA, easement & wayleaves agreements KCC with Network Rail - KCC to initiate & new Supplier to finalise. By early Jan 2024
Proposed future landowner arrangements before system can be energised according to UKPN	KCC by land transfer From Dartford BC. By June 2024	Supplier to sign agreement with Network Rail for long term lease. Supplier to Novate lease agreement between Network Rail and the Supplier to KCC and Network Rail for 50 or 99 years long lease. By May 2024	Supplier to sign agreement with Network Rail for long term lease. Supplier to Novate lease agreement between Network Rail and the Supplier to KCC and Network Rail for 50 or 99 years long lease. By March 2024

Proposed Equipment Ownership Options

It is KCC's preference for Scenario 1 where KCC own all the equipment it is possible to own. Scenario 2 is if there is not enough time to gain land ownership rights from network rail and we would request the Contractor to have a lease arrangement and novate to KCC at the end of the contract.

Scenario 1	Dartford	Gravesend	Dover
Opp Chargers:	KCC	KCC	KCC
Associated Opp Charger cabinets:	KCC	KCC	KCC
Cabling & ducting:	KCC	KCC	KCC
Except cabling from POC to substation:	UKPN	UKPN	UKPN
Substation:	KCC	KCC	KCC
Electric meter & substation electricity output:	KCC	KCC	KCC
Acacia Hall Bus Hub:	KCC	KCC	KCC

Scenario 2	Dartford	Gravesend	Dover
Opp Chargers:	KCC	KCC	KCC
Associated Opp Charger cabinets:	KCC	KCC	KCC
Cabling & ducting:	KCC	KCC	KCC
Except cabling from POC to substation:	UKPN	UKPN	UKPN
Substation:	KCC	IDNO	IDNO
Electric meter & substation electricity output:	KCC	Supplier to arrange Network Rail lease for duration of contract & Novation/renegotiation with Network to KCC after contract for long term year 15 or 20 – 99 years	
Acacia Hall Bus Hub:	KCC	KCC	KCC

Planning Permissions

KCC's Fastrack team has engaged with colleagues in KCC's Planning team to confirm what key elements of this service may require planning permission. KCC's Planning team will advise on full planning application requirement once on detailed design are made available by the Supplier after Contract Award.

KCC's current assumption (*subject to market engagement*) is that the Supplier appointed to provide the EV Charging Systems will act an agent for KCC and apply for Planning Permissions directly on behalf KCC via Regulation 3 of the Town and Country Act, and prepare all the required information directly after Contract Award.

The below table summarises the likely planning permission required:

	Dartford	Gravesend	Dover
Substation size:	1.5 MVA	1 MVA	450/500 KVA
Substation Planning permission requirement:	Likely permitted development [TBC based on Land ownership situation]	TBC based on Land ownership situation	TBC based on Land ownership situation
Opportunity charger Planning permission requirement:	Required if higher than 4m	Conditional Permission already obtained (see Annex G) part of the Gravesend Bus Hub works for 2 Opportunity chargers height 5.5m subject to submission of Construction Management Plan. Variation of Condition 2 required if higher or selected charger has a significantly different footprint.	Permission required if higher than 4m
Other	Required for Bus Hub design (incl. Access / island / shelter)		

Note: Dartford Borough Council's Planning team have provided initial feedback on the outline design which is in Annex G (Gravesend Bus Hub Planning Permission Decision) which includes minimising the visual impact of the Opp Chargers with planting of additional trees which will need careful consideration in the design stage.

Legal Support on Land/Property Matters

KCC has a nominated a solicitor to support in Legal matter related to property and land access on behalf of Kent County Council. The Supplier and the Supplier's solicitor are required to engage directly with KCC's nominated Solicitor as required for property and land matters, involving KCC's project manager in all correspondences.

Funding

KCC has been awarded £9.5m in government funding under the Department for Transport's ZEBRA (Zero Emission Bus Regional Areas) scheme which provides one-off funding towards electrifying Fastrack services, £2.5m of which has been ring-fenced for installing EV charging infrastructure

KCC is looking to purchase five on-street "opportunity" chargers to start with, and then (at the absolute discretion of KCC) purchase a sixth (i.e. the third charger at Dartford) at a later date pending budget allowance (e.g. purchase using revenue generated from Fastrack ticket sales).

There is a separate budget for the additional Acacia Hall civils works

Ongoing repair and maintenance services as well as ongoing electricity costs will be covered by revenue generated from ticketing sales across the Fastrack Thameside network for which ticket prices will be controlled by KCC. The Contractor will need to pay for the EV equipment up front and charge KCC over a period for the EV infrastructure difference after ZEBRA payment in the Quarterly service charges.

Note: The scope of this contract includes on-street "opportunity" chargers only – not depot chargers. The responsibility for procuring and providing depot chargers will sit with the Fastrack bus operator(s) appointed to deliver Fastrack Bus Services across the Kent Thameside and Dover networks.

Electricity Supply (OPTIONAL)

Where the Supplier has offered to provide Electricity Supply to the Electric Vehicle Charging Systems (as an OPTIONAL additional requirement), KCC may, at any time throughout the Contract period, enter into a separate Power Purchasing Agreement with the Supplier for the supply of electricity to the EV Charging Systems.

For avoidance of doubt, KCC will reserve the right not to enter into a Power Purchasing Agreement for the supply of electricity with the Supplier and may otherwise purchase electricity from an alternative electricity provider.

Estimated Electricity Consumption: The initial electricity consumption via the on-street Opp Chargers is estimated to be as follows:

Site	Est. kWh per annum	Est. Average Daily (weekday)
Fastrack Kent Thameside – Dartford	1,816,000	829
Fastrack Kent Thameside – Gravesend	540,000	1,544
Fastrack Dover – Dover Priory Station	290,000	5,187
Total:	2,646,000	7,560

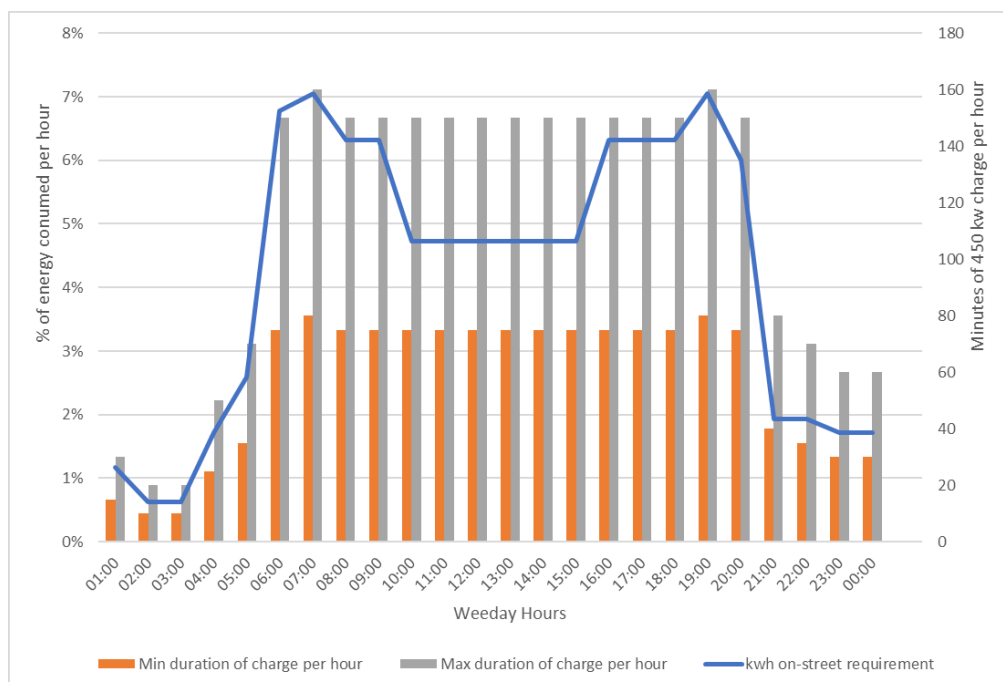
Electricity Consumption Assumptions: The estimation above assumes:

- an average annual consumption of 1kwh per kilometre (representing average weather condition);
- Fastrack route B/C charging strategy in split 50/50 between Dartford Acacia Bus Hub and Gravesend Bus Hub.
- Charging via on-street Opp Chargers will account for 85% of total charging for electric Fastrack buses (with depot charging accounting for the other 15%).

Electricity consumption is expected to increase as and when the Fastrack BRT services expand and excludes any assumption for additional capacity needed for the Customer to sell additional electricity supply from the substation.

Note: These are estimates that will be refined when the electric Fastrack BRT services are operational from March 2024.

Weekday Fastrack Electricity Requirement Profile: The electric buses are assumed to be charged fairly regularly on-street; with up to one charge of few minutes per trip on average (to keep up with minimum charge for battery health) depending on vehicle model and manufacturer. It is understood that on occasions, a charge be this has not been considered in the below estimation. Excluding difference in passenger loads across a day, the probable demand profile of Kw per hour may roughly look like the profile set out in the graph below (blue line) on the Fastrack networks.



An estimation the aggregated opportunity charging time in minutes for each hour is also presented bars. For example, in the hour between 7:00 and 8:00 AM in weekdays, between 80 and 160 minutes of charge will be required across the Fastrack network, split over six 450 kWh opportunity charger units.

Please note the variations in charging time aims to reflect different manufacturers, vehicle models and charging strategies.