# ConnectMore EV Connection Cost Estimator User Guide

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1. Overview

Electric vehicles (EVs) are the future. With the sale of new petrol- and diesel-powered vehicles expected to end in 2030 in the UK, EVs will soon eclipse fossil-fuelled transport. These EVs will need an extensive and reliable power network to meet their needs for recharging.

The ConnectMore EV Connection Cost Estimator (hereafter referred to as the Cost Estimator) is a key deliverable of the Charge Project, an initiative from SP Energy Networks in collaboration with our expert partners, EA Technology, PTV Group and Smarter Grid Solutions. The Charge Project brings together transport and energy planning to accelerate the investment and deployment of public EV charging infrastructure. This will benefit all EV users, whether they live in residential areas with no off-street parking, or are looking for charging facilities en route or at their destination.

The Cost Estimator tool is being delivered as part of an Ofgem Network Innovation Competition project. This means that currently the tool only covers the SP Energy Networks Manweb license area: Merseyside, Cheshire, North Shropshire, and North and Mid Wales.

The Cost Estimator provides up-to-date budgetary price estimations via an online portal. This information is presented through a user-friendly, web-based tool. The tool will allow users to access information quickly and easily. Estimates are provided for connecting to the LV and HV electricity network, allowing everyone to work from the same data. It aims to accelerate the roll-out of charging infrastructure and ensure that EV drivers have chargepoints in both their communities and the places they visit. In addition, the Cost Estimator will provide data that enables users to consider flexible connections where applicable.

This user guide has been developed to offer more information about the data provided by the Cost Estimator and define the terms used within it. It is not intended to provide a step-by-step tutorial; this support is available via the short videos accessible on the Cost Estimator web page. Additional information is included in a Frequently Asked Questions document.
The Cost Estimator generates cost estimations for connecting to a specific point on the low voltage (LV) or high voltage (HV) electricity network. It was designed to be used in conjunction with the ConnectMore Interactive Heatmaps. The heatmaps offer initial information about capacity on both the LV and HV network prior to users requesting a cost estimate. Flexibility regarding the location or size of the connection enables the most economical options for using existing grid capacity to be identified.

The heatmaps can be accessed by going to [http://www.chargeproject.co.uk](http://www.chargeproject.co.uk) and selecting: ConnectMore Interactive Map.

**The Cost Estimator takes the following factors into account:**

- Ground type
- Groundwork
- Distance between the new connection and the network, and therefore the length of new cabling required
- Existing demand and resultant constraints on assets, either direct or indirect
- Cost of new assets required for any network reinforcement, if necessary

**Costs excluded from the quote are:**

- Service alterations
- Land rights
- Traffic management
2. Getting Started

To access the Cost Estimator, go to the Charge Project web page at [http://www.chargeproject.co.uk](http://www.chargeproject.co.uk). Click the ‘Cost Estimator’ button to access the tool. (See Figure 1.)

![Figure 1](image-url)
Once selected, the Disclaimer Page will be displayed. The terms and conditions of ConnectMore and the Cost Estimator must be accepted to progress. (See Figure 2.)

**CONNECTMORE EV CONNECTION COST ESTIMATOR**

**ConnectMore EV Connection Cost Estimator** relates to the electrical network within the SP Manweb plc licence area (Merseyside, Cheshire, North Shropshire and North & Mid Wales). **ConnectMore EV Connection Cost Estimator** will provide an indication of the costs associated with connecting Electric Vehicle (EV) chargepoints onto the high voltage (HV) and low voltage (LV) SP Energy Networks electrical network based on the network capacity (**Electricity Network Capacity**) and connection conditions.

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The costs associated with connecting the EV chargepoint(s) are indicative only and are solely intended to be used as a basis for further discussions and may vary considerably from any further estimates or price in any formal offer that follows.

Please be aware that this estimate is based on a preliminary assessment of the information supplied and does not include any detailed design work or site-specific considerations.

The use of **ConnectMore EV Connection Cost Estimator** does not initiate a connection request and does not offer or guarantee any right of connection.

By clicking ‘OK’, you acknowledge that you have read and understood the information provided above and accept the terms of the above disclaimer.

**Figure 2**
3. Selecting an address

The address input panel is presented at the top of the Cost Estimator page. (See Figure 3.)

Figure 3
This panel enables the user to search for a specific location.

- Searches can be performed using any part of the address, but inputting extra locational information will make the result more accurate.
- Once the correct address is found on the drop-down list, click to confirm. The confirmed address appears on the right-hand side of the screen. (See Figure 4.)
If the address is not listed on the drop-down list, select ‘My address is not listed’. This opens a manual input field on the right-hand side of the window. Type the address required here. (See Figure 5.)

Figure 5

If a postcode is provided for an area outside the licence area covered by the Cost Estimator, the tool will provide contact details for the relevant distribution network operator.

Once the address has been input and confirmed, click ‘Next Step’.
4. Inputting the required capacity

Next, input the capacity to be connected. This will be a value between 0 and 2,500kVA. The capacity input will influence the network information displayed by the Cost Estimator. If a connection between 0 and 250kVA is requested, the LV capacity map will be displayed. If the value is between 250 and 2,500kVA, the HV capacity map will be generated. (See Figure 6.)

Confirm the capacity by clicking ‘Next Step’.
5. Providing site details

1. The map will automatically centre on the address details provided previously and zoom in to an appropriate distance to show the requested area.

2. Zoom in or out using the '+' and '-' buttons in the bottom right corner (See Figure 7.) or pan across the screen using the mouse or touch screen.

3. Once the map is centred on the required connection location, click on the location marker button on the left side of the map. Then drop the marker by clicking on the exact point on the site where the connection cables are to be laid. (See Figure 8.)

Figure 7

Figure 8
4. Click on the base of the location marker already positioned and link the connection location to the point of the electricity network to be connected to. The cable can be routed around obstacles by clicking on a point to change its direction. (See Figure 9.)

If the route drawn goes through an invalid ground type (e.g., buildings, water bodies etc.), the tool will provide a warning prompting the user to amend it.

Warning text in an amber or red box will appear at the top of the map. A guide to these warnings is provided at the end of this document.

**Handy Hint!**

Warning text in an amber or red box will appear at the top of the map. A guide to these warnings is provided at the end of this document.
6. Getting a quote

Once a connection has been made to the existing network, a message will ask the user if they want to proceed with the enquiry. (Figure 10.)

- Clicking the 'Yes' button will generate a cost estimate quote.
- Clicking 'No' will enable the connection route to be amended and the point of connection to be moved. Use the 'Undo' button on the left-hand side of the screen to reverse previous steps.
Further guidance

A new connection can be made to any point of an underground cable (denoted on the Cost Estimator map as a solid line). However, for overhead lines (dashed lines), it can only be made at a pole (symbolised as triangles).

The Cost Estimator Legend (Figure 11.) is always visible. If a network asset is displayed in green on the Cost Estimator map, there is available capacity for connection. If it is displayed in amber or red, limited or no spare capacity is available. For assets displayed in grey, no network data is available.

Short User Guidance text and animation clips (Figure 12.) are available in the right-hand box menu under the Cost Estimator legend – scroll down if the help text isn’t visible at first.

Click on the ‘Feedback’ button to report any problems or queries. (See Figure 13.)
7. Understanding and saving the quote

When the cable route is submitted and the enquiry processed by the Cost Estimator, the following page is returned, displaying the quote, a plan of the design the user submitted, and a note of the voltage drop. (See Figure 14.)

![Figure 14](image1)

To receive a letter confirming the budget estimate, click ‘Save’ on this screen. A prompt will be displayed requesting that the user logs in or registers for access to the SP Energy Networks Customer Connections Portal. (See Figure 15.)

![Figure 15](image2)
Logging into the SP Energy Networks Customer Connections Portal enables the quote to be saved and progressed in the future. The data and inputs used to generate it, including the site map, will be available to SP Energy Networks for reference.

Logging in will also provide access to all SP Energy Networks connection schemes raised by the user. ConnectMore Cost Estimates are displayed with a unique ConnectMore reference number (CM-000). (See Figure 16.)

Figure 16
Clicking the 'View' button will display top-level data for a particular estimate. (See Figure 17.)

![Figure 17](image)

Click the 'Documents' tab to access and download a PDF of the budget estimate, including a plan of the design submitted and a note of the voltage drop.

These details are stored in the SP Energy Networks Customer Connections Portal for future reference.
To progress a budget estimate and apply for a formal quotation, click the ‘Apply Now’ button. This takes the user to the SP Energy Networks Getting Connected web page to complete a formal quotation application form. (See Figure 18.)

**Figure 18**

Press ‘Apply Online Now’.

Any associated explanation and terms and conditions for the progression of this quote will be provided when you submit your query.

If you have any questions about the estimate, how to progress your connection enquiry, or the terms and conditions detailed in the quote, please contact the SP Energy Networks connection team via: Contact Connections - SP Energy Networks

The features available via the ConnectMore tool will continue to be developed throughout the Charge Project. More information about this timeline can be found at [https://www.spenergynetworks.co.uk/pages/charge.aspx](https://www.spenergynetworks.co.uk/pages/charge.aspx).
# Appendix 1 - Useful Definitions

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>Alternating current</td>
</tr>
<tr>
<td>EV</td>
<td>Electric vehicle</td>
</tr>
<tr>
<td>EHV</td>
<td>Extra high voltage</td>
</tr>
<tr>
<td>HV</td>
<td>High voltage</td>
</tr>
<tr>
<td>kVA</td>
<td>Kilovolt ampere – total amount of power used in a system</td>
</tr>
<tr>
<td>kW</td>
<td>Kilowatt – unit of actual power</td>
</tr>
<tr>
<td>kWh</td>
<td>Kilowatt hours</td>
</tr>
<tr>
<td>LV</td>
<td>Low voltage</td>
</tr>
<tr>
<td>Manweb</td>
<td>Electricity distribution licence area covering Merseyside, Cheshire, North Shropshire, and North &amp; Mid Wales</td>
</tr>
<tr>
<td>State of charge</td>
<td>The level of charge of an electric battery relative to its capacity</td>
</tr>
<tr>
<td>V</td>
<td>Volts</td>
</tr>
</tbody>
</table>
## Appendix 2 - Warning Messages

<table>
<thead>
<tr>
<th>Warning Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your cable route has crossed a type of ground where we don’t think you can easily lay a cable (‘invalid ground type’). This may be a body of water, building, railway or private land. Do you want to change your cable route?</td>
<td>Our map data suggests that the connection route you’ve plotted crosses an obstacle that we cannot lay a cable across. If you proceed with this connection enquiry, the quote you receive will not include the cost of laying the cable through this invalid ground type. You will be expected to take all responsibility for this. Do you want to amend the route to avoid the obstacle so that we can provide a quote for laying the cable?</td>
</tr>
<tr>
<td>You are trying to connect to a part of the network with limited free capacity (‘constrained’). To do this may require reinforcement. This means the connection may cost more and there may be a delay before you can get a connection. Do you want to change your point of connection (POC)?</td>
<td>If you can be flexible about your connection point, the location where you want to add capacity, or the amount of capacity that you require, you may be able to connect to our network at a lower cost. If you want to connect the specified connection capacity at the point that you have identified, it will be necessary for us to upgrade some of our network assets, adding cost to your request. Do you want to proceed with the quote you have requested?</td>
</tr>
<tr>
<td>Do you want to proceed this enquiry?</td>
<td>Now that you have plotted a cable route for the proposed connection, do you want to generate a quote?</td>
</tr>
<tr>
<td>Sorry, we were unable to calculate the cost you requested. Please consider an HV connection or contact the SP Energy Networks Contact Team directly on: <a href="https://www.spenergynetworks.co.uk/pages/new_connections.aspx">https://www.spenergynetworks.co.uk/pages/new_connections.aspx</a></td>
<td>The connection point that you’ve suggested can’t accommodate the size of connection specified without complex reinforcement. If you would like to proceed with generating a quote for this point of connection, please contact the SP Energy Networks Contact Team directly. Alternatively, please consider connecting to the HV network.</td>
</tr>
<tr>
<td>Please don’t refresh this page. We are sorry it is taking a little while to calculate the cost you requested. It will be displayed as soon as the calculation is complete.</td>
<td>Occasionally, because of the complexity of the data that we are dealing with, it can take a little longer than we would prefer to calculate a connection cost. We are sorry about the delay; a quote will be displayed soon. Please don’t leave or refresh the page.</td>
</tr>
</tbody>
</table>
Appendix 2 - Warning Messages (cont)

<table>
<thead>
<tr>
<th>Warning Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please don’t refresh this page. We are sorry it is taking a little while to calculate the cost you requested. It will be displayed as soon as the calculation is complete.</td>
<td>Occasionally, because of the complexity of the data that we are dealing with, it can take a little longer than we would prefer to calculate a connection cost. We are sorry about the delay; a quote will be displayed soon. Please don’t leave or refresh the page.</td>
</tr>
<tr>
<td>This connection requires the Primary Transformer to be upgraded. Please contact the SP Energy Networks Contact Team directly on: <a href="https://www.spenergynetworks.co.uk/pages/new_connections.aspx">https://www.spenergynetworks.co.uk/pages/new_connections.aspx</a></td>
<td>The quote that you have requested requires upgrades to the distribution network, involving extra-high voltage works not covered within the tool. Please contact the SP Energy Networks Contact Team directly.</td>
</tr>
<tr>
<td>We are sorry we can’t provide a cost for this connection because we don’t have all the data we need. Please contact the SP Energy Networks Contact Team directly on: <a href="https://www.spenergynetworks.co.uk/pages/new_connections.aspx">https://www.spenergynetworks.co.uk/pages/new_connections.aspx</a> for an estimate or quote.</td>
<td>We are continuing to increase the network covered by the ConnectMore Cost Estimator tool. However, we can’t generate the quote you’ve requested. To proceed with this quote, please contact the SP Energy Networks Contact Team directly.</td>
</tr>
</tbody>
</table>