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**ELECTROVERSE**

**QUARTERLY CHARGING REPORT**

**Q4 2023**

Published January 2024

# QUARTERLY CHARGING REPORT Q4 2023

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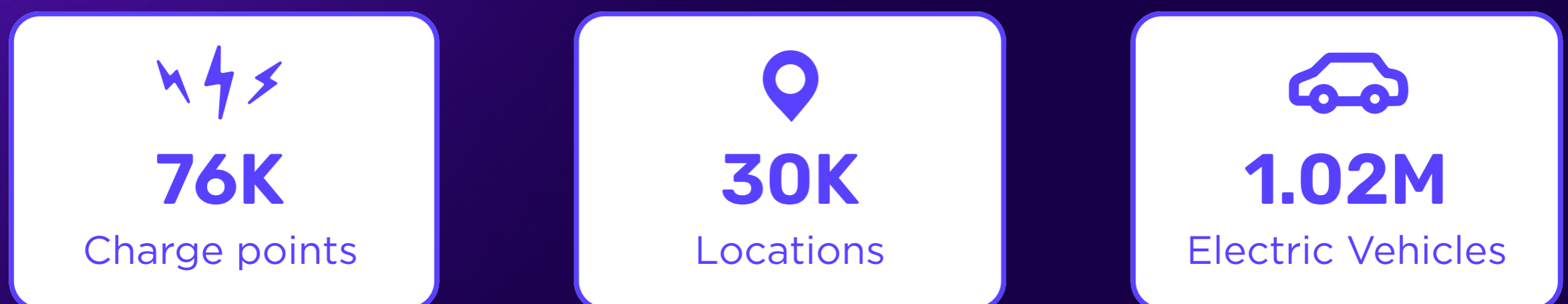
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# QUARTERLY CHARGING REPORT

The UK's public charging infrastructure is rapidly expanding to meet the growing demand and adoption of electric vehicles. **Octopus Electroverse** is offering a closer look at the UK's electric vehicle ecosystem through key public charging statistics.

## UK HEADLINE STATISTICS



Throughout the graphs and statistics in this report, it's useful to understand how charge point 'levels' are broken down:

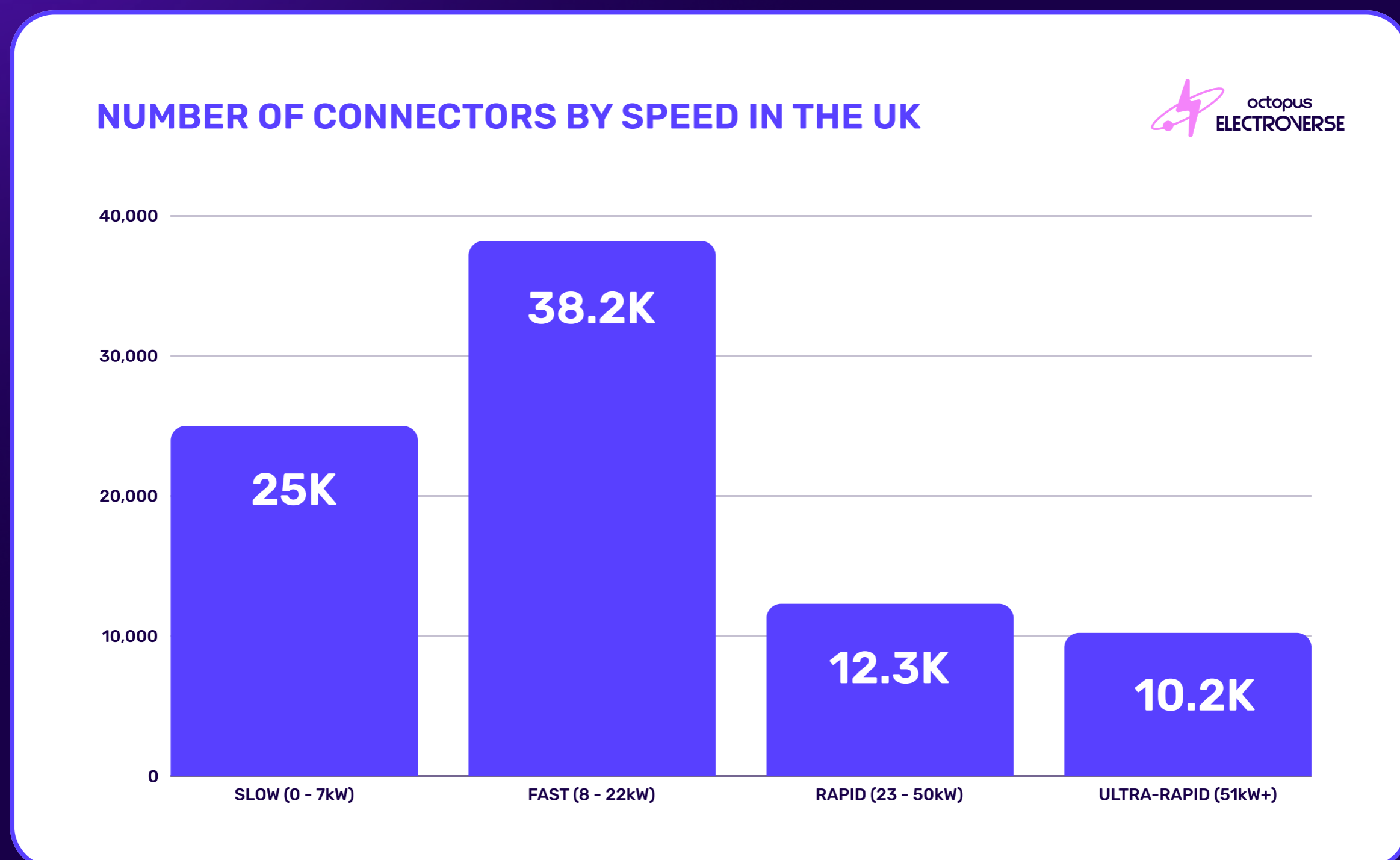
- A **location** refers to a distinct area with charging points, for any one charging operator. For example, a single location could have one lamppost charge point, or it could have six rapid chargers (see p.13 for a visual representation).
- A **charge point** means one piece of charging equipment that can charge one vehicle at a time. In industry terms, this is known as electric vehicle supply equipment (an EVSE).
- A **connector** means the physical connector options on a charge point, such as a Type 2 socket or a CHAdeMO socket. Many charging characteristics are defined at a connector level, such as speed, which is why several of the graphs below are based on connector numbers. There are currently **88,000+ connectors** available in the UK.

At the bottom of this report, you can find a full explanation of charge point definitions, along with some handy visuals and a glossary.

# SECTION 1: CHARGER CHARACTERISTICS

## NUMBER OF CONNECTORS BY SPEED IN THE UK

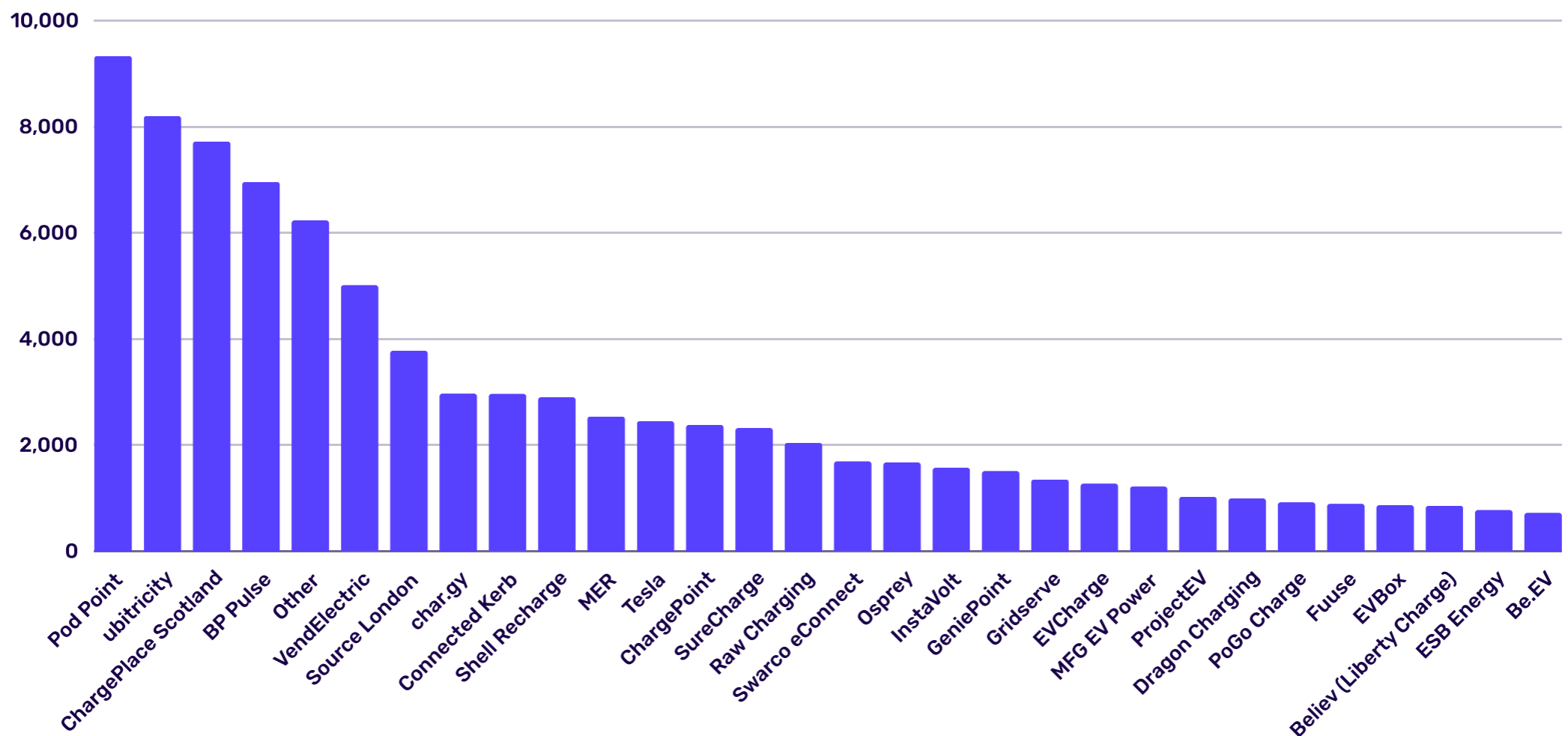
This graph details the total number of connectors in the UK by speed of charging. Speed can vary by connector (e.g. CCS vs. CHAdeMO), hence the need to count speed at a connector level.





## TOTAL NUMBER OF CHARGE POINTS PER OPERATOR

### NUMBER OF CHARGE POINTS PER OPERATOR



## TABLES SHOWING TOTAL NUMBER OF CHARGE POINTS PER OPERATOR

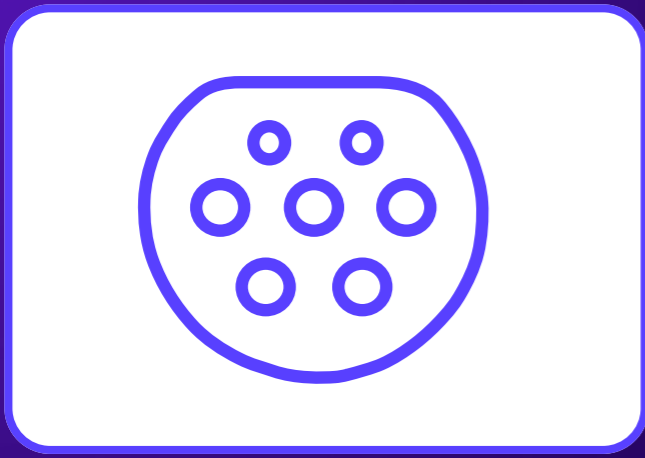
OPERATOR	# OF CHARGERS
Pod Point	9,330
Ubitricity	8,200
ChargePlace Scotland	7,720
BP Pulse	6,960
Other	6,240
VendElectric	5,010
Source London	3,780
char.gy	2,970
Connected Kerb	2,970
Shell ReCharge	2,900

OPERATOR	# OF CHARGERS
MER	2,540
Tesla	2,450
ChargePoint	2,380
SureCharge	2,320
RAW Charging	2,040
Swarco eConnect	1,690
Osprey	1,670
Instavolt	1,570
GeniePoint	1,510
Gridserve	1,350

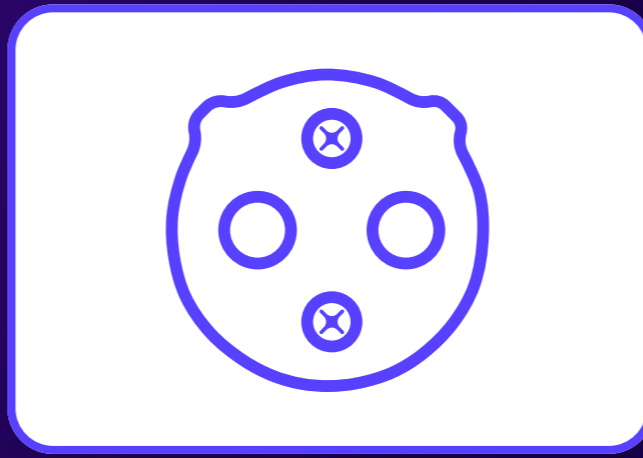
OPERATOR	# OF CHARGERS
EVCharge	1,270
MFG EV Power	1,219
ProjectEV	1,026
Dragon Charging	1,000
PoGo Charging	920
Fuuse	890
EVBox	870
Believ (Liberty Charge)	860
ESB Energy	780
Be.EV	723

# NUMBER OF CONNECTORS BY SOCKET TYPE

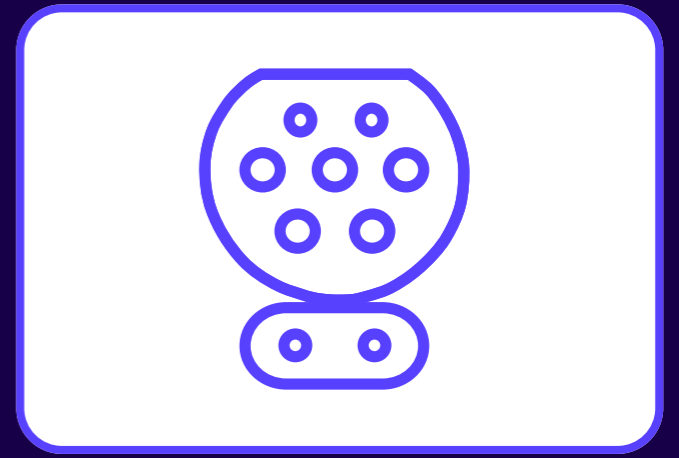
## SOCKET TYPES



**TYPE 2**

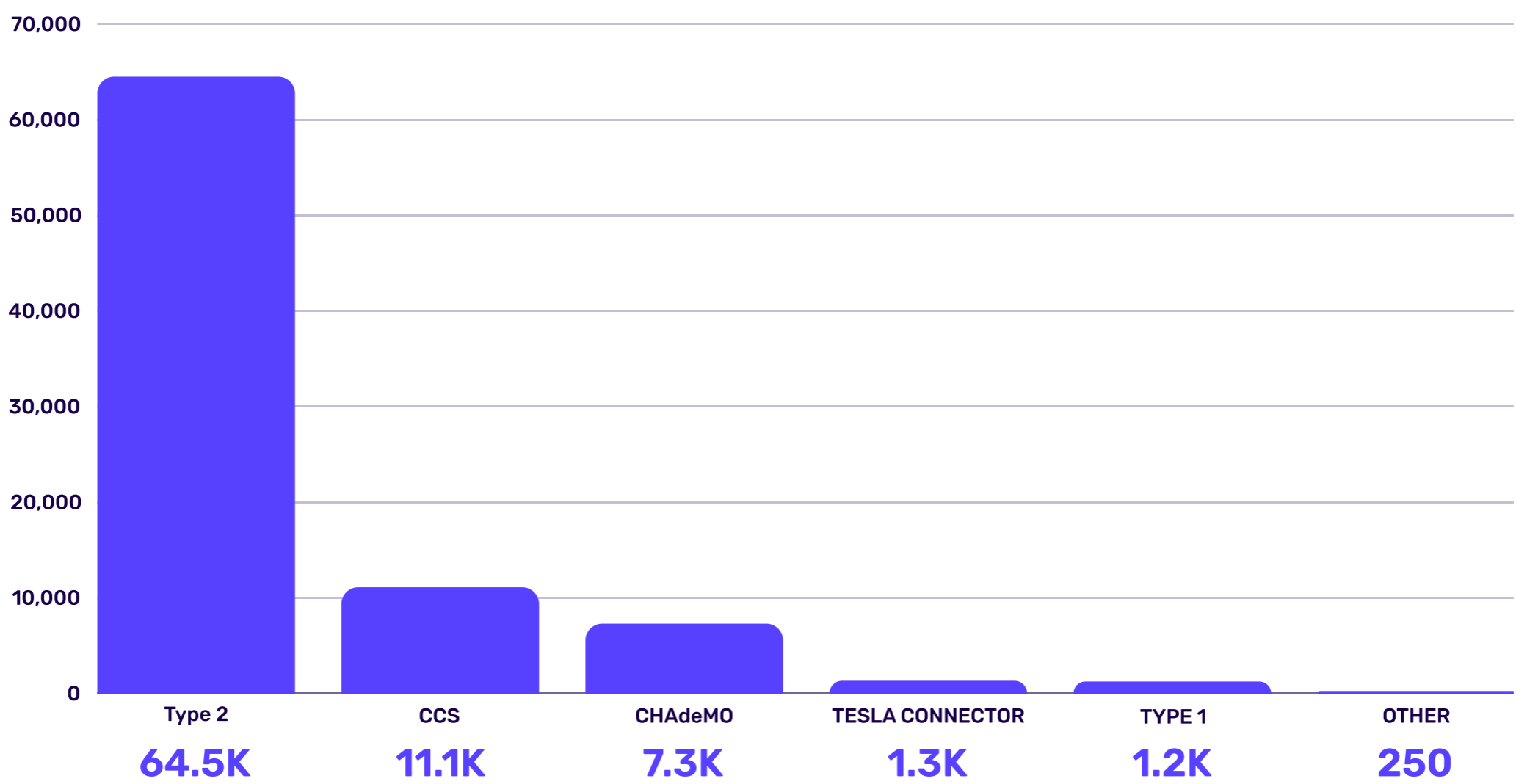


**CHAdeMO**



**CCS**

## NUMBER OF CONNECTORS BY SOCKET TYPE



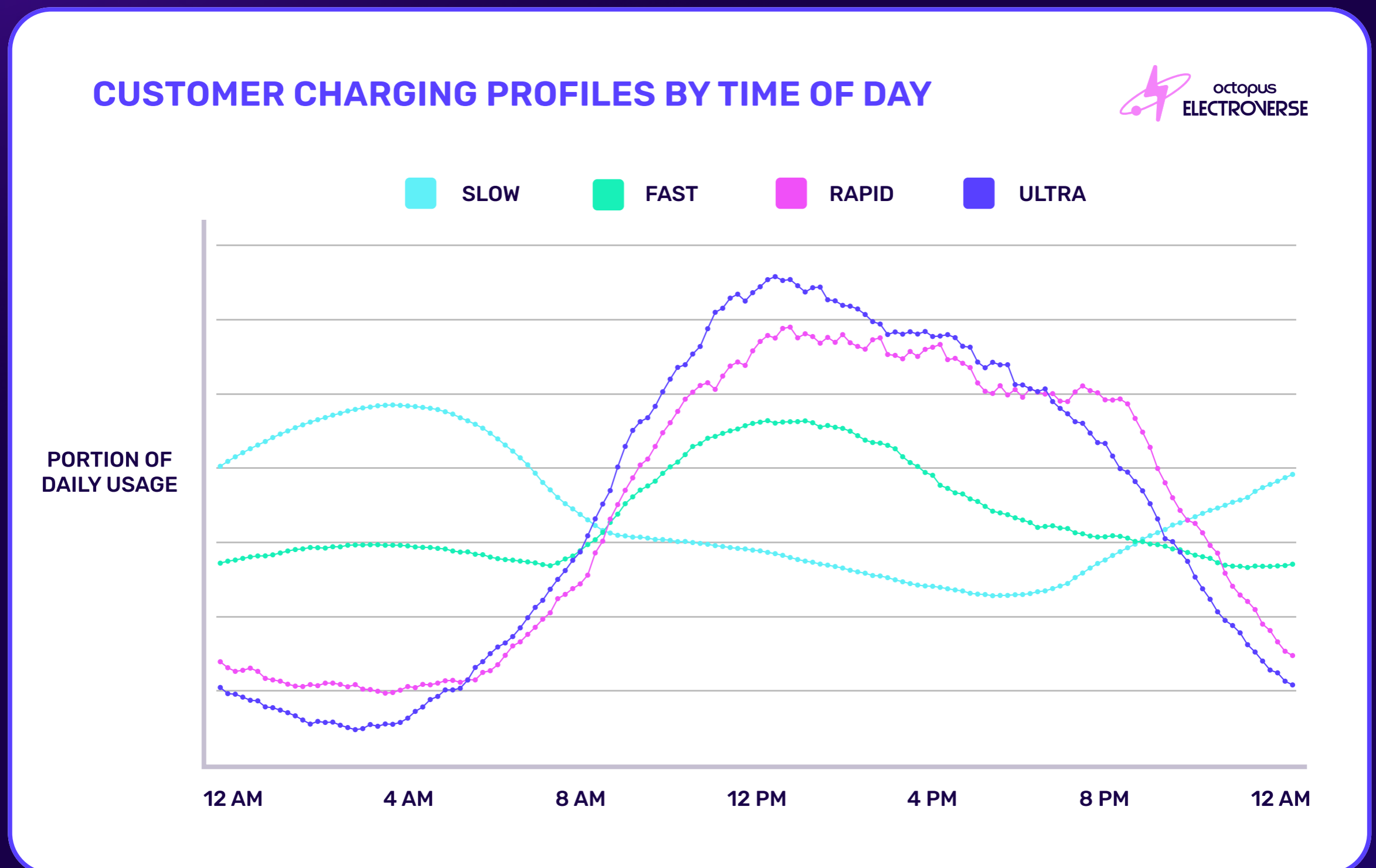


# SECTION 2: USAGE PROFILES

## TIME-OF-DAY CUSTOMER USAGE CURVES, BY CHARGER SPEED

This graph examines when in the day Electroverse customers are using chargers - split out by time of day (illustrated in 10-minute intervals) and charger speed.

Clear differences in time-of-day usage patterns are observed in relation to the speed of a charge point. This graph also provides the opportunity for comparisons against daily energy pricing and energy output, e.g. solar energy production curves.



Based on Electroverse data from October 2023 - December 2023

The utilisation of **slow chargers** demonstrated in this graph reveals a distinctive curve when compared to faster counterparts (**fast, rapid, and ultra-rapid**). Slow chargers predominantly see usage during nighttime hours, and may increasingly be seen as a solution for those without access to home/driveway charging.

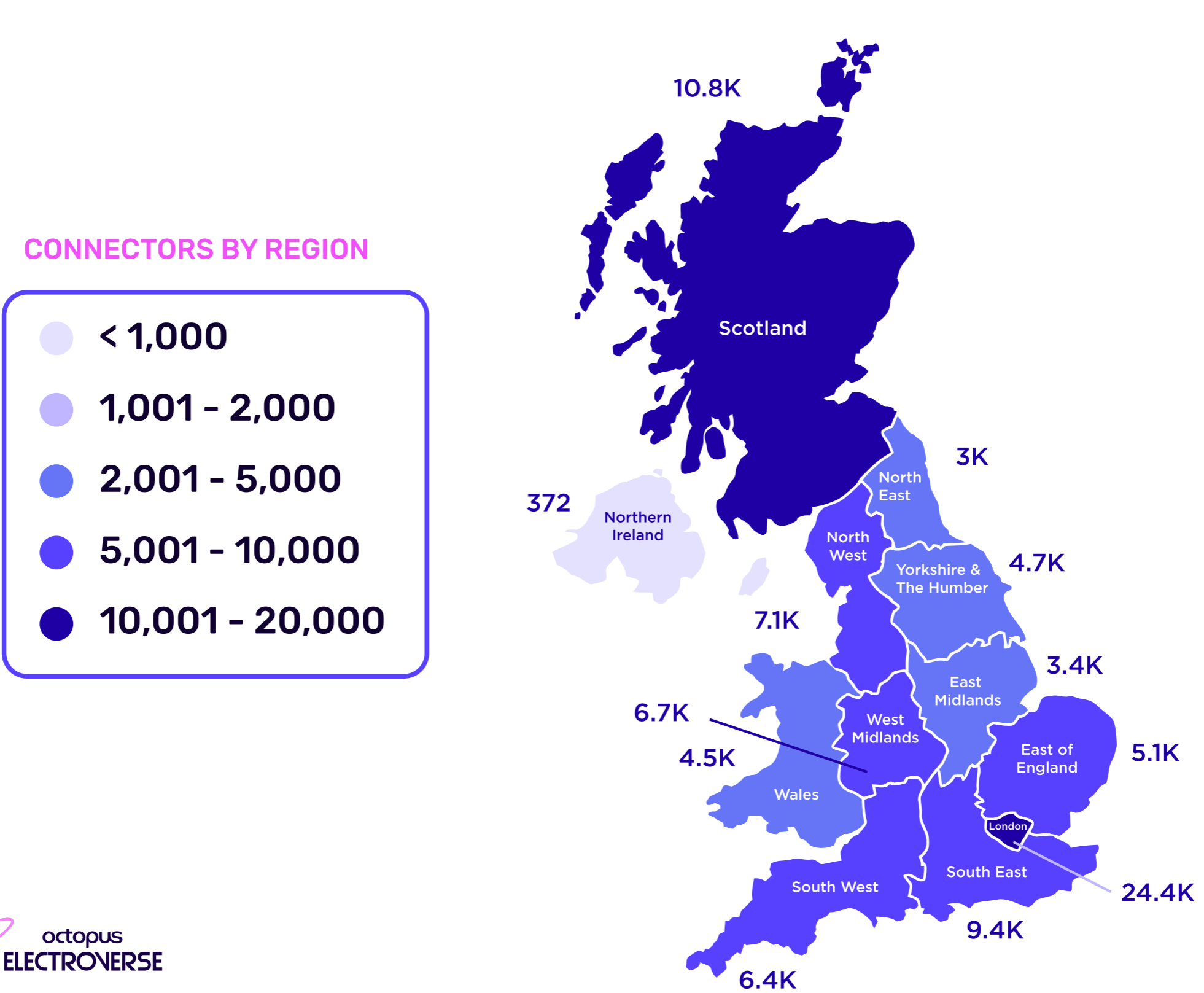
The usage pattern of **fast chargers** exhibits a relatively flat curve, with a peak around lunchtime. Meanwhile, both **rapid** and **ultra-rapid** chargers share a similar curve with highest usage periods between **11 am and 8 pm**.

# SECTION 3: CHARGER LOCATIONS

## HEAT MAP TO SHOW DISTRIBUTION OF CONNECTORS BY GEOGRAPHICAL REGION

Greater London currently leads the way, while Scotland and the South East also have higher concentrations of EV charge points. The North East and West Midlands have the lowest number of chargers.

### HEAT MAP OF CONNECTORS BY GEOGRAPHICAL REGION



Any analysis of geographical distribution should also consider the specifics and needs of the region, such as average journey length and population density.



# HEAT MAP TO SHOW DISTRIBUTION OF CHARGE POINTS BY SPEED AND GEOGRAPHICAL REGION

A more detailed look at the speed of charging infrastructure per region. Keep scrolling down to compare the different charger speed categories.

## HEAT MAP OF CHARGE POINTS BY GEOGRAPHICAL REGION

### SLOW CHARGERS [0 - 7kw]

<b>&lt; 100</b>		
NORTHERN IRELAND	_____	60
<b>101 - 500</b>		
EAST MIDLANDS	_____	240
SCOTLAND	_____	390
WALES	_____	420
<b>501 - 800</b>		
EAST OF ENGLAND	_____	540
YORKSHIRE & THE HUMBER	_____	660
SOUTH WEST	_____	780
<b>801 - 1,000+</b>		
NORTH EAST	_____	890
NORTH WEST	_____	1320
SOUTH EAST	_____	1560
WEST MIDLANDS	_____	1610
GREATER LONDON	_____	16550



## HEAT MAP OF CHARGE POINTS BY GEOGRAPHICAL REGION

### FAST CHARGERS [8 - 22kw]

<b>&lt; 1,000</b>		
NORTHERN IRELAND	_____	240
<b>1,001 - 3,000</b>		
NORTH EAST	_____	1260
EAST MIDLANDS	_____	1930
WALES	_____	2210
YORKSHIRE & THE HUMBER	_____	2430
EAST OF ENGLAND	_____	2850
NORTH WEST	_____	2910
<b>3,001 - 6,000</b>		
WEST MIDLANDS	_____	3070
SOUTH WEST	_____	3440
SOUTH EAST	_____	5040
GREATER LONDON	_____	5160
<b>6,001 - 8,000+</b>		
SCOTLAND	_____	7660



## HEAT MAP OF CHARGE POINTS BY GEOGRAPHICAL REGION

### RAPID CHARGERS [23 - 50kW]

Region	Count
<b>&lt; 100</b>	
NORTHERN IRELAND	10
<b>101 - 500</b>	
NORTH EAST	480
<b>501 - 1000</b>	
EAST MIDLANDS	640
YORKSHIRE & THE HUMBER	850
EAST OF ENGLAND	860
<b>1001 - 1,500+</b>	
SOUTH WEST	1070
WEST MIDLANDS	1120
WALES	1180
NORTH WEST	1210
SOUTH EAST	1380
SCOTLAND	1750
GREATER LONDON	1580



## HEAT MAP OF CHARGE POINTS BY GEOGRAPHICAL REGION

### ULTRA RAPID CHARGERS [51kW+]

Region	Count
<b>&lt; 100</b>	
NORTHERN IRELAND	60
<b>101 - 500</b>	
NORTH EAST	430
<b>501 - 800</b>	
EAST MIDLANDS	610
WALES	650
YORKSHIRE & HUMBERSIDE	730
<b>801 - 1,000+</b>	
EAST OF ENGLAND	850
NORTH WEST	970
SCOTLAND	970
SOUTH WEST	1090
GREATER LONDON	1170
WEST MIDLANDS	1300
SOUTH EAST	1380

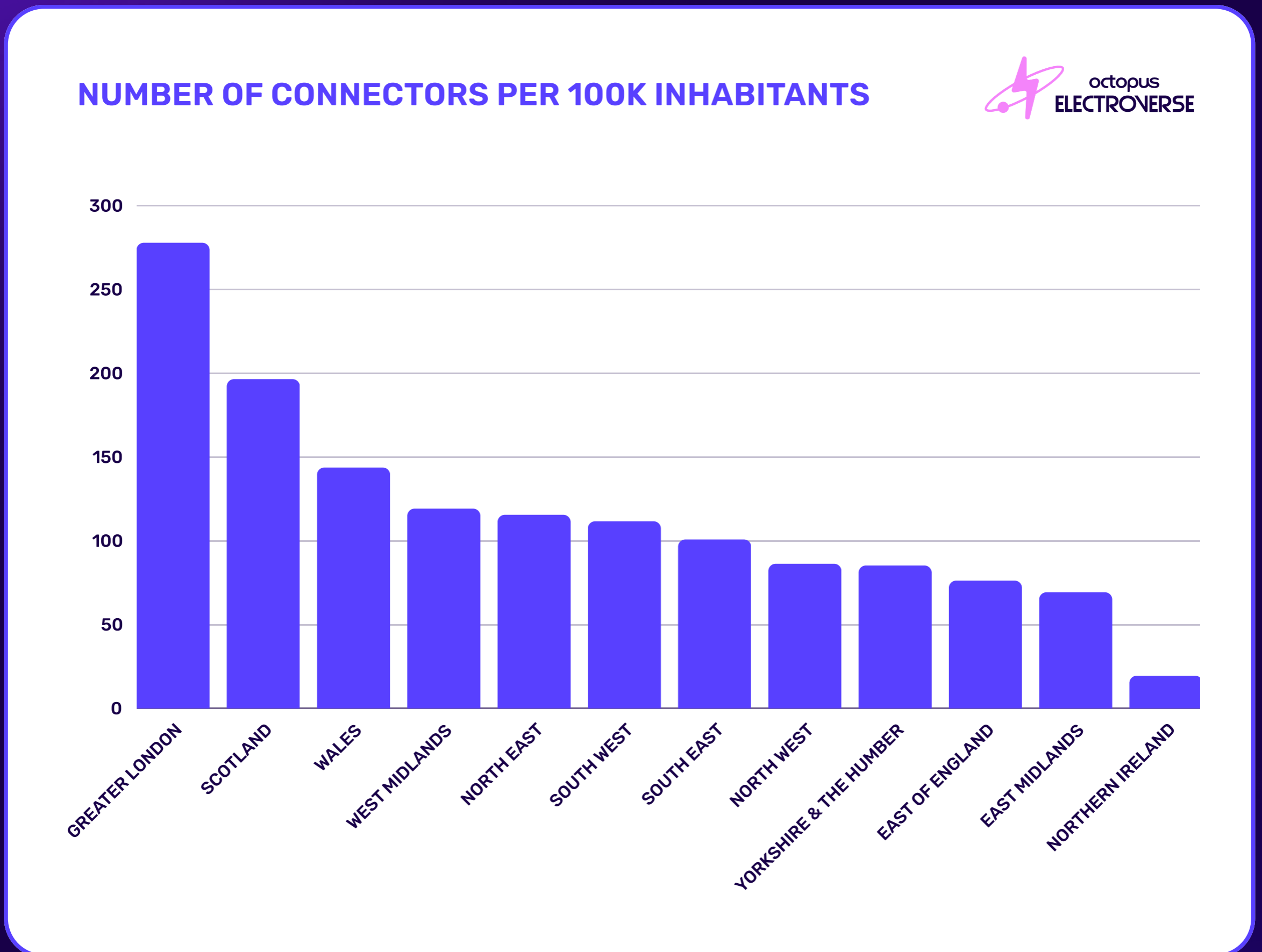




# SECTION 4: CHARGERS PER CAPITA ANALYSIS

## NUMBER OF CONNECTORS PER 100K INHABITANTS

Building on the geographical analysis above, the below graph examines charging infrastructure against population density.



For data sources, please refer to the [Sources & References](#) section on page 14.

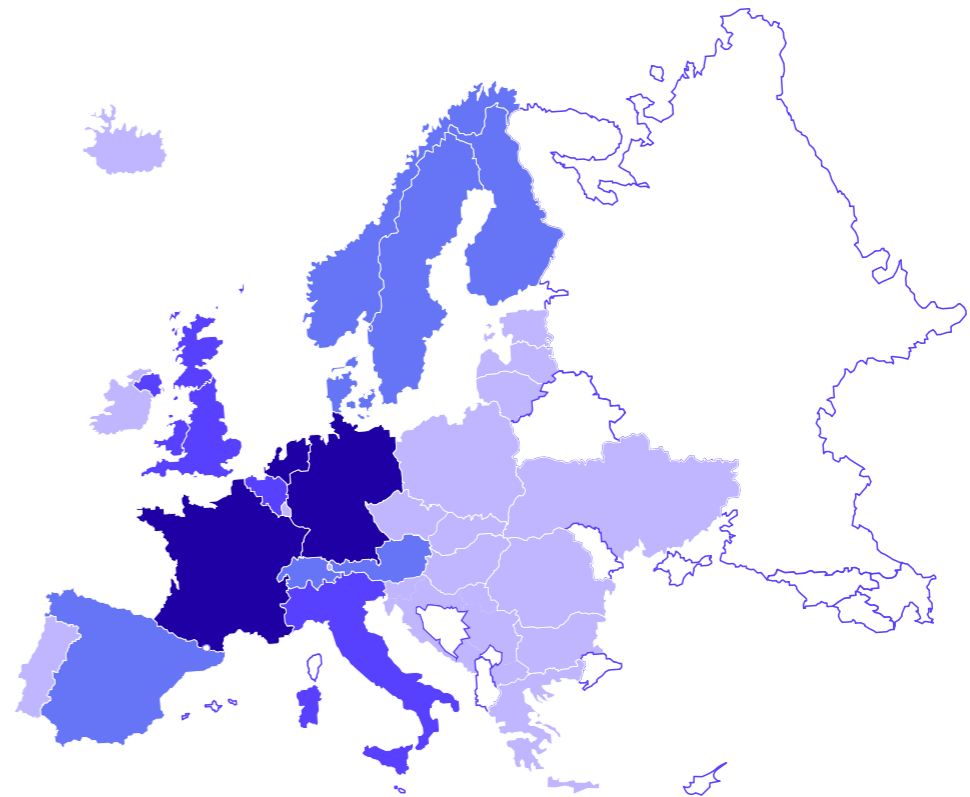
# SECTION 5: EUROPEAN COMPARISON

## EUROPEAN COMPARISON: TOTAL NUMBER OF CHARGE POINTS

### TOTAL NUMBER OF CHARGE POINTS PER COUNTRY

#### CHARGE POINTS PER COUNTRY

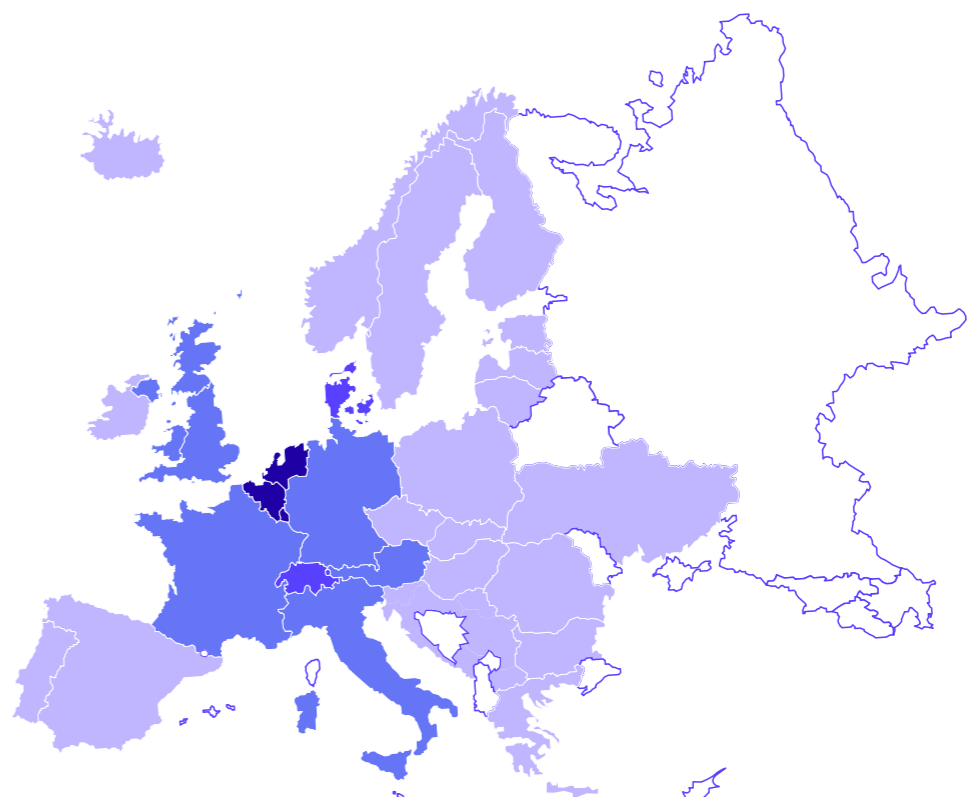
Country	Number of Charge Points
<b>&lt; 10,000</b>	
MONTENEGRO	40
NORTH MACEDONIA	110
LIECHTENSTEIN	140
SERBIA	200
ESTONIA	380
LATVIA	610
BULGARIA	760
GREECE	860
LITHUANIA	980
CROATIA	1,090
ICELAND	1,230
IRELAND	1,260
SLOVAKIA	2,140
SLOVENIA	2,170
ROMANIA	2,470
PORTUGAL	3,290
LUXEMBOURG	3,520
UKRAINE	3,830
HUNGARY	5,180
POLAND	5,160
CZECH REPUBLIC	5,900
<b>10,001 - 50,000</b>	
FINLAND	11,770
SWITZERLAND	18,500
NORWAY	19,760
SWEDEN	24,620
AUSTRIA	27,000
<b>50,001 - 100,000</b>	
ITALY	56,940
BELGIUM	58,760
UNITED KINGDOM	76,250
<b>100,001+</b>	
GERMANY	135,870
FRANCE	152,090
NETHERLANDS	189,990
<b>N/A</b>	



### TOTAL NUMBER OF CHARGE POINTS PER HECTARE

#### CHARGE POINTS PER COUNTRY

Country	Number of Charge Points per Hectare
<b>&lt; 10</b>	
SERBIA	0.2
MONTENEGRO	0.3
NORTH MACEDONIA	0.5
LATVIA	1
UKRAINE	1
ESTONIA	1
BULGARIA	1
ROMANIA	1
ICELAND	1
GREECE	1
LITHUANIA	2
IRELAND	2
POLAND	2
CROATIA	2
PORTUGAL	4
FINLAND	4
SLOVAKIA	4
NORWAY	5
SWEDEN	6
SPAIN	6
HUNGARY	6
CZECH REPUBLIC	8
<b>10 - 50</b>	
SLOVENIA	11
ITALY	20
FRANCE	30
AUSTRIA	30
UNITED KINGDOM	30
GERMANY	40
<b>50 - 100</b>	
SWITZERLAND	50
DENMARK	60
LIECHTENSTEIN	90
<b>100+</b>	
LUXEMBOURG	140
BELGIUM	190
NETHERLANDS	560
<b>N/A</b>	

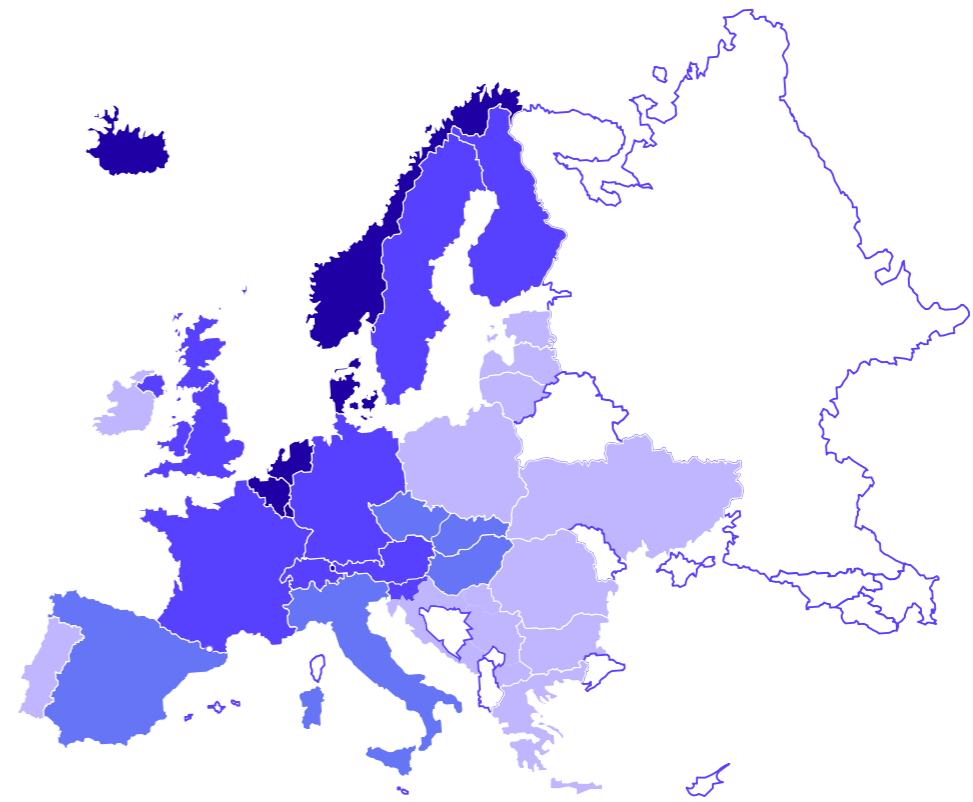
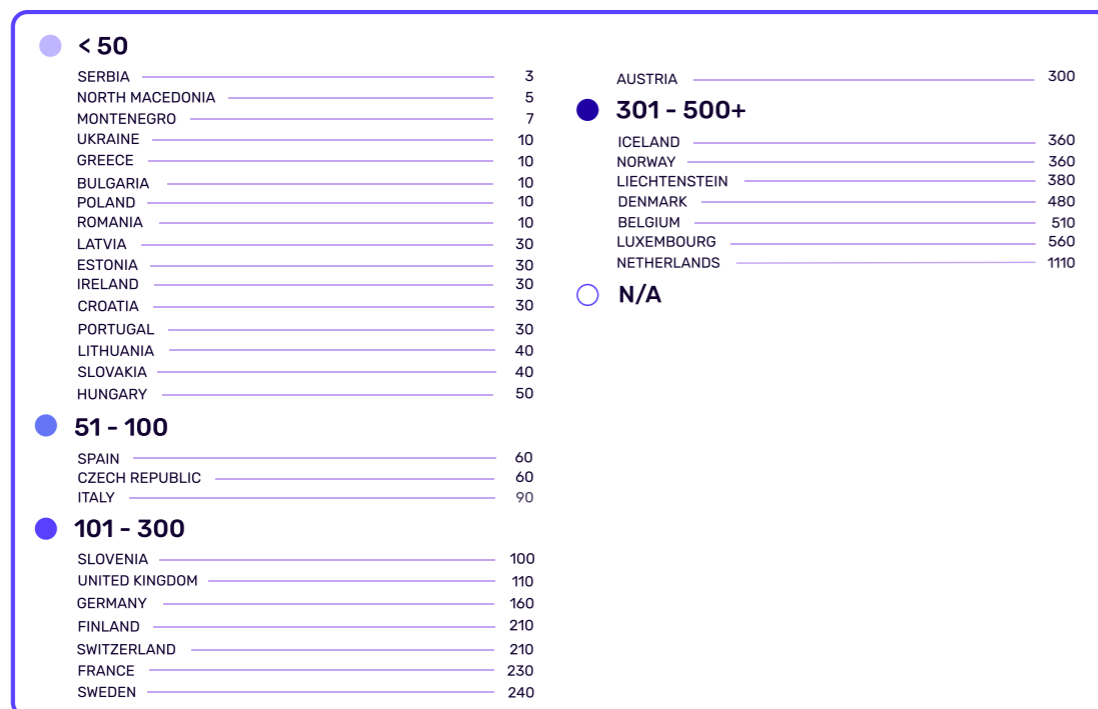




# EUROPEAN COMPARISON: NUMBER OF CHARGE POINTS PER 100K INHABITANTS AT COUNTRY LEVEL

## NUMBER OF CHARGE POINTS PER 100K INHABITANTS

### CHARGE POINTS PER 100K INHABITANTS



# DEFINITIONS

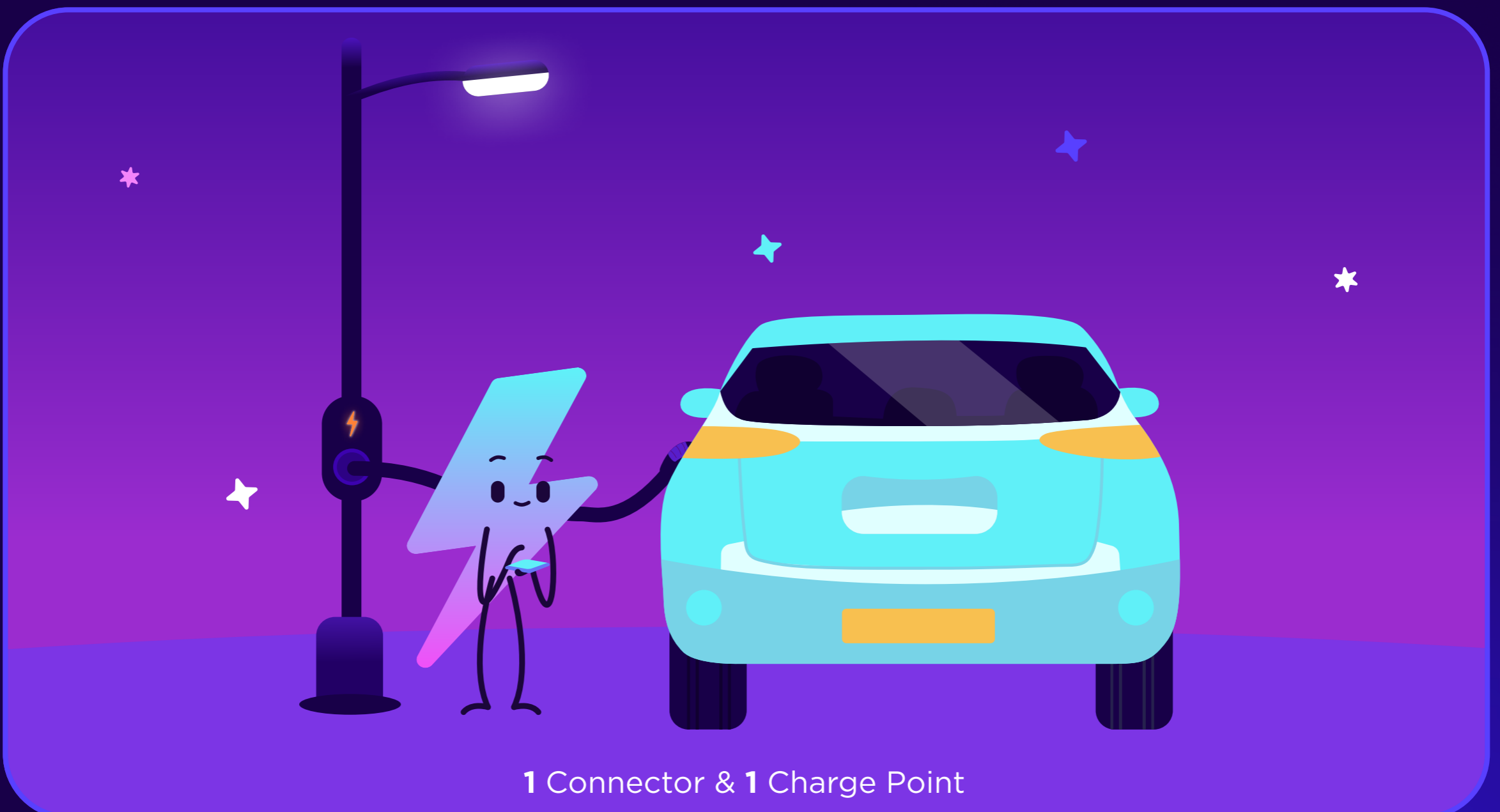
## DEFINING A CHARGE POINT

We use the term 'charge point' to simplify the language - in the industry this is known as an 'EVSE', which stands for **Electric Vehicle Supply Equipment**. An EVSE is an independently operated and managed part of a charge point, that is able to deliver energy to one EV at a time. This is the industry-approved definition and forms part of the data structure we receive from Charge Point Operators (CPOs).



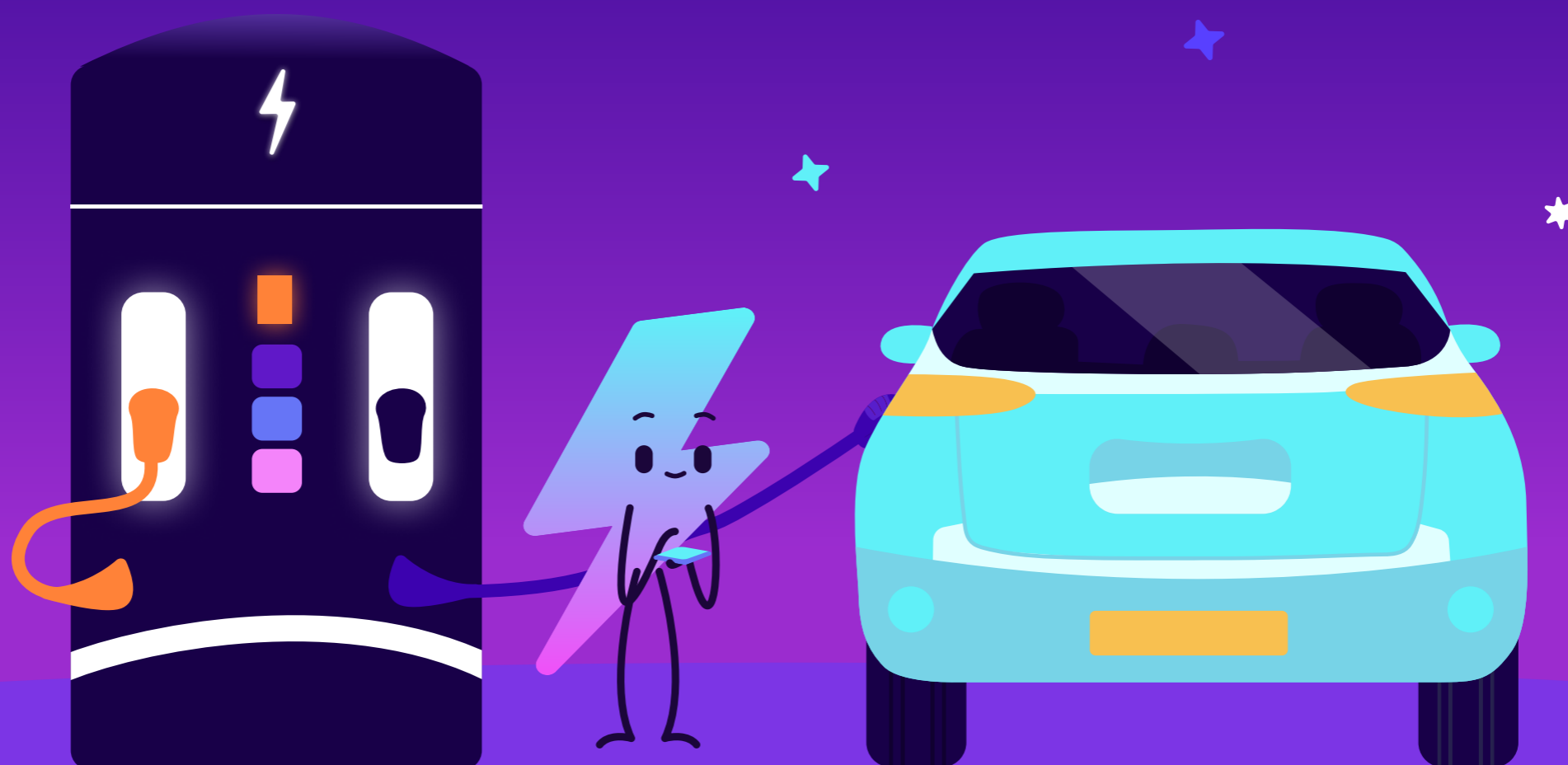
A location is a physical site where there are one or more charge points. Think of a location as a single pin on the Octopus Electroverse map!

The EVSE hardware inside each charging unit determines how many vehicles can simultaneously charge at the same unit. A basic charge point has **one connector** and therefore **one charge point** that can be used to **charge one vehicle** independently.





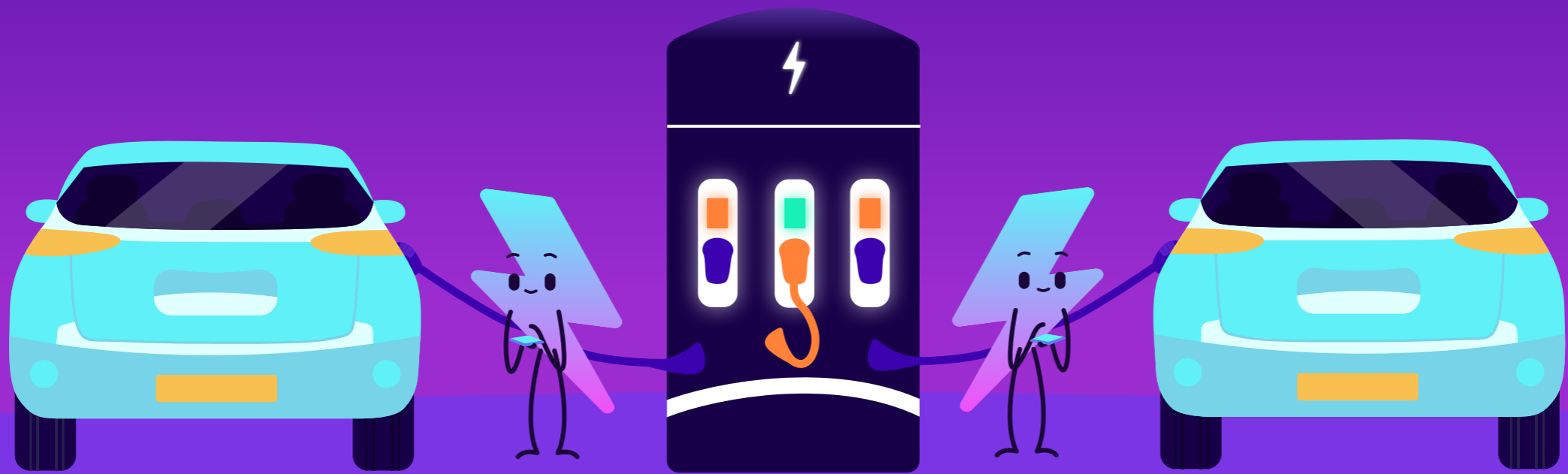
While a charging unit may have a **choice of connectors**, sometimes, it may only have the capability to **charge one vehicle** at a time, defining it as a **single charge point**. Here are some more examples:



Choice of **2** Connectors able to charge a single vehicle at a time = **1** Charge Point

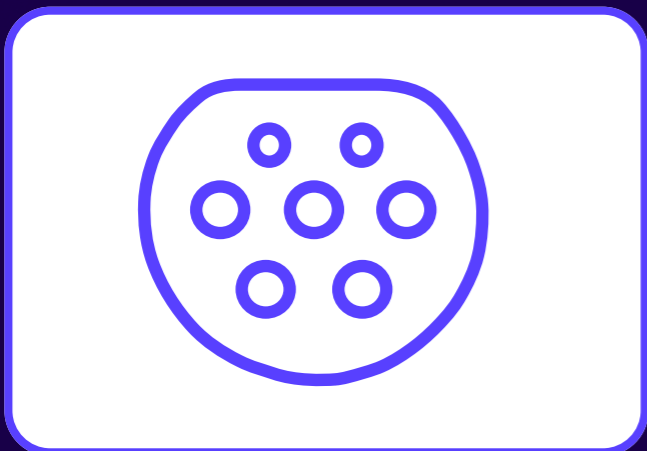


**2** Connectors able to charge two vehicles at a time = **2** Charge Points

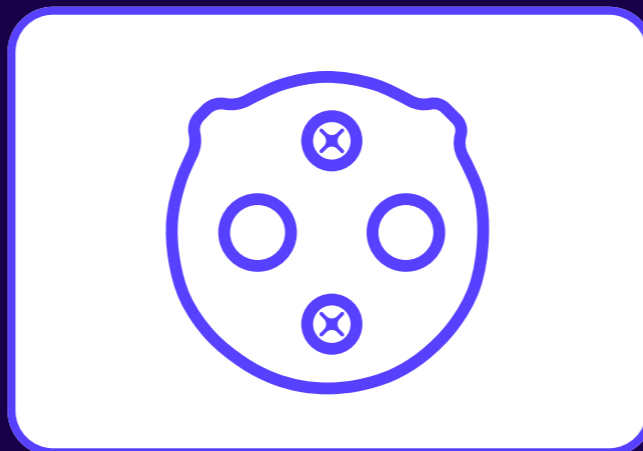


3 Connectors able to charge two vehicles at a time = 2 Charge Points

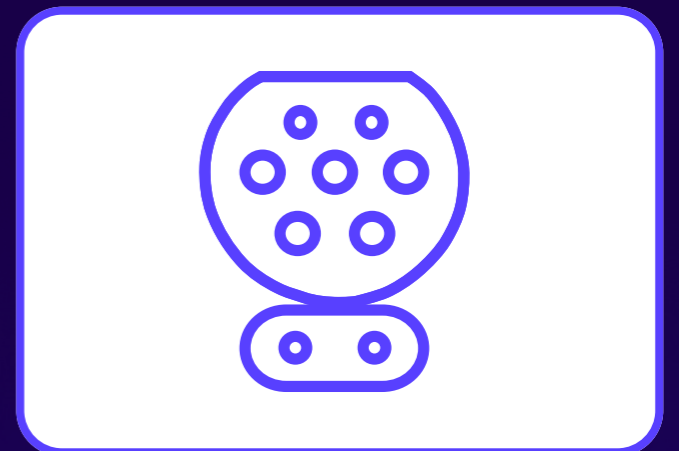
## SOCKET TYPE VISUALS



**TYPE 2**



**CHAdeMO**



**CCS**



# GLOSSARY

## CPO

Charge Point Operator. The mobility provider managing the charging infrastructure (e.g. IONITY, Osprey, Shell Recharge, char.gy etc).

## EVSE

Electric Vehicle Supply Equipment. An EVSE is an independently operated and managed part of a charge point, that is able to deliver energy to one EV at a time.

## kW

A kilowatt represents the rate of power (e.g. a charger's output). The higher the kW rating of a charger, the faster it can charge an EV.

## kWh

A kilowatt-hour is the unit used to measure the number of kW used (e.g. charging prices are stated in kWh, and charging sessions are measured in kWh).

## kW vs. kWh

Simply put, a kWh reflects the total amount of electricity used, whereas a kW reflects the rate of electricity usage.

# SOURCES & REFERENCES

The Society of Motor Manufacturers and Traders (SMMT) : <https://www.smmt.co.uk/>

Open Charge Point Interface (OCPI) : <https://evroaming.org/>

Population of European Countries : <https://www.statista.com/statistics/685846/population-of-selected-european-countries/>

UK Population by Region : <https://www.statista.com/statistics/294729/uk-population-by-region/>