POWER 2 DRIVE EUROPE

EXHIBITION
JUNE 19–21, 2024
MESSE MÜNCHEN

CONFERENCE
JUNE 18–19, 2024
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WEBINAR MAY 16, 2024

Charging Infrastructure and Charging Use Cases at a Glance – Market Segmentation, Charging Personas, Success Factor

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POWER 2 DRIVE EUROPE

The international exhibition for charging infrastructure and e-mobility

hall B6, C6 & Outdoor Area
→ directly at Entrance East ←

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The international exhibition for energy management and integrated energy solutions

Power2Drive Europe – Welcome to the New Mobility World in context of a renewable energy world

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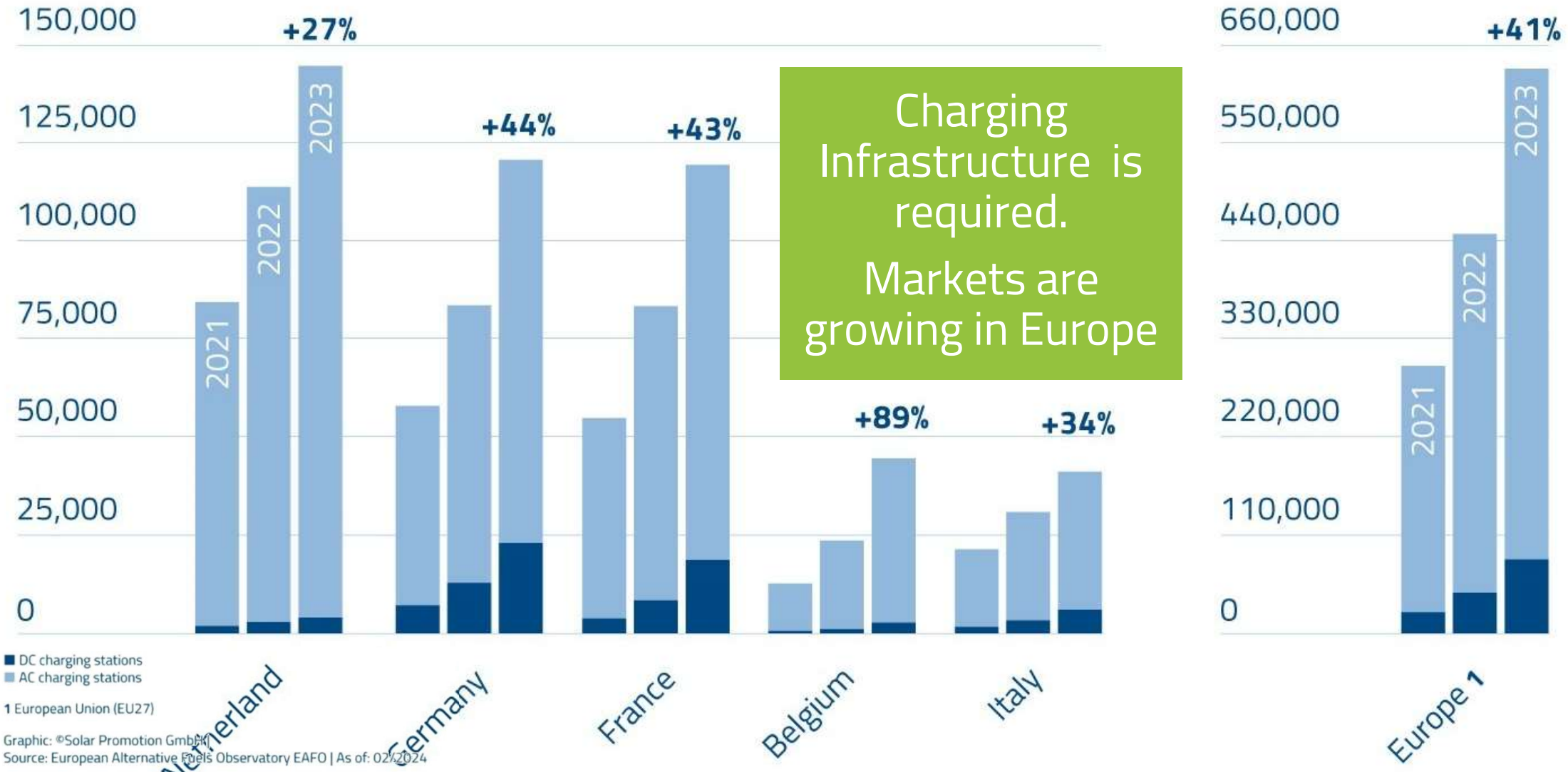
www.PowerToDrive.de
Part of THE smarter EUROPE
Auszug aus der Ausstellerliste The smarter E Europe 2023, Stand Juni 2023

Publicly accessible charging points – Top 5 countries in Europe



Charging Infrastructure is required.

Markets are growing in Europe

■ DC charging stations
■ AC charging stations

1 European Union (EU27)

Graphic: ©Solar Promotion GmbH
Source: European Alternative Fuels Observatory EAFO | As of: 02/2024

UNSERE EXPERTEN HEUTE

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Power2Drive Europe,

Solar Promotion GmbH

Dr. Axel Sprenger

CEO and Founder.

Uscale

Arne Meusel

Managing Director/ Founder,

CIRRANTIC GmbH

Market Segmentation: Charging Personas + Wallbox Pricing

Webinar

Power2Drive-Webinar
16/05/24

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Diversity in the e-mobility ecosystem

Limited diversity…

For many years, EV drivers were mostly…

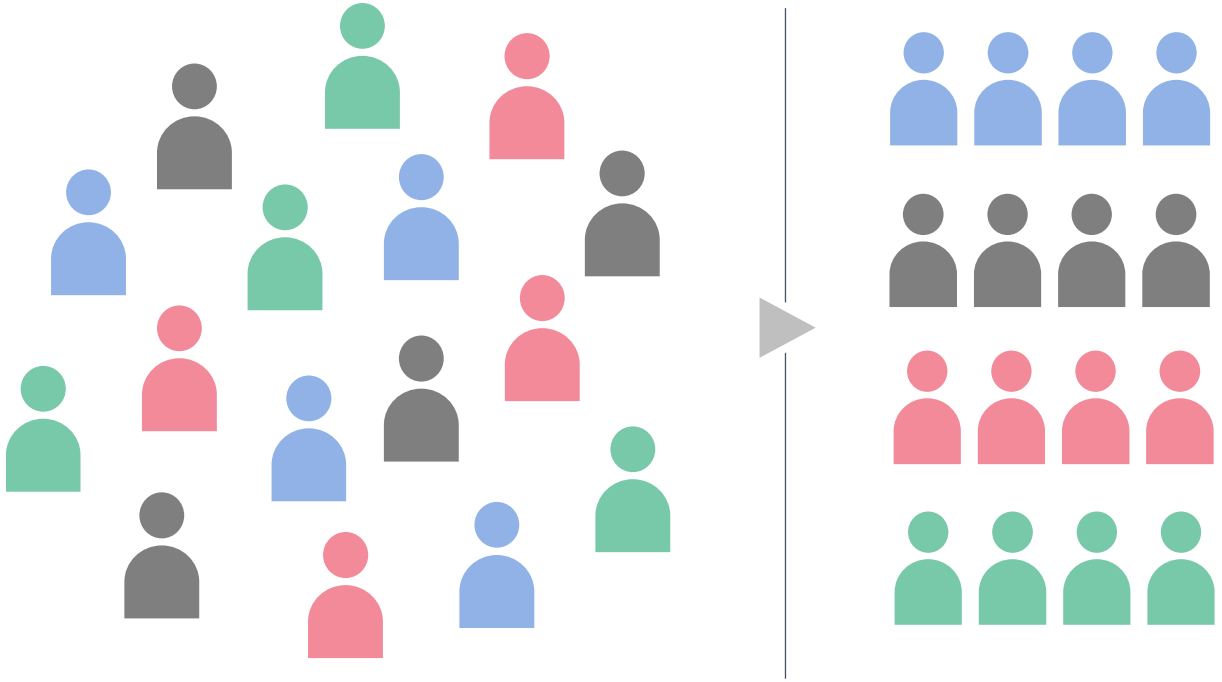
- male
- slightly above average age
- has high household income
- shows high interest in technology
- is motivated by ecological reasons

Why segmentation?

Segmentation is a must if...

- competition is increasing significantly,
- target groups are becoming more heterogeneous,
- needs are becoming more diverse.

Traditional schemes like SINUS milieus, however, do not yet fit.



Charging profiles

Step 1:
Development of charging profiles based on behavior

Charging behavior is primarily influenced by factors that can hardly be changed by the individual:

- driving behavior
- living and charging at home situation
- general charging behavior

Driving

Living

Charging

Base:
USCALE Private / Public Charging Studies 2023, N = 3.075

Market Segmentation in eMobility

Charging profiles

Homebodies	Commuters	Flexibles	Frequent drivers	Metropolitans
– **live** in rural areas in single-family homes – **drive** low mileage per year and per day – **charge** only when needed (at home and on highways)	– **live** in rural areas in single-family homes – **drive** higher mileage per day – **charge** mostly • every day • at home • out of habit	– **live** both in rural and urban areas – **drive** higher mileage per year – **charge** everywhere – pay attention to the price and environmental aspects	– **live** in urban areas – **drive** high mileage per year and per day – **charge** • everywhere • often • when needed, e.g. at low SoC	– **live** in big cities and apartment houses – **drive** low mileage – **charge** • at all charging opportunities available • not at home
≈ 40%	≈ 20%	≈ 20%	≈ 10%	≈ 10%

Base:
USCALE Private / Public Charging Studies 2023, N = 3.075

EV personas

Step 2:
Development of EV driver types based on personality

An analysis of values, believes, attitudes and personal preferences identified different EV driver segments.

Base:
USCALE Charging Persona Study 2024, N = 1.223

Market Segmentation in eMobility

EV personas

Status-conscious conservatives	Progressive performers	Thrifty pragmatists	Tech-savvy ecologists
			

Base:
USCALE Charging Persona Study 2024, N = 1.223

63 segmentation factors and 489 possible answers:

- Values, believes and attitudes re politics, societal issues, technology, general mobility, driving a car
- EV motivation, vehicles driven, usage behavior, acquisition type, insurance, service contracts
- Shopping for a car, general relevance of brands, payment preferences
- Openness towards technology / change of utility / service provider
- Charge tech at home, purchase criteria, purchase location, trust in types of vendors
- Media channels, media usage and topics of interest
- Demographics, kids, education, occupation, income
- ...

Market Segmentation in eMobility

What does that mean for vendors?

EXAMPLE: Wall charger

Vendors of wall chargers are facing strong competition. Differentiating becomes crucial:

- What many and what different clients do they have to serve?
- What features are relevant for pricing?
- What price point is accepted by which segment?

Market Segmentation in eMobility

Wallbox pricing

App controlled

Energy-Mgmt.-System

Integrated load mgmt.

Charging capacity (3–22kW)

PRICE

Multiple user

PV surplus charging

Energy meter

Authori-sation

customized color

Type (mobile vs. fixed)

Number of charge points

Time controlled charging

Ready for bidirectional charging

Market Segmentation in eMobility

The approach

Adaptive Choice Based Conjoint

During the test, participants are repeatedly presented with different offers from which they have to chose their preference.

Each offer consisted of a combination of 16 features selected by an algorithm.

Example

USCALE

Bitte geben Sie für jede der hier gezeigten Wallbox-Varianten an, ob ein Kauf für Sie vorstellbar wäre oder nicht.

Marke des Herstellers	easee	ABL/Wallbox Chargers	Heidelberg
Type/Bauart	Wallbox (Wandmontage)	mobile Ladelösung	Wallbox (Wandmontage)
Ladeleistung der Wallbox	7,4 kW	22 kW	7,4 kW
App-Steuerung	✓	✓	✓
PV Überschuss-Laden	✗	✗	✓
Zeitgesteuertes Laden	✗	✗	✓
Stromzähler	MID-Zähler	einfacher Zähler	einfacher Zähler
Autorisierung/Absperrung	keine	RFID (Zutrittskarten)	RFID (Zutrittskarten)
Anzahl der Ladepunkte	2	2	1
Farbe der Wallbox individuell auswählbar	✗	✗	✗
Lastmanagement	statisch	kein	kein
Preis	1.365 €	1.130 €	900 €
	○ ja, vorstellbar ○ nein, nicht vorstellbar	○ ja, vorstellbar ○ nein, nicht vorstellbar	○ ja, vorstellbar ○ nein, nicht vorstellbar

(2 / 12)

→

Base:
USCALE Wallbox Pricing Study 2024, N = 1.011

Feature importance

Highest importance of the charging capacity

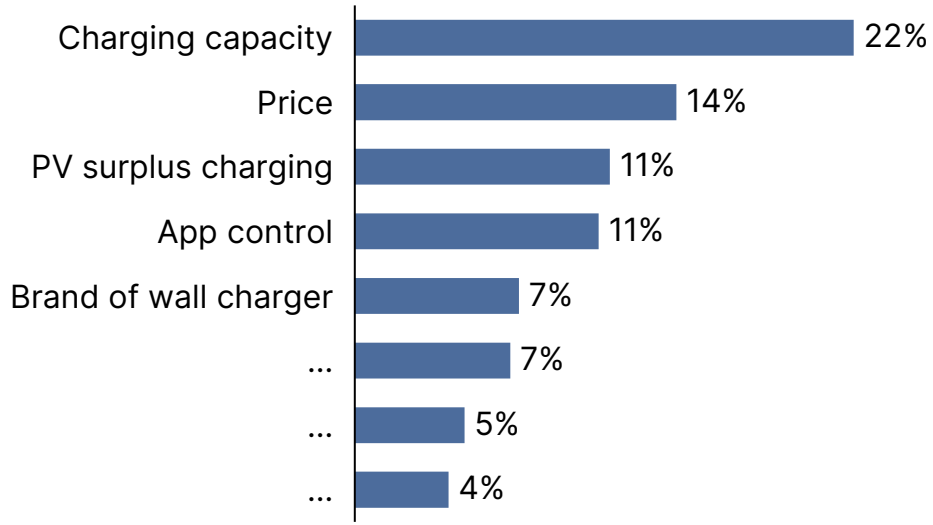
Charging capacity is the most important feature of a wall charger, followed by price.

All other features mentioned above follow on rank 6 and below.

Base:
USCALE Wallbox Pricing Study 2024, N = 1.011

"Normalized Benefit Values" of the charging capacity:

(Normalized Benefit Values = Importance of the overall attractiveness of the product for the purchase decision)



Feature importance

Splits available for all features and all sub-target groups.

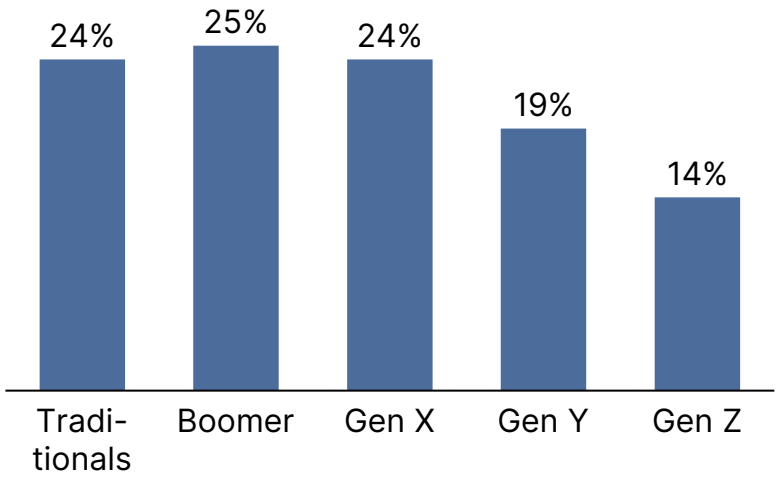
Differences by target group

Interestingly, younger generations see the capacity as less important.

Other features more important to this age group are app control, customization and others.

"Normalized Benefit Values" of the charging capacity:

(Normalized Benefit Values = Importance of the overall attractiveness of the product for the purchase decision)



Base:
USCALE Wallbox Pricing Study 2024, N = 1.011

Relative Preference

Impact of the charging capacity

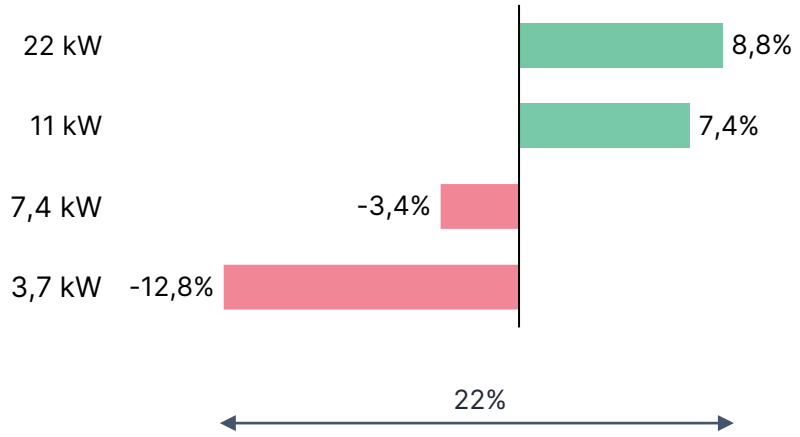
The charging capacity is the most important feature of a wallbox.

This is surprising as EV usually charge over night, i.e. there is enough time to charge a big car with only a low charging capacity of e.g. 7,4 kW.

Splits available for all features and all sub-target groups.

"Relative Preference" of the charging capacity:

(Relative Preference = Contribution of the feature to the perceived overall benefit)



Base:
USCALE Wallbox Pricing Study 2024, N = 1.011

Relative Preference

Splits available for all features and all sub-target groups.

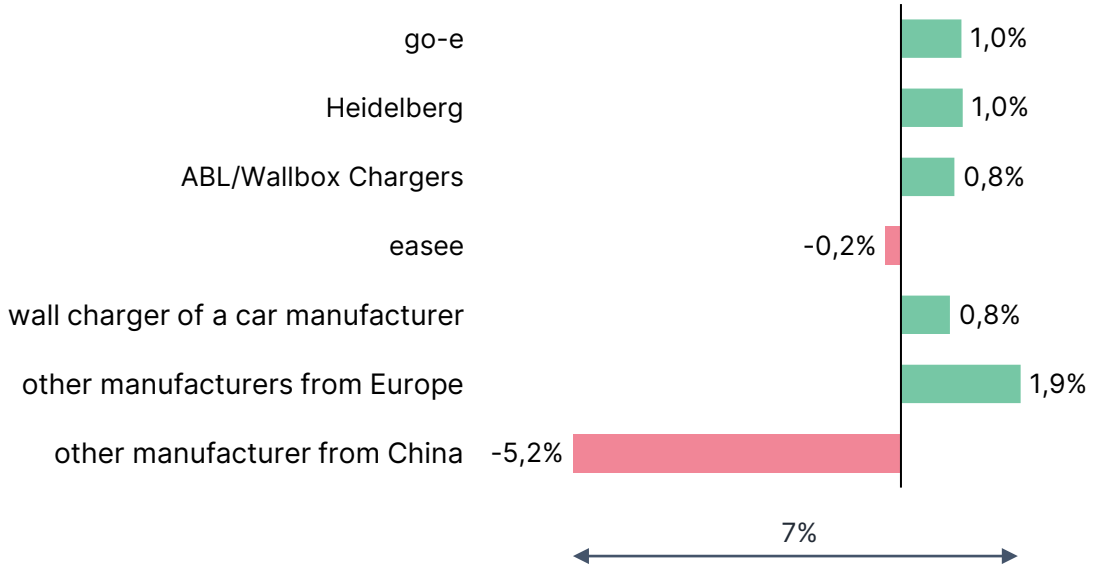
Impact of the brand / manufacturer

The price is the fifth most important feature of a wall charger.

European manufacturer mostly contribute positive. However, shopper are hesitant when it comes to Chinese brands.

"Relative Preference" of the brand:

(Relative Preference = Contribution of the feature to the perceived overall benefit)



Base:
USCALE Wallbox Pricing Study 2024, N = 1.011

Relative Preference

Impact of the price

The price is the second most important feature of a wall charger.

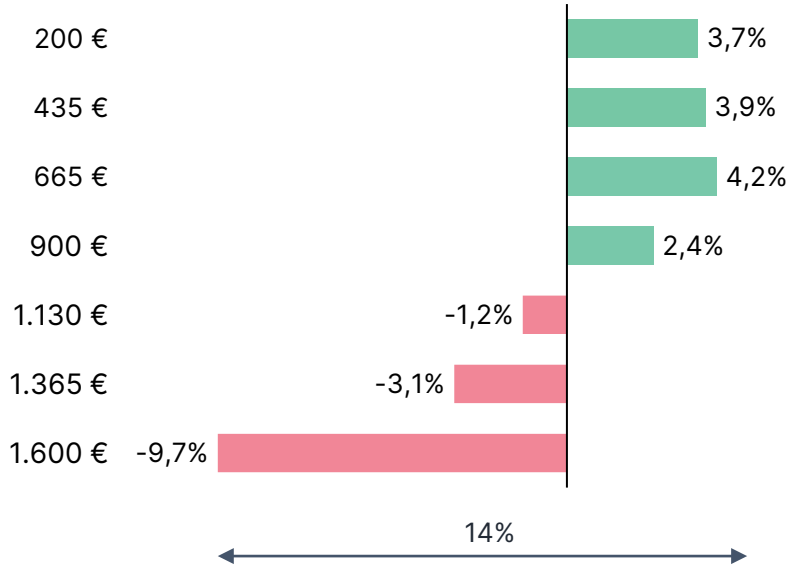
It is surprising that the relative preference for the price up to € 665 is equally high. The attractiveness only drops significantly above € 1000.

Base:
USCALE Wallbox Pricing Study 2024, N = 1.011

Splits available for all features and all sub-target groups.

"Relative Preference" of the price:

(Relative Preference = Contribution of the feature to the perceived overall benefit)



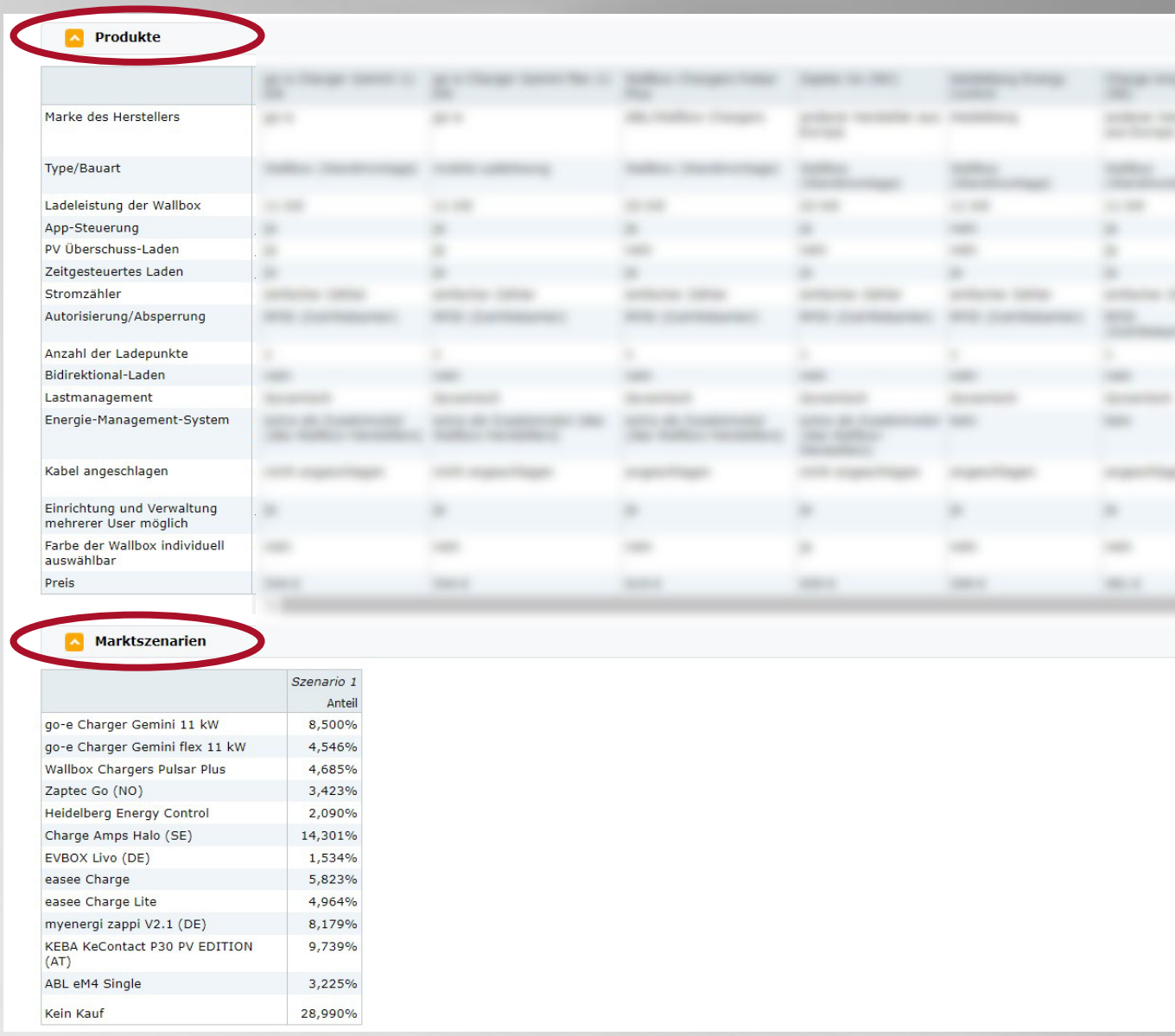
Market Segmentation in eMobility

What's your solution?

Simulation of any configuration for any target group

As the variety of feature combinations and target groups is infinite, a simulation tool enables the **market share** to be calculated depending on feature combinations and **price points**.

Base:
USCALE Wallbox Pricing Study 2024, N = 1.011



Produkte

Marke des Herstellers	
Type/Bauart	
Ladeleistung der Wallbox	
App-Steuerung	
PV Überschuss-Laden	
Zeitgesteuertes Laden	
Stromzähler	
Autorisierung/Absperrung	
Anzahl der Ladepunkte	
Bidirektional-Laden	
Lastmanagement	
Energie-Management-System	
Kabel angeschlagen	
Einrichtung und Verwaltung mehrerer User möglich	
Farbe der Wallbox individuell auswählbar	
Preis	

Marktszenarien

	Szenario 1 Anteil
go-e Charger Gemini 11 kW	8,500%
go-e Charger Gemini flex 11 kW	4,546%
Wallbox Chargers Pulsar Plus	4,685%
Zaptec Go (NO)	3,423%
Heidelberg Energy Control	2,090%
Charge Amps Halo (SE)	14,301%
EVBOX Livo (DE)	1,534%
easee Charge	5,823%
easee Charge Lite	4,964%
myenergi zappi V2.1 (DE)	8,179%
KEBA KeContact P30 PV EDITION (AT)	9,739%
ABL eM4 Single	3,225%
Kein Kauf	28,990%

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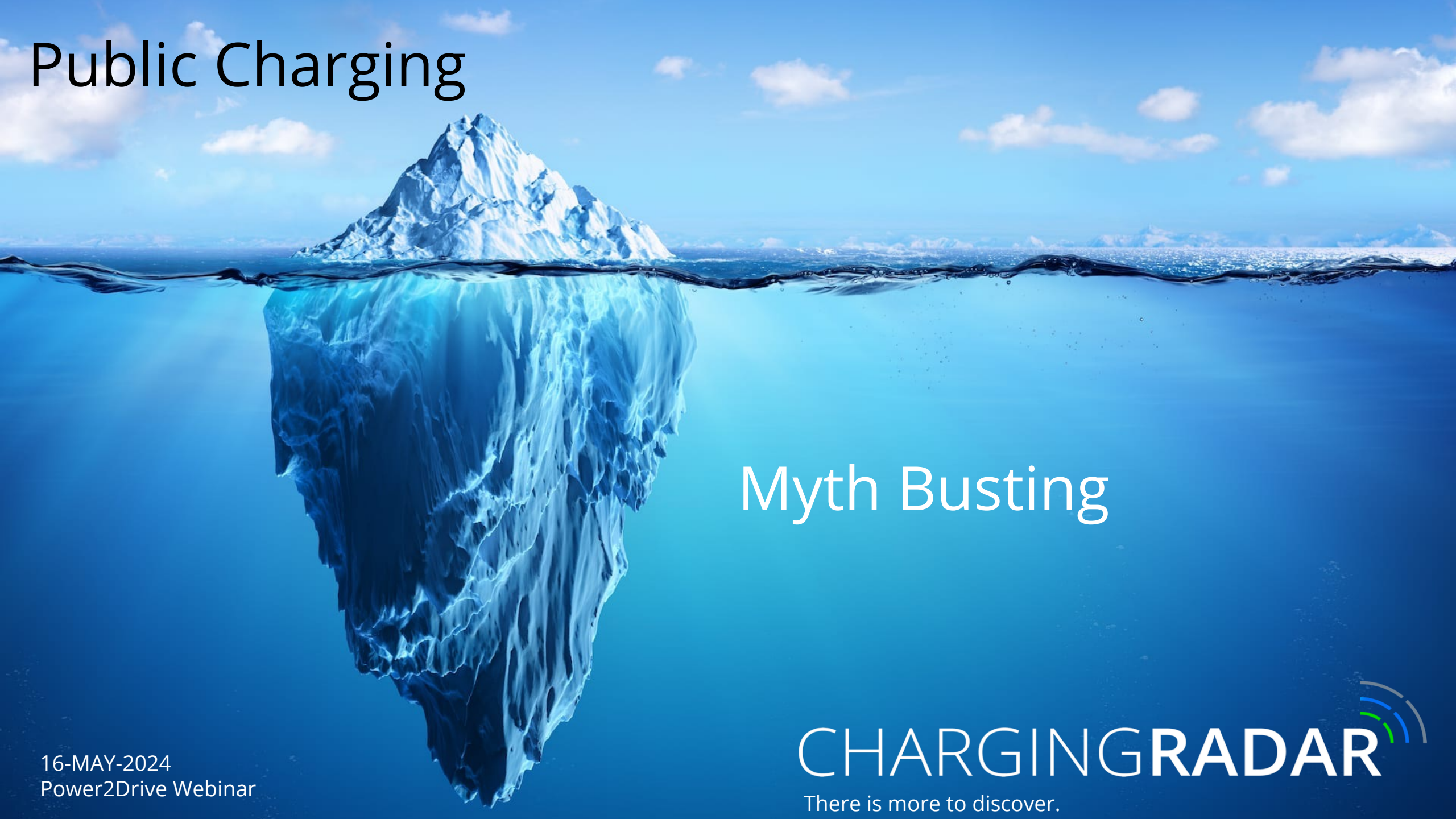
Public Charging



Myth Busting

16-MAY-2024
Power2Drive Webinar

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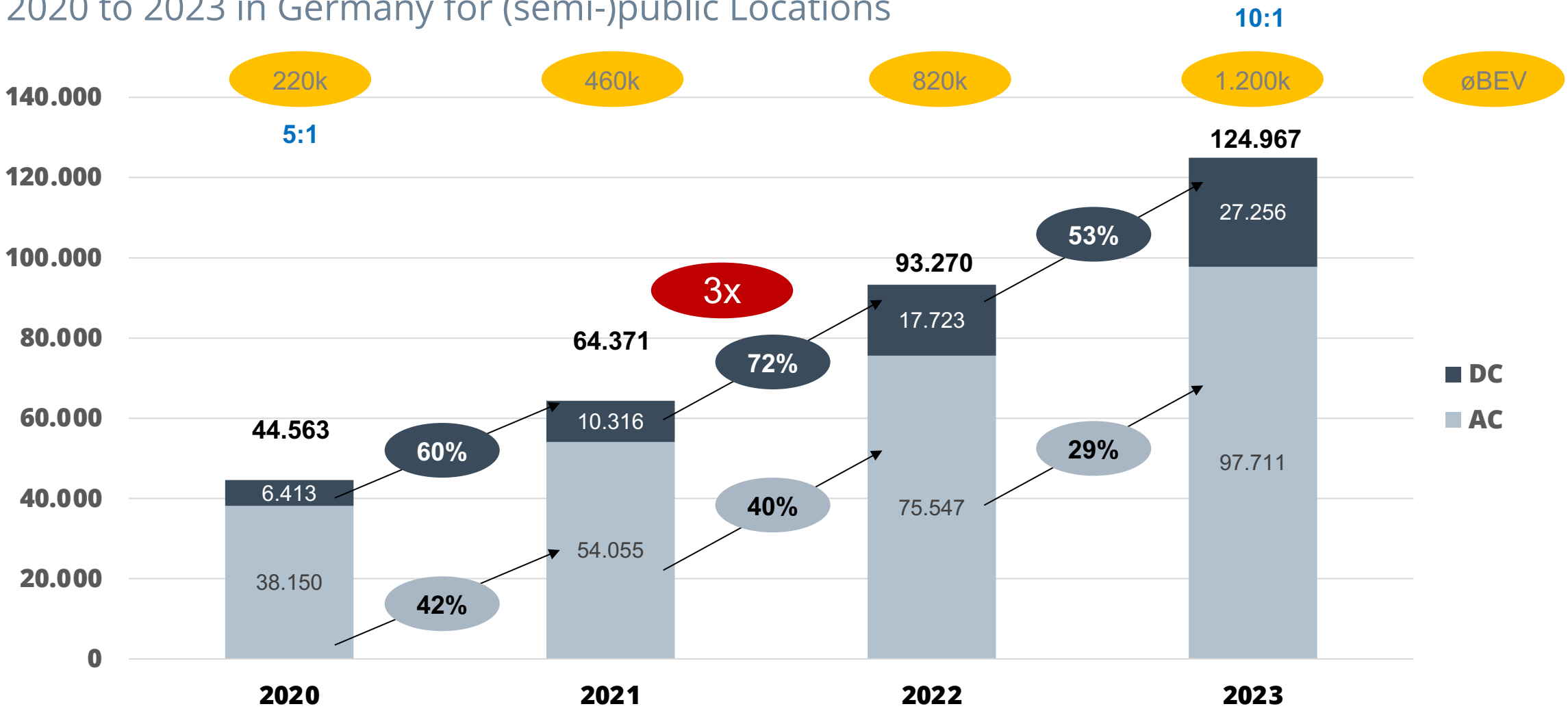
There is more to discover.

Development of Charging Outlets (Total Capacity)

2020 to 2023 in Germany for (semi-)public Locations



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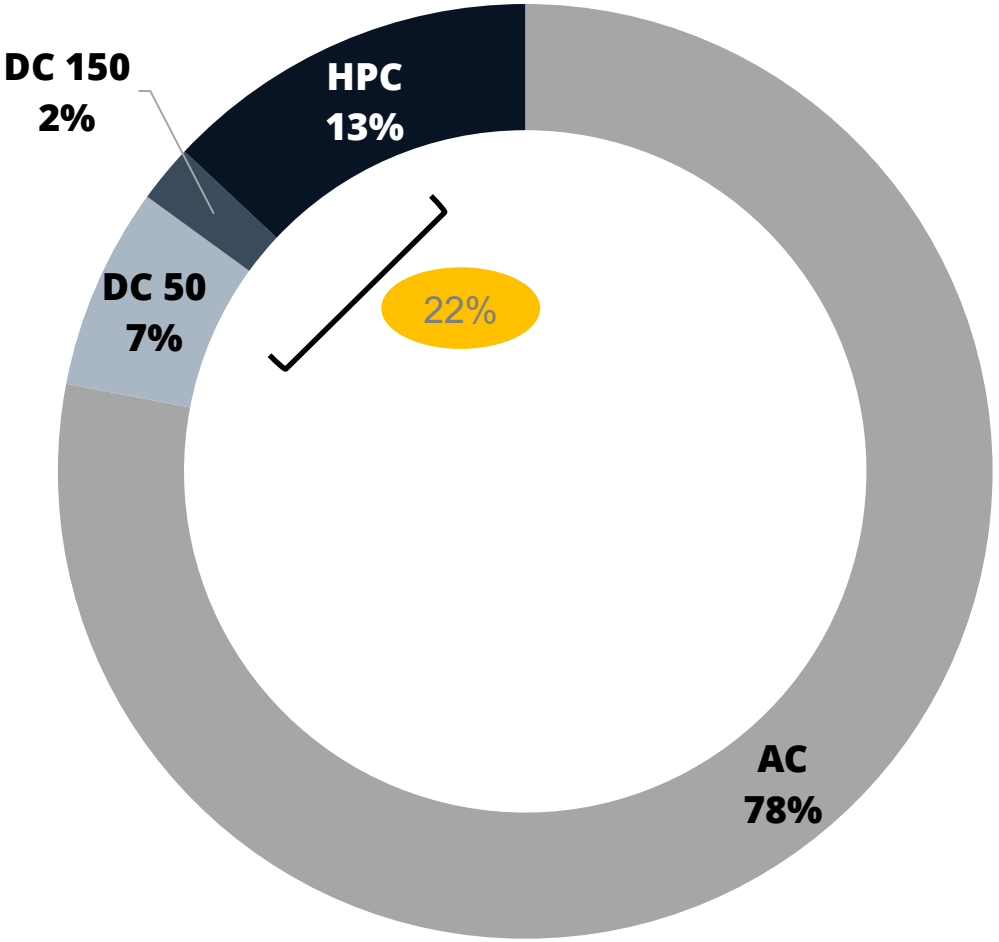
Charging Types and Power Level (Capacity by Type)

Germany, January 2024



- Majority of charging infrastructure **AC-Outlets (78%)**.
- **HPC-Charger growth with impact**: DC charging with 13% share in **HPC-Outlets (≥ 150 kW)**
- The **124.970 outlets** are locatized at **40.970 charging locations**:
  - 31.486 pure AC locations
  - 5.604 AC/DC locations
  - 4.283 pure DC/HPC locations

For Comparison:
14.000
Fuel Locations

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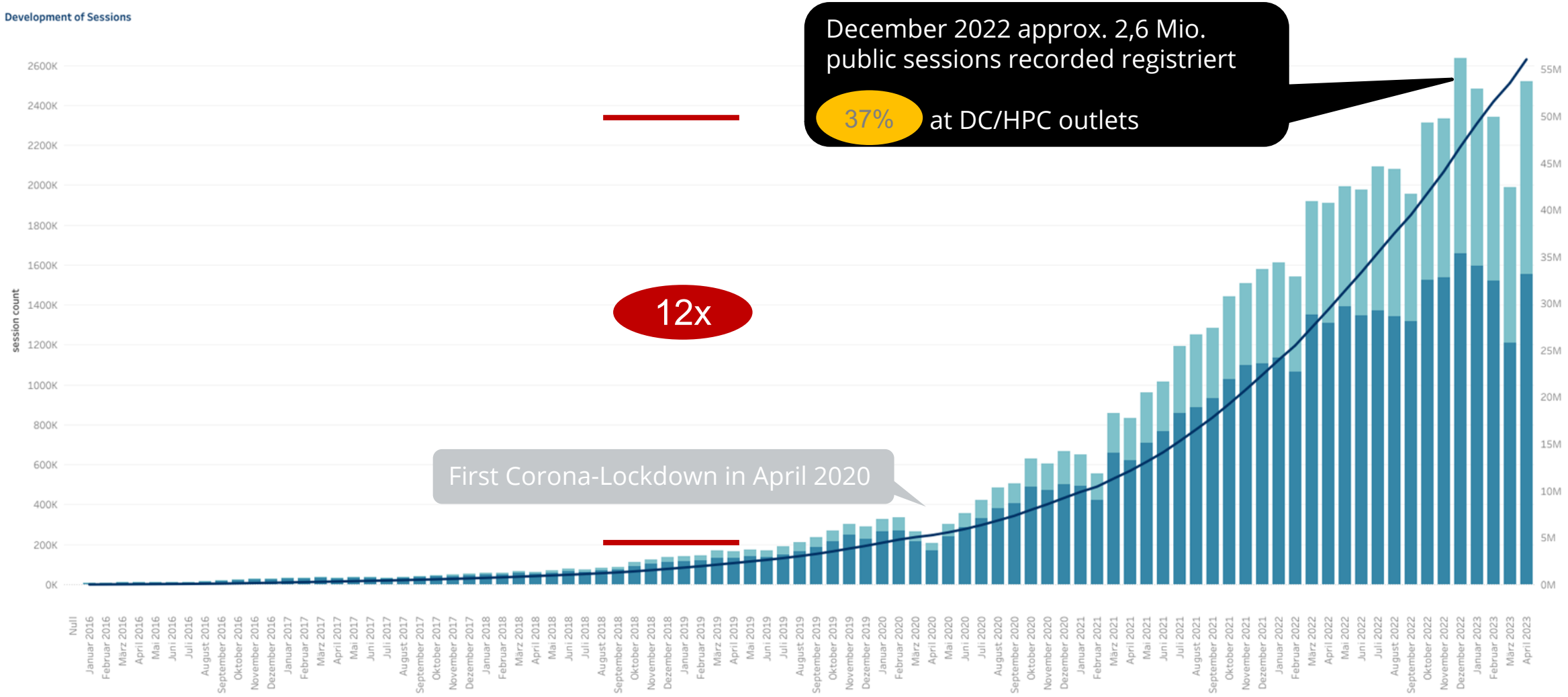
Hockey Stick Growth of Recorded Public Charging Sessions

Germany (2016-early 2023)



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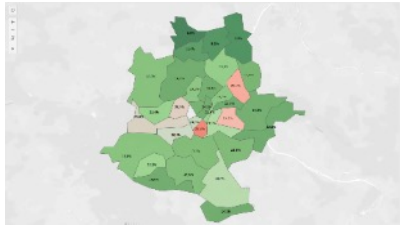
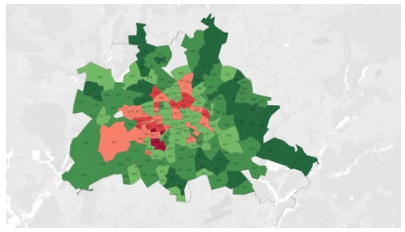
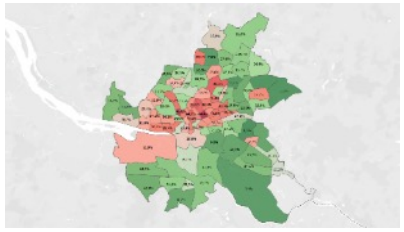
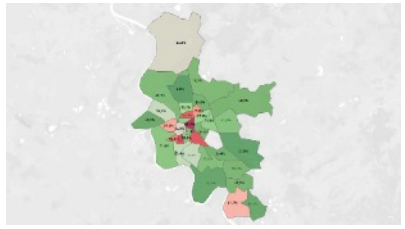
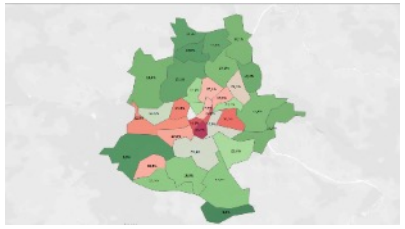
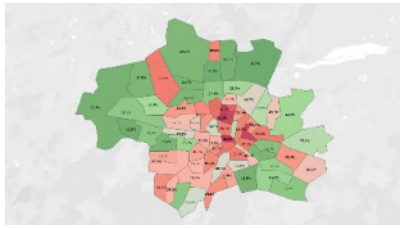
Utilization of (semi-)public Charging Locations by City

2019 vs. 2023

	Berlin	Hamburg	Düsseldorf	Stuttgart	München
2019					
	9,4%	**9,1%**	**13,5%**	**17,2%**	**8,0%**
2023					
	18,3%	**24,4%**	**20,7%**	**16,0%**	**31,4%**

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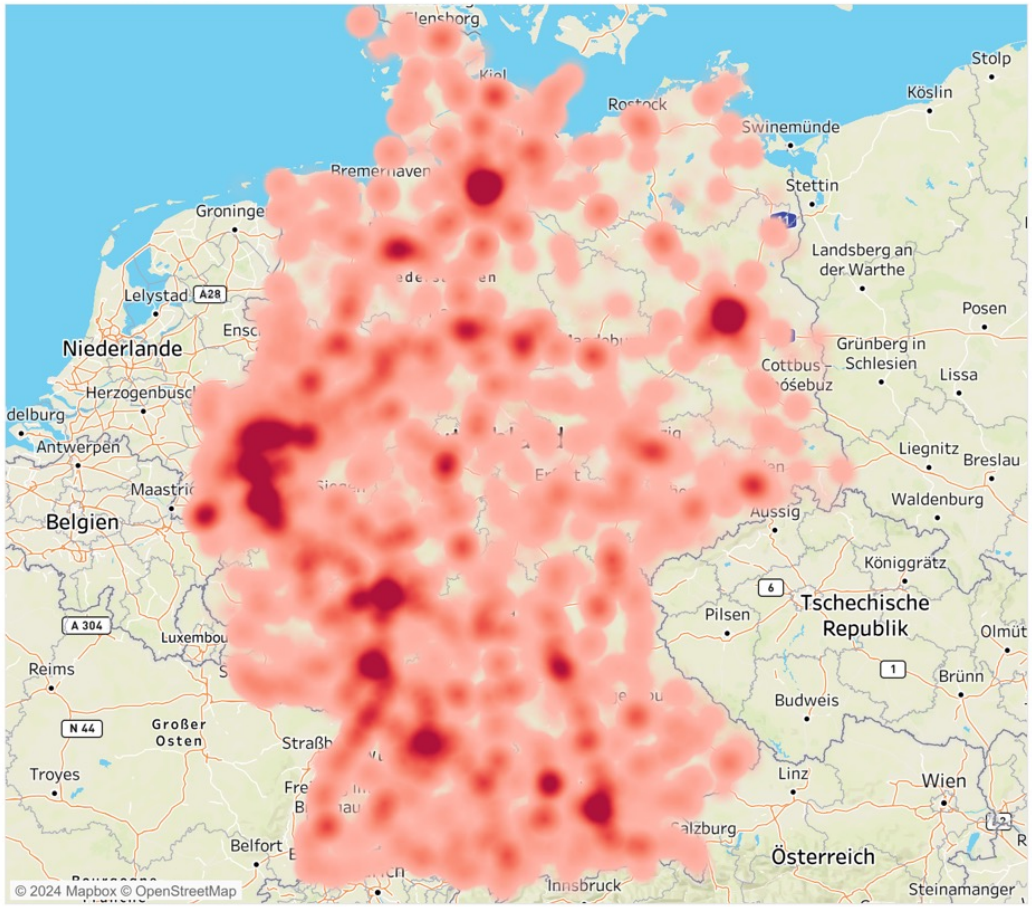
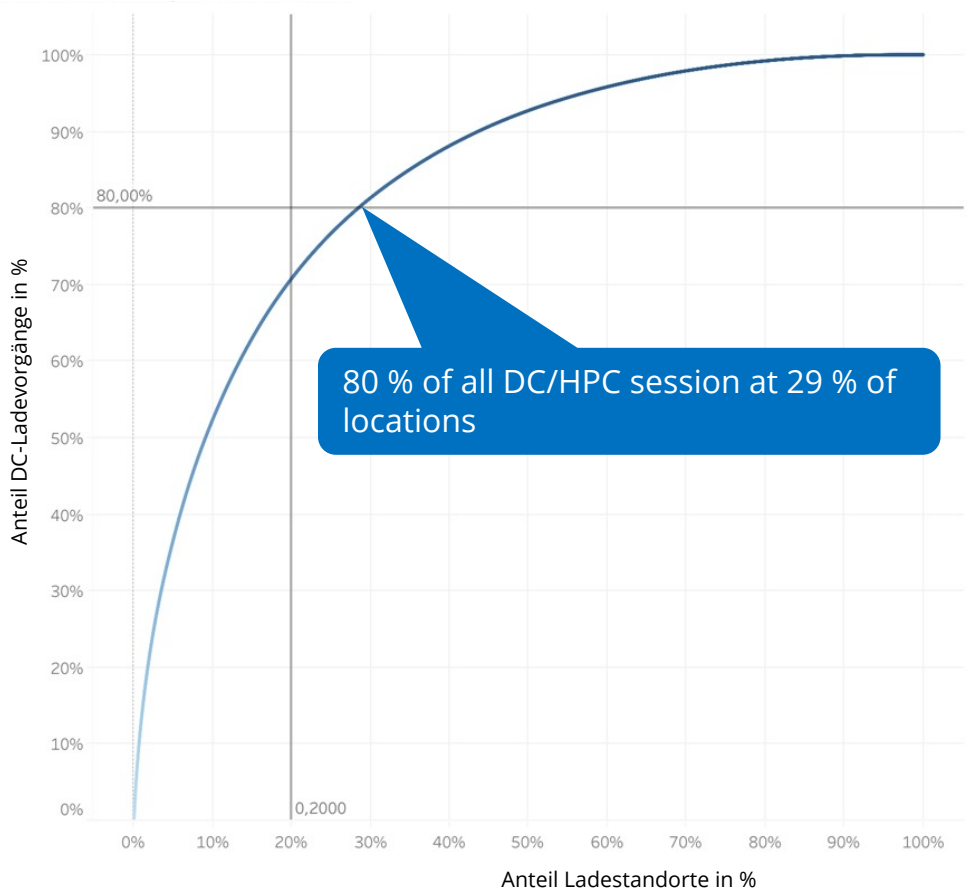
Heat Map of DC/HPC Sessions (Scattering)

Germany (2023)





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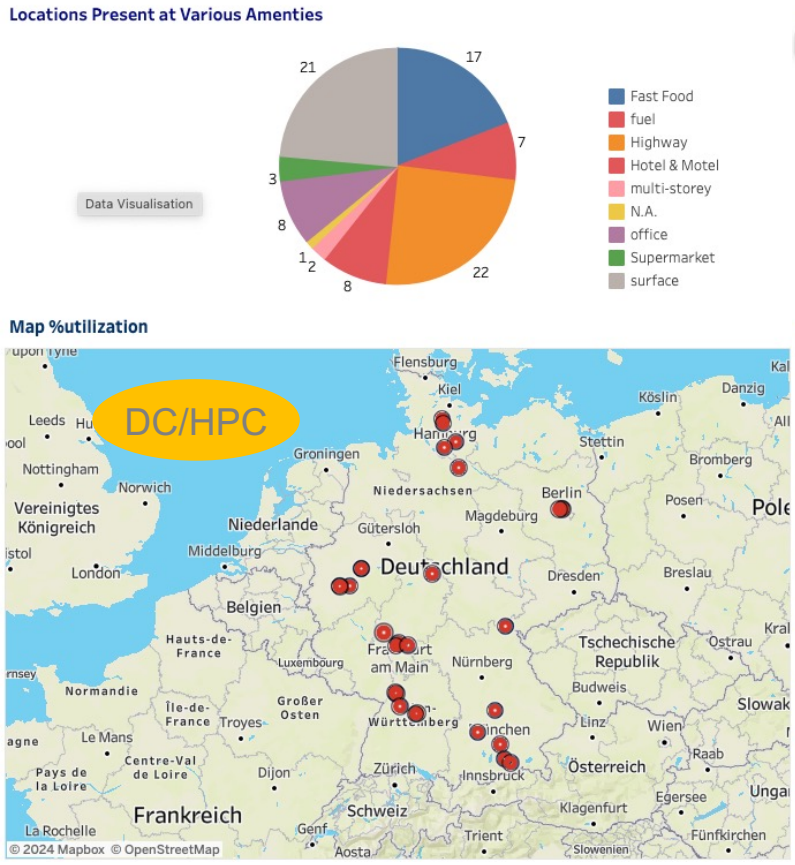
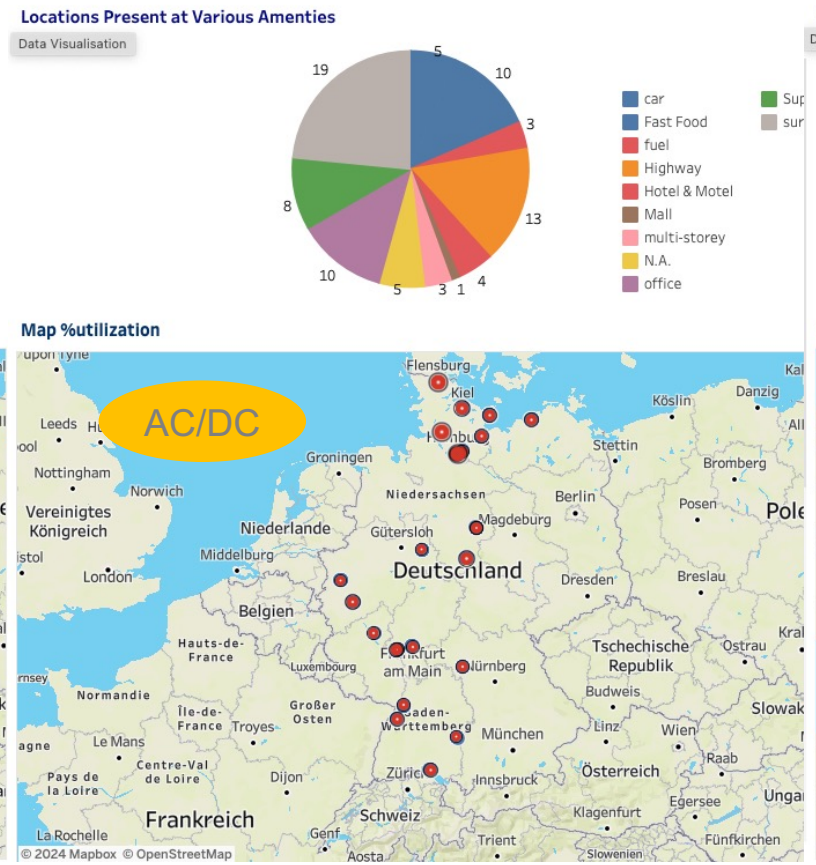
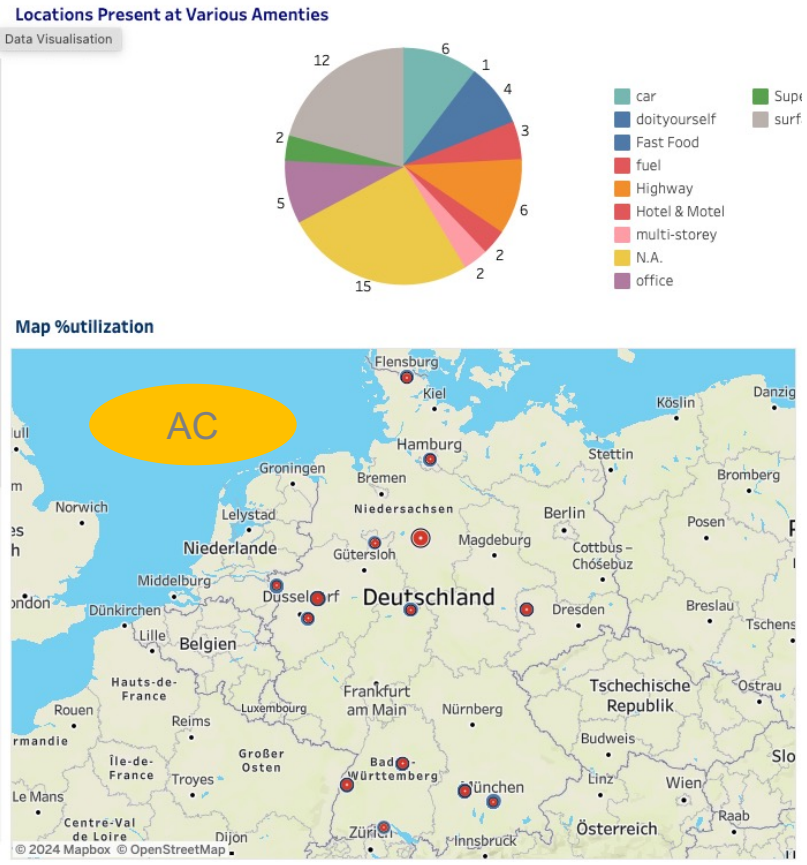
Location Profiles of Top Charging Locations (Utilization)

Top 30 Locations by Utilization & Charging Type - Germany (2023)







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Usage of Top Charging Locations (Utilization)

Upper bookends of outlet utilization (Germany 2023)

	AC (up to 22 kW)	DC (up to 150 kW)	HPC (from 150 kW)
Monthly Averages			
Timely Utilization	**64-72 %**	**30-40 %**	**32-40 %**
Sessions/Outlet/Day	***2 bis 4***	***3 bis 10***	***3 bis 18***
øDuration (in min)	***235-360***	***45-135***	***29-160***
	ø120 kWh	ø400 kWh	ø800 kWh

Estimated Energy/ Outlet/Day

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There is more to discover.

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ABOUT CHARGING RADAR

Market intelligence built for the EV charging business: Understanding the development and usage of CPO and MSP networks. CHARGING RADAR uniquely combines strategic market intelligence and analyst advisory services through data, insights, and analytical tools. We enable industry leaders to make fact-based decisions to power their market monitoring, business planning, and strategic growth.

CHARGING RADAR partners with industry leaders and new market entrants across automotive and utility industries, CPO and MSP networks, consulting firms, investment companies and governmental bodies to support them in their strategic planning and day-to-day operations and enables them to make fact-based decisions.

To learn more about CHARGING RADAR's full suite of data-driven products and services, contact us: **info@chargingradar.com**

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CIRRANTIC GmbH | Agnes-Pockels-Bogen 1 | 80992 Munich | GERMANY

Q&A

Feel free to ask your questions in the chat

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THE smarter WEBINAR

May 16, 16:00 CET
Charging Infrastructure for Electric Vehicles in **Brazil** - Challenges and Prospects

June 11, 16:00 CET
All about Power2Drive Europe 2024: **Exhibition program & tips** for exhibition visitors

THE smarter PODCAST

TSEP#172: Intelligent **Charging software** - Solutions for the Electric Fleet (Eduard Schlutius, reev)

TSEP#170: **Megawatt Charging**: The Future of a Sustainable Heavy Duty Transport? (Dr. Julia Hildermeier, RAP)

TSEP#167: But not on my Doorstep, Please! – The Energy Transition and its **Social Acceptance** (Antonella Battaglini, Renewables Grid Initiative)

TSEP#155: **Open Source** & Electromobility: The Future of Charging Infrastructure (Marco Möller, PIONIX)

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EMPOWER

- **MUNICH, GERMANY** | JUNE 19–21, 2024
- **SÃO PAULO, BRAZIL** | AUGUST 27–29, 2024

Thank you for your attention!

See you in München 19.–21.

POWER 2 DRIVE EUROPE

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