



# COMFORT CHARGE A START UP OF DEUTSCHE TELEKOM



LIFE IS FOR SHARING.

# TELCOS ` RIGHT TO PLAY

„Our Assets”



Telephone booths, columns



Field services

- The combination of nationwide locations, usable electricity infrastructure and qualified service personnel is a unique advantage of a Telco operator



Office buildings, parking space

Beginning of 2018 Deutsche Telekom entered the e-mobility market and found **Comfort Charge GmbH**



Street cabinets



Charging stations and wallboxes



Fleet cars



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# COMFORT CHARGE'S NETWORK

Publicly accessible fast charging station  
(1x >100kW, 2 additional sockets)

## URBAN LOCATION



At the Deutsche Telekom switch

At home

At work

On the street

At the shopping m

At the hotel

At the harbour

Private charging stations at Telekom office sites (6x11kW)

## OFFICE



Public charging stations at street cabinets (2x11kW)

## MUNICIPAL



## HOME CHARGING



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# COMFORT CHARGE'S PUBLIC CHARGING CONCEPT

Partnerships  
with cities  
welcome!

## SYNERGIES

By double  
usage of energy  
column

### Energy column (EnAs)

- Grid connection to local operator
- Supplies electricity to the charging station and any telco infrastructure, e.g. to street cabinets



### Stand-alone charging station

- Offers two Typ2 11kW plugs
- In case only one plug is occupied, 22kW are provided

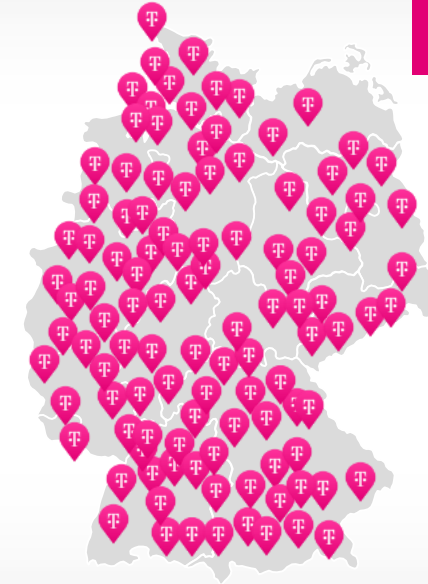


Electricity supply with max. 15m  
long cable in min. 80cm depth

# PUBLICLY ACCESSIBLE FAST CHARGING NETWORK

151 operative  
18.08.2020

- Using our existing medium high voltage transformers, we are able to offer mainly urban fast charging at 100kW up to 150kW, hence 10min / 7min for 100km range
- 151 stations in operation with 543 charging plugs (184 x Combo Typ 2 (CCS) EU, 131 x Type 2 sockets, 116 x CHAdeMO, 112 x Typ 2 plugs)
- Depending on market penetration of battery electric vehicles, an even denser network of high power charging stations with an on average distance of 38km between two stations will be built



## High power charging stations



Hamburg  
(Altona Nord)



Hamburg  
(Lohbrügge)


# COMFORT CHARGE'S NETWORK FOCUS

Current	Charging time for 100km	Power Kilowatt	Voltage Volt	Ampere	Comment
AC	7 hours	2,3 kW	230 V	10 A	Household plug
	<b>90min</b>	<b>11 kW</b>	400 V	16 A	Comfort Charge on-street
	<b>45min</b>	<b>22 kW</b>	400 V	32 A	Comfort Charge on-street (one of two used)
DC	20min	50 kW	500 V	100 A	Still standard for most BEV in 2018
	<b>10min</b>	<b>100 kW</b>	500 V	200 A	Comfort Charge CCS without heat monitoring
	8min	120 kW	500 V	240 A	Currently maximum at Tesla Super-Charger
	<b>7min</b>	<b>150 kW</b>	500 V	300 A	Comfort Charge CCS with heat monitoring
	3min	320 kW	920 V	350 A	First model announced for 2019

at on-street infrastructure
  at medium-high voltage transformers
  currently out of focus



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A close-up photograph of a person's hands plugging a black charging cable into the port of a red electric car. The car is parked at a charging station with a red and white striped background. The text 'COMFORT CHARGE' is visible on the station's panel. The overall scene is brightly lit, suggesting an outdoor or well-lit indoor environment.

# COMFORT CHARGE'S CHARGING NETWORK SOLUTION FOR E-TAXI FLEETS



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# STARTING POINT

The city Hamburg has more than **3000** taxis.

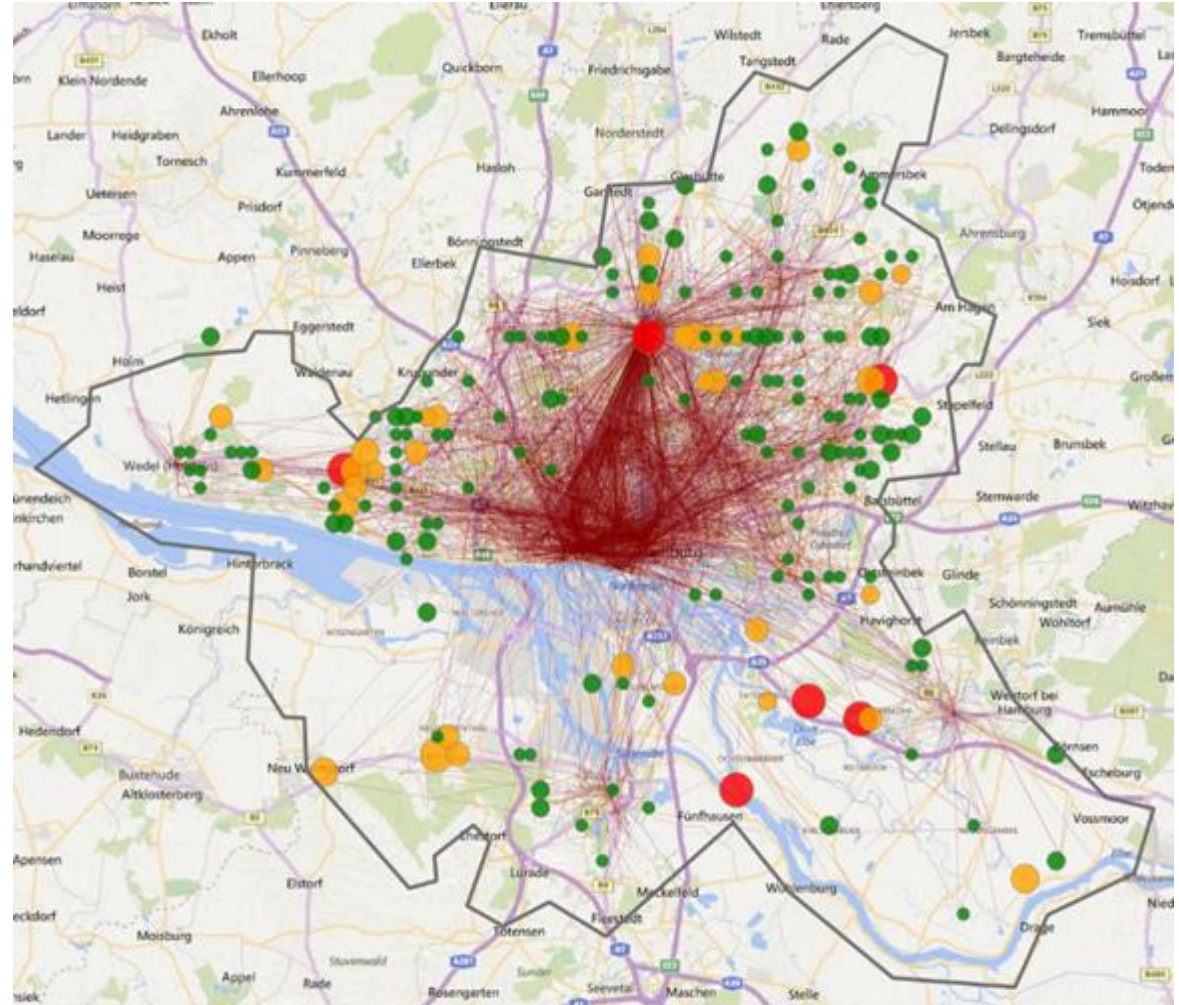
Only **2** of them are fully **ELECTRIC**. Nowadays, urban mobility develops itself towards becoming more efficient, affordable and sustainable. Hamburg wants to accelerate the transition of the taxi industry towards **ELECTRIC MOBILITY**.





# THE E-TAXI PROJECT IN HAMBURG

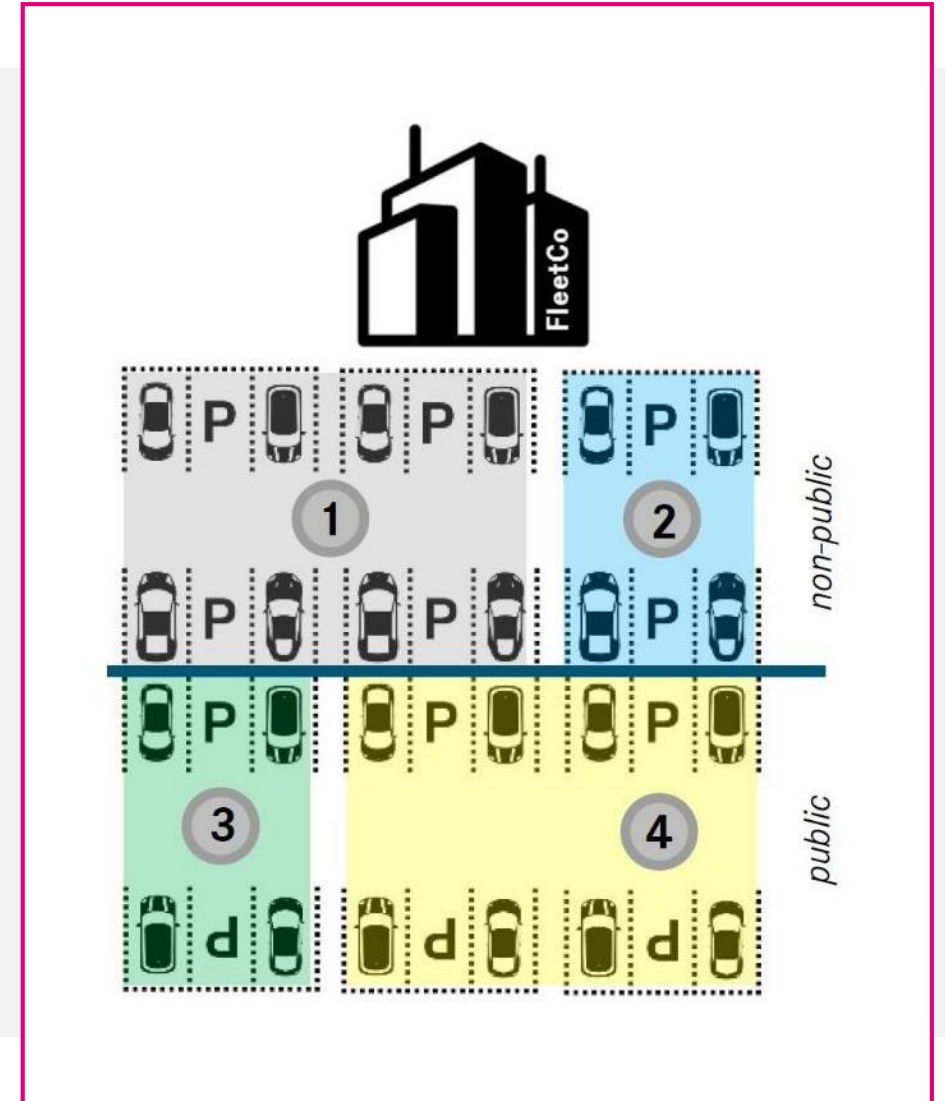
- An in-depth analysis of taxi rides and waiting times for taxis was executed in Hamburg.
- Infrastructure is crucial for maintaining and running an electric taxi fleet.
- Currently, 12 fast charging stations were built in these locations by Comfort Charge.
- Deutsche Telekom has 99 switching centres in Hamburg. Most of them are in highly frequented locations, where many taxi operators stop and wait for clients.
- Within the Solution+ project we want to provide exclusive charging possibilities for the taxi industry.
- The Solution+ project will select a small group of taxi companies to accompany and study the transition to an electric fleet.
- The purchase of e-taxi vehicles will be subsidized by the German government.



Red lines – taxi rides  
Dots – How long a taxi waited at a certain spot. (The bigger the dot, the longer the waiting period)

# PLAN, BUILD

- Consulting and conception of optimal charging solution depending on local demand and conditions such as number of parking lots, connection power, average charging duration, current and future BEV models in taxi fleet
- We provide a vendor independent solution
- Installation as well as maintenance is executed by Deutsche Telekom field service
- Construction works such as draw in cables are done by selected building company partners



# OPERATION

- A load management solutions is realized with control units which can also be connected to facility management systems for dynamic load management
- Charge data management for billing
- Buffer-battery integration possible
- Access to Telekom's Comfort Charge network with RFID card & mobile app
- For charging at stations of other charge point operators in Germany and Europe, roaming is available

TAXI





# WHY STARTING IN HAMBURG?

- The ITS World Congress is the world's largest and most prominent event focused on smart mobility and the digitalisation of transportation and will take place in Hamburg in 2021.
- The Congress offers stakeholders and patrons the ultimate platform to meet with industry influencers, discuss the latest and most seminal topics facing the market, meet with decision makers, get insights on future industrial technological advances and the future policies required to support the rapid growth of the sector.
- **Hamburg has the chance** to present their innovative mobility solutions to an international audience and set impulses for new projects in smart mobility.





A close-up photograph of a person's hands plugging a black charging cable into the port of a red car. The background shows a charging station with a red and white color scheme. The station has three charging ports and a digital display. The text 'COMFORT CHARGE' is visible on the station's panel. The overall scene is brightly lit, suggesting an outdoor or well-lit indoor environment.

# THANK YOU



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