EVS32 A world of E MOTION
2019 MAY 19 22
INTERNATIONAL
ELECTRIC VEHICLE SYMPOSIUM & EXHIBITION
EVS 50th anniversary 1969-2019

EnBW

Future Digital E-Mobility Services

EnBW Energie Baden-Württemberg AG
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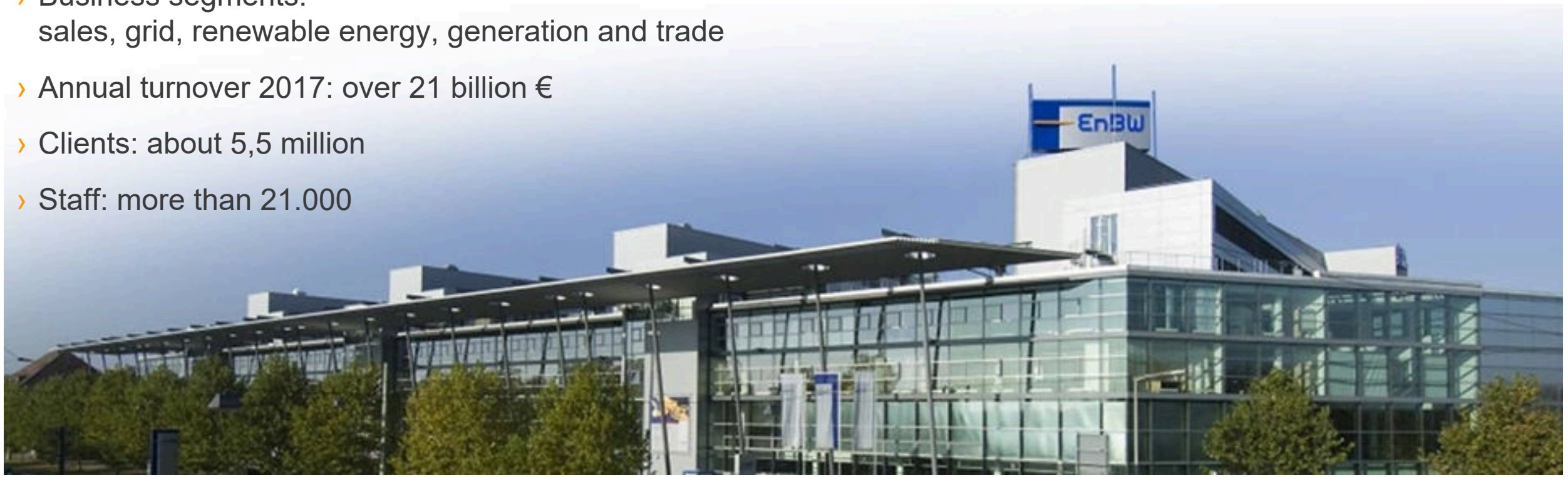
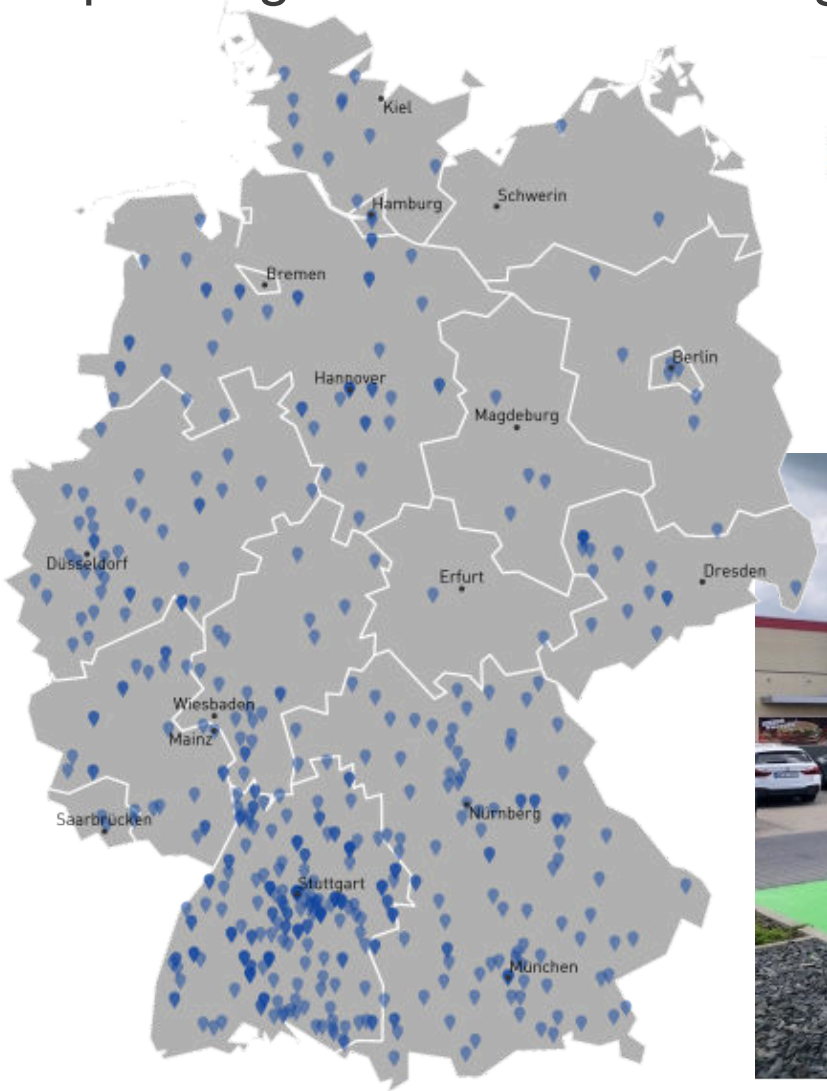
EnBW Energie Baden-Württemberg AG

- One of the largest utilities in Germany
- Business segments:
  sales, grid, renewable energy, generation and trade
- Annual turnover 2017: over 21 billion €
- Clients: about 5,5 million
- Staff: more than 21.000



Expanding the EnBW fast charging network



TANK & RAST · OMV · ECE · BURGER KING · hagebau · EURONICS

+ many more…

PRIVATE CHARGING

Live & Charge

- Examples: over night at home, housing industry, hotel
- Technology: 3 – 11 kW (Wallbox)

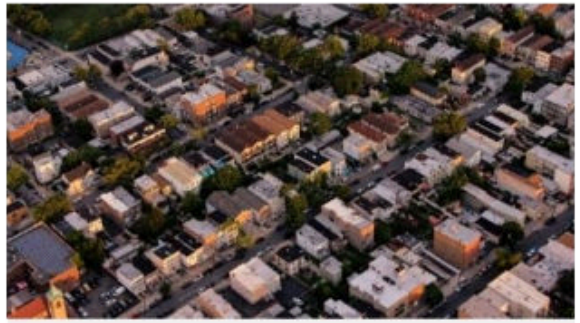
Typ2 / Schuko | battery 0-100 % | park time 10-12 h | usage 10-12 h daily

Work & Charge

- Examples: car pool, employees, guests, electric commercial vehicles
- Technology: AC 3 – 11 – 22 kW (Wallbox)

Typ2 | battery 20-100 % | park time 8-10 h | usage 8-10 h daily

PUBLIC CHARGING



Shop & Charge

- Examples: supermarkets, fast food chains
- Technology: DC up to 50 kW

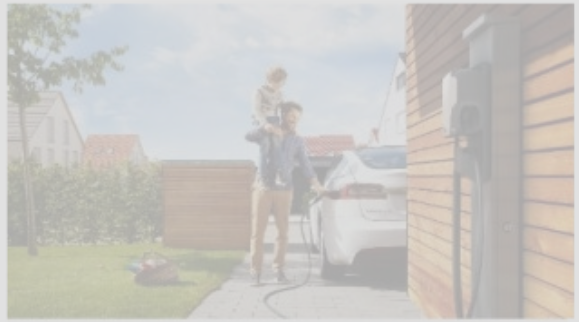
CCS | battery 20-80 % | park time 0-2 h | usage 1-3 h weekly

Charge = Refuel

- Examples: Charge on travel, at service areas, urban charge points, e-taxis
- Technology: DC 150 – 350 kW

CCS | battery almost empty | park time 8-10 min | usage 1-5 h a year

PRIVATE CHARGING



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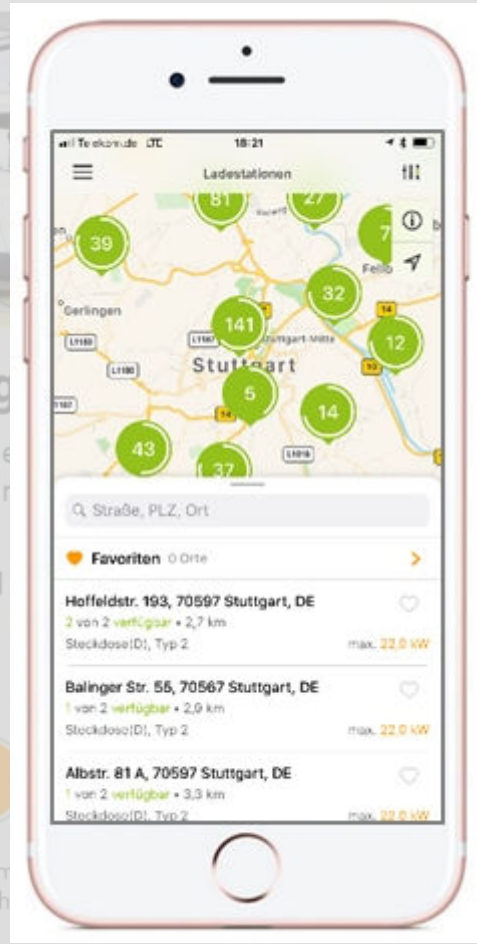

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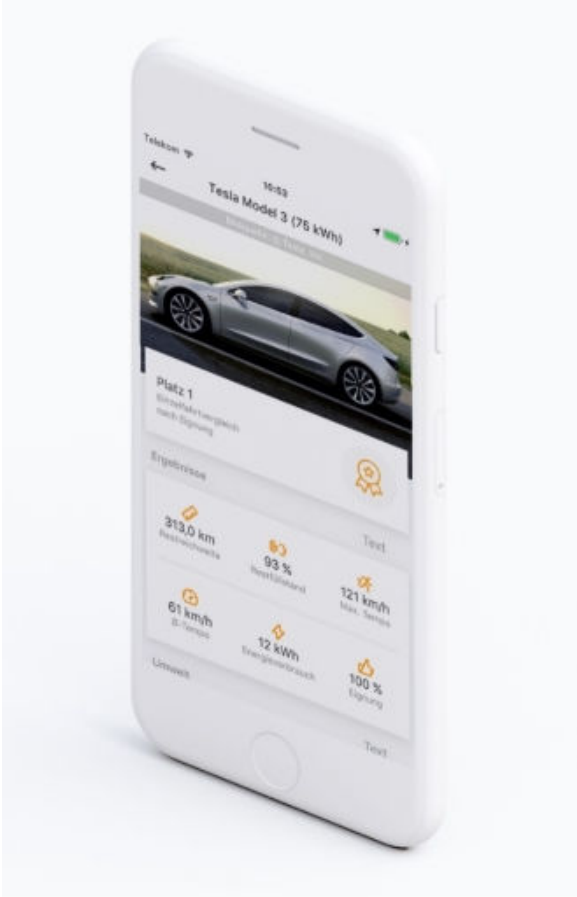
Handling public infrastructure: charging made easy

- major criticism: lacking infrastructure, poorly connected operators, tariff jungle
- **Driving simulator** supports before the actual purchase decision
  - Evaluation of consumption, speed and distance
  - Provides a catalogue of all suitable e-cars
  - Ranking: to what extent are the different models suited?
- Supports those customers who are still in the decision-making process



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Handling public infrastructure: charging made easy

- **Charging station finder** compromises infrastructure across Europe
  - Detailed information about availability and access
  - overviews types of plugs and corresponding tariffs
  - paying for sessions directly within the app
  - additional services such as coupons will be integrated soon
- Prospectively: connection with smart home systems and park space management in companies

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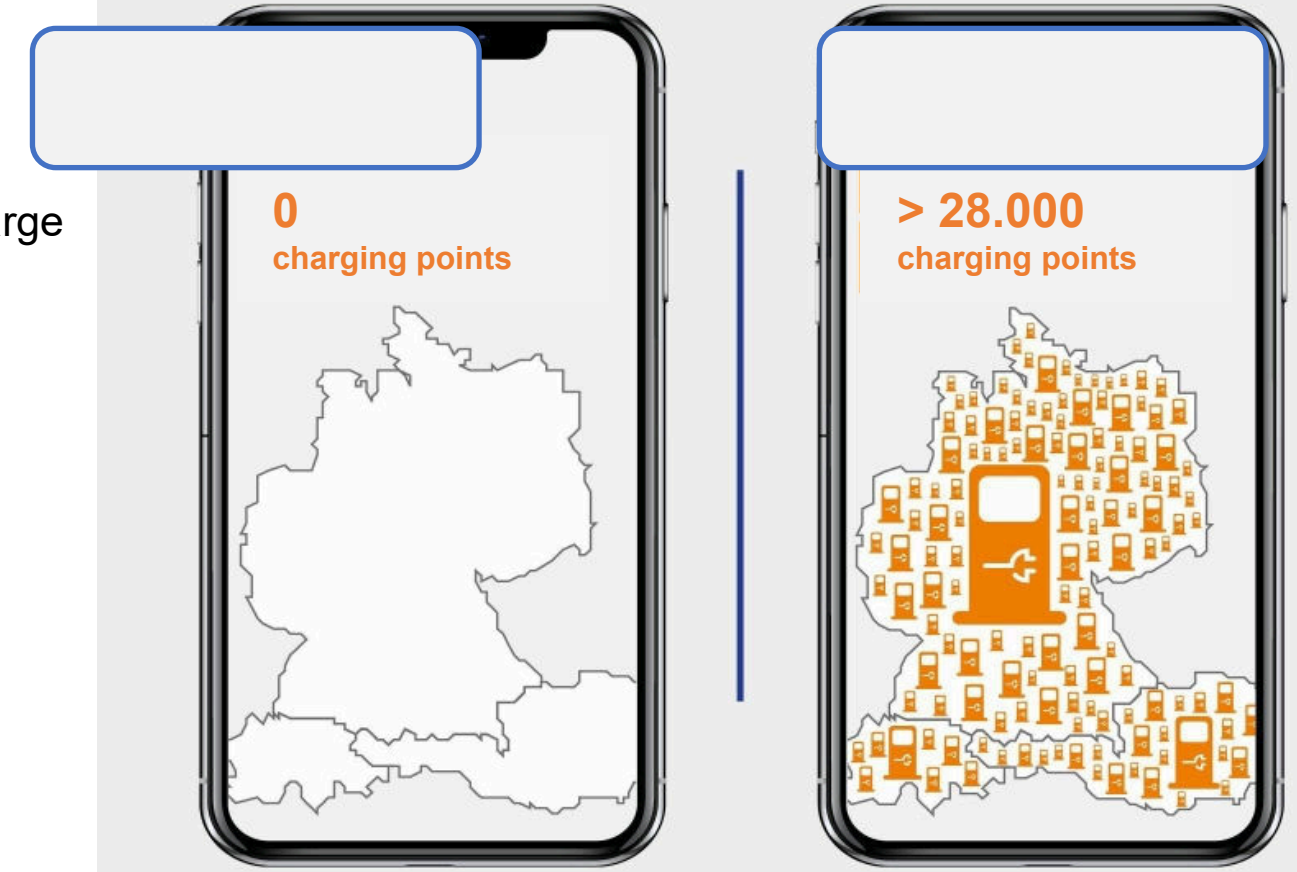
E-Roaming: driving forward network connection

- Non-transparent provider side leads to apparently complicated charging scenarios
- Overachieving goal: EV drivers should be able to charge at any station at common known tariffs
- EnBW acts as CPO and EMP on the market
- **Interconnected mobility market makes customer-friendly charging a reality**
- Prospectively: automated charging processes via Plug&Charge



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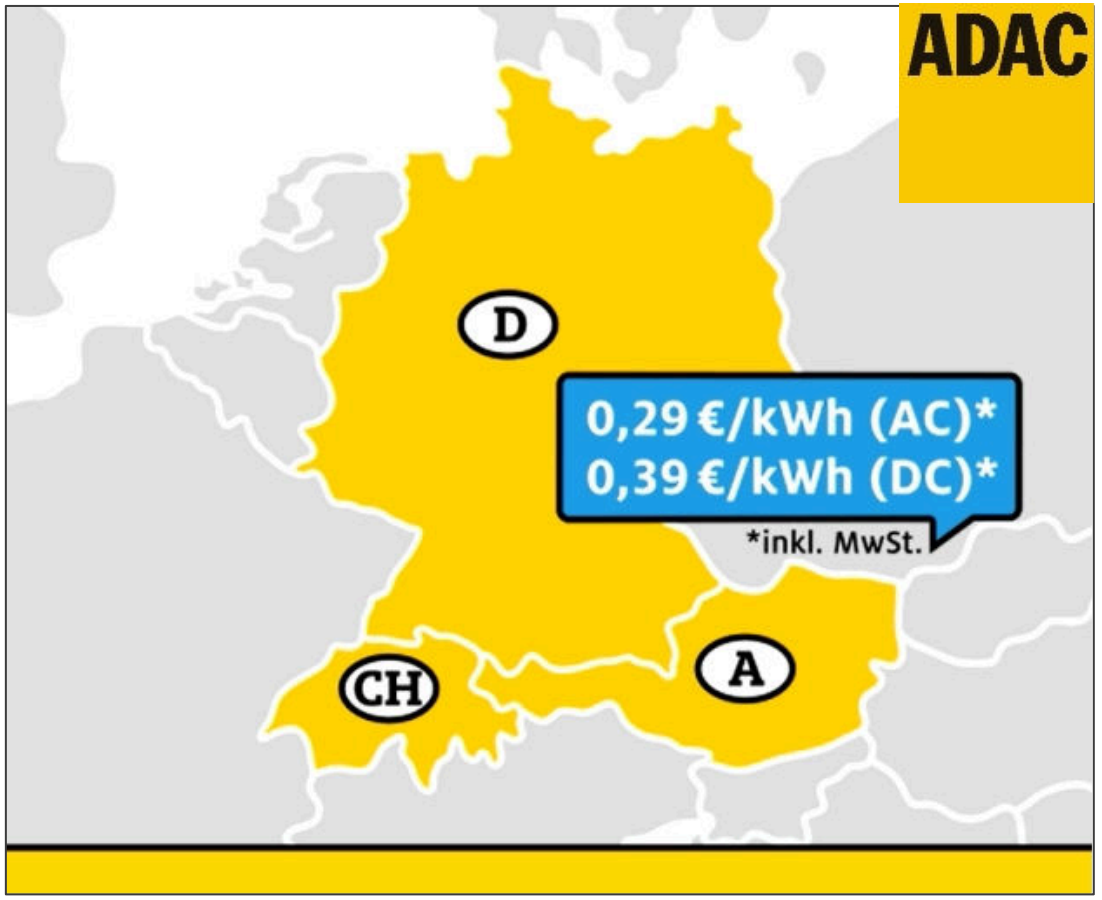
Cooperation with ADAC – Europe‘s largest automobile club

- More than 18 Million members
- Best transparency of charging fees
- Bonus for ADAC members
- Instant access to more than 25.000 charging points in Germany – Switzerland –Austria
- Easy to use with great value added services to come




Green Product Award
ADAC
Deutscher Preis für Onlinekommunikation 2015
deutscher digital award
Link to EnBW solar+
generate your own power to charge your e-car
Award-winning EnBW mobility+ app
most downloaded E-Mobility app in Germany (over 120.000 Downloads)
EnBW
One of the largest fast charging operator in Germany
Suitable charging solutions at home, on the go, and at work

EnBW

Private charging: combining smart energy solutions

- Home-based charging solution can be combined with various energy solutions
- (Single) family houses: combination with PV power plants, energy management systems, integration in the smart home
- As added feature in the app: monitoring charging processes and individual determination of several charging modes
- With advanced energy- and load management: Equipping apartment complexes with wallboxes will be possible
- **Prospectively: EnBW mobility+ App as an intersection between areas of public and private charging**

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Workplace charging: future mobility for companies

- **EV drivers have the option to charge their cars during office hours** – accessing and paying with their usual medium
- Reasons for companies: coming forward as an innovative institution, attracting customers who expect charging possibilities in the equipment
- Depending on the company's requirements and application, any charging station can be installed
- Charging is possible for guests, customers and company's own electric fleet
- **Expanding business model: eqipping homes with wallboxes, which allows employees to charge at home**

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Customer needs: a central perspective

- E-mobility must be intuitive, convenient and satisfy customer needs
- Our goal: instinctive handling when charging electric vehicles
- Basic needs: transparency, security and stability
- Advanced needs: autonomy, flexibility and intuitive handling

We are pursuing to **create a holistic charging experience** by combining everyday life charging scenarios:

"always charged"

at home, the workplace, while travelling or during everyday activities!

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