

converting parking spaces into **charging points**









public and semi-public charging infrastructure



our
MISSION



Why the future belongs to **E-MOBILITY**

 55 $\frac{\text{kWh}}{100 \text{ km}}$	 1,8 $\frac{\text{km}}{\text{kWh}}$	fuel
 100 $\frac{\text{kWh}}{100 \text{ km}}$	 1,0 $\frac{\text{km}}{\text{kWh}}$	synthetic fuel
 50 $\frac{\text{kWh}}{100 \text{ km}}$	 2,0 $\frac{\text{km}}{\text{kWh}}$	hydrogen
 20 $\frac{\text{kWh}}{100 \text{ km}}$	 5,0 $\frac{\text{km}}{\text{kWh}}$	electricity

we electrify **PARKING SPACES**

- Successful realization of charging infrastructure projects since 2012
- High solution competency: consulting service, installation, operating service
- Billing service which fulfils the requirements of the German measurement law
- Complete solution provider
- Customized solutions, incl. sale of charging hardware
- One face to the customer
- Maintenance and other services

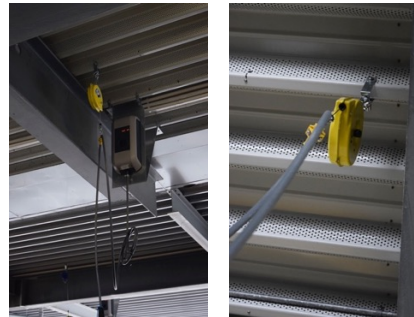


CEILING CONSTRUCTION

AC

Charger

- AC chargers are mounted underside the ceiling
- A special supporting construction allows to attach the charger at almost every kind of ceiling



Charging cable

- A wire rope hoist (upper picture), a cable drum (lower picture) or a similar solution can be used to bring the charging cable to the vehicle



DC

Charger

- DC power unit is located inside a robust cabinet close to the car park
- A single cabinet contains the power units for several charging points

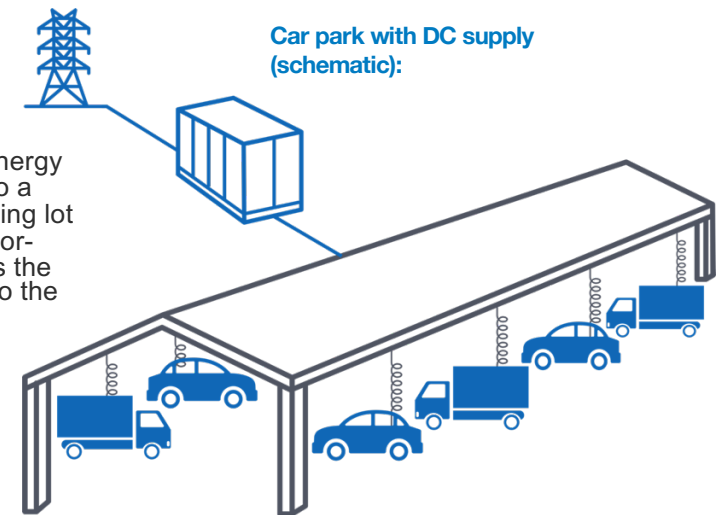
DC power unit:



Charging cable

- DC cables bring the energy from the power units to a point above each parking lot
- From that point a (motor-driven) cable drum lifts the charging cable down to the vehicle

Car park with DC supply (schematic):



REFERENCE PROJECT

CHARGING-HUB

Costumer Ride Share Service company* (subsidiary company of a German OEM)

Sector Transportation, logistics

Requirements

- Conception and construction of a central charging-hub
- 50 AC charging systems with integrated charging cable (type 2 plug)
- 13 wall installations, 37 ceiling installations with cable reels and supporting construction (developed by Parkstrom)
- Charging capacity per charging point: 11 kW, three-phase, 16A, phase-rotation within sub-distribution unit
- Four loading groups, master-slave-system with integrated load management

* non-disclosure agreement

Short description

A Ride Share Service company wants to charge its fully electric vehicle fleet in a central loading-hub owned by the company. In total 50 AC charging systems were installed. At a height of 4.5 m 36 charging systems were attached to the ceiling. It was fixed by a special supporting construction with a charging cable unwinding system which was planned and implemented by Parkstrom. The integrated local load management supports an optimized network utilization within the operation which started in December, 2019.



REFERENCE PROJECT

CAR PARK

Customer	GENO Haus, Stuttgart
Sector	Real estate, rental office space
Requirements	<ul style="list-style-type: none">- The first four charging points (AC) in the parking lot of the office building- System needs to be scalable- Easy access for different user groups- Transparent and easy billing process

Short description

GENO-Haus is an office building in Stuttgart that offers both, office and event spaces. The management decided to offer an additional service for employees, tenants as well as event participants. Parkstrom developed a concept for the integration of four charging points at the car park. If necessary the system can be extended. To grant easy access to all different user groups a direct payment system was integrated that offers registration and payment without contractual obligation. A contactless bank card serves as charging card and allows direct payment.



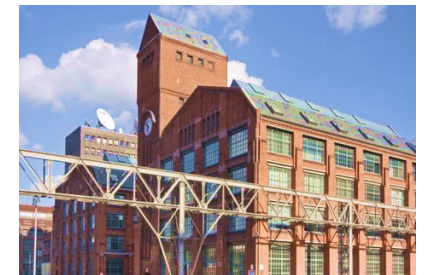
REFERENCE PROJECT

REAL ESTATE

Customer	Gewerbesiedlungs-Gesellschaft mbH (GSG), Berlin
Sector	Real estate, rental of high-quality office and commercial spaces
Requirements	<ul style="list-style-type: none">- Project planning, construction and operation of 110 charging points- 27 DC charger with 75 or 150 kW in total- 60 AC charger with 2 x 11 kW- Integration of Direct Payment System for tenants, visitors, service providers- Load management (optional)

Short description

GSG Berlin is one of the largest owners of business parks in Berlin (44 business parks in Berlin, another 4 outside of Berlin). The executive management decided to support e-mobility by offering charging infrastructure at 13 of 44 GSGs business parks. GSG owns 5,500 parking spaces in total. As a first step 110 charging points will be installed within the next three years. This includes, among other things, the equipment of a new building car park project with in total 30 charging systems. Each business park needs an individual concept that depends on the structural requirements, the user group and the needs expressed by the tenants. Project realization started in the beginning of 2020 and 16 charging systems (March, 2020) are installed and in operation.



REFERENCE PROJECT

RETAILER

Customer	Retailer*, more than 10,000 stores throughout Germany
Sector	Food retail
Requirements	<ul style="list-style-type: none">- Charging infrastructure to equip the parking spaces of the stores- Selection of charging systems based on individual needs- Installation and operation of AC charging points

* non-disclosure agreement

Short description

Parkstrom acts as permanent strategic partner for providing charging infrastructure since 2016. Objective of the project is to equip parking spaces owned by individual stores with charging systems on a demand-oriented basis. As of December, 2019 approx. 80 charging points were finished and are in operation.



REFERENCE PROJECT

LOGISTICS COMPANY

Customer	international logistic company* thousands of cars in Europe will be electric
Sector	Logistic for parcels with goods of all kinds
Requirements	<ul style="list-style-type: none">- Charging infrastructure to equip the parking spaces for hundreds of vans- Selection of charging systems based on the specific needs for fleets- Installation of AC charging points- in future: battery solution to secure the supply with green energy

* non-disclosure agreement

Short description

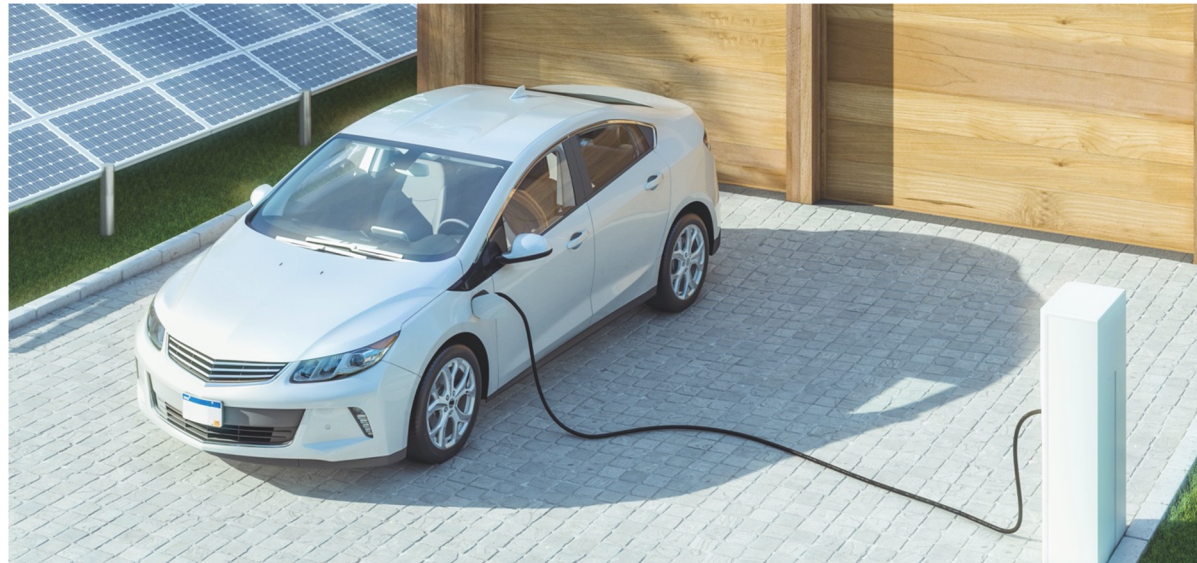
Parkstrom is a system supplier, coordinator and project planner. Parkstrom works in a consortium with a big energy supplier and an installation company. These take over the services of grid connection, cable laying (civil engineering) and the installation of the charging systems, concrete bases and distribution boxes supplied by Parkstrom.



public and semi-public charging infrastructure

PROJECT PLANNING

- Detailed analysis of expected usage and operator concept development
- Selection of charging systems based on individual utilization concept
- Different options for granting access and invoicing
- Electrical connection through existing installation or new installed electrical connection
- Load management
- Billing service (based on German measurement law)



UTILIZATION ANALYSIS



site selection



user group



vehicles



charge cycles



operator model

selection of **CHARGING TECHNOLOGY**

- AC or DC charging system
 - Plug connector, charging capacity
- Single parking space or car park?
 - Master-slave-system
- Indoor or outdoor?
 - Protection against vandalism
- Closed user group or various and changing e-vehicle drivers?
- Smart charging system with backend connection?



Ladelösungen **Ladestationen** Betrieb Service Über uns News Kontakt



AC Wallbox Heidelberg Home Eco

Der Einsteiger

- fest angeschlagenes Kabel mit Ladestecker Typ 2
- bis max. 11kW AC
- einfacher Zugang per Plug & Charge
- Fehlerstromerkennung im Gerät
- Preis: ab 419 € (UVP, zzgl. MwSt.)



AC Ladestation compleo Advanced Giro-e

Die robuste Selbständige

- 2x Ladebuchse Typ 2 bis zu 22 kW
- eichrechtskonform
- innovatives Zahlungssystem: Giro-e für bargeldloses Laden per NFC über EC-Karte
- direkter Netzanschluss (optional)
- Preis: ab 5.220 € (UVP, zzgl. MwSt.)



DC Ladestation Alpitronic Hypercharger

Der formschöne kompakte Schnell-Lader

- festangeschlagenes Kabel mit Ladestecker
- CCS optional zusätzlich mit CHAdeMO
- optional 1x Ladebuchse Typ 2 (22 kW)
- 75-150 kW (modular erweiterbar)
- RFID-Lesegerät zur Nutzeridentifikation



access and **INVOICING**

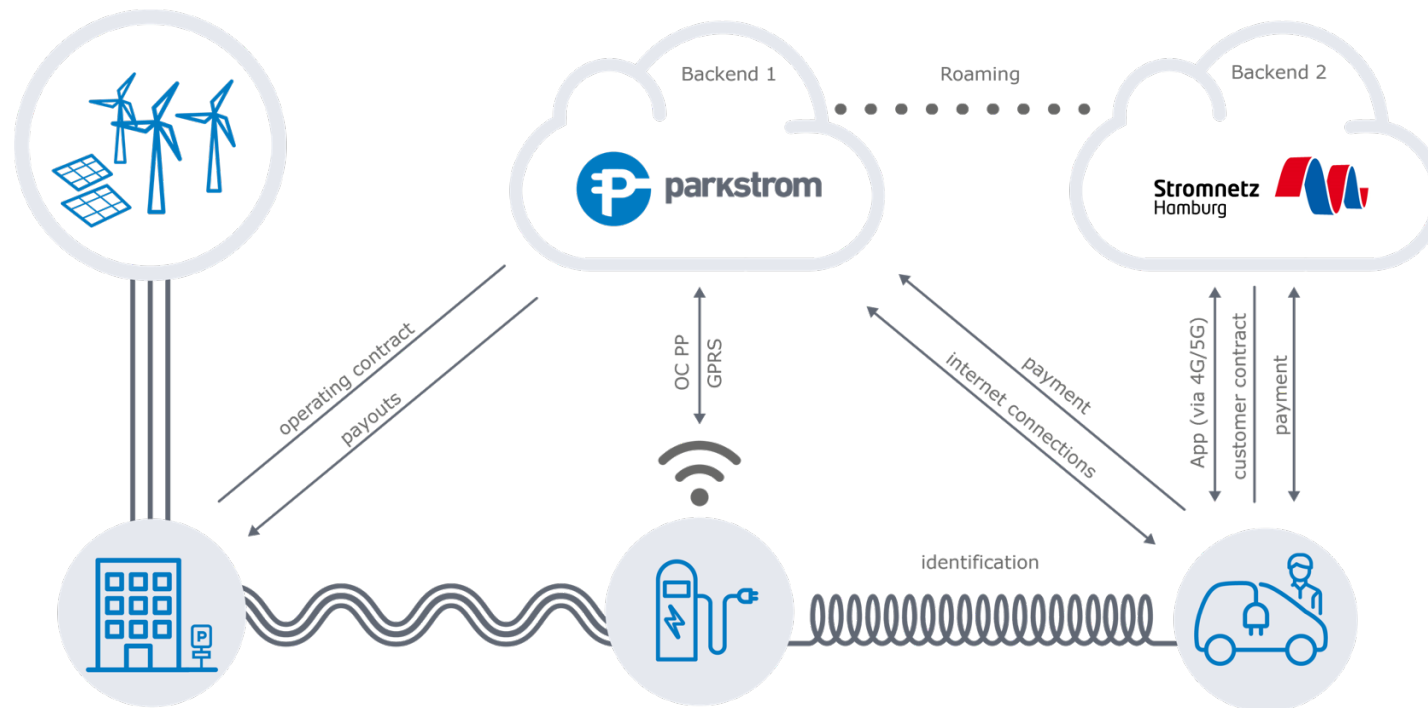
- CPO offers different models for granting access and accounting
- Plug & Charge: no billing, only reporting if necessary
- RFID card : billing (inhouse)
- RFID card, app, QR-code, SMS: possible through EMP
- Direct payment via Giro-e and cash-terminal

=> Smart charging systems with backend connection allow billing services

=> Invoicing based on kWh



access and invoicing **VIA BACKEND**



complete solution

GIRO-E

- Direct payment without registration and contractual obligation
- Contactless giro card serves as charging card
- More than 50 million card owners today
- Partly high fees for roaming and providers are cancelled
- Owner can offer flexible and attractive prices
- Transparent, fast, simple billing process
- Payment risk is taken by GLS-Bank
- Low banking charges



example billing

GIRO-E

Giro=eHome Infos ▾

Dashboard

Ihre Ladevorgänge

09.11.18, 09:54 - 14:53
Status: abgeschlossen
Betrag: 0,00 €
[Beleg](#)

08.11.18, 16:46 - 16:53
Status: abgeschlossen
Betrag: 0,00 €
[Beleg](#)

08.11.18, 16:19 - 16:45
Status: abgeschlossen
Betrag: 0,00 €
[Beleg](#)

08.11.18, 16:17 - 16:18
Status: abgeschlossen
Betrag: 0,00 €
[Beleg](#)

08.11.18, 15:55 - 16:17

Ihre Rechnungen

P00000002
Betrag: 0,94 €
Datum: 18.10.18, 05:05

P00000001
Betrag: 0,55 €
Datum: 15.10.18, 10:15

MESSE0132
Betrag: 0,02 €
Datum: 11.10.18, 15:02

MESSE0133
Betrag: 0,08 €
Datum: 11.10.18, 15:02

Ihre Konten

Standard-Konto
Typ: girocard
IBAN: DE41100900002479316000

Parkstrom GmbH
Anna-Louisa-Karsch-Str. 3
10178 Berlin

Klaus Tefmann
Lindenhofer Allee 65
14163 Berlin

parkstrom

Datum: 17.10.2018
UStID: 3046650297
E-Mail: kundenservice@parkstrom.de
Telefon: 030-919011-89

Rechnung P00000002

ID	Position	Bruttopreis
AA1111111z	Ladevorgang 17.10.18, 12:52 - 13:33	0,43 €
AA1111111j	Ladevorgang 17.10.18, 13:34 - 14:19	0,48 €
AA1111111k	Ladevorgang 17.10.18, 14:20 - 14:29	0,03 €
Gesamtsumme		0,94 €
Netto		0,79 €
19 % MWST		0,15 €

Der Betrag wurde am 18.10.2018 mit der SEPA-ID AA1111111k eingezogen.
Wir bedanken uns, daß Sie bei uns geladen haben. Gute Fahrt!

Einzelposten

Ladevorgang AA1111111z

Ladezeit: 17.10.18, 12:52 - 13:33
Ort: Anna-Louisa-Karsch-Straße 3, 10178 Berlin, DE
Ladepunkt EVSEID: DIEGLSEMESE0101

Position	Messwert	Abrechnung	Grundpreis	MWST	Brutto	Rebatt
Start	1	1	0,35 €	19 %	0,35 €	-0,32 €
Verbrauch	0,008 kWh	0,007 kWh	0,34 €	19 %	0,00 €	0,00 €
Zeit	0:40:52 Std.	0:40:27 Std.	0,60 €	19 %	0,40 €	0,00 €
		pro Stunde				
Zwischensumme					0,79 €	-0,32 €
Summe Ladevorgang AA1111111z					0,43 €	

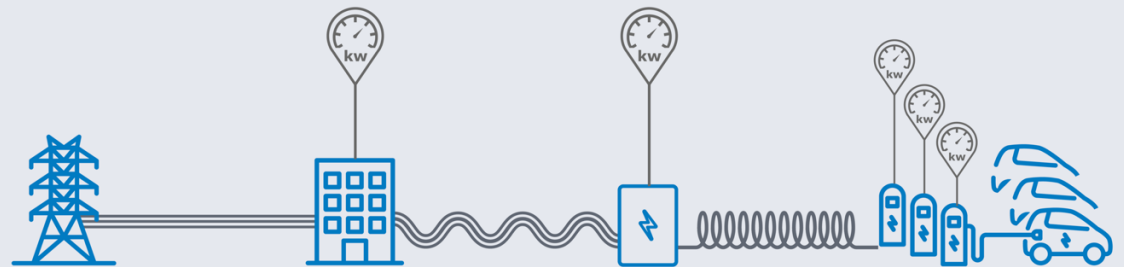
Vielen Dank, daß Sie bei Parkstrom geladen haben! Mehr Informationen unter www.parkstrom.de. Der Startpreis wird während der Kennzeichnung reduziert.

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grid connection and **LOAD MANAGEMENT**

- Charging infrastructure may increase network load
- Extension of power connection potentially cost-intensive and time-consuming
- Load management (dynamic or static) resolves the problem
- Load peaks are avoided through determination of a maximum output
- Lower investment costs and reduced demand rate during operation



we are interested in

COOPERATIONS / CUSTOMERS

We are looking for

- Customers
 - Owners of (ideally larger) parking lots intending to equip (first) parking lots with charging systems for electric vehicles, in particular large and medium-sized enterprises (eg shopping malls / retailers, hotels, car park operators, hospitals) or
 - Owners of utilities with parking places looking for charging solutions for their OWN electric vehicles and for their customers
- Companies as long-term cooperation partners
 - either that want to install charging infrastructure and perform the maintenance and service
 - and/or that (in the future) are interested in a joint venture with us and thus offer our services with us



Any more questions?

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