charge@home

Guideline for the billing of company cars in the home sector

charge@home – Guideline for the billing of company cars in the home sector (2024)

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Guideline

charge@home Company car billing

Practical tips and examples for fleet managers

The electrification of car fleets is a key component of the energy transition in the transport sector. More and more companies are recognizing the advantages of electric vehicles: they are not only environmentally friendly, they can also be cost-efficient if used correctly. Home charging of electric company cars, also known as charge@home, plays an important role.

This guide is a valuable tool for fleet managers looking to electrify their fleet and learn more about home charging and company car charging. It offers practical advice and information based on the latest insights and best practices.

Content

1 Introduction

Electrification of the car fleet as a key to sustainable mobility

Converting car fleets to electric mobility is an important step towards reducing CO2 emissions and achieving climate targets. Electric cars produce no local emissions while driving and can be powered by electricity from renewable sources. In addition, companies benefit from lower operating costs, because electric cars need less maintenance compared to combustion engine cars and electricity is often cheaper than gasoline or diesel, especially for home charging. Car fleets, especially those of large companies and organizations, often represent a significant proportion of company‘s total emissions. Therefore, the electrification of car fleets can have a significant impact on a company‘s carbon footprint.

Nevertheless, the electrification of car fleets is a new and complex topic that involves many challenges for fleet managers. These include technical issues such as

- selecting the right cars and charging infrastructure
- organizational issues such as planning and implementation of the transition
- Financial issues such as the costs of purchase and operation of the cars and chargers.

There are various charging options for electric cars, including public charging stations, charging stations at the workplace and home charging stations.

2 Special case charge@home

Comfort meets efficiency: advantages and possibilities of home charging

Charging company cars at home offers significant advantages for both companies and employees. For drivers, it is a comfortable and efficient solution to charge their car at home overnight instead of spending time at public charging stations.

Companies benefit from lower costs, because home charging tariffs are significantly cheaper than charging at a public charging station. The following options are available for charging the company car at home:

Household socket

The easiest way to charge an electric car at home is to use the emergency charging cable in conjunction with a conventional household socket. This method does not require any special equipment or installation but can be quite slow due to the limited power of the socket (usually around 2.3 kW, max. 3.6kW). It is important to note that not every socket is suitable for regular charging of electric cars, because this places a high load on the socket.

Mobile charging station

A mobile charging station, also known as an InCable Control Box (ICCB), is a type of portable wallbox. It can be connected to various sockets (e.g., household/power socket) and offers a higher charging capacity compared to a conventional socket, but generally does not achieve the performance of a stationary wallbox.

Wallbox

A wallbox is a specific charging station that is installed at home and offers a significantly higher charging capacity than a household socket (typically between 11 kW and 22 kW, depending on the electrical installation of the house). Electric cars can be charged much faster with wallboxes than with a household socket. They often offer additional functions, such as the option of scheduling charging at certain times or monitoring the charging process via an app. The wallbox is the most future-proof and best option for charging and billing the company car at home. It also enables the integration of a PV system via an energy management system. The possibility of bidirectional charging in the future is a further advantage. For this reason, drivers should install a wallbox for charging and billing their company car if possible.

Ownership and liability for the purchase of a wallbox

The purchase of a wallbox for home charging of company cars can be carried out either by the company or by the employees themselves. Each option has specific advantages and disadvantages that affect the ownership and liability situation.

Purchase by the company

If the company purchases the wallbox, it usually retains ownership of the wallbox. This means that the company is responsible for the installation, maintenance and repair of the wallbox. It can also be held liable for any damage caused by a defect or improper use of the wallbox.

In practice, two options for purchasing the wallbox have proven successful:

1 The company lets the employees purchase the wallbox, so that there are no liability risks for the company. With this option, it is important to work with a mobility service provider that has a high degree of flexibility in terms of wallbox models so that the employee can choose freely. The costs incurred can optionally be reimbursed via the travel expense report.

2 The company takes care of the purchase and installation of the wallbox and then rents it out to the employee. In this case, the company can set better specifications for the wallbox model but has additional administrative expenses due to the rental of the hardware.

1. Purchase by the company

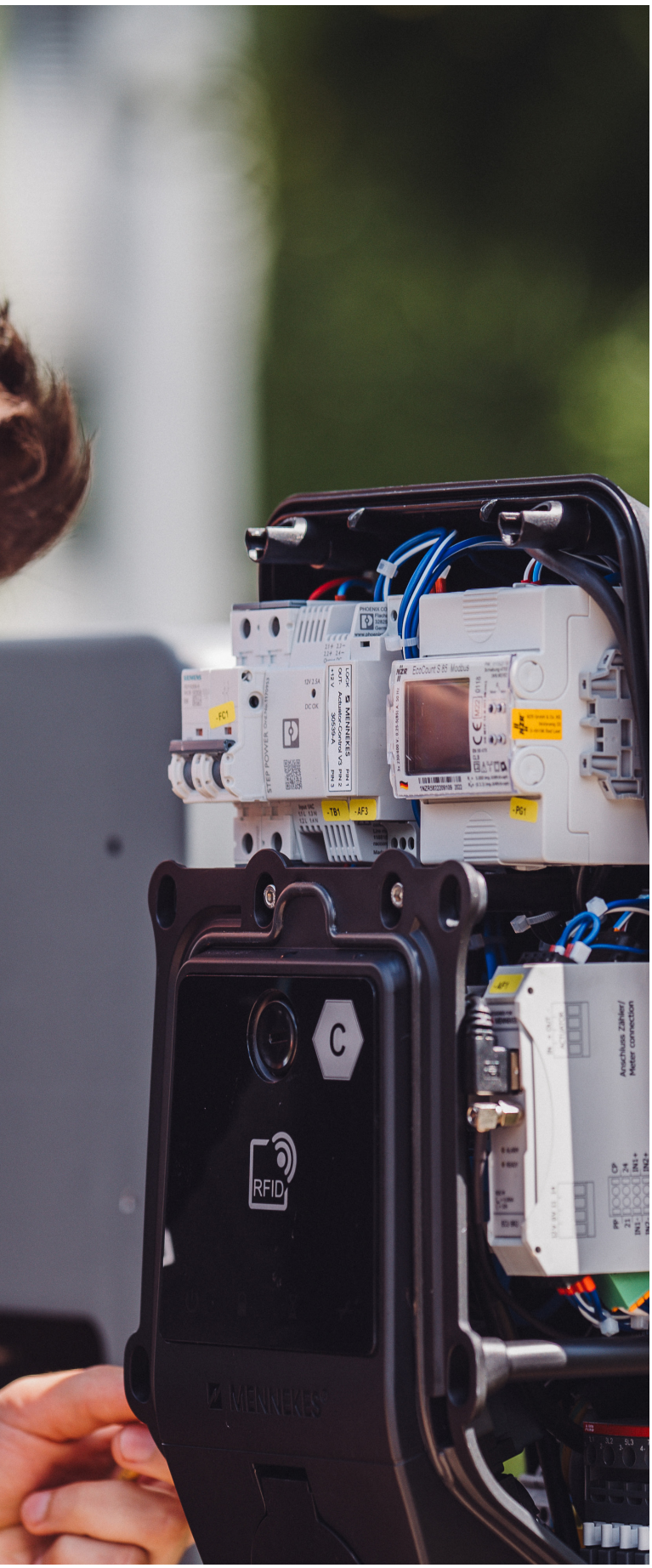
One advantage of this option is that the company can deduct the cost of purchasing and installing the wallbox as a business expense. A disadvantage, however, is that the company may not be able to remove or replace the wallbox if the employee leaves the company or relocates.

2. Purchase by employees

If the employee purchases the wallbox, they usually become the owner of the wallbox. This means that the employee is responsible for the installation, maintenance and repair of the wallbox and is liable for any damage.

One advantage of this option is that the employee can keep the wallbox if they relocate or change employer. However, a disadvantage is that the employee must bear the cost of purchasing and installing the wallbox, although subsidies or grants may be available to partially cover these costs.

Regardless of the type of purchase, it is important that companies and employees reach a clear agreement on ownership and liability before purchasing a wallbox. This agreement should be recorded in writing and signed by both parties.



Once the ownership and liability relationships have been defined in the internal company guidelines, it is time to find a qualified service provider. This service provider should not only be responsible for the procurement and integration of the wallbox but should also professionally manage the installation and the entire billing process, including automated billing.

The implementation of an automated billing process is an investment that pays off in every aspect through efficiency and cost-effectiveness. Assuming an hourly rate of around €50 and considering the time and effort that company car drivers, HR and finance employees spend on manual billing, monthly personnel costs quickly add up to €100-150 per billing per company car driver. For automated payment via a service provider without additional internal effort, the charge is usually no more than €15-20 per month per charging point. Even for smaller car fleets, switching to an automated billing system is therefore always worthwhile.

In the following, we explain what you should look for when choosing a service provider. Choosing the right wallbox for home charging of company cars and the associated billing can involve some special features and challenges.

3 Basics of home charging

The Wallbox – Requirements and installation for an efficient future

Choosing the right wallbox for charging and billing company cars in home area depends on many different individual factors. The wallbox models on the market can be roughly divided into three categories: simple wallboxes without an interface, smart wallboxes and wallboxes that comply with calibration law.

Simple wallboxes

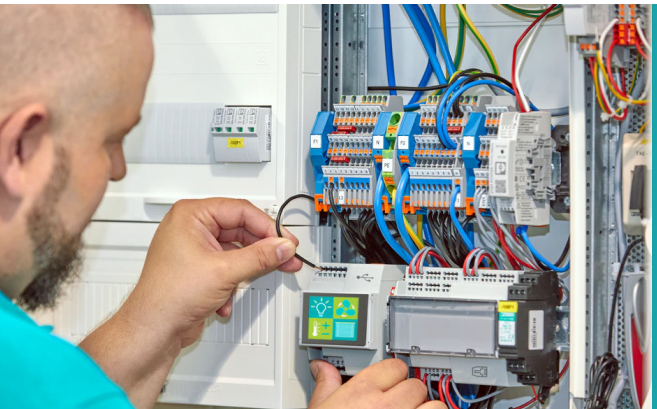
The simple wallboxes are the most cost-effective models. They do not have a direct data transfer option and often only offer charging functionality. These models have become popular thanks to the KfW funding a few years ago. These models cannot be used for billing with the service providers on the market. The only option for billing these models is the integration of the existing wallbox into the Charge Repay Service.

Smart wallboxes

The second category is smart wallboxes. These models have an OCPP interface for data transmission of the billing data, but for legal reasons they can only be used to charge one car at a time, otherwise the billing is not in accordance with the calibration law. To bill these wallboxes in accordance with the calibration law, it is possible to retrofit them via the Charge Repay Service.

Wallboxes that comply with calibration law

The most modern and expensive wallboxes are those that comply with calibration law. These wallboxes have been specially developed and certified for charging company cars. However, compared to the other two categories, they are not yet widely used in the home sector, as not all manufacturers have yet gone through the certification process and the wallboxes are comparatively expensive.



Important for installation

The installation of the wallbox and/or an additional meter may only be carried out and approved by certified electrical specialist companies.

4 Home charging of company cars

Legal framework conditions and special features of company car billing

The calibration law is a loyal companion on the road to electrification. In addition to public and semi-public billing, it also regulates the accuracy of charging devices in the private sector and ensures that consumers are billed fairly and transparently.

In Germany, the respective state calibration offices are responsible for monitoring the use of measuring instruments in accordance with calibration law. According to the applicable regulations, commercially used measured values must be determined using a measuring instrument that complies with calibration law. Charging stations that are used exclusively for private purposes and are not used for billing generally do not comply with calibration regulations. However, due to the limited number of users and the restricted area of application, there are special regulations for the home area that enable billing in accordance with calibration law with fewer requirements.

For billing in the household sector, an electricity meter that has been assessed for conformity with EU standards (MID meter) is sufficient under the following conditions. To take advantage of this exception, the meter must only record the electrical energy transferred to charge the electric cars, the energy may only be obtained from one contractual partner and the meter must be assessed for conformity or validly calibrated. If these conditions are fulfilled, simple wallbox models with MID meters can also be used for billing in accordance with calibration law. However, as soon as another car, such as a second car or a neighbor‘s car, charges at the wallbox, the conditions for billing in accordance with calibration law via the meter or a simple wallbox are no longer fulfilled.

As electric cars become more widespread, the number of users charging at a single wallbox will increase significantly. According to the law, a wallbox that conforms to calibration law would be required in this case, according to measuring instrument type no. 6.8 (AGME). The operator of the charging point is responsible for ensuring that it is used in accordance with the law, in this case the private individual or company car driver.

Calibration-compliant billing for all wallbox models (Manufacturer-independent)

The Charge Repay Service offers you the advantage that we can enable a legally compliant billing with every wallbox through a patented retrofit process. It is possible to distinguish between different users and to bill several company cars or private vehicles in a legally compliant manner. In addition, retrofitting is significantly cheaper than purchasing a new, expensive wallbox that complies with legal requirements. We would be happy to provide you with further insights and details about this solution in a personal meeting.

5 Billing of charging processes

Integration and billing – the backend as the mainstay of home electricity refund

Once the wallbox has been purchased and installed, it must be transferred to operational mode. Typically, the wallbox is connected to a billing backend for this purpose.

Many modern wallboxes are connected directly to the backend via an integrated SIM card from the billing service provider. Older wallboxes can be connected via WLAN, LAN or SIM, for example, using the Charge Repay add-on hardware.

Once the wallbox has been connected to the backend, the charging processes are automatically transferred and can be billed. The backend for billing typically consists of a driver and a fleet manager module. The driver can use the app provided to view all charging processes and enter other relevant data, such as the mileage or electricity price.

Depending on the service provider, the charging processes are exported at the end of the month and made available in various file formats. Some service providers also offer a full-service package and automatically pay out the charging processes to the company car drivers. Below, we list some important features that you should consider when choosing a service provider.

Charging dashboard:

All charging processes should be clearly listed in a dashboard and a (web) app for both the company car driver and the fleet manager. This makes it easier to track charging processes and reimbursements during operations and simplifies billing.

Export function:

Within the dashboard, fleet managers should be able to export all charging processes consolidated across all drivers in various file formats. In addition to a clear PDF file for storage, CSV files are useful, which can be read automatically via the internal HR systems. They should also be able to add to the CSV file to add individual data records.

Company car vs. private car:

The app or fuel/charging card provided should allow you to distinguish between and assign charging processes to different cars. With several cars, legally compliant differentiation is only possible with a complete system that complies with calibration law.

Plausibility check:

The previous entry of the mileage at the time of refueling is no longer required for electric company cars. The associated plausibility check is more difficult and should be covered by the service providers. Continuous mileage recording via the driver app should be just as much a part of this as the updating of the household electricity tariff.

Payment function:

To minimize the effort involved in fleet management, it is crucial that the service provider also takes over the final payment of the charging processes to the driver. Some service providers only offer the export of the charging processes.

Onboarding process:

It is essential that the service provider provides a seamless and automated process that allows the driver to easily clarify all relevant questions about the local situation and to automatically go through the ordering and installation process. This minimizes the effort for the fleet manager and the manual communication with the drivers and ensures that all relevant information for the installation and billing of the wallbox is available.

Calibration law conformity:

Make sure that your service provider complies with the regulations of the calibration authorities and the „Physikalisch-Technische Bundesanstalt“ (PTB) about calibration law. In short, a complete system that complies with calibration law is required if (once) more than one car charges at the household wallbox. Detailed information about calibration law can be found in chapter four.

Vehicle connectivity:

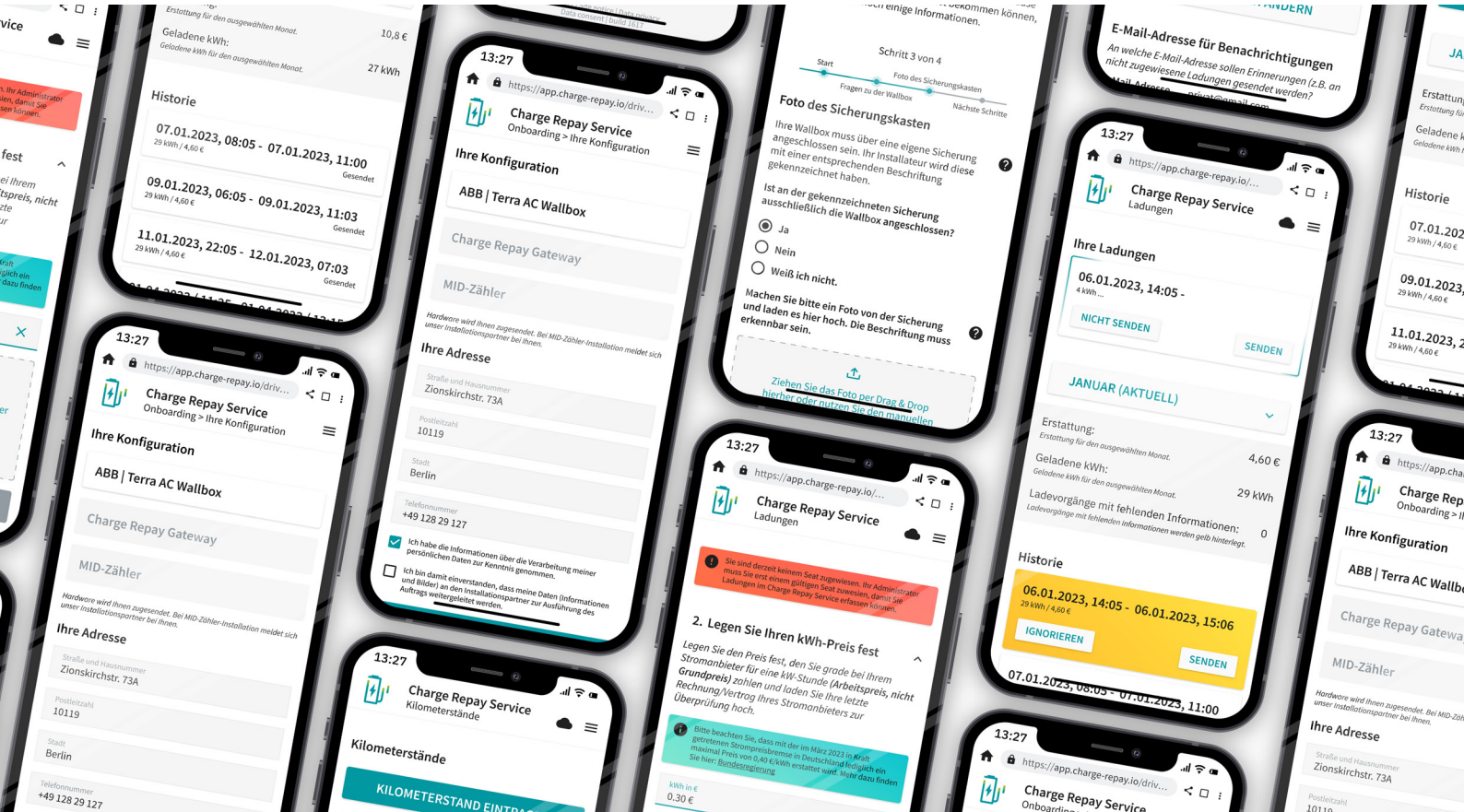
An additional feature that can be of interest for a data-centric car fleet is the API vehicle connectivity and the associated data availability of company cars. The relevant vehicle data, such as mileage, battery status, charging status, etc., are read out via the vehicle interface and made available to the fleet manager, for example for TCO calculation.

6 Home charging using the example of Phoenix Contact

Proven and user-friendly

About two years ago, Phoenix Contact‘s fleet management was also faced with the challenge of billing the charging processes of the company‘s electric cars at home. With about 350 company cars in Germany and over 25% BEV/HEV, the effort of billing through manual receipts and specially created Excel lists was already quite high at that time. Today, the BEV/HEV share is significantly above 50%. Fleet manager Andreas Tappe is thankful that he no longer has to worry about charge@home billing thanks to the Charge Repay Service. „With the charging cards, billing for public charging is usually no longer a problem.

However, billing in the household area has presented us with major challenges due to the heterogeneous wallbox landscape. Many of our colleagues had already installed a wallbox through the KfW funding. None of our service providers was able to connect and bill the various wallboxes. We are pleased that we have developed an internal solution with the Charge Repay Service that solves these problems for us and automates the legally compliant charge@home billing,“ says Andreas Tappe.



7 Charge Repay Service

How Smart E-Mobility service simplifies billing

This white paper discusses the various challenges associated with the topic of charge@home. By developing the service in close cooperation with the fleet management of Phoenix Contact, the problems were uncovered and actively incorporated into the development of the solution. A charge@home service was developed that relieves fleet managers in their daily work and offers their employees maximum flexibility.

Flexible choice of wallbox as key

The Charge Repay Service works with any wallbox model, which gives it a unique selling point on the market. As described above, it is recommended that employees are responsible for purchasing the hardware. However, this recommendation cannot be realized with strict specifications for a particular wallbox model. If the employee purchases the wallbox independently, they must also have the flexibility to choose a wallbox model that suits their individual circumstances (EMS, inverter).

In the future, employee changes, resignations, provider changes and other fluctuations will continue to result in proprietary systems that can only work with one backend being associated with a great deal of effort and high switching costs. There is a reason why a roaming network has been established in the public sector to enable cross-provider billing. We would also like to enable this flexibility in the home sector.

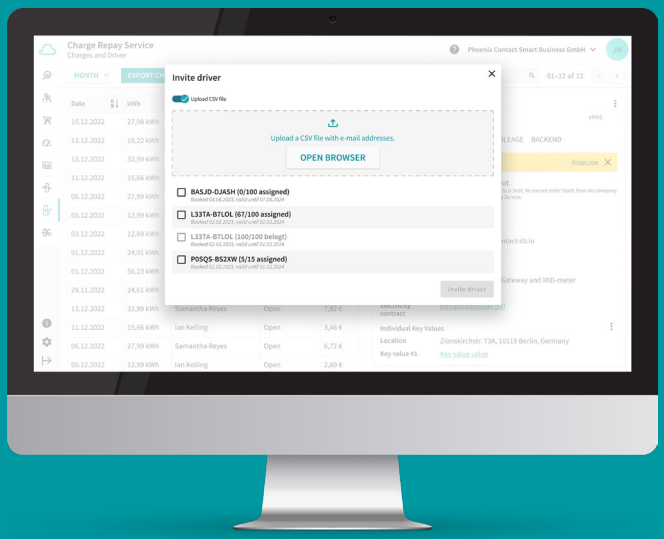
A service has been developed around this unique selling point that covers the entire process, from connecting the existing wallbox or installing the new wallbox to operating the system and paying out to the drivers. By integrating existing wallboxes, you not only save costs, but also conserve resources by not scrapping functioning hardware, but rather integrating it into the existing billing solution.

In the following, we will provide a brief insight into our service and how it works. If you are interested in the Charge Repay Service, we also offer a free and non-binding trial period to check whether the solution can be a forward-looking solution for charge@home billing for both drivers and fleet managers.

Insight into the Charge Repay Service:

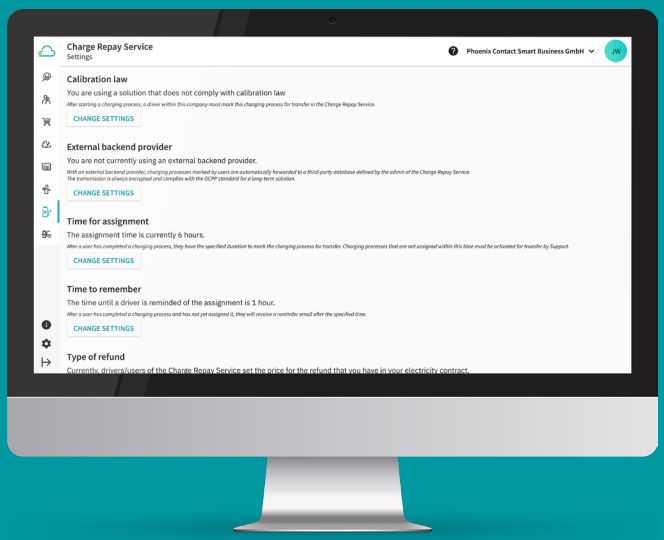
Admin interface for car fleet

You can control the entire process in the Charge Repay Service admin interface. After being invited via the platform by email or CSV, drivers go through the entire onboarding process independently, right up to the first charging process.



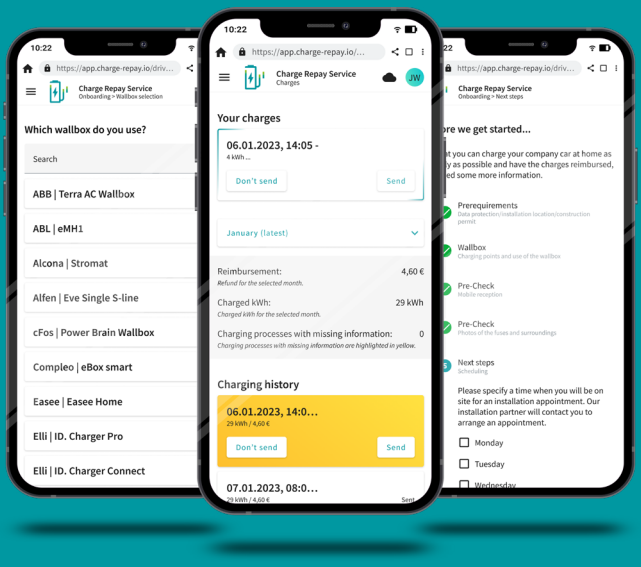
Individual settings

On the platform, you have the option of exporting the charging processes of all drivers in various file formats. You can also customize your company-wide settings for entering mileage, assigning charging processes, etc. according to your preferences.



App interface for drivers

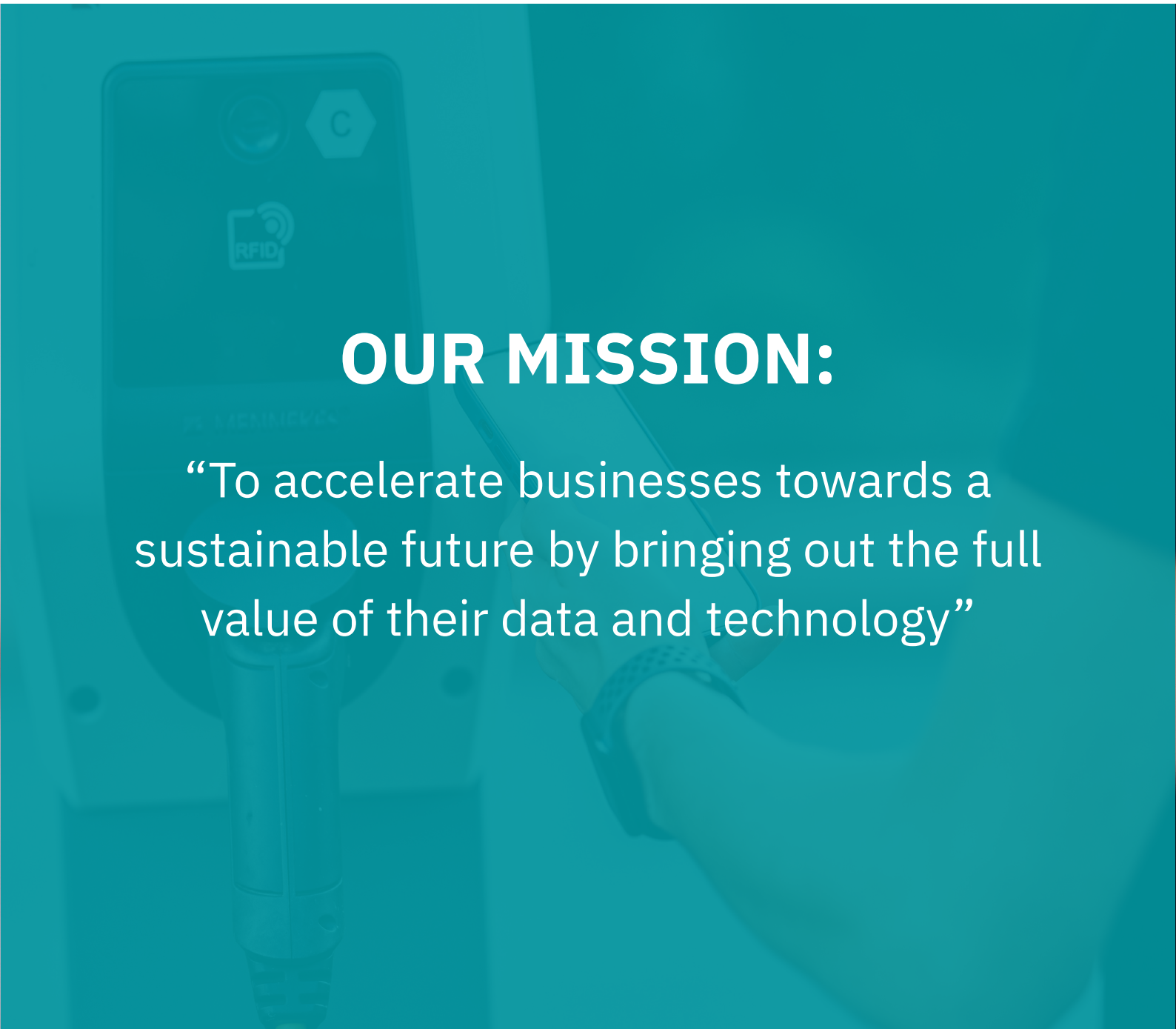
The entire process, from connecting the wallbox to operational use and payment, is handled for the driver via the web app. All relevant information, such as the electricity contract, mileage and vehicle interface, is stored there. The driver can view charging processes and reimbursements at any time.



8 Conclusion

Regardless of which solution or service provider you choose for your charge@home billing, we can confidently say that this topic involves a certain level of complexity due to the individual circumstances and represents a new challenge.

In this context, we would generally recommend working with an experienced service provider. The costs and effort involved in manual billing should be avoided, especially as they will increase significantly in the future as the car fleet becomes more electrified.



OUR MISSION:

"To accelerate businesses towards a sustainable future by bringing out the full value of their data and technology"

Phoenix Contact Smart Business GmbH is the center of excellence for cloud services and data analytics for industry.

A growing team of currently more than 30 employees in Berlin, Bad Pyrmont and India is developing standardized and scalable software-as-a-service solutions – known as smart services – to enable small and medium-sized companies to fully exploit the advantages of digitalization and the Industrial IoT. Phoenix Contact Smart Business GmbH develops cloud services for the entire Phoenix Contact Group in the areas of development, operation and sales: software-as-a-service.

The goal: smartification made simple!

The core competencies of Phoenix Contact Smart Business: cloud technologies, data analysis, software services

Cloud-based services based on industrial IoT technologies enable users to get an overview of the status of their devices and systems – from anywhere, at any time. By using various algorithms for forecasting, optimization and analysis, users of Proficloud.io and Smart Services manage operating and maintenance processes as efficiently as possible. Thanks to Smart Services, you can reduce downtime and optimize (redundant, manual) workflows through remote monitoring.

About Phoenix Contact

Phoenix Contact is a global market leader based in Germany. Our group stands for pioneering components, systems and solutions in the fields of electrical engineering, electronics and automation. A global network in more than 100 countries and 17,600 employees ensures that we are close to our customers, which are particularly important to us.

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