

go-e

Ausgabe 02/2024

mobility

CHARGING WITH PV PANELS

Maximising solar energy use

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ON THE ROAD WITH AN ELECTRIC CAR

4 tips for long travels

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charged by

go-e

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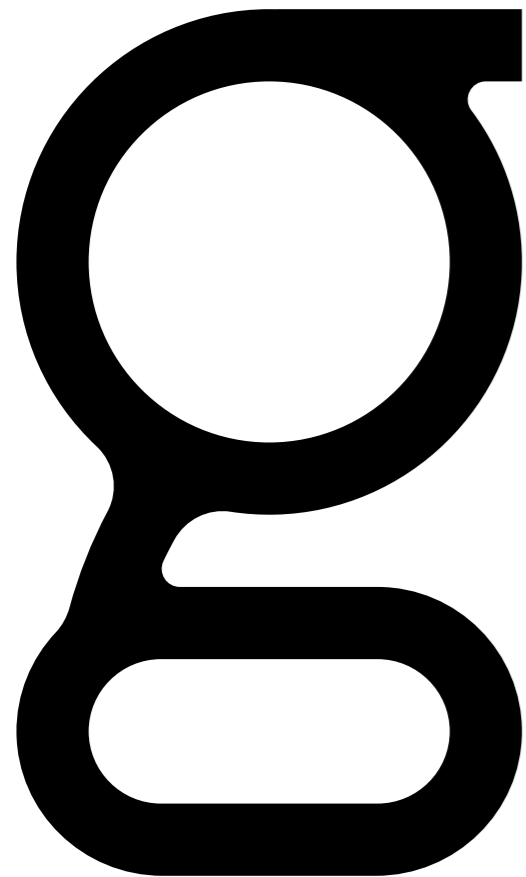
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AC vs. DC charging



Foreword

Dear reader,

Even the fastest Porsche can't compete with the speed of e-mobility development. We at go-e are happy to be among the first to recognise the potential of driving electrically and support others in switching to electric vehicles.

In 2023, the battery electric car market in the EU reached around 1.5 million units (BEVs only). 2024 is expected to deliver even the same or more impressive results. These vehicles require regular charging to keep their owners on the move, highlighting the need for efficient and sustainable charging solutions. Nothing can compare to the convenience of home charging, where you can come back from work, plug the cable into your car and forget about it until the next morning. When you need to hit the road, your vehicle is ready to take you to your destination.

Smart charging solutions such as our go-e Charger offer an environmentally friendly and totally affordable way of charging. With numerous intelligent functions, they allow users to balance their electricity consumption, take advantage of charging with solar, benefit from favourable electricity prices, and much more.

In addition, it's time to elevate your charging experience with the go-e Charger PRO, our first wallbox with an attached cable and MID meter. The newly introduced model will also enable calibration-compliant charging in the future. With the increasing interest in bidirectional charging, we've also equipped the latest go-e Charger with V2X-ready hardware.

Discover more about e-mobility trends, charging tips, and expert opinions on the hottest industry topics—all in one magazine.

Wishing you smooth electric journeys,



Susanne Palli | CEO go-e



Our mission

We move electrically. You can do that too!

go-e is an Austrian manufacturer of AC charging stations and accessories for electric vehicles. Our roots lie in creating innovative solutions for electromobility and encouraging sustainable behaviour.

Sustainable, affordable and efficient e-mobility

Our products enable particularly efficient and sustainable charging at an attractive price-performance ratio without compromising on comfort. We believe that e-mobility is the right path toward achieving an energy-neutral future. With this in mind, we develop and manufacture our products at our company locations in Austria and Germany.

Pioneers of e-mobility

In 2017, go-e introduced the self-developed and world's first smart wallbox for charging electric cars, that can also be used on the go. This innovative product has set a new standard for smart charging solutions that are user-friendly and affordable, as confirmed by multiple independent tests.

E-MOBILITY TERMS YOU NEED TO KNOW

LOAD SHIFTING

The idea of load shifting is to adjust your energy consumption pattern. Instead of using energy during peak hours when everyone else is also trying to power up, say at 6 pm after you come home from work, you shift your consumption to off-peak hours when demand is lowest, for instance, at 11 pm.

PEAK SHAVING

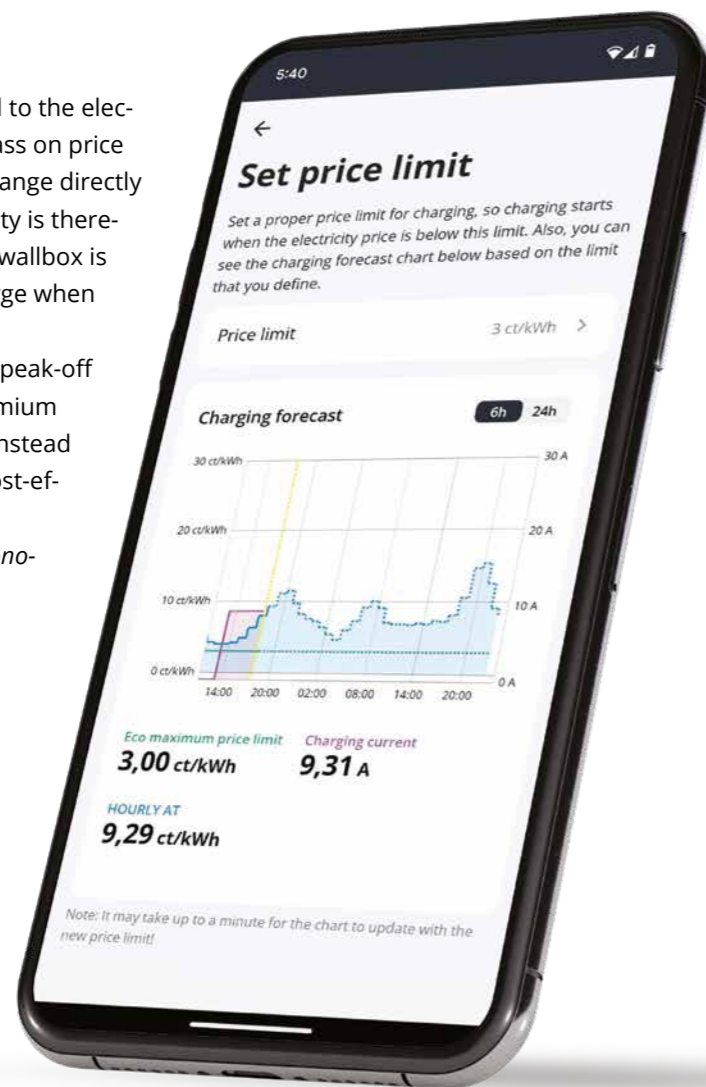
To put it simply, peak shaving means reducing or smoothing out sudden spikes in electricity consumption (load peaks) to help balance the supply and demand for energy in the power system. A sudden surge in electricity demand, such as on a hot summer day when many people turn on their air conditioners, can lead to overloading of the grid and power outages or blackouts.

FLEXIBLE ENERGY TARIFFS

Flexible electricity tariffs are linked to the electricity price index and therefore pass on price fluctuations on the electricity exchange directly to customers. The price of electricity is therefore constantly changing. A smart wallbox is able to track these prices and charge when the electricity is the cheapest.

By timing your electricity usage to peak-off hours, you can avoid paying a premium price for every kilowatt-hour and instead bask in the glory of lower, more cost-effective tariffs.

The German Federal Ministry for Economic Affairs and Climate (BMWK) is obliging providers to offer dynamic electricity tariffs starting in 2025. We integrated flexible electricity tariffs into our go-e Chargers to provide you with a sustainable and money-saving way of charging. The list of energy providers, which you can see in the go-e app, keeps expanding as dynamic electricity pricing is a relatively new concept.



"Bidirectional charging will certainly be an important enabler for the energy and mobility transition in the future, as it can help to keep the power grid in balance. However, wallboxes from go-e already offer many smart features that make it possible to charge millions of electric cars without causing the power grid to collapse. That means: there is no way around smart charging today. Bidirectional charging is rather a nice plus for the future."

- Ronald Kroke | Head of Marketing go-e



BIDIRECTIONAL CHARGING

WHAT IS IT?

The name doesn't lie. Bidirectional charging involves the two-way flow of power: from the grid to the vehicle and from the vehicle back to the grid. In contrast, the conventional method of charging, where power flows only from the grid into the vehicle, could be termed unidirectional charging.

Why is it not the EV game changer you might think...yet?

- *Legal questions remain unanswered.* How should the electricity that is fed back into the grid be taxed? After all, an electric car owner could charge his car at his employer's office with tax benefits and even for free, and then feed it back into the network at home for money.
- *Shortens the life of the car battery.* Constant charging and discharging age the battery, potentially leading to it having to be replaced sooner.
- *A regular smart charger is enough.* If you have a smart wallbox that controls the charging current to prevent overloading the grid, many features of bidirectional charging become unnecessary.
- *The software solution is missing.* A whole range of electric cars is now being launched on the market with the hardware for bidirectional charging, but you need the appropriate software and suitably priced wallboxes to get much out of it.



Read more

The new go-e Charger PRO, our first wallbox with an attached cable and MID meter, is prepared for V2X on the hardware side.

go-e

Charger *PRO*

Our first wallbox with an MID meter.

Prepared for V2X on the hardware side. In addition to the extensive range of smart features, the go-e Charger PRO will enable calibration-compliant charging in the future.

The go-e Charger PRO provides kWh-accurate billing for charging processes. It is particularly advantageous when installed in the following locations:

COMPANY CAR PARKS WHERE EMPLOYEES AND GUESTS CAN CHARGE

EMPLOYEES' HOMES, FOR CHARGING COMPANY CARS

CONDOMINIUM CAR PARKS

APARTMENT BUILDINGS, FOR TENANT USE

HOTEL CAR PARKS

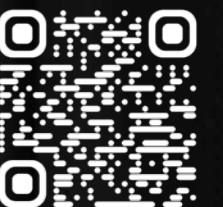
go-e

The go-e Charger PRO offers easy installation and features an elegant black design, making it a sophisticated choice for any location.

94101655

We are happy to advise you on how our charging solution can fulfil your project requirements.

For management and automated billing, please get in touch with one of our backend partners.



IS THERE ENOUGH ELECTRICITY FOR *ELECTRIC CARS?*

Switching to electric cars and other types of electric transportation (e.g. electric buses) means we need significantly more electricity. Actually, it's not just e-mobility that boosts power demand. Shifting homes to electric heat pumps, as part of decarbonisation, will also greatly increase electricity needs.

All in all, in the future, we will need a lot of energy for various things.

But for now, let's focus on how the development of electric vehicles will affect the energy landscape. You may have a lot of concerns. About the high demand for energy, rising electricity prices, and the impact of all these developments on the environment. After all, it's not just a few Teslas you occasionally see on the roads; the entire vehicle fleet is gradually being converted to electric drive.

THE SURPRISING THING IS THAT IT IS ACTUALLY A POSITIVE TREND, NOT A NEGATIVE ONE.

Electric vehicles are super efficient when it comes to using energy and this is their head start over cars with regular engines. This means that with e-mobility spreading all over the globe, we can reduce the overall amount of energy we use by going from vehicles with an internal combustion engine to electric ones. In fact, over the lifetime of a car, if it's powered by clean electricity, it uses about 50% less energy than a regular petrol car.

Here's why:

Regular cars are not so good at using the fuel they get.

- Only about 25% (!) of the energy in the fuel actually goes into making the car move (from the tank to the wheels). The rest is lost as heat - puff. But with electric cars, a lot more of the electricity they get can go into making them move—about 85%.

- Another fascinating thing about electric cars is that when you hit the brakes, they can turn some of the energy back into electricity for the car's battery. It's called recuperation and it's basically like recycling energy when you slow down. How can you not fall in love with e-mobility after that?

To make sure electric cars are good for the environment, we need to produce the electricity they use in a way that's friendly to our planet. Since 2016, more power plants that use renewable energy (like solar and wind) have been built worldwide than the ones that use fossil fuels or nuclear energy combined. Using more renewables is also making them cheaper. For instance, solar power costs might drop by 40-70%, and onshore wind power by 10-25% in the coming years.

The way we get our energy is changing a lot, thanks to things like solar power, wind energy, and heat pumps. The experts at the International Energy Agency say that by 2030, almost half of the electricity around the world will come from these clean sources. Right now, they make up about 30%.



Photo by redcharlie on Unsplash

Vehicle-to-Grid (V2G) enables electric vehicles to feed energy back to the grid, supporting grid stability.

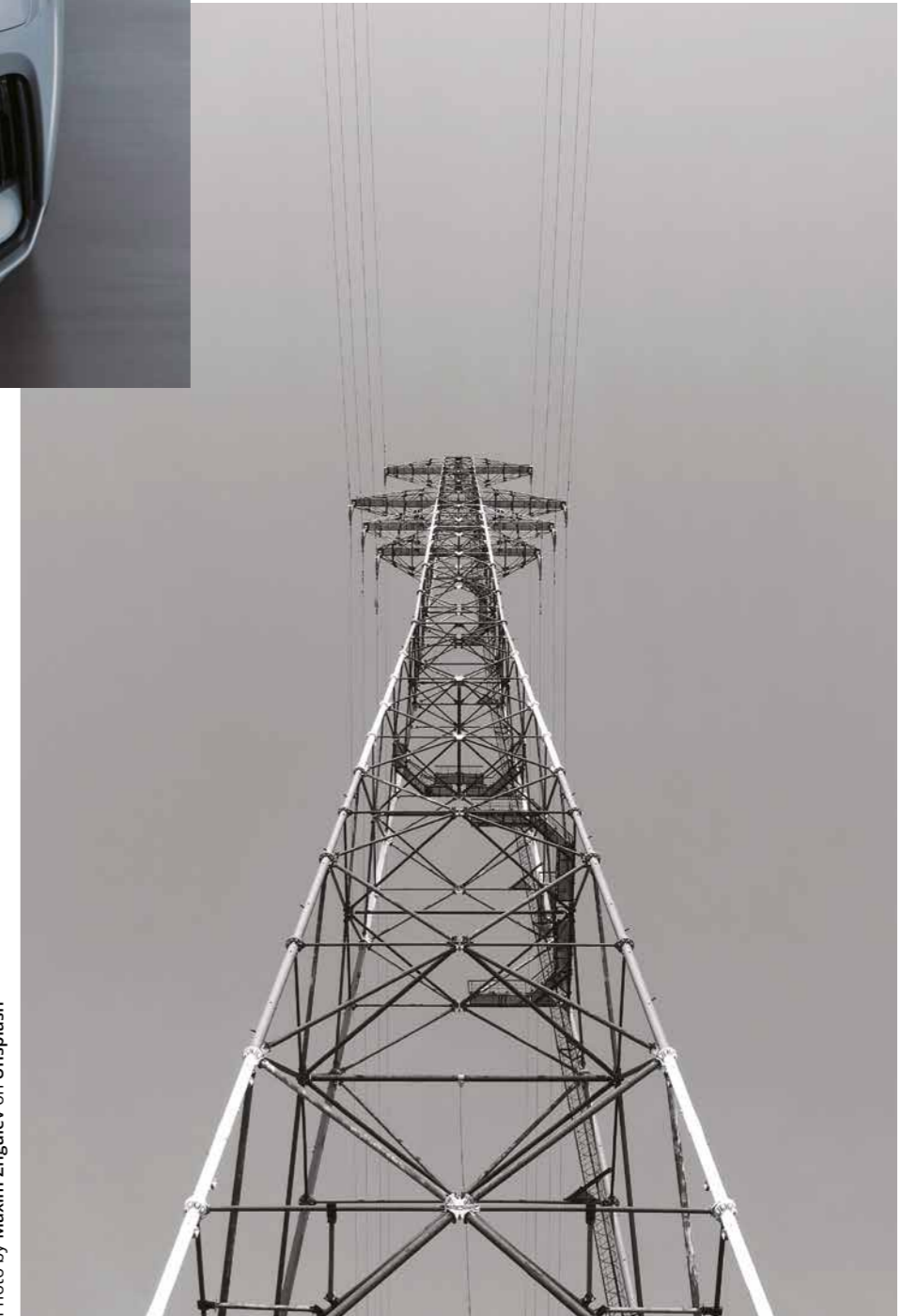
Vehicle-to-Home (V2H) allows the vehicle to power a home, serving as a backup energy source during outages.

SMART AND GRID-COMPATIBLE CHARGING AS A SOLUTION

In addition to using renewable sources of energy, we need to manage the use of the energy efficiently. And that's where smart charging, with the following features, comes into play.

- Load shifting
- Peak shaving
- PV surplus charging
- and of course Bidirectional charging, which is mainly about:

Photo by Maxim Zhgulev on Unsplash





go-e Charger Gemini flex & Gemini flex 2.0 *mobile wallbox*

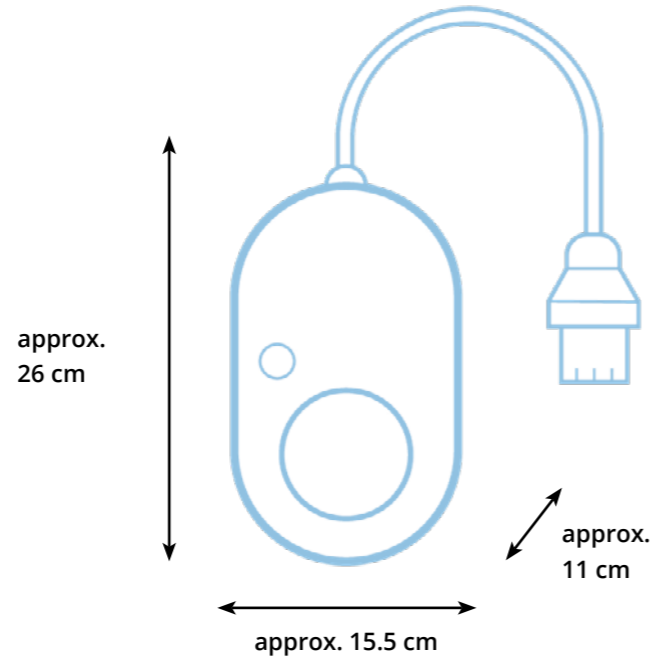
The smart wallbox is ideal for the home or the company parking lot. The charging system features an intuitive design, multiple safety functions, and a 'smart' convenience feature, making it a sustainable option.

- Optional app control
- WiFi and LTE*
- Portable (charging also possible on the go)
- Charging with photovoltaic surplus**
- Flexible energy tariffs, charging at best price
- Scheduling, Load balancing
- Optional access control (RFID or App)
- Open API, OCPP






*Gemini flex 2.0 with integrated SIM-card; use smart charging functions from anywhere
**with go-e Controller (seperate product) or via API

View products:

 <p>Gemini flex</p>	RRP	 <p>Gemini flex 2.0</p>	
	Gemini flex 11 kW		749 €
	Gemini flex 22 kW		759 €
	Gemini flex 2.0 11 kW		819 €
	Gemini flex 2.0 22 kW		829 €





Gemini flex 11 kW approx. 1.63 kg
Gemini flex 22 kW approx. 1.82 kg

-  **Connection:**
Single-phase or three-phase
-  **Nominal voltage:**
230 V - 240 V (single-phase)
400 V - 415 V (three-phase)
-  **Connection cable 11 kW:**
30 cm + Plug, 5 x 2.5 mm²
(Type H07BQ-F)
-  **Connection cable 22 kW:**
30 cm + Plug, 5 x 6 mm²
(Type H07BQ-F)
-  **Charging capacity:**
from 1.4 kW up to 22 kW

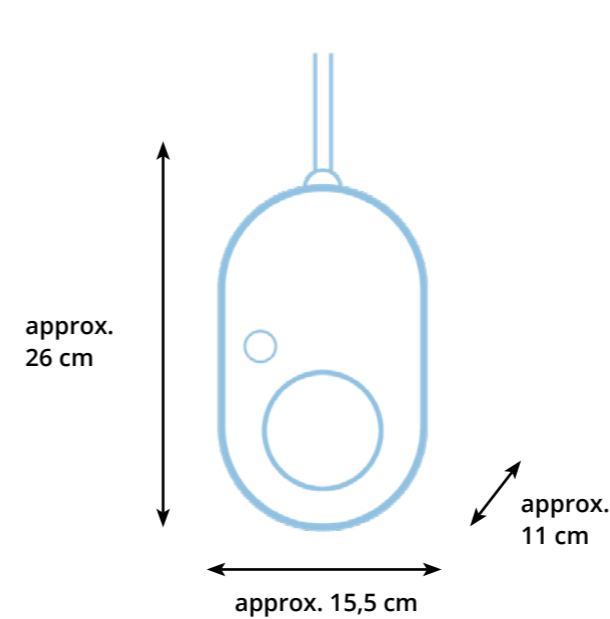
go-e Charger Gemini & Gemini 2.0 *stationary wallbox*

Whether you own a registered electric car or a plug-in hybrid, the go-e Charger is a dependable EV charging option. It features a type 2 socket that can connect to any electric vehicle using a type 2 cable or a type 1 to type 2 adapter.

View products:






 <p>Gemini</p>	RRP	 <p>Gemini 2.0</p>	
	Gemini 11 kW		749 €
	Gemini 22 kW		759 €
	Gemini 2.0 11 kW.....		819 €
	Gemini 2.0 22 kW.....		829 €

Everything you need to charge intelligently



Gemini 11 kW approx. 1.84 kg
Gemini 22 kW approx. 2.30 kg



-  **Connection:**
Single-phase or three-phase
-  **Nominal voltage:**
230 V - 240 V (single-phase)
400 V - 415 V (three-phase)
-  **Connection cable 11 kW:**
1.8 m, 5 x 2.5 mm²
(Typ H07BQ-F)
-  **Connection cable 22 kW:**
1.8 m, 5 x 6 mm²
(Typ H07BQ-F)
-  **Charging capacity:**
from 1.4 kW up to 22 kW

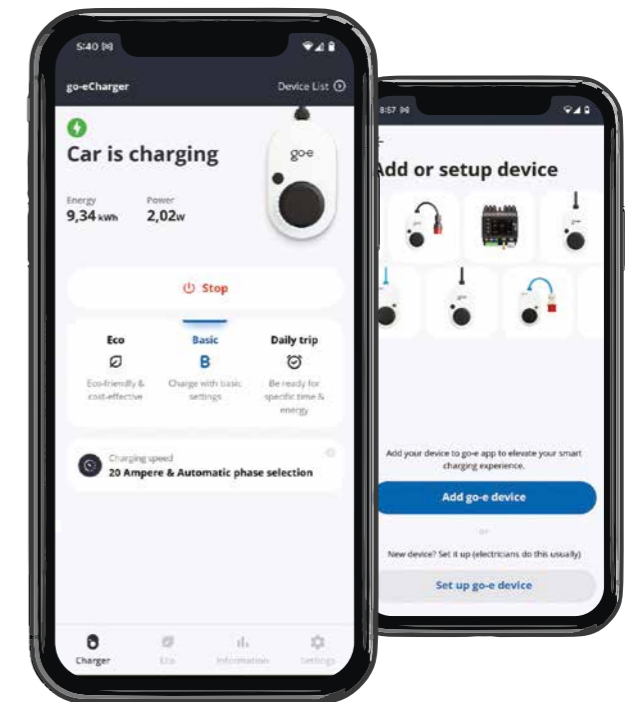
The new level of charging experience

Full control right from your couch

The go-e Charger app informs you about the charging status of your electric car - manually or automated. So you can relax, watch the latest episode of your favorite series and still keep an eye on the charging process.



MORE Comfort with the go-e app



Free download

Monitor and change charge status anytime

Adapt charging processes to personal requirements

Protection against unwanted use

Many more smart comfort and security settings

Available in multiple languages



SMART CHARGING VS. SIMPLE CHARGING

	SMART WALLBOX	SIMPLE WALLBOX
BASIC EV CHARGING	Possible	Possible
REMOTE CONTROL	Users can monitor and control charging remotely with an app	No remote monitoring capability
SCHEDULED CHARGING	Users can schedule charging to take advantage of lower electricity rates and charge more sustainably	Charging occurs immediately upon connection of the car
FLEXIBLE ENERGY TARIFFS	Wallbox can start and stop charging based on fluctuating energy prices	In most cases, charging rate remains constant
ENERGY MANAGEMENT	Wallbox can be integrated into home energy systems to optimise overall energy usage and prevent overloads	Often no integration into home energy systems
DATA ANALYTICS	Users have access to detailed charging history and usage data	Limited or no data analytics
WALLBOX SHARING OR AUTHORISATION POSSIBILITY	Two or more people can manage the shared use of a wallbox thanks to RFID. In addition, even when installed outdoors, nobody can charge without an RFID chip	No control of shared or unauthorised wallbox usage is possible
PV OPTIMISATION	Wallbox can automatically adjust the charging power to match the available PV surplus	Normally does not offer PV optimisation

1-PHASE VS 3-PHASE CHARGING: MAIN DIFFERENCES

*What's happening during charging?
Electricity flows from the power grid through the EV charger and into your electric car.*

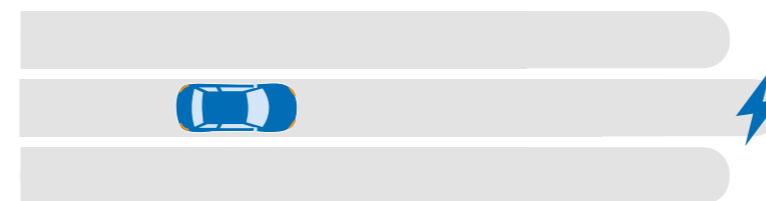
AND HERE, WE COME TO THE MAIN DISTINCTION BETWEEN THE PHASES.

1-phase charging:



Power flows through a single conductor (wire). Max charging power - 7.4 kW In some countries, single-phase charging is only permitted or possible at lower charging power.

3-phase charging:



Power flows through three conductors (wires). Max charging power - 11 or 22 kW.

So basically, the number of phases your car has only plays a role during AC charging. When using a DC charging station, only the maximum DC charging power of your electric vehicle and the charging station matter. Every electric vehicle has a predefined number of phases for charging, and so does every AC charging station.

Examples of electric cars with a single-phase on-board charger: Opel Corsa-e in the basic configuration, Mazda MX-30

Examples of electric cars with a three-phase on-board charger: Audi e-tron, Renault Zoe, Tesla Model X, BMW i3.

Ideally, you should use a charging station with the same number of phases as your vehicle has. But it's not always the case.

So what happens if you've got one of the following combinations?

- 1-phase charger - 3-phase electric car
- 3-phase charger - 1-phase electric car

Your car will charge with one phase in any of these cases. The weakest link in the charging chain defines the maximum speed.

Here, for example, you can see how it works with our go-e Chargers:

	go-e Charger 11 kW	go-e Charger 22 kW	Remark
Single-phase charging car	1,4 kW - 3,7 kW	1,4 kW - 7,4 kW	Country-specific limitations need to be observed
Two-phase charging car	2,8 kW - 7,4 kW	2,8 kW - 14,8 kW	Two-phase connection of charger not possible
Three-phase charging car	4,2 kW - 11 kW	4,2 kW - 22 kW	go-e Charger switches through the power that is available at the connection

HOW TO TAKE ADVANTAGE OF **SOLAR ENERGY** TO POWER UP YOUR ELECTRIC CAR?

Charging your electric car from a renewable source of energy will help you personally save a pretty penny. On top of that, you will also make a positive global impact on the environment. You are saving the world while saving your money. How does that sound?

The thing is, solar panels don't have an engine or exhaust. No engine = no toxic emissions*. An average EV consumes 0.2 kWh/km (100 km - 20 kWh). This means your personal decision to switch to photovoltaic charging will really make the difference.

Let's assume you have a 400 Watt PV panel and live in an area with 4 sun hours in October per day:

**400 W (output) x 4 hours =
1,600 Watt-hours per day**

This means one 400 W solar panel with 4 daily sun hours can produce ≈ 1.6 kWh per one autumn day (1 kWh = 1.000 Wh).

You can do the same trick with any other panel and get a relevant number for you. Now that you know how much energy you can get with one PV panel, check how much energy your electric car needs to charge. Remember that you don't have to fully charge your EV from scratch. Well, at least not every time.

If your car has a 40 kWh battery (e.g. Renault Mégane E-TECH Electric EV40), and at the end of the day you want to refill it by ¼, you need about six solar panels producing 1.6 kWh per day.

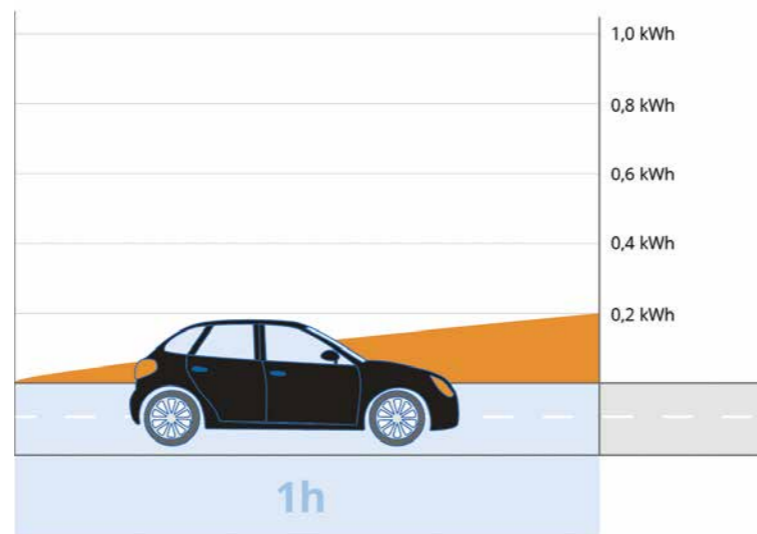
$$\frac{10 \text{ kWh}}{1.6 \text{ kWh}} \approx 6 \text{ panels}$$

If you use the panels for other appliances in the house, you need to make sure you have enough energy for everything. Unless you don't mind having your fridge off for a few hours because your car is charging.

You can do it by:

- installing PV panels with higher capacity
- increasing the number of panels

It is advisable to use PV panels with higher efficiency, as this way, you can save space. But you should actually plan



differently, namely to only charge with PV surplus. More on this in a moment.

Cost of charging an electric vehicle with PV panels

The rule of thumb is that driving an electric car is much cheaper than driving a gas-powered vehicle, whether with solar energy or not.

When it comes to using natural energy for charging, the main expense is buying the solar panels themselves. For instance, a 300W PV panel will cost you from EUR 150 to EUR 400. The price increases along with the capacity. Bear in mind that to use the energy, you also need a charge controller, solar inverter, and separate battery in case you want to store your energy - the upfront costs can be relatively high. Buying all these things solely to charge your car is not a very profitable solution.

It makes more sense to get enough panels to run some other home appliances as well. For instance, a washing machine, oven, heating system, dishwasher, etc. In this case, purchasing all the additional units to use PV panels is totally reasonable.

On average, a single household consumes around 1,500 kilowatt hours per year. A family of four needs about 4,500 kWh. If you want to personalise these numbers, try to check the energy consumption of the appliances you're constantly using at home. For instance, a modern TV needs between 50 and 60 watts per hour, while a washing machine consumes 800 - 1,000 Wh (≈ 1kWh).

PV charging of your electric car: How long does it take?

It mainly depends on:

- charging speed of your wallbox
- electric vehicle you own

There are also some other factors such as the capacity of your PV panels, the consumption of solar power by your household appliances, etc.

You can charge directly from solar panels only from an excess current of six amperes. This means, for one-phase charging, you need to have a photovoltaic surplus of at least 1.4 kW, three-phase - 4.2 kW.

What about charging with excess solar power?

What if... you don't have ENOUGH solar energy to charge your car purely with it? Or you just want to feed PV leftovers in your car battery. Can you actually do that? Yes, it's called *PV surplus charging*.

On Saturday morning, the dishwasher takes care of your dishes, the boiler runs to provide you with plenty of hot water, and you start the washing machine to get your clothes ready for the next week. However, even so... there is still more solar power available! So that's a brilliant opportunity to top up your electric vehicle battery for free and drive on sunshine the next day.

When your smart EV charger senses the excess energy generated by your solar panels, it springs into action. It starts charging your car, allowing you to take the sun's energy with you on the road.

You can do this magic too if you have the go-e Charger and go-e Controller. The go-e Controller functions as an Energy Management System (EMS). This makes it a gateway to a world of possibilities. Tech-savvy users can make use of other EMS solutions thanks to the go-e Charger's open API interface.



Photo by American Public Power Association on Unsplash

The undeniable benefits of PV surplus charging

- **Cost saving:** By using a solar panel system to even partially charge an electric vehicle, you automatically reduce your use of grid electricity, which is often more expensive than the energy generated by solar panels. This can save you a pretty penny over time, especially if you use your EV on a day-to-day basis.
- **Improved energy independence:** PV surplus charging allows you to produce your own energy, making you less dependent on the grid. This can be especially important in areas with unreliable or costly grid-based electricity.
- **Reduced carbon footprint:** Charging your EV using renewable energy sources like solar panels reduces your carbon footprint. Every kilometer driven on sun power is a step towards a greener future and a more frugal lifestyle. Solar energy does not produce greenhouse gas emissions, unlike grid-based electricity, which predominantly relies on fossil fuels like coal, natural gas, and oil.

go-e Controller

Smart energy management system

Maximize the self-consumption of your photovoltaic (PV) system. Control the charging process of electric cars with dynamic load management to avoid overloading your power connection. 1-phase or 3-phase operation possible.



go-e Controller Highlights



CHARGING WITH PV SURPLUS

You can use the go-e Controller with all PV inverters and AC power storage solutions. Whether you are an experienced user or a newcomer to photovoltaics, the go-e Controller is the perfect choice.



SAFE CHARGING - DYNAMIC LOAD BALANCING

Do you have multiple cars charging simultaneously? Are you running household appliances while your car is charging? The go-e Controller ensures that your vehicle receives the ideal amount of charging current without burdening your household connection and causing power outages.



ENERGY MONITORING

Not only monitor the energy flows of buildings and individual consumers with the go-e Controller, but also control the charging processes of electric cars in interaction with the go-e Charger. Even smarter, even simpler!

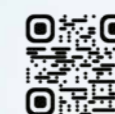
VIEW PRODUCT



RRP: Controller 249€

If you want a charging station for PV surplus charging, but you don't want to spend a fortune on it, our smart go-e Charger combined with the go-e Controller is a great solution. This cost-effective combination offers easy charging with surplus solar energy.

The go-e Controller acts as an energy management system (EMS). Tech-savvy users can use other EMS solutions thanks to the go-e Charger's open API interface. In addition, some third-party vendors have already integrated our go-e Charger into their own EMS. However, the go-e Controller is the absolute winner for those who prefer simplicity and affordability.



Learn more about PV surplus charging in this article.



EVEN SMARTER

Charging with the go-e Controller

What are dynamic electricity tariffs and how do you benefit from them when charging your electric car?

Looking for a way to charge your electric car without breaking your bank account? Dynamic electricity tariffs could be the solution.



Read the article on dynamic electricity tariffs.

What is a wallbox with Dynamic Load Balancing and how does it work?

Dynamic load balancing allows a device to intelligently adjust its power consumption so that it always operates optimally. If your charging station has this capability, it means that it never consumes too much power.

Would you like to have this feature?



You can find everything about dynamic load balancing in this article.



go-e Controller in the control cabinet

The go-e Controller is installed and configured by the electrician, considering local installation standards. To do this, mount the device onto the DIN rail and connect it to the power source. There must be space for 4 division units in width, as well as enough vertical space for cable connections (voltage measurement, Wifi antenna, ethernet cable, sensors).



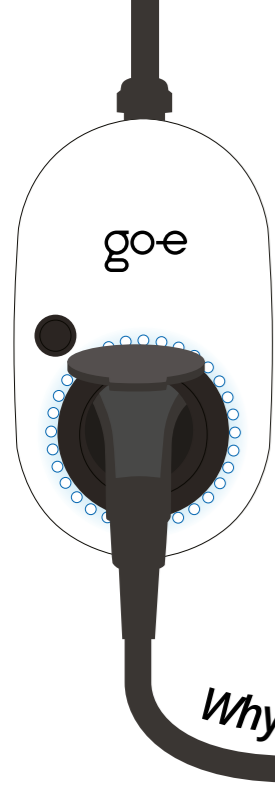
The go-e Controller explained:
Everything you need to know!

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EV CHARGING EFFICIENCY

Why are there energy losses and how can you avoid them?

Our tip: The lower the charging capacity, the "softer" the conversion and the lower the losses.

Whenever energy moves from point A to point B or gets converted from one form into another, there are always some charging losses. This happens when you charge your car, tablet, phone, or anything else with a battery inside it.

Whether or not you are into physics, you probably know the law of conservation of energy:

>> *Energy cannot be created or destroyed, it can only be changed from one form to another.*<<

For instance, when you run, your energy is converted into heat coming from your body. This is the same for charging electric cars.

ENERGY DOES NOT DISAPPEAR, BUT...

WHERE DOES IT GO?

- *We'll show you.*

4 main factors affecting EV charging efficiency:

- **Factor 1: On-board charger**

The main function of the on-board charging system is to convert AC power into DC. The conversion produces heat, which is why the power electronics in an EV are normally liquid-cooled. Nevertheless, it does not protect you from power loss completely... unfortunately.

The on-board charging systems work particularly inefficiently when too little current is flowing. However, there is basically nothing you can do to prevent the charging loss at this stage of the process.

- **Factor 2: Charging cable**

This is a matter of resistance. The shorter the charging cable is, the lower the power loss.

Why? Because the resistance is lower.

- **Factor 3: Charging power**

Suppose you charge your electric car at 11 kW and 22 kW with the same cable intended for a 22 kW charging station. What will happen? In the case of the 22 kW wall-box, the losses will be higher as more heat is generated. It is therefore better to have a cable designed for a particular charging speed or even exceed it, as in this case, the energy loss will be lower.

- **Factor 4: Electric car battery**

Electrical energy from the charging station is converted into chemical energy in the lithium-ion battery. The conversion process causes heat and, as a result, power losses.

Check out ways to minimise charging losses in our blog!



Scan me

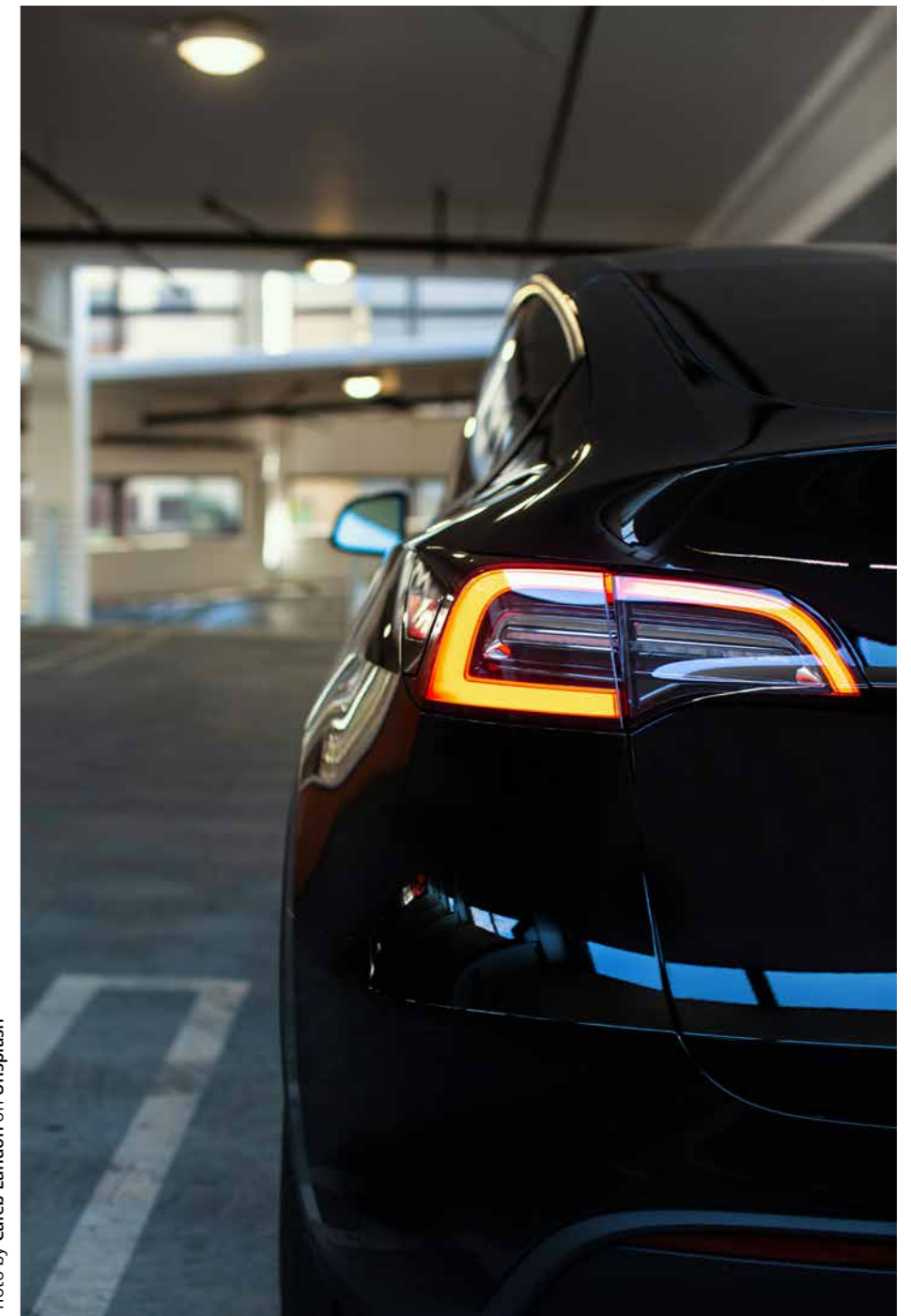
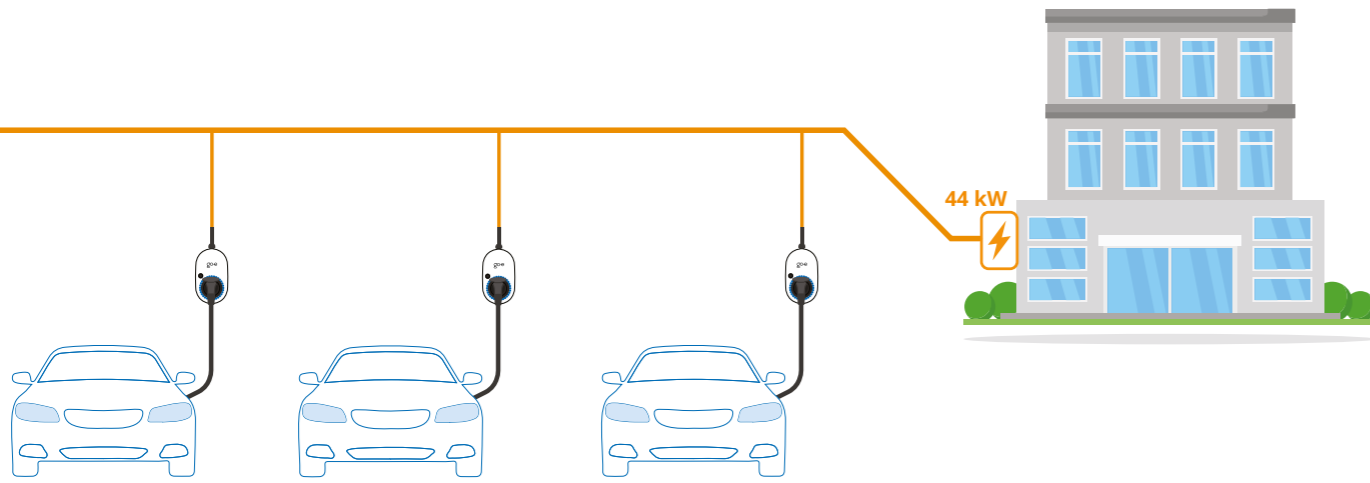


Photo by Caleb Landon on Unsplash



WHY IS EVERYONE TALKING ABOUT LOAD BALANCING?

Load balancing is a handy feature for protecting electrical circuits from overloading. In a setup with an EV charger, it's highly recommended.

When you consider adding solar power to the mix, have larger electricity consumers, or need to manage a fleet of vehicles or chargers - be it at a workplace, residential complex, or customer parking lot - load balancing is essential. It ensures efficient charging without overloading the system, saving money on costly upgrades.

There are two types of load balancing:

- **Static:** Your charger has a pre-programmed set of rules and limits. Let's say you have two 11 kW chargers. With static load balancing, you (or your electrician) may programme a limit to 'never exceed 20 kW of combined power consumption for both devices,' for example. Possible with the go-e Charger.
- **Dynamic:** Your charger adjusts power distribution in real time to keep everything running smoothly, adjusting based on factors like how many EVs are charging and how much power the grid can handle. Possible with the combo go-e Charger + go-e Controller.



Watch our YouTube video about Dynamic Load Balancing!

EV charging software and services.

What's the uptime of your CPO platform? Ours is 99.99%.

We offer 27/4 driver support, 100% roaming reach across the European Union and are top rated by our customers.

With our purpose built platforms, we make EV charging transactions effortless for everyone.

Talk to us about **E-Flux by Road**, your ready-to-go platform for EV charging software and services.



go-e Charger

Gemini Series and Gemini Series 2.0 - Highlights:

Plug & Play

Install, connect charging cable, charge immediately



Mobile usable

only valid for go-e Charger Gemini flex - automatic adapter detection



WIFI & Hotspot

Local or remote control and monitoring as well as updating of functionalities



App

Free app for adapting the wallbox to your needs



RFID

Personalized access and display of charging processes For up to 10 users



DC protection module

Integrated DC fault protection



Charge control

Information about current charge, meter reading, adapter detection or type 2 cable detection



Photovoltaics (via EMS/API)

Uses excess PV power for charging in combination with an external EMS (e.g. go-e Controller) Phase switching possible



Load balancing

Distributes the current load during simultaneous charging of vehicles, so that the supply line is not overloaded.



API

Open interface for communication with devices from other manufacturers



Scheduler

Preset charging time with start and stop, weekday/time



OCPP

Connection to backend systems



Flexible energy tariffs

Automatic consideration of prices of flexible electricity tariffs for cost and sustainability optimization



Cellular connectivity*

Full access from anywhere even without WiFi

*only for Gemini Series 2.0



HOW LONG DOES IT TAKE TO CHARGE AN *ELECTRIC CAR?*

The question of electric car charging speed is a bit more complicated than it sounds. We would love to give you a concrete answer!

BUT... electric vehicle charging time can vary from 30 minutes to more than 10 hours, depending on various factors.

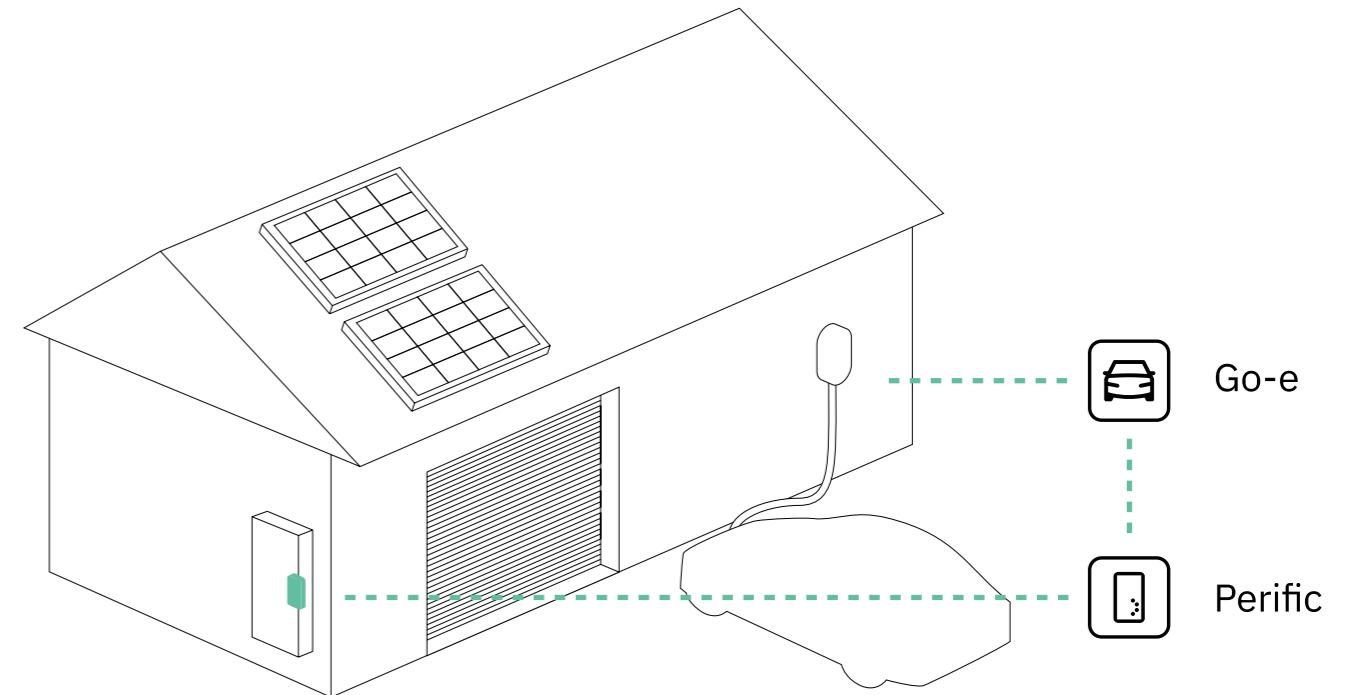
5 FACTORS THAT AFFECT CHARGING TIME

- 01 Battery size and battery status
- 02 Max charging rate of EV
- 03 Max charging rate of the charger
- 04 Charging phases of the car
- 05 Weather conditions



Optimized EV charging with Perific and go-e

Together, go-e and Perific offer a complete charging solution for your EV, protecting your fuses, while ensuring your car is fully charged and ready for your next adventure.



Perific's unique hardware and software for monitoring power usage have helped thousands of homes take control over their power consumption.

Installed with your charging box from go-e, the Perific device will measure your power consumption in real-time, sending all data directly to go-e's cloud for optimized power usage.

Installing Methods:

- Phase conductors
- P1/HAN/RJ12

Perific is compatible with all electrical installations in any property.

As a bonus the power grid is spared unnecessary stress – and you can save money.

CAN I CHARGE MY ELECTRIC CAR FROM A REGULAR OUTLET?

Yes, with an emergency charging cable or a special adapter! **BUT** this type of charging has two major drawbacks:

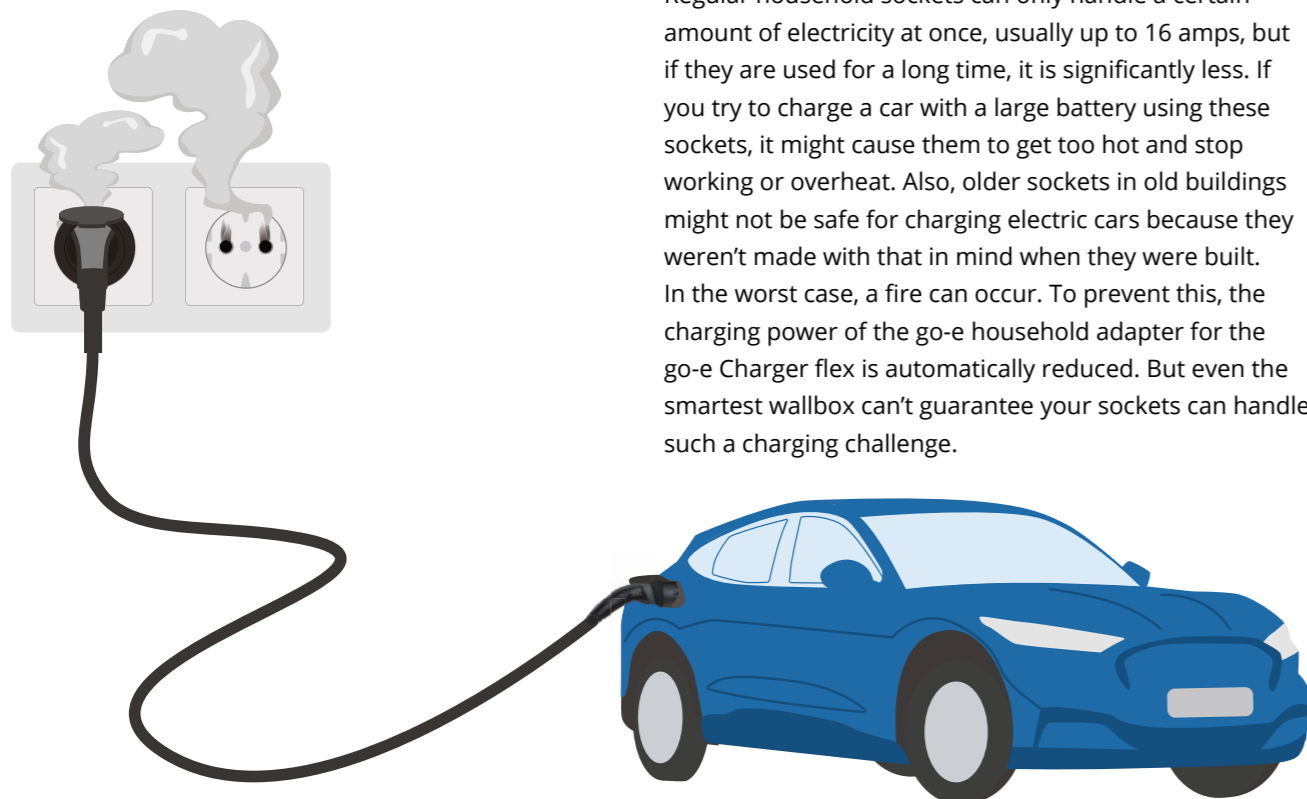
DRAWBACK 1: LONG CHARGING TIME

It can take up to 24 hours to charge an electric vehicle with a medium-sized battery (40-50 kWh)

	Connection	Power	Estimated Charging Time
Regular Socket	230 V, 10 A	2.3 kW	18.33 h
go-e Charger Gemini flex 22 kW	three-phase	22 kW	2.36 h
go-e Charger Gemini flex 11 kW	three-phase	11 kW	4.21 h
go-e Charger Gemini 11 kW	single-phase	3.7 kW	11.64 h
go-e Charger Gemini 11 kW	three-phase	11 kW	4.21 h

DRAWBACK 2: RISK OF FIRE DAMAGE

Regular household sockets can only handle a certain amount of electricity at once, usually up to 16 amps, but if they are used for a long time, it is significantly less. If you try to charge a car with a large battery using these sockets, it might cause them to get too hot and stop working or overheat. Also, older sockets in old buildings might not be safe for charging electric cars because they weren't made with that in mind when they were built. In the worst case, a fire can occur. To prevent this, the charging power of the go-e household adapter for the go-e Charger flex is automatically reduced. But even the smartest wallbox can't guarantee your sockets can handle such a charging challenge.



CHARGE AT HOME

With the go-e Charger, you can ensure your car battery is fully charged by the time you leave your house in the morning. Charging at home offers more than just convenience, it also helps the environment and contributes to the stability of the electrical grid. Additionally, it's much cheaper than public charging!

Benefits

- **Peak shaving:** Your wallbox automatically reduces the charging power when you are using too much electricity, preventing grid overload.
- **Load shifting:** Charge more affordably and sustainably by shifting charging hours to times of lower demand, reducing your costs and environmental impact.
- **App control:** While your car is charging at home, you can manage the entire process from anywhere using the go-e app. The app allows you to monitor charging, adjust the charging current, and control other features at any time. Simply connect your wallbox to WiFi. With the new go-e Charger Gemini 2.0 series, you don't even need WiFi, as it comes with a SIM card for cellular connectivity.
- **Flexible energy tariffs:** If you have flexible electricity tariffs with fluctuating prices per kWh, a smart wallbox can charge your vehicle when electricity is the cheapest. Dynamic charging is eco-friendly, reducing grid pressure and allowing you to charge without risking overload.

CHARGE ON THE MOVE

Charging your electric car isn't like filling a fuel tank; it can be done anywhere, not just at fixed locations. If you have the go-e Charger Gemini flex or Gemini flex 2.0, you can keep the wallbox in your trunk and charge your car wherever you go.

Benefits

- **Plug & Play:** To top up your car battery, all you need is a red CEE socket. Only have a camping outlet? No problem, just use the right go-e adapter. You can even charge from a regular 220V socket with a suitable adapter, though charging speed will be lower.

- **Wallbox with cellular connectivity:** If your holiday home has weak WiFi, the mobile go-e Charger Gemini flex 2.0 solves this problem. It has an integrated SIM card, enabling you to access all smart features without WiFi, ensuring internet connectivity anytime, anywhere.

OFFER FREE CHARGING TO YOUR EMPLOYEES AND/OR CUSTOMERS

Approximately three in ten Gen Zs (30%) and millennials (29%) consider a company's sustainability claims and certifications to ensure their marketing aligns with their actions before making a purchase. Additionally, over half of Gen Zs (55%) and millennials (54%) research a brand's environmental impact and policies before accepting a job offer. (Deloitte Global 2023 Gen Z and Millennial Survey).

Installing charging stations at your company building can significantly enhance your image and customer satisfaction while attracting top job candidates. The best part is that it's easy to implement and manage.

Benefits

- **Load balancing:** The amount of electricity you can draw from your building's electrical system is limited. To prevent exceeding this limit and avoid blackouts, use load balancing in your wallbox.

- **Static load balancing:** With the go-e Charger, set the maximum charging power for several charging stations to ensure it never exceeds the limit.
- **Dynamic load balancing:** With the go-e Charger and go-e Controller combo, the wallbox monitors the building's energy consumption and adjusts the charging current accordingly.
- **Highest compatibility:** All go-e Charger models can charge any electric car or plug-in hybrid registered in Europe. So when installing one, you don't have to worry about whether every customer or employee at your company will be able to benefit from it.
- **Numerous safety features:** The wallbox ensures safe charging, preventing battery damage even if the car tries to draw more power than is allowed. Additionally, with weather protection, you can install the wallbox anywhere.



Datasheet Gemini



Datasheet Gemini Flex



Datasheet Gemini 2.0



Datasheet Gemini Flex 2.0

We have a **CAR CHARGING SOLUTION** for you!



4 TIPS FOR LONG TRAVELS WITH AN *ELECTRIC CAR*

Get ready to travel with no rush!

1 PLAN LONGER STOPS

Charging an electric car can take longer than refuelling a petrol car. This depends on factors such as the type of charger and your vehicle's battery. At a 350 kW fast charging station, for instance, you can charge a Hyundai IONIQ 5 from 10% to 80% in 18 minutes. Meanwhile, with a slower 11 kW charger, it can take over 4 hours.

2 AVOID CREATING A PRECISE SCHEDULE

Not all charging stations may be free when you need them. So don't stick to a strict schedule. Charge before your battery gets too low and be prepared for surprises.

3 BRING A MOBILE WALLBOX WITH YOU

If you are staying with friends or at campsites, you can use a mobile charger such as the go-e Charger Gemini flex to charge at different sockets. And honestly, you just feel more confident when travelling with a charger in the trunk.

4 LOOK FOR HOTELS WITH CHARGING STATIONS

More and more hotels offer charging stations for their guests. This way, you don't have to worry about dead batteries if you arrive late. The car battery is charged while you sleep, so you don't have to waste time looking for a faster DC charger the next morning.

In the summer of 2023, two e-mobility enthusiasts from go-e, Ronald and Johannes, travelled from Feldkirchen, Austria, to Oslo, Norway and back — 4,500 km — with a Hyundai IONIQ 5. Overall, the journey went smoothly, as they followed the tips listed above. However, as the schedule was quite tight, the travellers were driving one day at a higher speed (190 km/h) to reach their destination on time and noticed the battery decreasing much faster than usual. Only at that moment they felt something similar to range anxiety.



f.l.t.r.: Ronald Kroke (Head of Marketing) and Johannes Tamegger (Social Media Manager)



Photo by Caleb Whiting on Unsplash

Planning an electric car journey calls for some extra steps, but with the right preparation, it can be a hassle-free experience. Use apps like nextcharge, PlugShare or even Google Maps to find charging stations and plan your stops in advance. Already on your way to your dream destination? Simply use the navigation system in your car to find where the next charging station is.

If you're going to make a few stops for AC charging, plan where to spend longer breaks and remember to bring a charging cable with you. Opt for electric cars with good range and try to drive efficiently by maintaining an optimal speed, using eco-mode, and regenerative braking. If you have access to a power outlet on your way, charge with the go-e Charger Gemini flex and save the cost of every kilowatt hour.

With these and other tips in your pocket, you're all set for a great electric road trip! Once you're used to longer journeys with an electric car, you may not even have to plan as much in advance. This is because the network of fast charging stations is also becoming increasingly dense.

FROM ELECTRIC MOBILITY TO ECONOMIC MOBILITY: THE challenge for the upcoming years.

The shift from traditional internal combustion engine vehicles to electric mobility has garnered significant attention from governments, carmakers, and consumers. As Battery Electric Vehicles (BEVs) gain traction, the focus is shifting towards ensuring the economic viability and accessibility of electric mobility for a broader audience.

go-e has initiated a broad development project that will create tools to look at the many aspects shaping the future of electric mobility. With these tools, we will support operators in optimising their investment decisions, and consumers in navigating towards a more sustainable and inclusive transportation landscape.

PHASES OF ADOPTING E-MOBILITY

Phase 1: Early Adopters and Initial Growth

At present, less than 3% of vehicles on Austrian roads are fully electric, reflecting a trend seen across the EU where electric car numbers have been steadily increasing. However, signs of stagnation are emerging, with a 5% decline in sales reported recently. This decline points to the conclusion of the first phase of electrification, which was characterised by enthusiastic early adopters embracing electric vehicles and accepting the limitations in terms of cost-effectiveness and convenience.

Phase 2: Overcoming Adoption Barriers

We are currently facing challenges in convincing the next wave of consumers. Barriers are the high prices of new electric cars, concerns about vehicle resale values and reliability of used cars, safety concerns, and expected

future price reductions while anticipating technological advancements. Car manufacturers need to address affordability and enhance the appeal of electric vehicles to overcome these obstacles. A shift towards more affordable and cost-effective electric cars is crucial. Artificially inflating conventional vehicle costs hinders the transition, while mandating technologies without true market pull delays progress. Successful adoption requires electric vehicles to be the most appealing mobility option in terms of pricing, stability, and operational costs.

Phase 3: Commoditisation and Infrastructure Development

If the challenges of the second phase are overcome, a third phase of commoditisation will ensue, marked by a significant increase in electric vehicles sold. The transition to electric vehicles will accelerate, with BEV shares rising from 30% to over 80%. This phase requires a robust charging infrastructure to support the growing number of BEVs. Collaboration among car manufacturers, charging system innovators, and grid operators is crucial to ensuring readiness for this transition. Public investments and risk-free loans will be essential to circumvent adoption delays due to a lack of infrastructure. A strong focus on expanding charging infrastructure is imperative for facilitating the widespread adoption of electric vehicles.

CHARGING AHEAD... WHAT DOES THE FUTURE HOLD?

Low-power AC home charging provides a convenient solution for EV owners who have access to private parking. However, this option may not be feasible for all EV owners, particularly those living in apartments or without dedicated parking spaces. High-power DC on-route charging is essential for enabling long-distance travel. Despite its importance, this segment faces significant challenges, such as high costs and regulatory complexities, which limit its scalability.

The most promising solution for scalable and sustainable charging infrastructure lies in low- to medium-power public and semi-public shared charging. Charging systems, located in areas where EVs are parked for a few hours, such as workplaces, shopping centers, and park-and-ride lots, offer the best potential for large-scale deployment and business growth. By addressing key requirements like operational costs, availability of slots, ease of use, and user-centric billing, shared charging infrastructure can facilitate the widespread adoption of electric vehicles.

MOVING TOWARDS SHARED CHARGING INFRASTRUCTURE

To deliver such charging infrastructure, go-e has formed a consortium to drive the necessary innovations.

We jointly target cost-effective and configurable charging hardware, user-friendly operational environments, and data-sharing applications. These tools will enable new business models for charging station owners and energy providers to better serve BEV consumers and support BEV adoption.

DETERMINING THE IMPACT OF FUTURE BEVs ON THE ENERGY INFRASTRUCTURE

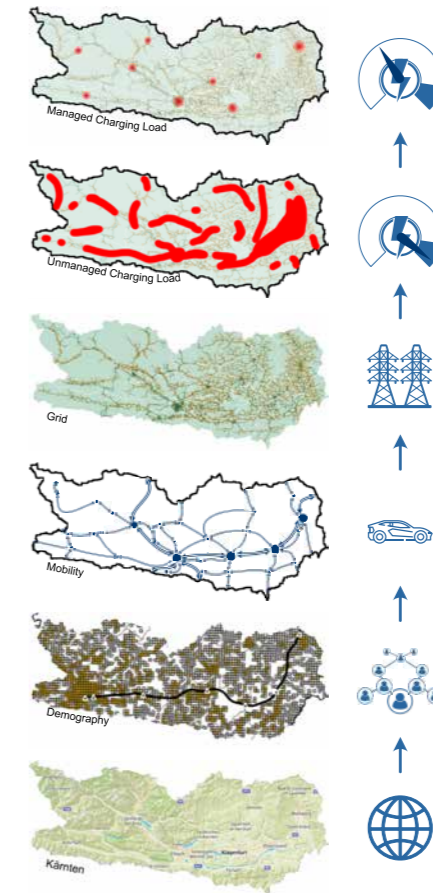
In the first phase, we evaluate and simulate the impact of increasing BEV adoption on the energy distribution infrastructure and identify mitigation strategies. We do it by looking for answers to the following questions:

- What are the implications of extensive BEV use on the electrical infrastructure?
- How does current and proposed legislation affect power distribution and usage?
- What would be the optimal design and operational guidelines for BEV charging infrastructure?
- What potential exists for cost optimisation and planning when expanding grids?

The modelling exercise will initially simulate the grid of our region, Carinthia, assuming varying BEV penetration rates, from the current 3%, through various scenarios, towards BEV shares of 50% up to 95%.

In our approach, we assess

- the population's mobility patterns and movement between locations, to determine energy requirements at any given destination and time.
- the expected parking times of BEVs to find the required charge, determining the grid load.
- the grid stress at any given location and time



Alpen-Adria-University, will yield the ideal tool to model the power distribution systems of the future. Various scenarios concerning BEV penetration and demographic developments can be evaluated. Excessive grid loads can be identified and avoided using a wide variety of "smart" rules for power distribution and load allocation.

DRIVING "E-MOBILITY FOR ALL"

Only by rationalising the effects of the technology transition, and tackling issues before they arise, can E-Mobility grow into the new normal. There are many challenges and unknowns ahead. Let's get to it.



www.mobilityportal.eu

The resulting model, initially assuming unmanaged charging, will determine the necessary changes to the provider grid under these conditions. Based on these findings, dynamic load-sharing and distribution rules can be defined to minimise expensive grid extensions through smart software solutions and legal alterations.

PROJECT GROUP

We start with two existing frameworks and merge these into the envisioned simulation environment: a superposition of the mobility models of the **Johanneum Research** with the Digital Grid Twin from **Kärnten Netz** and **Kelag**, augmented with the advanced energy models created by the



Bart Scholte Van Mast
Project manager and Business Innovation Manager at go-e

Project partners:

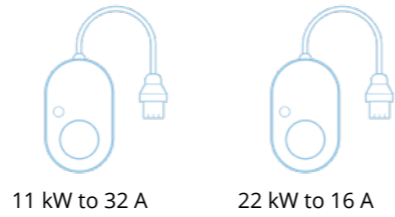


go-e Accessories

go-e adapters

For Gemini flex & Gemini flex 2.0

11 kW | 22 kW



- Adapter to CEE red 16 A or 32 A
- Adapter to CEE blue 16 A (camping plug), max. 3.7 kW
- Adapter to household socket, max. 2.3 kW (at 10 A)



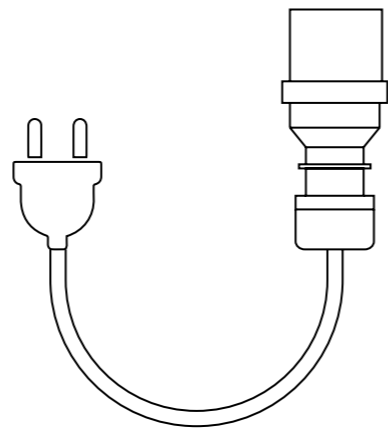
Suitable accessories for your electric car charging station

Type-2 charging cables, adapters and more for convenient charging with the go-e Charger or third-party charging stations wherever you are.

View product



RRP: The set 105€



Cable length á approx. 30 cm



Spending a weekend camping or in the countryside, but the nearest charging station is at least 20 km away?

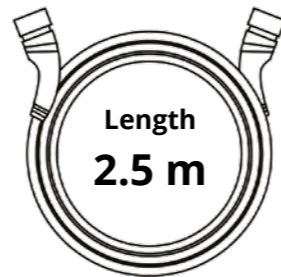
No problem if you have a go-e adapter. Just take the go-e mobile wallbox with you and plug it into a power outlet.

**Camping in France?
Road trip through Europe?
You can do that too!**

go-e Accessories

go-e Type 2 charging cable

- Compatible with all type 2 connectors
- Suitable for all electric cars & plug-in hybrids
- Suitable for all go-e Chargers
- Suitable for other type 2 charging stations



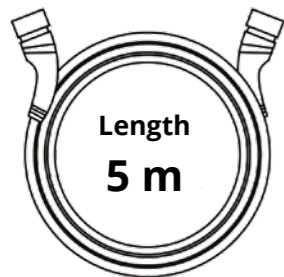
Charging power 1.4 - 22 kW



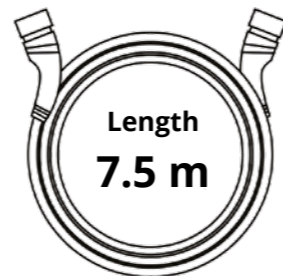
View products



RRP: 2.5 m 179 €
RRP: 5.0 m 219 €
RRP: 7.5 m 269 €



Charging power 1.4 - 22 kW



Charging power 1.4 - 22 kW

You want to know what a type 2 cable is? Learn more in our blogpost



or watch our YouTube video!



RFID-Tags

RRP: RFID Tag (pack of 10) 16.90€

Authorize and personalize charging on your go-e Charger

Share your charging station with neighbors. Register new users with RFID tags and track how much current each of them has used in the go-e Charger app.



Why do you need an RFID card for your wallbox?

If you mount your wallbox in a place that is accessible to strangers, then you probably don't want it to be used without permission, right? This is where the RFID card or RFID chip comes into play.

go-e Case

RRP: go-e Case 29.90€

Best travel companion for safe and tidy storage

Whether go-e Charger Gemini flex or Gemini flex 2.0, an adapter set or a type 2 charging cable - with the go-e Case everything has its proper place. The robust hard case with two inner compartments separated by a net protects and organises your charging equipment during transport.



Type 2 cable holder

RRP: Type 2 cable holder 32.90€

Easy to install solution to store your charging cable

Do you often find your charging cable lying on the floor, causing your hands to get dirty and cluttering your space? Get yourself a cable holder from go-e and keep your space neat and organized. Enjoy a more hassle-free charging experience!



Stand & go-e Tower



Stand
Weatherproof stand for the go-e Charger Gemini and HOMEfix when there is no wall to install your charging station. Mount your go-e Charger quickly and securely outdoors with this decorative powder-coated steel column.

RRP: Stand MB anthracite 379€ (without charging station)

Stand



go-e Tower
Charging pole made of galvanised steel, powder-coated, in a timeless design for mounting the go-e Charger Gemini or HOMEfix on a parking space. The lockable door offers additional protection against theft. The roof and the extended side panels provide additional protection for your Charger (protection class IP65) against wind and weather.

RRP: go-e Tower FBS 895€ (without charging station)

go-e Tower



7 AC vs. DC Charging

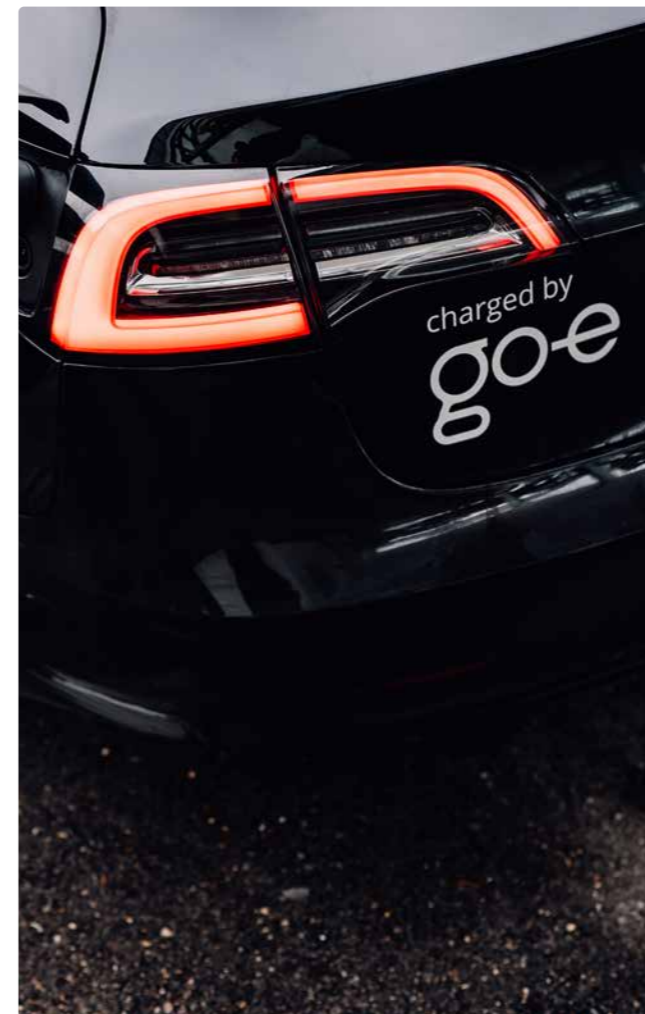
FUNDAMENTAL DIFFERENCES

go-e Charger is an AC wallbox. But what does that mean?

AC CHARGER		DC CHARGER
Conversion to DC is done inside the electric vehicle		Conversion to DC is done inside the charging station
Typical for home and public charging		DC charging points are mostly found along highways
Charging curve has a shape of a straight line		Degrading charging curve
Gentle to the electric car's battery		Prolonged charging with DC fast charging heats up the EV batteries, and this slightly degrades the batteries over time
Available at an affordable price		Expensive to install
Can be mobile		Cannot be mobile
Has compact size		Usually larger than AC chargers

Becoming part of the e-mobility community means contributing to a better future and enjoying financial benefits at the same time. Who can say no to that?

Plus, it offers great convenience, as you can charge your vehicle at home, at work, and while travelling. Our go-e Charger ensures you have a flawless charging experience, as it comes with numerous smart and safety features. Every time you tap the "Start charging" button in your go-e app and the electricity from the grid or PV panels starts flowing into your car battery, you're not just powering up your vehicle—you're fueling a cleaner, greener tomorrow.



We were excited to share our e-mobility insights with you, but there's always more to explore about driving electric.

If you're looking to enhance your charging experience or need guidance on maximising the benefits of owning an electric car, join us on social media or YouTube and check out the blog articles on our website!



Social Media



Blog

If you have any requests, suggestions, or topic ideas, please send them to redaktion@go-e.com

Imprint: MEDIA OWNER (PUBLISHER AND ADVERTISEMENT MANAGEMENT go-e GmbH, Satellitenstraße 1, 9560 Feldkirchen in Kärnten, Austria, T: +43 4276 6240010, E: redaktion@go-e.com, I: www.go-e.com; **General Manager:** Susanne Palli, **Publisher:** © 2024 go-e GmbH, All rights reserved; **Editorial work:** Ronald Kroke, Eva Jobst, Iryna Nahorniak, Karin Schmid; **Graphic:** Eva Jobst; **Photos:** Envato Elements, Unsplash, go-e; **Advertising marketing:** Ronald Kroke, T: +43 660 8603971, ronald.kroke@go-e.com; **Print:** Druck Styria GmbH & Co KG, Styriastraße 20, 8042 Graz; **Basic direction:** Independent trade magazine for electromobility and the electrical trade.



Volltreffer!

Der Hyundai IONIQ 5 & IONIQ 6



Fixe monatliche Rate
ab € 499,-*



Go Hyundai, GO! Den Hyundai IONIQ 5 und IONIQ 6 gibt es jetzt als Tageszulassung - ohne Anzahlung, ohne Restwertrisiko, sofort verfügbar und mit fixer monatlicher Rate. So wird Ihr Autokauf zum Volltreffer.

- **Keine Anzahlung!** | IONIQ 5 Long Range 77,4 kWh
- **Kein Restwert!** | und
- **Prompt verfügbar!** | IONIQ 6 Long Range 77,4 kWh

Wählen Sie nach Ihren Bedürfnissen:

Base Line, 2WD	ab € 499,-* inkl. MwSt.
Plus Line, 2WD	ab € 599,-* inkl. MwSt.
Top Line, 4WD	ab € 623,-* inkl. MwSt.

Mehr unter hyundai.at/volltreffer



*Freibleibendes Leasingangebot der Arval Austria GmbH. Angebot gültig für die gezeigte Kilometerleistung von 15.000 km/p.a. und einer Vertragslaufzeit von 48 Monaten. Positive Bonität vorausgesetzt. Angebot gültig solange der Vorrat reicht bzw. bis Widerruf. Angebot beinhaltet Fahrzeugleasing, Assistance, Schadenmanagement. Irrtum vorbehalten. Die gesetzliche Vertragsgebühr ist in der Rate nicht enthalten und wird bei Neuverträgen gesondert zu Vertragsbeginn verrechnet. Die angegebene Operating Leasing Rate ist jeweils monatlich vorschüssig zur Zahlung fällig. Arval verrechnet keine gesonderte Bearbeitungsgebühr. Fixe Verzinsung, deren Höhe zum Zeitpunkt der Vertragsaktivierung bestimmt wird, wird während der gesamten Vertragsdauer angewandt. Es gelten die AGB in der aktuellen Fassung. Das Angebot inkludiert keine Haftpflicht- und Kaskoversicherung. Die AGB der Arval und die Versicherungsbedingungen finden Sie hier <https://www.arval.at/fahrer/kundendokumente>. Stromverbrauch IONIQ 5: 16,7 - 19,1 kWh / 100 km, elektrische Reichweite: bis zu 507 km, 77,4 kWh Batterie. Stromverbrauch IONIQ 6: 13,9 - 16,9 kWh / 100 km, elektrische Reichweite: bis zu 614 km, 77,4 kWh Batterie. Die Reichweite und der Verbrauch können abhängig von Straßenverhältnissen, Fahrstil und Temperatur deutlich variieren. (Alle Angaben nach WLTP). Symbolabbildungen. Satz- und Druckfehler vorbehalten.