Issue 02/2026

go-e mobility

CHARGING THROUGH THE SAHARA WITH THE go-e CHARGER

Charging in places without infrastructure

P. 26

CHECKLIST FOR BUYING A USED ELECTRIC CAR

How to avoid costly mistakes

P. 42

BLACKOUT:

The role of bidirectional charging when the lights go out

P. 18

Content

Innovation in Exciting Times

In 2026, we continue to watch the evolution of electric mobility with great anticipation. Today, a multitude of individual solutions can be found on the market, each addressing specific challenges in electric vehicle charging. Many of these approaches show real promise - inductive charging, plug-and-charge systems, bidirectional charging, and advances such as solid-state batteries, to name just a few.

At go-e, however, we pursue a more holistic approach to innovation. We collaborate closely with industry partners and scientific institutions, recognizing that no single company can solve the complex challenges of electric mobility alone. These partnerships are a source of valuable insight for our product development, and they enable us to actively contribute to addressing key questions that shape the future of mobility.

One topic currently at the forefront of customer concerns is the safety of the charging process. A project particularly close to my heart addresses precisely this issue: together with AVL and other partners, we are developing the Safety-Charge battery project. Its goal is to further enhance charging safety while at the same time deepening our understanding of battery technology. We expect the knowledge thus gained to feed into a major EU innovation initiative within the next two to three years, focusing on safe charging e.g. in environments such as ships and underground car parks. Naturally, these insights will also help us refine and improve our go-e charging solutions.

A common thread runs through all our innovation efforts: the ambition to power electric mobility entirely with renewable energy. To achieve this, we work hand in hand with our partners. Quite often, we hear that this goal is unrealistic—but we firmly believe otherwise. One factor is essential: bringing e-mobility users along on this journey. Ultimately, it is they who will adopt and shape these developments. Once that mental shift takes place, the possibilities for electric mobility are vast.

We are excited to be part of that future.

Christian Philipp, CCO go-e

The Dark Ages of Electric Mobility

– EPISODE 2 : 1920–1972

From the roaring twenties to the first oil crisis, petrol cars gloriously took centre stage. Away from the limelight, electric vehicles became indispensable in industrial, utility and urban transportation.

1 Beginning up to around 1920: From Batteries to Buzzing Streets

2 1920 to 1972: Tries, Errors and Successes

3 1972 until 2014: Real Cars and Industry Standards

4 2014 until 2025: Ramping into the Market

5 2025 onwards: Becoming the New Normal

Throughout the early 20th century, the godfather of electricity, Thomas A. Edison, remained a firm believer in e-mobility. Stubbornly continuing to drive his nickel-iron-powered electric car, he predicted that within the next 15 years, more electricity would be used for vehicles than for lighting. He could not have been more wrong. By the 1930s, the conventional electric passenger car had practically disappeared from the roads – thanks to cheap petrol and the fact that Henry Ford's first mass-produced car, the Model T, came with a combustion engine.

1920s - Urban & Underground E-Mobility

Of course, the glamorous car in the showrooms of the Swinging Twenties ran on gasoline – but the sturdy workhorses used in factories or by bakeries and coal dealers for their deliveries did not. Short routes, low speeds and all-night charging in the depot were exactly what the most advanced lead-acid batteries, at the time, could provide.

Public transport also began to increasingly rely on electricity. Starting in the late 1920s, trams and trolleybuses with overhead wiring took over cities across Europe, North America, and Australia. They had no batteries at all. Instead, they continuously drew power from overhead lines. The upside: No charging downtime. The downside: They could only operate on fixed routes.

In the mining business, electric haulage was also most welcome. Underground, where every breath of fresh air had to be forced in with fans, electric engines were lifesavers – quite literally.

1930s - The Forklift Success Story

Imagine factories or warehouses without forklifts! The global success story of the humble forklift started in the 1930s. Around the clock, these boxy machines shuttled pallets and crates between dusty halls or cold industrial sheds. Their drivers already enjoyed instant torque and simple controls, long before those buzzwords appeared in electric-car brochures. Yes, it was the forklift that motivated engineers of the thirties to keep improving electric motors, controllers and batteries – even though they most likely drove home from work in gasoline cars.

During the Great Depression in the US, only a few specialist manufacturers like Detroit Electric kept building small numbers of electric cars, mostly for urban customers. But across the Atlantic, London started to roll out the world's largest electric tram and trolleybus network – and an electric delivery cart started its daily early-morning rounds: the milk float.

1940s - War and Milk

Milk floats would deliver milk to British doorsteps every morning. They moved so quietly at 10 mph that people only heard the pre-dawn clinking of bottles. Much better than rattling engine noise or the claptrap of horse hoofs – and much easier to maintain than horses. Hundreds of small manufacturers specialised in float production. The larger ones were driven, while the smaller ones were guided on foot. Milkmen were popular and often acted as informal community hubs, checking on elderly residents and even occasionally delivering bread or soft drinks.

As World War II hit, tougher, safer and easier-to-maintain electric platform trucks and forklifts bustled around in factories and mines. Battery development for these utility vehicles became a wartime necessity – and its progress would benefit the peacetime industry for decades, even though it started out moving combat jet engines, wings and shells.

1945–1959 - A Modern Electric Car Fiasco

After the war, combustion car ownership exploded across the globe. Few electric cars were constructed, and even fewer were actually sold. Most were microcars, and many were home-built. In 1959, the National Union Electric, Henney Motor Company, and Caltech engineers launched the "Henney Kilowatt". Alas, it had a range of 40 miles and could go no faster than 40 mph, tops. Only around 43 Henney Kilowatts were sold - ever. Still, it is often named the first modern electric passenger car.

1960s - The "Dark Ages" of EV Mobility

The 1960s gave us Beatlemania and the Miniskirt – and loud, roaring "classic" combustion cars as the epitome of freedom in pop culture. Historians call the two decades from 1960 onwards the "Dark Ages" of electric driving. In many cities, even electric public transport was regarded as old-fashioned and replaced by "modern" diesel buses. In everyday life, battery-powered wheelchairs and mobility scooters emerged, and forklifts and other industrial electric vehicles were further improved.

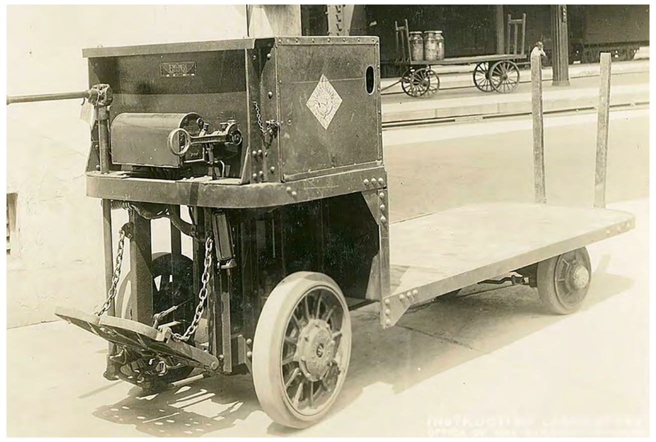


Photo: "Electric truck and lift (Reeve 001275-1), National Museum of Health and Medicine" by National Museum of Health and Medicine / Wikimedia Commons, licensed under CC BY 2.0.

Photo: Lewis Electruk RVW 732 / Wikimedia Commons, licence as stated on the file page

Photo: "1959 Henney Kilowatt" / Wikimedia Commons, CC BY 2.0. Photographer: Rex Gray.

Photo: Tyler Clemmensen, Unsplash

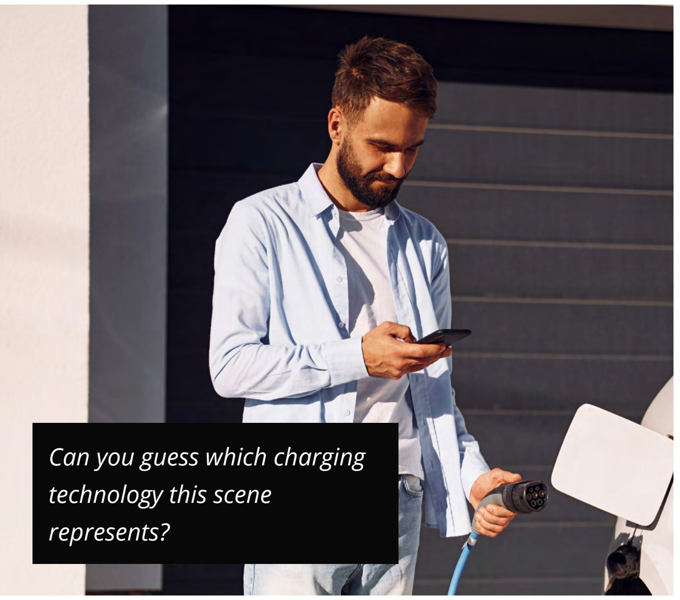
Photo: „Warteschlange an einer Tankstelle, 15. Juni 1979" / Library of Congress via Wikimedia Commons.

Early 1970s - A Crisis and a New Beginning

A few things that happened in this decade would slowly start to shift the focus back to electric driving: The first oil crisis hit in 1973, and the second one in 1979. Petrol prices spiked, and fuel shortages and recession hit. A quest for alternatives to oil-fuelled mobility began. As a result, long-dormant research on Lithium batteries as a lighter, higher-capacity technology than lead or nickel-cadmium was rekindled.

Another slow-brewing issue escalated among various protester movements: Air pollution in cities. Problematic ever since the industrial age began in the 19th century, smog levels reached dangerous new heights as individual traffic continued to boom, and every family drove their own car.

On 22 April 1970, the first "Earth Day" was proclaimed. 20 million Americans took to the streets to protest against air pollution in cities, leading to the first "Clean Air" law in history: Reductions in carbon monoxide and lead emissions became mandatory. The urban environmental movement was born and was bound to gain momentum.




Can you guess which charging technology this scene represents?

Charging an electric car often involves apps, cards, QR codes, and a brief moment of guessing which one is the optimal choice in a specific situation. Plug and Charge is designed to remove that uncertainty by making the entire process feel effortless from the very beginning.

You simply plug in the cable, and everything else happens automatically as the car and the charging station recognise each other, charging begins immediately, and the payment is processed quietly in the background without any further action from the driver. And just like that, there's no need for an app anymore — and one hand stays free for your coffee.

It already works with a growing number of vehicles and networks. Models like the Audi Q8 e-tron, BMW i5, Hyundai IONIQ 6, or VW ID series support it, and networks such as IONITY or Aral Pulse are expanding compatibility. Not universal yet, but clearly heading in that direction.

"Plug&Charge is a real gain in convenience"

At the publicly accessible go-e Chargers at the company site, I currently authenticate as the driver of a Hyundai IONIQ 5 using an RFID card, and at public charging stations, I mostly use an app.

It's not a huge effort, but still a few extra steps compared to charging at a Tesla Supercharger. That's why I see Plug and Charge as a real step up in convenience — offering a much higher level of cybersecurity and data protection compared to Autocharge.

What would make it even more exciting in the future is if Plug and Charge could automatically select the cheapest charging tariff for me at a public charging station.

Ronald Kroke, Head of Marketing at go-e

For something designed to simplify charging, Plug and Charge still has a few conditions attached:

- both the car and the charging station must support the technology
- a charging contract needs to be set up in advance
- availability depends on the provider and location

So yes, it removes complexity, but only after a bit of preparation. A reasonable compromise, even if it slightly reduces the magic of "just plug in and go."

In the bigger picture, Plug and Charge feels like the logical next step, as it means that charging becomes less of an interaction and more of a background process. And once that becomes standard, dealing with multiple apps and cards might feel as outdated as it probably should.

Discover more about Plug & Charge

M1E: *Europe introduces a new, controversial car category*

M1E is a brand-new subcategory of the standard "M1" passenger car class. One could think of it as the "E" for "Efficient", "Electric", and, most importantly, "European". To fit into this new sub-category of the M1 passenger class, a car must meet strict physical and technical criteria:

Maximum length: 4.2 metres (13.7 ft)

Powertrain: Must be fully electric (BEV)

Safety: Unlike lighter "quadricycles" (L7e), M1E cars must still meet standard M1 safety regulations (Euro 7 and General Safety Regulations), though there are talks of "frozen" or simplified type-approval to lower R&D costs

By creating a specific class for small, affordable electric vehicles, the EU aims to make zero-emission driving accessible to the masses, not just those who can afford a €50,000 Tesla. Several compact EVs already meet the proposed size and positioning criteria for this new vehicle category. These models are typically under about 4 metres long and designed primarily for urban mobility. Examples include the Renault 5 E-Tech (3.92m), the VW ID. Polo (formerly ID.2) (4.05m) and the Citroën ë-C3 (4.01m).

Local production rule behind M1E

One of the most controversial aspects of the M1E proposal is its regional exclusivity. The European Commission has introduced "Super Credits" as the primary carrot for manufacturers. For every M1E car sold, manufacturers receive 1.3 credits toward their fleet CO_2 targets (instead of the standard 1.0). These super-credits are specifically reserved for vehicles produced within the European Union. Commission documents (SWD/2025/1056) and the December 2025 Automotive Omnibus specify that these incentives are designed to "benefit European manufacturers" and "ensure local production." This effectively excludes Chinese-built models like the Dacia Spring or Leapmotor T03 from receiving the same regulatory "boost", even if they meet the size requirements.

When will the M1E rules take effect?

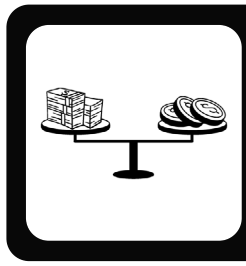
The European Commission formally presented the "Automotive Omnibus" (which contains the M1E rules) on December 16, 2025. The European Parliament and the Council are currently debating the final text. Formal approval is expected by mid-2026. Once signed, the rules will likely take effect in early 2027.

Manufacturers are already designing cars based on the draft requirements because the Commission has promised a "10-year regulatory freeze" to ensure that once a car is M1E-certified, the rules won't change for them.

Photo: Renault 5 E-Tech Electric, © Renault Communications / Rights reserved

What does the M1E category mean for drivers?

While the "Super Credits" help the big car companies avoid fines for failing to meet strict EU CO_2 targets, the M1E category offers several tangible perks for the driver. Once this category is formally approved in 2026, it opens the door for:



Targeted subsidies:
Many EU countries (like Germany and Italy) are already moving toward income-based EV subsidies. M1E gives governments a standard way to say, "You get a €4,000 subsidy, but only if you buy a compact M1E vehicle."

Urban perks:
Cities across Europe can use the M1E classification to help shape urban mobility by supporting smaller and more efficient vehicles. This can include benefits such as cheaper or free parking and other local incentives that make M1E vehicles more appealing for everyday use in the city.

Lower insurance and taxes:
Because M1E cars are capped at a certain size and are inherently safer than "quadricycles" (like the Citroën Ami), insurance companies are expected to offer lower premiums compared to heavy, high-performance EVs.

Drive and charge at the same time - *the future that's still out of reach*

If charging an electric car without a card using technology like Plug & Charge sounds convenient, then skipping the cable altogether is apparently the next logical leap. That's the idea behind inductive charging. Is it possible? Yes. Is it economically viable? Not really.

Inductive charging, in various forms, has already been tested quite actively in Germany, France, the U.S., and other countries. Unsurprisingly, a fair number of earlier projects have been quietly abandoned or remained in pilot phases.

For example, BMW's 3.7 kW wireless charging system for the 530e never reached mass rollout, and taxi charging pilots like Nottingham's WiCET project have already concluded.

How does inductive charging work?

Inductive charging uses electromagnetic induction instead of wires to transfer energy from a charging base to an electric car. The charger creates a magnetic field, which is picked up by the car's coil — electricity flows and the battery charges.

Two key components are essential to this process:

- transmitter coil
- receiver coil

The charging pad contains the transmitter coil. When alternating current (AC) from the grid or renewable energy sources flows through this coil, it changes direction several thousand times per second, creating a magnetic field. When another copper coil — the receiver coil located inside the electric car — comes close to this magnetic field, alternating current begins to flow within it.

This current is then converted into direct current (DC) by the vehicle's on-board charger, just as with AC wallbox charging, and is used to charge the battery.

Inductive charging can take place when the car is parked (static) or while it is in motion (dynamic).

	Static inductive charging	Dynamic inductive charging
Most suitable for	High-end EV owners, private homes, taxi queues, semi-automated parking fleets, convenience-centric use cases	Heavy-duty trucks, buses on predictable routes, and long-distance logistics corridors
Charging power (today in pilot projects)	High-power demos: up to 270 kW Expected power for daily use: 3.7 - 11 kW	200 - 300 kW
Efficiency	~90-92% (1-2% lower than wired chargers)	Significantly lower due to vehicle movement and a larger air gap
Hurdles	High cost of pads and vehicle receivers Precise alignment needed (solved partly by automated parking/DIPS) Vehicle upgrade needed Regulatory certification for metering	Extremely high infrastructure cost (approx. $2M/mile Detroit) Road excavation, segmentation, and maintenance Complex billing and metering standards Standardisation gaps Higher energy losses
Stage	Close to early commercialisation	Early pilot stage only. Not near commercialisation. Focused on research and heavy-duty use cases
Upfront investment	High: ground pad, wiring, vehicle receiver coil, sensors, alignment tech. Installation comparable to heavy civil works.	Very high: road reconstruction, embedded coils, segmentation control electronics, communication network, maintenance infrastructure

TCA calls for clear rules to make AFIR work in practice

While AFIR provides the legal foundation for a European charging network, the Trusted Charging Alliance (TCA), a network of European charging solution manufacturers, points out that "user-friendliness" is not a technical spec. In its latest statement, the TCA outlines eight key areas where precise, binding rules are needed to prevent market fragmentation and unnecessary costs.

1. **Clearly specify card payments at DC and AC charging points –**
   clear minimum requirements, no contradictory interpretations.
2. **Regulate direct payment in practice –**
   define equivalent options so that user-friendliness is achieved without unnecessary additional costs. Allow Plug & Charge based on Secure Codes (SRCI) at terminals instead.
3. **Define accessibility in a binding and verifiable manner –**
   measurable criteria instead of unclear "rec-ommendation" interpretations. Align disability with e-mobility (treat blind/deaf people in the same way as roadworthiness)
4. **Address uniform, consumer-oriented standards binding –**
   interoperability requires clear guidelines.
5. **Clearly define "publicly accessible" –**
   clear demarcation (e.g. semi-public/business) for legal certainty.
6. **Private charging points from 2027: regulate transition/existing stock/calibration law logic –**
   predictable paths instead of retrofitting uncertainty.
7. **Ensure verifiability –**
   including vehicle-to-grid (V2G) – requirements must be auditable and take future grid utility into account. All testing centres in the EU must be recognised.
8. **Clearly regulate liability –**
   assign responsibilities along installation/oper-ation and private/business lines.

"Good regulation is measurable – not open to interpretation: AFIR needs clear minimum standards and test criteria to make charging easy and affordable across Europe."

Falko Lausecker
Vice President of the Trusted Charging Alliance (TCA)

Learn more about the Trusted Charging Alliance

V2V Bidirectional Charging:
The Concept of Vehicle-to-Vehicle Charging

One of the biggest fears many drivers associate with electric vehicles is running out of battery power. The idea of a nearly empty battery and being stranded with no charging station in sight can feel unsettling, especially on long trips or in unfamiliar areas.

In the future, Vehicle-to-Vehicle (V2V) charging could help in exactly these situations. The technology allows one EV to charge another directly, potentially turning a stranded vehicle into a manageable inconvenience rather than a major problem.

What is bidirectional V2V charging?

V2V is a function that allows one electric car to charge another directly using energy from its own high-voltage battery. In other words, energy flows from battery to battery. V2V belongs to the broader group of bidirectional charging functions known as V2X.

How does bidirectional V2V charging work?

In V2V bidirectional charging, one electric vehicle acts as the energy source and supplies electricity, while the other vehicle acts as the energy receiver and uses that electricity to charge its battery. Depending on the system, charging power can range from 1.4 kW to as much as 60 kW.

Energy is transferred directly from one vehicle to another via a cable. This usually requires a dedicated V2V charging cable. In most cases, no external charging station or wallbox is needed, because the power electronics inside the vehicle manage the energy flow. Some solutions require only a small adapter rather than a large external unit.

At the moment, however, V2V bidirectional charging remains more of a forward-looking concept than a widely available real-world solution, particularly in Europe.

Technically, the technology is feasible, but most production vehicles still do not support it, and there is no standardised implementation yet.

V2V in Europe

In Europe, the regulatory status of V2V is still not clearly defined. VDE FNN, the technical regulator for electricity grids in Germany, classifies V2V as a special case of V2L. According to Agora Verkehrswende, V2V is currently neither economically nor regulatorily relevant. As a result, the technology is not actively supported through policy or market frameworks.

Photo: https://lucidmotors.com/de-de

go-e mobility

Charging another electric car through V2L

If an electric vehicle supports V2L — such as the Hyundai IONIQ 6, Kia EV6, various BYD models, the MG4, or the BMW iX — it can provide 230 V AC power through a V2L adapter or a built-in socket. If a portable emergency charger is connected to that outlet, it can technically charge another EV.

There is currently no EU regulation that prohibits charging an EV using AC power supplied by another EV. However, the Hyundai IONIQ 5 manual includes the following note regarding the use of the V2L adapter: "Only use home appliances under 16 amperes."

Naturally, the charging power of the receiving vehicle can be reduced to remain within the V2L limits. Technically, the process works. However, V2L was designed to power electrical appliances rather than charge another car, meaning manufacturers could potentially refuse warranty coverage if damage occurs.

To better understand how close V2V is to practical use, we contacted Lucid, one of the manufacturers already preparing its vehicles for this functionality. Their response was the following:

"The Lucid Air is prepared for bidirectional charging."

The Lucid Air is fundamentally designed for Vehicle-to-Vehicle (V2V) and similar bidirectional charging functions. However, this software feature is not yet available in Europe. We are working on making it available on the European market in the future, but at the moment, we cannot provide a specific timeline.

~ Lucid Customer Care Support Team

Blackout:

The role of bidirectional charging when the lights go out

The combination of ageing infrastructure, cybersecurity threats, extreme weather events, and steadily rising electricity demand has made the power grid far more fragile than many seemed to assume. Precautions do exist, for example, Germany introduced § 14a EnWG, which allows grid operators to control high-power devices. Even so, blackouts still happen. In situations like these, electric cars can serve as temporary power sources, covering at least some essential needs.

V2L, V2H, V2G – What works in a real blackout?

Electric cars can supply power in different ways. Not every function, however, is equally useful in an actual blackout. Some bidirectional charging options are fine for running small devices, others can power parts of a home, and some are mainly designed to support the public grid and hopefully prevent outages in the first place.

Vehicle-to-Load (V2L)

Appliances like a fridge, kettle, or laptop charger can be plugged directly into the car using an adapter. Models such as the Hyundai IONIQ 5 and 6, the Kia EV6, and several BYD vehicles already support this. It is practical, but also fairly limited, since V2L does not feed electricity into household wiring. This means central heating or built-in systems will not suddenly start working just because the car is there.

Vehicle-to-Home (V2H) / Vehicle-to-Building (V2B)

The car can supply electricity directly into a building's electrical system. That sounds useful, and it can be, but only if the property is properly prepared for it. In a grid failure, the building must be disconnected from the public grid using a certified transfer switch. This avoids backfeeding electricity into the grid, which is dangerous and generally frowned upon, especially by utility workers. On top of that, an island mode, or backup mode, configuration is required so the building can operate independently while the grid is down.

Vehicle-to-Grid (V2G)

This type of bidirectional charging allows cars to send electricity back into the public network. However, V2G does not function as a personal backup.

It is typically used to help stabilise supply during peak demand, so it is basically there to prevent power outages. In a full blackout, grid safety rules prevent feeding power into a network that is down.

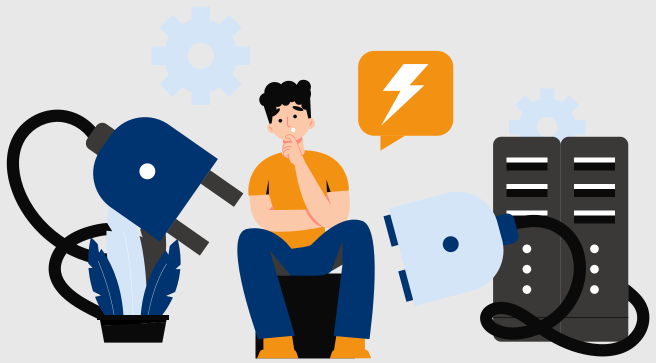
How much electricity is actually needed in a blackout?

In an emergency, the goal is usually not to power everything. The focus shifts to essentials such as keeping food cold, maintaining basic lighting, charging devices, and running heating controls.

Typical daily power needs may look like this:

- Refrigerator: 1.2 – 1.8 kWh
- LED lighting (~5 rooms): 0.5 – 1.0 kWh
- Wi-Fi, laptops, phones: 0.4 – 0.8 kWh
- Heating: 4.0 – 8.0 kWh

This brings the total essential daily consumption to around 12 kWh. In many homes, blackout usage falls between 10 and 15 kWh per day.



A compact EV with a 40 kWh battery can cover these electricity needs for about three days. Vehicles with batteries in the 60 – 80 kWh range extend that to roughly five or six days, while larger battery packs around 90 kWh provide even longer coverage.

1. **Renault 5 E-Tech (40 kWh):** ~3 days
2. **Hyundai Kona Electric (64 kWh):** ~5 days
3. **Tesla Model 3 RWD (60 kWh):** ~5 days
4. **Tesla Model Y Long Range (81 kWh):** ~6.5 days
5. **Kia EV6 / Hyundai IONIQ 5 (77,4 kWh):** ~6 days
6. **Ford Mustang Mach-E (91 kWh):** ~7.5 days

Actual results vary depending on factors such as temperature, battery state of charge, the presence of a PV system (and corresponding weather conditions), and overall electricity usage habits.

What if the EV battery is not enough to power a home?

Even without the ability to run an entire household or a full V2H setup, an EV can still provide value during a blackout by serving as a mobile safe space.

Modern EVs are relatively energy-efficient when heating or cooling the cabin compared to typical household systems. In extreme temperatures, the vehicle interior can offer a controlled and comfortable environment.

Devices can be charged, and basic comforts such as radio or lighting can be used for extended periods while consuming only a small portion of the battery.

ChargeScan Project:

Turning Charging into Real-Time Battery Insight

Charging an electric vehicle is usually seen as a simple step. Plug in, wait, move on. The main number people look at is the battery percentage on the screen. Everything else, especially the real condition of the battery, stays mostly hidden. For such an important part of the vehicle, this lack of insight is quite surprising.

The ChargeScan project addresses this gap. It uses the charging process itself to check the battery condition in real time. This turns a normal charging session into a source of useful information, without extra steps, devices, or effort.

Early detection, longer lifetime, and better transparency

Continuous monitoring enables early detection of changes and irregular behaviour before they become real problems, rather than responding after performance drops. The project also helps extend battery lifetime. A better understanding of how charging behaviour affects ageing allows more informed use, for example, by avoiding patterns that cause faster wear. In addition, reliable data on battery condition reduces uncertainty for EV drivers and creates clear value in second-hand markets. For example, when someone sells a used electric vehicle, the battery is often the biggest unknown. With clear data on its condition, buyers no longer need to rely only on estimates or trust.

ChargeScan project development

ChargeScan relies on a combination of experimental research and model-based analysis. At the Battery Safety Centre in Graz, batteries go through tests under controlled conditions to track how diagnostic signals change over time. The project is still under development, and the team continues to refine methods and validate results.

3 common mistakes with PV surplus charging

PV surplus charging is one of the smartest ways to increase self-consumption and reduce charging costs. However, many systems never reach their full potential because of a few easily avoidable mistakes. The difference between a system that works occasionally and one that works every day often comes down to choosing the right setup from the start.

X Mistake #1:

Using a wallbox without automatic phase switching

If the wallbox cannot automatically switch between 1-phase and 3-phase charging, it requires a high level of solar power before charging can even start. As a result, on many days, "free solar charging" never actually takes place.

Choose a wallbox that supports automatic phase switching. This allows charging with both small and large amounts of solar power.

X Mistake #2:

Ignoring the need for an energy management system

A wallbox can only charge efficiently using PV surplus if an energy management system is part of the setup. It needs to know whether surplus energy is available that would otherwise be fed into the grid.

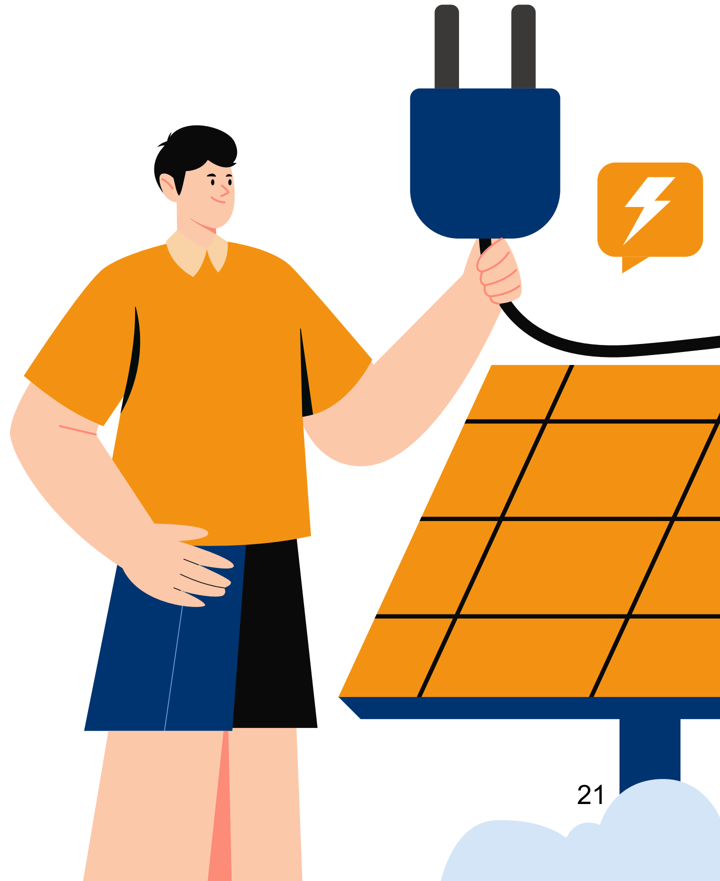
Without this information, the wallbox is essentially guessing. As a result, it cannot reliably decide when to start or stop charging with solar power. It also cannot adjust the charging power according to the actual PV surplus. As a result, electricity would usually still be drawn from the grid during charging, even when the sun is shining, because the wallbox would blindly charge at the maximum possible power.

X Mistake #3:

Picking an EMS not compatible with the PV system

For PV surplus charging to work, the energy management system must be able to communicate with the PV system. If they're not compatible, important data is never exchanged. Best case: charging must be controlled manually. Worst case: surplus charging does not work at all.

Ensure the EMS is explicitly listed as compatible with the PV inverter or supports common communication standards used by PV systems. This is unnecessary when using the go-e Controller, as it operates independently of the PV inverter manufacturer.



Ask Ronald!

Hi Ronald,

I only have a small PV system. Is PV surplus charging even worth it for me?

- Luca B., Italy

Hello Luca,

Yes. Many people believe that PV surplus charging only works with large solar systems. That's the misconception as you don't need a large solar system to benefit. Even small amounts of surplus energy can be used if your wallbox supports features like automatic phase switching. Without that, your system might never charge at all on average days. With it, you can charge even with limited solar output. So it's less about how big your PV system is, and more about how smart your charging setup is.

Best, Ronald

Ronald Kroke,
go-e Head of Marketing

Scan to find the best EV chargers for solar surplus charging in 2026

Powering the future of flexible energy.

gridX

Control

Stay compliant and optimize self-consumption

Prosumer with solar charging

Self-consumption optimization and regulatory compliance

€453

Source: gridX internal simulations

Optimize

Lower bills: align (dis)charging with market neds

Intelligent user with unidirectional EV

Dynamic price optimization with day-ahead time-of-use

€501

Source: gridX internal simulations

Flex

Aggregate and monetize the flexibility of DER's

Flexumer with bidirectional charging

Explicit flexibility trading with bidirectional EV charging

€800

Source: gridX internal simulations, BCG

German end user annual savings

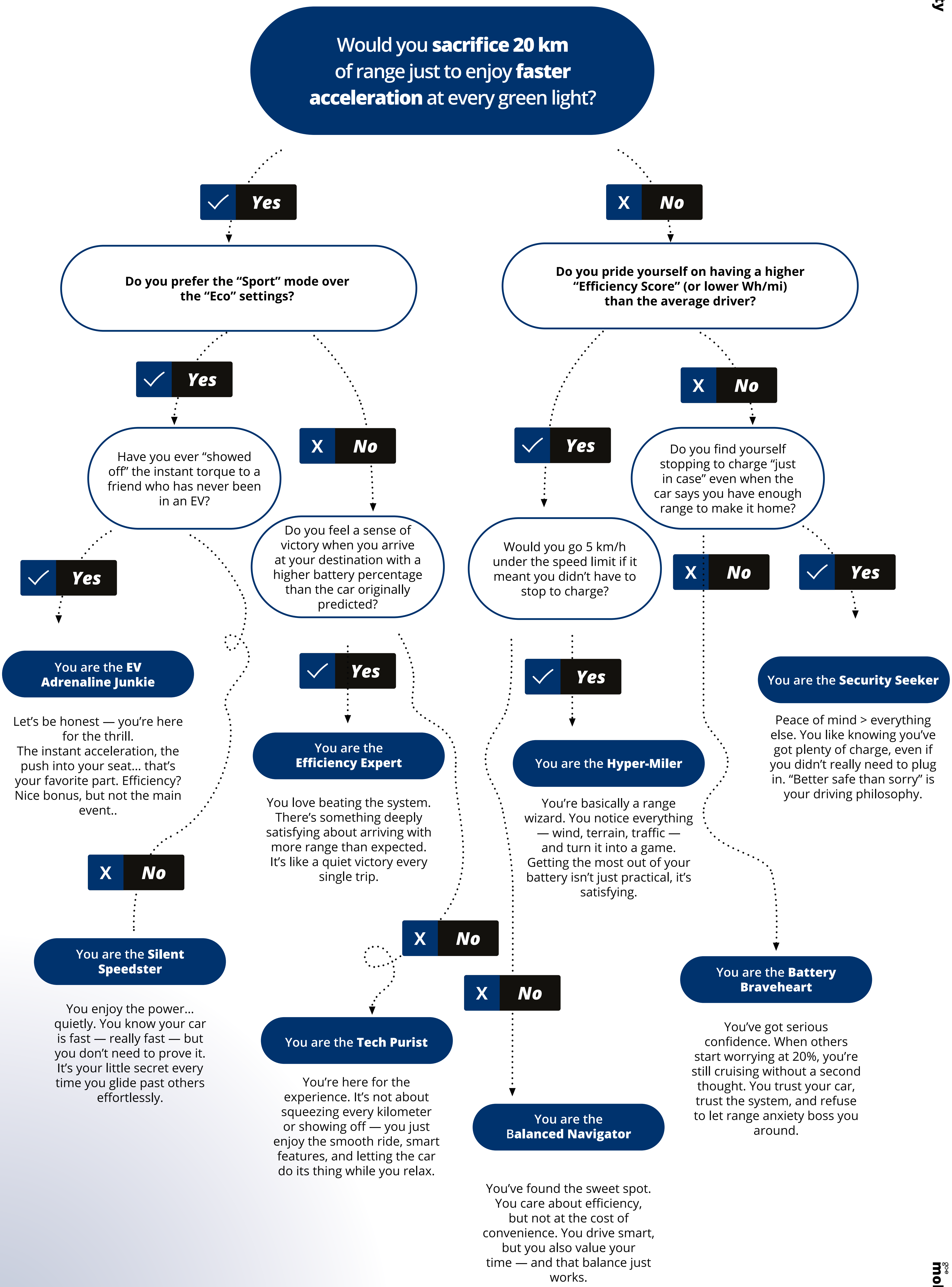
For more info, scan the QR code

go-e is READY FOR gridX

Ready for gridX is our OEM partnership program, providing seamless interoperability and reliable performance across the product lifecycle.

"Together with gridX, we deliver a robust and future-ready home charging setup that empowers end users to get the most value at the lowest cost out of charging their electric vehicle."

Erik Yesayan, CEO go-e


Would you **sacrifice 20 km** of range just to enjoy **faster acceleration** at every green light?
Yes
No
Do you prefer the "Sport" mode over the "Eco" settings?
Do you pride yourself on having a higher "Efficiency Score" (or lower Wh/mi) than the average driver?
Yes
No
Yes
No
Have you ever "showed off" the instant torque to a friend who has never been in an EV?
Do you feel a sense of victory when you arrive at your destination with a higher battery percentage than the car originally predicted?
Would you go 5 km/h under the speed limit if it meant you didn't have to stop to charge?
Do you find yourself stopping to charge "just in case" even when the car says you have enough range to make it home?
Yes
No
Yes
Yes
No
Yes
No
No
You are the **EV Adrenaline Junkie**
Let's be honest — you're here for the thrill.
The instant acceleration, the push into your seat... that's your favorite part. Efficiency? Nice bonus, but not the main event..
You are the **Efficiency Expert**
You love beating the system. There's something deeply satisfying about arriving with more range than expected. It's like a quiet victory every single trip.
You are the **Hyper-Miler**
You're basically a range wizard. You notice everything — wind, terrain, traffic — and turn it into a game. Getting the most out of your battery isn't just practical, it's satisfying.
You are the **Security Seeker**
Peace of mind > everything else. You like knowing you've got plenty of charge, even if you didn't really need to plug in. "Better safe than sorry" is your driving philosophy.
You are the **Silent Speedster**
You enjoy the power... quietly. You know your car is fast — really fast — but you don't need to prove it. It's your little secret every time you glide past others effortlessly.
You are the **Tech Purist**
You're here for the experience. It's not about squeezing every kilometer or showing off — you just enjoy the smooth ride, smart features, and letting the car do its thing while you relax.
You are the **Balanced Navigator**
You've found the sweet spot. You care about efficiency, but not at the cost of convenience. You drive smart, but you also value your time — and that balance just works.
You are the **Battery Braveheart**
You've got serious confidence. When others start worrying at 20%, you're still cruising without a second thought. You trust your car, trust the system, and refuse to let range anxiety boss you around.

Through the Sahara with the go-e Charger:

Charging Where There's No Infrastructure

Friedwart Dienemann is a passionate EV driver who has been travelling exclusively electric since 2016. On his journeys — most recently with the Kia Niro EV all the way to the Sahara — he relies on flexible charging solutions such as the go-e Charger and proves that electric mobility is possible even in remote regions without any problems.

3.000+ km

Journey through Morocco all the way to Western Sahara

Mobile PV system

Charging with solar energy even off-grid

Flexible charging

With the go-e Charger and adapter set

There aren't charging stations everywhere - and that's exactly where mobile chargers like the go-e are the perfect solution.

Friedwart Dienemann

Which vehicle did you use, and how did the range develop under different conditions?

For my last two trips, I used the Kia Niro SG2 (64.8 kWh). Overall, it was already my third fully electric trip to Morocco — this time, I joined the RIVE2Dakar eRally all the way into the Sahara. My first tour took place in 2018 with the Hyundai Ioniq (28 kWh). Back then, I didn't yet have a go-e Charger, but instead used a single-phase 7 kW charging cable. It quickly became clear to me that with milder temperatures and fewer highway drives, the range increases noticeably.

Which go-e Charger model did you use?

I was still using the older V2 model (go-e Charger HOME+), which I've had since 2019. In the meantime, I've got a new go-e Charger that I'll test on future trips to remote areas.

How often did you charge?

On the way to Agadir — the starting point for the Sahara journey — I charged several times a day at fast-charging stations. Further south, toward Mauritania, charging options become very sparse and are still under development (mostly AC type 2). There, I charged at campsites, hotels, and similar accommodations — using blue CEE camping plugs, Schuko sockets, or red CEE three-phase power. Charging usually happened overnight, but sometimes also during the day to bridge longer distances.

Why did you take a mobile charger on this trip?

There aren't charging stations everywhere — and that's exactly where mobile chargers like the go-e are the perfect solution. I chose the go-e because it's very compact (without a permanently attached cable — you should carry a type 2 cable anyway) and extremely flexible thanks to the adapter set.

What worked better than expected?

I also used the go-e Charger to charge the vehicle via my mobile PV system (with battery storage), and that worked surprisingly well. There is already a go-e Controller for PV surplus charging, but currently it is only designed for grid-connected systems. In off-grid operation, the charging power therefore cannot yet automatically adapt to the available PV output.

Were there moments of range anxiety?

Not for a long time. After more than 500,000 fully electric kilometres over the past ten years, you become very relaxed even in remote regions.
In an emergency, you can almost always find a regular power outlet and, with a mobile charger like the go-e and the right adapter, charge enough to reach the next faster charging point. However, I should mention that with my camping equipment, I can remain self-sufficient for several days.

How did people react to your EV and charging setup?

In Morocco, the topic of electric mobility has become much more present by now — this time I managed to cover around 900 km from Tanger Med to Agadir (Mirleft) in a single day, a new personal record for me. Further south, in Western Sahara, electric mobility is still relatively unknown. My mobile PV system in particular attracted many curious looks.

What would you plan or approach differently on a similar trip in the future?

I would consider switching to a slightly larger electric vehicle — although the Niro SG2 is already bigger than its predecessor.

4 myths about 11 kW wallboxes

Choosing a wallbox is often presented as a choice between basic and future-ready. At first glance, 22 kW appears to be the clear advantage, offering higher power and faster charging. In practice, the decision depends far more on everyday charging behaviour than on maximum performance. Technical limitations, grid regulations, and typical usage patterns all play a role, and they often reduce the real difference between 11 kW and 22 kW more than expected.

1 Myth 1:
Faster is always better

Reality: Higher charging power only helps if the conditions allow it.

A 22 kW wallbox can charge twice as fast in theory, but in reality, the speed is often limited by the car and the building's power supply. Many models, including the Škoda Elroq, Kia EV3 Air, and Opel Mokka-e, can only charge at 11 kW AC anyway. So yes, faster sounds great, but only if everything else supports it.

2 Myth 2:
11 kW is outdated

Reality: 11 kW is still the standard because it fits how people actually charge.

Most EVs are plugged in overnight or for several hours, where 11 kW is more than enough to fully charge the battery. When the car is parked that long, saving a bit of time usually does not matter.

3 Myth 3:
The price difference is the deciding factor

Reality: The wallbox itself is usually not where the big cost difference comes from.

The price gap between 11 kW and 22 kW models is often small. However, installation, grid upgrades, and approvals can make a 22 kW setup much more expensive. The real costs are often hidden in the setup.

4 Myth 4:
Higher power is harder on the battery

Reality: Lower charging power is slightly gentler, but the difference between 11 kW and 22 kW AC charging is very small in daily use.

Battery wear is much more affected by frequent DC fast charging. So this is usually not something to worry about.

Be honest...

where would you rather be right now?


No emails. No noise. Just air.

Photo: Daniel J. Schwarz, Unsplash

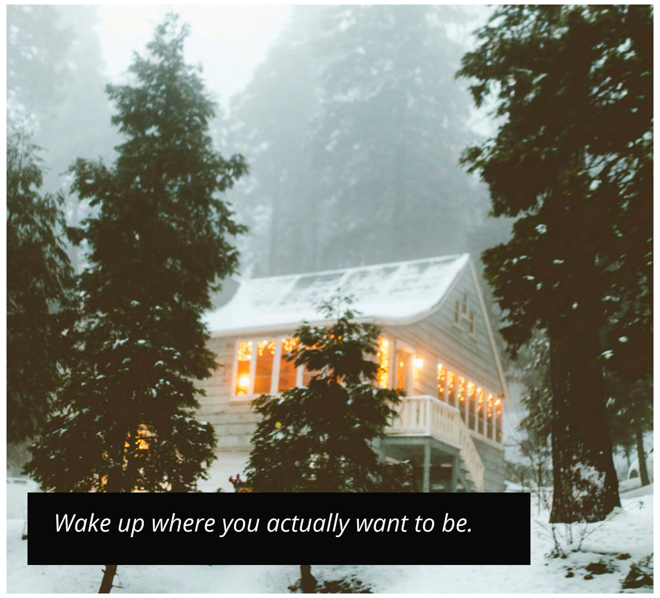

Wake up where you actually want to be.

Photo: Clarisse Meyer, Unsplash

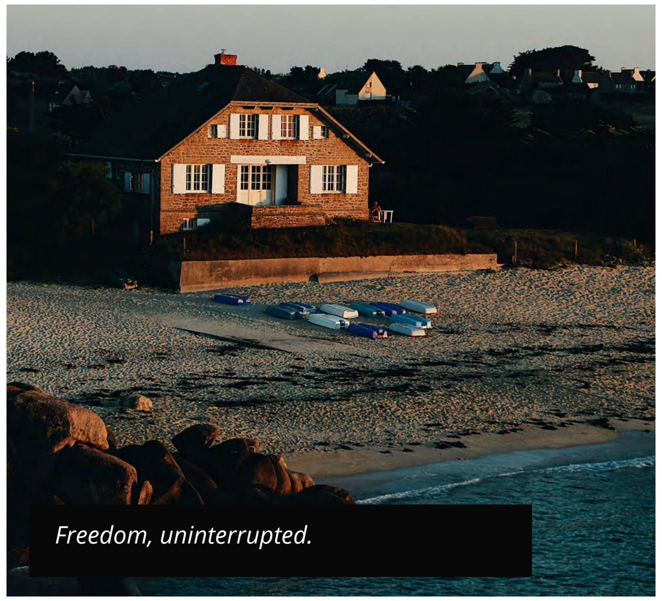

Freedom, uninterrupted.

Photo: Mael BALLAND, Unsplash


Where everything feels possible.

Photo: Mitchell Orr, Unsplash

What if it wasn't just a daydream? Charge wherever your journey takes you.

Mobile go-e Charger Gemini flex 2.0

Because freedom shouldn't depend on the next charging station.

Discover now!

go-e partners on EV charging in 2026

ECOFLOW

What in AC charging is overhyped, and what is underrated?

The industry tends to overemphasise ultra-fast AC charging speeds. In reality, for the vast majority of households, 11 kW is more than sufficient for daily needs. Most vehicles are parked overnight, making extreme charging speeds unnecessary in everyday use.

What remains underrated is system integration—specifically, how well a charger interacts with the broader home energy ecosystem. Smart charging that aligns with on-site solar generation is a game-changer. Charging your vehicle with excess photovoltaic (PV) energy is not only the most cost-effective option for consumers, but also supports grid stability by reducing peak demand.

This is where partnerships like go-e and EcoFlow become particularly compelling, as they enable a more intelligent and connected energy experience. Equally important is dynamic load balancing. Ensuring that the charger adapts to household consumption in real time helps prevent overloads and avoid costly infrastructure upgrades.

What do you think will surprise the market most about AC charging by 2027?

By 2027, the real surprise will likely be the scale at which vehicle-to-grid (V2G) moves from concept to practical deployment. As enabling technologies mature and regulatory frameworks catch up, V2G will unlock entirely new value streams for EV owners.
Rather than being passive consumers, electric vehicles will increasingly act as flexible energy assets, supporting the grid, optimising energy costs, and even generating revenue. The range and creativity of use cases, from household energy optimisation to participation in virtual power plants, will be broader and more impactful than many currently anticipate.

Johan Pistone | Senior Solutions Manager | EcoFlow

clever-PV

What in AC charging is overhyped, and what is underrated?

What is overrated is the hardware feature race. New wallbox features alone are rarely a purchasing argument—especially when functions like tariff control or PV surplus charging are implemented in isolation within the wallbox, even though they are much better handled in interaction with a Home Energy Management System (HEMS). A wallbox that tries to solve the entire system on its own, without knowing the heat pump, battery, and household loads, quickly runs into conceptual limits.

What is underestimated is the importance of open, standardised interfaces—not just OCPP, but also parallel API access, as go-e already supports. In practice, multiple actors already need to access the same charging station at the same time: the HEMS provider for energy optimisation, the energy supplier for grid control and tariff integration, and a billing service provider for company car billing. This multi-actor capability will become the decisive differentiating factor—and it only works with open, standardised interfaces. The software lifecycle issue is also underestimated: a wallbox remains mounted on the wall for 10–15 years. Who guarantees API compatibility in year 5 if the manufacturer changes or discontinues the cloud service? Open standards are not a "nice to have" here, but essential.

What do you think will surprise the market most about AC charging by 2027?

First: that bidirectional charging will still not have reached the mass market by 2027—despite the enormous hype. Expectations are high, but the reality is that automotive manufacturers still have significant homework to do, both in terms of vehicle approval and protocol support. On top of that, it is still unclear whether bidirectional AC charging, DC charging, or both will prevail. This uncertainty is slowing down investments on all sides—among wallbox manufacturers, HEMS providers, and end customers alike. The real surprise will be that the actual added value lies elsewhere: in intelligent unidirectional control through an energy management system like clever-PV, which already works today and delivers real savings.

Second: how much charging protocols will continue to evolve. Today, the wallbox knows very little about the connected vehicle—battery status, planned departure time, and actual energy demand. By 2027, significantly more vehicle information will be available via the charging protocol, making truly demand-based control possible.

Third: regulatory fragmentation. Each country introduces its own requirements—from §14a control in Germany to country-specific billing regulations and differing grid operator requirements. Wallbox manufacturers who try to solve this purely through hardware will reach their limits. The solution lies in a flexible software layer on top—and in the openness to let specialised partners operate within that layer.

Danny Klose | Co-Founder & CEO | clever-PV

gridX

What in AC charging is overhyped, and what is underrated?

Overhyped:

Vehicle-to-Grid (V2G) has significant long-term potential, but in the context of AC charging, its practical impact is still limited today. Regulatory complexity, missing hardware, and low vehicle compatibility – especially in markets like Germany – currently prevent scalable business models. Rather than being overrated, it is more a case of untapped potential that cannot yet be fully realised under current conditions. We still see significant potential here in the near future.

Underrated:
What remains underestimated is the value of smart charging and flexibility aggregation. Optimising charging processes based on dynamic tariffs, grid signals and regulatory frameworks such as §14a already create tangible benefits for both end users and the energy system. The technology for these use cases is already available, we just need to implement the solutions at scale.

In addition, the combination of electric vehicle (EV) charging infrastructure with stationary battery storage offers further potential – particularly for peak load management and participation in flexibility markets. While this setup is more commonly associated with DC charging, it can also enhance AC use cases, especially in commercial or multi-asset environments.

Overall, these solutions are already technically feasible and scalable today through a hybrid architecture combining local gateway and cloud-based optimisation – making them deployable at scale today, unlike more complex concepts such as V2G.

What do you think will surprise the market most about AC charging by 2027?

By 2027, cloud-to-cloud integration for homes with electric vehicles and intelligent energy management systems will be a mass-market game changer. Seamless communication between charging stations, energy management systems, and energy market platforms will allow distributed flexibility to be orchestrated and monetised efficiently. Customers benefit from cost savings and more intelligent energy use, while the grid gains stability – almost invisibly.

On the public charging side, standards like ISO 15118-20 will enforce greater interoperability, security and grid stability. It mandates secure, automated communication, Plug & Charge capability for a seamless user experience, and dynamic charging capabilities for AC infrastructure. This will bring benefits to the grid and end users, but it means that businesses must start implementing smart charging today.

Sebestyen Haty | Product Lead e-Mobility | gridX

Wallbox ROI:
When does it pay off?

In Germany, the financial case for a home wallbox starts with a simple reality: charging on the street is expensive.

Public AC charging typically costs around €0.45/kWh, while DC fast charging is around €0.55/kWh. Roaming fees can make prices significantly higher, while a subscription can also make them lower. In contrast, the average household electricity price is €0.37/kWh. That difference alone creates an immediate advantage.

By shifting charging from public infrastructure to a home wallbox, EV drivers can save roughly 20 - 30% per kilometre. This is the “baseline ROI”: even without smart features, a wallbox begins paying back its installation cost from the very first charge.

While basic home charging already delivers savings, smart wallboxes, like the go-e Charger, can significantly reduce costs further. By optimising when and how energy is used, they shorten the payback period and maximise long-term savings.

Feature	How it works	Savings impact
Manual scheduling	Charge during off-peak hours (e.g. 23:00 - 06:00)	Takes advantage of lower night tariffs. Reduces cost per kWh by ~10 - 30%, depending on provider
Flexible energy tariffs	Automatically charges when electricity prices drop	Utilises ~500+ low-price hours/year. Can cut charging costs dramatically during price dips
PV surplus charging	Uses excess solar energy instead of feeding it into the grid	Replaces €0.37 kWh grid electricity with zero-cost solar energy
RFID management	Allows controlled access for neighbours or tenants	Cuts the initial investment cost in half through shared usage

How Long Until *a Wallbox Pays Off?*

Wallbox: € 700 – € 1,500 (go-e Charger Gemini 2.0 11 kW: €819 RRP)	**Consumption:** 17 kWh / 100 km
Installation: € 200 – € 600*	**Annual driving:** 12,000 km
Total investment: € 900 – € 2,100	**Public charging:** 0.45 – 0.55 €/kWh
For the calculation, an example of **€ 1,219** investment is used.	**Home charging:** ~0.37 €/kWh

** Provided that no upgrades such as replacing the meter cabinet or creating additional wall cut-outs are required.*

*Mobile chargers like our **go-e Charger Gemini flex** require no fixed installation. You simply plug them into an existing red CEE socket to begin charging, resulting in €0 installation costs.*

However, it is highly recommended to have a professional electrician inspect your home's electrical system first to ensure it can safely handle the continuous load.

How to Reduce *the Payback Time*

	1 Basic home charging	2 + Flexible tariffs	3 + PV surplus charging
	The first saving comes from switching away from public charging	Charging during low-price hours reduces the effective electricity cost	Solar adds another layer: free energy when available, combined with cheap tariff windows when not
Actual electricity costs	Public charging: 0.45 – 0.55 €/kWh Home electricity: ~0.37 €/kWh	0.25 - 0.32 €/kWh	This creates the lowest blended charging cost and lifts annual savings
Annual savings	€ 160 - € 360	€ 250 - € 600	€ 500 - € 900+
Payback	~3 - 6 years	~2 - 4 years	~1.5 - 3 years

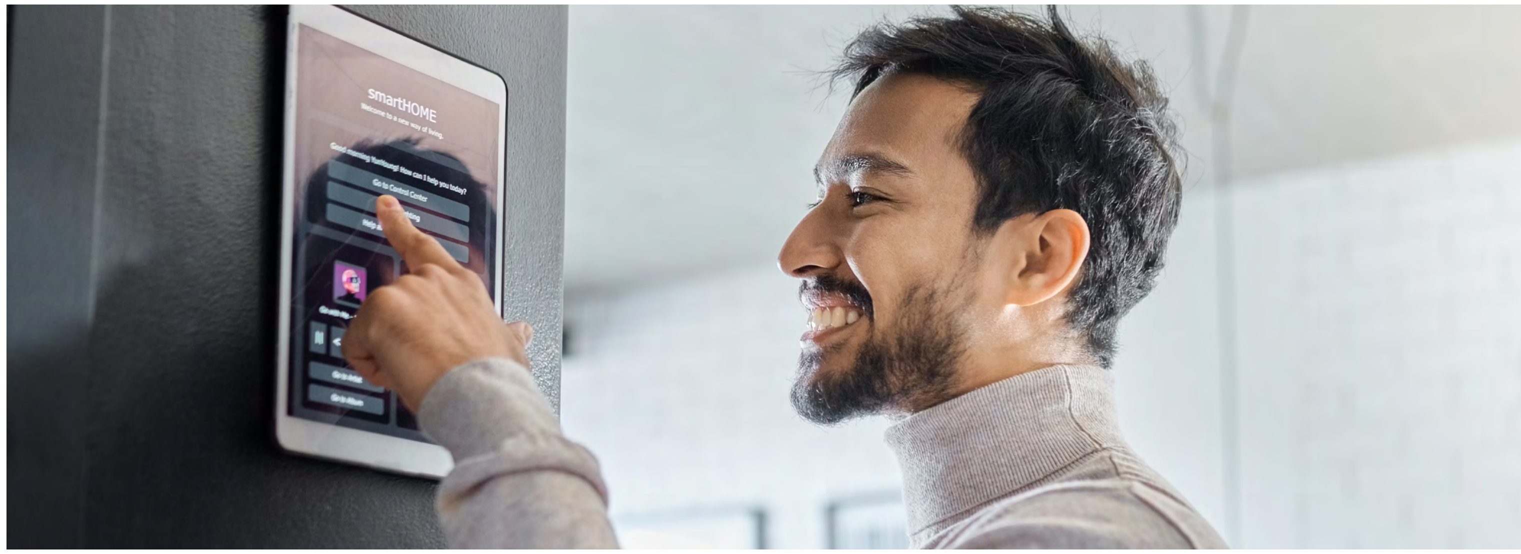
How does smart home integration with EV chargers work?

Almost half of the people in Germany use smart home applications. The trend is similar across many European countries. Common setups include smart lighting, radiator thermostats for energy savings, smart plugs, and smart meters for electricity, gas, or water.

EV chargers integrated into smart homes are becoming more popular, but adoption is still relatively slow. One reason is a lack of awareness around the benefits.
As a result, many households miss out on additional optimisation potential. Integrating a wallbox into a smart home may seem unnecessary if the charger is already smart. However, a smart home system can unlock additional functionality, even when using advanced chargers such as the go-e Charger.

When an EV charger becomes part of a smart ecosystem, charging can be coordinated with solar production in a flexible way. The setup can also adjust charging power based on household load, balance battery storage and EV demand, and align charging with daily routines.

To fully benefit from a smart home setup, a Home Energy Management System (HEMS) is required. Simple communication between devices is not enough for truly



effective automation. An HEMS tracks how energy is used and distributed across the household. When integrated into a smart home system such as Home Assistant, major energy devices like heating systems, refrigerators, EV chargers, and other large consumers or producers can coordinate with each other and automatically respond to changing conditions.

Without a full energy management system, simple automations already offer convenience:

- "Urgent Trip" added to calendar = switch to faster charging
- Arrive home = charger unlocks automatically
- Charging pauses unexpectedly = send a notification or trigger a light signal
- Voice assistant = report charging status or switch between charging modes

With HEMS, automation becomes more energy-driven and slightly less chaotic:

- Solar surplus available = increase charging power
- General household load rises = reduce charging current
- Particular large appliance starts = temporarily reduce EV charging power
- Cheap tariff window opens = start charging automatically
- Battery storage reaches threshold = prioritise EV charging

Is it worth integrating the go-e Charger into the smart home?

Integrating the go-e Charger into a smart home setup increases convenience, adds flexibility, and ensures reliable charging when it is needed.

- The wallbox is designed for a wide range of users. Even without programming experience, many smart features can be used, some of them even without the app. At the same time, developers and smart home enthusiasts benefit from extensive customisation options.
- The go-e Charger supports numerous protocols and standards and is backed by an active community on platforms like GitHub. This makes it easy to find support, exchange ideas, and build new integrations.
- It offers a high level of interface freedom at a competitive price. While many chargers are limited to proprietary systems, go-e focuses on open access. Home Assistant is currently one of the most popular integration platforms, alongside various other partner solutions.

Automate charging based on electricity tariffs, use solar power efficiently, or trigger charging by your location or calendar. The flexibility means it adapts to your lifestyle and smart home setup. Be on the smart side of it!

go-e mobility

What is an EV charger with a timer **and why is it not enough**

Nearly every manufacturer claims their wallbox supports time-controlled charging. Apparently, setting a timer can now save the grid, the planet, and the monthly electricity bill all before breakfast. Ambitious, to say the least.

An EV charger with a timer means charging starts and stops based on specific time settings and is not automatically activated once the cable is plugged in. This feature is especially popular among wallbox owners who take advantage of nighttime energy tariffs* and those who aim to charge more sustainably, whether or not it directly affects energy costs.

**A nighttime tariff is an electricity pricing plan with fixed off-peak hours during which electricity is cheaper. For instance, Octopus Go offers 5 hours of low-cost EV charging at 9c/kWh, from 12:30-4:30 am.*

Automated vs. Simple time-controlled charging

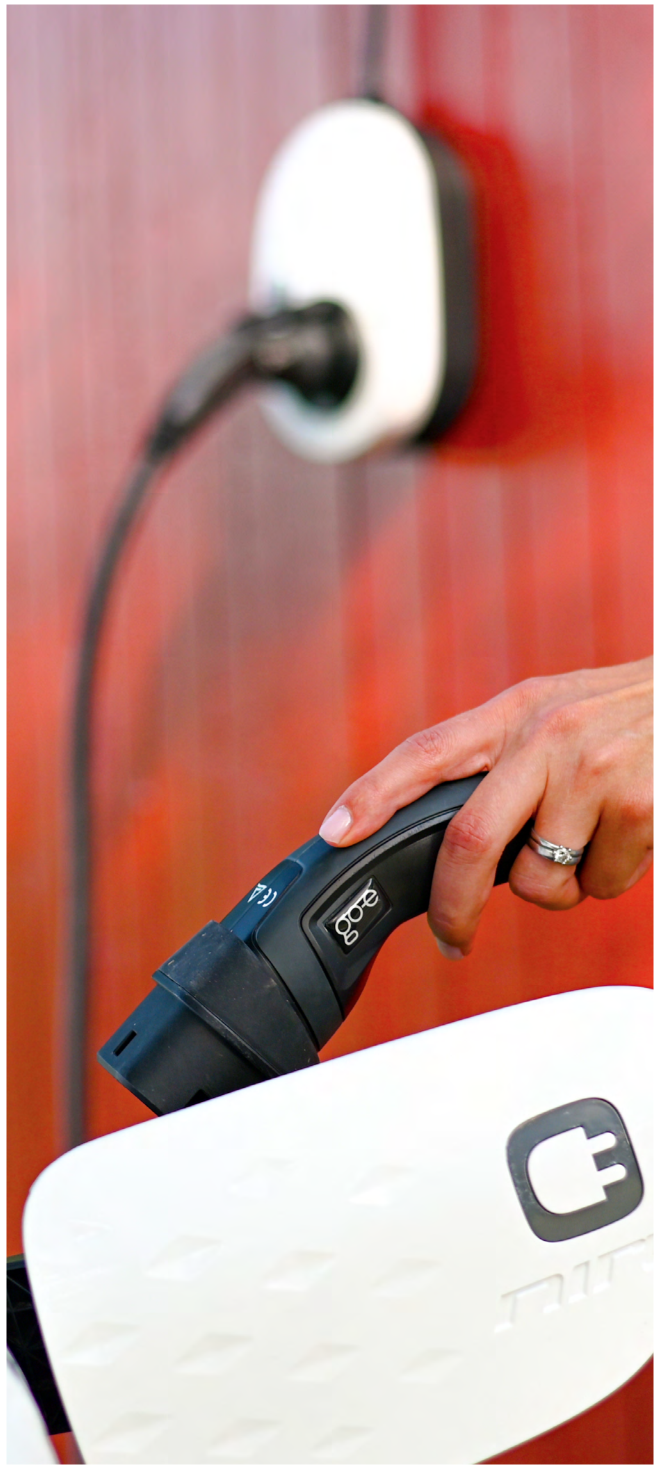
Unlike chargers that rely solely on basic timers, advanced wallboxes are also able to consider energy data from multiple sources, like your PV system and home energy setup. This allows charging to be scheduled intelligently, based on the real-time energy flows in your home, rather than operating blindly.

go-e offers two modes for this:

> **ECO mode**
>
> Fully automatic. The charger decides when and how much to charge based on electricity prices. You only need to set a maximum acceptable price per kWh. If surplus power from PV panels is available and prioritised, it will be used first.

> **Daily Trip mode**
>
> Focus on your next planned journey. You choose how much energy you need, and the charger ensures your car is ready while still optimising the costs and efficiency if ECO mode is active.

In addition, our go-e Charger can be integrated into a smart home, meaning charging times are determined not only by individual factors but by the entire system as a whole.



Time-controlled charging *in daily life*

With so many smart features at one's disposal, it might seem that using a smart wallbox requires constant monitoring or setting timers. However, with ECO mode and Daily Trip mode offered by go-e, everything happens automatically.

Weekday routine

It's a casual Tuesday evening. The car is parked at home and plugged in. In the go-e app, the ECO mode tab is opened, and the EV charger is set to start as soon as the electricity rate falls below €0.10 per kWh. Then, in Daily Trip mode, a target of 50 kWh is configured. The system knows the electricity rates, so it prioritises cheaper energy overnight. In the end, everything is scheduled to ensure that the full 50 kWh are reached by the set time at the lowest possible price. By morning, the car is fully charged and ready for the commute.

Weekend flexibility

Imagine it's Saturday. Laundry is being done, brunch is prepared, or time is spent reading in the sun. The car is parked in the garage and can be charged over a longer period using surplus solar energy. By evening, it is fully charged, ready for a spontaneous drive or a weekend outing. If the day is cloudy and solar energy is insufficient, the charger can switch to the grid, but only when needed, or only when electricity is cheaper than €0.15 per kWh, if configured that way. After all, readiness for a trip remains important.

Vacation mode

When on vacation and not leaving home for long drives every day, the car does not need a full charge each night. Perhaps it is only used for a short five-minute drive for coffee with friends or a quick trip to the store. In this case, the go-e Charger can be set to add only a small amount of charge each day, enough for these short trips. It can even be configured to charge only from PV surplus in ECO mode, quietly absorbing whatever solar energy is available, even if that amount is small each day.

To check charging status, the go-e app provides an instant overview. It shows whether charging is active, how many kWh were charged in the last hour, day, or week, and more.

Checklist

for buying a used EV

When buying or leasing a used electric car, it is important to look beyond the basics, such as service history and overall condition. Key factors include charging power, warranty validity, real-world range, software, features, and, most importantly, the battery's state of health (SoH).

Charging power

Not every EV can charge at the fastest speeds. Some older or smaller cars are fine for city driving, but can be slow to charge on long trips. Look at the maximum DC charging power and the connector type. For example, a Nissan Leaf can't use CCS and relies on CHAdeMO, which now has very few fast chargers.

AC charging also varies. Some cars charge only with single-phase or two-phase power, while others can handle three-phase AC at 11 or 22 kW. However, if you mostly charge at home overnight, it doesn't make much of a difference.

How much warranty is left

Check whether the original manufacturer's warranty is still valid and if it covers the battery. Most electric cars come with a separate warranty for the battery pack. For instance, the Tesla Model 3 Rear-Wheel Drive comes with an 8-year / 160,000 km warranty, with a minimum 70% retention of battery capacity over the warranty period.

Make sure the previous owner kept up with the required inspections. If they didn't, the warranty might already be void.

Real-world range

Official WLTP numbers look nice on paper, but they don't always reflect reality. In colder weather, for example, range can drop by 20-30%. Before you commit, check real-world tests and owner reviews to see how far the car actually goes on a single charge. That way, you know whether it fits your daily driving habits.

Vehicle history and condition

A used EV is still a used car, so we recommend that you don't skip the basics. Take time to look into the car's history. Has it ever been in an accident? If so, was the repair carried out properly? Ask for the full service record and check that regular maintenance has been done. It is also worth looking at everyday wear and tear items such as tyres, brakes and suspension. You won't feel like you made a bargain by buying a used electric car if you have to replace the brakes and buy a new set of tyres right away.

Software updates

Outdated software can be quite a headache. In some cases, it causes charging to be slower, reduces range, or annoys the driver with minor glitches. All in all, not the experience you're looking for. Imagine getting the car home and finding your smartphone won't connect. So, to avoid such disappointments, ensure the car is up to date with over-the-air or workshop updates to receive all the latest improvements.

App connectivity

This feature adds +1000 to your convenience. Monitor your battery level, schedule charging sessions, and precondition the cabin so your car is cosy and ready to go. Sounds like something you'd like to have? We know it does. You'll also enjoy smart trip planning, charging time estimation, and optimal routes based on your battery level and terrain.

Features

A heat pump, heated seats, or advanced driver-assist systems can make a huge difference in comfort. For example, if you live somewhere cold, a heat pump can warm your car efficiently without draining the battery. If you often drive with the whole family, you might want a car with separate climate controls for the driver and passengers.

Electric cars
towing trailers

For a long time, electric cars and trailers were not exactly a natural pairing. Either towing was not allowed at all, or the capacity was limited to something that barely justified the effort. Fortunately, things have improved. Many modern EVs can now tow between 300 kg and 2,500 kg, which is enough for more than just a bike rack.

Choosing the right towing capacity depends on what you plan to tow. Whether you're transporting recreational gear, a caravan, or even livestock, understanding the weight limits your vehicle can handle is essential. Check out this list to determine the towing capacity that suits your needs:

Up to 750 kg:

Perfect for light stuff like bicycle racks and small trailers for garden tools.

Up to 1,500 kg:

Ideal for teardrop campers, small boats, jet skis, or lightweight utility trailers.

Up to 2,000 kg:

Great for compact cars, camper trailers, or small construction machines.

Up to 2,500 kg:

Suitable for transporting horses, medium-sized caravans, a small boat or a small flatbed trailer for tools and equipment.

Up to 3,500 kg:

This handles full-size caravans, double horse trailers as well as large boats and yachts.

Photo: ADAC/Test und Technik

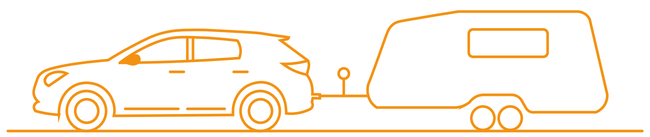
Retrofitting a trailer towbar

If your electric car does not have a trailer towbar, installing one is often possible. Check your vehicle's registration document to find out its towing capacity. In the UK, for example, you can find the limit on the VIN plate (under the bonnet or on the door pillar), in the owner's manual, or in the V5C registration document.

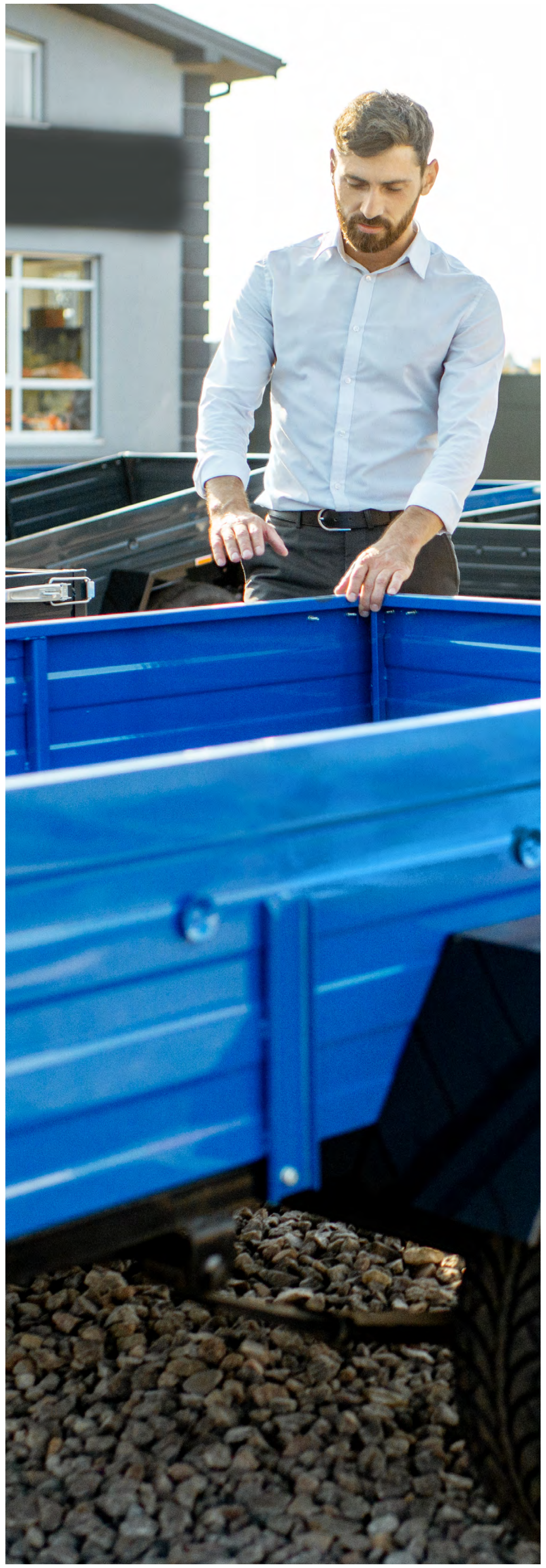
Electric vehicles like the Tesla Model S, Audi e-tron, Volkswagen e-Golf, and many others are suitable for retrofitting. But there are exceptions like the Renault Zoe. This vehicle is not intended for towing, as its registration documents don't list a towing capacity. If that's the case for your car, as well, installing a towbar without official approval can void the manufacturer's warranty on the drive battery, electric motor, or other electric components.

Luckily, there is a workaround.

In Germany, for instance, you can ask your workshop to register the towbar through a TÜV inspection. If the installation is approved by TÜV, it becomes officially legal and won't affect your warranty. Outside of Germany, similar procedures may be possible through local vehicle inspection authorities or certification bodies. Consider, though, that not all workshops are willing to carry out this process, so it's important to check with them beforehand.



Explore EVs by towing capacity



Do *electric cars need special tyres?*

At first glance, tyres may seem like a standard component. But in electric vehicles, they play a much bigger role than expected, influencing everything from efficiency to driving feel.

Foto: Benjamin Brunner, Unsplash

Key factors

to consider when choosing the right tyres for an electric car

- Rolling resistance
- Noise reduction
- Reinforced sidewalls
- Load index

1 Rolling resistance

Tyres with low rolling resistance reduce the energy required to keep the vehicle moving, which translates into a longer range. Who can say no to extra kilometres with the same charge, right?

Look for tyres rated with low rolling resistance on the EU tyre label, often indicated by a "B" or "A" grade in fuel efficiency. Check manufacturer specifications for rolling resistance coefficients. Values around 6-8 kg/t are considered low.

2 Noise reduction

Since EVs are quiet, tyre noise stands out more. That's why tyres for these vehicles often include internal foam layers to dampen road noise. The EU tyre label ranks external rolling noise from A to C, with "A" being the quietest and "C" the loudest allowed.

Go for "A" if you don't want to have your favourite playlist disrupted. By the way, many tyre brands have their own name for this category: Continental calls its technology ContiSilent, Bridgestone uses B-Silent, and Pirelli offers PNCS (Pirelli Noise Cancelling System).

Tyre Differences
Electric Car vs ICE Vehicle

Electric Car

- Higher vehicle weight due to battery
- Specialised rubber compounds for longer durability
- Higher tyre wear due to high torque
- Lower rolling resistance for increased range
- Optimised tread designs and noise-absorbing compounds

ICE vehicle

- Lower vehicle weight
- Standard tyre tread and rubber compound
- Less tyre wear due to lower torque
- Higher rolling resistance
- Normal noise insulation

3 Reinforced sidewalls

Electric cars usually weigh 200-400 kg more than petrol or diesel cars of a similar size. This puts more pressure on the tyres, especially the sidewalls. But it's not a big deal, as you simply need to buy tyres that can handle the extra weight. Look for models marked "Extra Load" (XL) or "Reinforced", which means they have stronger sidewalls.

Whether you need such an extra depends on the vehicle you drive. Standard passenger car tyres usually have load indexes from 82 to 97 (about 475 kg to 730 kg per tyre). Reinforced or Extra Load (XL) tyres typically start at higher load indexes like 94 and above.

4 Load index

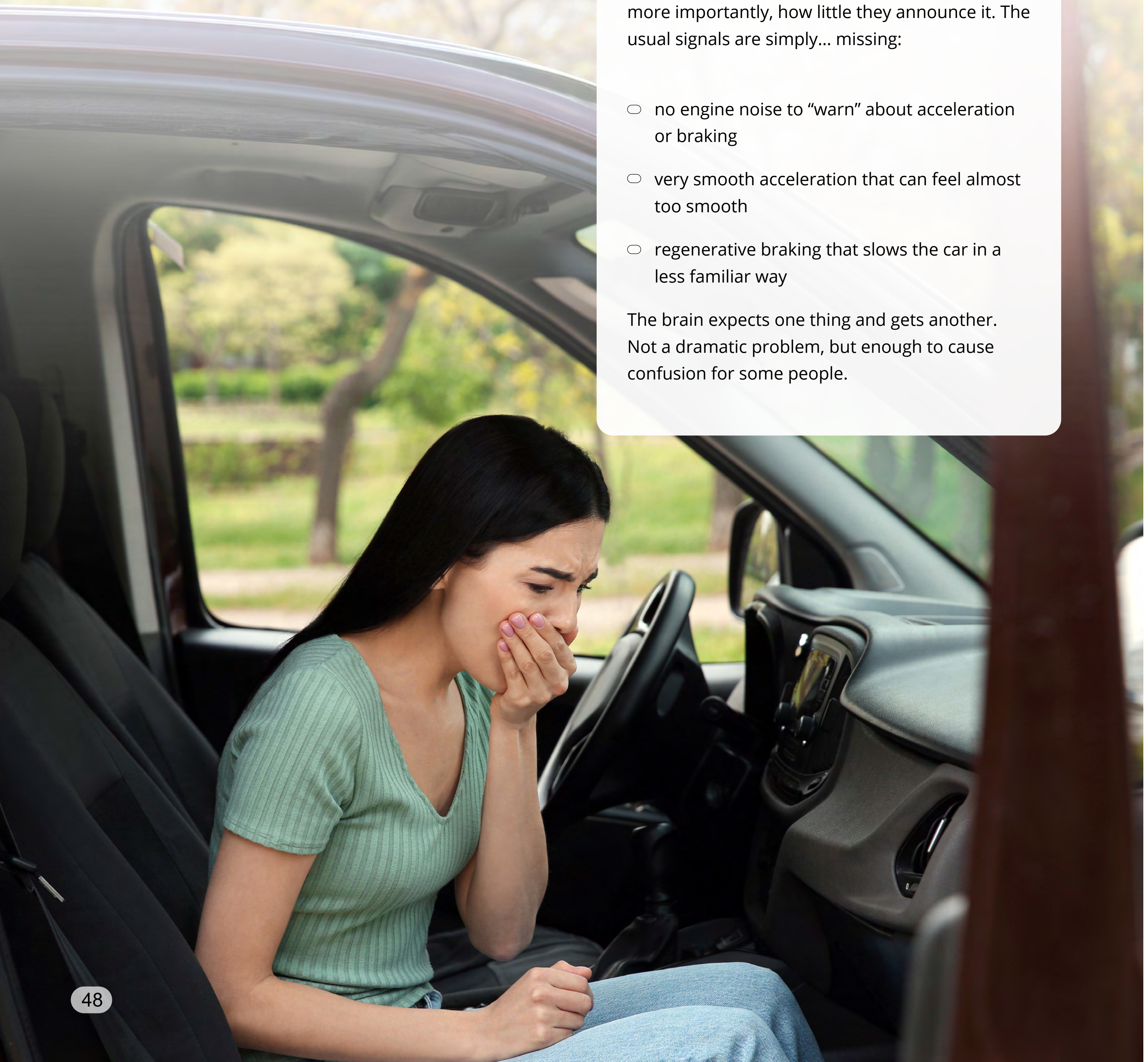
The load index tells you how much the car can safely carry (e.g., LI 94 means 670 kg per tyre). Since EVs are heavy, you should never go below the number mentioned in your car registration certificate. You can choose tyres matching the index or go a little higher. For example, choosing 96 or 98 instead of 94 is fine. This might be a good idea if you often pack the car full, drive in hot weather, or want a bit more stability at speed.

Check out the best EVs under £30,000 / € 30.000!

Nausea in electric cars:

Reality or myth?

Feeling slightly unwell in an electric car is not exactly the feature anyone looks for. Yet it does happen. Some passengers notice it immediately, others never experience it at all and remain slightly sceptical about the whole topic.



Motion sickness itself is nothing new.

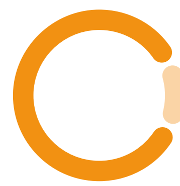
What changes with EVs is how they move and, more importantly, how little they announce it. The usual signals are simply… missing:

- no engine noise to “warn” about acceleration or braking
- very smooth acceleration that can feel almost too smooth
- regenerative braking that slows the car in a less familiar way

The brain expects one thing and gets another. Not a dramatic problem, but enough to cause confusion for some people.

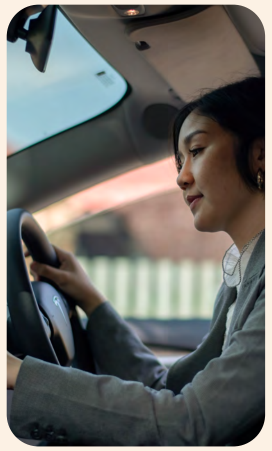
In our newsletter, we asked readers about their experience.

Out of 548 responses, 479 said they’ve never felt nauseous in an EV, while 69 people said they have experienced it.



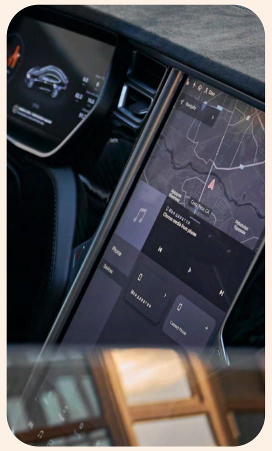
Nausea tends to appear in fairly predictable situations,

such as sitting in the back seat without seeing the road or frequent speed changes. Drivers are usually unaffected, which suggests that being in control solves a lot of problems. Convenient, if slightly unfair. For most people, however, this is temporary. The brain adapts surprisingly quickly once it learns how an EV behaves. What feels unusual at first soon becomes normal.



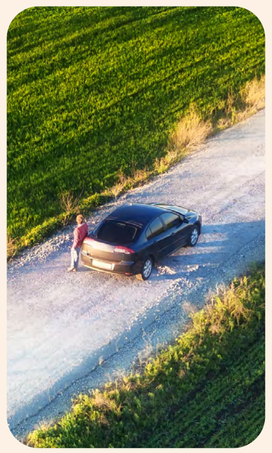
Manufacturers are already responding,

and in typical automotive fashion, mostly through software. Tesla, BYD and MG allow drivers to adjust regenerative braking, softening that constant forward and backward motion. Others go a step further. Hyundai and Kia, for example, experiment with artificial sound cues through systems like Active Sound Design, subtly signalling when the car is about to accelerate or slow down. Quiet cars, it seems, sometimes need a little bit of carefully engineered noise after all. Slightly ironic, but surprisingly effective.



In the bigger picture, EV-related nausea is less a fundamental flaw and more an adjustment phase.

As drivers and passengers get used to the different motion, the symptoms tend to fade. What initially feels unfamiliar eventually becomes the new normal. And once that happens, the same silence and smoothness that caused confusion at first often turn into the main reason people do not want to go back.



The excuses against
electric driving are running out

While the industry still grapples with new tech and explores what e-mobility can actually do, it's easy to overlook how much ground has been covered. Not long ago, seeing an electric car was an event. Today, it's just traffic. We're seeing everything from high-end German engineering to a new wave of practical, European-made compacts like the Renault 5 E-Tech and Citroën ë-C3.

The progress is more than just a visible variety of cars. With roughly 184,000 public charging points in Germany as of early 2026, the math — about 11 cars per charger — finally adds up. More importantly, the friction is disappearing. Features like Plug and Charge mean the hardware handles the handshake, while Smart Home setups allow charging to happen quietly in coordination with household energy costs. Since April 2025, the requirement for direct card payments at 50 kW stations has finally started to kill off the need for a pocketful of charging cards and memberships.

The old anxiety about range and reliability was effectively a period of holding one's breath. That tension is dissipating as the technology becomes a standard part of life rather than a specialised hobby. Installing a home charger or managing a fleet of electric company cars has moved from a "bold step" to a practical one. This is where the industry currently sits: at the intersection of sophisticated energy management and everyday utility.

At go-e, we aim to support this transition across every use case, from flexible charging on the go with the mobile go-e Charger Gemini flex 2.0, to charging at work or charging your company car at home and being reimbursed with the go-e Charger PRO CABLE. Because in the end, the goal is simple: reaching the point where the technology is so reliable it becomes unremarkable.

Iryna Nahorniak, E-Mobility Content Specialist at go-e

How well do you really

know e-mobility?

Test your knowledge about electric cars, batteries, charging, and the latest trends. Choose the correct answer for each question and find out how much you really know!

1 How much have EV battery prices dropped since 2008?

A. About 50 %
B. About 70 %
C. About 90 %
D. About 30 %

2 What percentage of people in Europe can potentially install a home charger?

A. About 30 %
B. About 50 %
C. About 70 %
D. About 90 %

3 What is the approximate price gap between passenger ICE cars and BEVs today?

A. 10%
B. 20%
C. 30%
D. 50%

4 How much lower can the real-world range of electric cars be compared to WLTP values?

A. up to ~5%
B. up to ~60%
C. up to ~10%
D. up to ~30%

5 Diesel trucks convert about 35-40% of energy into motion. How much of the energy do electric trucks typically convert into motion?

A. 40%
B. 50%
C. 75%
D. 90%

1 point per correct answer. What's your score?

1: **EV Rookie** – just getting started with electric mobility
2: **Curious Explorer** – getting the hang of it
3-4: **EV Insider** – strong knowledge and a well-rounded understanding
5: **Charging Expert** – excellent understanding and in-depth expertise

Answers: 1: C | 2: C | 3: B | 4: D | 5: C

Imprint: MEDIA OWNER (PUBLISHER AND ADVERTISEMENT MANAGEMENT **go-e GmbH**, Satellitenstraße 1, 9560 Feldkirchen in Kärnten, Austria, T: +43 4276 62400, E: redaktion@go-e.com, I: www.go-e.com; **CEO:** Erik Yesayan, **Publisher:** © 2026 go-e GmbH, All rights reserved; **Editorial work:** Ronald Kroke, Elke Galvin, Iryna Nahorniak, Karin Schmid; Graphic: Juce Laggner; **Fotos:** Envato Elements, Unsplash, ADAC/Test und Technik, https://lucidmotors.com/de-de, Wikimedia Commons, 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.


CHARGE
like a PRO
go-e
0.0
PRO