5 THINGS *to learn* before buying an ELECTRIC CAR

EVBOX

1 Types of Electric Vehicles

2 Driving Range

3 Charging Stations

4 Costs & Maintenance

5 Driving Experience

CHAPTER 1

TYPES OF ELECTRIC VEHICLES

DIFFERENT TYPES OF **ELECTRIC VEHICLES (EVs)**

Hybrid = Gasoline Engine + Electric Motor

A hybrid vehicle runs on a combination of both and seamlessly switches between the gas engine and the electric motor.

A hybrid vehicle does not need to be plugged in.

Plug-In Hybrid = Part Gas. Part Electric. Plug-in Capability

A Plug-in Hybrid is a more progressive hybrid that offers the option to plug in the vehicle.

It offers the best of both worlds – it drives like an electric vehicle for short trips and a hybrid vehicle for long ones.

All-Electric = No Gas. 100% Electric

An all-electric vehicle is fully powered by a rechargeable battery, so you'll never need a drop of gas or an oil change.

An all-electric vehicle needs to be plugged in for a full charge of the battery pack.

DIFFERENT TYPES OF **ELECTRIC VEHICLES (EVs)**

Here are a few examples.

Toyota Prius

Ford C-Max

Mitsubishi Outlander

Volvo V60

Tesla Model S

Nissan Leaf

EVBOX

CAR BRANDS
GO ELECTRIC

As of today, these major brands offer hybrid, plug-in hybrid and / or all-electric vehicles.

Tip: You can see the specific models our Electric Car landing pages.

CHAPTER 2

DRIVING RANGE

SOLVING
RANGE ANXIETY

What to keep in mind when driving electric?

Range is one of the deciding factors when purchasing an electric vehicle. It all comes down to how much you plan to drive per day.

According to the Joint Research Centre (European Commission's in-house science service), more than 80% of EU drives less than 65 km per day. If this accounts to you too, a full-electric vehicle will easily meet your driving needs.

If you frequently drive long trips, then you can consider a plug-in hybrid. This allows you to switch between a full-electric mode (for your day-to-day drive), and a traditional fuel mode (for longer trips).

Keep in mind that certain aspects might affect an EV's range:

•**Battery Size:** Range may vary depending on the size of batteries, the car model, as well as the road conditions and driving style.

•**Weather:** Extremely cold or hot weather will degrade battery performance, which will reduce the range. Batteries are the happiest when operated between 20-40° C.

•**Driving Style:** The way you drive may affect how far you travel on a single charge. The best approach is to anticipate traffic flow and cruise without aggressive braking and acceleration. Most EVs can recapture energy loss as you slow down, and sustained deceleration helps improving the range more than hard braking.

SOLVING
RANGE ANXIETY

Which electric cars carry the longest range?

After analyzing your routine driving habits, you can consider the following EVs that have the longest range (on a single charge)*:

1.Tesla Model S: Between 385km and 450km

2.Kia Soul EV: ~150km

3.Fiat 500e: ~140km

4.Nissan Leaf: ~ 135km

5.Mercedes B-Class Electric: ~135km

6.VW e-Golf: ~133km

7.Chevy Spark EV: ~131km

8.BMW i3: ~130km

9.Ford Focus Electric: ~122km

10.Smart Electric Drive: ~110km

*This list was updated in February 2016. With new EVs entering the market, the range will likely continue to increase. Stay tuned to our Electric Cars landing page to see the latest updates.

CHAPTER 3

CHARGING STATIONS

TYPES OF
CHARGING STATIONS

Today, electric drivers can charge at four different types of chargers:

Private chargers
placed on private driveways or
in private garages at home
owned by the resident
made available based on resident's preference

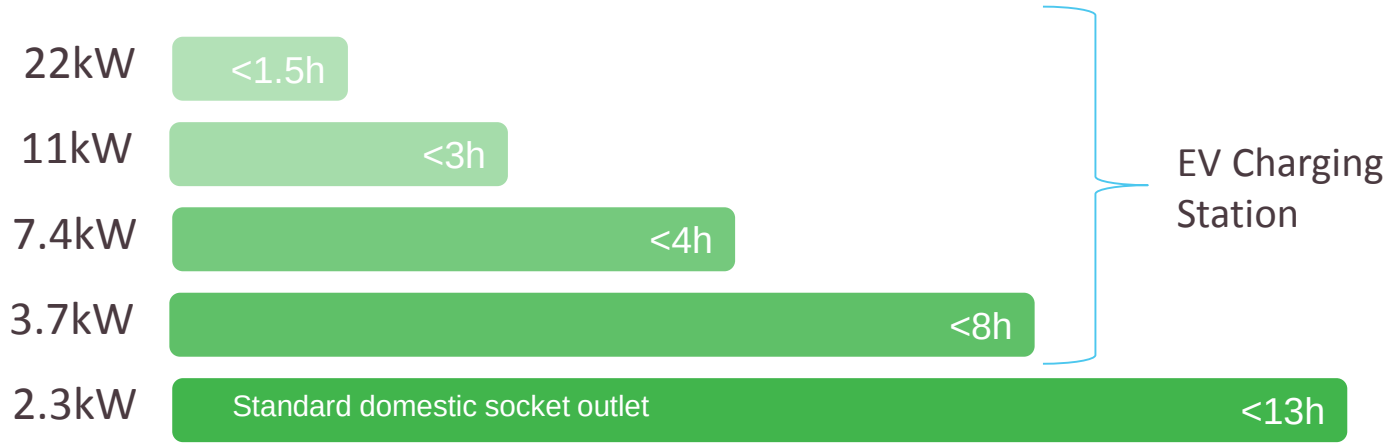
Public chargers
placed in public areas and
public parking facilities
owned by municipalities or workplaces
made available 24/7

Semi-public chargers
placed in (private) parking lots
owned by businesses of any kind
made available mostly during
business hours

Fast chargers
(AC 22kW or DC fast charging up to >100kW)
placed in cities and along highways
owned by municipalities / fast-charging providers
made available 24/7

Charge up to 8x faster

A charging station is faster and safer than a regular electricity outlet. Here's a comparison of how long it will take you to fully charge a 30kW car battery between a charging station and a regular outlet.

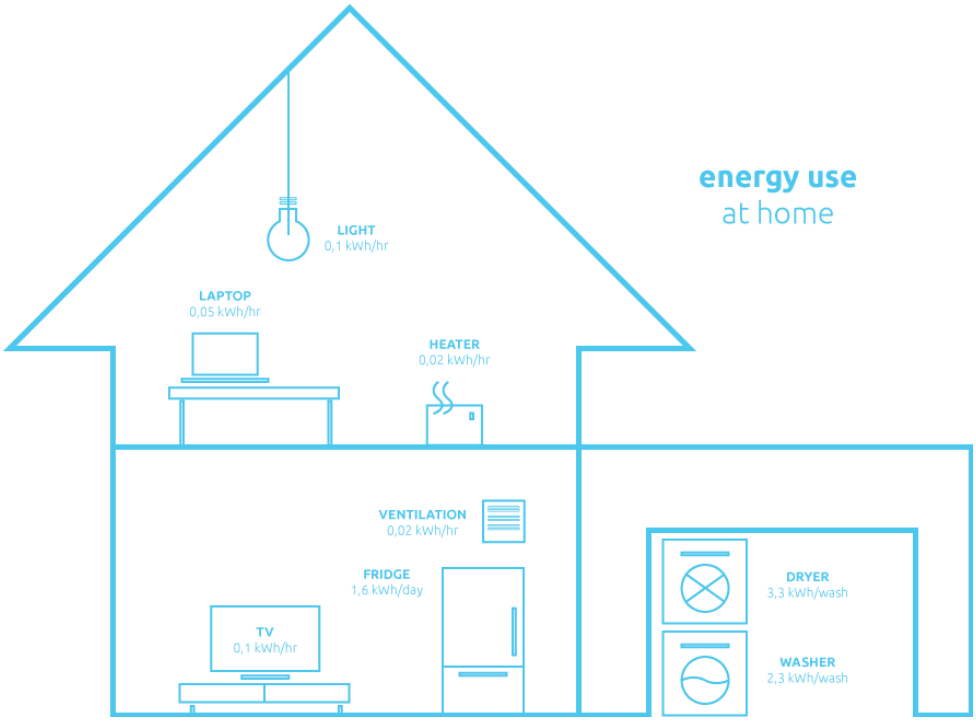


CHARGE AT HOME

Why charging at home is key to electric driving

To avoid an empty battery or dependence on public chargers, it is most ideal to leave your home fully charged. For this, you'll need to install a charging station at home. To understand the costs of charging at home, let's take a look at the average home energy usage:

In The Netherlands, the electricity consumption of an average household goes up to about 3500 kW per year. Based on an average distance of 15.000 km per year, an electric car would annually require 3000 kW. But rest assured – with a personal charging station at your disposal, you can choose to charge your car at night, when you can take advantage of lower electricity prices. Additionally, thanks to residential solar panels, you can also opt to generate your own electricity during the day. This way, EV charging is bound to become more cost effective in the long run.



CHARGE AT HOME

3 main reasons to charge at home

1

Charging from a charging station is much safer than charging from a regular electrical outlet. Charging from a regular outlet may cause power outages and overheating, as most residential buildings aren't wired to carry high electrical draw.

2

Charging from home means that you're guaranteed a charging station that's always available, and most importantly, you're ensured of a fully charged car with maximum range, every time you hit the road.

3

Charging from home allows you to avoid high public charging fees and waiting times. Although your electricity bill will go up at home, many (lease) drivers get the chance to request for reimbursements from their employers.

CHARGE AT WORK

3 main reasons to charge at work

1

Charging at work means that you can top off your car during the most productive time of your day; while you're at work. This leaves you with a fully charged car when you take off for a meeting Or are ready to go home.

2

Charging at work means that you get to enjoy reduced charging fees or even free charging as the office / employer will most likely cover the employee's charging costs.

3

By installing charging stations at workplaces, businesses get the chance to attract(potential) customers, innovative employees and every other electric driver, while promoting the company's innovative and sustainable side.

CHARGE IN PUBLIC

3 main reasons to charge in public

1

Public chargers are in most cases universal and interoperable, which means that it's compatible with any type of electric car and accessible to various charging card holders. Tip: EV-Box charging cards are eligible for interoperable charging.

2

Public chargers are usually supported (and installed) by the local government and / or municipality. This means that you may enjoy reduced charging fees, or even free of costs charging and parking.

3

Public chargers are easy to locate and access, and are often available 24/7.

CHARGING **ACCESSORIES**

There's more to EV charging than just the station.

Charging cables. In Europe you'll find two types of cables (Type 1 and Type 2). From the car's side, a Type 1 socket is common for most Japanese and American cars, and a Type 2 socket is common for European cars. From the charging station's side, all chargers in Europe are equipped with a Type 2 socket. In Europe, you'll need to carry your own cable to charge at public chargers. In the US, all public charging stations are equipped with a fixed cable.
Tip: EV-Box offers charging cables of both types.

Charging cards. Crucial for a carefree charging experience. Apply for a charging card that is interoperable. This means that you can access different charging station providers in your home country and even abroad. The larger the charging network of the card provider, the more charging points you'll have access to. **Good to know:** EV-Box has over 38.000 charging points worldwide.

Parking signs. You'll see signs like these more and more. In some countries, these signs indicate that you're eligible for free parking while your car's in charge. Keep in mind that these parking spots are a designated place for (plug-in) electric cars only. **Tip:** EV-Box offers this accessory to businesses and workplaces.

CHARGING **SOFTWARE**

There's more to EV charging than just the station.

Not all charging station providers operate a management software to help you track all your charging sessions, costs, and billing. The software is often the engine behind the charging station. **Hint:** EV-Box has one of the industry's most powerful software.

Smart Charging is an umbrella term that defines all intelligent functionalities in EV-Box's charging stations that optimize the charging infrastructure by creating and distributing the available power in an efficient and flexible manner. With Smart Charging, not only will you avoid unnecessary costs such as overcapacity fees, but you'll also get the most out of your charging stations in case of limited power capacity, any time, any place.

Good to know: EV-Box currently offers two types of Smart Charging services – Load Balancing and Hub / Satellite. Visit ev-box.com for more information.

There are many mobile apps you can use to find charging points around you.

Tip: ChargeNet is one of the apps that offer this feature. It also allows EV-Box card holders to track, start and stop their charging sessions through the app.

CHAPTER 4

COSTS & MAINTENANCE

HIGH INVESTMENT
LOW COSTS

Truth be told - buying an electric car today, can be 15% to 40% more expensive than buying a fuel engine car. Yet the influencers listed below, can justify this high starting fee. After all, it's the investment and long term results that count.

Gas prices
The higher the gasoline price the bigger your potential savings are. This makes electric cars especially attractive in Europe.

Electricity prices
Self-generated and renewable electricity sources (wind/solar) may create electricity prices. Germany, Norway and Netherlands are great examples.

Fuel economy
The poorer the fuel economy of the car you are switching from, the bigger your fuel savings will be.

Due to varying differentials between gasoline and electricity prices, the fuel savings in going electric vary from place to place. Yet the global electric vehicle economy is currently improving significantly.

COST EFFECTIVE
AT A SINGLE CHARGE

€ 0.22
PER KWH
NL AVERAGE

12 KWH
CAPACITY

60-80 KM
PER SESSION

€ 2.64
PER SINGLE
CHARGING SESSION

€ 0.03
PER KM

In The Netherlands, the average cost of charging any EV is around **22 cents (EUR) per kWh**.

Let's say your electric car has an empty battery and approximately 12 kWh battery capacity. In most cases, your car should be able to reach approximately 60 – 80 km with a single charging session.

Charging your EV would amount to a total of **12 x 0.22 = 2.64 EUR**.
The power consumption per km wouldn't be more than **0.03 – 0.04 EUR**.

Since every charging station provider might maintain different charging fees, we would advise you to visit your charging provider's website for more details.

Unlike most charging providers, you're exempt from any charging card fees at all of the EV-Box charging points across the world.

COST EFFECTIVE
IN THE LONG RUN

Tax breaks, attractive grants, and scenarios of initial cost reduction.

Take a look at which electric vehicles are available in the market, check their price online, or consult your local dealer.
While you're at it, keep in mind that:

Falling battery prices

Battery prices keep falling as production scales increase.
Electric cars are bound to become even more affordable.

Growing government investments

Many governments offer attractive incentives that take the pain out of the purchasing price. This means that EVs are always the better option from a lifetime cost perspective.

Low maintenance

EVs have 10x fewer moving parts than their gasoline counterparts. There's no engine, transmission, spark plugs, valves, fuel tank, tailpipe, distributor, starter, clutch, muffler or catalytic converter. This absence saves you a lot in maintenance costs.

CHAPTER 5

DRIVING EXPERIENCE

EXPERIENCE ELECTRIC

"For most experienced drivers, the first time in an electric car is decidedly odd. There is no gearbox or transmission, for example. Electric motors differ greatly from internal combustion engines in the way they deliver power and torque, and for the most part, you have maximum performance from the start. No hanging about waiting for RPM's to build, no waiting for the optimum moment to change to another gear, nothing; it's just a push on the pedal and go.

Until you've actually tried an electric car, it's quite difficult to get the sensation across in words. For starters, all is quiet; there is virtually no noise. All that happens is, as the foot goes deeper into the carpet pile, the car continues to gather speed all the way up to the speed limit and, in some cases, beyond. No drama at all. You could drive through a cathedral undiscovered, except perhaps by an eagle-eyed clergyman who would simply nod benignly because, as you know, electric cars are righteous."

Source: Automotive Blog

The best way to understand electric cars of course, is through driving one yourself.

KEY TAKEAWAYS

Now it's time for you to swap your dusty dirt machine for a clean electric car.

It's quiet.
Driving an electric vehicle is a noiseless experience. Silence is precious, especially for your daily driving routine and for growing, urbanizing cities.

It's fast.
As you might have heard, an EV goes from zero to full without hesitation. The torque is a benchmark experience that's loved by all electric vehicle drivers.

It's clean.
The one and only thing you should really care about. Driving electric vehicles produces no harmful tailpipe emissions and a reduced carbon footprint.

It's easy.
EVs are remarkably simple to maintain. The absence of a combustion engine equals fewer moving parts, which means lower cost of maintenance and zero oil changes.

It's fun.
That's about it. It's just pure fun. Once you've driven one, you'll understand.

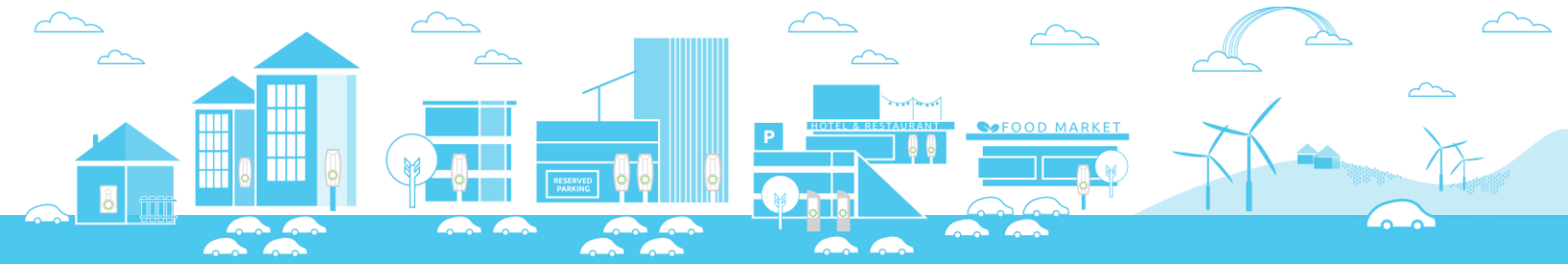
The future is looking bright for electric cars.

Nearly all major car manufacturers are now developing electric vehicles to add to their fleet.

Our dependence on oil is continuously challenged with underlying trends in the oil industry, with the growing adoption of renewable and self-generated energy, as well as with consumers' greater acceptance of electric driving.

Set aside all the motivations with climate change and oil dependence – it's also been argued that building electric cars will simply become the better way to do a car.

Electric cars are here to stay. Go electric.



EV-Box is the market leader in Electric Vehicle (EV) charging solutions and related cloud-based services, with an installed base of over 38,000 charging points worldwide that serve individuals, businesses, facilities and major public charging networks.

Drive electric, charge everywhere.

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