your **go-to guide** to electric cars

EVBOX

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Updated: September 2018

How common is it to drive electric cars?

More common than you might think. The number of electric vehicles worldwide reached 3.1 million (amongst which 2 million were electric cars) by the end of 2017. Electric cars are now available in over 80 markets around the world. Sales volumes have nearly quadrupled since 2014. Continuing at the current rate of adoption, this would mean that roughly half of the world's new car sales will be electrics by 2040.

Electric vehicle sales reached over 1.2 million units sold in 2017. It was also the best year ever for electric car sales in the US, where the number of units (55,000) went up 25% compared to 2016. Europe sold 306,000 units, which is a significant growth against the backdrop of a stagnating (-5%) automotive market in Europe, making electric cars the fastest-growing segment in the region.

China reached a count of over 600,000 units sold, which is up 71% compared to 2016. As a consequence, China's EV market hit a record 3.3% market share of the entire Chinese car market, while the global 2017 EV market share ended at 2.1%.

Get more electric car sales numbers in this report >>

2M
electric cars on the road in 2017, a 57% increase compared with 2016.

55%
of the world's new car sales will be electric by 2040. Source: BNEF

306,000
electric cars were sold in Europe in 2017, making EVs the fastest-growing segment in the region.

How far can electric cars go?

We knew you'd bring it up. Some potential electric vehicle drivers are paralyzed by the fear of their car's battery dying mid-trip, leaving them stranded in the middle of nowhere. They hear that an EV can only go 160 km/100 miles on a single charge and think, "but what if I have to drive 101 miles?" And that's a valid concern. Yet in reality, the average person drives 60 km/37 miles a day. This is well within the range of even the smallest electric car battery, even if it's only half-charged.

Here are the range indications (EPA) of 2017's best-selling electric cars:

Bestsellers in Europe

Renault ZOE	210 km / 131 miles
BMW i3	180 km / 111 miles
Nissan LEAF	240 km / 150 miles

Bestsellers in USA

Tesla Model S	490 km / 335 miles
Tesla Model X	475 km / 295 miles
Chevrolet Bolt	380 km / 235 miles

Bestsellers in China

BAIC EC-Series	200 km / 125 miles
JAC iEV6S/E	280 km / 173 miles
BYD e5	220 km / 137 miles

New entrants

Tesla Model 3	350 km / 220 miles
Jaguar iPace	350 km / 220 miles
Hyundai Ioniq	200 km / 124 miles
Opel Ampera-e	380 km / 235 miles
Audi e-Quattro	500 km / 310 miles

60 km
37 miles
is the average distance driven per day in Europe and in USA.
This is well within the range of even the smallest electric car battery, even if it's only half-charged.

Fear no more.

There's a cure for your range anxiety. Give these a try:

5 facts to eliminate your range anxiety >>

Range explained in the map of Europe >>

Range isn't the problem, we are >>

How much do electric cars cost?

Glad you asked. Electric cars currently have a heftier sticker price than internal combustion engine (ICE) cars because of their battery and manufacturing costs. However, ICE cars require replacing parts that go bad over time, whereas electric cars do not need as many components to operate; electric motors only have one moving part, while ICEs contain dozens. Lower operating costs, lower fuel costs, and savings on taxes and maintenance will all help you offset the sticker price, making the total costs of ownership (TCO) of fully-electric cars much lower than that of ICE cars. **Dive into the details here >> Or here>>**

Reaching price parity
The price for electric car (lithium-ion) batteries is tumbling: an average battery pack was priced at $1,000/kWh back in 2010. Fast forward to 2017, and average prices have hit a low of $209/kWh. This is a remarkable 79% drop in just seven years. The upfront cost of EVs will become competitive on an unsubsidized basis starting in 2024. By 2029, electric cars will reach price parity with combustion engine cars as battery prices continue to fall.

(Plug-in) Hybrid vs Fully Electric
The TCO for hybrid and plug-in hybrid vehicles is higher than that of ICE vehicles, because those cars receive fewer subsidies than fully-electric cars and still require fuel. Your takeaway from this? Go 100% electric.

Here are the price indications of 2017's best-selling electric cars:

Bestsellers in Europe

Renault ZOE	€22,900 / £20,600
BMW i3	€37,900 / £34,000
Nissan LEAF	€37,000 / £33,000

Bestsellers in USA

Tesla Model S	$74,500
Tesla Model X	$79,500
Chevrolet Bolt	$36,600

Bestsellers in China

BAIC EC-Series	¥212.150/$31,000
JAC iEV6S/E	¥120.000/$17,800
BYD e5	¥150.000/$21,900

New entrants

Tesla Model 3	€30,400 / $35,000
Jaguar iPace	€80,800 / $98,000
Hyundai Ioniq	€34,000 / $36,000
Opel Ampera-e	€34,900 / EU only
Audi e-Quattro	€80,000 / $99,000

Charging costs?

How much it costs to charge an electric car depends on the country you reside in, the car's charging capacity, and the charging station you're using. Charging fees may include a start rate, a time rate (rate per minute), and a kWh-rate. **Fast forward to page 9 >>** for more info.

Which incentives am I eligible for if I buy an electric car?

Queue Oprah—you're all getting incentives! In the wake of the Paris Agreement, countries are widely implementing incentives to promote clean cars that'll help them reach those stricter emissions standards. If you buy an electric car in USA today, you might be eligible for $17,500 in rebates and tax incentives. Generally, countries offer (one of these) three types of incentives:

+ Purchase grant
A one-time discount on the total sticker price of any eligible electric car.
+ Ownership tax break
An annual tax break for any eligible electric car.
+ Company car tax break
An annual tax break for any eligible company electric car.

Check incentives for EU countries >>
Check incentives for USA states >>

Rebates and tax incentives are defined by each country's leading government and are always implemented nationwide. Many cities, though, go a step further to get their citizens behind the electric wheel. This means that, on top of the usual incentives, electric cars may be eligible for extra perks, depending on your region:

+ Free public parking
+ Exemption from toll charges
+ Access to HOV lanes and bus lanes
+ Exemption from ferry fees
+ Free access to public charging points

$17,500
£4,500
€4,000

The current grants and tax breaks for electric car buyers are generous to say the least and will not last forever! Consult your local government's website for the latest updates or get a quick overview here:

Check incentives for EU countries >>

Check incentives for USA states>>

Which electric cars can I buy?

You can choose from roughly 40 highway-capable electric cars available worldwide and 155 electric vehicles in total. Tightening fuel economy standards and quotas are now forcing carmakers into producing EVs faster than most of them would like. In Europe, potential bans of the sale of new diesel and gasoline cars—some as early as 2025— are pushing both buyers and carmakers away from the production of diesel vehicles.

As a result, Volkswagen, Daimler, Nissan, Volvo, and other global automakers have now all made plans to electrify their vehicles over the next ten years. The number of EV models available is set to jump from 155 at the end of 2017 to 289 by 2022.

Here's a quick overview of European and American brands offering at least one fully-electric model:

Audi, BMW, Chevrolet, Fiat, Fisker, Ford, Hyundai, Jaguar, KIA, Mercedes, Mitsubishi, Nissan, Opel, Porsche, Renault, Smart, Tesla, Volkswagen, Volvo.

Check all plug-in hybrid and fully-electric cars available in Europe and USA >>

155
electric vehicle models are now available on the market. By 2022, this number will jump to 289.

Source: Business Insider

Craving cars?

We're publishing a shortlist of upcoming electric cars we're most excited about every year. Follow us on Instagram or Twitter for the latest facts and figures on EVs, or subscribe to monthly updates on the clean tech and electric car industry!

Follow us on Instagram >>
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Subscribe to monthly news >>

What's the **environmental impact** of electric cars?

We were hoping this would cross your mind. About 23% of all CO_2 originates from the transportation sector today. This sector is also the fastest-growing CO_2 emitter worldwide. Compared to gas-powered cars, electric cars can reduce carbon emissions by more than half.

The impact of the entire life cycle
While countries like Poland and Germany have significantly more carbon-intensive power generation (due to their reliance on coal plants), EVs still perform better there on a lifecycle basis, which considers the emissions from manufacturing the battery and vehicle. Using the Polish average, an EV emits 25% less CO_2 over its lifetime. In Sweden, a country with one of the cleanest energy mixes in the EU, an EV emits 85% less than a diesel car.
Dive into the details here >>
Or here >>

The impact of energy consumption
An electric car using electricity generated solely by an oil-fired power station would use only two-thirds of the energy of a petrol car travelling the same distance. Although an electric car powered in this way is still ultimately burning the same fuel as the petrol car it replaces, it is burning much less of it. **Dive into the details here >>**

Check your CO_2 savings here (EU) >>
Calculate your consumption and CO2 savings here (USA) >>

25-85% less CO2

Electric cars emit 25% to 85% less CO_2 than gas-powered (ICE) cars over their lifetime.

Source: transportenvironment.org

How to lose emissions in 10 days.

Truth be told, it doesn't have to take much at all to reduce your carbon footprint. Heck, you might even be doing it already. Every trip you take on foot or by bike, every meal you take without red meats, and every private jet you never take… all of it minimizes your CO2 footprint. You may not be able to lose a guy in 10 days, but you sure can lose a lot of emissions within this short amount of time. **Here's how you can do this >>**

Where can I charge an electric car?

Practically everywhere you park for longer than 20 minutes. This means you can charge your car at home, at work, at your local shopping center, along streets, and so on.

Charging at home
Unlike regular electricity sockets, a charging station is safer for your home and car battery's capacity. Are you sharing a parking lot/garage with others? Look for charging operators that can help apartment tenants and homeowners' associations easily configure and manage (multiple) charging stations while ensuring that you're only billed for your own charging sessions. With a charger at home, you get to hit the road fully charged every day.

Charging at work
You can also 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. Added bonus: Charging at work often means that you get to enjoy reduced charging fees or even free charging as employers are likely to cover their employees' charging costs.

Charging in public
Depending on where you live, you'll get more and more access to public (fast) charging stations alongside streets, highways, and in public parking garages. You'll always need a charge card subscription that allows you to charge at public charging stations. In addition, you can check charging station locator apps to see where you can charge, and consult your local council's website to submit requests for new public charging stations (to be placed near you).

At home
on a private and shared parking space.
Learn more >>

At work
in a shared / public parking lot or garage.
Learn more >>

In public
along the streets, highways, and at all public facilities.

Can I charge my car from a regular electricity socket?

Technically, you can.
But it's just not a good idea.
It's unsafe for your car and home, it takes a much longer time, and it doesn't allow you to manage your charging sessions.
Learn more >>

How do I install a charging station?

Your charging station, whether at home or elsewhere, will always need to be installed by a certified technician.

AC (regular) charging stations require a standard 230-400 Volt connection similar to home appliances such as ovens and washing machines. The charging capacity vary between 3.7 kW to 22 kW based on the input. Fast (DC) charging stations are exclusively operated in the public and they require extensive installation with specific equipment.

Where can I find a certified technician that can install charging stations?
We offer a network of thousands of certified technicians internationally that will not only take care of your installation, but also offer free on-site inspections prior to every installation. This is to ensure the charging station will operate safely and optimally.

Are you living in the Netherlands? **Find an EVBox certified technician near you >>**

Are you living elsewhere in Europe or North America? **Get in touch with an EVBox certified technician >>**

Elvi

home charging station
watch installation >>

Business Line

commercial charging station
watch installation >>

How much does it cost to install a charging station?

The costs for every installation are calculated based on:

1) Components needed
2) Labor fees
3) External factors, e.g. your building's age, your electrical panel (where it's located and how much capacity it carries), the type of installation (AC or DC), the number of charging stations, etc.

The starting price of an installation for a regular (AC) charging station is around a couple of hundred euros/dollars.

How much does it cost to charge an electric car?

This depends on the country you reside in, your car's charging capacity, and the charging station you're using. There's a formula you can use to calculate the costs of charging an electric car:

the car's charging capacity (kW)
x electricity fee per kWh
= price per charging session

NL example: The average electricity fee for consumers is about €0.22 per kWh in the Netherlands. Let's say your electric car has an empty battery and approx. 12 kWh of capacity. Depending on your driving style, your car should be able to reach approximately 60 to 80 km on a single charge. Charging your electric car to a full battery would cost a total of €0.22 x 12 kW = €2.64. This means that the power consumption per kilometer is just around €0.03-0.04. **Calculate savings in NL here >>**

price per kWh (NL average)	€0.22
car charging capacity	12 kW x
price per charging session	€2.64

US example: In the US, charging an electric car ($1.17 per eGallon) costs about half as much as fueling a gasoline-powered car ($2.87 per Gallon). An average person would only spend about $540 driving an electric vehicle for the typical 15,000 miles per year. **Calculate savings per US State here >>**

$540 (US)
€724 (NL)
per year
in average

Charging on EVBox stations?

Every charging station owner can set up his/her own charging fees. This may include a start rate, a time rate (rate per minute), and a kWh-rate. These rates will be visible to all EVBox charge card users. Additional fees apply to users that are using charge cards from other service providers. Every service provider can define its own upcharge. They are also allowed to make individual agreements with their own customers about their charging rates and charging plans. The charging point operator (which is EVBox in this case) does not have control over this.

How long does it take to charge an electric car?

This depends on the type of charging station and your car model. How long your battery lasts depends on your driving style, as well as traffic speed and road conditions.

Similar to an ICE car, an electric car consumes relatively more power during fast acceleration and high speeds. When the brakes are hit slowly, the battery will recharge itself with "braking energy" (aka regenerative braking).

After approximately 50% of the time an electric car is spent charging, the battery will already be charged to 80%. The last 20% of the battery is filled via drip charging. This is a slow method of charging to secure the long-lasting quality of the battery.

Music players and car lights have a very limited impact on the power consumption and range. The weight (from luggage/ people) your car is carrying, however, will have a significant impact on the range. The same goes for heating and air conditioning, which may affect the range by up to 50%. To avoid this from happening, many electric cars can be pre-heated or cooled while they're charging.

Check the charging time for EU and North American electric cars >>

20 mins
with a fast (DC) charging station

1-6 hours
with a charging station

8+ hours
with a regular electricity socket

Check charging times for EU and North American electric cars here >>

Can't find your car model? There's a formula you can use to calculate the charging time of an electric car:

the car's battery power (kWh)
÷ the car's charging capacity (kW)
= # hours to fully charge the car

Charging with EVBox

Who we are
We're the leading global manufacturer of electric vehicle charging stations and charging management software. Our mission is to help build a future where everyday transport is self-sustained and emission-free by bringing smart and scalable charging solutions to electric vehicles around the world.

What we offer
We offer electric vehicle charging solutions with uncompromising quality and reliability. Our charging solutions maximize the return on investment while minimizing costs. From the installation and online integration of every station, to the tracking and billing of all charging sessions. We help everyone operate and manage their charging stations with ease and efficiency.

100% recyclable

Our charging stations are made of polycarbonate materials and are 100% recyclable.

12,000 metric tons of CO_2 saved per year

Our charging points charge about 36M kWh per year.
This means we save about 12,000 metric tons of CO_2 emissions every year.

Let's **chat**

info@evbox.com

Learn more at **evbox.com**

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