



Society of the Irish Motor Industry

Everything you always wanted to know about Electric Vehicles



Battery



Charging



Cost



Environment



Maintenance





Introduction

Buying a new car is an exciting experience and with advancements in technology, there are many different types of cars to choose from, traditional internal combustion engine (petrol and diesel) cars to battery technology cars such as Hybrid, Plug-In Hybrid Electric, and fully Electric. But what should you buy next? The choices can be overwhelming but if you research and understand your driving needs, this will help narrow down your choice of vehicle.

The type of car you choose will be determined by your personal taste, budget, and driving requirements. There are many ways to finance a car, but what you need to look at is the cost of the car, or the cost to change into the next car. The one thing all consumers have in common when buying a new car is that they are looking for value for money and we would advise consumers to shop around for the best deal.

Purchasing a car is a significant investment and you must buy the car that suits your driving needs. When you purchase a car from a SIMI member company, you have the added reassurance that all our members adhere to a code of practice and are ready to assist you in making your purchase decision.

Ireland's Climate Action Plan seeks to reduce transport emissions by 50% by 2030, along with the ambition of having 845,000 electric cars in the Irish fleet within that timeframe. Government support is in place to encourage consumers to make the transition to electrification. The Motor Industry has invested in the technology and is delivering more electric vehicle models to the market.

This guide focuses on Electric Vehicles (EVs). As a new technology there is much curiosity and questions surrounding EVs, how they work, how they are charged, what distance can they travel, etc. Additionally, there is a lot of misinformation, myths, and confusion circulating due to a lack of understanding of electric vehicles and battery technologies. This guide seeks to answer common EV questions and queries. We aim to help you understand more about Electric Vehicles, especially if you are considering buying a new or second-hand Electric Vehicle (EV).

Disclaimer

This document contains general information and guidance. Every Battery Electric Vehicle is different, it is important to check with the manufacturer and the manual for their specific recommendations on charging, software updates and maintenance. SIMI accepts no responsibility or liability towards any person who may rely upon this document. SIMI make no representations, warranties, or guarantees, whether express or implied, that the content of this document is completely accurate or up to date.





Electric Vehicle

An Electric Vehicle (EV) or Battery Electric Vehicle (BEV) as the name implies run entirely on electricity. They have an electric motor instead of an internal combustion engine. The vehicle produces no tailpipe emissions and is also referred to as a zero-emission vehicle. The car is charged by plugging it directly into an electric charging system. There are currently over 100 different types of new electric vehicle models available in Ireland with more and more EVs coming to the market, so there is a variety to choose from. If you are considering an EV there are purchase incentives and a home charger grant currently available to assist you with your purchase.

Driving Experience

There is nothing like test driving a car for yourself to get a feel for the real driving experience. The first thing you will notice is that electric cars are virtually silent, there is no clutch or change of gear as they are automatic. Electric cars deliver an instant torque, meaning much faster linear acceleration and have a sportier feel. Most EVs have a low centre of gravity, as their batteries are on the floor, and therefore provide good handling. The majority of people who try EVs find them easier to drive.





Benefits:

- **EVs can save you money:** electricity is nearly always cheaper than filling an ICE vehicle with petrol or diesel – particularly if you charge the battery of the car at home. SEAI found that there was a 74% reduction in transport costs compared to a comparable new diesel engine car. They also have the lowest rate of motor tax at €120 per annum.
- **Reduced running costs:** According to the SEAI, EVs have 90% fewer moving parts than ICE vehicles, which means lower running costs as there are less moving parts to look after but like all cars they still need to be serviced regularly.
- **Environmental alternative to petrol or diesel cars:** Battery Electric Vehicles (BEVs) have a lower carbon footprint as they produce zero tailpipe emissions of CO₂ and NO_x at all times, which leads to improved air quality and helps combat climate change.
- **Better driving experience:** Electric Vehicles (EVs) provide instant torque for smooth, responsive acceleration, and offer regenerative braking when easing off the accelerator. As an automatic vehicle they are very easy to drive.
- **Charging your car at home:** Convenient and saves money, as it reduces the need for public charging, and drivers can also benefit from cheaper electricity night rates.
- **EVs benefit from Government incentives and grants:** to assist with the purchase of an EV and to install a home charger, grants are available.

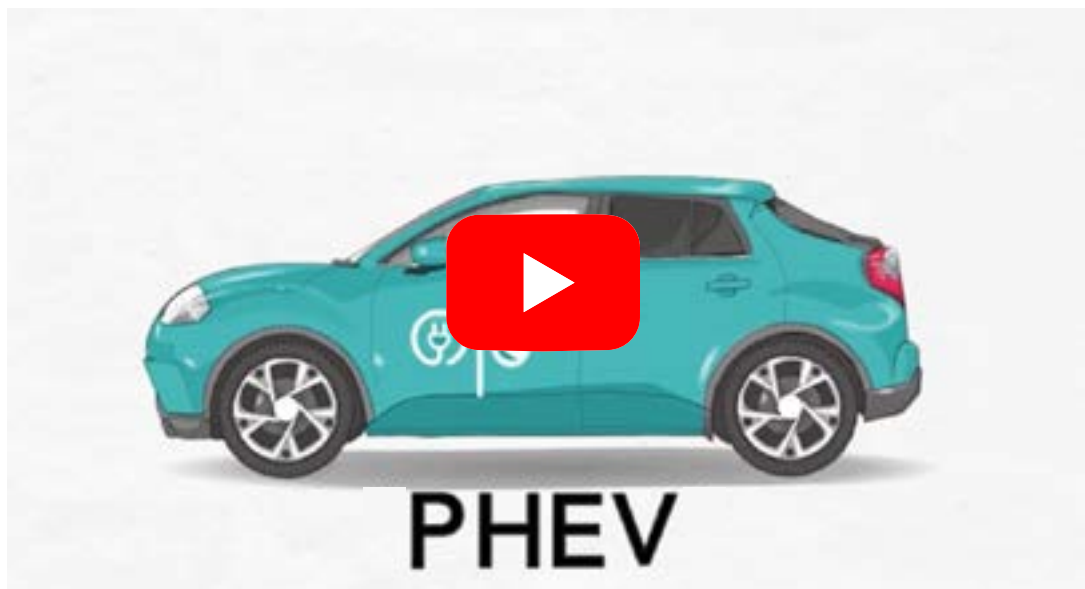


Electrified Drivetrains

Electric vehicle technologies provide for different electrified powertrains, while this guide focuses on Battery Electric Vehicles (BEVs), Plug-In Hybrid Electric Vehicles (PHEVs) and Hybrids also use electrical assistance in their journeys.

Plug-In Hybrid Electric Vehicles (PHEVs)

Plug-in Hybrid Electric Vehicles are referred to as PHEVs, they include both a traditional combustion engine (Petrol/Diesel) and an electric battery. They can be driven by either power source. Like an EV, the car is charged by plugging it directly into an electric charging system, through the national public charging infrastructure, or a home charger. The average range (distance) in the electric mode of a PHEV depends on the car model, driving behaviour and battery capacity. PHEV range varies and is generally driven entirely on the battery for shorter journeys, while for longer distances the car will automatically switch to the internal combustion engine should the need arise.



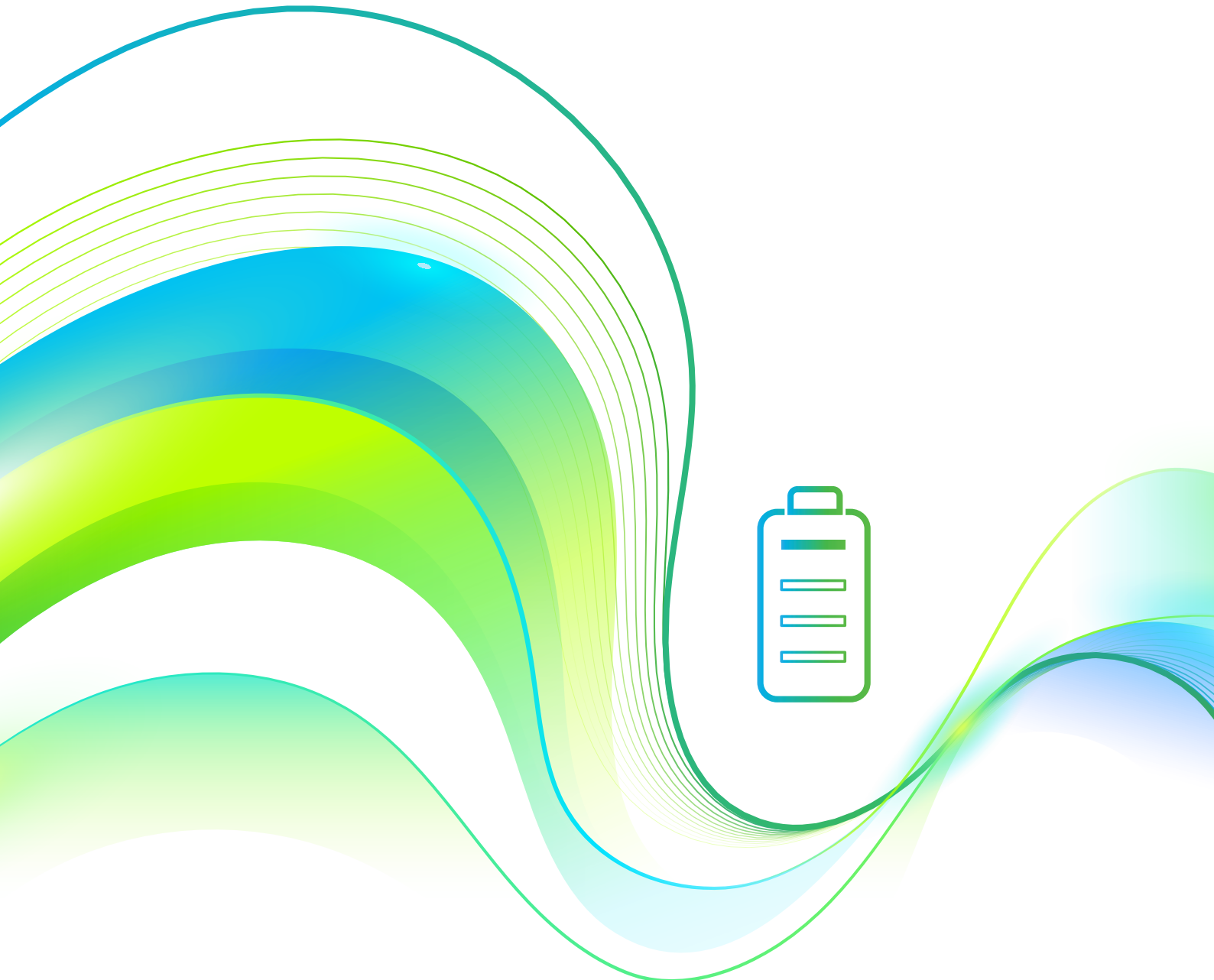


Hybrid

A Hybrid car is a combination of the internal combustion Petrol/Diesel engine and electrically generated power that propels the wheels. The car contains batteries for electric storage. The majority of the hybrid vehicles that are available in the Irish market are Petrol/Electric. The electrical power is generated when the car is braking or when it is over-running (free-wheeling). This power is used in addition to the petrol engine which predominantly runs the car. Hybrids are also categorised as either strong (conventional) or mild depending on the amount of battery power they have. Conventional hybrids, which are almost exclusively petrol/electric, can be driven for part of their journeys on the battery alone, while mild hybrids support the combustion engine. Electricity is never plugged into the hybrid car.



Hybrid Vehicles



Battery



Battery

Q1. Do Electric Vehicles (EVs) batteries come with a short warranty?

Manufacturers want consumers to have confidence in their electric cars and while warranties vary between car brands, generally they provide excellent warranty terms for batteries, with many on the market offering between 7 years/150,000km to 8 years/160,000km warranty.

Q2. What is the lifespan of EV batteries and will they need to be replaced?

The lifespan of the battery will be dependent on many different factors. These include but are not limited to, how the vehicle is driven in its lifetime, how often the battery has been charged using fast/rapid chargers and ambient temperatures. Like all lithium-ion batteries, the battery will experience gradual capacity loss over time. Modern battery packs are made up of modules/individual cells and if a battery requires replacement, the module would be replaced which is more cost-effective than the entire pack. The average lifetime of an ICE vehicle is over 14 years and 200,000km, and it is expected that on average EV batteries will have a similar lifetime. Battery manufacturers expect batteries to last the lifetime of the vehicle and undergo greater than 1,000 full charge cycles before significant degradation is notable. In a vehicle with a 300km range, this would equate to greater than 300,000km. Batteries can still serve a sustainable purpose after they leave your EV. Their recycling capabilities can provide a second life use of batteries, as they still store significant amounts of energy and can be converted for storage to power homes, buildings, and the wider electricity grid.



Battery

Q3. Do EV batteries degrade quickly?

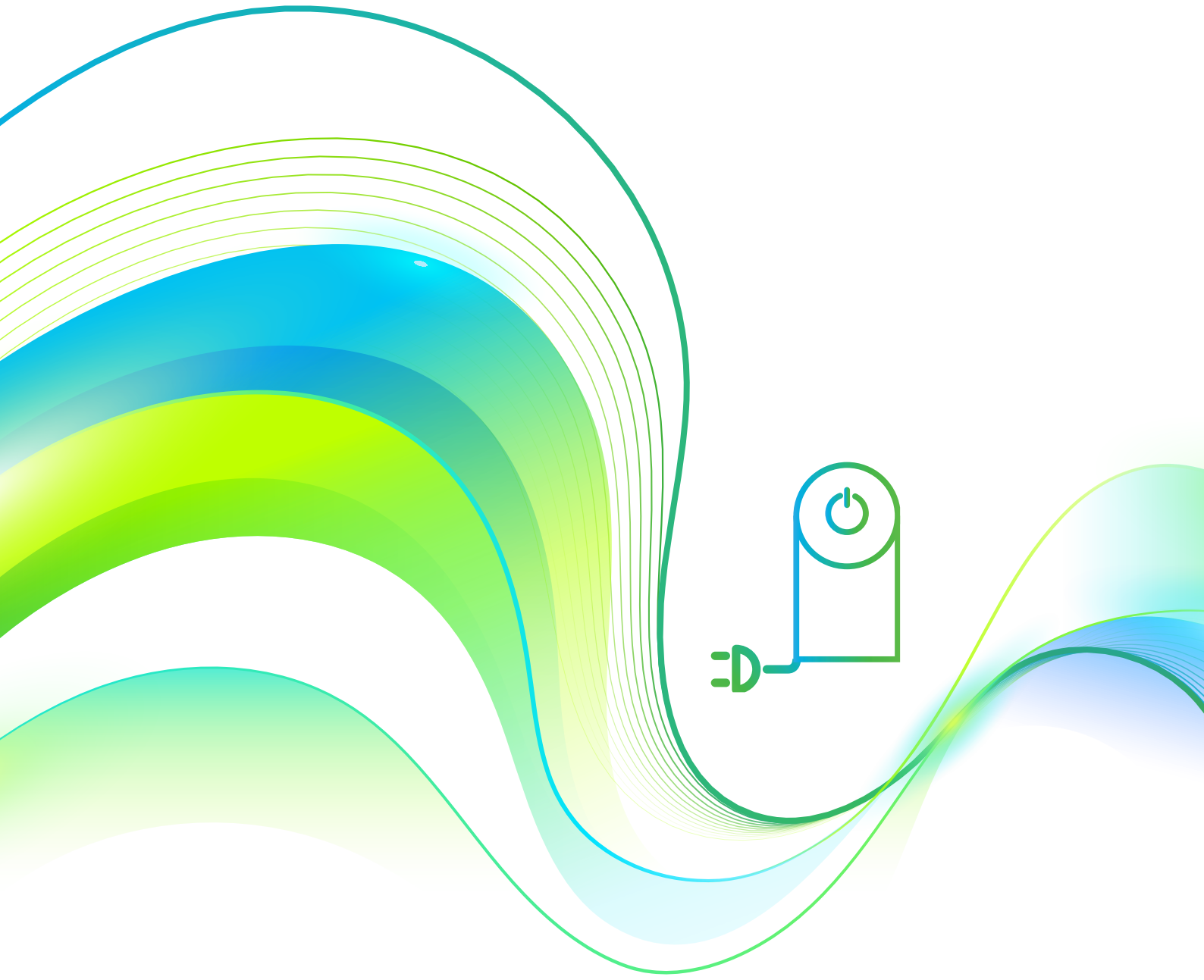
While it is true that batteries degrade over time, battery technology has become far more advanced with improvements in durability and longevity and aims to extend the life of the battery. Additionally, research and real-world data show that EV batteries can retain a significant portion of their capacity even after the warranty period expires. This means that EV batteries often continue to perform well for many years beyond the warranty, providing reliable and efficient operation for the lifespan of the vehicle.

Q4. Are old EV batteries an environmental hazard?

EV car batteries are recycled when they reach end-of-life, the material from them ends up in new batteries and in other applications. In Ireland, recycling of EV batteries is provided through the Electric ELVES programme operated by ELVES (ELV Environmental Services CLG). ELVES is the compliance scheme for End-of-Life Vehicles (ELVs), established by vehicle manufacturers to help deliver on their obligations under the ELV Regulations. The Electric ELVES programme provides support to Authorised Treatment Facilities (ATFs or permitted scrapyards) when they receive an end-of-life electric, hybrid, plug-in hybrid, or mild hybrid vehicle. The programme provides free collection and recycling of electric vehicle batteries as well as EV dismantling training for ATFs. In addition to being recycled, batteries may go on to have a second life; reused in another vehicle or repurposed into another application such as storing power generated from solar panels.

Q5. Are EV batteries a fire hazard?

A commonly shared EV myth is that they regularly catch fire. The likelihood of an EV catching fire is significantly less than that of a petrol or diesel car. A study by the Swedish Civil Contingencies Agency concluded that EVs are 20 times less likely to catch fire than petrol and diesel cars.



Charging



Charging

Q1. Do Electric Vehicles (EVs) take a long time to charge, making them inconvenient for daily use?

There are many misconceptions about range and battery size. The time it takes to charge varies, depending on your EV's battery capacity (the energy the battery can hold), the amount of charge the vehicle has (state of charge) and the type of charger you are using (the amount of kW it can provide). Unlike ICE drivers who fill up at a petrol station when running low, EV drivers will charge based on where their vehicle is parked e.g. at home or at work, as opposed to waiting for the battery to be empty.

Charging times are falling quickly as technology advances. The majority of EV owners charge their vehicles at home. There are generally two options, a level 1 slow charge (3.6kW) which can take 12 hours or more, while a level 2 charge (7kW) the more common option provides a faster charging rate. Depending on the vehicle and charger specifications, home charging typically adds 80-100km every 2hrs. An empty battery of 70kWh for example would take approximately 10 hours to charge. Home charging tends to take place at night to avail of the off-peak electricity rates, fully charging EVs in around six to eight hours depending on the vehicle's capacity. Most EV models have fast charging capability and using a DC Fast Charger (50kW and above) allows EVs to be charged to a usable level in a relatively short amount of time (20 to 80% in approx. 40 minutes). Fast and High-Power chargers generally have an overstay fee which applies after 45 minutes, so users will charge quickly for shorter periods. Fast high-powered charging can add 100km in 10 minutes.



Charging

Q2. Do Electric Vehicles (EVs) have limited range?

While early EV models did have limited ranges, modern EVs have significantly improved battery technology. EV models have electric ranges of 220km to 600km while some higher-end models can range up to 835km. Additionally, the charging infrastructure is expanding, making long-distance travel more feasible. The range of an EV is determined by the battery capacity of the car. Larger batteries will have a greater range. Various factors, like driving behaviour, outdoor temperature, weather, wind, topography, and road conditions can influence range. Range varies depending on whether you're driving in a city or on the motorway as the faster you drive, the quicker you use up range. EVs will typically use less than 20kWh/100km, so a 60kWh battery provides greater than 300km of range and an 80kWh battery provides greater than 400km but the same as an ICE vehicle the heavier the foot the quicker the fuel is used. The average daily mileage in Ireland is 16.9km and even if you travel for longer journeys the vast majority of EVs can cover the range adequately. EVs provide instant torque and smooth acceleration providing a pleasant driving experience.

Q3. Are Electric Vehicle (EV) ranges inaccurate?

WLTP (Worldwide Harmonised Light Vehicle Test Procedure) is a testing procedure carried out in a lab environment to determine the fuel or energy consumption and CO₂ emissions of a vehicle. EV range like ICE vehicles is determined by various factors, like driving style, outdoor temperature, weather, wind, topography, and road conditions. Other factors that impact range include how much electricity you use for car functions such as heating and cooling. Help extend your range by preconditioning the battery when charging to hit the optimal temperature when your journey begins. Many manufacturers have developed an EV Range calculator on their EV car configurator, available on their websites and this can be used to accurately calculate the range you can expect your car to achieve.



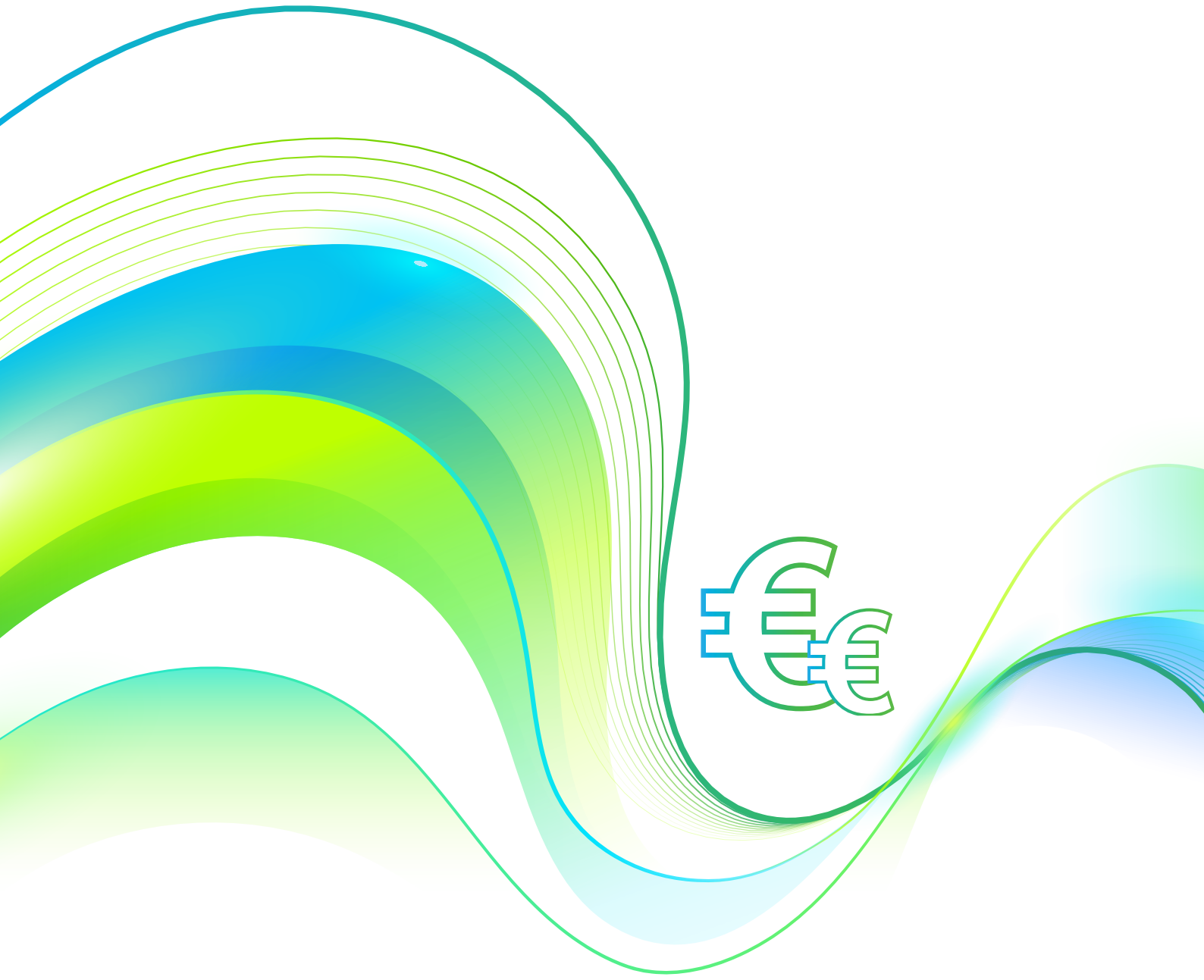
Charging

Q4. Is the weather a big issue for Electric Vehicles (EVs)?

Weather can impact a vehicle's driving range typically, warmer temperatures in the summer will result in a higher range while lower temperatures in the winter will reduce the range. However, it doesn't affect the majority of EV owners who get to know their vehicles. At the same time, weather also impacts Petrol/Diesel cars when you need to use the heater or air conditioning. It results in more fuel being burnt, for the car to do this extra work. Most EVs offer pre-conditioning, a feature that allows you to remotely activate your car's climate control using a mobile app, to pre-heat or pre-cool the car's interior temperature before you get in. It also helps demist the windscreen and windows which is beneficial during the winter months. Pre-conditioning can be done from a direct supply of electricity when the EV is plugged in charging or scheduled for a specific time utilising the car's battery. Pre-conditioning can help to optimise your EV's driving range.

Q5. Am I limited by the charging Infrastructure in Ireland as to where I can charge my EV?

With an EV, you effectively can have your own "charging" station at home when you install a home charger. A lot of people have the possibility to charge their vehicles at work. It is estimated that over 90% of EV owners don't rely on the Public Charging infrastructure at all. A survey conducted by the Irish Electric Vehicle Association (IEVA) on charging habits found 87.9% of its respondents charge primarily at home and 8% at their workplace, and that a big benefit of an electric vehicle is that you can charge at home, if you have the facilities available to do so. According to the Alternative Fuels Infrastructure Regulation (AFIR), there are already over 600 fast DC recharging points across the country and over 2,550 slower AC chargers, which are available on almost every major route/town/city, and the network is being added to every month. In line with EU regulations, the Irish Government announced a new €21m scheme to accelerate the development of high-powered Electric Vehicle (EV) charging infrastructure across Ireland's road network. This scheme targets the motorway/dual-carriageway network, driving the installation of high-power recharging pools every 60 kilometres, with at least four 150kW recharging points in each pool. Other schemes to install charging infrastructure include the Shared Island Sports Scheme and the Just Transition Fund Scheme. Along with private investment, the national charging infrastructure is improving greatly across Ireland.



Cost



Cost

Q1. Electric Vehicles (EVs) are too expensive compared to their ICE equivalents!

While the upfront cost of purchasing some Electric Vehicles (EVs) can be higher than an Internal Combustion Engine (ICE) vehicle. With more EV models now in the market, the recommended retail selling prices are narrowing with diesel/petrol vehicles. Government grants help to reduce the cost of purchasing a new EV with real savings in the lower motor tax, running costs, maintenance, and charging costs. To review the cost of ownership the SEAI has created an online tool [Compare Electric Car Running Costs | Electric Vehicles | SEAI](#) which allows you to browse and compare the full range of new electric, petrol and diesel vehicles. This allows you to see how much you can save in costs and emissions.

Q2. Will Electric Vehicles (EVs) depreciate faster than ICE Vehicles?

Car depreciation refers to a car's reduction in value over time by taking into account a number of factors, including the car's age, mileage, condition and general demand. Electric cars are subject to the same factors of car depreciation as a petrol or diesel car, but with a main difference in that battery condition and EV type (Hybrid, PHEV, BEV) are a factor in the cars overall value.



Cost

Q3. Are fully Electric Vehicles (EVs) resale values a concern?

While it's true that resale values for Electric Vehicles (EVs) may be uncertain due to concerns about battery degradation and market acceptance, the increasing popularity and acceptance of EVs will likely stabilise and improve resale values. Many Retailer brands are offering customers the option to finance their new car over a fixed term at a more affordable rate. In addition, when you opt to pay for a new car through PCP finance, you'll also receive a Guaranteed Minimum Future Value (GMFV) which is the value your Dealership guarantees the car will be worth at the end of the contract. As EV technology matures and becomes more mainstream, resale values are expected to align more closely with those of ICE vehicles.

Q4. Do Electric Vehicles (EVs) cost more to charge?

Home/Domestic charging is the cheapest way to run your car. Your energy provider can advise for different time of use tariffs for the best fit for your energy use. According to the SEAI fuelling an electric vehicle costs much less than fuelling a similar sized petrol or diesel car. You can save between 50 and 60% on fuel costs! If you usually charge overnight at home, then you can save even more with night rate electricity. To do this you will need your utility company to install a night meter or smart meter. Charging can also be done via the public charging network operated by different suppliers that offer different types of chargers (standard, fast or high power). Pricing will vary from each provider depending on the amount of power and time consumed, with fast charging being more expensive.



Environment



Environment

Q1. Are Electric Vehicles (EVs) environmentally friendly and do they pollute more than ICE cars?

A common misconception made against EVs is that they offer little or no climate benefit over conventional cars, due to the emissions associated with making their batteries. Electric Vehicles (EVs) are responsible for considerably lower emissions over their lifetime than conventional (internal combustion engine) vehicles. An EV in Europe will pay off its carbon debt after around 11,000 miles (18,000km), which is the equivalent of one year's driving based on the average annual mileage driven by cars in Ireland, after which the full life cycle CO₂ emissions are around three times lower than an average petrol car according to the International Council on Clean Transportation (ICCT). Transport & the Environment found Direct electrification of road transport is more than 2 times more efficient than hydrogen power, and 4 times more efficient than using e-fuels. EVs produce zero tailpipe emissions, which mean improving air quality contributing to a cleaner and greener environment and are helping to reducing Ireland's emissions.

Q2. Are Electric Vehicles (EVs) just a phase?

The transition to EVs is not a phase, Government and the Motor Industry are committed to the EV project and must work together to support this transition. The Irish Government has set decarbonisation targets for many sectors through its Climate Action Plan, which must be achieved by 2030. For Transport this includes emission reductions and a transition of our national vehicle fleet to electrification, which is the quickest way to reach our commitments. Worldwide Manufacturers have invested heavily in this new technology and rapidly adjusted their product offerings to the adoption of EVs. The European Parliament has approved a new law banning the sale of new petrol and diesel cars from 2035. The Irish EV market has gone from a standing start to a 14% market share and continues to grow, with supply and product offerings increasing to over 100 EV models now available in the market. The IEA (International Energy Agency) recently reported that the transition to electric mobility continues to advance rapidly, reshaping global energy and auto markets. Global momentum behind electric cars remains powerful in the medium term. Under today's policy settings, electric cars are expected to account for around 45% of car sales in 2030 and 55% in 2035.



Environment

Q3. Do Electric Vehicles (EVs) shift emissions from roads to power stations?

To suggest that EVs are powered mainly on fossil fuels and unlikely to cut emissions is misleading. Most countries now generate a portion of their electricity from renewables and not solely from fossil fuels. According to EirGrid over 40% of Ireland's electricity power currently comes from renewable sources, with this proportion set to increase significantly over the next few years. The lifecycle benefits of EVs are increasing over time as electricity grids get cleaner.

Q4. Are Electric Vehicles (EVs) safe?

All new vehicles regardless of fuel type must meet the latest European General Safety Regulations when brought to market. Electric Vehicles (EVs) come with a lot of safety features as standard. Despite concerns, the risk of electric shock while driving an Electric Vehicle (EV) is not more than that of an Internal Combustion Engine (ICE) vehicle. Both types of cars have batteries and electric systems and under normal circumstances, these do not short out or create risks of shocking anyone.



Maintenance



Maintenance

Q1. Do Electric Vehicles (EVs) cost more to maintain and repair?

Electric Vehicles (EVs) are generally cheaper to maintain than combustion engine vehicles and have lower operating costs. This is because most EVs have fewer moving parts than a standard internal combustion car and the use of regenerative braking also means there is less wear on the physical brakes. EVs also require tyre replacement similar to combustion engine vehicles. It is important to service your EV regularly so that it runs efficiently and remains safe on the road.

Q2. Do tyres on Electric Vehicles (EVs) need to be replaced often?

Tyres on all vehicle types should be checked regularly for pressure, tread depth, wear, and wheel alignment. Electric cars are much heavier than regular combustion engine vehicles due to battery weight and their tyres are built to manufacture specifications (details of which are located inside the driver's door) to withstand the pressure of the increased weight. Tyres costs will be largely influenced by the driving style, wheel size and overall size of the vehicle much more so than how it is powered. Driving with under-inflated tyres will result in unnecessary fuel/electricity consumption while incorrectly inflated tyres can lead to premature wear and tear. A lot of EV owners will drive gently to maximise range and most EVs will use regenerative braking as much as possible. A regenerative braking system captures kinetic energy generated during deceleration and converts it back into electrical energy, which is stored in the battery helping to conserve energy and extend the vehicle's range and efficiency. ICE vehicles lose this energy during braking and cannot be recovered. Regenerative braking in EVs means there is less stress put on tyres when it comes to slowing down and speeding up, reduced wear and tear on the braking system, and prolonging the life of brake components unlike in ICE vehicles which require more frequent maintenance intervals. Excessive braking, mileage, wheel alignment, and tyre monitoring have the biggest influence on the tyre lifespan.



Maintenance

Q3. Is there a lack of available garages to fix Electric Vehicles (EVs)?

No, any retailer that sells an EV is also capable of repairing them. The automotive industry is currently undertaking the biggest transformation with the transition to electrification. Car manufacturers are strongly committed to decarbonisation and investing billions in electrification. With new technology comes the need for technicians to upskill. Manufacturers and training suppliers are providing upskilling courses, so that technicians are equipped with the essential automotive knowledge and skills for working safely with high-voltage systems in electric and hybrid vehicles so that the Industry can stay ahead of the curve.

Q4. Do Electric Vehicles (EVs) breakdown more than ICE cars?

Electric cars are inherently much simpler than internal combustion engine cars, as there are fewer moving parts. Breakdowns are less common. In the event your driving range is low, and your battery is reduced the car will issue an advanced warning to remind you to charge your car at your nearest station, like an ICE car when a fuel light appears reminding you to refuel.





Incentives

Government Funding for Electric Vehicles is provided by Zero Emission Vehicles Ireland (ZEV) based in the Department of Transport. SEAI operates grant schemes on behalf of ZEV. Visit: www.seai.ie/grants/electric-vehicle-grants/

Financial Incentives

In most cases, Vehicle Registration Tax (VRT) must be paid at the time that a vehicle is registered in the State. Electric Vehicles receive VRT relief separately from SEAI grant support.


Battery Electric Vehicle (BEV): Up to €5,000

There is a €5,000 VRT relief for BEVs up to €40,000. The relief gradually reduces after €40,000 and ends at €50,000. No VRT relief is available for vehicles with a value above €50,000.

Purchase incentives for individuals: Up to €3,500

The maximum grant for a private M1 (passenger battery electric car purchase) is up to €3,500.

There is a cap of €60,000 on the full price of all vehicles. The full price of the vehicle to the customer includes all optional extras, paint and delivery for excludes any incentives such as grants or rebates.

List Price of Approved EV 	BEV
€14,000 - €15,00	€1,500
€15,000 - €16,00	€2,000
€16,000 - €17,00	€2,500
€17,000 - €18,00	€3,000
€18,000 - €60,00	€3,500

Source: SEAI



Motor Tax

The minimum rate for BEVs is €120 per year.

Company Car

Employees who drive extensively for business purposes in a company car are required to pay Benefit-In-Kind (BIK). Certain Benefit-in-Kind (BIK) exemptions and discounts are available where the car made available to an employee is an electric car.

Partial relief applies in respect of electric cars made available between 1 January 2023 and 31 December 2027. This relief applies by reducing the Original Market Value (OMV) of the vehicle. The 0% threshold for BIK on EVs applies is as follows:

€45,000 in respect of cars made available during 2025

€20,000 in respect of cars made available during 2026

€10,000 in respect of cars made available during 2027

Electric Small Public Service Vehicle Grant Scheme

The Scheme is funded by the Department and administered by National Transport Authority (NTA), which oversees the scheme. The Grant Scheme is designed to assist owners of small public service vehicles (SPSVs) such as taxis in the transition to electric vehicles.

The eSPSV Grant Scheme is available nationwide to:

- (a) persons (individuals or companies) applying for new SPSV licences; and
- (b) existing SPSV licence holders who wish to upgrade their current vehicle with a replacement EV

Small public service vehicle owners are eligible for double the normal grant when they scrap an older, more polluting, or high-mileage vehicle and switch to electric. The grant can reach up to €20,000 for a new, fully electric SPSV, and €25,000 for a wheelchair-accessible electric vehicle. In addition to these grants, SPSV owners who switch to an EV can also avail of VRT relief (up to €5,000), and the Domestic Home Charger Scheme. Eligible applicants can receive up to €10,000 in grants for the purchase of a new, full battery eSPSV, with an additional €2,500 available for models that are wheelchair accessible. [Visit nationaltransport.ie](https://www.nationaltransport.ie) for grant scheme information and applications.



Chargers Grants Available

Home Chargers

Residents and Homeowners can claim up to €300 towards the purchase and installation of an electric vehicle home charger unit. Homeowners can apply for a grant, whether they own an electric vehicle or not. The EV Home Charger Grant Scheme will only support smart chargers which are registered on SEAI's Smart Charger Register.

Visit: www.seai.ie/grants/electric-vehicle-grants/electric-vehicle-home-charger-grant/

Charging Grants for Apartments

The apartment charger grant assists residents and owners of apartments and other multi-unit developments who want to install a home charger for their Electric Vehicle (EV) and which are not covered by the pre-existing grants. The grant is designed for bulk installation of chargers at a single location, and supports cabling, infrastructure, labour, and construction costs. Owners' management companies, housing bodies, local authorities, commercial and private landlords can apply.

Visit: www.seai.ie/grants/electric-vehicle-grants/apartment-charging-grant/





Charging Terminology

Charging information

Alternating current (AC) and Direct current (DC) refer to the way in which electricity travels. Direct current moves in a single direction, constant and direct while Alternating current, moves in a wave like form and can change direction.

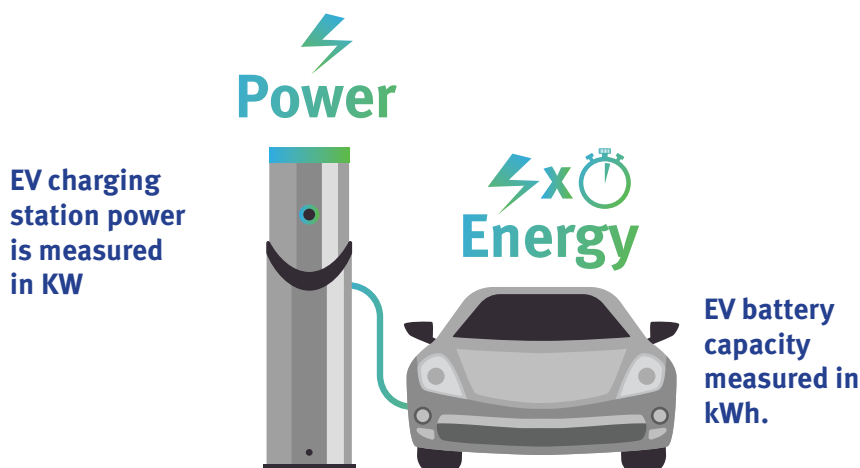
The battery in an EV only stores power in DC form and there is an 'onboard charger' in your vehicle that converts power from AC to DC and feeds it into the battery. Most electric vehicles will have two ports– an AC port used for slow and fast charging and a DC port used for rapid and ultra-rapid charging on the public network.

kW and kWh

A kilowatt (kW) is a measure of power, the rate at which something uses electricity. The higher the kW of a device the more power it needs to operate. 1KW equals 1000 watts.

A kilowatt hour (kWh) is a measure of energy used (or stored to use) of an electrical device and shows how much power you're using over time. Utility companies typically charge energy consumption in kWh.

When it comes to charging a battery, charge points show their rating in kW (the power transferred to charge the battery) and you will be charged for the energy that is transferred to the battery at a price per kWh. Batteries have a maximum energy storage, rated in kWh which indicates the size/capacity of the battery (how far your EV can travel).





Range

Range is the distance or kilometres that an electric vehicle can travel on a single charge. Range anxiety is a term that describes people's concerns that the EV will have enough battery range to get them to their destination without losing its charge. With advances in battery technology EVs have significantly increased their range, and the availability of fast-charging stations makes it easier to recharge quickly during longer journeys. Planning your trip and knowing where the nearest charging points are can help to reduce any range anxiety.

Smart Charging

Simple means charging the car during off-peak periods when electricity demand is lower, as to benefit from cheaper electricity rates.



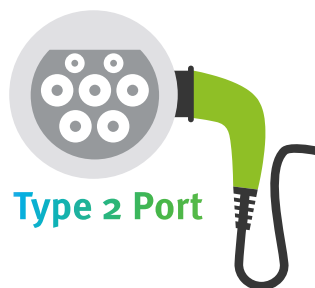
Charging your car

Generally, you will charge your car at home, or when commuting, on a work charger or if travelling on a public charger. Your home charger can deliver a max of 7.4kW AC (Alternating Current) power. Most cars will come with an AC portable charging cable.

Installing a home charger

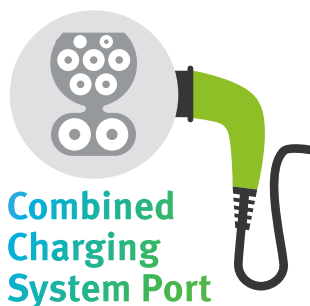
There is a wide choice of EV chargers available on the market. Some car manufacturers will recommend a preferred supplier while others will leave it up to the customer to choose their own. The Electric Vehicle Home Charger Grant provides a grant up to the value of €300 towards the purchase and installation of a home charger unit for residents and homeowners on their property. To receive payment, you must ensure that you use a Safe Electric Registered Electrical Contractor, installation usually takes around 3 hours, and you must ensure you receive approval before commencing any works. The installer will arrange a survey and assist you in selecting a charger. The grant is open to homeowners to apply for a grant, whether they own an electric vehicle or not. The SEAI who administers applications, maintains a list of chargers that meet specific criteria and include smart features which allow you to prioritise charging at lower electricity rates, give you information on kW and kWh, adjust the charger to accommodate power usage within the rest of the house and ensure all charging is carried out safely. Home EV chargers are wall-mounted to the property and with a tethered charging lead the process of charging is easy, convenient, and a cheaper way to charge. [Visit https://www.seai.ie/grants/electric-vehicle-grants/electric-vehicle-home-charger-grant/](https://www.seai.ie/grants/electric-vehicle-grants/electric-vehicle-home-charger-grant/)

Standard Charger Ports



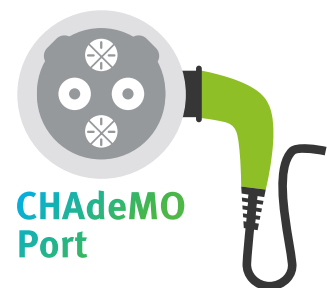
Type 2 Port

For AC charging, a Type 2 port and cable are used. This is the cable supplied with the EV.



Combined Charging System Port

For DC charging a CCS port is used, built into Type 2 port. The cable required will be attached to the charger.



CHAdeMO Port

Some early EV models use a CHAdeMO port for DC Charging located next to the Type 2 port. The cable will be attached to the charger



Public Chargers

On the public charging network there are generally 3 different types of chargers.

1. **Standard charger**- (up to 22Kw AC) can charge your car in approximately 1-6 hours.
2. **Fast Charger**- (up to 50Kw DC) can charge a car up to 80% in as little as 30 minutes.
3. **High Power Charger**- (from 50kW to 350kW DC) can provide up to 100km of driving range in as little as six minutes.

Ensure

- You know where the charging ports are, how to open them and which is AC/DC.
- There is an AC charging cable in the car.

Typically, an EV can charge between 7 - 22kW on an AC (Alternating Current) and up to 350kW on a DC (Direct Current). Check with your dealer or in the owner's manual for the specifications of your car.

Public Charging Access

Charging an electric vehicle can be done through the National Charging Infrastructure which operates throughout the island of Ireland (both fast and slow charging). To locate public charging stations for topping up while out and about, visit the ESB Ecars [interactive map](#) to find the nearest ESB charge point to you. ESB owns, operates, and maintains approximately 1,600 public charge points across Ireland.

You register online, where you will see details of charging costs, set up an account, receive a charge point access card or fob, and download their app to locate your nearest charger. There are many other charging operators in the market also and the charge point will usually display details of how you can sign up for their service.

The network of EV charging stations continues to expand. To locate EV charging infrastructure, mapping services like [PlugShare](#) and [ChargeFinder](#), can be searched to find details and locations of public charge points.



Radio Frequency Identity Card

An RFID card for electric vehicle charging is also known as a Radio Frequency Identity Card, which can also take the form of a tag/fob. The card is provided by a public charging company when you subscribe to an account. They are used at public charging points, where the RFID card is scanned over the identification area of the charger to start and stop charging sessions. The card allows for contactless, encrypted data exchange when used at a public charging point. You can join the network of a public charger via the mobile app, RFID card, or QR scan.

Cost of charging

For many EV owners their charging will be done at home as the cost will be significantly less than charging using public charge points. Homeowners have the advantage of monitoring and charging at slower rates which is usually more cost-effective, and they can avail of a cheaper overnight rate when charging. Charges between domestic suppliers will vary, so homeowners should consult their energy provider.

Public charger providers generally will offer a pay-as-you-go or pre-pay subscription service. There is usually an overstay fee for charging sessions longer than 45 minutes and after ten hours on standard chargers. General recommendations are to charge to around 80%, as the charging speed will slow down significantly to charge the final 20%. Charging costs are subjective, as the cost to charge will depend on your car's battery size (which varies between car models), for example a larger battery will take longer to charge, the unit price of electricity, and the method of charging. However, the cost of charging is cheaper than a petrol or diesel car. For public charging costs, consult the providers website, as they will display the cost per kWh.





Buying a car

Electric cars are a perfect alternative for many drivers, before considering which car to purchase, you should ask yourself the following questions which will determine the type of car suitable for your driving needs.

- ✓ Firstly, always do your research.
- ✓ The Purchase Price? Is it within your budget?
- ✓ Does it suit your driving needs? Consider the amount of mileage and type of driving you do weekly and annually.
- ✓ Make a list of the items that you feel are important in the car of your choice, and be practical as to what your needs are.
- ✓ What charging infrastructure will you use? Home or public.
- ✓ What incentives are available to help you buy an EV?
- ✓ Can you avail of the grant for a home charger and is your house suitable for home charging?
- ✓ Work out how much it will cost to use with the benefit of existing incentives and the cost of electricity.
- ✓ The cost of charging and the potential savings?
Check out www.seai.ie/technologies/electric-vehicles/journey-calculator/
- ✓ Will the electric vehicle do what you need it to do?
- ✓ What battery size and range would be suitable for your driving requirements?



- ✓ The bigger the battery the cost will increase, along with the range (distance) covered.
- ✓ When buying a Used car always ask about the car's history, (number of previous owners, insurance, and finance background checks) many dealers will provide a car history check report. The service history will also show if the car has been well maintained.
- ✓ Determine the type of warranty that is available with the car and the battery as these have separate warranties.
- ✓ Used car car warranties are determined by the consumer and dealer at the negotiation stage, the time of sale of the car, as for cars that are outside of manufacturer warranty the retailer will provide their own warranty cover on the car.
- ✓ The manufacturers battery warranty on a new EV, is generally 7/8 years with a set mileage and this warranty may continue with the used cars if it is within the manufacturer's warranty timeframe. Many dealers will carry out battery health checks, which indicates its remaining capacity, and can offer their own warranty cover.
- ✓ Test drive the car to assess its driving experience and performance. Also, check its physical condition outside (bodywork) and inside the car (seat belts, lights, seat adjustments, wipers etc).
- ✓ Always buy from a reliable and reputable retailer. SIMI retailers throughout the country will be happy to assist you with your purchase decision. To find your local retailer [visit simi.ie/en/find-a-member](https://www.simi.ie/en/find-a-member)

Buying a new or second-hand car is an exciting experience for car buyers and if you do your research prior to purchase you can make it a smooth process where you will have confidence that you have made the right decision for you.



AC	Alternating Current
AFV	Alternative Fuel Vehicle
Battery Range	Distance car can travel on one charge, before its needs to be recharged
Battery Capacity	Total energy that can be stored in the battery
BEV	Battery Electric Vehicle (fully electric)
CAP	Climate Action Plan
CHAdEMO	CHARge de MOve charging system
CCS	Combined Charging System
CP	Charge Point
DC	Direct Current
eTrunk	Extra trunk space (located in front of an EV)
E-REV	Extended-Range Electric Vehicle
EV	Electric Vehicle
ELV	End-of-Life Vehicle
FCP	Fast Charge Point (also known DC/Rapid Charge point)
HEV	Hybrid Electric Vehicle (hybrid no external charging)
ICE	Internal Combustion Engine (powered by fuel diesel/petrol)
kW	kiloWatts
kWh	kiloWatt hours (maximum capacity of your battery)
LEV	Low Emission Vehicle
PHEV	Plug-in Hybrid Electric Vehicle (hybrid with external charging)
RFID	Radio Frequency Identity Card
SCP	Standard/Slow charge point
VKT	Vehicle Kilometres Travelled
VRT	Vehicle Registration Tax
V2G	Vehicle to Grid
Watts	Basic measurement of electrical power
WLTP	Worldwide Harmonised Light Vehicle Test Procedure
ZEV	Zero Emission Vehicle
ZLEV	Zero and Low Emissions Vehicle





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