

# THE NORTHGATE DRIVE TO ZERO GUIDE

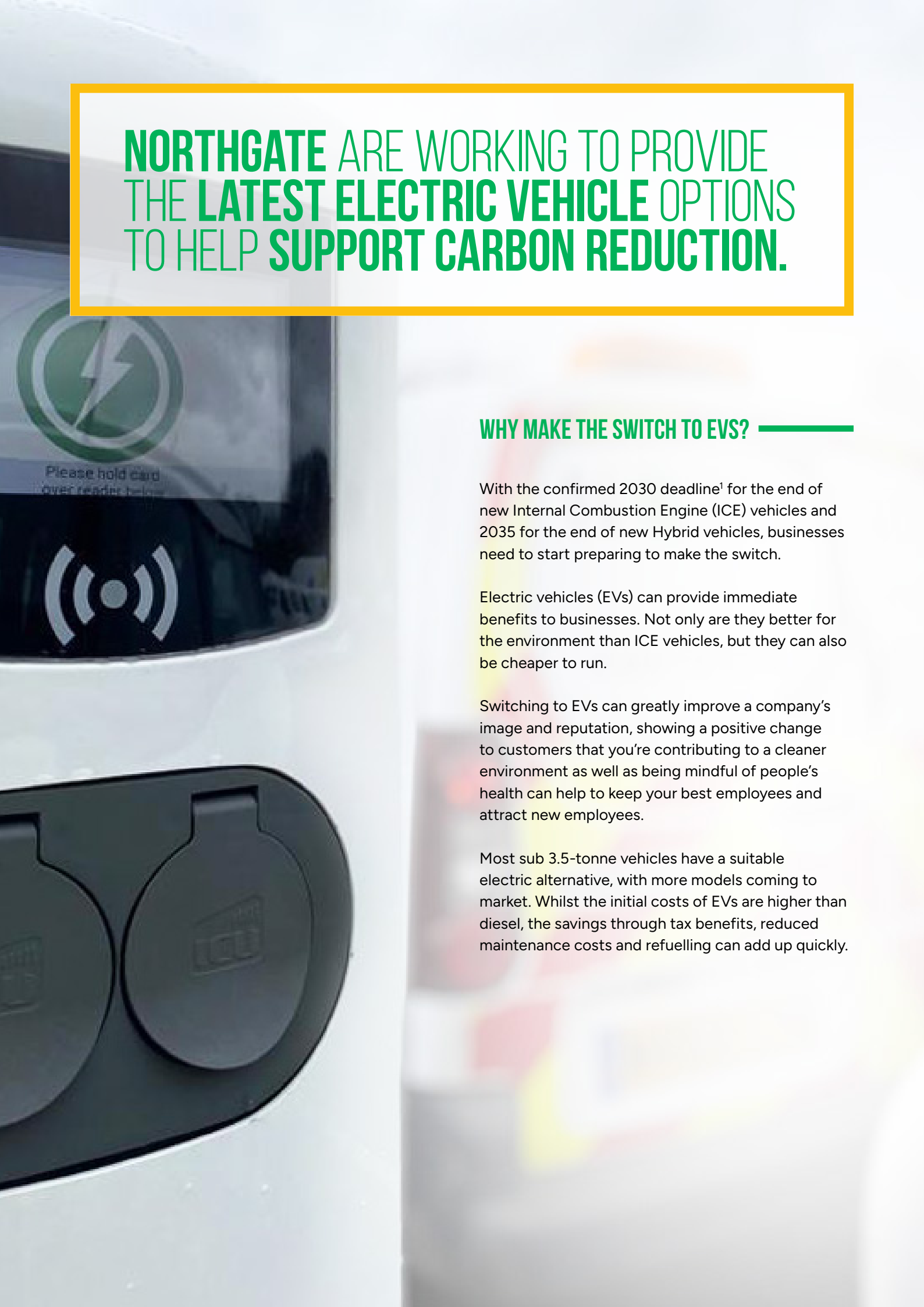


**NORTHGATE**  
Vehicle Hire

# CONTENTS



|       |    |                                                       |
|-------|----|-------------------------------------------------------|
| Why?  | 3  | Introduction                                          |
|       | 4  | The key benefits of EVs                               |
|       | 5  | BEV and ICE comparison                                |
| How?  | 6  | Is an EV right for my business?                       |
|       | 6  | What can influence an EV's range?                     |
|       | 7  | Assessing your suitability - adding EVs to your fleet |
|       | 9  | EV suitability checker                                |
|       | 10 | Forward thinking                                      |
|       | 11 | Charging options                                      |
|       | 14 | Workplace charging considerations and policies        |
|       | 15 | Home charging considerations                          |
|       | 16 | FAQ's and Myths                                       |
|       | 17 | Drive to Zero with Northgate                          |
|       | 19 | EV Glossary                                           |
| When? | 20 | Next steps                                            |



# NORTHGATE ARE WORKING TO PROVIDE THE **LATEST ELECTRIC VEHICLE** OPTIONS TO HELP **SUPPORT CARBON REDUCTION.**

## WHY MAKE THE SWITCH TO EVS? ---

With the confirmed 2030 deadline<sup>1</sup> for the end of new Internal Combustion Engine (ICE) vehicles and 2035 for the end of new Hybrid vehicles, businesses need to start preparing to make the switch.

Electric vehicles (EVs) can provide immediate benefits to businesses. Not only are they better for the environment than ICE vehicles, but they can also be cheaper to run.

Switching to EVs can greatly improve a company's image and reputation, showing a positive change to customers that you're contributing to a cleaner environment as well as being mindful of people's health can help to keep your best employees and attract new employees.

Most sub 3.5-tonne vehicles have a suitable electric alternative, with more models coming to market. Whilst the initial costs of EVs are higher than diesel, the savings through tax benefits, reduced maintenance costs and refuelling can add up quickly.

# THE KEY BENEFITS OF EVS

## SUSTAINABLE

- ⚡ Electric vans produce no CO<sub>2</sub> or NOx emissions at the tailpipe
- ⚡ Meet financial, Corporate Social Responsibility and sustainability goals, which in turn encourages a healthier environment.

## COST-EFFECTIVE

- ⚡ Significantly lower running costs compared with an ICE vehicle.
- ⚡ Reduced servicing time, than an ICE vehicle, reducing vehicle downtime.
- ⚡ Less wear on brake pads through regenerative braking. Reduced need to spend on servicing costs.
- ⚡ No oil changes or maintenance of a DPF (diesel particulate filter).



# BEV AND ICE COMPARISON

Future battery technology and an expanding vehicle choice and charging networks will make the BEV more viable.

## BEV: BATTERY ELECTRIC VEHICLE

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One driveline electric motor/battery

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Zero emissions/Reduced noise pollution

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Lower cost of recharging

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Reduced need to spend on servicing costs

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Time to recharge: 30 minutes to 12 hours

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## ICE: INTERNAL COMBUSTION ENGINE

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Combustion engine powered by fuel

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Tailpipe emissions (contributing to air pollution)

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Powered by fossil fuels e.g. Diesel/Petrol

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Higher maintenance due to more moving parts

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Time to refuel: 2-4 minutes on average

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# IS AN EV RIGHT FOR MY BUSINESS?

EVs can be ideal for businesses using vehicles for short journeys, urban routes, and lighter payloads.

For vehicles that exceed 150 miles a day. A full analysis of your data would identify opportunities to change your vehicles.

Those with longer, continuous routes without the ability to keep an EV's battery topped up may find that they are not the most practical option currently.

Driver behaviour and speed, the weight of the vehicle, and use of in-cab electronics are some of the common factors that may deplete the battery more quickly.

EVs are highly capable in meeting the needs of most jobs. Whilst for some businesses the range of an EV on a single-charge remains a concern, the continuous development of batteries and growing awareness of the most efficient driving behaviours will result in suitable EV alternatives in the future.

# WHAT CAN INFLUENCE AN EV'S RANGE?

-  Seasonal temperature - Use of heating, or air conditioning will use more energy, where possible pre-conditioning the vehicle whilst still connected to a charger will help retain the battery range.
-  Exceeding payload capacity or adding weight via vehicle add-ons will put extra strain on the battery and therefore reduce range.
-  Softer acceleration and lower speeds will conserve energy. When safe and appropriate using the regenerative brakes rather than the service brakes help put energy back into the battery therefore increasing range.

# ASSESSING YOUR SUITABILITY ADDING EVS TO YOUR FLEET

Gradually introducing electric vehicles to your fleet, beginning a phased approach to replacing your existing vehicles, arranging for charge points to be installed with cables laid for future expansion – these are all considerations and positive steps towards transitioning to electric vehicles.

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## FIT FOR PURPOSE VEHICLES

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What are your vehicle requirements and are there EV equivalents to the vehicles currently within your fleet?

What is the average payload your vehicles carry daily?

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## DAILY MILEAGE

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What is the average distance your drivers' drive per day?

The typical daily mileage should be within the electric range of an EV to ensure there is only an occasional need to charge during the day.

How often vehicles need to be recharged will also depend on dwell time and the routes driven. For example urban driving and the braking associated with this may provide regeneration opportunities that could extend the range further. Longer journeys will require additional planning.

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## CHARGING INFRASTRUCTURE

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Where are your vehicles kept overnight?

What type of charging will benefit your business?

# ASSESSING YOUR SUITABILITY ADDING EVS TO YOUR FLEET

## HOME CHARGING

Will employees require home charging units installed at their residential address?

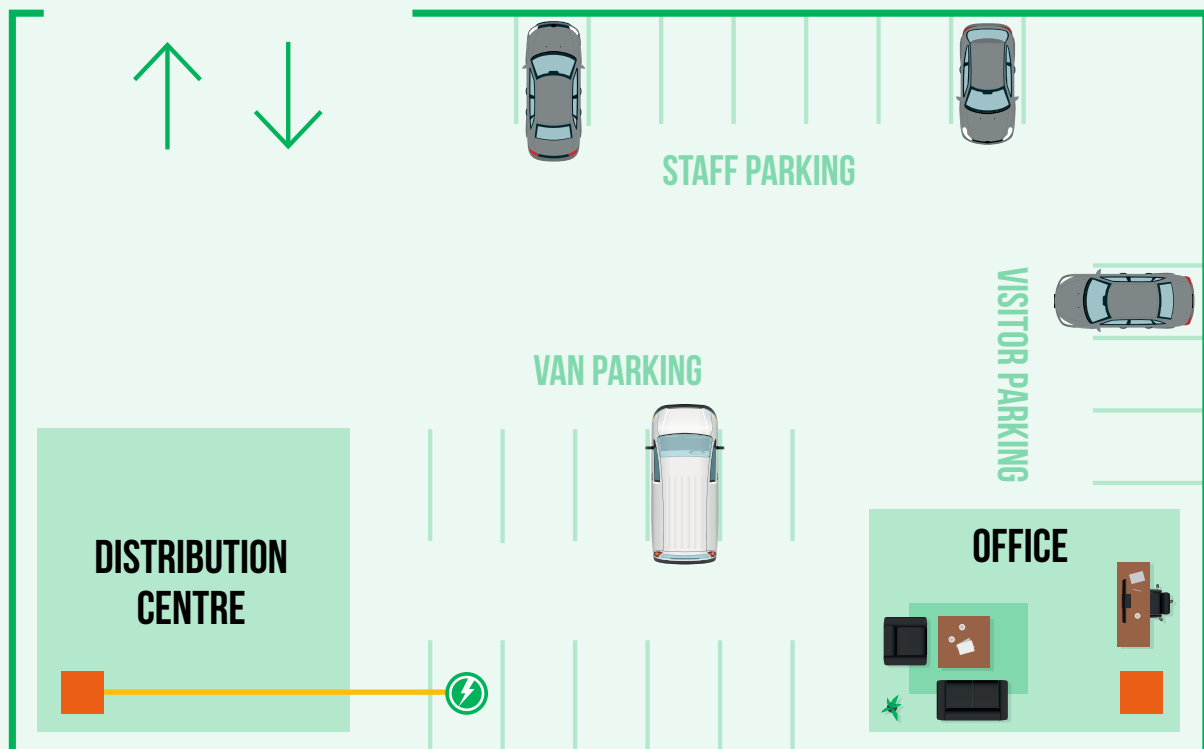
How will you reimburse your drivers' charging?

## WORKPLACE CHARGING

Do you own the site?

Would you make charging available for visitors?

View our range of resources for more information about [workplace charging](#).



### INFRASTRUCTURE KEY



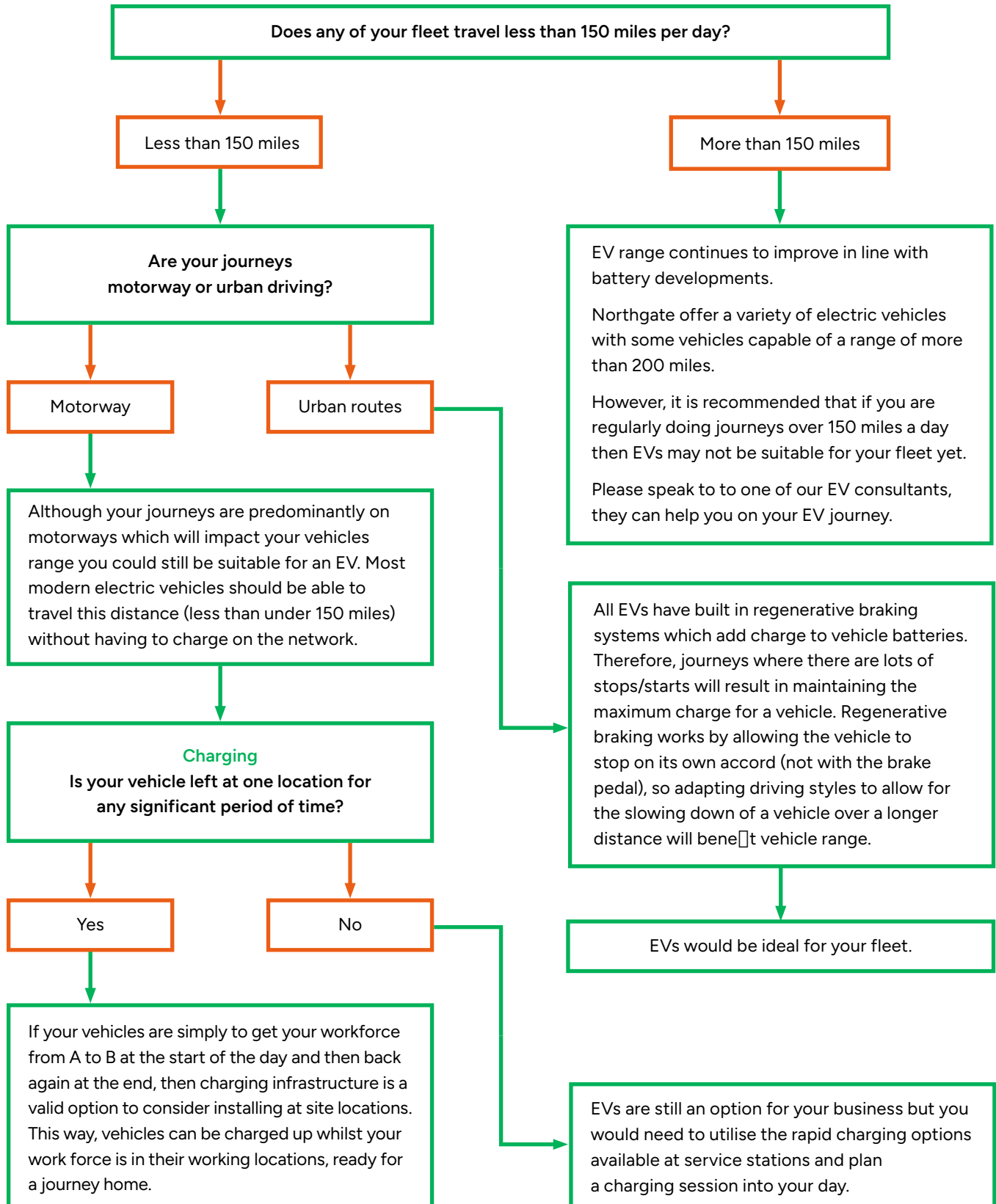
Distribution board

— Cable run



50kW DC charger

# EV SUITABILITY CHECKER



# FORWARD THINKING

Involving your drivers in the early stages of your EV planning can help with buy-in and positive engagement to create a good experience for them. Discuss the benefits of electrification and be honest about some of the challenges to scheduling or logistics that may arise during the initial development. Their feedback will help to shape your strategy and evaluate which employees will be suitable to utilise home charging.

Adequate training can help to ensure all employees understand the charging infrastructure and the limitations of EVs such as range and payloads. Effective route planning and useful charging location apps can help to minimise challenges in the early stages of the transition.

Monitor and calculate the positive impact switching to EVs has made to your business. Encouraging employee feedback will help to adjust processes if needed and help implementation in the future.



# CHARGING OPTIONS

There are different types of charging units: ultra-rapid, rapid, fast and slow chargers measured by power in Kilowatts (kW). The vehicle determines the charging speed therefore it is important to understand the vehicles charging capability. Similar to mobile phone charging cables EVs have two connectors - one that connects to the vehicle and one that connects to the charging point. The type of connector required will vary depending on the EV and the power/speed of the charger.



**CHARGER**

**CHARGE PLUG CONNECTOR**

**VEHICLE SIDE CONNECTOR**



Universal Type 2

Type 1/Type 2



**VEHICLE CHARGE PORT**

# CHARGING OPTIONS

## POWER OUTPUT

## COMPETENCIES

## KILOWATTS (KW)

### Ultra Rapid Charging

- Provides DC charging
- The fastest way to charge an EV
- Vehicles must have Ultra-rapid charging capability
- Often found at motorway services
- Cables are tethered to the charging unit

Typically either 100kW, 150kW, or 350kW

### Rapid Charging

- There are two types of rapid charging, AC and DC
- Often found at motorway services or locations close to main routes
- Only to be used on vehicles with rapid charging capability
- Cables are tethered to the charging unit
- Can typically charge a vehicle to 80% from as little as 20 minutes (some EVs may take an hour to charge on a standard 50kW rapid charge point)

Rapid AC charging uses more power, at 43kW

Rapid DC chargers work at 50kW or more

AC charging is limited by vehicle on-board charger size

### Fast Charging

- Fast chargers provide AC charging
- Most units have untethered cables however some home and workplace units have cables attached
- Found at supermarkets, car parks or places where you would be parked for more than an hour

Fast chargers are typically powered at 11kW - 22kW

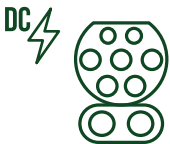
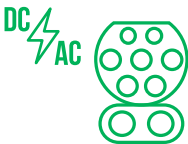
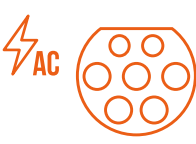
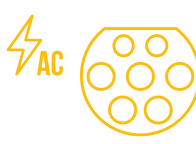
AC charging is limited by vehicle on-board charger size

### Slow Charging

- Often used at home to charge overnight
- Majority of units are untethered and a Type 2 plug is required to connect to the charging point

Slow chargers are typically powered at 3.5kW - 7.2kW

# CHARGING OPTIONS

|                    | ULTRA RAPID                                                                         | RAPID                                                                               | FAST                                                                                  | SLOW                                                                                  |
|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| DC or AC           |    |    |    |    |
| Charging speed kW  | 100kW, 150kW, or 350kW                                                              | 50kW+                                                                               | 11kW - 22kW                                                                           | 3.5kW - 7.2kW                                                                         |
| Charging Time      |    |    |    |    |
| Typical Location   |  |  |  |  |
| Cable requirements | Tethered                                                                            | Tethered                                                                            | Untethered                                                                            | Type 2                                                                                |

## PUBLIC CHARGING POINTS

EV technology is always evolving and new charging methods such as wireless and motorway charging lanes are being developed and trialled to minimise charging times.

If your vehicles or sites are located in built up areas or near to main roads, you will likely find a suitable charge point nearby.

# WORKPLACE CHARGING CONSIDERATIONS AND POLICIES

Having the right charging infrastructure and policies in place within your organisation is a crucial part of your electrification strategy.

If you choose to install charging points in the workplace you may want to consider fewer chargers to begin with, but install cabling to allow further installation in future.

When it comes to leased sites, permission to install charging infrastructure will be needed. If your business owns its sites, installing charging infrastructure mainly involves assessing which charging technology to choose and finding out whether it can be supported by the power grid.

The 'Workplace Charging Scheme'<sup>2</sup> can be a great support to businesses, to help towards the cost of the purchase and installation of charging points. It is a voucher-based scheme provided by the government that businesses can currently apply for, [find out if your business is eligible](#).

## HOW WILL WORKPLACE CHARGING BE USED?

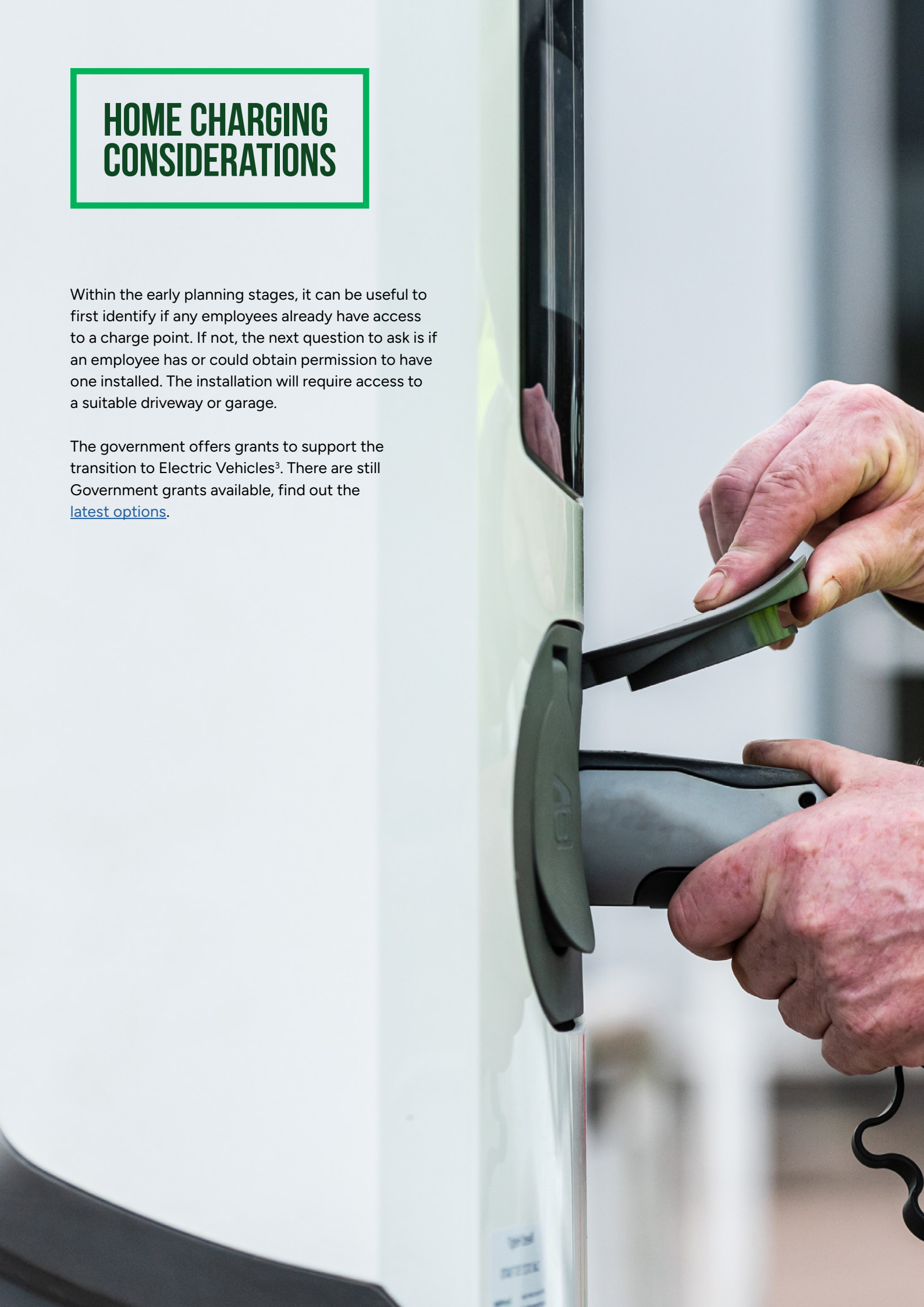
You'll need to decide who can access the charging points. If your charge points are physically accessible and you choose not to allow public or personal use, you may need to monitor and set systems to ensure this is enforced. If there are a limited number of charge points, for instance, a booking system or rota might be required.

Consider whether some parking spaces will be reserved purely for charging purposes or double up as general parking spots as well. Charging vehicles overnight could help combat parking availability in the daytime.

# HOME CHARGING CONSIDERATIONS

Within the early planning stages, it can be useful to first identify if any employees already have access to a charge point. If not, the next question to ask is if an employee has or could obtain permission to have one installed. The installation will require access to a suitable driveway or garage.

The government offers grants to support the transition to Electric Vehicles<sup>3</sup>. There are still Government grants available, find out the [latest options](#).



# FAQS AND MYTHS

1.

**Can I drive my EV in the rain and take it through a car wash?**

Yes, EVs are designed to work in water and have been tested up to certain water thresholds.

2.

**Are EVs slower than Diesel equivalents?**

They can accelerate faster than ICE vehicles but tend to have a lower top speed.

3.

**Can I sit in an electric vehicle whilst it is charging?**

Yes, you can sit in an EV while its charging, they are well-designed to ensure user safety.

4.

**Will the battery on my EV be dead after 2 years, similar to my mobile phone?**

No, whilst the range might reduce slightly, this can be managed by driving styles and sensible charging solutions. Continually charging a vehicle on an Ultra-rapid charger will have a more significant impact on the battery health than charging at AC speed. Most vehicle manufacturers warranty their batteries capacity for at least seven years.

5.

**Will my EV cost more to repair and maintain?**

EVs have significantly fewer moving parts than diesel equivalents meaning the servicing and maintenance of these vehicles is a lot easier. Servicing and maintenance should be carried out by an EV certified technician. Body parts of an EV are also no more expensive than a diesel equivalent.

6.

**What are the costs of charging at home vs public charging point?**

Charging your EV vehicle at home could be significantly cheaper than using public charging networks<sup>4</sup>. Many require a premium for providing not just the charging capabilities but also the parking space at the same time. Some providers charge for the parking place on top of the charging being delivered. However, running an EV is still considered significantly cheaper than a diesel equivalent.

# DRIVE TO ZERO WITH NORTHGATE

We understand transitioning your fleet to electric can seem overwhelming with so many elements to consider - that's why we have made it simple. Our award-winning Drive to Zero programme works with you and your fleet to build a transition plan specifically tailored to your business requirements.



## Why Switch?

Alongside helping the environment, there are many reasons why making the switch to EVs can be beneficial for your business.

Why not take a look at some of our useful resources on our [Drive to Zero Hub?](#)



## EV Suitability

Northgate are able to offer a full suitability analysis through the interrogation of telematics data, to gain an understanding of vehicles, their movements, distances travelled and journey times, to identify which vehicles can be immediately switched to electric.



## Discover EV Options

From vehicle driving range to the speed of charging, there's a lot to consider when searching for the ideal EV for your fleet needs.

We're constantly adding new EVs to our Northgate fleet, [explore our full range](#).

# DRIVE TO ZERO WITH NORTHGATE



## EV Charging Options

Every solution starts with driver surveys and site assessments, ensuring your charging infrastructure is aligned to how your business operates. Northgate can advise on the most suitable charging options for workplace and home locations, keeping your fleet powered and ready to go.



## EV Rollout Strategy

Our fleet specialists can help form your transition to electrification plan.

You can even try before you commit to a longer-term hire with EV trial vehicles available.



## Northgate Solutions

As well as service and maintenance included in every EV hire, there's trained EV technicians in all our workshops.

Plus, every EV hire comes with complimentary EV training for your drivers!

# EV GLOSSARY

|             |                                                                                                                                                                                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AC</b>   | Alternating Current is an electric current that continually changes direction as it flows.                                                                                        |
| <b>BEV</b>  | Battery Electric Vehicles also known as Electric Vehicle (EV). Powered by a battery which can plugged into mains to charge the electric power.                                    |
| <b>BIK</b>  | Benefit in Kind is a perk that you may provide your employee, such as a company vehicle which they have to pay tax on.                                                            |
| <b>DC</b>   | Direct Current. The current always flows in one direction.                                                                                                                        |
| <b>EVHS</b> | Electric Vehicle Homecharge Scheme is a government grant that provides a contribution to the cost of one charge point and its installation.                                       |
| <b>ICE</b>  | Internal Combustion Engine is a regular diesel or petrol vehicle.                                                                                                                 |
| <b>kWh</b>  | A Kilowatt Hour is a measure of how much energy is being used. The higher the kilowatt unit of electric power the more energy the battery contains and potentially greater range. |
| <b>kW</b>   | Kilowatt is a measure of energy used in electric functions.                                                                                                                       |
| <b>LIB</b>  | Lithium-ion or Li-Ion Battery, a rechargeable battery used in most EVs.                                                                                                           |
| <b>SOC</b>  | State Of Charge is similar to a fuel gauge for the battery pack.                                                                                                                  |
| <b>ULEV</b> | Ultra Low Emission Vehicle is any vehicle that uses low carbon technologies.                                                                                                      |
| <b>ULEZ</b> | Ultra Low Emission Zones are in place to help improve air quality.                                                                                                                |
| <b>WCS</b>  | Workplace Charging Scheme is a voucher-based scheme which contributes towards the costs of EV charging points and installation.                                                   |
| <b>ZTEV</b> | Zero Tailpipe Emissions Vehicle such as an EV.                                                                                                                                    |

# EV GLOSSARY

If you're looking to make the switch to electric vehicles for your business, we can assist you through every stage of the journey.

Our Flexible Hire options are perfect for introducing electric vehicles to your fleet or setting your business up long-term for the end to combustion vehicles.

Choose from our growing range of electric vehicles and hire them for the time periods that suit you.

## REFERENCES

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To find out how we can help keep your business driving forward, contact a member of the team today.

**0330 0969 383**

**[info@northgatevehiclehire.co.uk](mailto:info@northgatevehiclehire.co.uk)**

**[www.northgatevehiclehire.co.uk](http://www.northgatevehiclehire.co.uk)**

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