Urban Foresight

SOUTH DOWNS NATIONAL PARK

A SMALL BUSINESS GUIDE: EV CHARGING INSTALLATION

Disclaimer

This electric vehicle charging guide is intended to provide businesses across the South Downs National Park with information on how to start their EV charging roll-out. The guide aims to provide a basic overview of different technologies and outlines the steps to install charge points.

The installation of EV charging points may require location specific interventions. It is recommended businesses seek advice from a professional charge point installer to determine if any specific interventions are required.

Urban Foresight® is a multidisciplinary innovation practice that is dedicated to accelerating the next generation of technologies, services and policy frameworks for cities, regions and countries. From our offices in Newcastle and Dundee we work with ambitious organisations around the world on projects that improve lives, protect the environment and boost local economies.

The South Downs National Park Authority (SDNPA) conserves and enhances the natural beauty, wildlife and cultural heritage of the South downs and promotes opportunities for the understanding and enjoyment of the area by the public.

This project is funded by the UK Government through the UK Community Renewal Fund.

CONTENTS

AN INTRODUCTION TO EVS

WHY EVS?

By 2030,

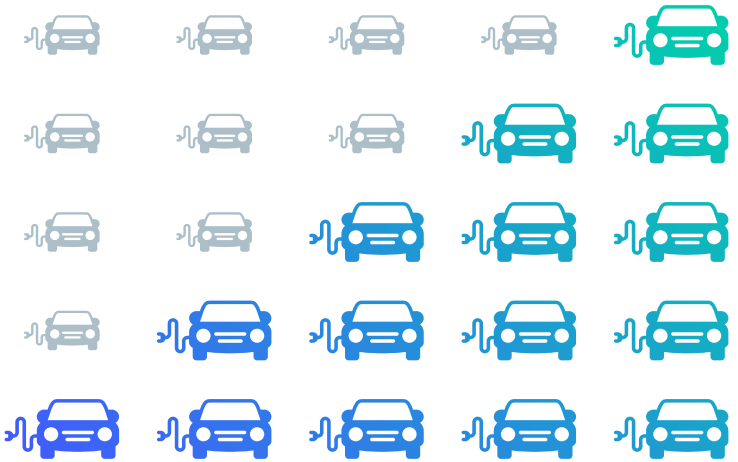
the UK Government is ending the sale of new petrol and diesel cars.

Did you know?

Transport is the UK's largest emitting sector, with road transport representing 91% of those emissions.[2]

Future cars and vans will emit significantly fewer emissions and form part of a cleaner transport network in the South Downs National Park.

The number of EVs in the UK is expected to grow



1.9%

of total cars and vans in the UK are electric.

This totals to over

715,000[1]

The UK Government expects EVs to represent 20% of total cars and vans by 2025, and 100% by 2050.

1 Department for Transport, end of Q4 2021.

2 Taking charge: the electric vehicle infrastructure strategy

WHY EV CHARGING?

The installation of EV charging infrastructure provides EV drivers with a solution to charging, giving them confidence in the ability to charge throughout the South Downs National Park.

Electric cars and vans also offer the opportunity to change the way we fuel vehicles with a shift towards “Life-Style Charging” where the solution fits with our current habits and behaviours, increasing convenience for users. For example, providing the ability to refuel a vehicle whilst visiting a destination or attraction.

Benefits of EV charging to a business

Introducing EVs and associated charging infrastructure could have significant financial savings, but also impact the way in which a business operates in the future. An overview of the benefits of EV charging to businesses include:

/ Generate Revenue

Installing EV charge points also provides businesses with an opportunity for a new revenue stream.

/ Meeting Targets

Businesses are increasingly looking to reduce their carbon footprint. Encouraging visitors and employees to use EVs (along with other low carbon options) will help contribute to this.

/ Employee Perks

Free or partially subsidised charging for employees can encourage more sustainable travel, as well as being a positive perk for staff. A part subsidised offer could also contribute to the cost of installing and running the charge points for the business.

/ The Deciding Factor

As more people start to drive EVs, a destination that offers EV charging could attract more visitors. Visitors are also increasingly thinking about sustainable ways to travel, and offering this service, alongside other sustainable credentials could encourage new visitors.

/ B Corporation

Contribution to gaining a B Corporation certification. B Corporation is a certification for companies that measures their social and environmental performance. Being B-Corp' certified reinforces a company's social responsibility credentials and can strengthen customer perceptions of your brand.

WHERE TO START WITH EV CHARGING?

The EV charging market is a quickly changing landscape and can be confusing, but this guide is here to help you navigate the market by taking you through the journey.

This section provides an overview of where to start with EV charging.

TYPES OF EV CHARGING POINTS

Did you know?

A single 50kW Rapid Charging unit could have the same impact on the electrical network as 25 gas heated flats.[5]

There are four main types of EV charging: Slow, Fast, Rapid and Ultra-Rapid.

It is important to choose a type of charging that best fits your and your customer's needs. The key questions to consider are:

- **How many vehicles do you want to charge at one time?**
- **How quickly do vehicles need to charge?**

The types of charging infrastructure are related directly to the power output and the speed at which a vehicle is charged. Table 1 below outlines the four types of charging, their speed, charging time, and power supply requirements.

A Single-phase electricity supply is smaller and commonly used for domestic purposes, whereas three-phase is more powerful and commonly used for industrial purposes.[3]

Type	Charge Point Speed	Estimated Charging Time	Electrical Supply	Cost Estimate [4]
Slow Charging	3.6kW	6-8 hours	Single-phase	Up to £750
Fast Charging	7kW	3-4 hours	Single-phase	£1,700 - £5,000
	22kW	1-2 hours	Single-phase	£1,700 - £15,000
Rapid Charging	23-50kW	20-40 minutes	Three-phase	£15,000 – 30,000
Ultra-Rapid Charging	51kW +	20 minutes	Three-phase	£50,000 - 60,000

3 Whats the difference between a single phase and three phase electricity supply | UK Power Networks

4 Note, these costs do not include the costs associated with installation of charge points. The cost for charge point installation is highly variable and is dependent on the amount of work that is required on your premises.

5 UK Power Networks: Electric Vehicle Scenario Guide.

HOW TO CONNECT EV CHARGE POINTS?

EV charging points operate by connecting to your on-site electrical connection.

EV charging points operate by connecting to your on-site electrical connection. The electricity used is usually billed as part of your existing electrical supply via your meter. Rapid and Ultra-Rapid chargers need a three-phase supply in order to operate.

An established charge point supplier will undertake all necessary steps to connect an EV charge point to your electrical connection. The steps required to check your electrical capacity are detailed in the Steps to Installation.

WHERE TO INSTALL CHARGE POINT(S)?

There are a number of things to consider when installing EV charge points.

Consideration should be given to:

Charge point installers may also recommend which parking bays to install charge point infrastructure.

HOW TO FINANCE CHARGE POINTS?

Installing EV charge points can be a significant cost for small to medium businesses.

The majority of small businesses self-fund EV charging units with help from Government incentives.

Did you know?

The UK Government has committed £950 million to high powered EV chargers on the strategic road network.

Government Incentives

Workplace Charging Scheme

Funding is available to help workplaces install EV charge points at their premises. The OZEV Workplace Charging Scheme (WCS) is a voucher-based scheme which provides grant funding for the installation of charge points. It covers up to 75% (inc. VAT) of the costs to purchase and install charge points – capped at £350 per socket and 40 sockets maximum at a single site.

The grant is open to businesses, charities and public sector organisations that meet site criteria which includes:

- Minimum of 3kW must be available to each individual socket which is not divided when used simultaneously.
- No more than one socket installed for each accessible parking space.
- Be for staff/fleet to use.

Note, customer parking is not eligible for the WCS.

EV Infrastructure Grant for Staff and Fleets

The chargepoints installed must be exclusively for staff or fleet use and the business must have 249 employees or less. Each business can receive up to 5 grants in total. Each grant can be awarded up to a maximum of £15,000. A minimum of 5 parking spaces must be provisioned as part of the grant.[6]

EV Infrastructure Grant for Landlords

This grant gives financial support up to 75% of the cost towards the purchase and installation of a charge point up to £350. Landlords are able to claim 100 grants per year for commercial properties and reserve the rights to install at one or many locations.[7]

6 UK Government. 2022. EV infrastructure grant for staff and fleets: customer guidance

7 UK Government. 2022. EV charge point grant for landlords: installer guidance

Public Funding

Funding opportunities may also be available through your Local Enterprise Partnership's Growth Hub Team, Rural Services Network, South Downs National Park Authority and Economic Development Team at your local authority.

Additional links have been provided in the Useful Links and Resources to allow businesses to explore different funding streams.

Community Solar Accelerator

The Community Solar Accelerator is a European Regional Development Fund (ERDF) project, ran by Brighton Energy Cooperative, to support SMEs in the shift towards a low carbon economy in the Coast to Capital region. The support project promotes Solar PV and EV charging use by offering up to £25,000 of match funding.

The scheme offers grants of up to 40% of total eligible costs and runs until the 30th June 2023.[8]

Private Funding

In some cases, an EV charge point supplier may offer to install charge point(s) free of charge, providing you as a business with a percentage share of any profit.

A privately funded model will likely require several years to "wash its face", therefore the business may not see any potential profit share until EV uptake has significantly increased.

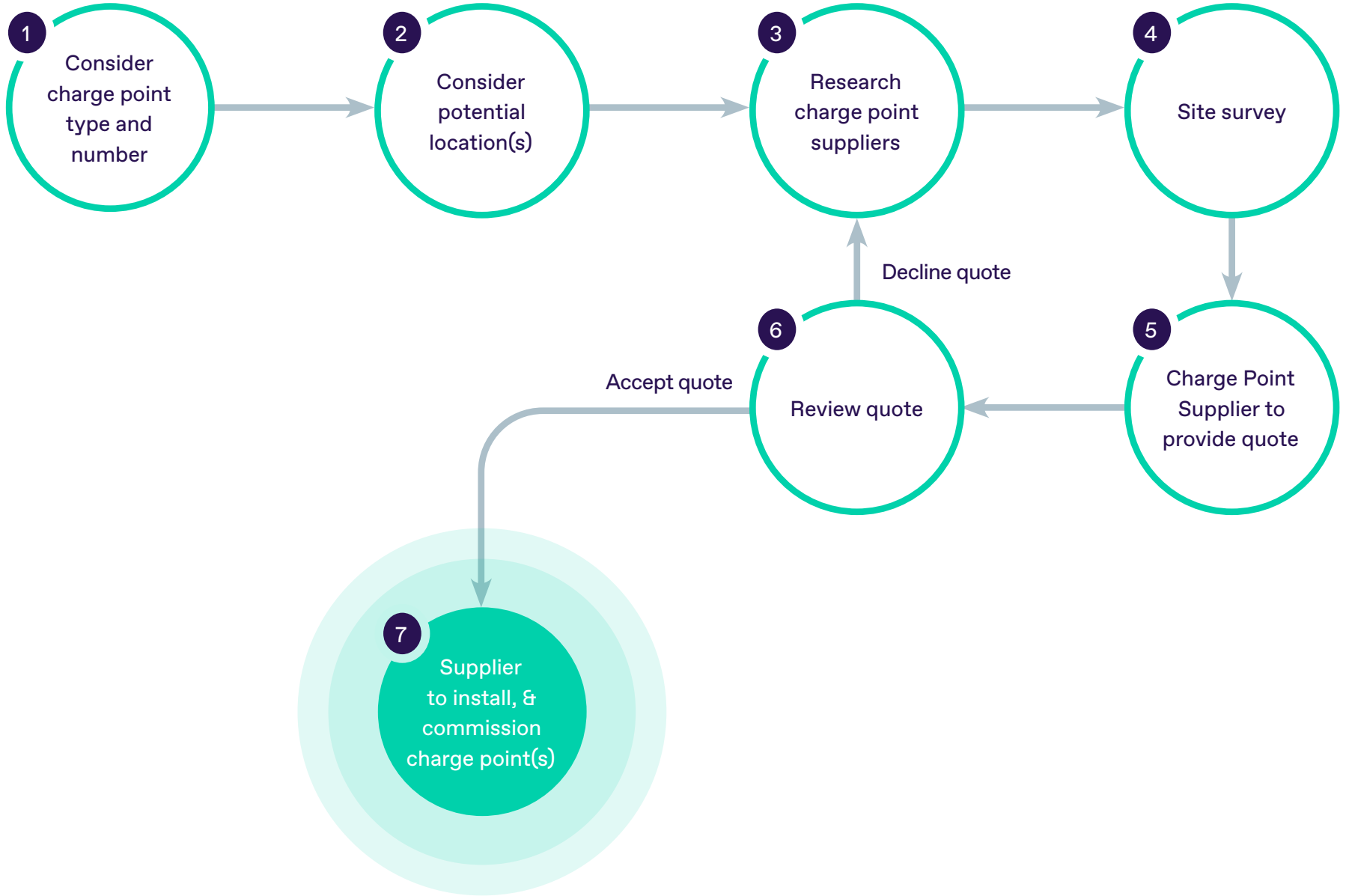
It is recommended that businesses investigate different options to finance charge points and consider which financing scenario presents the best value for money.

8 Brighton Energy Cooperative. 2022. Community Solar Accelerator

A STEP-BY-STEP GUIDE TO INSTALLATION

Step-by-step installation

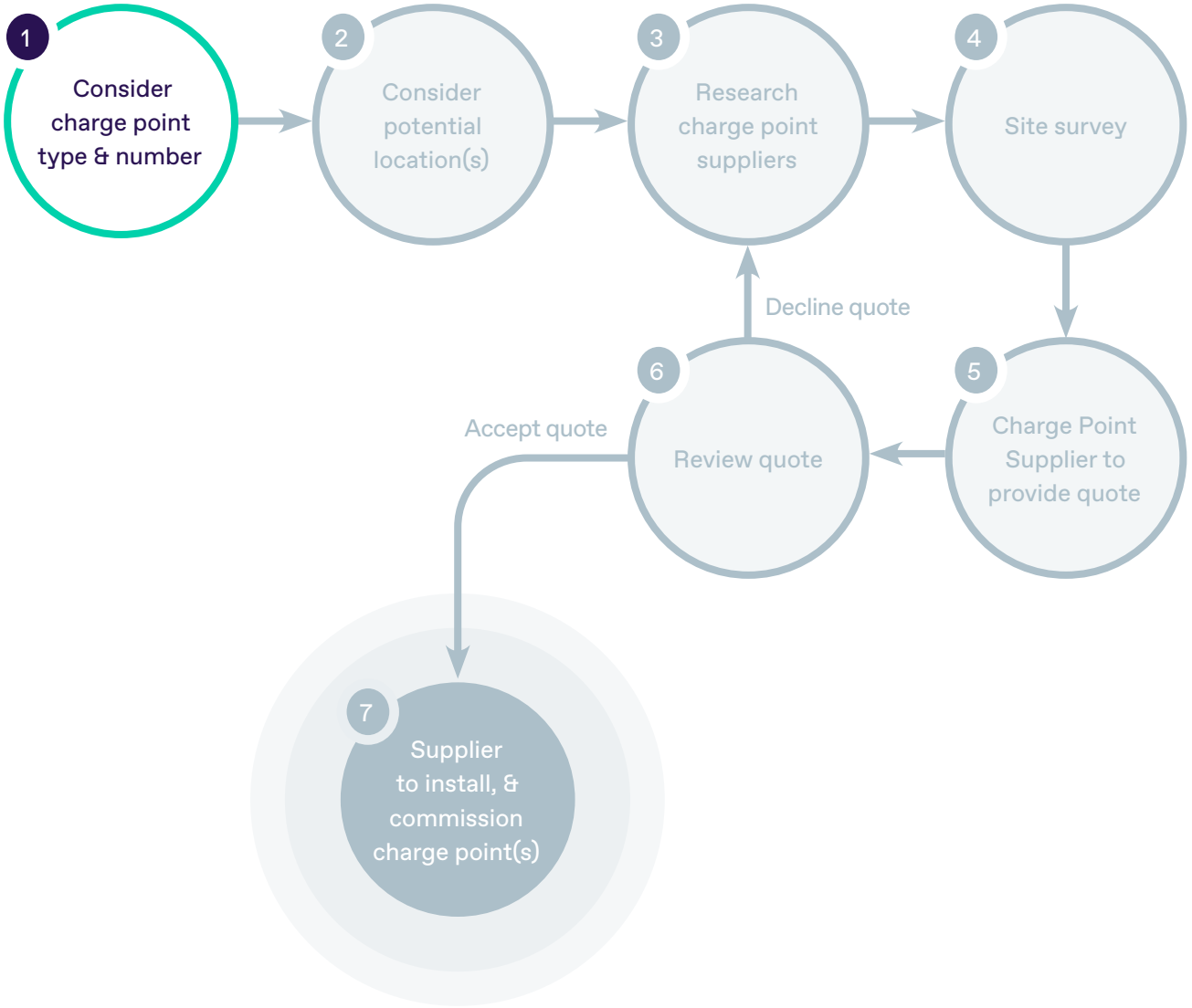
These steps are expected to take 6-10 weeks from start to finish.



1 / Consider charge point type & number

This is expected to take place in weeks 1-2.

The first step is to determine what type of charge points and how many you want to install. As discussed earlier, you need to consider which type of charge point is right for your customer base.

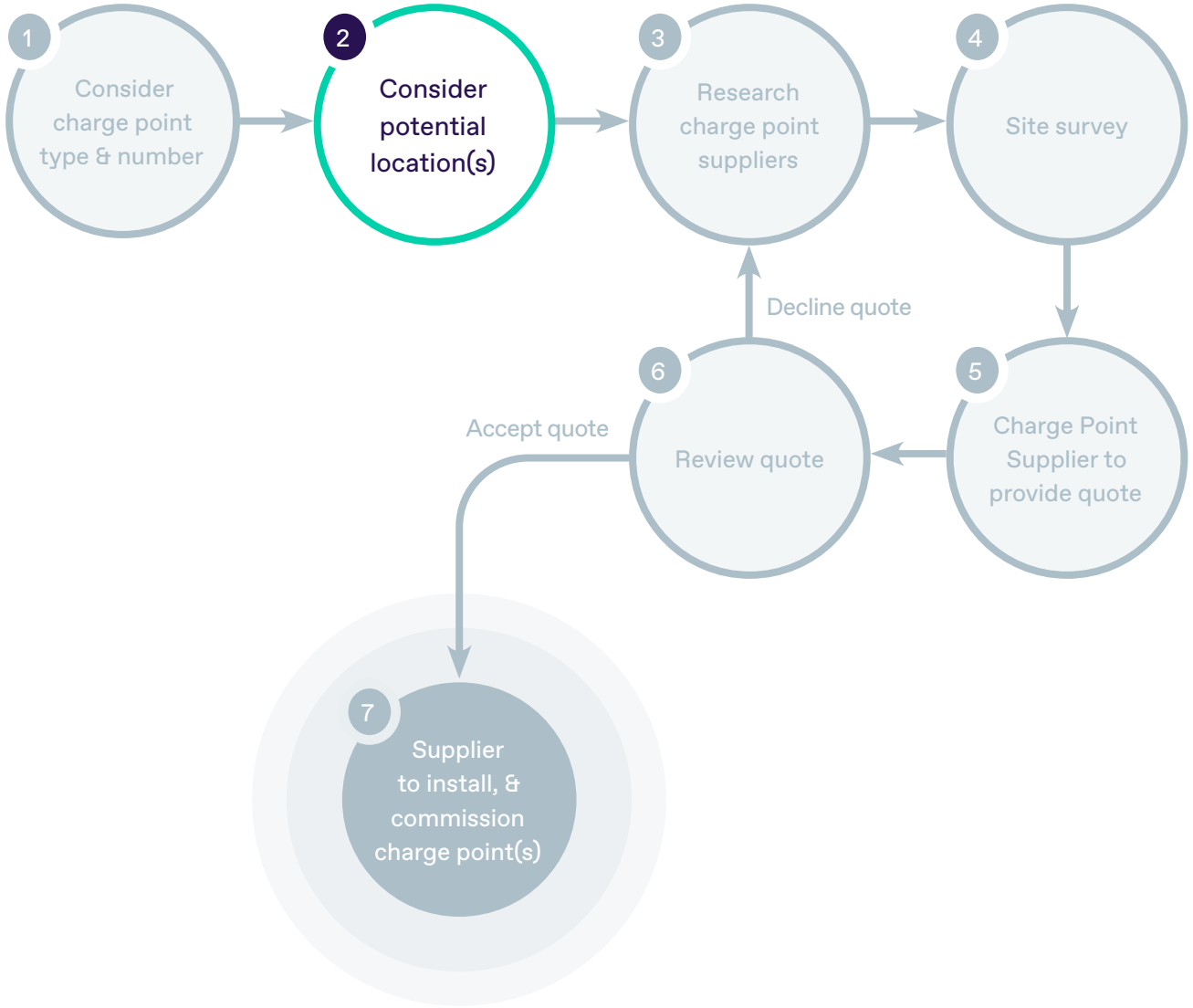


2 / Consider potential location(s)

This is expected to take place in weeks 1-2.

When you have decided how many charge points you wish to install and the type, you should consider where they could go on your premises.

A suitable location for EV charging points should consider factors outlined in Where to install charge point(s). An EV charge point supplier will also be able to help determine potential locations within your premises.

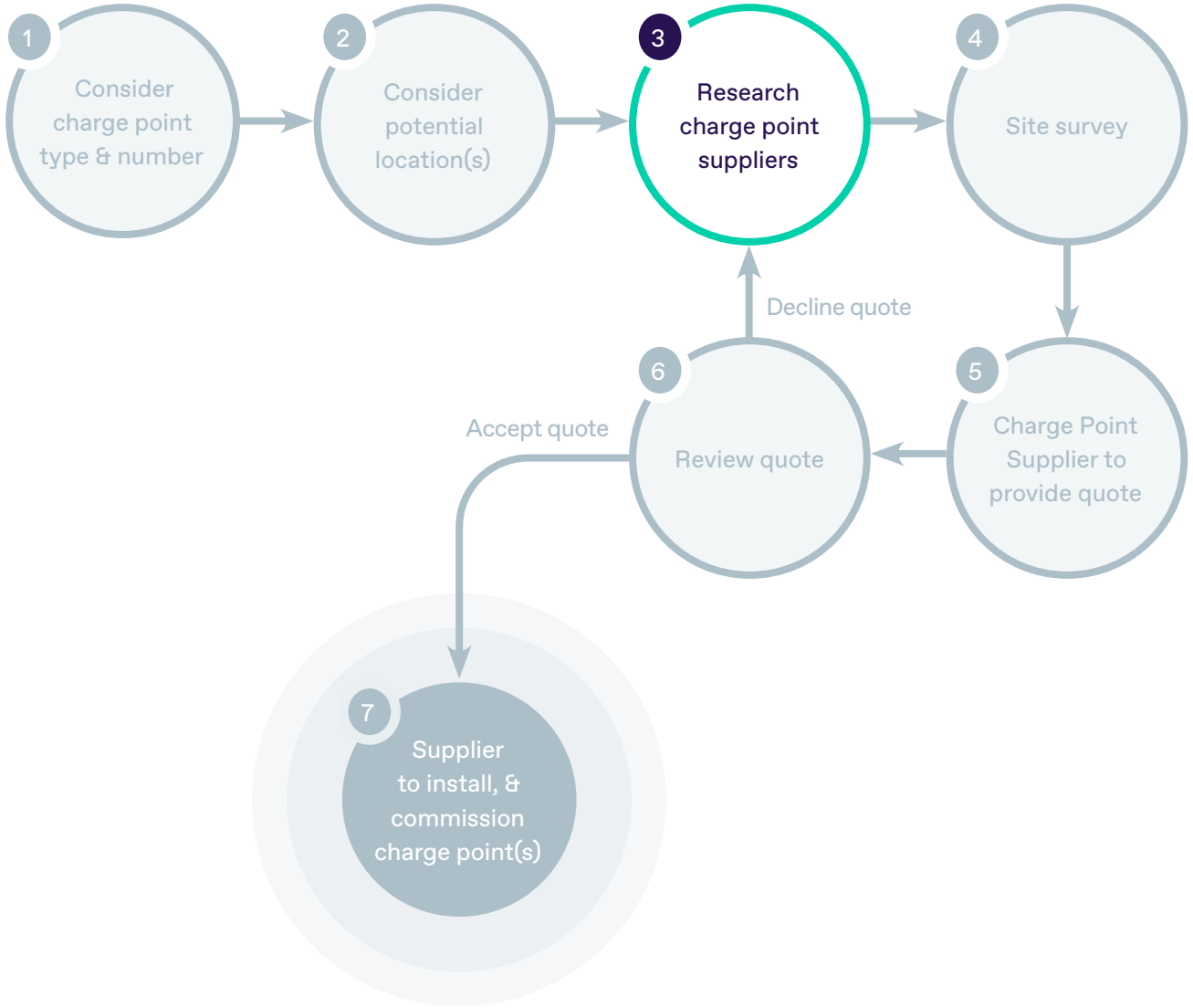


3 / Research charge point suppliers

This is expected to take place in weeks 2-4.

Once the type, number and location of your potential charge point(s) has been determined, potential charge point suppliers should be researched.

The Office for Zero Emission Vehicles has an approved charge point supplier list, it is recommended a contact on this list is used.



4 / Site survey

This is expected to take place in weeks 2-4.

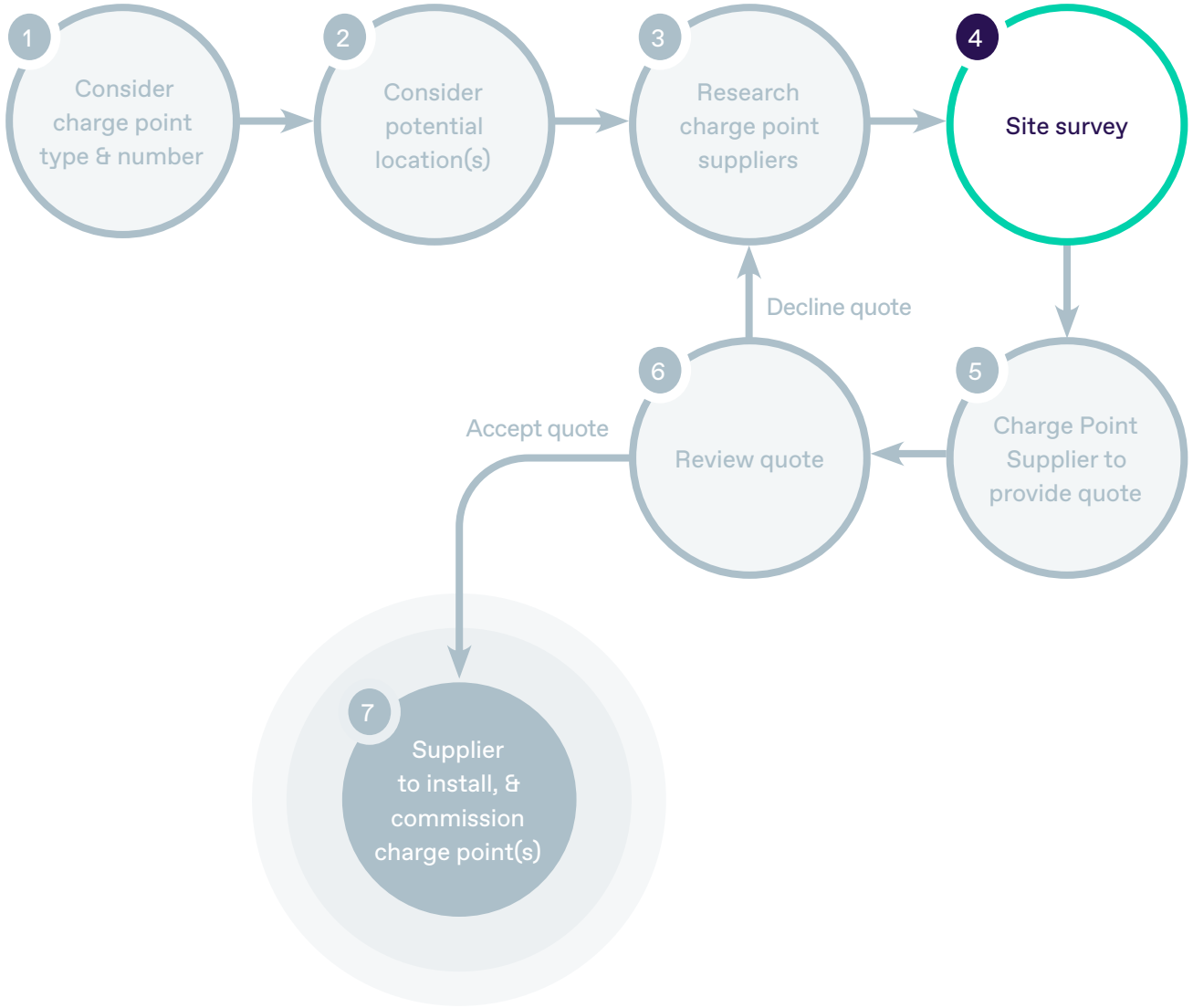
A site survey will be needed to determine if your location has sufficient electrical capacity for the proposed charge point(s).

This is often undertaken free of charge by charge point suppliers. The surveys will determine if additional work, such as a network upgrade or new supply, will be needed to install the proposed charge point(s).

The charge point supplier may check the following during a site visit:

- Check fuse rating
- Electrical supply
- Available electrical capacity

The site survey will help to determine the number and type of charge point(s) that can be installed on your premises.



5 - 6 / Charge Point Supplier to provide quote

This is expected to take place in week 5.

Following the site visit, a charge point supplier will be able to provide a quote for the supply and installation of a electric vehicle charge point(s).

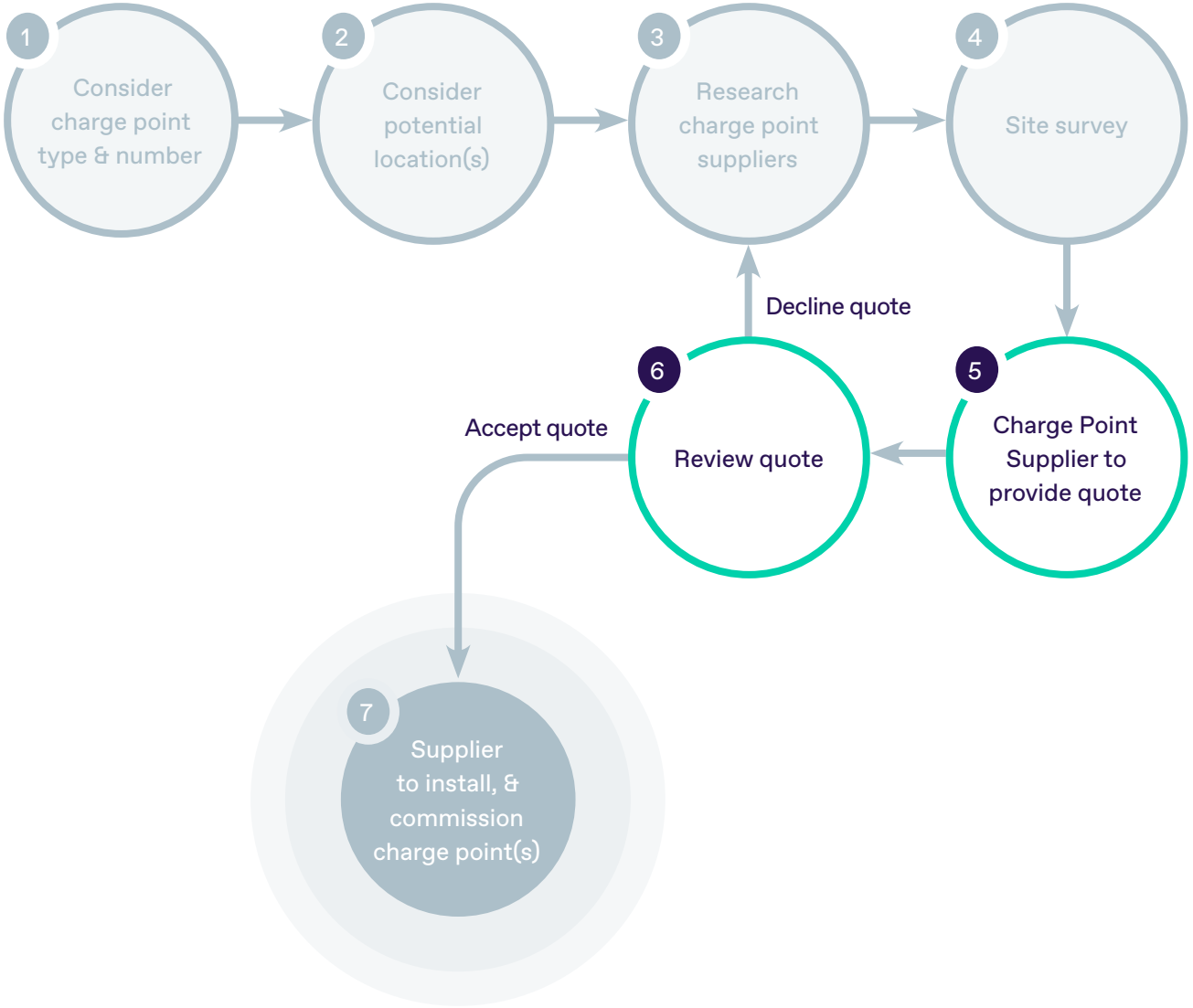
At a minimum a charge point supplier quote should include:

- Charge point(s) hardware
- Delivery
- Full installation
- Charge point commissioning

Additional optional services may also include:

- Maintenance & Servicing Plan
- Protective Bollards
- Signage
- Bay Markings

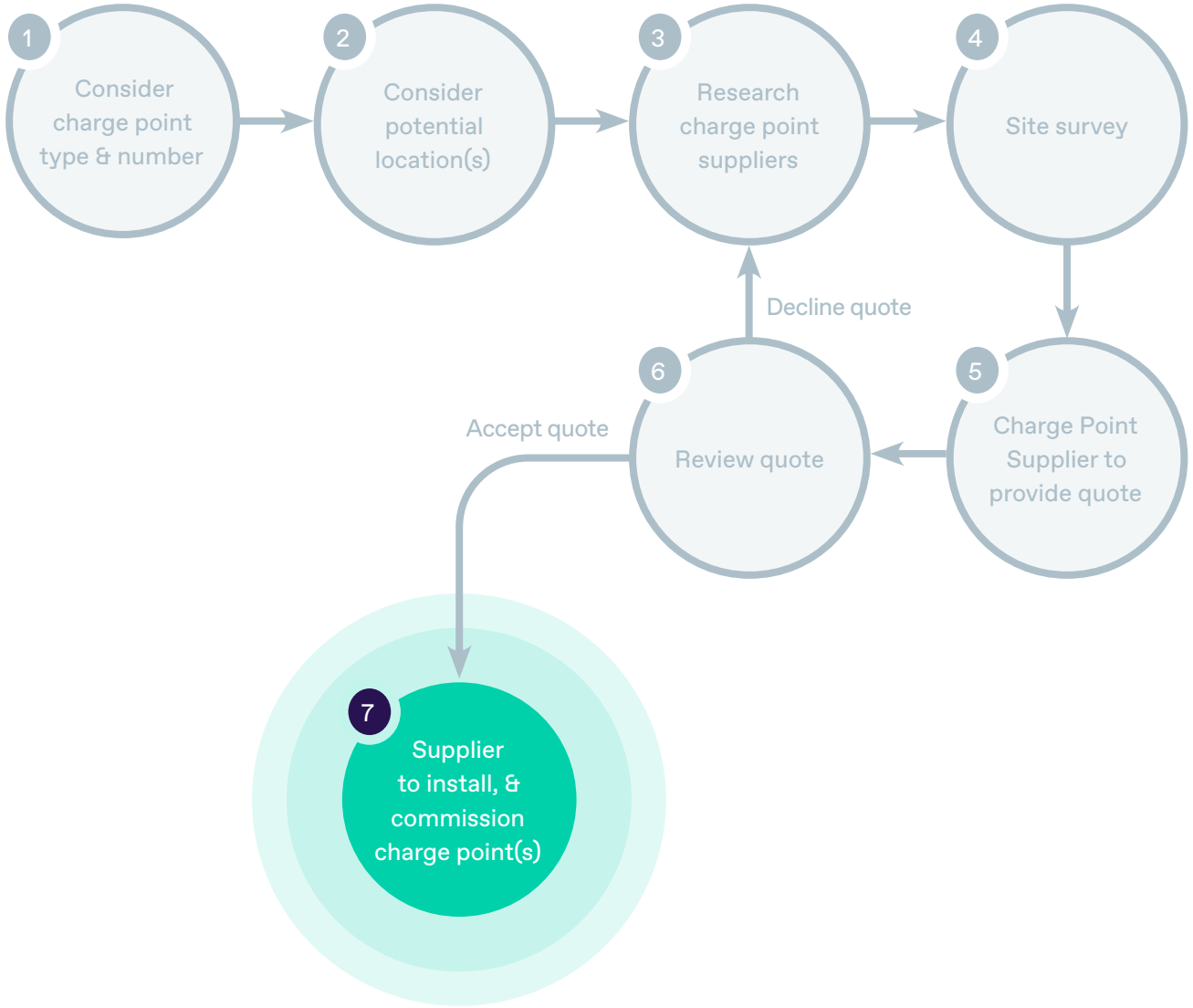
It is recommended you obtain three different supplier quotes so they can be compared and the best value for money is achieved.



7 / Supplier installation

This is expected to take place in weeks 6-10.

If the quote provided by the supplier is deemed acceptable, you can proceed to payment and installation. The installation process will involve performing any necessary groundworks to provide power, connecting the charge point(s) to the electricity grid, and finishing the site for public use. The supplier can then commission the charge point.



ADDITIONAL STEPS

What is a DNO?

Your District Network Operator (DNO) is the company that owns, operates and maintains the power lines that connect the national grid to your premises.

Who is my Energy Supplier?

Your Energy Supplier is the organisation you pay your electricity bill to.

If your premises has no spare electrical capacity, additional steps will need to be undertaken with your District Network Operator (DNO) and Energy Supplier.

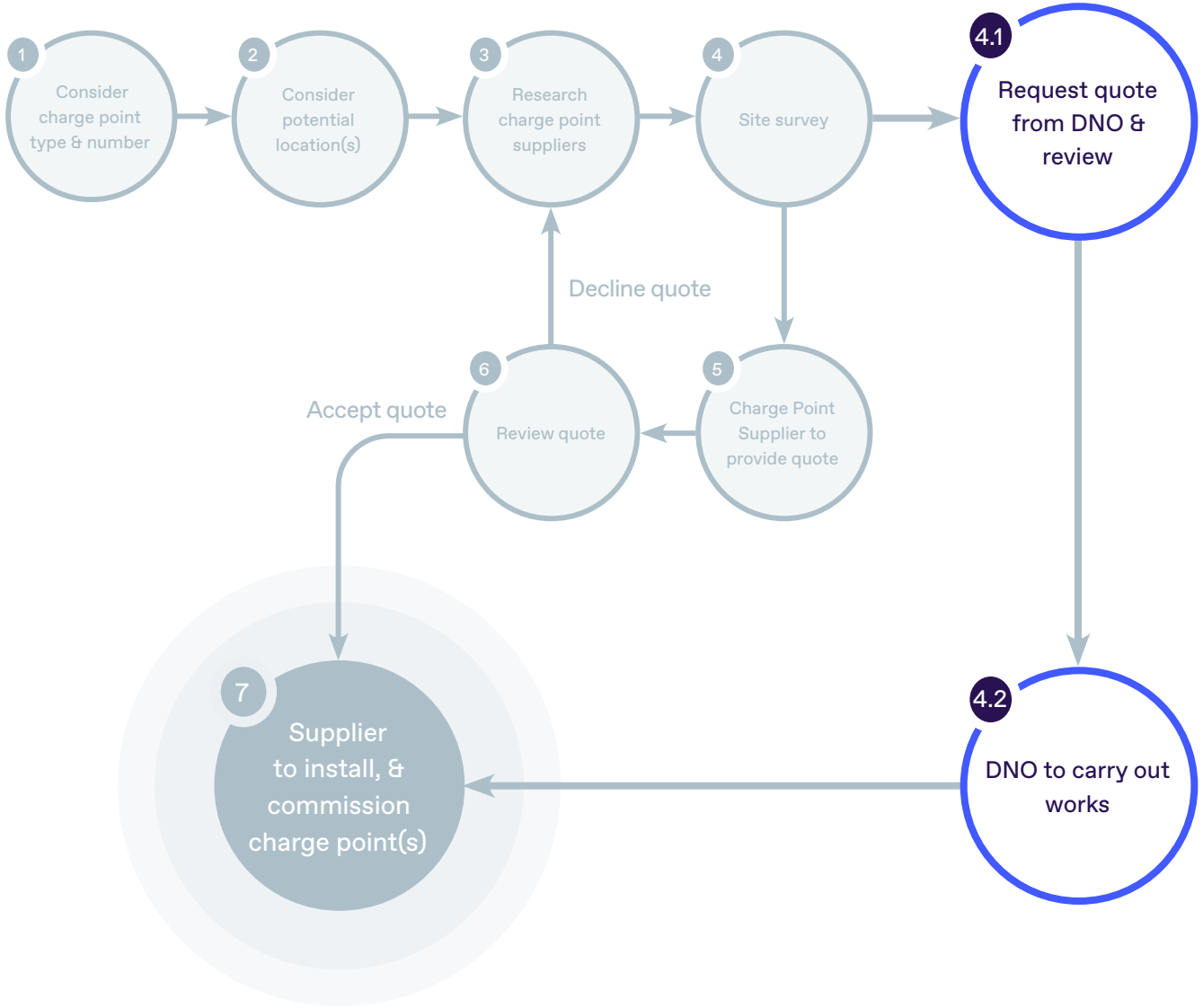
These steps will include an upgrade to your current connection or a new supply.

DNO UPGRADE

These steps are expected to take 10-18 weeks from start to finish.

If you need more power to your premises, the District Network Operator can offer an upgrade to your current supply. This process may also include an upgrade from a single-phase to a 3-phase electrical supply.

UK Power Networks estimate the cost of upgrading a supply to range from £1,700 to £6,000+, depending on the works required. Further information on upgrading an electricity supply can be found on UKPNs website: What do you need to upgrade | UK Power Networks

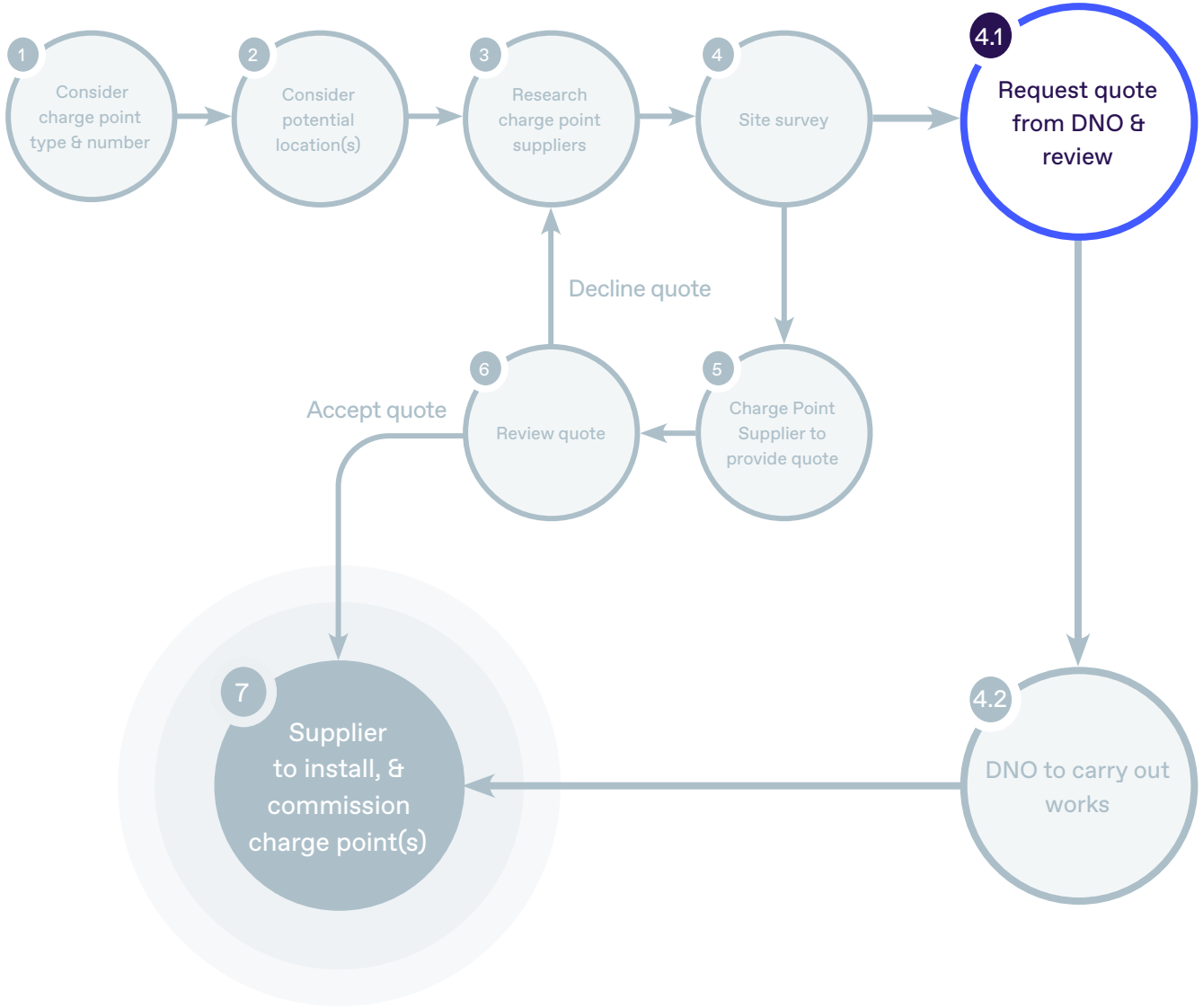


4.1 / Request DNO quote & review

The DNO will be able to provide a cost to have your local electricity network upgraded to provide sufficient capacity for electric vehicle charge point(s). This will be determined during the charge point supplier site survey.

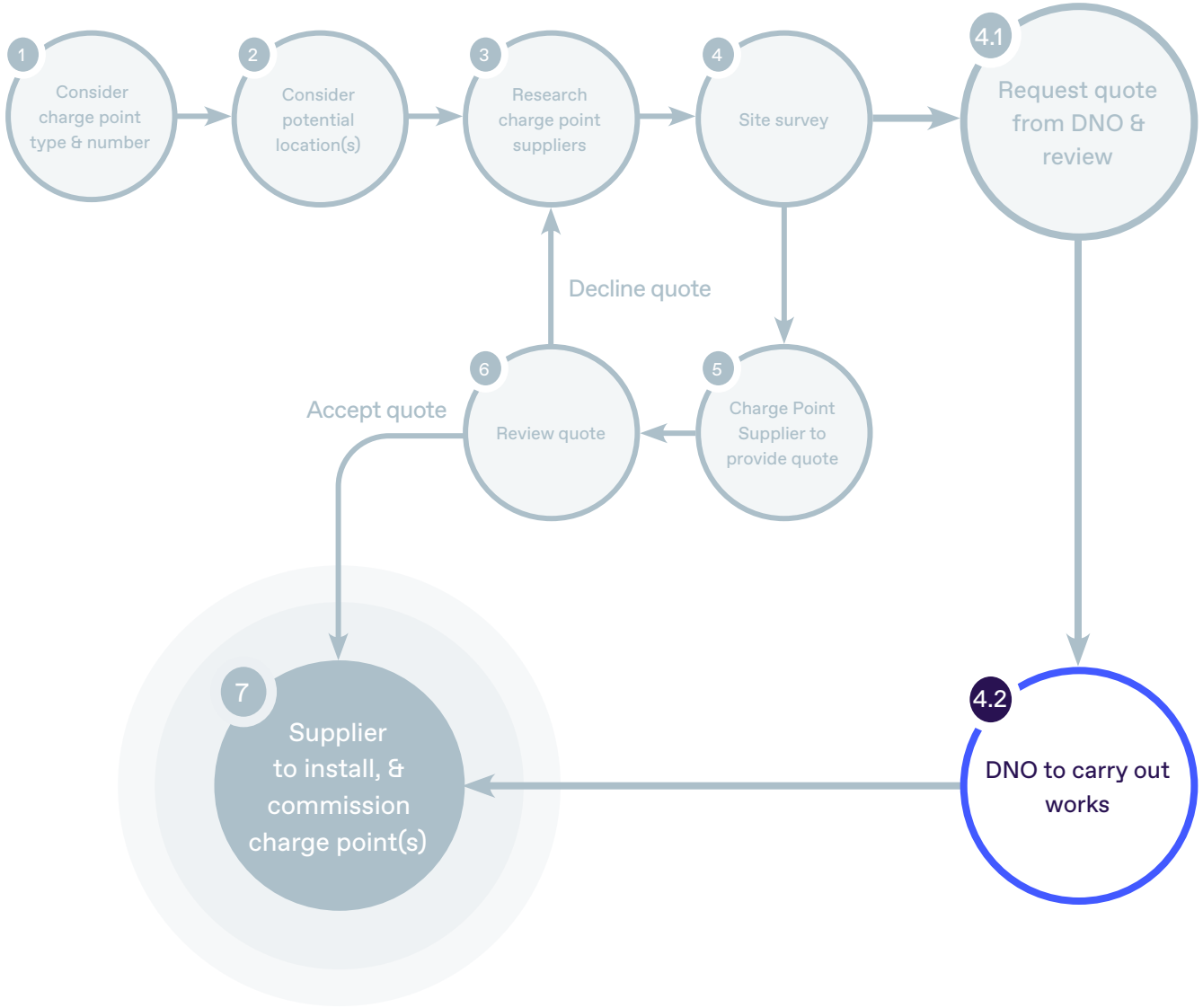
An increase in capacity to your premises could trigger network reinforcement, which may significantly impact the price of your quote.

The majority of DNO quotes are only valid for 30 days and must be accepted within this time to avoid potential price increases. This is the maximum time a DNO can "hold" the required supply.



4.2 / DNO to carry out works

To upgrade the electricity supply to your premises, the DNO will need to access the electrical cable usually found underground. This will require a trench on your land. The DNO will then connect to the nearest electrical cable, usually found on the nearest road.



CONNECTING A NEW SUPPLY

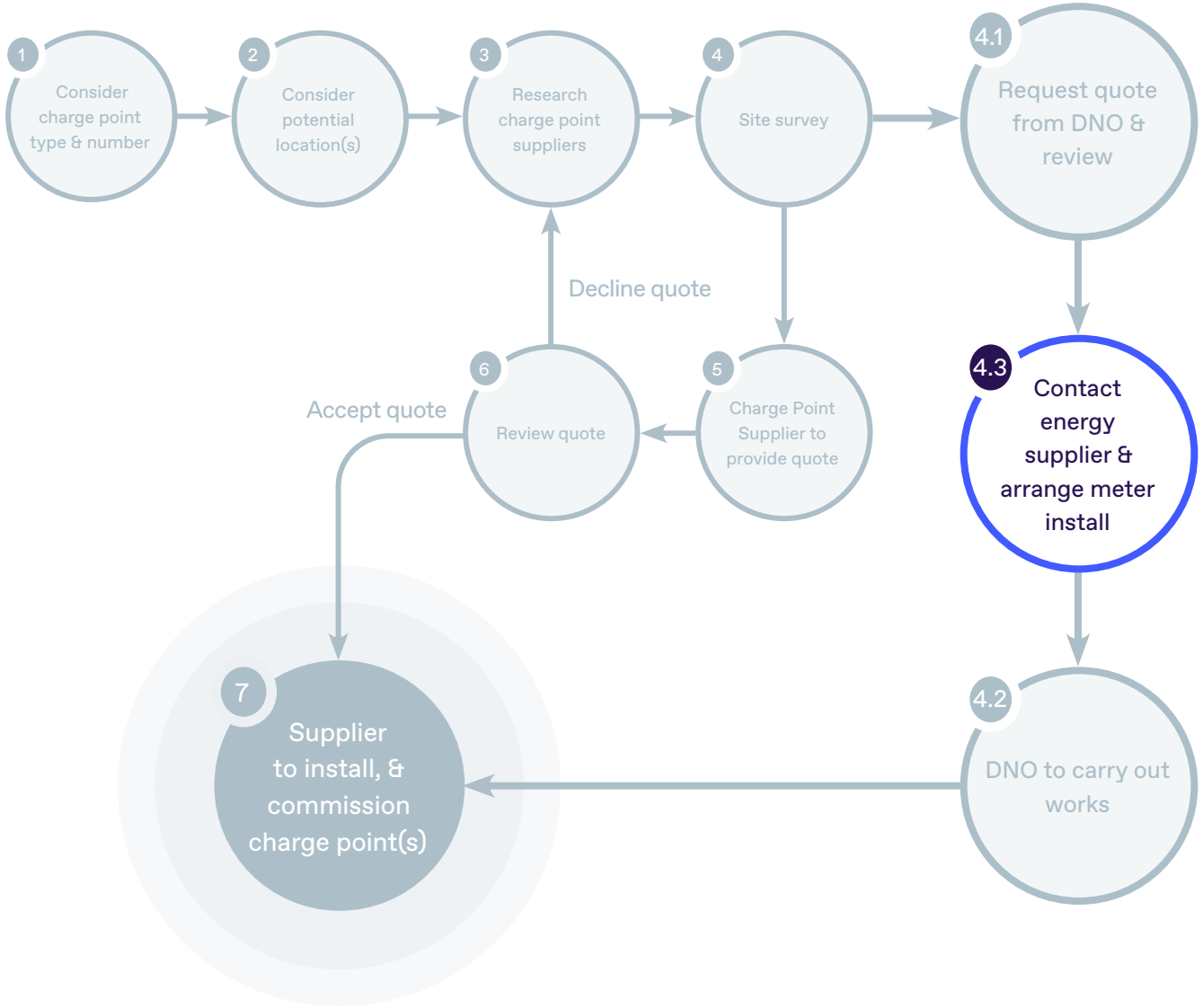
These steps are expected to take 18-22 weeks from start to finish.

In some cases, the charge point supplier may determine a new electrical supply is needed. The same process will need to be undertaken, with one additional step.

4.3 / Arrange meter install

For a new dedicated supply to a site, you will need to contact your energy supplier to provide a new metering point. The DNO will provide a unique Meter Point Administration Number to enable installation of the meter.

We recommend you utilise UKPN's "Ask the Expert" service if the charge point supplier deems this as a necessary step.



FAQS

How are chargepoints maintained?

Having a reliable charge point gives visitors confidence in the ability to charge. So, reliable, well-maintained charge points are essential.

Appointing a single company to carry out servicing, maintenance, and repairs ensures consistency. This cost can be requested as part of the initial supplier quote.

Is planning permission required?

Whether you need planning permission depends on the type of charger being installed and the location of your site. Visit the permitted development rights, South Downs National Park planning pages and local government websites for more information.

What are passive charging points?

Passive EV charging provision is when the underground supporting infrastructure, such as cabling to parking spaces, is in place to ensure easy installation for the future. It is recommended businesses consider passive provision when installing units to minimise future costs and future proof your investment.

What is smart charging?

Smart charging is a term encompassing intelligent functionalities of chargers to distribute the available power in an efficient and flexible way.

For example, load balancing distributes the available capacity proportionally over all active charging stations to ensure that optimal charging is provided to all EVs, within the capacity of the supply.

Smart charging functionality can help avoid expensive network upgrades on a large number of chargers.

How much should the customer be charged?

It is recommended a tariff is put in place to cover ongoing operational expenditure costs, such as electricity costs, however this is up to the host businesses who may also provide EV charging services free of charge.

Tariffs are set at a pence per kWh rate. Current tariffs in the UK range from 20 p/kWh to 45p/kWh. The higher rates are often found on higher powered charging units.

How do I make charge points accessible?

All charge point(s) should be as accessible as possible. Key considerations should include ensuring there is enough space for people who use wheelchairs to be able to safely use charge points, as well as things like the height of the charge point, and the design of the screen and charging information.

Further information on ensuring your charge point(s) is accessible can be found in Urban Foresight's published guidance for Plymouth City Council here.

Can solar panels be integrated to EV charging?

Where the electrical grid is constrained, common in rural areas, integrating renewable energy provides a way of delivering some of the power required. We recommend discussing options with potential charge point providers if you are interested in integrating renewable energy with EV charging infrastructure.

USEFUL LINKS & RESOURCES

Zap-map

Zap-Map is an online EV charge point mapping system. It allows EV owners to locate various types of charge points and has over 32,000 devices mapped across 19,000 locations in the UK. Users can plan their journey around the most convenient chargers and can pay for charging sessions through their Zap-Map app.

We recommend any businesses who install EV charge points use Zap-Map to promote their EV charging services.

UK Power Networks

UK Power Networks (UKPN) have a range of EV charge point infrastructure tools and resources on their website. Further details can be found at: Electric Vehicles | UK Power Networks.

Energy Saving Trust

Energy Saving Trust (EST) educate and empower households, organisations and businesses to make better energy choices. EST have many useful resources on their website, some of the most notable articles for supporting business in their EV charging journey include:

Electric car and van advice for SMEs –This resource provides information and advice to businesses on EV charging.

Electric vehicle tools - This page helps SMEs find suppliers and discusses the most appropriate type of vehicle charging for your business.

Charge Point Supplier

The electric vehicle charge point market is a fast-growing sector. There are a number of different solution providers who provide unique innovative products. Table 2 provides an introduction to various suppliers in the EV charging market and the infrastructure they provide. This is a non-exhaustive list; we recommend businesses undertake a thorough review of the marketplace for potential suppliers.

Table 2: Example list of Charge Point Suppliers

Fast Charge point Suppliers		
Pod point	Geniepoint	
Rapid Charge point Suppliers		
Instavolt	Gridserve	
Fast & Rapid Charge point Suppliers		
Swarco	bp pulse	EO Charging

Finding Finance

Local Enterprise Partnership's (LEPs) Growth Hubs are local and private sector partnerships to support business growth.

LEPs have a particular focus on clean economic growth and transitioning to Net Zero and may have funding or free support available to assist your businesses with its EV charging journey. Links to LEP Growth Hubs across the South Downs National Park can be found below:

South East Local Enterprise Partnership

Coast to Coast Local Enterprise Partnership

Enterprise M3 Local Enterprise Partnership

The Catalyst, Newcastle Helix
Newcastle upon Tyne
NE4 5TG
United Kingdom

T: +44(0)191 814 2210

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