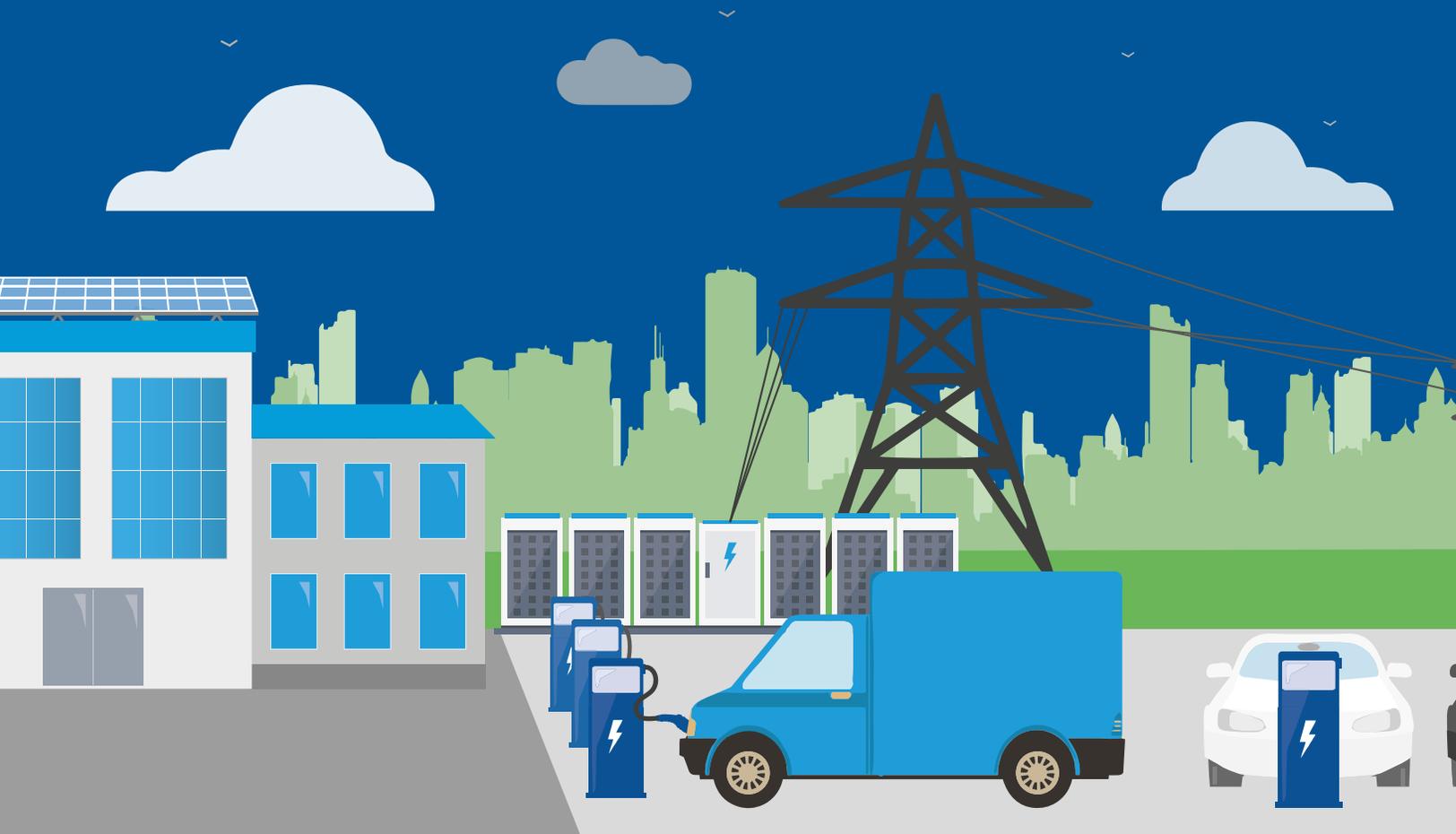


Energy Systems & Infrastructure Services



Delivering innovation in transport
and energy infrastructure for zero
emission mobility



Who are Cenex?

Cenex was established in 2005 as the UK's first Centre of Excellence for Low Carbon and Fuel Cell Technologies. Today, Cenex operates as an independent, not-for-profit research and consultancy organisation, specialising in supporting our partners to make the transition to a low emission future.

We are independent:

We highly value our independence as it allows us to provide truly impartial advice and helps us build trust with our customers.

We are not-for-profit:

Cenex isn't driven by shareholders or returns-on-investment; we exist to reduce the environmental impact of transport, energy and infrastructure, so you can trust us to give you the right advice and support.

We are experts:

Cenex is at the forefront of innovation and developments in low carbon transport. We use a combination of the knowledge and expertise built up over the past 15 years; combined with evidence-based tools and models to provide insights for decision makers in both the public and private sectors. As both a research and consultancy organisation, we are able to provide advice and support based on the most recent innovations, ensuring that our customers always have access to the best possible solutions.

Cenex has two departments of technical experts:

- Transport
- Energy Systems & Infrastructure

Why should I consider low emission vehicles?

Costs:

Low emission vehicles can offer significant cost reductions to businesses through savings in fuel, tax, servicing, maintenance and repairs.

Environment:

According to UK Government, around 40,000 deaths per year are thought to be linked to poor air quality in the UK alone. Transport is the largest contributor, but small changes can make a big difference to your local air quality. An electric van saves 2.7 tonnes of CO₂ per year based on the average UK user compared to a diesel van.

Efficiency:

Replacing your conventional vehicles with low emission vehicles could improve the operational efficiency of your business. By utilising electric vehicles, you can plug the vehicle in at the end of the working day and arrive at work every morning fully fuelled and ready to go about your day without having to stop to refuel.

This brochure sets out our energy systems and infrastructure services. For more information on transport related services, please contact us or visit our website: www.cenex.co.uk



1. Strategy

- Strategy Development
- Strategic Infrastructure Reviews
- Market Insight
- Business Case Development, Modelling & Evaluation



2. Trials & Testing

- Product Development Support
- Standards & Compliance
- Development of Trials & Tests



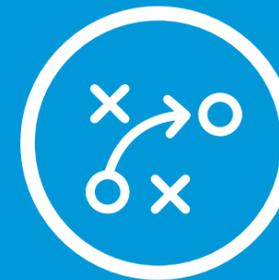
3. Implementation & Auditing

- Procurement Support
- Site Specific Value Modelling
- Independent Infrastructure Audits
- Chargepoint Registration & Databases



4. Training & Networking

- Workshop Facilitation
- Management Training
- Bespoke Training



1. Strategy

Key Services:

- Strategy Development
- Strategic Infrastructure Reviews
- Market Insight
- Business Case Development, Modelling & Evaluation

It can be difficult to know where to start with low carbon transport, energy and infrastructure. That's where Cenex can help.

We start by understanding your organisation's values, drivers and motivations, and combine this with data collection and analysis, to develop an evidence-based strategy which is truly aligned to your needs.

Purpose

To support our customers to make well-informed strategic decisions about adoption of low carbon technologies, including electrification of their vehicles in a cost- and environmentally-beneficial manner.

Scope

Cenex has a long track-record of supporting Government, Local Authorities, Councils, Corporates, SMEs and other organisations considering the following:

- Identification of the best low emission vehicles for their needs
- The types of charging or refuelling infrastructure required for their activities
- The best location(s) for these assets
- Cost, financing and revenue models
- The range of available options currently in the market
- Innovative developments which they should be aware of for effective future-proofing

Typical Durations

Typically our strategy development and advisory service is best delivered through a series of workshops or presentations with time in between for evidence gathering, information synthesis and drawing conclusions. Where possible, we also collect and analyse data to provide an evidence base for our recommendations.

Common Optional Extras

1/2 day dissemination and discussion workshop with a wider audience

1 - 2 hour board-level basic training in Electric Vehicle infrastructure and Energy Systems

Deliverables/Outputs

- Options analysis and evaluation.
- Advisory paper.
- Strategy recommendations report.

Purpose

To evaluate the technological, customer, market and financial factors to make infrastructure recommendations for a customer's site(s).

Scope

One of our most common pieces of work, Cenex works with the customer to:

- Analyse current Electric Vehicle charging demand
- Analyse wider site energy data
- Forecast future EV charging demand
- Assess the site for restricting or important influencing factors
- Recommend the type, volume and placement of infrastructure to meet these needs
- Make recommendations about how to best future-proof the deployment

Typical Durations

1-2 day preparation and data gathering

1 day site visit (including travel)

2-3 day analysis and recommendations

Common Optional Extras

Analysis of additional sites (either remotely or including site visits)

Deliverables/Outputs

- A comprehensive report outlining the infrastructure demand and recommended strategy for supply to meet that demand.



Purpose

To analyse and appraise a commercial or technology market from a client's perspective.

Scope

Through its independent, not-for-profit status, Cenex can provide impartial assessments of:

- The development of a marketplace where products and services are currently bought and sold
- Specific international, national or regional market analysis
- The current level to development and technology readiness level of a specific technology or group of technologies, including competitor analysis and mapping

Typical Durations

5-10 days, including a mix of desk-based research, interviews and evaluation of the State of the Art.

Common Optional Extras

Additional countries or regions

Additional or adjacent technologies

Deliverables/Outputs

- A report outlining the state of the market, rough sizing (commercial marketplace) or technical readiness (technology pipeline), with recommendations for client next-steps.



Purpose

To create or evaluate outline business cases in response to particular client requirements, technologies or market developments.

Scope

Cenex regularly works with Public and Private Sector clients to create and/or evaluate potential business products, services and propositions including the following:

- Outlining the product, service or proposition
- Evaluating the strengths, weaknesses, opportunities and threats in a market or sector, or specific to a client
- Development of business models
- Undertaking a gap and capability analysis to see how the external and internal factors interact
- Modelling of market data and trends to provide bespoke analysis of each approach
- Creating possible options and evaluating these to support strategic decision making

Typical Durations

Typically our business case development and evaluation service is best delivered through a series of workshops or presentations with time in-between for evidence gathering, information synthesis, business case creation and ranking, and creating recommendations. Typical durations range from a week for a simple business case evaluation, to a few months for full development and evaluation of a new business case.

Common Optional Extras

1/2 day dissemination and discussion workshop with a wider audience of stakeholders.

Deliverables/Outputs

- Specific business case evaluation report.
- Business case options creation.
- Evidence based options analysis and evaluation using real world data.



2. Trials & Testing

Key Services:

- Product Development Support
- Standards & Compliance Advice
- Development of Trials & Tests

We all know that developing or introducing new products and technologies isn't easy. Whether it's understanding the market, or ensuring that it complies with the right standards, the journey can be filled with challenges.

Cenex's long experience of delivering trials means that we can help. We can support your product development process by providing key insights, analysis and advice to help you ensure that your products perform safely, appropriately and in a way which delivers greatest value – for you and your customers.

Product Development Support

Purpose

To support in the development of new hardware and software products with expert sector knowledge and insight.

Scope

- Beneficial for both innovative businesses looking to launch new products or new start-ups with an idea they are looking to develop and exploit
- Market review of similar products and technologies, providing a view on the current commercial landscape
- Expert support around compliance with related standards and regulations
- Review of design and functionality considerations
- Guidance on specialist component supplier options and approaches to design and prototyping

Typical Durations

2 months (consultancy for product concept) to 1 year (support of product development process).

Common Optional Extras

Early short term consultancy advice may be followed up with longer term support during product development.

Deliverables/Outputs

Short reports on:

- Markets, competitor products.
- Compliance requirements.
- Design concept appraisal.

Purpose

To provide advice on compliance requirements for an in-development product; products proposed for installation; or for installation processes for low carbon technologies and EV charging infrastructure.

Scope

- General and specialist advice for product manufacturers, local authorities and commercial users about the standards and regulations which need to be complied with for charging infrastructure and other low carbon technologies
- Specific advice can be provided on aspects such as compliance with British and international standards, compliance with EU and relevant UK regulations
- Specific industry requirements such as DNO regulations for connecting devices to distribution networks

Typical Durations

2-4 weeks (shorter single product consultancy) to 2-3 months (for prototype products in a new technology area).

Common Optional Extras

Installation management and monitoring of early products in pilots/field trials.

Deliverables/Outputs

Detailed reports on:

- Product compliance assessment.
- Review of key regulations and standards for a technology and/or market.

Purpose

To support clients looking to trial innovative new hardware and software technologies relating to energy systems and low emission vehicle infrastructure.

Scope

A package of products wrapped up into a trials and tests service. The service could provide all or a selection of the listed capabilities. Capabilities include:

- Pilot objective and monitoring/telemetry plan requirements
- Design of trials
- Pilot site identification and recruitment of trial partners
- Business case assessment
- Installer management
- Pilot site safety file (CDM, RAMS, audits)
- Ongoing data collection and management
- Data analytics
- Reporting

Typical Durations

2-4 weeks to develop a trial plan.

6 months - 3 years to deliver a full trial with ongoing data collection.

Common Optional Extras

Fleet reviews and/or detailed vehicle telemetry monitoring.

Deliverables/Outputs

- Installation of monitored hardware and/or software systems as part of a trial.
- Data and analytics reports.



3. Implementation & Auditing

Key Services:

- Procurement Support
- Site Specific Value Modelling
- Independent Infrastructure Audits
- Chargepoint Registration & Databases

Once you know what you want, then it's time to deliver it. Over many years we have supported customers with finding, selecting and operating the right low carbon products and services.

Cenex's technical specialists can walk with you through the procurement process to ensure you get the products and services which meet your needs. We can also make sure that products have been installed and operate as expected – making sure that you get what you paid for.

Procurement Support

Purpose

To help public and private clients develop procurement strategies and statements to contract the best product or services for their needs.

Scope

This will depend on the exact product or service desired but will include one or more of the following:

- Create or review the scope and technical requirements
- Define the overall procurement strategy and approach
- Specify the product or service to ensure the best fit to the client's needs
- Support in bid evaluation

Typical Durations

2-4 weeks to define technical requirements.

Bid evaluation - 2 days set up plus 1/2 day per bid. Other activities depend on the product or services.

Common Optional Extras

Evaluation of the performance of the procured provider, once delivery begins.

Deliverables/Outputs

- Product or service specification sheet;
- Procurement strategy document;
- Bid evaluation exercise.



Site Specific Value Modelling

Purpose

To provide quantification of the economic and environmental benefit to clients of a particular technology or technological system such as Vehicle-to-Grid chargers, or Photovoltaic and storage.

Scope

Cenex has many years of experience of modelling in both the energy and transport sectors. Modelling is a valuable step on the path of developing a business plan or proposition, since it provides a way to estimate the impacts and effects of applying a particular technology or system.

- Run an existing Cenex model and providing outputs
- Develop a bespoke model
- Analyse for a range of outputs such as revenue, financial forecasts, or emissions savings
- Insights on the key dynamics driving value

Typical Durations

This can range from a few days to run an existing model and provide results, up to a few months to develop a new or complex model.

Common Optional Extras

Presentation of results and insights to stakeholders, with interactive an workshop to look at impacts on a business model or organisation.

More detailed simulation results can be provided where required.

Deliverables/Outputs

- Report on the assessment of the technology and outputs from the model, with insights drawn out.
- In some cases models or tools can be provided to customers to use in future assessments.



Independent Infrastructure Audits

Purpose

To provide an independent review of the installation of chargepoint hardware to determine whether it is compliant with regulations, has been completed with the required standard of workmanship, and offers good value for money. Most likely target customers are businesses or local authorities.

Scope

- Initial desk audit of paperwork
- On-site audit, requiring access to the chargepoint and including inspection and testing of supply, cabling and chargepoint
- Delivered as a one-off or as an ongoing contract to audit a full network as an organisations network expands

Typical Durations

A single audit would require 1-2 days for desk checks.

1 day for the on-site audit and a further day to write up the findings.

Common Optional Extras

Provision of feedback on issues to contracted installers.

Deliverables/Outputs

- Report detailing the results of the audit(s) with recommendations on what should be done next.



Chargepoint Registration & Databases

Purpose

To provide a database of charging infrastructure for a region/country. This provides a central record that can be used for innovations such as map building, apps and analysis.

Scope

- Primarily aimed at governments and authorities as a way to provide a central database of charging point infrastructure
- A database located on a back-end server that can be viewed, amended or downloaded using a web based front end
- A web front-end include maps and statistics of the data
- Users interface to allow users to upload data to register charge points; customer service system to deal with help requests and queries from users

Typical Durations

Initial development of database and website around 2 months. Maintenance and hosting of database and website would be ongoing.

Common Optional Extras

Bespoke monthly analysis of changes to data in database.

Provision of an API for upload and download of data.

Additional web design incorporating analytics of the data.

Monthly or biannual reporting.

Deliverables/Outputs

- Design and development of a web-based database.
- Ongoing hosting and maintenance of the website and database.
- Customer support services.



4. Training & Networking

Key Services:

- Workshop Facilitation
- Management Training
- Bespoke Training

They say that “knowledge is power”, but we know that for many, the topic of low-carbon technologies is a complete unknown.

Cenex is an experienced and Continued Professional Development (CPD) accredited training organisation, made up of experts who live and breathe low carbon technologies. So, whether you need to upskill specific staff, develop your leaders, or gain insight on a new market, why not let Cenex help?



Workshop Facilitation

Purpose

To support organisations wanting to develop products, services or strategies within the EV charging and low carbon energy infrastructure areas through on-site, facilitated workshops.

Scope

- Cenex will come to your offices and facilitate a range of activities spread over 1-2 days to help your organisation get a clear understanding of what they are trying to achieve and set out simple, clear and measurable next steps
- Workshop facilitation
- Bespoke content to meet the needs of your organisation
- Post workshop report on findings

Typical Durations

Typically 2 days preparation is required prior to the workshop. Workshops then run for 1-2 days, with groups limited to 15. Two further days are then required to compose a summary document with the key findings from the workshop.

Common Optional Extras

Larger groups can be facilitated either by running the workshop over more days or by increasing the number of facilitators.

Where required, external venues can be arranged at an additional cost.

Deliverables/Outputs

- Delivery of facilitated workshop.
- Workshop findings summary document.



Management Training

Purpose

To support organisations looking to develop the knowledge of their management teams, either relating to a specific topic such as vehicle-to-grid, or more generally around EV charging and energy infrastructure.

Scope

Cenex is a CPD accredited training provider, with experience providing training on a range of low-carbon technologies. We run a range of management focused training courses. These are bespoke to the individual needs of the business, but drawing on a range of core topics including:

- Introduction to EV Charging Infrastructure and key market trends
- Procurement of EV Charging Infrastructure
- Developing an EV charging strategy for your business
- Costs, risks and considerations around EV charging
- Vehicle-to-grid, smart charging, energy markets and how they work
- Innovative developments in EV Charging Infrastructure

Training is run within the client offices.

Typical Durations

Typically 1-2 days are required to modify the content to the customers needs. Most courses are then run as 1 day sessions, with groups of up to 15 to allow for interactive sessions.

Common Optional Extras

Where required, external training venues can be arranged at an additional cost.

Deliverables/Outputs

- CPD accredited training certificates for attendees where required.
- Copies of training material.



Purpose

To support organisations with more specific training needs. This may include start ups, organisations looking to develop new products or services, or organisations looking to provide more detailed training for a specific group of staff (e.g. sales or customer services staff).

Cenex have a high level of experience providing training on a range of low-carbon technologies. We are happy to work with organisations to develop bespoke training material which can either be delivered by Cenex or handed over to training staff within your organisation. This could cover a range of topics, from technology introductions and market insight, to training on how to assess the EV infrastructure needs of a client.

Scope

This service includes:

- An initial meeting to define scope
- Preparation of bespoke training materials
- Delivery of training at clients site

Typical Durations

Typically 5 days are required to develop the content in a simple powerpoint format. Most courses are then run as 1 day sessions, with groups of up to 15 to allow for interactive sessions.

Common Optional Extras

Where required, external training venues can be arranged at an additional cost.

Online course material can also be developed with prices on request.

Deliverables/Outputs

- Bespoke training material.
- CPD accredited training certificates for attendees (where applicable)

| Customer: | Government Agency | Local Authority | Fleet Operator / Corporate Business | Parking Operator / Land Owner | New Industry Player | Infrastructure Manufacture | Infrastructure Installer / Operator |
|---|-------------------|-----------------|-------------------------------------|-------------------------------|---------------------|----------------------------|-------------------------------------|
| Strategy | | | | | | | |
| Strategy Development | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Strategic Infrastructure Reviews | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Market Insight | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Business Case Development, Modelling & Evaluation | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Trials & Testing | | | | | | | |
| Product Development Support | | | | | ✓ | ✓ | |
| Standards & Compliance | ✓ | | | ✓ | ✓ | ✓ | ✓ |
| Development of Trials & Tests | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Implementation & Auditing | | | | | | | |
| Procurement Support | | ✓ | ✓ | ✓ | | | ✓ |
| Site Specific Value Modelling | | ✓ | ✓ | ✓ | | ✓ | ✓ |
| Independent Infrastructure Audits | ✓ | ✓ | ✓ | ✓ | | | |
| Chargepoint Registration & Databases | ✓ | ✓ | | | | | ✓ |
| Training & Networking | | | | | | | |
| Workshop Facilitation | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Management Training | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Bespoke Training | | | ✓ | ✓ | ✓ | ✓ | ✓ |