

Turning Blue Lights Green

Lessons, insights and best practice shared by those leading the electrification of the UK's emergency service vehicles.



Acknowledgements

In spring and summer 2026, the Emergency Services Times, Cenex and Flexible Power Systems convened a series of webinars for dedicated discussions about the progress, opportunities and challenges of blue light fleet electrification.

We are grateful to everyone who took the time to listen in, ask questions and explore how emergency services can transition to electric vehicles in a way which is operationally resilient and financially sustainable. These inputs have caused us to sharpen and hone the points which are presented in this report.

We would like to express our appreciation for our host and chair, Catherine Levin at Emergency Services Times, for expertly guiding us through the sessions and bearing with us when things got technical and detailed at points.

And finally, we would like to thank our **guest speakers** for sharing their time, expertise and mistakes so that others can learn from their experiences:



Foreword

The transition to zero-emission transport is now an operational and financial reality for the UK's emergency services. Across ambulance, fire and rescue, and police, organisations are moving beyond discussion to gain practical experience through vehicle trials, infrastructure planning and pilot deployments.

The challenges associated with fleet electrification are well understood. Vehicle capability, charging infrastructure, grid capacity, operational resilience and finances all require careful consideration. However, the solutions are increasingly being proven through real-world projects and data-driven planning, as this webinar series has showed.

By bringing together fleet, estates, sustainability managers and delivery partners from across the emergency services, the key barriers and opportunities facing blue light fleet electrification in 2026 have been explored.

A consistent message emerged throughout the discussions: collaboration will be critical to success.

By sharing not just knowledge, but infrastructure and data, organisations can reduce risk, avoid duplication, lower investment need and accelerate progress.

This report highlights some of the practical actions arising from the webinars to support successful fleet electrification, from initial planning and pilot delivery through to large-scale deployment and infrastructure sharing.

The evidence is clear: progress is already being made. The opportunity now is to build on that momentum and work together to deliver consistent and replicable solutions that can be deployed rapidly and at scale.



Robert Evans

Chief Executive Officer, Cenex

September 2026

Collaboration is needed at all levels of the blue light sector

Progress is being made as vehicles become available.

Research undertaken by Emergency Services Times showed that just 13% of 53,000 emergency services vehicles were battery electric or hybrid in 2025. However, 67% of responding organisations didn't know how much they would spend on electric vehicles before 2030¹.

In the first half of this decade, the biggest barrier to progress has been vehicle suitability. This remains an issue for some applications and use cases but there is now an increasing range of models capable of meeting the needs of much of the emergency fleets services.

As a result, three systemic constraints are now coming into focus:

- 1 access to charging infrastructure;
- 2 access to sufficient grid electrical capacity; and
- 3 access to funding for new vehicles and infrastructure.

Systemic constraints require a systematic response to achieve our objectives.



The purpose of the webinar sessions was to disseminate best practice from emergency services which have already started to transition to electric vehicles and to highlight the emerging best practice to start to develop a nationally coordinated approach.

Instead of repeating the known challenges, this report consolidates the lessons on how to maintain operations and deploy electric vehicles and charging infrastructure quickly, cost effectively and at scale, whilst protecting resilience.

National, regional and local stakeholders each have distinct roles to play in ensuring that blue light fleet electrification provides good value for the public purse and achieves the desired long-term outcome of reducing the impact that our emergency services vehicles have on the environment.

	 National	 Regional	 Local
Role:	Set policy, establish funding mechanisms, enforce standards and coordinate the sector	Coordinate vehicle and infrastructure demand, identify shared charging opportunities, highlight economies of scale, identify innovation opportunities and monitor regional progress	Deliver robust fleet, infrastructure and estates projects based on real-world data, engage early stakeholders and capture and disseminate learning
Audience:	UK Government and devolved governments, Department for Transport, Department for Energy Security and Net Zero, Department of Health and Social Care, Home Office, Ministry of Housing, Communities and Local Government	Combined Authorities and Mayoral Authorities, Local Authorities	Chief Officers, Directors of Finance, Fleet Managers, Estates Managers, Sustainability Managers and Operational Leads from individual Ambulance Trusts, Fire and Rescue Services and Police Forces
Facilitators:	Association of Ambulance Chief Executives, National Fire Chiefs Council, National Police Chiefs' Council, EV Infrastructure Support Service	Procurement Organisations including Government Commercial Agency, BlueLight Commercial and Regional Procurement Services, Net Zero Hubs	Distribution Network Operators, Vehicle, Infrastructure and Energy Suppliers, Delivery Partners

A phased approach to Fleet Transition allows insights to be captured, implemented and shared

Step-wise planning for long-term gain.



Transitioning emergency services fleets to electric vehicles does not happen overnight. It takes time, requires significant change and works best in a culture of continual improvement.

The most advanced organisations are approaching this shift through a phased transition process.

Whilst it can take weeks to get an electric vehicle delivered and months to get chargers installed, it can take several years to get new or upgraded grid connections to ambulance, fire and police stations. It is therefore important that emergency services start small and look to scale fast.

Organisations typically transition to electric vehicles in four phases: by preparing well; piloting solutions on a small scale; scaling successful deployments across their fleet and estate; and continually optimising operations to maximise performance, resilience and value.

Collaboration with neighbouring services, trusted partners and delivery bodies is the golden thread which runs throughout this cycle of iterating and learning.

Phases of a Managed EV Transition

1 Prepare



Establish objectives, engage with key stakeholders from across departments, connect and learn from neighbouring organisations, understand fleet and operational requirements, assess site and energy constraints and develop transition strategy and business case.

Outcome: EV Fleet Strategy, containing a clear roadmap for transitioning all vehicles, infrastructure and operations, supported by open lines of communications with partner organisations.

2 Pilot



Test vehicles, charging infrastructure and operational changes on a limited scale such as an individual team or a site. Explore how to leverage others' progress. Use the real-world data, feedback and evidence gained to validate strategy assumptions, build confidence and refine business case before wider roll-out.

Outcome: EV Fleet and Estates Implementation plan, underpinned by an evidence base of what works and what does not and identifying proven solutions that can be deployed at scale with reduced risk and evidence to support further investment.

3 Scale



Deploy electric vehicles at additional sites and operations. Standardise site designs, infrastructure solutions, procurement methods and operational processes to embed the change within the organisation and with others.

Outcome: Fleet electrification projects move from isolated one-offs to business-as-usual operations with seamless cooperation with partners.

4 Optimise



Continually improve vehicle, infrastructure and charging performance. Use operational data to reduce energy consumption from vehicles, increase charger utilisation at stations, identify additional shared charging opportunities to reduce capital and revenue costs.

Outcome: Fit for purpose, cost effective and operationally resilient electric fleet operation with efficient regional collaboration.

Start the Fleet Electrification Process Now

A stitch in time saves 999.

Whilst the end of sale of fossil fuelled remains several years away, legislation like the zero emission vehicle mandate is already having an impact. There has been a welcome expansion in the variety of available EV models but a corresponding decline in the availability of ICE models.

Unprepared Blue Light fleets risk being caught in the middle if crucial operational capabilities can neither be electrified nor replaced. Technological advancement means that vehicle capabilities are improving every year but knowing which vehicles to replace and when takes time and effort.

The grid connections, capital investment budgets and organisational changes necessary to maintain service standards must be aligned with vehicle replacement cycles.

These problems aren't insurmountable, but efficient solutions can take years to plan, develop and test. Costs and risks can be avoided if decisions are taken ahead of legislative deadlines.





Gather the Necessary Data

An informed EV transition plan is based on a wide range of data from several sources:



Senior Decision Makers

Align on realistic goals and expectations



Assets

Understand vehicles on fleet, usage patterns and chargers currently installed



Sites

Review electrical condition, current demand and connection arrangements



Operations

Assess upcoming site changes and vehicle deployments as well as regulatory constraints

Build a baseline

Generally, EVs require greater upfront capital investment in vehicles and infrastructure and then enjoy lower running and maintenance costs. Understanding the cost-effectiveness of upcoming decisions requires a knowledge of the current status which goes beyond anecdotal evidence from front-line teams.

Document the current purchase or lease costs of fossil-fuelled vehicles, ensure that the mileage or fuelling needs of vehicles or groups of vehicles is captured in a structured manner and start to understand the actual operational requirements which will need to feed into electrification decisions.

Establish sequencing and synergies

Vehicle requirements can vary dramatically between different emergency services, fleets and even within specific vehicle roles. In combination with site conditions like power headroom or space, this can dramatically impact feasibility and costs of implementation.

Simple feasibility and cost analysis of vehicles and estates can therefore inform rational sequencing, resulting in grouping of fleet and estate segments by feasibility and impact.

These plans can be communicated to neighbouring services to share best practice and surface collaboration opportunities.



Blue Lights organisations cannot start their electrification preparations too early - collecting the necessary information, working out the current status and getting the decision order right are all essential ingredients for an effective and efficient transition.



"Not getting on with this is on the NPCC strategic risk register. It's also, I believe, on the Home Office strategic risk register as well. That's quite a powerful message to chiefs and to PCCs."

Richard Muirhead

West Mercia Police and National Police Chiefs' Council

"You are far better off dipping your toe in the water, if it's just doing one electric vehicle and charger, and see what you learn."

Glynn Richardson

West Yorkshire Fire and Rescue Service and National Fire Chiefs Council

"The question is not 'Do we have perfect data?' but 'Do we understand our operation well enough to make the next responsible decision and are we using implementation to improve that understanding?'"

Paul Leach

NHS England

Build your investment case on solid evidence

A matter of when, not if.



Source: Emergency Services Times

Historically, the EV adoption has been an optional Environmental, Social and Governance item. The widespread declaration of climate emergencies by UK public sector organisations in 2019 led to climate change action plans and net zero strategies, where vehicle electrification was a commonly-cited action. However, recent changes in legislation and technology have brought other considerations to the fore.

In 2026, the zero-emission vehicle (ZEV) mandate requires 33% of new cars and 24% of new vans to be zero emission, with flexibilities providing support where this is proving difficult. 42% of new cars sold to date this year had a plug² and a full phase-out of new internal combustion engine (ICE) sales remains in-place by 2035 for vehicles up to 26 tonnes.

Furthermore, the pace of EV technical progress and deployment globally in the last decade makes it inevitable that most ZEVs deployed in road transport will be electric in the coming decade.

As a result, Emergency Service fleets will have to manage large volumes of electric vehicles – the key question is now one of timing.

² UK New Car Registration Data - Latest Figures & Statistics | SMMT

Manage the transition through the lenses of risk and change

Last minute transitions risk poorly specified vehicle and charging assets being placed in the wrong locations with under-prepared staff. This increases the likelihood of wasted capital expenditure and disruptions to service provision, at a time when emergency services are looking for efficiencies.

Avoiding this requires sufficient time and resources for high-quality plans to be developed and delivered which focus on mitigating risks and managing the change which is coming.

Prioritise using Total Cost of Ownership (TCO)

The outputs of TCO analyses will be key to prioritise fleets or sites for transition based on their likely impact on existing capital and operating budget lines. A complete assessment of both aspects relies on the evidence mentioned on the previous page:

► ICE Vehicle TCO

Operating Years *(Annual Vehicle Costs + Annual Operating Costs)

► EV TCO

Operating Years *(Annual Vehicle Costs + Annual Operating Costs + Annual Infrastructure Costs)

Example Factors to Include:

- **Operating Years** – the expected lifetime or lease length for the vehicles.
- **Annual Vehicle Costs** – Acquisition cost, residual values, fuel and electricity (both from own supply and public networks), fuel additives, servicing and maintenance, insurance, tyres and available grants.
- **Annual Operating Costs** – Value of staff time.
- **Annual Infrastructure Costs** – Charger acquisition, site civil works and site electrical and connection upgrades, back-office and charger maintenance/support services.

The level of detail needed will depend on your organisation's capacity to access and process data. Higher-level simple information like list prices or energy use estimates can provide a starter and be refined as plans evolve.

[Find out more about planning an EV transition here](#)



The transition is happening so emergency services electrification needs to mitigate risks and manage change, using TCO analysis to prioritise effort in the most impactful places.

Scope your pilots for widest benefit

Pilot whole systems, not just vehicles.

The earliest pilots focused on the question of whether EVs could do the job. Although this gave useful early input, vehicle specifications are increasingly standardised through procurement initiatives like the national ambulance specification, so these tests need to evaluate more than just vehicle performance.

A growing number of pilots are now underway across the emergency services, focusing on more than just vehicles. Many organisations, especially the Police service, are starting to scale their results across their wider fleets and estates.

Designing effective pilots can be a new process for many fleets. With so many questions to be answered, multiple functions must be engaged to set up for success. This means fleet electrification must interface with broader change in building management, energy and modernisation programmes.

Source: Emergency Services Times



Often upfront investment is higher for pilots than business as usual because of their smaller volume compared to standard procurement as well as first of a kind costs like training, user support and data collection. However, if properly designed, these investments reap dividends later on.

Make the most of pilots to build solutions and supporters

The degree to which a pilot provides value and a return on investment is governed by the technical and operational insights that arise from the activity. On top of this, small-scale pilots allow consensus and confidence in EVs to be built.

Pilots should create a network of well-informed internal and supplier supporters whose expertise and experience can be used to support later stages of the EV transition.

This means that in addition to technical aspects of data collection and analysis, stakeholder engagement is required throughout the process. This aids the design of research questions and monitoring/evaluation procedures to ensure that the pilots deliver the right mix of data and operational practice validation to reduce subsequent scaling activities.

The complexity of designing trials and interpreting results to maximise learning has led to many organisations working with 3rd party specialists on both transition planning and pilot design.



Smaller, ring-fenced pilots of integrated solutions allow rapid testing, learning and iteration of possibilities which help stakeholders with the next steps.

"It's not just sticking the EV charging point in and plug and play. It's about [testing] operational design, it's about training, it's about education...what seems like a very simple process involves 20 to 30 people."

Alexis Percival

Yorkshire Ambulance Service

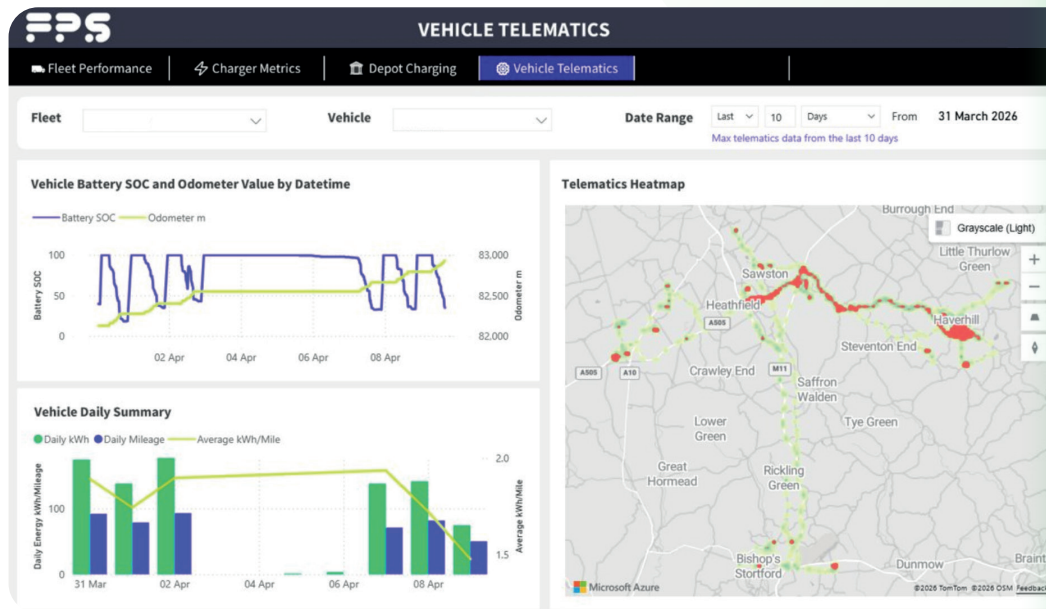
"That was a really important feedback loop for us — having that direct communication with frontline teams rather than it just being all about data and information on a page or on a spreadsheet."

Ben Mohide

Avon and Somerset Police

Monitor and evaluate deployments effectively

There are four pillars for effective monitoring and evaluation of pilots: data, analysis, reporting and stakeholder engagement. All are essential ingredients for pilots all the way up to full-scale deployments.



Data Requirements

These start from the hypothesis that will be tested. The questions your pilot needs to answer drive the data you need. It is likely though that you will need access to:

- ▶ Pre-deployment assessment so any modelling can be validated or refined.
- ▶ Vehicle and ancillary telemetry so vehicle performance can be understood from state of charge, location and odometer readings.
- ▶ Chargepoint back office data so charging behaviour and uptime can be understood from data points like charging transactions and error codes.
- ▶ E-fuel card data so that public charging behaviour and costs can be fully assessed.
- ▶ Site meter data so that headroom and wider energy context can be understood.
- ▶ Operational rules so that vehicle performance constraints are clear.

Key Analysis

The analysis required depends on the questions the trial seeks to answer. The following are common evaluations:

- ▶ **Real world vehicle range** – what vehicle specifications are needed?
- ▶ **Charging behaviour and utilisation** – what chargepoint capabilities and powers are needed?
- ▶ **Vehicle and charger availability** – how many chargepoints are needed to avoid under provision but ensure sufficient flexibility?
- ▶ **Software performance** – how reliable and resilient is the digital architecture to ensure that drivers can simply arrive and charge?
- ▶ **Deployment templates** – what general aspects can be lifted and dropped to other sites?
- ▶ **Operational wins and challenges** – what working practices and policies need to change to support successful deployment.



Reporting

In a well-defined monitoring and evaluation scheme, conclusions to address the research hypotheses should flow from the analysis. These need to be communicated at a project-level with the core team and to the wider stakeholder base. The organisation's change management systems will be important to store and save standardised EV ecosystem health and performance reporting so that best practice and lessons learnt are accessible for all.

Stakeholder Engagement

Finally, clear communication is essential if project conclusions and insights are to be disseminated effectively within the organisation and to partners. The medium and method of this will vary by stakeholder. Training will be required prior to wider application of the learnings – project champions can be an effective way of leveraging best practice beyond the core team.

[Find out more about pilot design](#)

Consciously establish your pilots and rollouts with monitoring and evaluation in-mind.



Deploying at scale is the next big hurdle

Multi-site scaling is a major challenge.

Deploying electric vehicles and infrastructure at scale brings new challenges including procuring the right charging infrastructure, engaging with Distribution Network Operators, phasing the delivery of sites, securing the required funding and maintaining operational resilience throughout.

Very few organisations are at this stage. But those that are, are blazing a trail for others to follow, as shown by these three examples.

MPS is tackling the hardest vehicles first

The Metropolitan Police Service has a fleet of approximately 5,500 vehicles making it one of the largest blue light fleets in the UK with around 30% of its vehicles already electric or hybrid vehicles³.

It has recently switched focus from the 'easier' general-purpose vehicles to prioritising funding, resources, space and power on electric response vehicles which have the biggest impact on emissions.

The Metropolitan Police Service has made good progress and has now successfully transitioned an entire response team based out of Stoke Newington to electric vehicles. This site has demonstrated that one DC charger can support a fleet of seven response vehicles with no operational impact, and the benefit of learning upside.

"Where we have committed funding to run a pilot, we take the learning, but what we leave behind is a building or a team that has transitioned to electric vehicles."

Jason Powell

Metropolitan Police Service

UKPN is launching a simplified Blue Light grid connection application process

The UK Power Networks Blue Light Tool has been developed by Field Dynamics in collaboration with 78 stakeholders from across 29 ambulance trusts, fire and rescue services and police forces⁴.

The tool is designed to help emergency services to understand available electrical capacity at sites, estimate their future EV charging demand and receive indicative costs and timescales for new or upgraded grid connections.

The first version of the tool is launching later in 2026 and will be free to use for all emergency services in London, the South East and East of England.

"Across police, fire and health services, users told us what matters the most. This tool is built for them."

Gemma White

UK Power Networks

MNZH has estimated ~£1.4 billion investment is needed for grid and infrastructure costs

Midlands Net Zero Hub has published a report estimating the total EV infrastructure required for electrifying the UK police fleet⁵.

The report, prepared by Dynamon and funded by the Department for Energy Security and Net Zero, estimates that approximately 18,300 chargers and £1.4 billion of investment could be required to electrify 2,000 sites that are operated by the UK's Police Forces.

Grid upgrades account for 83% of the overall infrastructure costs at £1.16 billion. Analysis of shared charging opportunities in Nottinghamshire, South Yorkshire and West Yorkshire showed that this could be reduced by as much as 15-30% where co-location is operationally viable.

"Across the Midlands, police, fire, and ambulance organisations all faced national decarbonisation targets, but shared limited understanding, opportunity, or clarity on where to start - this report came about to look at the issue at a national level."

Kate Kirk-Walsh

Midlands Net Zero Hub

⁴ Blue Light - UKPN Innovation

⁵ UK Police Fleet Electrification: Understanding the Scale of the Challenge

Ease of scalability will be determined by the types of risks and options at each site

By applying a straightforward prioritisation methodology to existing estates data, Estates Teams can determine where risk lies for different sites:

1 Rank and prioritise sites by urgency

- Which sites are transitioning to electric vehicles first?
- Which sites have the least operational resilience?

2 Rank and prioritise sites by importance

- Which sites are most strategically important on the estate?
- Which sites are likely to need the most chargers or power?



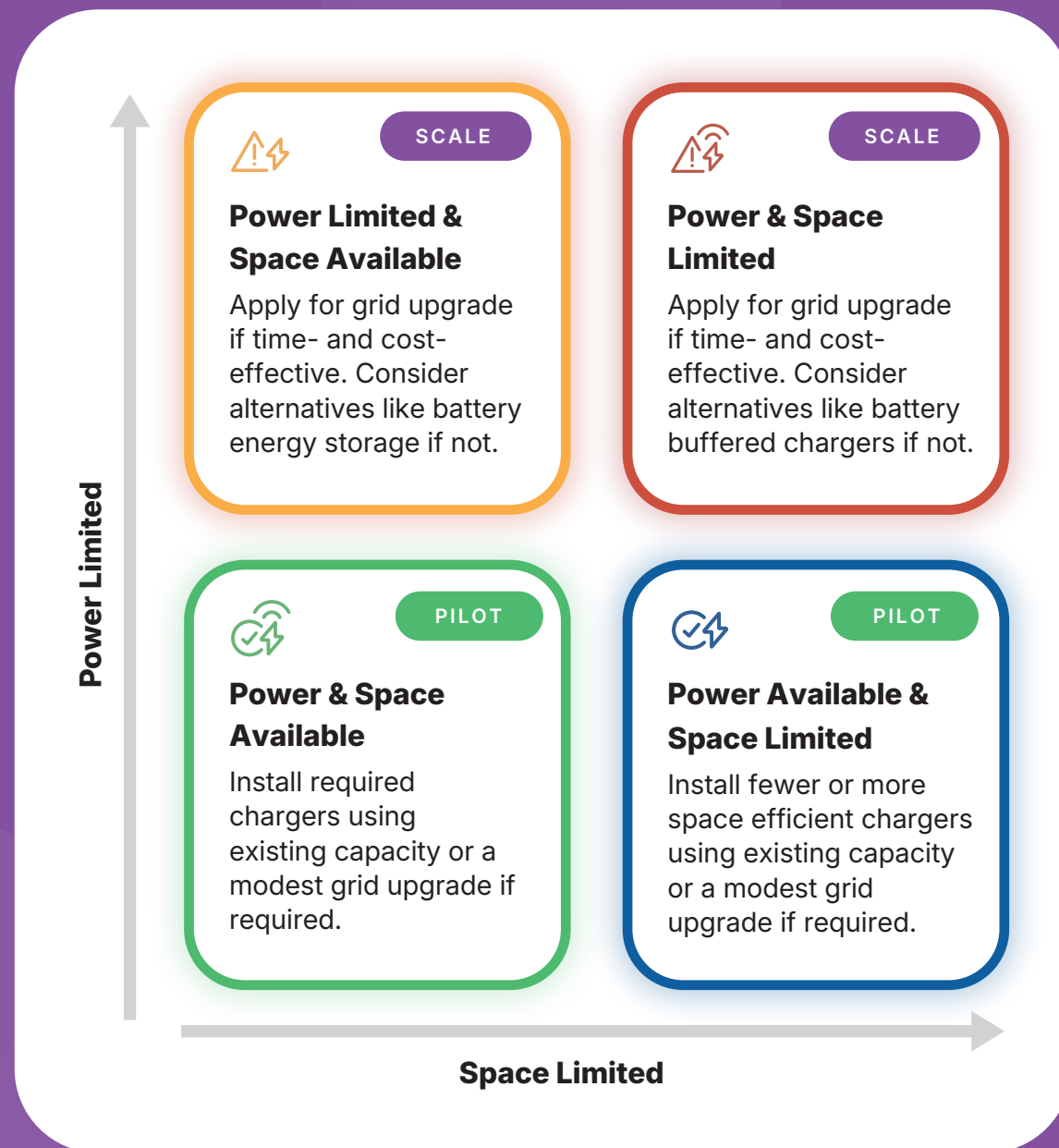
Using a set of simple assumptions and guiding principles enables a quick, high-level assessment of estates readiness and best next steps, providing an early strategic view that can be refined as more detailed fleet, charging and infrastructure requirements are developed.

3 Assess available power supply capacity

- What is the maximum import capacity and demand?
- How much spare capacity is available for charging EVs?

4 Assess practical site constraints

- Do vehicles have dedicated parking bays?
- Is there enough space for the required infrastructure?



Infrastructure sharing is emerging as a promising solution



Both of the matrices on the previous page reference 'alternatives'. To-date, this has consisted of either domestic charging for vehicles taken to employee homes or public charging. Both have their place but introduce additional complications in terms of policies, cost and time.

Sharing charging between closely-located organisations is emerging as a possible solution to plug some of the gap for those seeking more charging and to improve return on investment for those who have space capacity.

Essex Police uses high-power chargepoints at the Basildon First Bus depot to reduce their reliance on the public charging network

Essex Police has a fleet of just under 800 vehicles of which 50 will be electric vehicles by the end of 2026.

When Essex Police started to transition to electric vehicles in 2022, the initial focus was on meeting most of their charging needs on their own estate, with some charging on the public network.

This has now evolved to include shared charging with commercial partners based around 30-minute charging windows, guaranteed site access, use of on-site facilities and affordable charging rates.

Getting fleet and operational colleagues on site to see how shared charging could work in practice was key to securing buy-in and getting the initial trials underway.

"Shared charging is not seen as a replacement for on estate charging, it was always considered in collaboration with that to offset some of the capital expenditure."

Martin Fitzjohn

7 Force Commercial Services

MPS is exploring how shared charging fits their mixed charging strategy

Whilst on-site charging is most reliable and has the lowest running costs, it also requires the most capital and has the longest timescales.

As part of its 'mosaic' or mixed charging strategy, the Metropolitan Police Service is trialling charging at trusted partner sites as part of projects with Greater London Authority and Islington Council.

The Service estimates that their funding requirements for on-site charging infrastructure can be reduced by up to 33% due to the opportunities for sharing with other public and private sector organisation in London.

"Charge on estate by default because that is cheapest and most convenient, charge off estate at a partner location as overflow and then charge in public only if you really need to because the energy cost and operational impact are so much higher."

George Symes

Metropolitan Police Service

EMAS is looking to install chargers at its partners' sites

East Midlands Ambulance Service has over 1,000 vehicles based at 87 sites across the six counties in the East Midlands.

Its e-ambulances will need access to high-powered chargers at hospitals to help keep them on the roads but providing power and installing chargers near emergency departments is challenging.

Recognising that AC chargers already installed for non-emergency patient transport and community first responders aren't sufficient for double crewed ambulances, EMAS is actively exploring options for installing rapid and ultra-rapid chargers at ambulance stations and hospitals.

"That means that we are trying to explore ways of getting power to the outside of an emergency department, which is a live operational environment that is particularly sensitive and important."

Cara Turton-Chambers

East Midlands Ambulance Service

Infrastructure sharing requires partnership

To catalyse shared charging, Cenex is collaborating with C40 Cities and Greater London Authority to develop and trial new models that could benefit high mileage fleets such as the emergency services⁶.



The project is part of a global initiative led by C40 Cities and supported by Uber to increase charging access for their drivers. Cenex is supporting the development of the real-world pilots in London.

The benefits of shared charging are well documented, but the processes, agreements and technical solutions are still developing. Shared charging works best when it is mutually beneficial for both the hosts and visitors.

Hosts (Provide Chargers)

- **Network** of chargers for public sector fleets
- **Revenue** from new and existing chargepoints
- **Control** who can access your site and set charger availability
- **Agree terms** for different types and prices of charging
- **Lower risk transition to EVs**



Visitors (Use Chargers)

- **Operational resilience** and expanded coverage
- **Reduced charging costs** compared to the public network
- **Access to secure chargers** that can be reserved if needed
- **Predictable charging costs** and simplified billing
- **Lower risk transition to EVs**



There are currently only a handful of shared charging service providers operating in the UK including Corpay⁷, Evata⁸ and Paua⁹.

As such, most examples of shared charging have been built on individual partnerships between organisations rather than a local, regional or national network of shared chargers.

Successful shared charging partnerships depend on hosts asking the right questions and visiting fleets providing the information to answer them.

Hosts

- ▶ Who will oversee and control the process of shared charging?
- ▶ What are the challenges associated with accessing our sites?
- ▶ Who will we partner with for charging and software systems?

Visitor Fleets

- ▶ What are our specific charging and operational requirements?
- ▶ What types of chargers are our vehicles compatible with?
- ▶ What payment types, pricing models and liabilities are involved?

A range of documents are usually needed to underpin a shared charging partnership:

▶ Memorandum of Understanding:

This is a formal agreement between organisations which outlines a mutual understanding and course of action but does not constitute a legally binding document.

▶ Legal Agreements:

Once the partnership is developed further, the organisations might create and sign legal agreements. This could include agreements on non-disclosure, liability or site access arrangements.

▶ Use of e-Mobility Service Providers (eMSP):

Agreements are increasingly not directly between the host and visitor fleet organisations, but instead through eMSPs or other trusted brokers.

⁷ Voltempo and Corpay partnership moves to live rollout with Welch Group and Openreach – Voltempo

⁸ Evata – Electrification Management Platform

⁹ Paua Share

Conclusions

The webinar series has demonstrated the breadth and depth of progress on fleet electrification in the emergency services sector. Our speakers, contributors and guests have underlined just how much good work is being done.

Progress is being made as vehicles become available but systemic constraints such as access to charging infrastructure, access to sufficient grid capacity and access to funding require a systematic and collaborative response across national, regional and local levels.

A phased approach to prepare, pilot, scale and optimise is needed to deliver successful emergency services electrification.

Emergency Services are encouraged to:

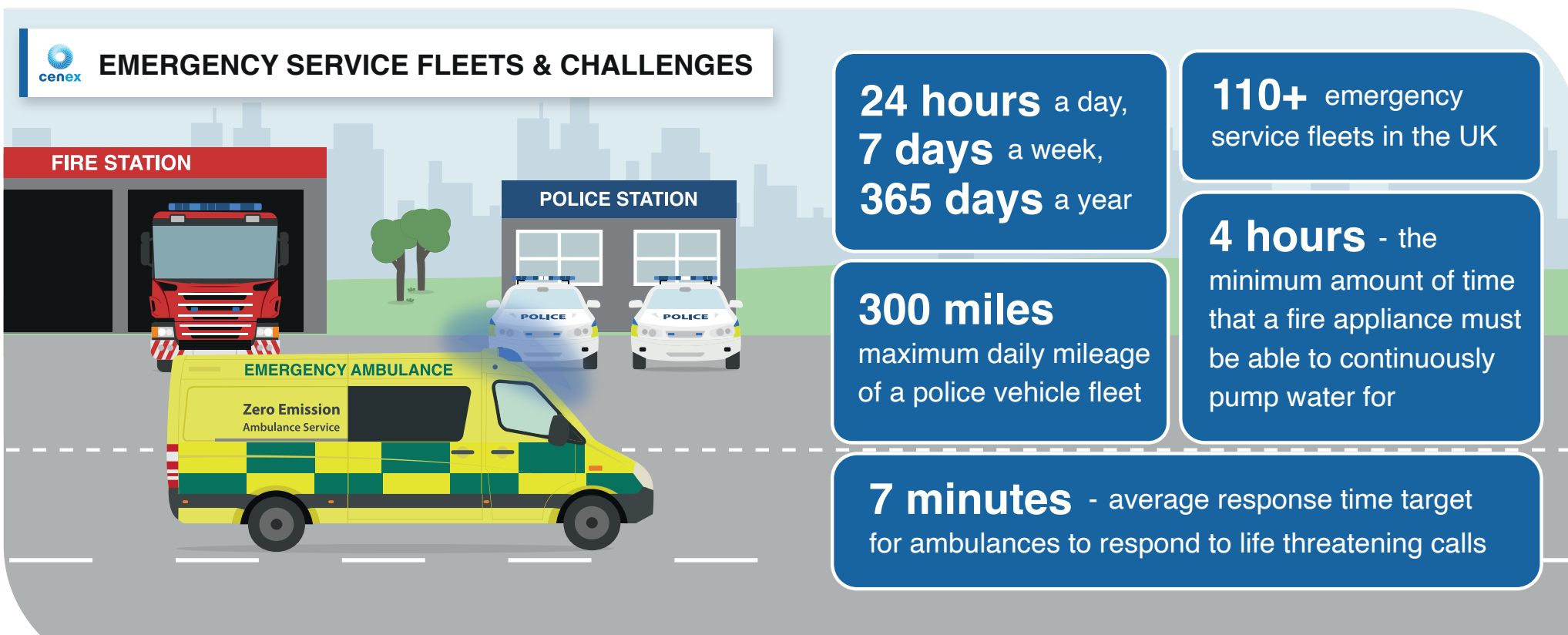
- ▶ Start the fleet electrification process now – data collection, establishing a baseline and getting decision in the right order cannot start early enough;
- ▶ Build an evidence-based investment case – mitigating risks, managing change and using total cost of ownership to maximise impact;
- ▶ Scope their pilots for widest benefit – using small, focused tests of vehicle and infrastructure solutions to rapidly test, learn and iterate with stakeholders;
- ▶ Monitor and evaluate deployments effectively – consciously designing activities to ensure data capture, analysis, reporting and stakeholder engagement;
- ▶ Follow the trail-blazers in scaling up what works – leveraging the learnings and insights of others who are further ahead;
- ▶ Prioritise their scaling efforts – through assessing deployment urgency, site importance, power supply capacity and practicality; and
- ▶ Explore mutually-beneficial infrastructure and data sharing partnerships to make more efficient use of capital investments.

Challenges remain:

Despite these concrete steps for success, a wide range of common challenges were identified in the webinars:

- ▶ Services are often essential to the communities in which fleets operate and interruptions could constitute a danger to life making it essential that deployment risks are managed in a way that maintains services.
- ▶ Emergency service duty cycles can be demanding requiring combinations of high payloads, high speed operation and very limited down time in many applications.

- ▶ Capital availability is constrained across the sector meaning inefficient infrastructure and vehicle investments are infeasible.
- ▶ EV deployments have historically been seen as optional and outside of core operations and risk management practice.
- ▶ There are barriers to collaboration within organisations, services and across the sector as a whole that can only be overcome if there is consensus on the value of co-operation.



Recommendations

The following recommendations emerged from the discussions and suggestions for national, regional and local stakeholders to consider:

Consistency

- ▶ Agree a nationally-consistent total-cost-of-ownership methodology and benchmark set for blue light electrification business cases.
- ▶ Publish standard best practice heads of terms and templates for infrastructure sharing (access, payment, liability, service levels) so that new partnerships do not start from a blank page.
- ▶ Innovate a workable process for consortium or joint connection applications to DNOs from co-located sites.

Analysis

- ▶ Map co-located blue light sites to identify the national, regional and local opportunity for shared charging.
- ▶ Extend the Midlands Net Zero Hub methodology to more regions.
- ▶ Explore how the 15-30% saving on infrastructure can be achieved through joint procurement or delivery models.

Sharing

- ▶ Give access to key services such as the UKPN Blue Light tool nationally so that all services can benefit from them.
- ▶ Create a national data sharing framework so fleets can pool learning without exposing commercially or operationally sensitive data.
- ▶ Disseminate learning actively across organisations through a common knowledge base and continuous professional training programme.

Project JOLT Example

The Joint Operator Logistics Trial (JOLT) is an initiative led by the Centre for Sustainable Road Freight (SRF) bringing together vehicle OEMs with operators like John Lewis Partnership, Nestle, Welch Group, Howard Tenens, William Jackson Foods and DP World and technology providers in a co-operative trial of eHGV technologies in a wide range of settings¹⁰.

Data is shared under a uniform reciprocal framework; it is processed and anonymised by a technology partner (Flexible Power Systems) so that it can be safely shared with SRF for analysis and at a high level with the wider consortium. The consortium functions despite both the OEMs and fleet operators in many cases being direct competitors because of benefits created.

About the Authors

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Carl leads on blue light electrification consultancy projects at Cenex, helping fleets to develop their fleet and estates transition strategies, plan their infrastructure rollout and deliver their initial pilot sites and electric vehicle deployments.

Cenex has supported more than a dozen emergency services across ambulance, fire and rescue, and police. We combine data and specialist tools with hands-on support: visiting sites, engaging stakeholders, shaping procurement and helping to get the best value from early pilots.

Cenex was established as the UK's first Centre of Excellence for Low Carbon and Fuel Cell technologies in 2005. Today, Cenex focuses on low emission transport & energy and operates as an independent, not-for-profit expert partner and research technology organisation.

Michael Ayres

Managing Director at Flexible Power Systems



Michael leads Flexible Power Systems (FPS), a software company whose products use data to plan EV transitions and automate real-time management of day to day operations.

Since 2018 FPS has worked with some of the UK's leading fleets ranging from retailers like John Lewis Partnership and Sainsbury's to Emergency Service and Council fleets designing fact-based transition plans and providing automated, real-time, operations aware optimisation of EV and charger usage.

This has removed barriers to EV deployments for the fleets FPS serves by improving EV business cases through more efficient use of capital assets, operational cost savings and improvements in resilience and uptime.



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