

Opportunities and Challenges of Developing Local EV Charging Infrastructure Networks

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- Introduction to Cenex
- Context for local EV charging infrastructure
- Opportunities
- Challenges
- Funding and support available

Reducing Emissions From Transport



Helping clients to assess, evaluate, implement and deliver low emission vehicle and associated infrastructure strategies

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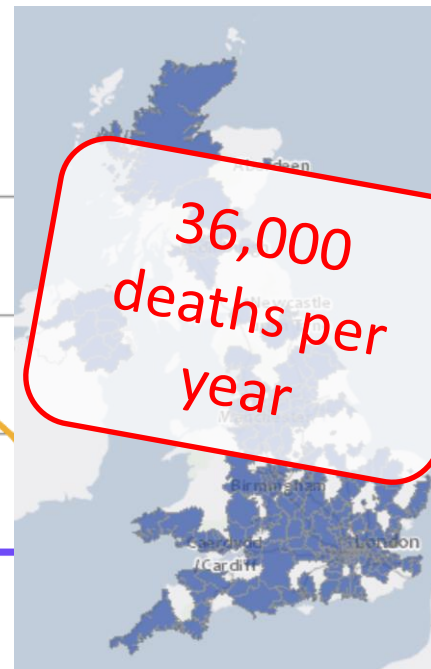
[@CenexLCFC](https://twitter.com/CenexLCFC)

Context for local EV charging infrastructure

Framed by global, national and local challenges



Surface transport



Appetite to switch to EV is increasing

2021

41% of drivers report they are likely to switch to electric in next five years

2022

64% of drivers report they are “definitely” or “likely” to switch to electric

Monthly EV sales increased ~20% from Jan 22 > 23

JANUARY

	2023	2022	% change	Mkt share -23	Mkt share -22
Diesel	5,280	6,008	-12.1%	4.0%	5.2%
Petrol	58,973	51,468	14.6%	44.7%	44.7%
MHEV diesel	5,119	5,732	-10.7%	3.9%	5.0%
MHEV petrol	17,243	14,907	15.7%	13.1%	13.0%
BEV	17,294	14,433	19.8%	13.1%	12.5%
PHEV	9,109	9,047	0.7%	6.9%	7.9%
HEV	18,976	13,492	40.6%	14.4%	11.7%
TOTAL	131,994	115,087	14.7%		

But frustration with EV Infrastructure is rising

UK Automotive calls for EV chargepoint mandate governed by independent regulator to level up network

NEWS

Home

Scotland

Alba

UK will fail to deliver the electric vehicle infrastructure needed by 2030, with four in five EV drivers calling on government to “do more”

Wednesday 5th October 2022

g points: Why

Belfast Telegraph [News](#) [Opinion](#) [Business](#) [Sport](#) [Life](#) [Entertainment](#) [Travel](#) [Sunday Life](#)

‘Concerning’ that Northern Ireland only part of UK where electric vehicle chargers have decreased

🕒 2 November

the rising use of EVs might outpace the installation of chargers

How do we address this?

- We want to
 - Start to move the needle on climate change, air quality and pollution
 - Support ongoing transport decarbonisation
 - Avoid customer frustration
- Enter EV Infrastructure!
 - Everyone can find and access EVI
 - Effortless on- and off-street charging
 - Fair pricing, inclusive design
 - Market-led rollout
 - Integration into the smart energy system
 - Continued innovation



HM Government

Taking charge: the electric vehicle infrastructure strategy



Key recent and upcoming policy/standards development

Amendment to Building Regulations (2021)

- Requirements for buildings with car parking to include EV charging and cable routes
- Residential and non-residential buildings that are new or undergoing major renovation
- Some exemptions where overall costs would be prohibitive

PAS1899 standard for accessibility in public charging (2022)

- Sets voluntary standard to achieve accessibility for public charging infrastructure
- Includes requirements for charging equipment manufacturers, network operators and land owners/operators (e.g. car park owners!)

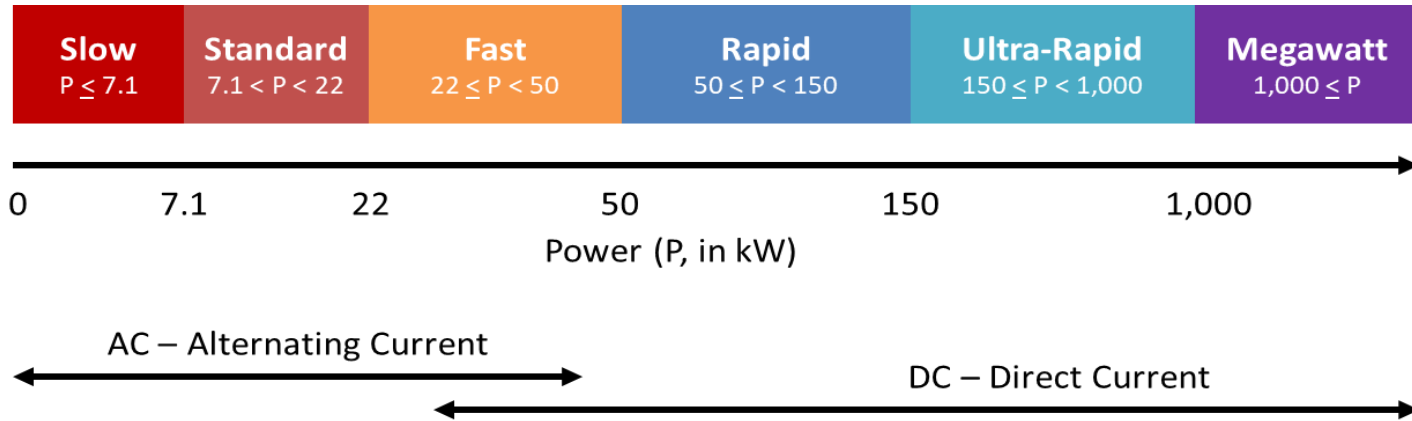
Consumer experience regulations (exp. Mar/Apr 2023)

- Standards for public charging infrastructure
- Mandatory standards for network reliability, open data, open payment, network roaming

Zero Emission Vehicle (ZEV) Mandate (2024)

- Regulations to set sales targets for zero-emission vehicles
- Targets increase, year-on-year, before reaching 100% in 2035
- Removes much of the uncertainty around EV adoption

EV Infrastructure comes in many types





Opportunities of local EV charging infrastructure networks

What do local authorities and their local residents, businesses and communities stand to gain from EVs and EV charging?

PESTLE

P



Political

E



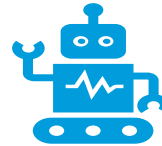
Economic

S



Social

T



Technological

L



Legal

E



Environmental

Local EV Infrastructure

Opportunities



Political

- Part of the response to declaring local climate emergency
- Forward-looking, modern and vibrant industry to be associated with
- Getting ahead of the issues regarding future mobility
- Being part of the solution to sustainable mobility



Economic

- Revenue generating opportunities
- Job creation through local installation and maintenance
- More disposable income and GVA through reduced motoring costs
- Attract visitors to local businesses
- Mitigated damages to health services from better AQ
- Retain motor fueling revenue in local/UK economy



Social

- Positive changes to mobility behaviour (e.g. charging while you do something else)
- Poor AQ linked to deprivation, and EVs can improve AQ
- Automatic transmission makes learning to drive easier



Technological

- Lots of uncharted territory, and potential to pioneer new and innovative solutions
- Can act with great certainty, as EVs are widely regarded as the primary technology to replace ICE cars and light vans
- EVs can help to reduce demand on local electricity grids



Legal

- An essential component of achieving local net zero goals
- An essential component of meeting legal air quality targets



Environmental

- Improved air quality
- Reduced greenhouse gas emissions
- Reduced noise pollution
- Flexible source of demand can reduce emissions from the electricity grid

Mythbusting revenue generating opportunities

- EV charging generates revenue
 - Yes, if it is not provided for free – which is increasingly rare!
- EV charging is profitable
 - In general: not yet. Investors are confident that it will become profitable in the future, thanks to UK Govt commitments.
- Rapid charging is profitable
 - Also generally not true, for now. But it is relatively more profitable and will achieve returns sooner than slower forms of public charging, as it effectively has a greater sales capacity and can recharge more vehicles in the same time
- There is no commercial case for slower forms of public charging
 - Untrue, but significant returns on investment are not expected for many years.

Rules of thumb on EV charging revenue generation

- Offer contracts over a long-enough period of time to have a reasonable chance of recouping short-term costs from long-term charging demand
 - ~8 years for rapid charging, ~15 years for slower charging
- The more money invested by the landowner/local authority, the greater revenue can be expected – but also greater share of risk
- Profit share is usually more ideal than revenue share, as a revenue share creates additional costs that are ultimately passed on to the consumer
- Targeting infrastructure where it is most likely to be immediately used should increase revenue – but care should be taken to ensure equitable access

Challenges of local EV charging infrastructure networks

What are the typical barriers we need to overcome to deliver local EV charging infrastructure networks?

Challenges



Political

- Opposition to EVs often expressed more vocally than support
- Debate remains on whether EV charging should fall into the duties of a local authority
- Any complaints likely directed at local elected members
- EV charging does not fit into the existing structures of government, responsibility is difficult to attribute



Economic

- No realistic revenue generating potential for many years
- Grid connection costs can ruin business case
- Poor business case to provide infrastructure in less-affluent areas
- High electricity costs can make public charging comparable to petrol/diesel
- No budget for ongoing revenue costs within local authorities



Social

- Short-term benefit weighted towards more-affluent groups
- Can reduce space on pavements and obstruct pedestrians
- Inequity between off-street and on-street parking
- Perception of dedicated parking, until EVs become commonplace
- Can reduce accessibility without due consideration for disabled motorists



Technological

- Still new and generally poorly understood, often delaying action or leading to mistakes
- Some areas under development – e.g. wireless charging, bi-directional charging, plug-and-charge
- Fire risk in indoor car parks (low likelihood, high magnitude) yet to be addressed



Legal

- Attaining planning permission can be time consuming, where it is needed
- Still awaiting UK regulations regarding EV uptake and EV infrastructure
- Implementing EV only bays (traffic orders) can be time consuming
- Requirements under building regulations can be easily avoided
- Ownership unclear for cable channels across pavements



Environmental

- Ultimately not as good as getting cars off the road
- Grid electricity not renewable
- Still some AQ issues, relating to particulates
- Infrastructure locations will have an increasing impact on traffic flow, potentially increasing congestion and air pollution in unforeseen ways
- End-of-life considerations for EV charging equipment are underexplored

Support available to local authorities

*Introduction to the Local EV Infrastructure Fund and the LEVI Fund
Support Body*

Funding is available

Funding Sources

- Local Authority capital funds
- Asset financing
- Equity
- Private Sector investments
- Central Government (right)

ORCS Fund

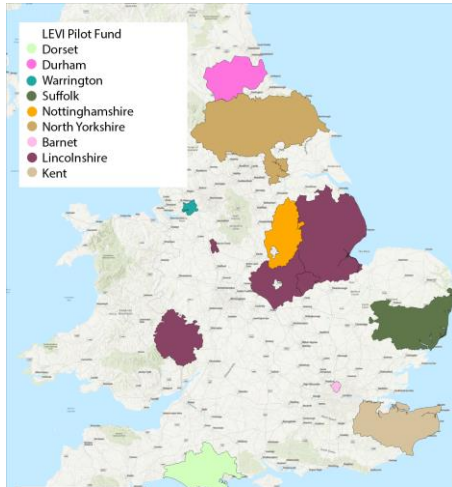
- £37m capital fund (22/23)
- 60% grant rate
- Rapid charging not included

LEVI Fund (England only)

- £400m capital fund (23-25)
- £50m capability fund (23-25)
- Rapids included

LEVI Fund Delivery has begun

Pilot – August 2022



- £10m funding
- 1,038 chargepoints

£56 million of public and industry funding electrifies chargepoint plans across the country

Pilot – Feb 2023

- 16 new pilot projects
- 3 original pilots expanded
- £22m funding
- 2,400 chargepoints
- 613 gullies

Capability – Feb 2023

- £8m for LA Officers
- Allocation available to every Tier 1 authority
- Applications open now!

The LEVI Support Body advises, guides, resources



energy
saving
trust

The LEVI Support body provides technical, commercial and programme management expertise:



Provide
insights



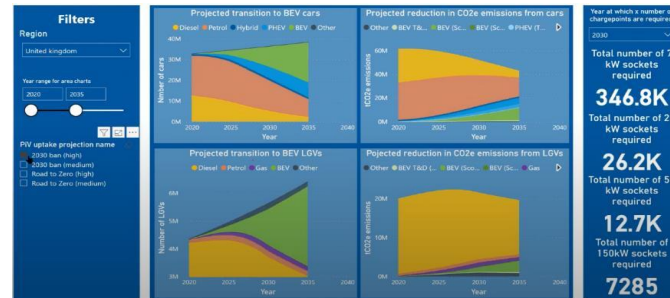
Bespoke
advice



Knowledge
repository



Share best
practice between
LAs



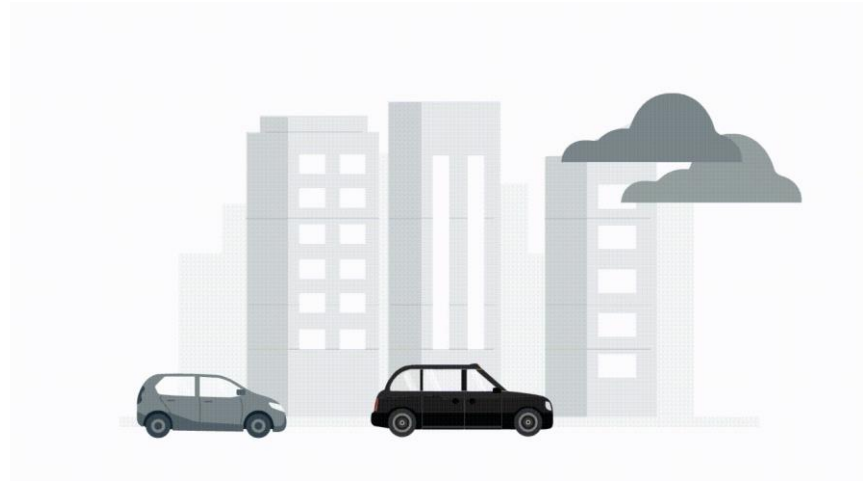
NEVIS
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Insights Toolkit: LA-specific quantitative data and modelling
Knowledge Repository: qualitative advice and guidance (including Heads of Terms)
Networking: connect with other officers
Roadshows: educate and equip LA officers

LEVI Portal: Online platform for LAs to apply for LEVI, access guidance and support, and provide ongoing reporting
Local Government Support Programme: Energy Saving Trust's existing support will continue to all local authorities.

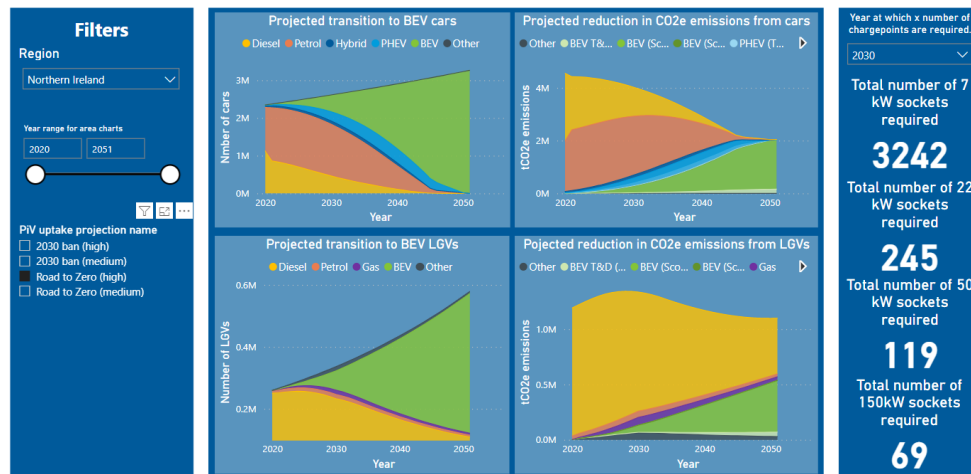
Cenex is playing our part to guide, advise, resource

- National EV Insight and Strategy (**NEVIS**) service
- Packages-up years of advice and guidance work to support LA strategy development and delivery
 - Insights Toolkit
 - Knowledge Repository
 - Networking
 - Procurement Forum
 - Ad-hoc Advice
 - Application Assistance



Toolkit: LA-Specific Quantitative Information:

- Current Status
 - Vehicles, EVs, chargepoints, emissions, early adopters
- Future Projections
 - EV uptake
 - Required chargepoints
- Potential Benefits
 - CO2 impact
 - Air quality impacts
- Implementation Planning
 - Mitigated damage costs
 - Outline business case inputs



Insights Toolkit - © Cenex 2022

➤ Data is available to non-LAs too.

Supported by Knowledge Repository

Knowledge Repository

Equipping and resourcing Local Authorities to deliver EV Infrastructure (EVI).



What would you like to search for?

- ✓ Build long-term capacity and capability in Local Authorities;
- ✓ Upskill Local Authorities, especially those with limited experience in this arena;
- ✓ Embed best practice to enable independent Local Authority actions and reduce the long-term reliance on the Support Body;
- ✓ Provide practical recommendations, including templates; and
- ✓ Information on where to go to find out more

Divided into steps to address LAs at each stage

- 1 Just Starting Out
- 2 Decision to Act
- 3 Developing your Strategy
- 4 Delivery Planning
- 5 Procurement
- 6 Mobilisation & Installation
- 7 Operations



Step through the stages of your EV journey

Explore guidance and key information for each stage of the EVI delivery process.

A growing resource of articles, guidance and videos

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8 LEVI Support Programme

Roadshow 1

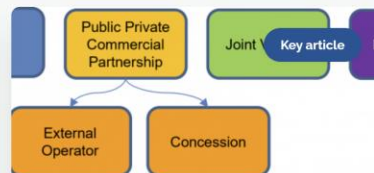
Contents

[Roadshow Aim](#)
[Register for the next event](#)
[Roadshow 1 Details](#)
[What is wanted from Local EVI? An EV Driver's Perspective](#)
[A focus on: Lamppost charging.](#)

5

Procurement

Advice, guidance, and templates for procuring EV infrastructure and associated services


[Intro to EVI Procurement](#)

[Commercial Arrangements](#)

Strategy Checklist:

This section summarises the Table of Contents for a typical strategy:

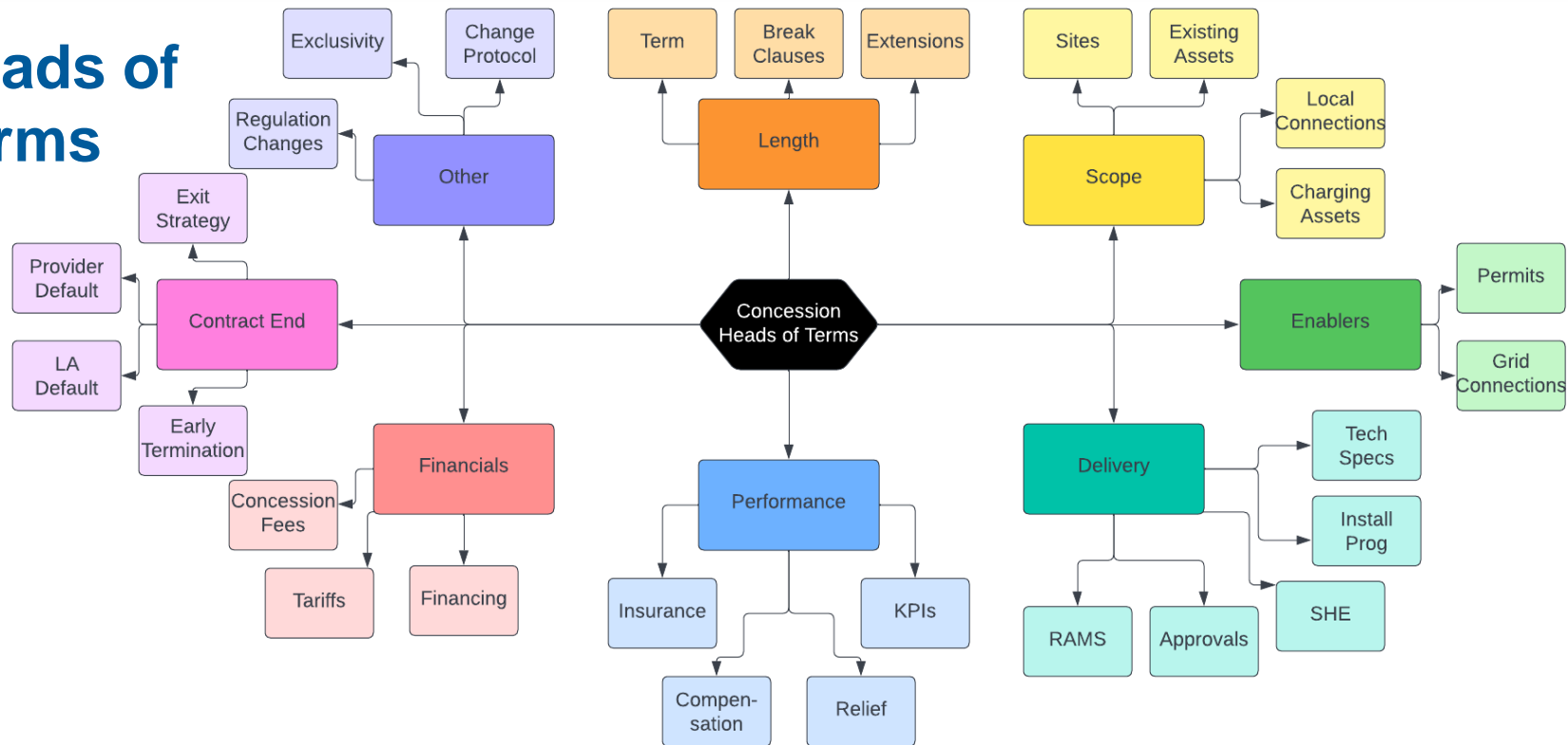
document

by EVI, coordinated by a strategy – political, economic, social, and digital

the parc, road transport emission, air quality, EV uptake to-date

os and the need for EVI – typically public EVI is the primary driver given to householders using pavement channels, chargepoint

Heads of Terms



Local EV Infrastructure

Networking

- Delivered in coordination with EST's Local Government Support Programme team
- Connects together Officers involved in the design and delivery of EVI Strategies
- Questions mostly posed and answered by officers, with EST and Cenex staff providing links to key resources

➤ Local authorities: register now at nevis.cenex.co.uk



The screenshot shows a discussion forum thread with the following content:

08/12/2022 14:00
 Hello Local Authority EV Discussion Group I joined last month as EV Project Officer. One of the projects we are working on is an ULEV Salary Sacrifice Scheme. We would be really interested in talking to other councils, in particular those local to ourselves, who have already implemented such a scheme.
 See more
 1 likes
 11 replies from Heather, undefined, undefined, and 2 others
 Reply

03 January 2023

15/12/2022 08:53
 Hi, just wondering if any LAs are working with their local Housing Association to deliver on-street charging? The majority of houses without off-street parking in our area are Housing Association owned and we are keen for them to take a lead on providing EV charging for their tenants - is anyone else having any joy with this?
 See more
 3 replies from Richard
 Graham Folkes-Skinner (Guest) 03/01 08:08
 Great idea Sarah, I would definitely be interested in that meeting. Kind regards Graham
 Reply

Today

15:53
 Some councils are considering Hydrogen for their fleets as a solution due to Grid constraints with large solar farm projects in rural areas cannot connect to grid and to use it for Green hydrogen. EST can help provide an overview on alternative fuel impacts as we are fuel agonistic. If this is something your council is looking at, please
 See more
 Reply

14/12/2022 19:52 Edited
Innovate UK KTN - Rural council support needed
 Local Authority EV Discussion Group Innovate UK KTN are doing a round table workshop on rural mobility challenges and how digitalisation can help with these challenges on 17th January from 2:00pm to 4:00pm your feedback will help shape an upcoming LA Webinar to share digital solutions to help
 See more
 1 likes
 Reply

15 December 2022

28/11/2022 09:42
 Hello all - has anyone experience in installing EVChps on 3rd party owned land - e.g. parish or charity (village halls)
 as many rural villages often with parish or charity owned central car
 See more
 3 replies
 Reply

08/11/2022 10:18
Good morning Local Authority EV Discussion Group
 Hope everyone is well.
 See more
 9 replies
 Reply

28/11/2022 12:07 Edited
 Local Authority EV Discussion Group We have had a few councillors ask why we are getting involved in EV and not leaving it whole to private sector. I put fwd my thoughts and used some of our feasibility but they want more ...
 See more
 15 replies
 Reply

15/12/2022 14:50
 I'm wondering if anyone has looked into EV charging points for school car parks (staff use, not parents). Its not something I have seen mentioned when looking at other authority EV strategy so wondered if its being considered. I'm not sure its the highest of priorities given the access to the charging point would be selective, but I guess it
 See more

15/12/2022 14:59
 Heather Foster
 When looking at EV charging for schools councils have either covered it under:
 • Estates - If school comes under their area that it is 'workplace charging' to take advantage of the 40 sites to have EV charge place grants with
 See more
 Reply

Thank you for listening

Jacob Roberts

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