# E40

## Now and Next: Who's Who in the EV Revolution

SPRING 2023

futurice

# Meet the companies powering our electric future

Despite supply chain problems, high inflation and weakness in the global economy, the UK EV market is off to a flying start in 2023, with battery electric deliveries up by almost 20% in March – marking the biggest month on record for uptake of zero-emission vehicles. But the question remains: will this momentum deliver mass-scale transition amid continued shortages, concerns over infrastructure roll-out (including the ability of multi-storey car parks to withstand EV weight), government delays in boosting EV adoption and a sometimes jostling mix of players and ideas?

Futurice's E40 report examines this mixed picture, putting muscle on the bones of topline sales figures. We identify which manufacturers are pioneering the remarkable transition from ICE to electric, with a rundown of their actions today and plans for tomorrow – ahead of ambitious 2030 targets.

We also single out the movers and shakers involved in the wider EV ecosystem; the brains behind the most significant overhaul in physical infrastructure since the advent of flight. From fast-charging rollout to lithium-ion battery innovation, digital payments to urban renewal, there's a lot to take in. We rank each entry based on ambition, impact, innovation and momentum. ↴

Find out more at futurice.com

Our E40 deliberately frames the global EV landscape via a UK lens, with one key takeaway: collaboration rules all. Oxford City Council, a new entry this year, offers a blueprint in this respect, showing what might be possible when society's stakeholders unite to scale up green transport in tandem with power and heating. If we can expand partnerships to include not just manufacturers, energy suppliers and site owners, but also local government and academia, the implications would be huge.

Westminster must also step up in setting the scene for a more affordable and accessible EV market. Right now, the UK has all the scientific and engineering expertise it needs to build a world-class electrification industry – including electric aviation. However, the disastrous collapse of Britishvolt, lack of detailed clarity about the ZEV mandate, along with the short-sighted withdrawal of EV buyers' subsidies, suggests that government ministers have failed to grasp the significance of this shift both as an economic opportunity, and a social necessity. The media also has a part to play in reducing consumer anxiety, with communication-savvy platforms like Zapmap paving the way to a new standard of consumer messaging.

Find out more at futurice.com

The other big headline this year is that we've expanded our report from E30 to E40; and only 18 of last year's entrants continue to make the cut. While heavyweights like Hyundai, Mercedes-Benz and Stellantis have raised their game, our new-edition shortlist points to a fast-growth industry that is constantly evolving. The moment an EV player stops innovating, there's a rival ready to jump in; as demonstrated by four new entries in our 2023 top 10.

At Futurice, we are under no illusion about the roadblocks on the EV journey ahead but we are very optimistic about the future. Because as this report shows, in the UK's dynamic EV ecosystem, barriers are, increasingly, the catalyst for innovation and ecosystem players consistently outperform by breaking free from their comfort zones. From car manufacturers building gigahubs, to charging platforms becoming one-stop energy platforms, to logistical long-haul and last-mile tech, the future's all to play for.

**David Mitchell**
Managing Director, Futurice UK

**Matthew Edwards**
Managing Partner, Futurice UK

# The Electric 40

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1 =

# Tesla

Tesla's share price fell by 65% in 2022 over fears of stalling growth. Nevertheless, the firm still led the EV pack with 1.31m car sales, and with news of the launch of two gigafactories confirmed, Tesla is still the one to beat. While CEO Elon Musk's controversial management style concerns some investors – the brand, arguably, impacted by price cuts on existing models and an ongoing Twitter 'distraction' – a recent 20% bounce in share price suggests most are still along for the ride.

**Founded**
2003

**Specialism**
Electric vehicles, autonomous services, cell manufacturing

**Website**
tesla.com

# Tesla

## EV super surge

Last year brought another period of rebound growth for Tesla, as the EV pioneer continued to expand its share in key markets worldwide, selling well over 1m cars in the space of 12 months. The brand's record-breaking surge in production and sales is primarily driven by its new Model Y, an EV best-seller – despite its £44,000+ price point – in the US, the UK, Europe, and beyond.

New gigafactories in Austin and Berlin have supersized this growth curve, with the Texas factory, in particular, carving out new opportunities for lithium extraction, home-powered grids and the launch of the much-anticipated Tesla Cybertruck.

## Gigafactory growth

Diverting pressure from US and China plants, Tesla's new gigafactories aim to cement its position as a runaway leader in the global EV landscape. Its first manufacturing facility in Europe has already paid dividends. In September last year, Tesla had a record month in Germany, delivering 9,848 Model Y vehicles, making it the best-selling vehicle in the hard-to-crack German market (ahead of the VW Golf) – as well as in Europe. By introducing price reductions worth thousands of pounds on its Model 3 and UK best-seller Model Y, Tesla hopes to compete even more successfully in the UK electric car market.

## Novel solutions

Part of the reason why Tesla poured billions of dollars into its new Texas gigafactory in 2022 was to supersize production of its new 4680 battery cells – a format the brand claims will reduce EV production costs.

## Ambition & potential

More than 1m car sales in 2022 underlines the huge head start that Tesla has over its rivals in the EV business.

## Impact

Tesla's impact goes well beyond car sales, with the company firmly established as one of the world's leading lifestyle brands.

## Innovation

From virtual power plants to gigafactories, Tesla's 360-degree vision is driven by innovation across the entire EV ecosystem.

## Momentum

Sales of Tesla's Model Y have helped maintain the company's status as the auto manufacturer to beat in the EV market.

# Tesla

Facing grid problems in Texas, the manufacturer still managed to triple its car cell output in Q3 2022 and is now moving ahead with plans for a lithium refinery on the Texas Gulf Coast. The first-of-its-kind facility in North America will, according to the company, hand Tesla further control over the EV supply chain with direct access to a key battery component.

### 360-degree vision

A power player in the broader clean energy ecosystem, Tesla once again proved its innovation credentials with plans to turn Texas homes into a "virtual power plant". The scheme aims to use home solar panels and batteries as a grid resource that its customers can then sell back to the grid.

Back in EV territory, the brand coupled its announcement of Q3 revenues with an update of imminent delivery on its semi-electric heavy-duty truck. Tesla's hotly anticipated Cybertruck pickup, meanwhile, is set to begin early production from Texas later this year – once the factory has completed its Model Y scale-up.

While Musk's controversial management style concerns some investors, a 20% bounce in share price suggests most are still along for the ride

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NEW


# myenergi

Energy independence is the vision driving huge growth for myenergi, an eco-tech startup that has put the Lincolnshire town of Grimsby firmly on the map, with its innovative fleet of home-charging products. A smart home battery is the latest addition to a self-contained ecosystem for the UK's 1m solar panel homes, making myenergi a new entry (and frontrunner) in the E40.

**Founded**
2016

**Specialism**
Renewable energy products manufacturer

**Website**
myenergi.com

# myenergi

## Home-charging champion

A serious contender in the sphere of home energy ecosystems, myenergi has built on the success of its popular zappi product, a solar and wind-compatible electric car charger, to spectacular effect. It aims to help a growing subsection of homeowners to produce energy in-house, using its home charger, diverter and battery solutions. With a new HQ, beta trial and training academy in the works, its impact on efficient home EV charging could soon be game-changing.

## Closing the circle

Myenergi's new libbi home battery enables its customers to build on its other products – including zappi and eddi, a smart solar diverter – to "complete their own energy ecosystem". The eco-smart solution is hybrid, allowing homeowners to maximise their energy supplies by charging the battery based on solar, grid energy or a mixture of both, with an agile system that is optimised around time of use. EV owners can, thereby, reduce energy costs and reliance on the grid.

## Rapid expansion

Ranked at number nine in *The Sunday Times 100,* a list of Britain's 100 fastest-growing private companies, myenergi's tech innovation has been matched by lightning growth. The brand enjoyed a 184% surge in annual sales over three years from 2019, including £53m sales in January–May 2022, alone. This has prompted the brand to launch new subsidiaries in Germany, Australia, Ireland and the Netherlands. It is also cooking up plans for a 15,500sq ft flagship HQ on a £2.6m business park development in Lincolnshire.

## Ambition & potential

Myenergi has big plans. In addition to a new flagship HQ in the UK, it is rolling out subsidiaries across Germany, Australia, Ireland and the Netherlands.

## Impact

A series of home-charging product launches could make energy independence a reality for homes that buy into the company's vision.

## Innovation

Myenergi's innovation lies in the creation of a pioneering home-charging ecosystem.

## Momentum

Rapid growth in sales demonstrate that myenergi has captured the consumer's imagination.

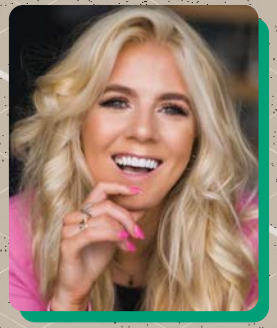
# myenergi

**Talent and trials**

In a sector that is still heavily dominated by men, myenergi co-founder and chief marketing officer Jordan Brompton has smashed through the energy sector's glass ceiling. A disruptive business leader, eco-warrior, mother and entrepreneur, she is responsible for forging core relationships at the firm and driving the international expansion strategy. Recent accolades include being named Great British Entrepreneur of the Year.

Myenergi has also thought ahead on the UK's crippling tech talent shortage. With a team that has expanded from six to more than 350 employees, it opened a 'myenergi academi' last year – setting in play a series of apprenticeships to nurture a new generation of talent across specialities including engineering, finance and HR. Separately, it also conducted a new flexibility trial with customers, which is focused on reducing grid overload. The beta test involved participants altering how, and when, they charged their vehicles, with a view to myenergi offering demand-side response services directly to consumers.

In a sector that is still heavily dominated by men, myenergi co-founder Jordan Brompton has smashed through the glass ceiling



## Jordan Brompton

Co-Founder

myenergi

in

LinkedIn

**What's your view on the UK EV market right now?**
We have seen some very positive developments in recent months, for example the highest ever new electric car registrations in the UK in March 2023, with almost 65,000 sold – more than in the entirety of 2018. However, supply challenges remain. Model choice is not as broad as it is for petrol and diesel cars, and prices are still considerably higher than equivalent ICE vehicles.

In the past, these have been offset by lower running costs, which is still the case if you can charge at home, but higher public charging costs are an issue. These are down to higher electricity prices, which are still pegged to the price of gas, thanks to the archaic structure of our energy market.

The SMMT recently downgraded its forecast for new EV registrations for 2023, so while we remain positive about the prospects for the market, it is clear that growth will be lower than most of us expected this year.

**How are you responding to this at myenergi?**
We are vocally supporting the renewed commitment to the ZEV mandate, with targets for each year leading up to the 2035 phase-out date for new petrol and diesel cars and vans. It is good to see such targets now being proposed in other markets in which myenergi operates, such as Australia, and we are also pleased to see government remaining firm in its commitment to zero emissions, essentially ruling out synthetic 'e-fuels', as the ability for such fuels to be produced in a low or zero carbon way has been far from proven by their advocates.

We are pleased to see government remaining firm in its commitment to zero emissions

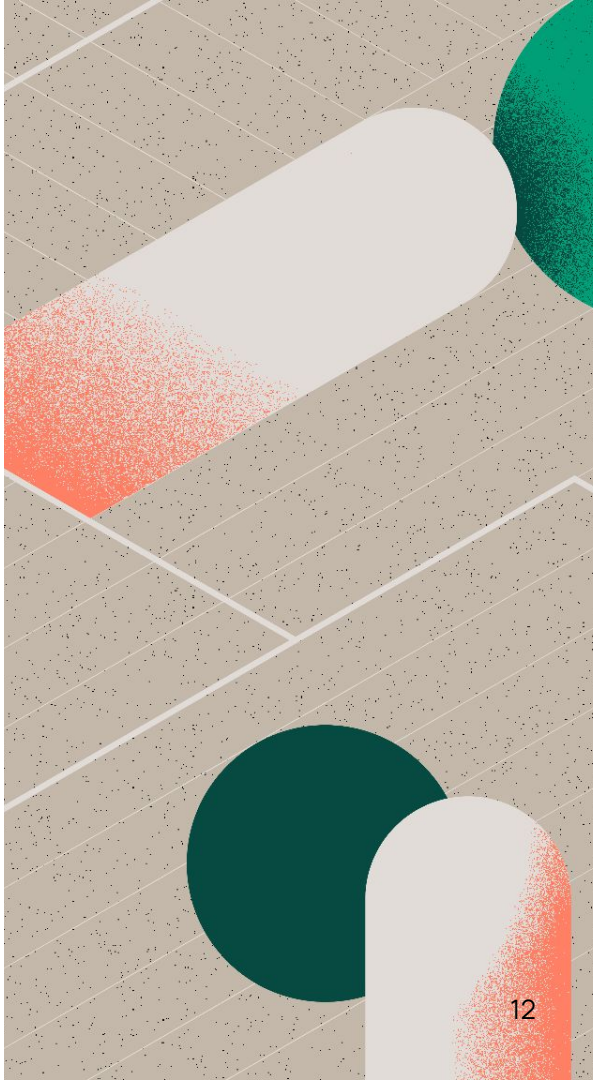
We remain focused on ensuring that customers can increase their energy independence, especially if they have their own generation, including by storing surplus energy and using it later with our new libbi home battery – and not just to charge their cars, but to heat their homes as well. We have also boosted our manufacturing capacity with a new 65,000 square foot production facility that will be opening in the coming months.

**What more can the industry as a whole do to futureproof the ecosystem?**
We need to continue to embrace renewables as the lowest cost, lowest carbon way to increase our generation, which we will need to do to support the energy transition and achieve Net Zero targets. The industry must also get comfortable with the inevitably decentralised and distributed energy system, where consumers become much more empowered in terms of their energy and less at the whim of the big energy incumbents. This will include consumers providing distributed flexibility, such as what we have demonstrated in recent grid events, where we have aggregated thousands of our zappi EV chargers in order to be able to dynamically respond to grid requests to free up capacity on the grid for short periods.

> The industry must get comfortable with the inevitably decentralised, distributed energy system

**Who are your "Ones to Watch" in the EV space?**
One thing we are focused on is trying to reduce the gap in convenience and cost between those who can charge at home, including cheaply off-peak or with free renewable generation; and those who cannot park off-street, who will most likely be reliant upon public charging. One company that has caught our eye is Kerbo Charge, which is deploying a flexible gulley solution into pavements, with a self-closing lid, that enables 'through-street charging', where an EV driver can use a home charger to safely charge a vehicle parked on-street.

In terms of the vehicles themselves, it's interesting to see the legacy manufacturers pivoting to EVs with varying degrees of success. VW Group seems to be succeeding in getting a good supply of vehicles to customers, and the efficiency of the Korean brands like Kia and Hyundai is impressing us. It's also great to see more affordable EVs coming to market, and MG has done well in undercutting many rival brands. After its significant growth, it will be interesting to see how well Chinese brands like BYD do in the UK market, without having a legacy British badge like MG.



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# Octopus Energy

Europe's highly respected face of renewable energy has been central to the creation of a simpler, more affordable EV network in recent months – led by a £110m investment in Be.EV, along with purpose-led expansions of its award-winning Electric Universe and Intelligent Octopus tools.

**Founded**
2015

**Specialism**
Energy management, control and optimisation

**Website**
octopusgroup.com

# Octopus Energy

### Accelerating EV adoption

A stalwart of the green energy sector, Octopus Energy is well aware that mass-scale EV adoption relies on a transformed experience: one that is easier, cheaper and more accessible to global audiences. Its recent takeover of collapsed rival Bulb Energy, with 1.5m new customers, is merely the icing on the cake for a company that has taken giant leaps in the past year to power up EV home and public charger networks.

### Ending EV exclusion

With its parent company a certified B Corp, Octopus Energy has long zeroed in on the role of community in driving the green revolution, including electric transport. Already the provider of 100% green electricity to Be.EV, the company recently backed its partner with a £110m fund to expand its 150-strong public charging network.

The move is designed to add 1,000 EV charge points across the north of England and beyond by 2024, with a model based on building concentrated networks where they're most needed. The investment is Octopus Energy's first foray into funding EV infrastructure, with the purpose of "turbocharging" consumer uptake and confidence based on easy, fair access for all. It will mainly target areas that have, so far, been overlooked by the UK's public charging network, which is currently skewed towards London and other urban hubs.

### Home chargers, flexible tariffs

Octopus Energy has also extended its reach by way of a new partnership with Vauxhall, giving wings to the legacy brand's ambition to be electric-only by 2028.

### Ambition & potential

A leading energy supplier with an expanding EV footprint, Octopus has established itself as a key driving force in Europe's electrification vision.

### Impact

The investment in Be.EV takes Octopus directly into EV charging infrastructure for the first time.

### Innovation

The creation of Electric Universe and Intelligent Octopus illustrate how the firm is successfully innovating around customer experience.

### Momentum

The takeover of Bulb Energy, combined with diversified EV-related investments, means that Octopus is currently in overdrive.

# Octopus Energy

The deal gives Vauxhall customers, both new and existing, a chance to install a home wallbox charger linked to Intelligent Octopus, a flexible charging tariff that charges renewable energy at its cheapest, helping to balance grid demand – and offering EV owners valuable savings amid a cost-of-living crisis.

**A simplified experience**

In September last year, Octopus Energy announced that its roaming service, Electric Universe (rebranded from Electric Juice), had grown to 300,000-plus charger points globally, operated from a single card and app – helping to alleviate "range anxiety" for millions of EV drivers across the UK and Europe. With more than 450 charging networks, including the likes of Ionity, EvBox, Fastned, Osprey, Mer and Char.gy involved in the scheme, Electric Universe has nailed its colours to the mast as one of the industry's most useful one-stop tools.

With its parent company a certified B Corp, Octopus Energy has long zeroed in on the role of community in driving the green revolution

## Claire Miller

Advisor, formerly Director of Tech and Innovation
Octopus Electric Vehicles

in
LinkedIn

**What's your view on the UK EV market right now?**
Supply is constrained right now. For sure, there is pent-up demand in the market. Part of the challenge around meeting that demand is the availability of vehicles. I think the other challenge is the range of vehicles and affordability. Obviously, everyone has a different threshold for affordability, but we really need to see more vehicles coming in at that kind of entry level for new and younger drivers.

And so I think we're waiting for manufacturers to bring that affordable, small battery, round-town type vehicle. A lot of the focus has been on bigger batteries to do these big journeys. And that, I guess, broadens out to charging which is going on at all levels of speed in all locations.

We're also at a very delicate moment in this transition to EVs. With this Zero Emission Vehicle (ZEV) mandate, we need to see the government make a bold and clear move, to set out that path to 2030. And, being brutal, it would be a real travesty if manufacturers were able to influence government policy because they're not commercially ready.

**How are you responding to this at Octopus EV?**
We have done a few things in a pragmatic way. One is to put a focus on finding stock in the market. Some of that is physical stock that is available via our dealer network and our close relationships with the manufacturers. And some of that is secured supply.

> We really need to see more vehicles coming in at … entry level for new and younger drivers

So that means, build slots for new vehicles are locked in for the manufacturer. It gives us a bit more certainty that we will be able to access those vehicles.

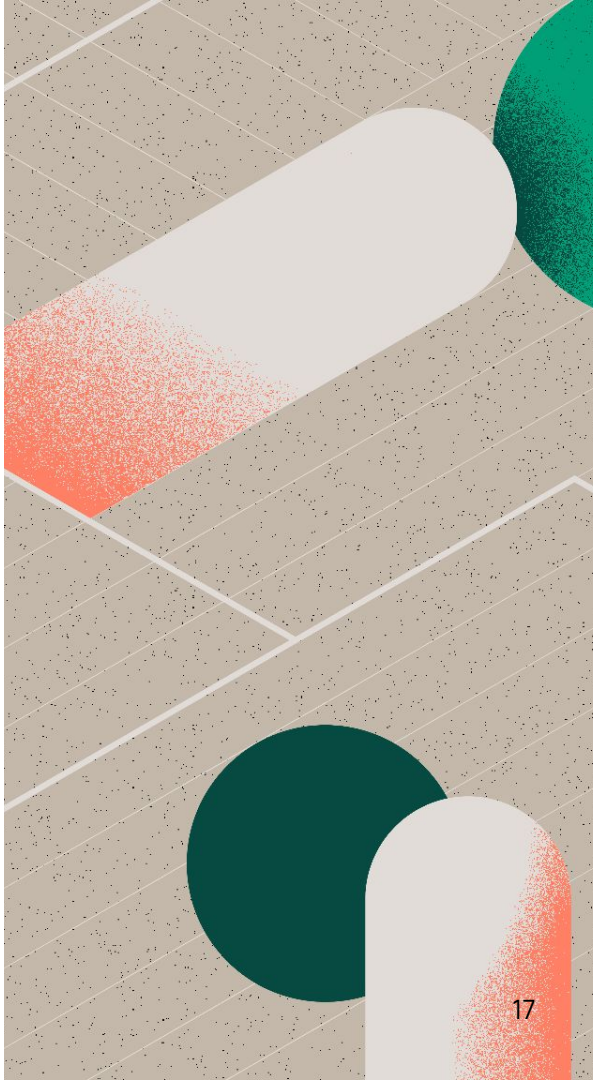
And our product and development and systems team have really worked hard to bring that most up-to-date information into our website and into our quoting tool. We want to help customers make decisions about what they need, how long they can wait, what they would like to wait for, what they're happy to go with. ↴

**Are there any industry blind spots you'd like to see addressed?**
Being committed to meeting the 2030 internal combustion engine (ICE) vehicle sales ban is one of the most important next steps in the whole EV market in the UK. It's a big shift for a lot of people. And I totally understand why individuals are wondering 'how's this going to work for me?' So, instead of giving into negativity, I would say, as an industry, maintain positivity and think about the customer. We really haven't even started on that mass market transition yet. So, wherever folk are in the ecosystem, think about the customer, think about how we can make it easy, how we can make it fun, how we can share and educate.

> Think about the customer, think about how we can make it easy, how we can make it fun

**Who are your "Ones to Watch" in the EV space?**
There's an early tech company called Electric Green. I became a board advisor for them because I think they are going to nail the wireless charging infrastructure challenge. With wireless charging, one of the big challenges is you need to get power to the pads, because there are losses. Electric Green is spun out of a company called Enertechnos whose cables have a protected and patented design, which means they have lower losses than standard cables.

Another is Levistor, which has a novel flywheel technology, that can store energy as another kind of battery. And the clever thing about the tech is the flywheel is laminated so it's layers of metal rather than one massive piece of metal and as result, it has a much lower chance of failure. What's exciting is that if you co-locate that with, say, a rapid charger, then you can use the flywheel system to store energy when it's cheap and green overnight. And then you can use that to power the rapid charger during the daytime. That's supercool with loads of potential.



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# Vertical Aerospace

In what it describes as “a giant leap forward for British aviation”, Vertical Aerospace made a successful maiden flight for its VX4 electric prototype last year – putting it one step closer to the reality of zero-carbon aircraft. The compact, cost-efficient design has attracted a legion of high-profile backers across the aviation industry, with the firm making its debut on the New York Stock Exchange in December 2021.

**Founded**
2016

**Specialism**
Electric vertical take-off & landing aircraft

**Website**
vertical-aerospace.com

# Vertical Aerospace

### Hitting new heights

Set up by Stephen Fitzpatrick, a serial entrepreneur best known as founder of energy group OVO, Vertical Aerospace is fast establishing itself as a leading player in the fast-moving eVTOL (electric vertical take-off and landing) market. The UK startup has racked up $5.6bn in pre-orders for its prototype VX4, which carries five people, including a pilot, and took flight for the first time last September.

### Maiden VX4 flight

The VX4 reached new heights – literally – in 2022, with the success of its first airborne test. The piloted take-off marked the culmination of months of planning and saw the electrically powered aircraft lift five feet from the ground at hover-thrust. The latest in a series of intensive flight tests is a significant moment in zero-emissions aviation, keeping the VX4 on track for scaled production and a planned service entry in 2025.

### Industry backing

Vertical claims to have a market-leading conditional pre-order book in the eVTOL sector: a lead underscored by two major deals with FLYINGGROUP and American Airlines last year. The airlines placed orders for 50 VX4 aircraft apiece, joining the likes of Virgin Atlantic, Avolon and Bristow in Vertical's impressive list of partnerships – covering a total of 1,400 aircraft. Other blue-chip backers on board with the VX4 vision include Honeywell, Microsoft's M12, Kouros and Rolls-Royce.

### Ambition & potential

Vertical Aerospace is an electric aviation pioneer which has secured backing from leading players in the industry.

### Impact

It's early days, but Vertical Aerospace is playing a pivotal role in taking the global aviation industry carbon zero.

### Innovation

In 2022, it became the first British company in 20 years to lift off with a new aircraft – the epitome of innovation.

### Momentum

The firm has 1,400 pre-orders for its VX4 and enough robust financial backers to ensure it achieves commercial take-off.

# Vertical Aerospace

**Short-haul superplayer**

The VX4's tweaked design features high wings to reduce battery use, whittling down the recharge time of a single trip to 10 minutes. This swift turnaround, coupled with low-cost per passenger mile and a projected range of around 100 miles, makes Vertical a serious contender in the Urban Air Mobility sector. Styled as an air taxi, the company is eyeing up opportunities as an "ultra-short-haul service" between cities such as Manchester and Leeds, or Düsseldorf and Cologne, as well as in destinations such as São Paulo, which is currently the biggest urban helicopter market in the world.

Styled as an air taxi, the company is eyeing up opportunities as an 'ultra-short-haul service' in destinations such as São Paulo

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NEW


# Polestar

Swedish car manufacturer Polestar is one of the major drivers of global EV growth, helping to accelerate the shift to sustainable mobility. The company expects sales volumes to reach 290,000 vehicles per year by the end of 2025. With a Nasdaq listing, a 95% jump in revenue and the launch of the Polestar 3 electric SUV among its 2022 achievements, Polestar is an impressive new entry into the E40 report.

**Founded**
2017

**Specialism**
Electric vehicle manufacturer

**Website**
polestar.com

# Polestar

### Next-level strategy

Founded by Volvo Cars and Zhejiang Geely Holding Group, Polestar currently manufactures its cars in China, with future production also planned for the US.
Seeking to reduce its climate impact with every new model it releases, Polestar aims to produce a truly climate-neutral car by 2030.

### Surge in sales

Polestar reached the landmark of its 10,000th car registration in the UK on the back of record sales in October 2022. Across the month, it delivered 1,069 Polestar 2 models – up 62% year on year. It's the best month of sales for the model in the UK since its launch two years ago, in a pattern that is echoed globally. In November, the company celebrated its 100,000th Polestar 2 being produced in China.

### Revved-up revenue

Matching this rapid uptake in volume, Polestar enjoyed a cracking financial start to 2022 – generating a total revenue of $1.04bn in the first six months; up 95% year on year. This was followed by a successful listing on the Nasdaq Stock Exchange in June, coupled with $1.6bn in additional finance in Q3 from Volvo Cars and PSD Investment.

### New models and the rental market

The Polestar 3 electric SUV was unveiled in October at a Copenhagen event, giving the car company plenty of traction in this lucrative segment. And the excitement keeps coming with the unveiling of Polestar 4, a smaller electric performance SUV coupe, followed by the Polestar 5 electric performance 4-door GT.

### Ambition & potential

Polestar plans to launch one new EV per year. The goal is to have a genuinely climate-neutral car by 2030.

### Impact

New sales records towards the end of 2022 underline the impact that Polestar is having on the global EV market.

### Innovation

Polestar's partnership with Hertz is part of the company's innovative approach to customer experience.

### Momentum

A Nasdaq launch and $1.6bn in new finance have given the brand an additional spring in its step.

# Polestar

The new designs appear alongside Polestar's foray into the rental market via a global partnership with Hertz announced last spring. As part of the collaboration, Hertz will purchase 65,000 EV vehicles from Polestar over the next five years and integrate them into its retail and rideshare fleets to help accelerate the adoption of electrification.

Meanwhile, Polestar has also opened its largest 'Space' – its next-generation alternative to traditional dealerships – at Battersea Power Station in London. Similar flagships are already under way in Solihull, Manchester and Glasgow, as the brand expands its UK footprint.

> Hertz will purchase 65,000 EV vehicles from Polestar and integrate them into its retail and rideshare fleets to help accelerate the adoption of electrification

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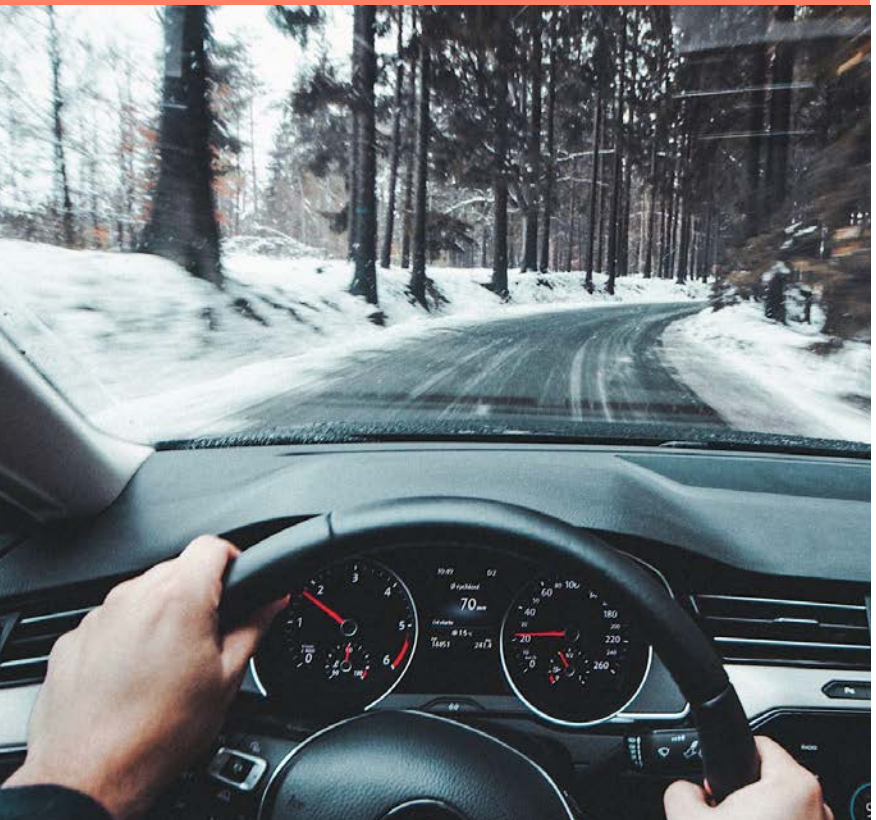


# VW Group

VW's rapid expansion at the core of the global EV market continues at a brisk tempo into 2023, with the veteran automaker planning to unveil 10 new electric cars in the next three years alone – as part of its wider blueprint for fully electric-only models in Europe within the next decade. This ambition is matched by bold plans for new European gigafactories, proprietary battery tech and a series of strategic partnerships to boost its footprint within the sphere of global charging infrastructure.

**Founded**
1937

**Specialism**
Vehicle manufacturer, battery production, fast charging

**Website**
www.volkswagenag.com

# VW Group

## Streets ahead

Coming in ahead of target is a tall order in the ever-volatile EV market, but the Volkswagen Group delivered by shifting 500,000 units of its flagship EV brand ID a full 12 months ahead of schedule.

Couple this with a 25% year-on-year spike in VW's all-electric vehicle deliveries by Q3 2022, and it's perhaps not surprising that the brand is pushing ahead with plans for 10 new EV models by 2026. The new line-up will include a small hatchback and sporty crossover – two versions of an entry level e-car – as well as a potential compact SUV, which will be based on VW's existing (and best-selling) ID.3, a 5-door family hatchback.

To seal the deal on a pleasing set of results, Volkswagen Group UK was named 'OEM of the Year' at the annual EVIE (Electric Vehicle Innovation and Excellence) Awards last year; in part, thanks to its work carried out on sustainability "at every point in the product life cycle" – as opposed to vehicle strategy alone.

## Fast and fearless

With its ID programme reaching new heights, VW also has eyes on the next frontier: aka, fast-charging innovation and control over the battery supply chain. Its Project Trinity masterplan is zeroing in on a new calibre of VW electric vehicles, with a focus on reduced weight, advanced autonomous driving tech and charging times akin to refuelling a petrol car; a feat that VW claims will set a new standard for EV driving range. With €89bn investment behind it, the Wolfsburg-based plant in Germany will start production on Trinity models in 2026.

### Ambition & potential

With plans to introduce 10 new EVs by 2026, VW has set the bar high for rival manufacturers.

### Impact

VW's impact is reinforced by its major investment in fast-charging points across Europe and the US.

### Innovation

Next-gen EVs under the Project Trinity programme will deliver charging times that are as fast as refuelling a petrol car, claims VW.

### Momentum

A 25% year-on-year increase in sales during 2022 underlines the speed at which VW's EV strategy is advancing.

# VW Group

Meanwhile, VW is also building six gigafactories in Europe as a way to bring cell production in-house, and has set up Powerco, a new business, to house its global battery activities. The idea is for VW to produce 240 GWh/year of power by 2030 across six plants, enough for 3m electric vehicles, in an initiative that comes with a hefty $20bn price tag. Work on the proposal is already well underway, as VW broke ground on its first new gigafactory in Salzgitter, Germany, last summer.

**Charging enlarger**

With plates for in-house battery tech spinning fast in the air, VW is also well-aware of the crucial role that charging infrastructure plays in relation to global EV adoption and success. In Europe, the OEM is a shareholder in fast-charging business Ionity, and its partnership with Tesco and Pod Point will create charging points at 600 of the supermarket's stores across the UK, in support of greater supply chain sustainability (a move that was applauded by EVIE judges last year).

Moving onto the US, VW recently increased its investment in public fast-charging network Electrify America, alongside Siemens, to champion the company's plans for 1,800 charging locations by 2026, with a total of 10,000 fast chargers.

VW's Project Trinity is zeroing in on a new calibre of electric vehicles with a focus on reduced weight and charging times akin to refuelling a petrol car

## John Lewis

Head of Product and Strategy
Volkswagen Financial Services

in
LinkedIn

**What's your view on the UK EV market right now?**
We are crossing the chasm from early adopter into pre-mass market. So, customer interest is rising and volumes in the market are rising. We've had a fuel shortage so we had a massive spike in EV interest. We still have unrest in Europe and there are the cost-of-living pressures. This means that higher demand from customers considering EVs is converging with pressure on their lifestyles. Then, within all of that, the whole landscape is evolving rapidly in terms of new entrants, new brands joining the market. The overriding theme at the moment is uncertainty: "is now the right time for me to buy an EV?" is likely to be a key question from a customer perspective.

**How are you responding?**
Together with our partner Futurice, we've developed tools such as EV&me, which is designed to meet customer questions about EVs including "does it fit with my lifestyle?" or "can it help me with my usage profile?" If you're driving 35,000 miles a year on the motorway, you're going to have a different need than someone driving around a city. When we're looking at EV strategy, we're trying to be a trusted expert for our customers. That's where total cost of ownership comes in, because the ambition around that is to provide a greater level of insight. And to deliver transparency around the real costs rather than focusing on one element, whether it's the retail price of the vehicle, the finance cost, or how much it costs to charge on the motorway. Having a more rounded view of cost feels like the appropriate step for our customers, with VWFS as the trusted expert bringing that insight to help them in their decision-making.

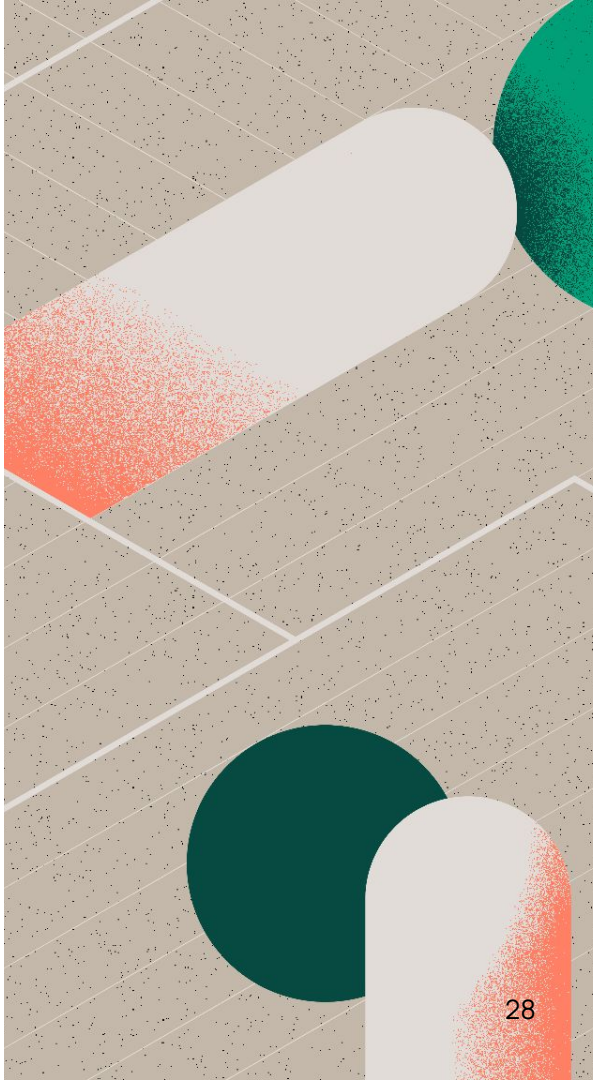
> The overriding theme at the moment is uncertainty: 'is now the right time for me to buy an EV?'

**What more can the industry do as a whole to future proof the ecosystem around EVs?**
There's a theme here around education. It's important that we're being transparent. So, unpacking the full running costs, not fixing on one element, and that's probably an industry wide thing that everyone wants to be as clear about as possible. But there's also a recognition that consumers' needs are all slightly different, particularly around EVs, where some can charge at home and others may not be able to. The common need is 'I need to charge', so how do we support customers in multiple ways? It's not one size fits all.

**What support or action do you want to see from the UK government?**
I think that there have been really positive signs about the shift to EV and the level of visibility at government level. But we've now moved from a model of support for customers in terms of grants into the post-grant world and there are more debates about infrastructure and accessibility. There is a clear government role around accelerating consumer confidence in EVs. If consumers are investing in EVs – and EVs are typically more expensive – how do you give them confidence that this is an investment they can make and that it is going to be easy to live with? There's a big government role around making it really easy for consumers to switch to EVs.

> We've moved into the post-grant world and there are more debates about infrastructure and accessibility

**Who are your "Ones to Watch" in the EV space?**
What I see and like are people who bring a very objective, transparent view to the EV space in that kind of mythbusting way because there's a lot of noise in the market. From the National Grid's perspective, it's important to say we can make the transition from ICE to EV and here's why. It's important we've got those voices in the industry. Those voices are also important in journalism. I really like (motoring journalist and presenter) Johnny Smith in terms of the vehicle reviews he does.



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# Onto

Having trailblazed EV subscription in the UK, Onto now has the wider European market – and particularly Germany – firmly in its sights. Rapid growth during 2022 suggests it has successfully tapped into a growing trend: consumer desire for EV usage without long-term financial commitment.

**Founded**
2018

**Specialism**
Electric car subscription-based leasing

**Website**
on.to

# Onto

## The Netflix of EVs

Onto's EV subscription-based model is tailor-made for the current tough economic times. With consumers still concerned about issues such as charging, range, cost and depreciation, Onto makes it possible to try an EV without the pressure of a long-term commitment. It's no wonder this disruptor has enjoyed 500% growth during 2021-22.

## Power proposition

The resilience of Onto's offer owes a lot to the way it has been packaged to be as customer-centric as possible. Users get the opportunity to test out an EV over a month without a long-term contract. Simplifying the process, the offer includes 750 miles a month, insurance and free charging at more than 12,500 charge points.

Onto is continually adding new EVs and its current fleet includes more than 20 models from the likes of Renault, Citroën, VW, Hyundai and Tesla. Recent additions include the Tesla Model Y Long Range, which became available in December 2022.

## Spreading its wings

Onto's business has been limited to the UK until now. But it has bigger ambitions. It opened an office in Germany in 2022, and appointed industry veteran Joerg Feldheim as local MD. The company will launch into that market this year, where it will come up against Munich-based subscription company Finn.

Onto is also reaping the rewards of its Onto for Business initiative, launched in 2020. This offers a flexible, no commitment and tax-efficient car subscription solution for employees. To date, more than 650 businesses have participated in the scheme.

## Ambition & potential

A new $60m tranche of funding is supporting the company's expansion into European markets including Germany.

## Impact

It's early days for Onto's brand, but 500% year-on-year growth represents a breakthrough for the business.

## Innovation

Onto's disruptive subscription model is redefining the concept of ownership in the EV market.

## Momentum

Onto is continually adding new EVs to its fleet and now has models from Renault, Citroën, VW, Hyundai and Tesla.

# Onto

**Funding milestone**

In a boost to its expansion plans, Onto also raised $60m in equity in a Series C funding round in July 2022. The company says the new financial injection will enable it to build on its market-leading position in the UK and push into Europe, starting with Germany. This significant landmark brings Onto's total funding to date to more than $330m equity and debt.

In further positive news, the firm has raised a new £100m credit funding line from global investment group CDPQ and asset manager Pollen Street. This will allow the business to continue expanding its UK fleet with the latest electric car models.

> The resilience of Onto's offer owes a lot to the way it has been packaged to be as consumer-centric as possible

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NEW


# MG

Founded in 1924, British car marque MG is famous for sporty, exciting cars. Today, under Chinese ownership, MG is a driving force in the global electric car market. The new MG4 and MG5 models both sold well in 2022 and received positive critical reviews.

**Founded**
1924

**Specialism**
Vehicle manufacturer, with ongoing shift to eco-friendly models

**Website**
mg.co.uk

# MG

## Reinvented for EV era

Figures from the Society of Motor Manufacturers and Traders (SMMT) show market share for the iconic MG brand has increased 82% year on year, with September 2022 sales up 61% over the previous September.

## Brand momentum

MG sold more than 38,300 cars in the first nine months of 2022, retaining its position as the UK's fastest-growing car brand. A key part of MG's success has been its move into EV manufacturing, with the MG ZS EV and MG5 EV selling well. Joining the family in 2022 was the MG4, which is competitively priced, starting from around the £27,000 mark.

Aside from its affordability credentials, the MG4 has generated a lot of support on the awards circuit. In 2022, the all-electric hatchback won nine awards – with the model lauded for its generous equipment levels, practicality, dynamic handling and value for money.

## Manufacturing muscle

MG's electrification strategy benefits from the scale and agility of the brand's owner SAIC, the largest car-maker in China. Between January and July 2022, SAIC reported that sales volume of MG vehicles in Europe had exceeded 45,000, catapulting MG into the top 10 in pure electric vehicle markets in countries including Norway and Sweden.

The MG4 EV is an important part of SAIC's strategy. Launched into 20 European countries during autumn 2022, shipping volume, so far, has exceeded 10,000 vehicles. With a global sales target of 150,000 vehicles in 2023, SAIC also plans to take the new model into markets in South America, Mexico, the Middle East, Australia and New Zealand.

## Ambition & potential

Owned by China's largest car manufacturer SAIC, the MG is at the heart of a global EV expansion strategy.

## Impact

The competitively priced MG4 hatchback has enabled the company to make a sizeable impact on EV buying patterns.

## Innovation

MG UK and charging network bp pulse have joined forces to offer discounts and credits.

## Momentum

Rapid sales and numerous awards underline the successful reinvention of classic marque MG as an EV brand.

# MG

## UK partnerships

MG Motor UK and charging network bp pulse joined forces in 2022 to support MG EV drivers with charging at home by offering discounts and credits on bp pulse charging solutions. Under the partnership, new MG EV owners who order a bp pulse home charger will receive a discount. Customers can also receive a membership offer enabling them to access the lowest bp pulse tariffs plus a one-month free subscription.

Bp pulse will also support MG's UK dealership network to fully electrify its forecourts using the company's charging technology by offering discount and finance solutions as well as onsite surveys. The support extends to in-depth training so that dealerships can share information with customers on how to charge at home.

MG's electrification strategy benefits from the scale and agility of the brand's owner, SAIC, the largest car-maker in China

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NEW

# Kia

Hot on the heels of its award-winning EV6 model – which landed the prestigious Car of the Year title – 2023 sees the launch of Kia's flagship EV9, alongside the rollout of ambitious global growth strategies.

**Founded**
1944

**Specialism**
Vehicle manufacturer, with an ongoing shift to eco-friendly models

**Website**
worldwide.kia.com

# Kia

## Global e-mobility

Proud holders of Car of the Year 2022 for its EV6, Kia is a brand that's going places. The company is planning for new electric pickup trucks, a huge uptick in BEV sales and production plants in Europe as soon as 2025.

## Roadmap to 2030

In spring last year, the Korean car giant unveiled a roadmap to becoming a "global sustainable mobility leader". It plans to sell 1.2m BEVs by 2030, along with 2m 'eco-friendly' models per year.

Anticipating that 80% of its BEV sales will come from major markets in North America, Europe, Korea and China, Kia is also evolving the role of its production sites. Korea will become the global hub for R&D, production and supply of EVs. Meanwhile, other sites will produce strategic EVs for each market, with Europe producing small- and medium-sized EVs from 2025 and the US producing electric versions on popular midsize SUVs and pickups from 2024. With an eye to sustainability, Kia has partnered with energy storage firm Encore to repurpose used EV batteries into energy storage systems. It is also forecasting 50% increase in battery energy density and a 40% reduction in system costs.

## Expanding the range

Kia is accelerating the expansion of its BEV product line-up, rolling out at least two per year for a full line-up of 14 by 2027. This includes two electric pickup trucks and an entry-level BEV model.

## Ambition & potential

By 2026, Kia expects the contribution to operating profit from all eco-friendly models to reach 52%, exceeding ICE models.

## Impact

A series of awards for the new EV6 model, including Car of the Year 2022, illustrate the Korean giant's growing influence.

## Innovation

Kia is making serious investments in battery tech to support its EV expansion.

## Momentum

Kia is accelerating the expansion of its EV product line-up. Starting this year, Kia plans to launch at least two EVs per year.

# Kia

## New innovations

This year will also herald the arrival of the electric Kia EV9 SUV. A large SUV, it boasts an extra 100km driving range on a six-minute charge and will be the first model to be equipped with Kia's advanced AutoMode autonomous driving technology.

Kia's EV strategy goes hand in hand with its ambitious PBV (purpose-built vehicle) strategy where specialised vehicles are built according to the customer's individual needs. The company has set up a PBV communications channel that can quickly respond to consumers' needs. In the near term, Kia plans to develop PBVs derived from current models, such as its Niro Plus based on the Niro SUV, which is expected to be used for taxi and car-hailing services.

Kia UK has also expanded its Kia Rental service with a new app offering hourly, daily and weekly hire periods for vehicles, including its electric range.

> Kia is planning for new electric pickup trucks, a huge uptick in BEV sales and production plants in Europe as soon as 2025

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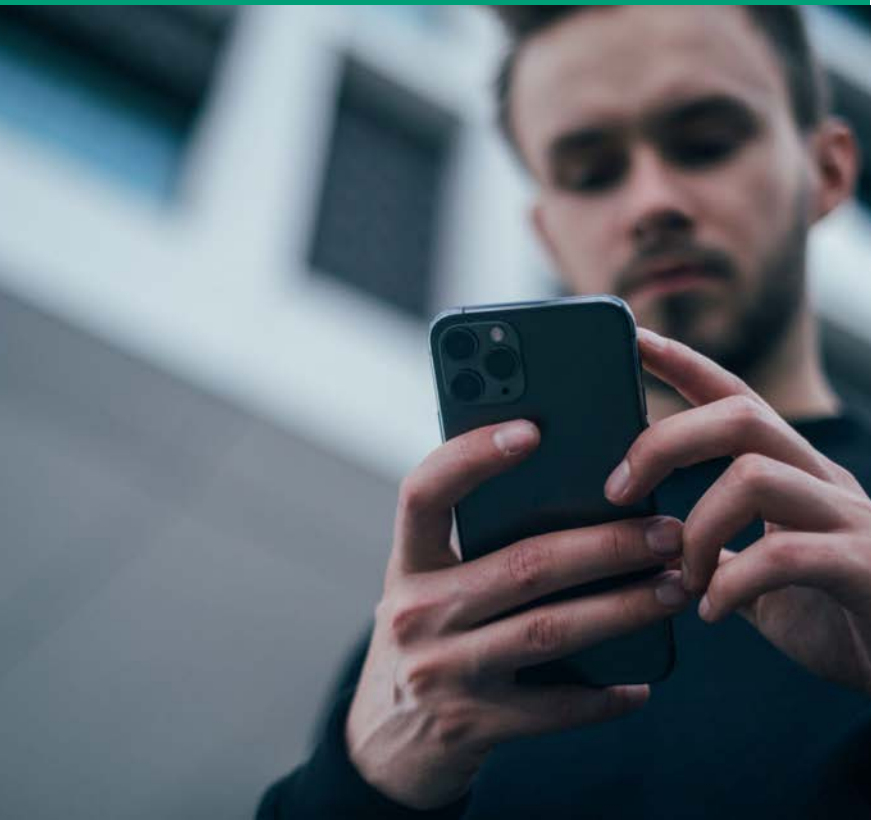

# Bonnet

Bonnet's European expansion continues apace, powering new operators, fleet partners and peer-to-peer charging points. Mapping real-time chargepoint availability and functionality, its crowning gem in a repertoire brimming with data innovation is a dynamic monthly refill plan that guarantees competitive rates.

**Founded**
2020

**Specialism**
EV charging subscription

**Website**
joinbonnet.com

# Bonnet

### Europe's data transformer

The Bonnet app tackles charger anxiety with real-time data that extends over 12 European countries, covering a growing roster of top-name operators. A simple pricing structure is attracting tens of thousands of subscribers to the platform, with pay-as-you-go charging bundles offered alongside monthly advance payments that help unlock lower rates and other perks.

### Service rollout

With thousands of new charge points added to its platform each month, Bonnet expanded across Europe last year, with a service that now covers 32,000 locations and 17 chargepoint operators including Ionity, Allego, Fastnet, ESB Energy, Everon, Shell Recharge, and many more.

March 2022 secured another $5.5m backing from investors for the platform, including Lightspeed, GV and 20VC. Ex-Tesla president Jon McNeill, Zapp founders Joe Falter and Navid Hadzaad, co-founder of TIER Mobility Lawrence Leuschner and co-founder of Deliveroo Will Shu have also invested.

The backing, which also includes participation from existing shareholders APX and Ascension, means Bonnet can push ahead with its plan to triple its headcount and extend charge point coverage to include most chargers in the UK and Europe. It's also working on its Bonnet Premium route-planning product, designed to monitor subscribers' state of charge throughout their journeys using direct car connectivity.

### Ambition & potential

Bonnet is growing rapidly – currently reaching more than 32,000 locations across 12 countries.

### Impact

A network of 17 leading charge point operators underlines widespread acceptance of Bonnet's tech.

### Innovation

The firm's app uses real-time data to reassure EV drivers about charger availability while simplifying the payments process.

### Momentum

With $5.5m additional backing from investors, Bonnet is aiming to rapidly expand charge point coverage across Europe.

# Bonnet

### Taxis and fleets

In July 2022, Bonnet announced a partnership with DPD, with the aim of facilitating the delivery company's "clean, green delivery" mission, in particular its bid to become the largest all-electric delivery fleet in the UK. The company is also targeting specialist segments of the EV market, including taxi drivers.

### Public and peer provision

Bonnet has also been exploring opportunities in peer-to-peer charging points, opening the way for domestic charging point owners to monetise their setups, too. It has also signed up to the Rural Electric Mobility Enabler project, a publicly funded consortium seeking to improve public charging provision in rural areas. According to Patrick Reich, co-founder and CEO of Bonnet: "This exciting project will be a step towards future-proofing the electrification of the UK's roads and we hope to encourage further change."

> "This project will be a step towards future-proofing the electrification of the UK's roads and we hope to encourage further change.
>
> Patrick Reich,
> Founder and CEO,
> Bonnet

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# OVO Energy

UK energy supplier OVO is fully on board with the vision of a carbon-zero economy. Its core strategy is designed to make clean energy more affordable and available across a spectrum of private homes, cars and businesses – using the secret sauce that is its intelligence software platform, Kaluza.

**Founded**
2009

**Specialism**
Energy management, control and optimisation

**Website**
ovoenergy.com

# OVO Energy

### Anti-carbon agenda

Hot on the success of its OVO Drive + Anytime EV charging tariff, running nationwide for more than a year, OVO's star is firmly in the ascent. The innovative deal separates EV charging from home energy usage, meaning customers have complete flexibility with a guaranteed rate of 10p/kWh – no matter what time of day they plug in.

### Power move

In late 2022, OVO Energy launched a trial aimed at reducing consumer energy bills and to take pressure off the national grid. Dubbed Power Move, the trial asked participants to shift their energy usage out of peak time (4pm-7pm) in return for a £20 per month reward.

One month into the trial, the results were promising: OVO customers could collectively save £8m a month if the scheme was rolled out to all of them. At the same time, the scheme would cut carbon emissions by around 20,000 tonnes per month.

### Carbon, be gone

Working with South Pole, a leading environmental consultancy and project developer, OVO has developed a lifecycle tool that calculates the exact environmental impact that switching to low-carbon products, such as a smart thermostat or air source heat pumps, could have on customers' lives. Moving to an EV or heat pump for energy, for example, has the potential of avoiding up to 1.6 tonnes of carbon compared with an old-school alternative (e.g. a gas boiler). Better still, the methodology is open source, meaning other companies can use it as a blueprint to check whether their products align to net-zero commitments.

### Ambition & potential

With its core commitment to creating a carbon zero economy, OVO has become a key facilitator in the UK's EV transition.

### Impact

The OVO Drive + Anytime EV charging tariff has given OVO customers the ability to split EV charging from home energy usage.

### Innovation

Intelligent software platform Kaluza sits at the heart of Ovo's electrification strategy.

### Momentum

OVO's partnership with Jumptech has the potential to accelerate installation of charge points efficiently, at scale.

# OVO Energy

**Easing the path to EV**

OVO also signed a partnership with EV chargepoint installation software company Jumptech in order to manage a higher volume of chargepoint installs – as well as enabling OVO to handle different types of installations and streamline operations. "We're committed to helping customers transition to EVs," says Alex Thwaites, head of Zero Carbon Living, OVO. "Jumptech plays a big part in this as it provides the technology platform to ensure we can install efficiently and compliantly, at scale."

> "We're committed to helping customers transition to EVs. Jumptech plays a big part in this.

Alex Thwaites,
Head of Zero Carbon Living,
OVO

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# Connected Kerb

Continuing its success story, Connected Kerb is poised for another excellent year in 2023 – having recently landed more than £100m of additional funding to drive expansion. Trials in the US and Australia position the company well as it eyes a global stage.

**Founded**
2017

**Specialism**
Charge point operator and charging technology

**Website**
connectedkerb.com

# Connected Kerb

### Innovators of inclusion

Connected Kerb delivers sustainable EV charging solutions for the public sector and also for fleets, workplaces, developers and other organisations. Its solution combines power with data at the kerb, creating the foundation for connected communities – including those who might otherwise be excluded from an EV future.

### Public provision

The company is targeting the installation of 190,000 public on-street EV chargers by 2030, with a number of rollouts agreed with local authorities. Organisations that have bought into Connected Kerb's vision include Surrey County Council which recently joined forced with Connected Kerb to help deliver 10,000 EV charging points across the county by 2030.It's thought to be the largest local authority roll-out of EV chargers to date.

In September 2022, the company secured an investment of up to £110m from Aviva Investors to help Connected Kerb reach its ambitious EV charger target. As part of the deal, it will also deliver EV charging infrastructure across Aviva's pan-European real estate portfolio.

### Hello, world

Also in 2022, Connected Kerb was selected to deliver on-street EV chargers for a pilot project in New York. The flagship partnership aims to show how providing public access to electric charging can encourage the 50% of New Yorkers who park on the street to buy EVs. The findings will feed into EV charging rollouts across New York, which aims to install 10,000 kerbside chargers by 2030.

### Ambition & potential

Additional funding of £110m from Aviva Investors will help this fast-growing company drive expansion in the UK, US and Australia.

### Impact

Connected Kerb's critical legacy is in taking charging beyond the home and forecourt, with 190,000 public chargers planned by 2030.

### Innovation

Agile Streets is the company's attempt to save EV users money while also democratising the UK's charging infrastructure.

### Momentum

A major partnership with Kent County Council is a key milestone and follows other deals with local authorities.

# Connected Kerb

From across the pond to the other side of the world, Connected Kerb has also forged a partnership with Australian EV infrastructure provider EVX to install 1,000 new EV charging points Down Under over the next two years.

**Smart savings and disability access**

Another exciting chapter opened as Connected Kerb concluded its Agile Streets energy-efficiency project – a joint experiment with Samsung Research, Octopus Energy and other brands, funded by the UK government.

Agile Streets broke ground as the first trial of public smart charging in the UK – offering EV users the chance to schedule a charge during off-peak times. Results demonstrated that EV drivers could save £604 annually by using smart on-street parking systems, in an award-winning consumer awareness campaign.

To top it all off, Connected Kerb also launched the Chameleon, a bollard-style charging point manufactured mainly from recycled steel. At just under one metre tall, it is accessible for wheelchair users and bypasses the need for planning permission.

Connected Kerb concluded its Agile Streets energy-efficiency project, a joint experiment with Samsung Research and other brands

## Chris Pateman-Jones

CEO
Connected Kerb

LinkedIn

Twitter

**What's your view on the UK EV market right now?**
Obviously, there are some pretty big headwinds, what with the energy and cost of living crisis. But the EV market is somewhat protected from the uncertainty because of long lead times on production: it'll be interesting to see the knock-on effect on volumes in 18 months' time. My sense, though, is that because fleet demand has grown so rapidly, we won't feel the economic impact we might have if the UK was a more mature market. And I don't think the industry's mandate on zero-emission targets will be softened in any way, either.

Even more hard-nosed critics are beginning to recognise that EV adoption in Britain is inevitable, but the pervasiveness of it from now on will depend on access to strong infrastructure; it's a matter of convenience and reliability over cost. Overall though, despite tough conditions, I'd say we're in a positive position, with a steep growth curve that shows little sign of abating.

**What more can the industry as a whole do to futureproof the ecosystem?**
One of the biggest challenges the industry faces is the prevalence of legacy assets. There are thousands of charging points in the ground across the UK at the moment that aren't working; but they're still flagged as publicly accessible. It's a big risk, because it only takes one negative charging experience to turn users off for life.

> Even more hard-nosed critics are beginning to recognise that EV adoption in Britain is inevitable

I think we need to get away from the idea that charger speed rules all, too. Unless you're in a situation like a motorway service station, where you're waiting for charge, the most important factors for charging will always be convenience, affordability and reliability. For long-dwell settings, in particular, convenience is the key to the best user experience.

Another aspect of the system we need to pay attention to is dealing with fluctuations in demand. For example, last year, we noticed a huge drop-off in EV travel over the two-week period around the Queen's funeral. Similar patterns occur whenever there are big announcements or market shocks. So, as a sector, we should start thinking about how we model around these shifts. ↴

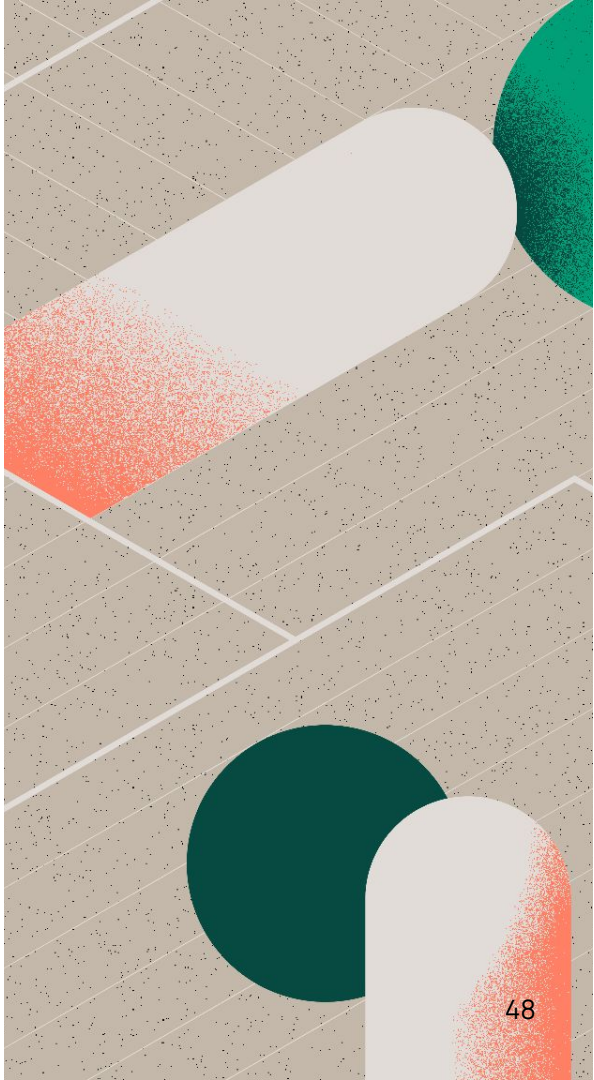
**Who are the "Ones to Watch" in the UK's e-mobility space and why?**
I think every single operator should be looking at the UK charity Motability, which offers financial help to disabled people who would otherwise be unable to afford the vehicle or adaptation they need. One in five people in Britain has a disability and Motability is now world-leading in terms of guidelines for EV accessibility. For example, it is examining all aspects of design to adapt charge points, making them more usable for disabled drivers.

I'm also curious to see how the micro-mobility space evolves, and what crossover opportunities emerge. How much will we rely on e-bikes and e-scooters as a mode of urban transport in the future? How do we get a multimodal infrastructure to work for consistent charging?

> We deployed 3,500 chargers around the UK in 2022 but this year we're scaling that to 8,000 additional points

**What are your personal motivations and goals for EV?**
At Connected Kerb, our focus has shifted from designing and deploying really great kit to doing so at a huge scale, within a wide-ranging operational network. We deployed 3,500 chargers around the UK in 2022 but this year, we're scaling that to 8,000 additional points. We're also expanding our business in areas including the US, Australia and the Netherlands. So, the task ahead for our teams is to maintain our customer service ratings, and deliver for users within a much larger playing field.

We'll continue to be very selective about who we work with, taking into account core values such as inclusivity. I want to make sure that every charging point we create is as affordable, reliable and convenient for everyone in society as it can be.



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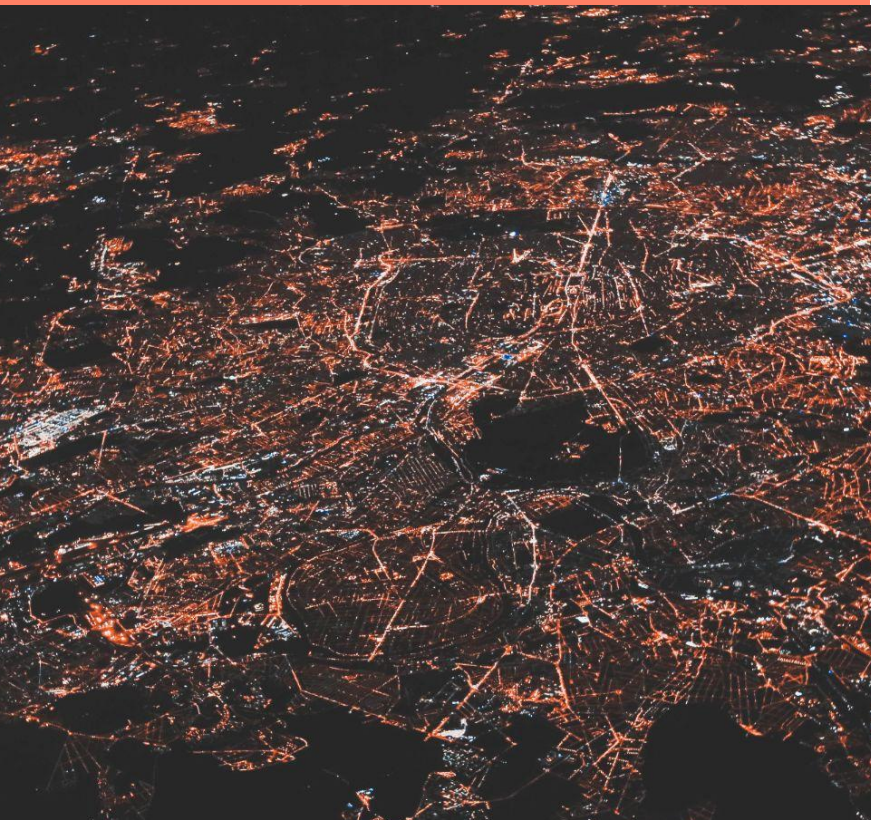

# Zapmap

Data-whizz Zapmap's success in EV mapping services has paved the way for a shiny new line-up of premium offerings, payment solutions and partnerships. In 2022, the company established tie-ins with Fastned and Nissan, as well as receiving a £9m funding injection.

**Founded**
2014

**Specialism**
Charging, mapping and data services

**Website**
Zap-map.com

# Zapmap

## Mapping new frontiers

Zapmap has established itself as the app of choice for the UK's EV drivers, 70% of whom use the app. Zapmap supports them with locating available charge points, paying for charging and planning longer journeys. Little wonder, then, that its growth trajectory can be mapped right alongside a boom in EV adoption.

## Tiers and peers

A key part of the platform's business model is subscription tiers. While a basic level is available for free, paid-for Plus and Premium offerings include enhanced features to help drivers plan journeys more quickly and find charging points on the move through integrations with Apple Car Play and Android Auto.

Zapmap is also striking deals for its premium subscription to be used by third parties as an added-value extra. Select Car Leasing customers get three months' free access to Zapmap Premium, while Nissan EV buyers are able to cash in on three years' worth of the same benefit.

In October 2022, the platform also joined forces with JustCharge, the community EV charging network managed by JustPark. The partnership allows Zapmap users to locate and book around 1,600 JustCharge chargers directly through the app.

## Fuss-free payments

In 2022, fast-growing charging network Fastned went live on Zap-Pay, Zapmap's single app payment system, joining the likes of ESB Energy, Osprey, GeniePoint, char.gy, Mer and MFG EV Power.

## Ambition & potential

A new multi-million pound funding injection will step-change Zapmap's international ambitions.

## Impact

Zapmap has established itself as the go-to companion app for the UK's EV drivers.

## Innovation

Zap-Pay has been the company's most intriguing innovation, earning the support of several charging networks.

## Momentum

Partnerships with the likes of Nissan, JustPark and Select Car Leasing indicate avenues for continued growth.

# Zapmap

This latest deal means 4,000 UK charging devices are now Zap-Pay enabled, in a move that only serves to deepen customer engagement for the high-flying brand.

**All the funding**

As the icing on the cake, the brains behind the app also raised £9m in a Series A fundraising last year, with investors including Fleetcor (the global fleet solutions provider already allows its Allstar Electric card customers to use Zap-Pay) and seasoned Zapmap backer Good Energy. The additional funding will support Zapmap's international expansion plans.

The latest deal means 4,000 UK charging devices are now Zap-Pay enabled, in a move that serves to deepen customer engagement for the brand

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# YASA

Founded in 2009 out of Oxford University, YASA is leading the world in axial-flux electric motors and controllers. Now owned by Mercedes-Benz, it produces several different versions of its motors in a factory near Oxford, with an annual capacity of 100,000 units.

**Founded**
2009

**Specialism**
Electric motors

**Website**
yasa.com

# YASA

## Superpowering EV performance

YASA became part of Mercedes-Benz in July 2021. Its core role is to build small, light, powerful motors with the potential to revolutionise the performance of EVs and hybrids. In addition to providing electric motors for Mercedes-Benz's AMG.EA electric-only platform, YASA now also acts as the car giant's innovation partner.

With this in mind, it has expanded its operations in Wales, opening a new R&D centre and creating 40 new jobs at its Welshpool base – a move enabled by a £1.98m investment from the Welsh government.

## Talent shake-up

Following 26 years at Mercedes-Benz in numerous leadership roles, Juergen Banken joined YASA as CEO last September to deliver "world-beating solutions" for AMG & Mercedes' electric-only platforms – signalling an increasingly close relationship between the two brands.

Since 2016, Banken has been responsible for delivering Mercedes-Benz electric propulsion systems, including the EQS from concept to delivery of its Electric Drive Unit. He says: "YASA's technology is pivotal to Mercedes-Benz's transition to all-electric models by 2030 ... I look forward to helping the team deliver on their groundbreaking roadmap."

Banken replaced Chris Harris, who joined YASA a decade ago and scaled the company from 20 employees to 300, raising significant investment and winning OEM series production contracts, before leading the acquisition of the company by Mercedes-Benz in 2021. Harris has now taken over at YASA's aerospace spin-off Evolito.

## Ambition & potential

Coupled with its spin-off Evolito, YASA is positioning itself as a leading force in the electrification of both automotive and aviation.

## Impact

In addition to its Mercedes-Benz affiliation, YASA has also established partnerships with iconic brands including Ferrari and Rolls-Royce.

## Innovation

A world leader in axial-flux electric motors and controllers, YASA's new R&D centre will enable it to consolidate its status as an innovation hothouse.

## Momentum

As part of Mercedes-Benz, YASA is now well-positioned to revolutionise the growing market for luxury EVs.

# YASA

### Supercar ambition

YASA's tech is being deployed on Mercedes-Benz's AMG electric-only platform. In parallel, it has a series of partnerships with blue-chip auto brands that were forged prior to the Mercedes-Benz acquisition. As a result, the company's motors are used in ultra-high performance vehicles such as the Ferrari SF 90 and 296 GTB and Koenigsegg Regera.

### All set for aerospace

As part of its ambitions in aerospace, YASA's Evolito spin-off acquired aerospace battery company Electroflight last year, to create a full powertrain solutions capability. In a separate development, Rolls-Royce also used YASA's motors for its own experimental electric plane, the Spirit Of Innovation.

> "YASA's technology is pivotal to Mercedes-Benz's transition to all-electric models by 2030"
>
> Juergen Banken,
> CEO,
> YASA

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NEW

# ZeroAvia

ZeroAvia is seeking to unlock sustainable aviation by replacing conventional engines in existing aircraft with hydrogen-electric powertrains. In 2022, it secured $30m in new financial backing to help it achieve its commercial launch targets.

**Founded**
2018

**Specialism**
Electric aviation powertrains

**Website**
zeroavia.com

# ZeroAvia

## The future of flight

A leader in zero-emission aviation, ZeroAvia aims to provide hydrogen-electric aviation solutions for a variety of markets. Its current business plan envisages the creation of a 9–19-seat aircraft with a 300-mile range by 2025, followed by a 40–80-seat aircraft by 2027. This larger model will have a 1,000-mile range.

## Sky's the limit

Based in the UK and US, ZeroAvia has already secured experimental certificates for its prototype aircraft from UK and US regulators, passed significant flight test milestones, and secured a number of key partnerships with aircraft OEMs and global airlines.

ZeroAvia is working with Mitsubishi Heavy Industries' RJ Aviation to achieve certification of an even higher powered ZA2000RJ for retrofit of regional jets by 2030. It also plans to add H2 power plants for larger aircraft, targeting five product segments by 2040.

## Heavyweight support

Last summer, ZeroAvia announced $30m in funding from new investors Barclays Sustainable Impact Capital, NEOM and AENU, with International Airlines Group adding to prior investment, bringing its Series B round to $68m. A month later, American Airlines also jumped aboard as an investor, joining the likes of United Airlines and Alaska Airlines, in a deal that provided American the opportunity to order 100 of ZeroAvia's hydrogen-electric engines.

The fresh investment will advance ZeroAvia's 2-5MW powertrain development programme, which is key to its proposed 40-80 seat aircraft, as well as funding infrastructure at its airport sites.

## Ambition & potential

ZeroAvia's fleet will consist of both short-haul and medium-haul aircraft, with the target to launch a 40–80 seat electric plane by 2027.

## Impact

Backed by the likes of United Airlines, ZeroAvia expects to have its first plane operational in 2025 with five models active by 2040.

## Innovation

ZeroAvia's hydrogen-electric aviation solutions represent a significant innovation in powered flight.

## Momentum

New investment in 2022 will advance ZeroAvia's ambitions to create a larger format aircraft.

# ZeroAvia

**Trendsetting tests**

Meanwhile, ground testing of ZeroAvia's ZA600 powertrain continues at its UK facility at Cotswold Airport. This is part of Project HyFlyer II, which aims to demonstrate hydrogen-electric flight in a Dornier 228 aircraft. The company's UK operations are supported by grants from UK's Aerospace Technology Institute and Innovate UK.

ZeroAvia's current business plan envisages the creation of a 9–19-seat aircraft with a 300-mile range by 2025

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# Nissan

Following in the trail of 'Ambition 2030', its global blueprint for transitioning to EV manufacture, Nissan launched two new EVs last year – the entry-level Ariya and a small van, the Townstar. It has also ramped up production around industry pioneer, the Nissan Leaf.

**Founded**
1933

**Specialism**
Vehicle manufacturer

**Website**
nissan.co.uk

# Nissan

### Powerhouse trio

In January 2022, a month after Nissan unveiled Ambition 2030, it announced it would work together with Renault and Mitsubishi to "shape their shared future, focusing on the mobility value chain". Dubbed the Alliance 2030, the partnership sets out a common roadmap on pure-EV, along with intelligent and connected mobility.

### Global EV offer

The new Alliance brings together five common EV platforms, which its partners describe as the largest global offer of the industry. The three companies plan to invest €23bn more into electrification over the next five years, leading to 35 new EV models by 2030. They're also working on a common battery strategy, with the aim of a 50% reduction in costs by 2026 and a 220 GWh production capacity by the end of the decade.

### Landmark moment

In December 2022, Nissan announced that the 250,000th Nissan Leaf had rolled off the production line in Sunderland, UK. In the same month, construction also began on a £450m battery gigafactory next door. This will employ more than 1,000 people when it becomes fully operational, likely by 2025.

### The bold and the new

In early 2022, Nissan unveiled a new compact EV for Europe called the Ariya. Manufactured in Renault ElectriCity, the Ariya is now the entry-level vehicle in the Nissan range, succeeding the Nissan Micra.

### Ambition & potential

Nissan's partnership with Renault and Mitsubishi, Alliance 2030, puts it in the vanguard of the global EV revolution.

### Impact

By hitting the 250,000 mark with the Nissan Leaf, the company has reminded the industry of its early-mover impact.

### Innovation

Nissan's new £450m gigafactory will energise its EV expansion.

### Momentum

Nissan's alliance will lead to 35 new EV models by 2030, which represents a step change for the business.

# Nissan

Autumn 2022 also saw the launch of the Nissan Townstar, which succeeds the e-NV200 as Nissan's small electric van. The Townstar delivers a range of up to 300km, and its 45kWh battery can accept AC charging or DC quick charging. The latter enables drivers to increase their charge by 65% in under 40 minutes.

Dubbed the Alliance 2030, the partnership sets out a common roadmap on pure-EV, along with intelligent and connected mobility

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NEW

# Hyundai

Hyundai's star model, the IONIQ 5, was named World Car of the Year last year, placing it front and centre of the burgeoning EV market. Over the next decade, Hyundai Motor Group (parent of Hyundai, Kia and Genesis) will invest £11bn in its Connected Car Operating System, pure-electric platforms and autonomous driving.

**Founded**
1967

**Specialism**
Electric vehicle manufacturer

**Website**
hyundai.com

# Hyundai

### New EVs, new possibilities

Hyundai's £11bn digital transformation strategy unveiled last year aims to "transform all vehicles to software-defined vehicles" by 2025 under three core pillars – sustainability, technology & innovation, and electrification. It claims to have the widest range of electrified vehicles on the market, including the 2022 World Car of the Year IONIQ 5 and a new addition to the line-up, the IONIQ 6 Electrified Streamliner, which recently received its digital world premiere.

With the Business Car Awards awarding Hyundai Eco Fleet Manufacturer of the Year 2022, the Korean car giant's extensive choice includes a range of 10 EV, PHEV, self-charging hybrid, 48v hybrid and hydrogen fuel-cell vehicles.

### Flagship vehicles

Claiming the sought-after New Car of the Year title at the 2022 Motor Trader Industry Awards, Hyundai's IONIQ 5 is a large hatchback with an airy cabin and electric range in excess of 300 miles. Last year also saw the launch of the IONIQ 6, with a slightly extended range. Notable features of both models include ultra-fast charging capabilities, V2L technology, relaxation seats, sliding console, battery conditioning and sustainable materials.

### Bi-directional EVs

The company is investing in tech which enables EVs to serve as storage units for renewable energy. As a result, purchasers of the IONIQ range can freely use or charge any electrical equipment while on the move. In the future, Hyundai will expand its offer of energy solutions through V2G (Vehicle-to-Grid) technology, which enables energy stored in BEV battery packs to be provided to an electricity network.

### Ambition & potential

Hyundai's £11bn digital transformation strategy places it at the forefront of sustainability, technology and electrification.

### Impact

The IONIQ 5 was well received by the market and has a range in excess of 300 miles. IONIQ 6 also generated a favourable industry response.

### Innovation

Hyundai's bi-directional technology represents a key advance in the development of V2G (Vehicle-to-Grid) energy efficiency technology.

### Momentum

Hyundai now claims to have the widest range of EVs on the market.

# Hyundai

Hyundai is currently running a pilot scheme for a V2G-powered mobility service in the Dutch city of Utrecht. Working with local mobility operator We Drive Solar, Hyundai has introduced a fleet of hundreds of bi-directional IONIQ 5 units to the area, with plans to roll out into other cities and scale up its bi-directional ecosystem.

### Zero-emissions innovator

Hyundai's high-performance N sub-brand recently unveiled RN22e and N Vision 74, two 'rolling lab' concepts that will serve as a basis for the development of zero-emission technologies. This joins the brand's evolution of a showcase hotel powered entirely by electric cars.

From 1 January 2023, the Korean car giant also took the bold decision to stop selling fuel-burning vehicles altogether in Norway, which is well ahead of other countries in EV penetration.

> From 1 January 2023, Hyundai took the bold decision to stop selling fuel-burning vehicles altogether in Norway

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NEW

# Nyobolt

Cambridge-based Nyobolt is a pioneer of fast-charging battery systems. Its goal to build a manufacturing plant in 2023 was boosted when it received £50m funding last year. The company aims to “erase the greatest barrier to drivers going electric – charge anxiety”.

**Founded**
2019

**Specialism**
End-to-end ultrafast charging battery solutions, lithium-ion battery anode R&D

**Website**
nyobolt.com

# Nyobolt

## Battery pacemakers

According to the company's chief scientist and co-founder, Professor Clare Grey, Nyobolt was founded "following the discovery of new anode technologies containing tungsten with remarkable fast-charging capability".

Currently moving from development to deployment stages, Nyobolt plans to create batteries that can be charged to 90% capacity in less than five minutes when it enters production. The company expects its units to improve power and durability tenfold.

## Next-level performance

Nyobolt was recently selected by the *Financial Times* as a 2022 Tech Champion in the energy sector, with the newspaper's judging panel saying: "By revolutionising the performance of lithium-ion batteries, Nyobolt is transforming the use of EVs, medical devices and robotics."

## Financial backing

The company's ambitions moved a step closer to reality in 2022 when it secured £50m of funding in a Series B round. This financing takes Nyobolt's valuation to £300m and will enable it to enter a stage of manufacturing at scale – with millions of units planned for 2023.

The funding round was led by HC Starck Tungsten Powders (HCS), a subsidiary of Masan High-Tech Materials, one of the world's largest tungsten suppliers – a key component of Nyobolt's battery manufacturing technology.

## Ambition & potential

New funding means Nyobolt can now manufacture its batteries at scale.

## Impact

The *Financial Times* has lauded Nyobolt as an energy sector Tech Champion.

## Innovation

Nyobolt plans to revolutionise fast charging by making batteries that can hit 90% capacity in less than five minutes.

## Momentum

The partnership with HCS should propel Nyobolt to the next level.

# Nyobolt

Nyobolt says HC Starck's funding "will help Nyobolt scale our operations in the UK and United States and bring a more sustainable solution into the energy storage industry".

As well as covering the supply of materials and a scale-up in manufacturing, the collaboration means Nyobolt will benefit from HCS's recycling capabilities – minimising the environmental impact of its batteries.

In November 2022, the company also received funding from the Advanced Propulsion Centre worth up to £2m.

**Team talent**

Also in 2022, Nyobolt recruited ex-Mercedes employee Shane Davies to head its software and controls department, along with former ChargePoint exec Iain Mosely as engineering director for charging, to deliver custom high-power charger systems.

Nyobolt plans to create batteries that can be charged to 90% capacity in less than five minutes when it enters production

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NEW


# Fastned

Based in Amsterdam, Fastned has built more than 270 fast-charging stations across Europe, including the UK. In 2022, it acquired 33 new locations and secured €75m in strategic investment to boost expansion.

**Founded**
2012

**Specialism**
Fast-charging infrastructure for EVs using renewable energy

**Website**
fastnedcharging.com

# Fastned

## Dutch drive

Fastned develops and operates rapid charging infrastructure across Europe allowing drivers to charge their electric vehicle with up to 300km range in 20 minutes, using renewable energy.

## Fast charger, fast growth

Fastned has built momentum fast, post-pandemic. In 2021, it recorded 70% more charging transactions at its stations, breaking the 1m charging transactions mark. In its most recent financial results (Q4, 2022), the brand boosted its revenues and grew its network.

For Q4, 2022, Fastned increased revenue related to charging to €13.3m (+177% vs Q4 2021). It handled 787,000 charging sessions for 219,000 active customers – significant growth that helped avoid an estimated 14,077 tonnes of CO2. All told, the company opened 30 new stations in the fourth quarter, making a total of 59 new stations in 2022.

Rapid growth hasn't been achieved at the expense of user experience. In 2022, Fastned was placed joint first (alongside MFG EV Power) in Zapmap's annual Best EV Charging Network satisfaction rankings.

## Oxford superhub

During 2022, Fastned opened its first ultra-rapid EV charging location in London as well as a new ultra-rapid charging station in Washington serving EV commuters to and from South Tyneside and Sunderland. It also operates the biggest ultra-rapid charging station in Scotland and is part of the consortium behind Energy Superhub Oxford, Europe's most powerful EV charging hub.

## Ambition & potential

The Energy Superhub in Oxford is a neat illustration of Fastned's ambitions in fast charging.

## Impact

Aggressive site acquisition means Fastned is primed to have a game-changing impact in the UK EV market.

## Innovation

The Lingehorst project is an intriguing attempt to construct a charging site using only electric equipment.

## Momentum

The firm has been growing at a rapid rate, breaking the 1 million charging transactions mark.

# Fastned

Other consortium members include Pivot Power, part of EDF Renewables, Oxford City Council, Tesla Superchargers and Wenea. Energy Superhub Oxford also supported the decarbonisation of Oxford City Council's maintenance vehicles as part of the project.

**Strategic investment**

In October last year, Fastned secured a €75m strategic investment from Schroders Capital that it says will "accelerate future growth".

Fastned CEO Michiel Langezaal says: "This not only provides Fastned with the funding to continue to roll out our network, enabling us to make the next big step towards reaching our goal of 1,000 stations before 2030, it also marks the start of a new phase with Schroders Capital's large institutional sustainable infrastructure fund coming on board as an anchor investor, actively supporting our growth plans."

To gain knowledge and experience in electric construction, Fastned and partners started work on a site in Lingehorst in the Netherlands using mainly electric equipment, with the ambition of building it carbon neutral.

Fastned operates the biggest ultra-rapid charging station in Scotland and is behind Europe's most powerful EV-charging hub

## Tom Hurst

Country MD, UK

Fastned

in

LinkedIn

**What's your view on the UK EV market right now?**
The main story is one of acceleration. Six years ago, I joined Fastned in Amsterdam. When I first got started in the UK in 2018, it was clear that the UK charging market and the UK EV market as a whole was maybe four years behind the Netherlands.

That gap has since narrowed to the point where, while there's still some work to be done in the UK in terms of EV penetration, the quality of the infrastructure is rapidly playing catch up.

There's actually not too much difference between the two countries now. If you look at overall sales and statistics, the UK market is much more commercially driven than the Netherlands. It's also highly dynamic and there is a lot more entrepreneurialism and innovation taking place.

**How are you responding to this at Fastned?**
We operate on the principle that speed equals freedom. And we want EV drivers to know that whatever car they drive, they can charge with us as quickly as possible. They will have a great experience while they are charging and then they can get back on the road.

> We are also focusing on investing in more remote locations where EV drivers might be more exposed

We add further value to the experience by offering 24/7 customer support. Our charging bays meet high accessibility standards and. wherever possible, we provide solar canopies that generate green energy and protect our customers from the rain too. We are also focussing on investing in more remote locations where EV drivers might be more exposed. We work hard to meet our customers' expectations of Fastned as a brand. ↴

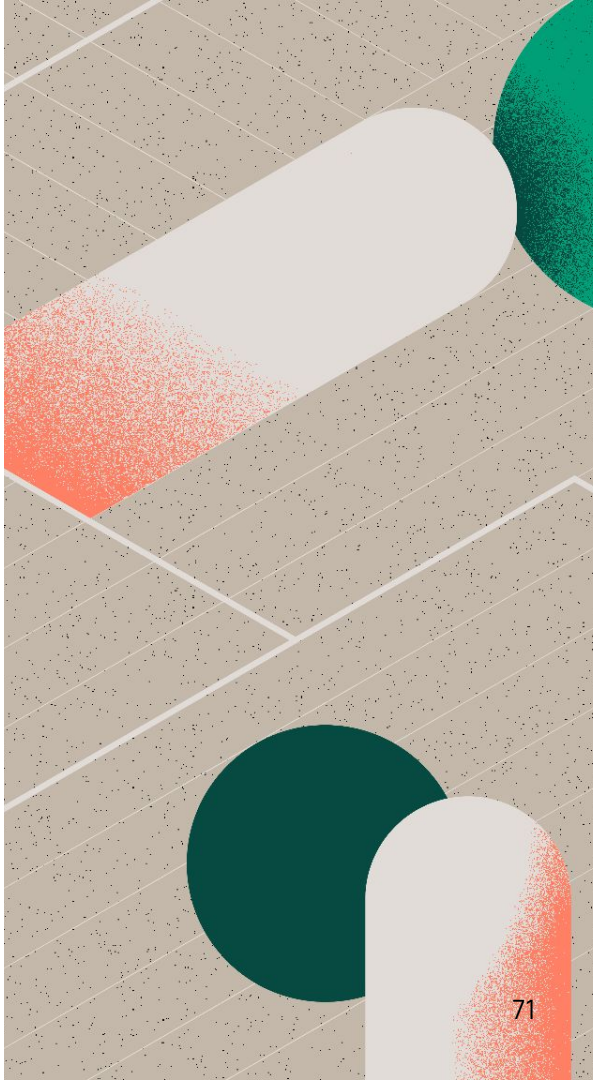
**What would you like to see from the UK government, in terms of support for the industry?**
First and foremost, at Fastned we're interested in accessing the right locations to build the kind of infrastructure that we provide. That is a full, dedicated EV filling station like a petrol station but without the petrol. We need locations with a long land lease that enable us to develop high quality infrastructure over the course of the next phase of EV growth.

We welcome anything that the government can do to enable pure players, or independent players or dedicated EV infrastructure, whether it's Fastned or other parties. Providing access to suitable locations is a key role and one they have a lot of influence over. We are looking to the government to provide strong signals around decarbonisation targets, and encourage the uptake of the ZEV mandate. Billions of pounds are being invested in EV infrastructure, so it's critical that the government doesn't roll back on targets.

We are looking to the government to provide strong signals around decarbonisation targets, and encourage the uptake of the ZEV mandate

**What's your view on the extent and nature of collaboration within the industry?**
I don't know whether it's the sustainability angle, or what it might be, but as a whole the industry is incredibly collaborative and happy, friendly and supportive. Yes, on the DC charging side we're competing for customers and for locations. However we've all got so many shared interests in growing the market and in speeding up our rollout. It's that familiar story about a rising tide lifting all boats.

**Who are your 'ones-to-watch' in the EV space?**
I would highlight Paua, their service is a very compelling offering. They're a dedicated startup whose sole focus is to grow a business around serving fleet drivers with excellence. They're working in a very smart way with fleet operators and their ability to develop their offerings at pace is impressive. Like Fastned, they are committed to enabling electric mobility for all drivers.



20 ▲

# Gridserve

In the 18 months since it confirmed the acquisition of Ecotricity's national charging network, Gridserve has become a key player in EV charging. Currently, it is charging more than 100,000 EVs every month, while in 2022, the company also received an additional £200m cash injection.

**Founded**
2017

**Specialism**
Fast-charging infrastructure for EVs

**Website**
gridserve.com

# Gridserve

### The people's champion

Gridserve has invested millions of pounds in the UK's charging network since it bought Ecotricity's pioneering Electric Highway in June 2021. This effort hasn't gone unnoticed by the public, which helped crown Gridserve the best public charging provider for 2022. Entrants were ranked for accessibility, charging speed, ease of payment, reliability and value for money.

### Rapid rollout

In less than a year, Gridserve managed to replace every legacy charger on the Electric Highway with the latest EV charging units. To date, it has launched more than 100 High Power EV charge points across its Electric Super Hubs in historically underserved areas of the UK.

Along with its motorway services partner Moto, the company is now focused on rolling out Electric Super Hubs across Britain, each with six to 12 350kW-capable EV chargers that can deliver up to 100 miles of range in less than 10 minutes. It also claims to be pushing the boundaries further, with the trial of next-gen high power EV chargers capable of 360kW at its Braintree Electric Forecourt. This charger is able to add 62 miles of range in three minutes, or fully charge a car in less than 15 minutes. Coming into 2023, the firm also launched Super Hubs on the M23 between London and Brighton and near Stonehenge at Solstice Park.

Gridserve is aiming to deliver more than 100 of its Electric Forecourts, which are state-of-the-art facilities with coffee shops, premium lounges, office pods, and more. Along with those already opened, construction has begun on a Gatwick Airport Electric Forecourt.

### Ambition & potential

A new tranche of investment will enable Gridserve to deliver more than 5,000 high power chargers by 2025.

### Impact

Gridserve has quickly emerged as a consumer favourite in terms of accessibility, simplicity and reliability.

### Innovation

A leasing proposition and an investment in solar farms have given Gridserve a multi-dimensional stake in the emerging EV ecosystem.

### Momentum

Rapid infrastructure investment has led to immediate gains, with Gridserve currently charging more than 100,000 EVs every month.

# Gridserve

**Funding and solar farms**

In August 2022, Gridserve secured an initial £200m investment from Infracapital allowing it to deliver more than 5,000 high power chargers by 2025 across Electric Forecourts and Electric Superhubs. The investment will also enable Gridserve to further develop its hybrid solar farms which generate and deliver net zero energy for its network. The brand has already finished developing the "UK's most technically advanced" hybrid solar and battery farm – a vast, 88-acre site in Cirencester comprising more than 43,000 bifacial solar panels, plus 51MWh of energy storage.

**Leasing bonus**

Consumers (and fleets) can lease new EVs via the Gridserve website. The brand has a wide range of EVs and, in September 2022, Gridserve announced that three months of charging will now be included with every lease.

Gridserve has launched more than 100 High Power EV charge points across its Electric Super Hubs in historically underserved areas of the UK

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NEW

# Oxford City Council

Oxford is providing a blueprint for cities around the world that want to scale up green transport in tandem with power and heating. In 2022, it launched its flagship Energy Superhub and Britain's first Zero Emission Zone pilot, which imposes charges on non-EV vehicles.

**Specialism**
Urban test-bed for innovative EV charging solutions

**Website**
oxford.gov.uk

# Oxford City Council

### Electric urbanisation

Following its first EV Summit with local partners in 2018, Oxford City Council has led the way in agenda-setting green initiatives – and its reputation for electric innovation continues to be well-deserved.

### Fair access for all

The council's 2022 Summit focused on decarbonised transport, and followed the installation of 42 new charging points at the Energy Superhub Oxford last year, alongside new rapid chargers set up across the city.

Local cabinet members also approved the Oxford EV Infrastructure Strategy "to deliver fair and equitable EV charging for all who live, work and visit Oxford and to help become a Net Zero City by 2040".

### Superhub sensation

City residents also have reason to celebrate with the green light given for Energy Superhub Oxford – described as Europe's most powerful EV charging hub.

A partnership between Oxford City Council, Fastned, Tesla Superchargers and others, the hub is powered entirely by renewable energy and has 10MW of installed capacity. This means it can offer fast and ultra-rapid charging for 42 vehicles at once, scaling up to 400. It's also home to a cutting-edge hybrid battery system, developed by Pivot Power, designed to provide essential flexibility to the UK's grid as renewable energy is scaled up.

### Ambition & potential

Oxford wants to be a gold standard for cities seeking to go green. Facilitating EV usage sits at the heart of its ambitious strategy.

### Impact

Initiatives such as Energy Superhub Oxford underline the city's determination to translate ambition to action.

### Innovation

The annual EV Summit, in partnership with Oxford's academic institutions, is a thriving hub of innovation.

### Momentum

A joined-up strategy is driving shifts in consumer behaviour and service delivery that could help Oxford go carbon zero by 2040.

# Oxford City Council

In addition, Energy Superhub Oxford has also supported the decarbonisation of Oxford City Council's fleet of maintenance vehicles. The hope is that the city's adoption of EV transport will increase by 20% in the next three years.

**Community wins**

Part of the power of Oxford City Council's approach is that it addresses the green transition challenge on both a macro and micro scale. For example, it recently secured £32.8m from the Zero Emission Bus Regional Areas scheme to help purchase a fleet of 159 electric buses. Together with a £6m investment from the council itself and and £43.7m from bus companies the Go Ahead group and Stagecoach to fund the buses and related infrastructure, the council can move ahead with its plans for a zero carbon transport network in the city. It also joined partners to mark World EV Day last year by offering free charging at the Superhub – a smart move for crucial public buy-in.

Energy Superhub Oxford can offer fast and ultra-rapid charging for 42 vehicles at once, scaling up to 400

22

NEW

# Wallbox

Wallbox creates advanced EV charging and energy management systems that manage the communication between vehicle, grid, building and charger. 2022 was another stellar year in its copybook, with a series of smart partnerships, record revenue and a new offering – installation – in the mix.

**Founded**
2015

**Specialism**
EV charging solutions

**Website**
wallbox.com

# Wallbox

### Charging with bells on

Wallbox offers charging and energy management services for residential and public use in 110 countries. One of its key products is the Pulsar Plus, designed for home use.

### Record-breaker

For Q3 2022, Wallbox landed revenues of €44.1m; an increase of 140% year on year. It also sold 67,000 chargers, in another mammoth 93% year-on-year leap.

Market reception was especially buoyant in North America, where Wallbox received its first orders for Hypernova, a 400kW DC fast-charging station. It also announced a global strategic partnership with Fisker to provide charger services, acquired ARES Electronics to expand its manufacturing capabilities, and added EV Charging installation services company COIL to its portfolio.

### Power partners

In order to help consumers make the electric switch, Wallbox extended its existing partnership with Uber last November, in a move designed to boost access to home chargers for Uber drivers across Europe. The alliance now covers seven European markets and aims to provide exclusive discounts on home chargers.

In addition, the brand joined forces with Nissan to provide charger and installation services to buyers of its new Ariya EV across the US. And it also entered into a collaboration with rideshare app Lyft, to give Lyft drivers a discount on EV chargers and installation.

### Ambition & potential

A new US manufacturing plant significantly expands the scale of potential output at Wallbox.

### Impact

A huge increase in revenues and unit sales in 2022 underlines the company's growing importance in the provision of charging solutions.

### Innovation

The Wallbox Hypernova takes ultrafast public charging to the next level.

### Momentum

Partnerships with the likes of Uber, Lyft and Nissan are accelerating Wallbox's growth.

# Wallbox

**Manufacturing might**

In 2022, Wallbox opened its first North American manufacturing facility in Arlington, Texas. Designed to produce 250,000-plus units in 2022 and more than 1m in 2030, the 130,000 sq ft factory will manufacture all of the company's chargers in the US.

According to Wallbox CEO Enric Asunción: "Only 3% of the chargers required globally for the next decade have been installed, showing the magnitude of the need for innovative and reliable charging solutions."

> "Only 3% of the chargers required globally for the next decade have been installed showing the magnitude of the need for innovative solutions"
>
> Enric Asunción,
> CEO, Wallbox

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NEW

# Stellantis

The brand is still in its infancy, having only launched in 2021 – but already mega-manufacturer Stellantis has set itself ambitious carbon-zero targets. With the mission of introducing 28 new Battery-EVs by 2024, 2022 kicked off with the company eyeing developments in another major industry: electric aviation.

**Founded**
2021

**Specialism**
Vehicle manufacturer

**Website**
stellantis.com

# Stellantis

## Daring to dream

Formed in 2021, Stellantis is the world's fourth-largest automotive manufacturer (by volume) and is home to storied brands including Alfa Romeo, Chrysler, Citroën, Fiat, Jeep, Peugeot and Vauxhall. In March 2022, the company presented Dare Forward 2030, a wide-ranging holistic plan designed to double net revenues while making serious progress towards becoming net zero by the year 2038.

## Setting the pace

Having committed more than €30bn investment by 2025 in electrification and software development, Stellantis has been tussling to become Europe's top seller of battery-electric vehicles. In the first half of 2022, it sold more than 105,000 full-electric cars in Europe, just behind VW Group and ahead of Tesla, which recorded 78,277 sales. Longer term, the goal is for all Stellantis brands to achieve 100% BEV sales mix in Europe by the end of 2030. In the US, it is targeting a 50% sales mix.

In terms of key initiatives, Stellantis' mobility solutions division Free2move is supporting Uber in its ambition to convert 50% of the vehicles available on the platform into electric vehicles by 2025.

## Diversified range

Speaking at the Paris Motor Show, CEO Carlos Tavares said the company is aiming to add an additional 28 all-new battery EVs through 2024. He used the Paris event to announce that three new electrified models would be built at its Mulhouse manufacturing facility: Peugeot e-308, e-308 station wagon and e-408.

## Ambition & potential

Dare Forward 2030 is the company's ambitious plan to double revenues while moving rapidly towards net zero.

## Impact

Home to brands like Chrysler, Citroën, Fiat and Jeep, the auto giant is already having a major impact on EV buying.

## Innovation

Stellantis has entered the electric aviation market via a partnership with Archer Aviation.

## Momentum

With €30bn investment in electrification and software development by 2025, Stellantis is accelerating rapidly towards its EV future.

# Stellantis

Tavares also unveiled the new Jeep Avenger, the brand's first-ever fully electric Jeep SUV, which spearheads the introduction of a portfolio of Jeep BEVs. Since then, this vehicle has gone on to be named as European Car of the Year 2023, a prestigious industry award.

Meanwhile at CES 2023 in Las Vegas, Stellantis revealed a range of concept vehicles. These included the Ram 1500 Revolution BEV Concept – providing a tantalising glimpse of how the leading truck brand will use electrification to redefine the pickup truck segment.

**Aviation ambitions**

In January 2023, Stellantis announced it will help build an electric vertical take-off and landing aircraft with Archer Aviation, as it increased its stake in the US company. Archer's eVTOL Midnight aircraft, which has a range of 100 miles (161 km) and can carry a pilot plus four passengers, will be manufactured in Georgia from 2024. Stellantis will provide up to $150m in equity capital.

> Having committed more than €30bn investment by 2025, Stellantis has been tussling to become Europe's top seller of battery electric vehicles

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NEW

# Renault

The French car giant is undergoing what it refers to as a “Renaulution”. In 2022, it launched several new EVs, including the Megane E-TECH. The company’s vision is to achieve carbon neutrality in Europe by 2040.

**Founded**
1898

**Specialism**
Vehicle manufacturer

**Website**
renaultgroup.com

# Renault

### Welcome to the Renaulution

Despite considerable headwinds, Renault enjoyed a robust year in 2022 and used this as a platform to energise its transformation. CEO Luca de Meo says: "All our energies are mobilised to transform Renault into a competitive tech and sustainable player."

### Restructuring for the future

In May 2022, the firm announced plans to split its EV business and conventional car business in two. The electric division, referred to internally as 'Ampere', could employ 10,000 staff by the end of 2023. The plan is to keep the burgeoning EV business based in France, with a long-term goal of producing 1m electric vehicles by 2031.

In terms of supporting its EV ambition, Renault plans to build a network of charging stations along motorways across Europe. The first charging station will open in southern France, with 200 more set to follow by mid-2024 in France, Belgium, Italy and Spain.

### Award-winning design

It was a banner year in 2022 for Renault's EVs, with the E-Tech version of the Renault Arkana performing well. With a range of up to 280 miles, and up to 130kW DC charging, the Renault Megane E-Tech also experienced a promising launch, with a strong order book and a positive response from the auto industry.

The car was named Best Electric Hatch at the Top Gear Electric Awards 2022, as well as landing the coveted Technology Award at the DrivingElectric Awards 2023. To drive uptake, Renault launched a monthly subscription offering flexible terms from three to 24 months.

### Ambition & potential

The formation of Renault's dedicated Ampere division shows the French car giant is firmly focused on driving EV expansion.

### Impact

The company's 'Renaulution' will see it producing around 1m electric vehicles by 2031.

### Innovation

The firm has been innovating where it matters, with the Megane E-Tech winning the Technology Award at the DrivingElectric Awards 2023.

### Momentum

E-Tech versions of the Renault Arkana and the Megane have enjoyed strong orders and a positive response from the auto industry.

# Renault

**A van-tastic result**

Renault has also been reimagining its commercial vehicles for the EV age. The new Renault Trafic Van E-Tech Electric is Renault Trafic's first electric model and has a range of 149 miles. The Renault Kangoo E-Tech, meanwhile, was named Small Electric Van of the Year at the Company Car & Van Awards 2023. With a driving range of up to 186 miles, rapid DC charging at up to 75 kW can deliver up to 80% charge for the Kangoo E-Tech in 43 minutes.

> "All our energies are mobilised to transform Renault into a competitive tech and sustainable player"
>
> Luca de Meo,
> CEO,
> Renault

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NEW

# Mercedes-Benz

Mercedes-Benz bolstered its EV manufacturing in 2022 alongside a pledge to cut emissions in half by 2030. The German giant also unveiled plans for a global Mercedes-Benz-branded charging network.

**Founded**
1926

**Specialism**
Auto manufacturer

**Website**
mercedes-benz.com

# Mercedes-Benz

### Collaborator supreme

German auto manufacturer Mercedes-Benz Cars stepped up to the plate in 2022 in terms of its commitment to the environment. At the company's first-ever ESG conference, it told investors it would slash CO2 emissions by more than 50% by the end of this decade. In the same time frame it will go all-electric and aim for 70% of energy needs in production to be covered through renewables.

### Portfolio rollout

With a blossoming portfolio of 10 EVs, Mercedes-Benz recently debuted its first all-electric SUV, the Mercedes-AMG EQE SUV. Hailed as "the most versatile electric vehicle" Mercedes-AMG owns, the new EQE SUV models are equipped with a powerful 328-volt high-performance drive battery, manufactured using lithium-ion technology. Like the AMG EQS Saloon and AMG EQE Saloon, the EQE SUV is based on the electric platform from Mercedes-EQ.

In addition, Mercedes-Benz has been showcasing its research vehicle, the Vision EQXX. The car proved its capabilities in 2022 with a real-world electric range of more than 1,000km (620 miles) on a single battery charge.

### 360-degree vision

Like many leading car manufacturers, Mercedes-Benz doesn't view EVs in isolation. The company has formed strategic partnerships to develop and industrialise highly advanced cell technologies. Among its current initiatives, the company will source carbon-neutral lithium hydroxide from a Vancouver-based mining startup, Rock Tech Lithium, to build batteries for electric vehicles. It is also actively supporting innovations in EV battery recycling technology, alongside introducing green steel into various vehicles models from 2025 and increasing its use of recycled and responsibly-sourced aluminum in production.

### Ambition & potential

Mercedes-Benz plans to go all-electric by 2030, an ambition that will transform the luxury car market.

### Impact

Plans to move towards sustainable production illustrate the breadth of Mercedes-Benz's impact.

### Innovation

Construction of a global branded charging network underlines the company's desire to control as much of the EV user experience as possible.

### Momentum

With 10 EVs in its line-up, the German auto giant has become an industry pacesetter.

# Mercedes-Benz

**Charging up change**

At CES 2023 in Las Vegas, the automaker announced plans to launch a global high-power Mercedes-Benz-branded charging network. Rollout starts in North America in 2023, with Europe, China and other major markets to follow. Chief technology officer Markus Schäfer says the North American network is scheduled for completion by 2027, by which time a total of more than 400 hubs with 2,500-plus high-power chargers will be spread across the continent. The company is partnering with MN8 Energy and ChargePoint to build its US infrastructure.

> The North American network is scheduled for completion by 2027, by which time more than 400 hubs will be spread across the continent

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# ev.energy

Ev.energy utilises a cloud-based platform that optimises EV charging to deliver a greener ,cheaper service. Active in the US, the UK, Europe and Australia, it manages charging on behalf of utilities for 100,000 drivers. Last year provided new partnerships with the likes of Easee and SP Energy Networks (SPEN).

**Founded**
2018

**Specialism**
Smart cloud-based charging

**Website**
ev.energy

# ev.energy

## Greener, cheaper energy

Crucial to ev.energy's business model is the ability to forge alliances with other companies in the electrification value chain. On that note, 2022 saw the emergence of some intriguing new partnerships.

## Amping up accessibility

In May last year, ev.energy signed a £3.2m contract with SP Energy Networks to provide 22MW of flexibility services across central and southern Scotland – creating what is in effect the UK's first virtual power plant. Through its app, EV owners in SP Energy Networks' licence areas can now allow ev.energy to automate when their car is charged. The algorithm of the app ensures EV drivers get the cheapest energy rate available, charging their car when there is minimal strain on the grid.

Ev.energy has also teamed up with Easee, a leading manufacturer of electric vehicle domestic chargers, to offer drivers the opportunity to save hundreds of pounds on their bills. The partnership which draws on Easee's inbuilt connectivity, means the combined hardware and software package is simple and rapid to install.

Other new partnerships include an alliance with Luceco to provide BG and SyncEV chargers access to ev.energy's app. BG and SyncEV chargers will offer access to shared chargers for customers living in multi-unit dwellings. The two are also working together on demand-side projects in the UK, to help make grids more flexible.

## Ambition & potential

Ev.energy is becoming an effective way for EV drivers to achieve the best possible charging prices, while also helping alleviate pressure on the electric grid.

## Impact

The platform is now utilised by 100,000 drivers across several international markets.

## Innovation

Ev.energy is all about maximising the potential of the cloud – its partnership with SP Energy Networks to create a 'virtual power plant' being a prime example.

## Momentum

A deal with Allstar means ev.energy is expanding into the public charging space.

# ev.energy

## Supertool software

In November, ev.energy launched Pando – a cloud-based EV charging tool for business. The tool was created to help charger manufacturers manage their smart chargers all in one place.

Ev.energy plans to expand Pando by building out its capability across charge point operators, businesses with EV charging parking spaces and property managers. The EV software specialist is currently running trials with fleet operators, too, with a view to Pando being used for EV fleet management.

## Charging prowess

Ev.energy is also in the midst of bringing its EV charging experience "to the open road". Since summer 2022, its customers have been able to use 5,700 UK public charging stations via a partnership with Allstar Business Solutions, accessing everything they need in one app.

> Through its app, EV owners in SP Energy Networks' licence areas can now allow ev.energy to automate when their car is charged

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# Volta Trucks

Volta's flagship vehicle, the Zero, will hit the roads commercially this year – offering a full-electric 16-tonne truck optimised for urban logistics. Designed from the ground up with an operating range of 150-200kms, it will eliminate 1.9m tonnes of CO2 by 2026.

**Founded**
2019

**Specialism**
Freight and transport e-mobility

**Website**
voltatrucks.com

# Volta Trucks

### Urban renewal

With its first trucks due this year, Volta Trucks currently has a total order bank of around 6,500 vehicles, with a value of €1.4bn. Commercial operators on-board with its designs include DB Schenker, Petit Forestier and Heppner, which will operate 16 Zeros from depots in Paris and Lyon.

### Truck as a service

The Heppner agreement, announced late last year, also extends to building the electric charging infrastructure needed to run Volta Trucks. Its partner, Siemens, will install a range of 22kW slow and 150kW fast chargers, forming part of the support structures required for Volta's 'Truck as a Service' proposition.

### Capital triumph

At the end of 2022, Volta Trucks secured a successful extension of its Series C funding round, with an additional €60m of capital into the company. The round was supported by all current investors and brings total investment to more than €360m, to date.

Looking ahead, Volta plans to produce 14,000 trucks in 2024 and up to 27,000 vehicles in 2025. By this time, the company plans to be operational across Europe and the US, with a portfolio of four models.

### Ambition & potential

Total investment to date in Volta is €360m, which provides a solid foundation for the firm to be active in Europe and the US.

### Impact

Volta is poised to decarbonise last-mile delivery, helping to reduce urban air pollution.

### Innovation

Volta's 'Truck as a Service' proposition is an innovative solution that could transform the company from a producer into a data-powered platform.

### Momentum

An order book of 6,500 trucks shows Volta is transforming its vision into a reality.

# Volta Trucks

**A new COO**

Also in 2022, Volta Trucks appointed Adam Chassin as chief commercial officer. A former head of business for Uber in Europe, he is overseeing sales, business development, marketing, public policy and communications. Chassin says: "Truck deliveries are one of the most polluting activities that occur in cities around the world. I am thrilled to help Volta Trucks advance its mission to decarbonise last-mile delivery."

> "Truck deliveries are one of the most polluting activities…I am thrilled to help Volta Trucks advance its mission to decarbonise last-mile delivery"
>
> Adam Chassin,
> Chief Commercial Officer,
> Volta Trucks

28

# bp pulse

One of the UK's leading charging networks, bp pulse has committed to a £1bn investment in Britain over 10 years – as well as detailing a footprint expansion into US-based locations, with the help of Hertz.

**Founded**
2008

**Specialism**
Charge point operator

**Website**
bppulse.co.uk

# bp pulse

## The fast and the curious

2022 was a breakthrough year for BP's charging business bp pulse, which came into existence following the oil giant's £130m acquisition of Chargemaster in 2018. In March last year, the company announced it will invest £1bn in the UK's charging infrastructure over the next 10 years.

## Ultra-fast charging

The investment means bp pulse can deliver more rapid and ultra-fast chargers in key locations, alongside new home charge digital services. In addition, the company will accelerate the rollout of 300kW and 150kW ultra-fast charging points, and it also expects to triple the number of public charging points in its UK network.

In terms of new site openings, bp pulse recently went live with a hub at Gatwick's Q-Park facility, featuring three ultra-fast 150kW units. These charge an EV to 80% capacity in 10-15 minutes, providing a typical range of 100 miles.

## Strategic allies

Bp pulse has forged a range of partnerships to support its growth. These include collaborations with Royal Mail, Uber and Hertz, as well as a deal with the UK arm of MG. This allows MG car buyers to secure discounts and credits, alongside enabling MG's UK dealership network to fully electrify their forecourts.

Another landmark moment came when bp pulse and Marks & Spencer signed an exclusive agreement to bring EV charge points to the M&S store estate across the UK. As part of the agreement, bp pulse will install an initial 900 charge points at around 70 M&S sites in the next two years, adding 40,000 kWhs of charging capacity to the UK's EV infrastructure.

## Ambition & potential

News of a £1bn, 10-year investment in the UK's charging infrastructure is an indication of bp pulse's attempt to switch fossil fuels for sustainable energy.

## Impact

Bp pulse has the scale and resources to have a mighty impact on electrification, and is planning to roll out more than 100,000 chargers worldwide by 2030.

## Innovation

Bp pulse is prioritising the rollout of ultra-fast charging points.

## Momentum

A range of high-profile partnerships are helping bp pulse sustain its rapid penetration of the charging landscape.

# bp pulse

**Going global**

Bp pulse's global ambition is to have more than 100,000 chargers installed worldwide by 2030. Among new developments last year, it announced plans to launch Gigahub fast-charging hubs across the USA – to serve ride-hail and taxi fleets near US airports and high-demand locations.

The first planned location is being built near Los Angeles International Airport in collaboration with Hertz, and is partially funded by a $2m grant from the California Energy Commission.

Investment means bp pulse can deliver more rapid and ultra-fast chargers in key locations alongside new home charge digital services

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NEW

# Nexeon

UK-based Nexeon has been around for two decades, but 2022 was a breakthrough year, which saw rapid growth and a new wave of funding. The company also leaned into its South Korean links, with a new office in Seoul.

**Founded**
2006

**Specialism**
Silicon materials for lithium-ion batteries

**Website**
nexeon.co.uk

# Nexeon

## Silicon sells

Nexeon is a leading developer and manufacturer of silicon-based battery materials. It claims that its lithium-ion battery anode technology makes a meaningful difference to the real-world performance of battery-operated equipment. In the case of EVs, higher cell energy densities allow costs to be reduced at the same time as maintaining or improving range.

Nexeon is already supplying a number of global battery manufacturers and OEMs. It is also engaged with emerging regional players as the EV market develops new supply chains for their products.

## Powering growth

The company doubled in size in 2022, and also secured £2m from the Automotive Transformation Fund. These funds will be used to install a larger-scale manufacturing facility in the UK, meeting the increasing demand for silicon anode material needed for battery evaluation and cell qualification programmes in the auto industry.

## Rechargeable vision

Following its strategic partnership with and investment from SKC last January, Nexeon completed a second fundraiser in August, which resulted in an investment of $170m. As a result of the funding round, an additional $50m of commercial investments is being made in Nexeon's technologies.

Nexeon says the capital raised will provide it with the ability to expand its manufacturing capabilities, "to mass produce tens of thousands of metric tonnes annually" of its silicon-based anode materials for use in rechargeable lithium-ion batteries.

## Ambition & potential

The company is expanding in the UK and in Asia, where it has opened an office in Korea in addition to its existing Japan office.

## Impact

$170m of new investment will trigger a step-change in Nexeon's business.

## Innovation

Nexeon believes its anode technology can make a meaningful difference to EV battery performance, reducing costs and extending EV range.

## Momentum

The company doubled in size in 2022 and is planning to ramp up its UK manufacturing capability.

# Nexeon

Nexeon CEO Scott Brown says: “We see wide-ranging market opportunities for our products given the continued improvement in battery technology, environmental pressures and new and widening market opportunities.”

**Korea move**

Nexeon opened an office in South Korea during 2022, and strengthened its commercial team with the appointment of Michael Choi as head of Asia business development. The new office is in the Gangnam district of Seoul, making it a good location for access to key automotive and consumer electronics suppliers, the company’s main application markets. The Seoul base acts as a sister location to Nexeon’s development facility based in Yokohama, Japan.

> “We see wide-ranging market opportunities for our products given the continued improvement in battery technology and environmental pressures”
>
> Scott Brown,
> CEO,
> Nexeon

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NEW

# Maxus

Chinese-manufactured Maxus has grabbed a significant share of the UK market for commercial EVs. In 2022, parent company SAIC and its distribution partner Harris launched two new Maxus models in the UK, alongside a new HQ. The company is anticipating 200% growth in the coming year.

**Founded**
2010

**Specialism**
Commercial vehicle manufacturer

**Website**
saicmaxus.co.uk

# Maxus

## Great expectations

After acquiring LDV in 2010, Chinese manufacturer SAIC initially produced the Maxus for its home market and select left-hand drive markets in Europe, such as Spain, Belgium and the Netherlands. Then in April 2020, LDV rebranded as Maxus across right-hand drive Europe. In the UK and Ireland, the van is distributed by Harris Group.

## Making its mark

The UK's Harris Maxus HQ recently moved to a new site in Liverpool, quadrupling its size in the process. The 52,000 sq ft premises houses technical, distribution and sales teams, in addition to a parts depot, warehouse and a training centre for Maxus engineers.

## Power and range

In May 2022, Maxus unveiled two new EVs at the annual CV show in Birmingham – the MIFA 9 and T90EV pickup truck – taking its UK range up to 12 vehicles, with plans to introduce four more in coming years.

The MIFA 9 debuted at the Guangzhou Auto Show in China before coming to the UK. Harris and SAIC call it "the world's first full-size, pure electric MPV", with a range of up to 323 miles on a single charge. Meanwhile, the T90EV electric pickup is the EV version of the Chinese Maxus T90. Suitable for on- and off-road driving, the T90EV has a range of 198 miles and a payload of around 740kg.

## Ambition & potential

Maxus distributor Harris is forecasting impressive triple-digit sales growth for 2023.

## Impact

With a portfolio of 12 distinct vehicles, China-manufactured Maxus has rapidly become a serious option for buyers of commercial EVs.

## Innovation

The MIFA 9 is an innovative addition to the Maxus fleet, opening up the company to a new consumer base in 2023.

## Momentum

The relocation of the Harris Maxus HQ to an expanded site in Liverpool underlines the speed at which Maxus is establishing its UK credentials.

# Maxus

**Road to success**

Currently, Harris is forecasting growth of 200% in the UK in 2023 for the Maxus, with sales projections across the UK and Ireland for 2022 landing at around 6,000 units. In December 2022, general manager Mark Barrett said: “So far this year, we have seen vehicle registrations grow by 52% versus 2021, with 38% of our sales in 2022 attributable to our zero-emission range.”

In other news, Maxus was named the LCV Manufacturer of the Year 2022 at the GREENFLEET UK awards, which is designed to recognise peak-performing fleet sustainability solutions.

> “We have seen vehicle registrations grow by 52% versus 2021, with 38% of our sales in 2022 attributable to our zero-emission range”
>
> Mark Barrett,
> General Manager,
> Nexus

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NEW

# Volvo Cars

In 2022, Volvo launched its new seven-seater EX90, branding it “the start of a new era”. With plans to introduce a new electric car every year, the company is aiming to be climate neutral by 2040.

**Founded**
1927

**Specialism**
Vehicle manufacturer, car subscription, mobility services

**Website**
volvocars.com

# Volvo Cars

### The start of something new

In its full-year 2022 results, Volvo Cars reported sales of 615,121 cars, down 12% compared with the previous year. More encouraging from a sustainability perspective, however, the share of fully electric Volvo cars reached 10.9%, up from 3.7% in 2021.

Looking specifically at December 2022, the share of overall Recharge cars, with pure electric and plug-in hybrid powertrains, hit 43.8%. Fully electric cars accounted for 20.1% of global sales during the same month.

### The all-new EX90

2022 saw the launch of the EX90, a seven-seater, all-electric SUV. Volvo says the new EX90 "represents the start of a new era for our company… Starting with the Volvo EX90, we'll reveal one new fully electric car each year. By 2030, we aim to sell only fully electric cars, one of the most ambitious electrification blueprints in the automotive industry and crucial to our ambition to be climate-neutral by 2040."

"The Volvo EX90 is a statement for where we are, and where we are going," adds CEO Jim Rowan. "It's fully electric, with a range of up to 600km on a single charge, the first Volvo car to be truly defined by its software and part of a wider ecosystem. The EX90 is the start of something new for Volvo Cars in many ways."

### Formula for change

The EX90 will be built in the US starting in 2023 and later also in China. It will comprise 25% recycled aluminum, 15% recycled steel as well as 48kg of bio-based materials and recycled plastics. The EX90 is also Volvo's first car with hardware to enable bi-directional charging.

### Ambition & potential

Volvo calls the EX90 the start of a new era for the company, signalling an increased level of ambition in EV manufacturing.

### Impact

The company's new manufacturing plant in Slovakia represents significant investment in Europe-based EV innovation.

### Innovation

Volvo has just opened a new tech hub in Stockholm and is recruiting software engineering and data science talent.

### Momentum

Volvo's participation in the Accelerating to Zero alliance has given the company renewed momentum.

# Volvo Cars

In a related development, Volvo announced it is building a new €1.2bn manufacturing plant in Slovakia that will be climate neutral and build only electric cars. In October 2022, Volvo opened a new tech hub in Stockholm to help it prepare for a new era of software-defined, fully electric cars. To this end, it is busy recruiting talent across a wide range of disciplines including software engineering, data science and customer experience development.

**Accelerating to Zero**

Volvo is also a founding member of the new Accelerating to Zero Coalition, which calls for more climate action from governments. The Coalition consists of stakeholders committed to facilitating and increasing the pace of the transition to zero emission mobility.

The alliance was launched at the UN Climate Change Conference (COP27) in Sharm El Sheikh, Egypt, last year. It builds on the Glasgow Declaration on Zero Emission Vehicles agreed at COP26.

In October 2022, Volvo opened a new tech hub in Stockholm to help it prepare for a new era of software-defined, fully electric cars

## Steve Catlin

MD
Volvo Financial Services UK Ltd

Board Member
Volvo Cars UK

LinkedIn

**What's your view on the UK EV market right now?**
We're at an exciting, critical moment for electric vehicles in the UK currently. Vehicle manufacturers have clearly responded to government direction to move away from the internal combustion engine (ICE) and to play their part in finding solutions to support the environment. We're seeing the end result of that focus with a constant stream of new electric vehicles launched into the marketplace.

The difficulty is that, in most cases, the production cost of EVs remains above an equivalent ICE vehicle and the only government incentives which neutralise that gap are in the fleet marketplace. Therefore, we're seeing the majority of EV sales [being made] to corporate users.

That was ok for a while, however, the increased volume of launches and supply now focussed on EVs means that demand across more segments is required. [Otherwise] we'll continue to see downward pricing pressure and a difficult used EV environment.

**How are you responding to this at Volvo?**
Geely Group brands like Volvo and Polestar are innovating to bring down the cost of their new vehicles, to match an equivalent ICE car. A great example is the Volvo EX30 just announced. Its keen pricing has been mentioned in almost every press article since the vehicle was unveiled. We didn't achieve this by waiting for battery technology to reduce in cost. Instead Volvo re-thought the engineering of the vehicle.

> We're working closely with OEMs to ensure great value when it comes to offering funding methods to consumers

[This involved] stripping complexity from the car while still focussing real value on the elements of the car which have human interaction.

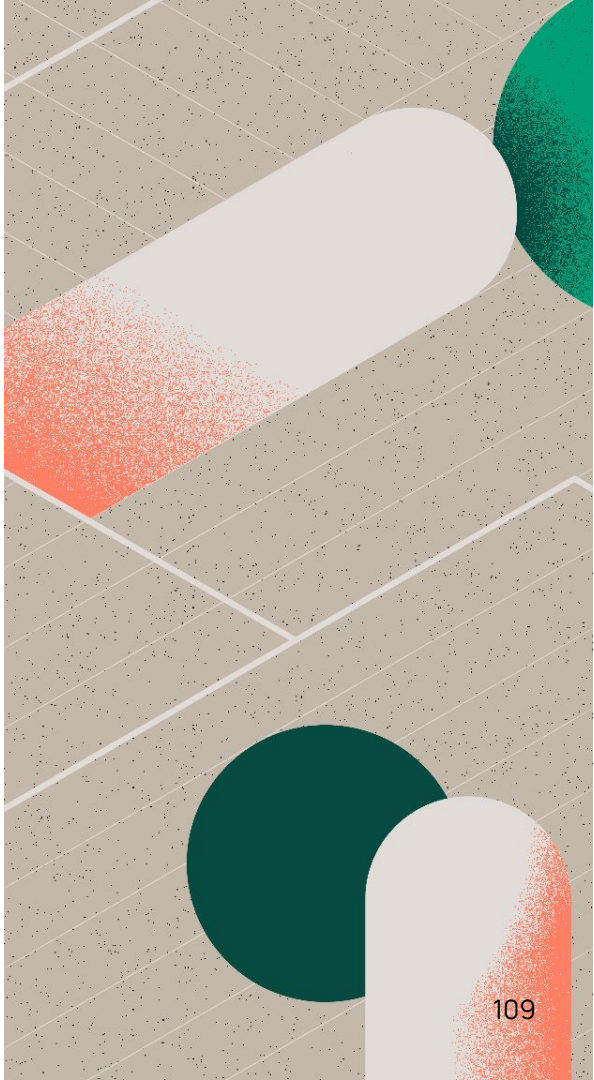
On the finance side, we're working closely with OEMs to ensure great value when it comes to offering funding methods to consumers. We are also innovating to create new ways of accessing an EV such as subscription models for example, and used EV hire programmes.

**What more can the industry as a whole do to futureproof the ecosystem?**
[I think it comes down to three aspects:] Simplification, harmonisation and added value. Living with an EV is a potentially overwhelming experience which requires a leap-of-faith.

[Consumers have to get their heads around] home charging, on-the-go charging as well as multiple charging providers with different access technologies. We must do better when it comes to making these things easier to understand and access.

> The government needs to find ways to accelerate the scale and scope of EV infrastructure

**What would you like to see in terms of support or action, or maybe even doing less from the government?**
I'd like to see three things from the UK government to support the continued expanded take-up of EVs. Firstly, a review of the 'Rules of Origin' tariff plans which [currently] add rather than remove the costs associated with a high volume of EVs. Second, [we need a] spread of financial incentives to support take-up across broader segments than just the corporate market. Third, I think the government needs to find ways to accelerate the scale and scope of EV infrastructure.



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NEW

# Faradion

Faradion is a leading sodium-ion battery technology company, which aims to provide low-cost, high-performance, safe and sustainable energy. Owned by Reliance New Energy Solar, it recently unveiled plans to establish centres of excellence in Sheffield and Oxford.

**Founded**
2011

**Specialism**
Sodium-ion battery R&D

**Website**
faradion.co.uk

# Faradion

## Sodium sensation

Faradion was launched in 2011 to develop and commercialise sodium-ion technology. Its proprietary technology delivers leading-edge, affordable solutions for a broad range of applications including mobility. The company says "our sodium-ion batteries are cheaper and safer than lithium-ion, with a higher energy density and a wider operating temperature range".

## Commercial step-change

Faradion collaborates with several world-leading companies and institutions, including Jaguar Land Rover. In December 2021, it was acquired by Reliance New Energy Solar Ltd, which plans to invest £25m to accelerate commercial rollout.

Reliance will also use Faradion's technology at the fully integrated energy storage gigafactory it is planning in western India, as part of the Dhirubhai Ambani Green Energy Giga Complex project.

Faradion co-founder Dr Chris Wright says: "This deal establishes Faradion's batteries as an integral part of the global value chain for cheaper, cleaner, sustainable energy for decades to come."

## Centre of excellence

More recently, The British Private Equity & Venture Capital Association named Faradion in its Vision 2022 initiative, which recognises growth, competitiveness, innovation and ESG.

## Ambition & potential

Faradion believes its sodium-ion batteries are cheaper and safer than lithium-ion, making it a potential disruptor in the EV market.

## Impact

Faradion's acquisition by Reliance New Energy Solar will accelerate commercial rollout of its tech, globally.

## Innovation

Sodium-ion batteries are at the core of Faradion's ongoing innovation, with usage now being explored in Australia and India.

## Momentum

The launch of a worldwide Centre of Excellence in Sheffield will take Faradion to the next level.

# Faradion

This came as the company announced plans to create a worldwide centre of excellence in sodium-ion batteries. CEO James Quinn says: “Faradion intends to hire 200 people over the coming months to create a global centre of excellence in Sheffield, initially with training and demonstration facilities in Sheffield and Oxford and then manufacturing. We will continue to work with our partners to make the UK the most exciting place on earth for sodium-ion batteries.”

### Installation innovation

In December, Faradion installed its first sodium-ion battery at a trial site in Yarra Valley in New South Wales, Australia, as part of a longer-term goal to bring its technology to commercial, residential and industrial ventures across Australia and beyond.

> “We will continue to work with our partners to make the UK the most exciting place on earth for sodium-ion batteries”
>
> James Quinn,
> CEO,
> Faradion

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# Tevva

British EV manufacturer Tevva is on a mission to clean up the freight industry with its electric trucks. Having sold its first 7.5-tonne truck in 2022, it expects to sell 1,000 vehicles this year. A new 19-tonne vehicle and second manufacturing base promise to boost its progress.

**Founded**
2012

**Specialism**
Freight and transport e-mobility

**Website**
tevva.com

# Tevva

## Trucking along nicely

Supported by around $140m in funding, Tevva's immediate priority is to make its 7.5-tonne trucks commercially viable. The very first trucks landed on customer doorsteps in the second half of 2022, with the first off the assembly line purchased by Kinaxia Logistics.

## On the road

In January this year, the company received a boost when it gained regulatory approval for its 7.5-tonne truck to be manufactured and sold at scale across the UK and Europe, a first for pure EVs of this size. As a result, Tevva is now anticipating sales of up to 1,000 electric trucks this year, predominantly to the UK. Customers on the brand's books include Travis Perkins, Expect Distribution and Royal Mail. Trucks are being built at a facility in Essex.

Tevva's first 7.5-tonne electric truck offers up to 140 miles from its 105 kWh battery on a single charge and is geared towards last-mile and urban delivery fleets. It will be followed later in 2023 by a 7.5-tonne hydrogen-electric truck, which benefits from a hydrogen range-extender that enhances vehicle range to up to 354 miles.

## R&D expansion

In April 2022, Tevva launched its new base at MIRA Technology Park in Nuneaton, Warwickshire. The site is regarded as one of Europe's leading mobility R&D locations for advanced automotive technology.

Tevva's new base provides the company with proximity to specialist engineering and testing capabilities. Ken Scott, chief engineer at Tevva, says: "MIRA is second to none regarding automotive engineering and testing. Having a base there makes perfect sense, as a presence will help us develop our technologies more rapidly."

## Ambition & potential

The expansion of Tevva's business to include a larger 19-tonne truck, with a 500km range, transforms the capabilities of its vehicle portfolio.

## Impact

Tevva expects to sell up to 1,000 electric trucks in 2023, making it a prime mover in the decarbonisation of logistics.

## Innovation

A new base at MIRA Technology Park plugs Tevva into a leading centre for advanced automotive technology and testing.

## Momentum

Tevva is expanding into Europe with a new manufacturing plant.

# Tevva

**New truck, new markets**

In September 2022, Tevva used the IAA Transportation Show in Hanover, Germany, to launch into mainland Europe and also unveil its 19-tonne hydrogen-electric truck. Its largest truck to date, Tevva's 19-tonne model combines lithium-ion batteries and a hydrogen fuel cell range extender. Its range is expected to reach 500km.

The company says work is under way for a second facility in mainland Europe, which will double Tevva's manufacturing capacity by 2024. The UK and European facilities will produce 7.5-tonne and 19-tonne trucks for the UK, Germany, France, Spain, Italy and Benelux. Tevva will then expand into other parts of Europe, North America and the Middle East.

Tevva's UK and European facilities will produce 7.5-tonne and 19-tonne trucks for the UK, Germany, France, Spain, Italy and Benelux

## Richard Lidstone-Scott

Commercial Director
Tevva Electric Trucks

in
LinkedIn

**What's your view on the emergent UK EV lorry market right now?**
Emergent is a generous way of putting it. Unlike the EV car market, there is absolutely no issue with pent-up demand for EV lorries.

There is a lack of product, however, and if that product were available tomorrow, there is still a significant issue over charging infrastructure and the ability to charge, because there is no publicly available charging infrastructure for commercial vehicles.

That lack of public infrastructure will take time to correct. Therefore the obvious first segment of the medium and heavy commercial vehicle market to electrify is the back-to-base operations trucks – typically, but not exclusively, two-axle rigid trucks.

**...and how are you responding at Tevva?**
Tevva is absolutely flat out developing the end-to-end customer solution. That means we can sell electric and dual energy lorries en masse. The production line is in place and we're working through our scale-up plan.

We're also continuing to work on evolving the technology to allow us to be a long term sustainable company. At the same time, we're putting a support infrastructure in place that allows people to use our vehicles and have them serviced and maintained. It's similar to how they would look after a diesel truck just with less maintenance because there are fewer moving parts.

> We have designed and built a cost-competitive, zero emission lorry that can replace a diesel truck

We have designed and built a working, cost-competitive, zero emission lorry that can replace a diesel truck – our aim now is to build them by the thousands so that we can move the needle on 2050.

**What more can the industry as a whole do to futureproof the ecosystem?**
One area that needs addressing is how depots are managing their own charging infrastructure. What are they doing, typically? Are they working with partners? Depot operators have a couple of options. If they are capable and knowledgeable enough, they can go directly to the independent network operator and pay for a power upgrade. ↴

That will cost hundreds of thousands of pounds and be very time-consuming. Or they can talk to a charge partner. We would recommend a preferred partner who could manage that work for them and potentially roll the cost into an annualised fee that would also support them with access to the charge stations. But it's a challenge that the industry needs to get together to solve.

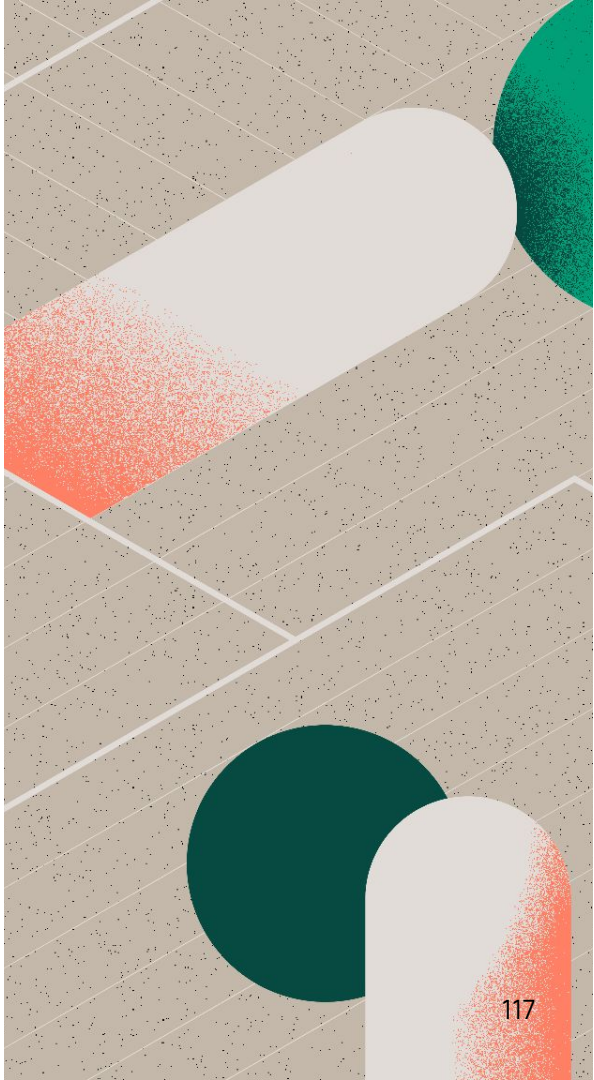
**What support or action do you want to see from the UK government?**
Firstly, the UK government's fiscal support for buying electric trucks is a long way behind most of Europe. Germany funds up to 80% of the cost difference between a diesel truck and a zero emission version. Secondly, we need really clear signposts on what they are going to be doing with infrastructure, both hydrogen and electric, moving forwards. Information from European governments suggests that hydrogen is the technology that will take electric trucks into the long- range arena. We agree, which is why we offer a dual energy hydrogen solution in a way that still gives trucks significant all-electric range with big batteries. That's because there is no hydrogen infrastructure. With that infrastructure, adoption of zero emission commercial vehicles will accelerate overnight.

Thirdly, we need clarity on how the government will ensure that there are sufficient grid network upgrades to allow fleet users access to electricity to support these trucks. It's a tough sell currently.

Information from Europe suggests hydrogen is the technology that will take electric trucks into the long-range arena

**Who are your "Ones to Watch" in the UK's e-mobility space and why?**
There are so many little or smaller SMEs in the UK that are obtaining funding through Innovation such as Xcience who are developing innovative hydrogen storage solutions.

Advanced Electric Machines (AEM) in the North East are also a company to watch as they go into production of UK designed and built electric motors that can support a wide range of applications, including our trucks at Tevva.



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NEW


# EAV

Electric cargo bike maker EAV has established a compelling case for being part of the inner city logistics ecosystem of the future. With ambitions to replace vans with its suite of products, it has managed to secure orders from the likes of Amazon, Ocado and Asda.

**Founded**
2018

**Specialism**
Electric cargo bike manufacturer

**Website**
eav.solutions

# EAV

## On yer bike

EAV founder Adam Barmby says that eCargo bikes can be 200% more efficient than vans in urban scenarios. With batteries capable of going for up to 40 miles, the company's pitch is that its clients can achieve greater productivity while also helping save the planet.

## The business case

In February 2022, EAV completed a funding round led by H+ Partners to enable it to increase production capacity, deliver customer orders, recruit key staff and scale up its R&D and engineering capabilities. In December, the company announced it was seeking to raise another £7.5m to finance its future development.

Around £6.75m of this funding is coming from existing shareholders, institutional investors, family offices and other high-net-worth investors. The remaining £750,000 is being sought via a crowdfunding campaign in partnership with online platform Seedrs.

EAV has created a modular design which can support diverse rear vehicle configurations such as the 2Cubed and RoRo. The 2Cubed has a capacity of 2 cubic metres and is capable of holding up to 170kg of cargo weight. Although primarily a UK company, EAV now has vehicles in mainland Europe and New York, too.

## Vote of confidence

EAV partners to date include Asda, Ocado Zoom, Zedify, Urb-it and LaundryHeap. It has also built up links with courier firms like DPD, FedEx and Evri; and several local councils including Islington, Dover and Westminster, which use EAV bikes within their fleet.

### Ambition & potential

EAV believes eCargo bikes can supplant vans in urban environments.

### Impact

Partnerships with major retailers and courier firms consolidate EAV's status in the UK.

### Innovation

Modular design means EAV can adapt its bikes to suit different cargo.

### Momentum

Two funding rounds in 2022 give EAV the capital it needs to expand its activities into Europe and the US.

# EAV

In July 2022, Amazon announced it would use eCargo bikes as part of its investment in fleet electrification. Having initially targeted the London Borough of Hackney, it extended its footprint to Wembley, Southwark and Manchester, in a project that includes EAV bikes.

**Vehicle care**

Coming into 2023, EAV appointed Halfords as its key UK fleet service, maintenance and repair partner, giving fleet customers access to qualified technicians across the UK. Through Halfords, EAV will offer its eCargo bike customers after-sales SMR packages, including at remote locations. Around the same time, EAV announced a partnership with Muc-Off for bicycle and motorcycle care.

Through Halfords, EAV will offer its eCargo bike customers after-sales SMR packages, including at remote locations

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NEW

# Co Charger

Co Charger encourages people with chargers to rent them out to neighbours when not in use, to help accelerate EV adoption. Matching users and making bookings and payments are taken care of via the app. In 2022, the platform passed the 10,000 user mark.

**Founded**
2020

**Specialism**
Community charging

**Website**
co-charger.com

# Co Charger

## Core proposition

Co Charger argues the transition to EV can't work without community charging.
For the UK to reach net zero by 2050, it says it is essential for the estimated 14m motorists living in flats, terraced houses and rented homes to have easy and affordable access to charging.

"The transition to EVs isn't going to work with public charging alone," says Joel Teague, CEO of Co Charger. "We can't have a two-tier system in which charger 'haves' can top up easily whilst the 'have-nots' are faced with the prospect of tracking down a public charger that's available, not broken and with a reasonable tariff. There are just over 30,000 public chargers available but more than 400,000 home chargers."

Co Charger says the model is reliant on community-minded 'Hosts' – EV charger owners who are happy to share with neighbours who do not have a driveway because they live in flats and terraced houses. The 'Host' can arrange bookings for times that are convenient and set an appropriate fee, which is paid via the app. There's the option to make additional income by charging above the basic costs for the charger rental.

## Robust growth

By July 2022, Co Charger said it had reached 10,000 users and more than 3,500 available charge points. It claimed to be "the third-largest and fastest-growing UK charging network, bigger than bp pulse (2,718), Tesla (Destination and Supercharger 1,876) and ChargePlace Scotland (458)". At the time, Teague said: "Community Charging is a game-changer. Over the past months it has gained support from the government, councils and leading industry figures. Most importantly, the rapid growth of users and sessions has shown it working in the real world."

## Ambition & potential

With 14m motorists living in flats, terraced houses and rented homes, the firm is well-placed to become a key charging platform.

## Impact

To date, Co Charger has signed up 10,000 users, but rapid transition to EV usage suggests its impact is poised to grow quickly.

## Innovation

The company's business model for chargepoint sharing represents a novel take on the EV charging challenge.

## Momentum

Co Charger claims to be the UK's fastest-growing charging network, underlining the speed at which it has tapped into its target market.

# Co Charger

**Community-facing initiatives**

In 2022, Co Charger partnered with Motability Operations to trial the sharing of privately owned EV charge points with disabled motorists, providing feedback on how the app could alleviate customers' anxiety around range and charging. Motability says this exercise was useful for up to half of all disabled motorists who are expected to be wholly or partially reliant on public charging infrastructure by 2035.

> "We can't have a two-tier system in which charger 'haves' can top up easily, whilst the 'have nots' are faced with tracking down a public charger"

Joel Teague,
CEO,
Co Charger

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NEW


# Ford

Ford has established itself as a major force on the EV scene, with plans to produce 2m vehicles a year by 2026. In 2022, US sales rose dramatically, while the company also set out an ambitious programme of expansion for Europe. There was also new investment for UK parts manufacturing.

**Founded**
1903

**Specialism**
Vehicle manufacturer

**Website**
ford.com

# Ford

### Moving forward together

Ford has established itself as a major force in the US EV market, with sales in November 2022 expanding at twice the rate of the EV segment as whole. This pace was maintained into December, when Ford tripled its EV sales year on year. In total, EV sales for 2022 doubled.

### Boom time for vans and pickups

Ford started production of the F-150 Lightning electric pickup truck in spring 2022 and achieved robust sales. There were also strong performances from the Ford E-Transit (80% market share) and the Mustang Mach-E.

In December 2022, Ford and SK On also broke ground at Kentucky-located BlueOval SK Battery Park, where their joint venture – BlueOval SK – has invested $5.8bn to produce batteries for Ford and Lincoln EVs.

### All eyes on the UK

Ford is investing an additional £125m in electric vehicle parts production at its Halewood plant in Liverpool. The financial injection forms a key part of the company's European zero-emissions ambitions. The factory will produce 420,000 electric drive units a year from 2024 under the plan (a significant uptick from the 250,000 initially planned).

In return for investing in Halewood, which employs 500 workers, Ford received £30m in UK government funding. A further £24m was also earmarked for supporting the E:PRiME R&D centre.

### Ambition & potential

Ford has outlined an ambitious target for Europe, with a projected 600,000 EV sales by 2026.

### Impact

Plans for several new additions to its EV range mean Ford will have an impact on most segments of the consumer and commercial markets.

### Innovation

Heavy investment in battery production plants will support Ford's EV strategy.

### Momentum

Rapid EV sales in the US are providing a robust platform for Ford's global EV expansion.

# Ford

Ford Pro introduced the all-electric E-Transit to the UK in April 2022, and has enjoyed robust sales. The E-Transit was named Van of the Year by What Van? in December, marking its 11th UK award.

**Time for Euro-vision**

In March 2022, Ford outlined a bold vision for Europe, announcing it would introduce three new electric passenger vehicles and four new electric commercial vehicles in the region by 2024. It also plans to sell more than 600,000 electric vehicles in Europe by 2026.

Echoing the situation in the US, Ford also signed a non-binding MOU with SK On Co., Ltd. and Koç Holding to build one of Europe's largest commercial vehicle battery production sites near Ankara, Turkey.

Following the European introduction of the all-electric Mach-E in 2021 and Mach-E GT and E-Transit in 2022, Ford will this year begin production of a medium-sized crossover, which will be built in Cologne. A second EV will be added to the Cologne production line in 2024. In addition, the Ford Puma will be available as an EV from 2024 and will be made in Romania.

> In 2022, Ford announced it would introduce three new electric passenger vehicles and four new electric commercial vehicles by 2024

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# Osprey Charging

Osprey Charging Network has established itself as one of the UK public's best-reviewed EV charging networks, with a platform of more than 550 rapid charging stations thoughtfully placed across the country. On a mission to turn our roads green, its expansion is also rapid – with chargers powered solely by renewable energy.

**Founded**
2018

**Specialism**
Rapid EV charging network

**Website**
ospreycharging.co.uk

# Osprey Charging

### Mindful partnerships

In 2022, Osprey continued with its commitment to making its charging network as widely accessible as possible, built on long-lasting partnerships that matter. Across the year, it joined forces with the likes of Ediston, British Garden Centres and North Devon Council to bring rapid chargers to popular retail parks, community hubs and the district of North Devon; doubling charge points in one of the most underserved rural areas in the UK.

### Green roads, green fleets

Most notably, Osprey teamed up with GreenFlux, to allow drivers from across the continent able to plug and charge at any Osprey hub using their usual apps and charge cards. It also collaborated with Siemens to fast-track the commissioning of UK charging sites, in an agreement that will see Siemens install meters at each Osprey location to support accurate billing, reporting and recharging.

Osprey's mission also extends to enabling local and national businesses to go green. In June, it made an agreement with British Gas to help accelerate the energy giant's 9,000-strong fleet transition to an all electric fleet. Engineers can now top-up at any one of Osprey's nationwide charging stations with a seamless electric fuel card payment process, in the first UK integration of its kind.

### Rapid acceleration

Osprey's ambition to drive EV charging growth in the UK has been accelerating at scale. With aggressive expansion targets, the network recently announced plans to add over 250 new Tritium chargers to its UK infrastructure. Compared with 50kw DC rapid chargers that deliver roughly 100 miles of charge in 60 minutes, these ultra-rapid chargers are powered by 75-175kw allowing compatible cars to add 100 miles of range in 10 mins.

### Ambition & potential

Osprey's commitment to 250 new Tritium chargers, as well as a £75 million expansion plan in progress, continues to drive EV charger growth in the UK.

### Impact

The first network to sign-up to ChargeSafe, Osprey is approaching electrification at speed; but it's also mindful of the need for safety and accessibility.

### Innovation

Partnering with British Gas to speed up the transition of a 9,000 strong fleet to electric via a unique fuelcard payment integration,Osprey continues to chase innovative ideas.

### Momentum

Making its network accessible to drivers across Europe with GreenFlux and partnering with Ediston and North Devon Council, its charge points are expanding rapidly.

# Osprey Charging

The move builds on Osprey's existing commitment to invest £75 million in 1,500 rapid chargers by 2025.

Recognising that such fast growth should be regulated, Osprey also became the first major EV charging network to sign-up to ChargeSafe; an endorsement body that independently inspects and rates charge points. The scheme scores locations out of five based on a raft of accessibility and safety criteria, from wheelchair provisions to standards of lighting. Osprey CEO Ian Johnston said: "Working with ChargeSafe means we can ensure that accessibility and safety are prioritised at all of our new sites, whilst giving us the insight to rectify other areas of our network that should be upgraded."

**Infrastructure credit**

Last, but not least, Osprey ended 2022 on a high by winning the Infrastructure Award at the Automotive Global Awards.The title is given in recognition of a business that has significantly contributed towards a sustainable UK infrastructure in support of EVs.

> Osprey's ambition to drive EV charging growth in the UK has been accelerating at scale

## Ian Johnston

CEO
Osprey Charging

LinkedIn

Twitter

**What's your view on the UK EV market right now?**
In 2022, we saw EVs become a mass-market proposition, with hundreds of thousands of drivers making the switch each year and almost all automotive manufacturers bringing several new electric models to market in different sizes and prices. This shift is showing non-EV drivers that life with an EV is a realistic switch for them to make.

With over a quarter of a million new battery electric vehicles hitting the road in the UK, attention is now turning to the roll-out of public charging infrastructure, and the question of whether there is a sufficiently reliable supply of chargers across the UK.

In 2023 and beyond, UK EV drivers have the benefit of choice between a number of nationwide, reliable and ever-expanding public networks – such as Osprey – which is deploying new rapid charging hubs of multiple, high-power chargers, at sites across the UK.

There is still an issue with a small proportion of legacy infrastructure from operators and councils who do not maintain reliable chargers. However, the thousands of new rapid chargers being installed in 2023 will significantly reduce the chance of a driver needing to use an unreliable charger going forward.

> Attention is now turning to the roll-out of public charging infrastructure

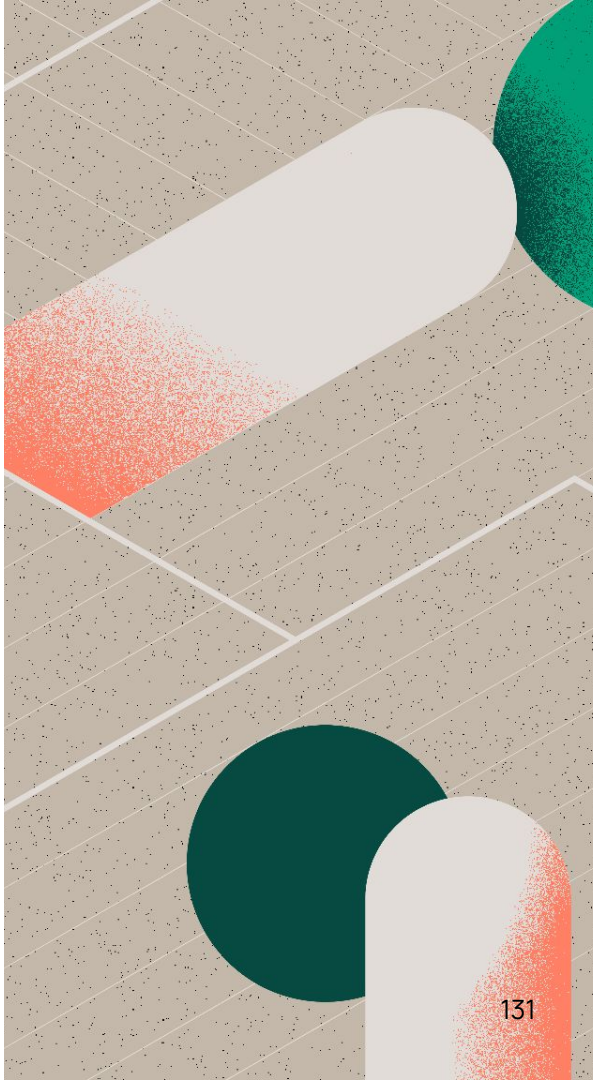
**Who are the "Ones to Watch" in the UK's e-mobility space and why?**
One of 2022's standout players is Fleetcor, already a hugely successful business with its AllStar product for liquid fuel fleets, which is now also providing innovative payment services for commercial electric fleets. Fleetcor has positioned itself as a leader in EV fleet tech in recent months, investing in a suite of market-leading integration products.

This includes investment or integrations into leading service providers such as Zapmap and Mina, designed to simplify and expand their UK commercial fleet payment solution, which are available to millions of drivers with fuel cards. The result is a brand that has doubled down on its presence in the EV fleet space, with the tech and expertise to become a major player going forwards. ↴

**What support or action do you want to see from the UK government?**
What we don't need from the government is taxpayers' money. Billions of pounds of private money have been committed to fund the UK's infrastructure rollout. However, there are barriers that are slowing down the rollout, which is where the government can add most value. This includes introducing permitted development planning rights for EV charging hubs and ensuring that the regional grid DNOs are equipped to deliver the new connection requests. Moves such as these could reduce the lead time in delivering new charging hubs by up to 50%.

> There are barriers that are slowing down the rollout which is where the government can add most value

**What are your personal motivations and goals for EV?**
I want to ensure that switching to an EV is a simple decision for everyone, whether you have access to a home charger or not. To achieve this means proving to the UK public, and an increasingly critical media, that the UK's charging network is sufficiently large and reliable to support all drivers in their moment of refuelling need. At Osprey, we will keep innovating to ensure that we are providing drivers with the option of a simple and stress-free experience that they can depend upon when they need to recharge away from the home.



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# Ohme

Ohme's smart charging solution picked up a lot of momentum in 2022, with endorsements from both VW Group and Octopus Energy. New UK building regulations also led to a significant boost in business enquiries from housing developers and construction companies.

**Founded**
2017

**Specialism**
Intelligent charging solutions

**Website**
ohme-ev.com

# Ohme

## Trusted intelligence

Ohme's ambition is to become the world's most trusted EV smart charging solution. Focused primarily on EV home charging, the company's platform encourages users to charge their vehicles when energy prices are at their lowest. In doing so, it reduces the cost of running their EVs. Ohme also gives drivers the choice of charging their car when renewable energy generation on the grid is highest.

## Home advantage

In 2022, the company enjoyed a surge in demand from housing developers and construction firms as the result of a change in building regulations which meant the majority of new developments, workplaces and supermarkets were required by law to have EV charging points.

## Spreading its tentacles

In July 2022, Ohme partnered with Octopus Electric Vehicles to offer a one-stop-shop for potential EV drivers. The package enables drivers to easily switch to an EV with a single bundled package that offers a new car, an Ohme Home Pro smart charger, an EV energy tariff for their home and 5,000 miles of free charging.

"This new bundle makes it easy to make the switch to electric in a way that's hassle-free," says Ohme CEO, David Watson. "It enables drivers to not only charge their EVs in the most cost-efficient way using off-peak tariffs and smart charging, but the 5,000 miles of free charging means they can effectively drive from London to Miami for nothing."

## Ambition & potential

Ohme wants to be the world's most trusted smart charging solution, by enabling EV drivers to choose energy on their own terms.

## Impact

A new charging partnership with VW shows that Ohme is catching the eye of the automotive industry's global leaders.

## Innovation

An alliance with Octopus has led to an innovative offer that bundles EVs, chargers and tariffs into a single incentivised package.

## Momentum

New regulations have led to increased demand for Ohme's home-charging solutions from housing developers.

# Ohme

**Friends and influencers**

In 2022, Ohme became the official charging partner for Volkswagen Group brands. As part of the agreement, various VW brands recommend Ohme chargers for all of their EV sales, with an Ohme Home Pro charger in showrooms for customers to view.

Alistair Shields, group commercial services director for the VW Group, says: "We conducted a review of leading home wallbox providers and it was clear from customer feedback that smart and intelligent charging, together with carbon optimisation, were among their top expectations, which is why we chose Ohme."

Ohme has also broadened its horizons beyond hardware and software solutions, and is now working with fleets, manufacturers and individuals to manage the installation and running of their charge points. The goal is to deliver best-in-class customer service.

> "This new bundle makes it easy to make the switch to electric in a way that's hassle-free"

David Watson,
CEO,
Ohme

## Peter McDonald

Mobility director
Ohme

LinkedIn

Twitter

**What's your view on the UK EV market right now?**
Thanks to the global supply chain shortage, we are in a period of transition from a supply-driven market to a demand-driven one. The car arena has done well out of it, as restricted supply means it has been able to generate a pretty good margin. Once the supply issues have been resolved, there will be more vehicles available in the market. Within that, EVs will take an ever-growing share of the volume.

Everyone realises that we're going to have an EV-only future. The debate we're having is when, what will that rate of growth be, are we seeing as many EVs as we want in the short term and is there enough stock? Ohme could benefit from more supply in the market because more supply means more necessity for EV charging in people's homes. That said, we're performing well and we have a strong positive long-term outlook on the market. In fact, most people in the EV ecosystem are doing pretty well.

**...and how are you responding at Ohme?**
Our expertise is in the EV charging space and what differentiates us is that we make residential charging really easy. The experience of an EV with a residential charger is a great deal cheaper and more convenient. Increasingly, OEMs consult with customers either at the time of purchase or before delivery to ask if they want one. We manage the complete fulfilment for customers such as Volkswagen Group and Motability. We're helping their customers through the journey, installing the charger for them, proactively managing the customer support and making sure the charger works remotely

> Everyone realises that we're going to have an EV-only future. The debate is what will that rate of growth be

and the customer can optimise the experience during its lifetime. We also have special things we can do in terms of connecting the car to the grid to help with grid balancing and saving the customer energy.

**What more can the industry as a whole do to futureproof the ecosystem?**
I think there are two things. One is to make the charging really easy: as easy as it is to go to BP and fill up with fuel. The other is to make charging a lot cheaper for the consumers and help energy companies avoid waste. ↴

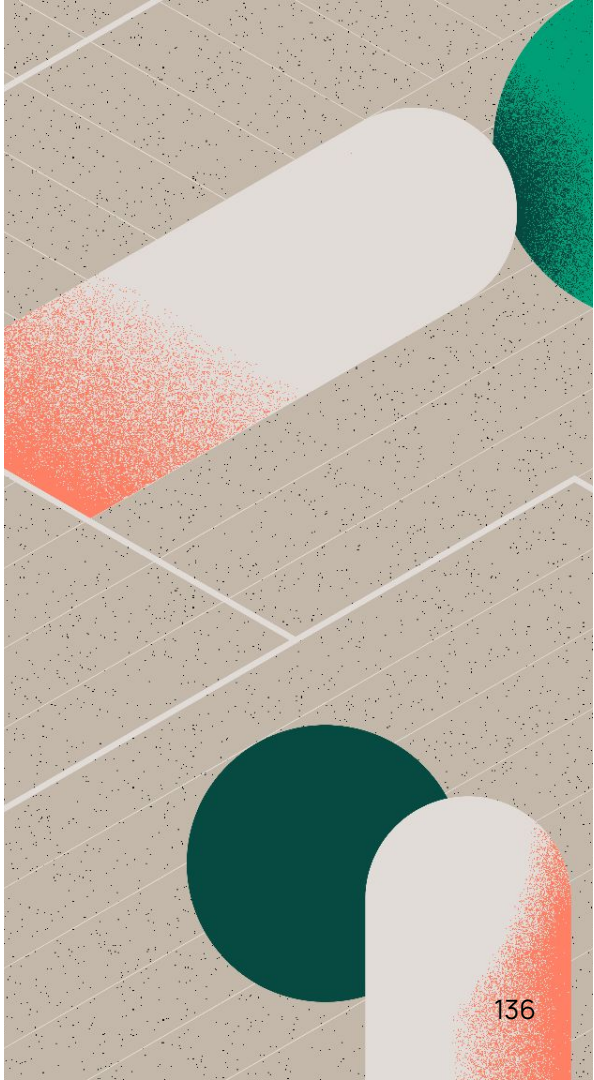
Ohme's partnership with Octopus helps to do that because we connect the information we have about an EV driver's specific charging needs and information from Octopus about when is the cheapest time to charge. This allows EV drivers to charge their vehicles at the time of day when it's cheapest. It also gives energy suppliers greater visibility about demand on the grid and helps them balance demand and avoid waste. What we're doing with Octopus is innovative here in the UK but we'll see even further innovation in the future because other energy providers have exactly the same needs.

> We have to be better as an industry at making the EV transition easier for customers

**Are there any industry blind spots you'd like to see addressed?**

We have to be better as an industry at making the EV transition easier for customers. It can be very complicated to choose everything from the model, the colour, the trim level, which manufacturer to buy from, how to finance the purchase (lease or buy). A lot of people get to the end of that experience and they're exhausted. So by the time it gets to deciding which tariff and where to charge it, they have lost enthusiasm. People don't want to decide between 20 different charging options and 50 different tariffs.

Dealership sales people are having to cover a lot more ground selling an EV than selling a combustion engine car because, for most people, it's their first EV. This means the mobility partners will need to play a big role because otherwise they'll end up with the customer still not knowing how to charge after leaving the showroom and then it's a terrible experience. I genuinely think the mobility market will get a lot better at {making the transition easier) because they'll need to, to help sell electric vehicles.



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NEW

# Motor Fuel Group

Following a management buy-in during 2011, Motor Fuel Group (MFG) has grown the number of fuel forecourts it controls from 54 to around 900. Now it is undertaking a £400m investment in electric charging, which puts it at the forefront of the EV charging revolution in the UK.

**Founded**
2007

**Specialism**
Fast-charging infrastructure for EVs

**Website**
motorfuelgroup.com

# Motor Fuel Group

### Forecourt revolution

MFG aims to deliver 500 chargers and 1,000 new connectors in 2023 as part of a long-term plan to spend £400m on its EV strategy by 2030. The company is placing a focus on providing ultra-rapid chargers at all 900 of its sites, powered by 100% renewable energy.

### Radical rollout

In December 2022, the company rolled out seven new electric vehicle charging sites across its network, which it called "the biggest ever monthly rollout for any charge point operator in the UK". All told, 38 150kW chargers were connected across the seven sites.

MFG EV charging hubs, typically, consist of between four and eight ultra-rapid 150kW EV chargers per site. These will be augmented with 300 kW chargers as vehicle battery technology improves.

As testament to the success of MFG's programme to date, MFG EV Power was ranked in joint first place (with FastNed) in Zapmap's annual EV charging network survey, conducted in September 2022.

### Simplified payments

In 2022, Motor Fuel Group's EV Power network joined Zap-Pay, the seamless Zapmap payment solution for EV charging across networks. As a single-app payment system, Zap-Pay avoids the bugbear of using different payment methods to pay for charging across all the various networks.

The integration with MFG means that more than 3,000 charging devices across the UK are now Zap-Pay enabled.

### Ambition & potential

MFG is spending £400m on a comprehensive EV strategy by 2030.

### Impact

MFG's off-network agreement with LondonMetric Property will spread the company's impact well beyond its own 900 forecourts.

### Innovation

A partnership with Zap-Pay and an emphasis on ultra-fast charging show an innovative mindset when it comes to EV customer experience.

### Momentum

MFG rolled out seven new sites in December 2022 and plans to keep up this electrifying pace across 2023.

# Motor Fuel Group

**Above and beyond**

MFG has also forged an EV partnership with real estate firm LondonMetric Property Plc, representing MFG's first off-network agreement. In the initial phase of the alliance, MFG committed to build between six and eight bay Ultra-Rapid 150kW EV charging hubs at six retail locations.

MFG says the partnership will help it gain increased EV Power brand awareness, while LondonMetric benefits from a zero-capex solution, additional rental income and new on-site facilities. MFG is looking to actively grow its EV Power network beyond its existing estate, incorporating ultra-rapid EV charging hubs into retail parks, roadside developments and other convenient locations.

Motor Fuel Group is placing a focus on providing ultra-rapid chargers at all 900 of its sites, powered by 100% renewable energy

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NEW

# Rightcharge

Rightcharge was created to help would-be EV buyers overcome some of the initial barriers to purchase. It has strong financial backers, credible auto industry partners and positive feedback on Trustpilot. No surprise, then, that it has has experienced impressive year-on-year growth.

**Founded**
2019

**Specialism**
Home charging solutions

**Website**
rightcharge.co.uk

# Rightcharge

## The perfect match

Set up by ex-CERN engineer Charlie Cook, Rightcharge has a simple mission – to help people sort out their home charging set-up. It recommends the right home charger, matches customers with a reliable installer and sources competitive energy deals. The firm says that its charger/tariff combinations can save end users £500 a year.

## Unleashing platform power

Rightcharge's business is based around the use of comparison tools that let users review different energy tariffs, home chargers and installation prices from a network of around 100 vetted companies. It then earns commission from charge point installation partners.

The model seems to be working. Launched in 2019, Rightcharge says revenues jumped by 103% from Year 1 to Year 2 and then by 186% from Year 2 to Year 3. The company also says it has supported more than 30,000 drivers and is rated 4.8/5.0 on Trustpilot.

In 2023, Cook plans to evolve the platform to help drivers who would like to install solar panels and battery storage systems in their homes.

## Crowdfunding clout

The business generated £700,000 in an over-subscribed funding round at the end of 2021. It launched on crowdfunding platform Seedrs at the end of 2022 and secured a further £650,000. With the proceeds from the second round, Rightcharge says it plans to grow revenues through new and existing partnerships, as well as build towards a larger Series A fundraising. To do this, it will invest in the size of its team, product development and marketing of the brand.

## Ambition & potential

Rightcharge has achieved first-mover advantage in a market set for rapid acceleration between now and 2030.

## Impact

A partnership with Lookers indicates that Rightcharge is now winning over the influential dealer network.

## Innovation

Rightcharge has shrewdly identified an EV charge point installation platform opportunity.

## Momentum

A second funding round in late 2022 positions the company well for expansion.

# Rightcharge

Investors in the first wave included James Hind, founder of carwow. “I see first-hand day to day that the EV revolution is coming,” he says. “Rightcharge provides the best way for consumers to easily find an installer for a charge point and get a matching tariff to go with it.”

**A good-looking move**

In 2022, Rightcharge forged a partnership with car dealership business Lookers. Andrew Hall, business development director at Lookers, says: “By combining our vehicle expertise with Rightcharge as part of an all-in-one comprehensive service, we’ll be ensuring that every customer can make a more confident move to electric.”

In a related partnership arrangement, Lookers staff can acquire an EV home charger from Rightcharge on a Lookers-funded 0% scheme.

> “Rightcharge provides the best way for consumers to easily find an installer for a charge point and get a matching tariff to go with it”
>
> James Hind,
> Founder,
> carwow

## Charlie Cook

CEO and Founder

Rightcharge

LinkedIn

**What's your view on the UK EV market right now?**
We're seeing quite a lot of news at the moment which is not positive for the perception of EVs. I don't know why there's a big pushback right now against electric vehicle ownership and against the 2030 target and the government-mandated ban on the sale of petrol and diesel cars. But I don't believe the government is going to budge on that.

We're seeing more positive action at governmental and regulatory levels. Some groups are trying to undermine confidence in EVs and I just hope that doesn't have any impact on the direction of regulation. Assuming it doesn't, we're going to see huge growth in the UK and abroad in the EV market from now through to 2030. The majority of adoption so far has been skewed towards fleets and businesses. We've still got an enormous wave of [EV demand to come from] consumer and retail. The question for us and for most businesses in the E40 report, is "how do you constantly evolve to make sure that your business is suitable for that new retail and mainstream market?" So that's an exciting challenge for the whole industry.

**How are you responding to this at Rightcharge?**
We discovered that 59% of today's EV drivers found the process of setting up to charge at home 'overwhelmingly complicated' so we've built a platform to tackle that. The two leading factors are confusion over which chargepoint to buy and poor customer experiences once a driver selects a charge point and an installer.

We're seeing more positive action at governmental and regulatory levels

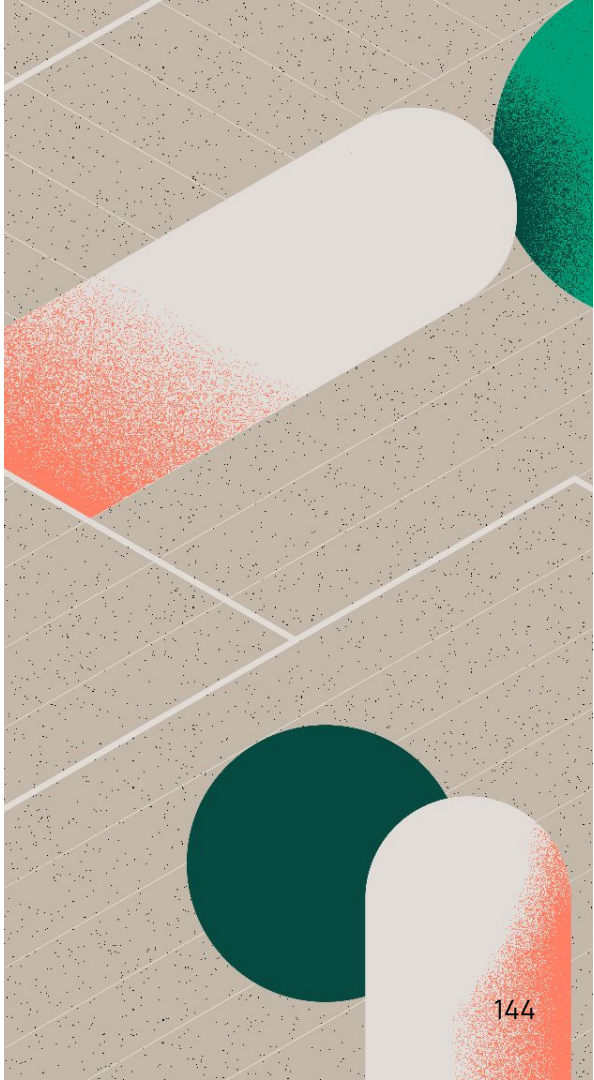
The Rightcharge platform guides the driver through their choice then matches them with an installer that we know is delivering excellent service. Our Installer Management System monitors the performance of over 100 installation companies; how quickly they're getting back to customers, how quickly they're offering installation dates and feedback from customers. Our EV-friendly energy tariff service also makes sure drivers are getting the best deal on their home energy tariff.↴

**What more can the industry as a whole do to futureproof the ecosystem?**
One topic we really care about is making sure customers get a good level of guidance and information on the charge points available to them. We'd love to see automotive retailers, dealership groups, leasing companies and manufacturers offering at least three different chargepoints. While the trend is towards more choice on chargers, we are still seeing a lot of big players with a single charge point offering, which takes all the fun out of it. There are amazing opportunities for consumers when going electric – such as integrating their charging with solar panels – which aren't really being conveyed to consumers as well as they could be. And they present an opportunity for EV retailers to differentiate themselves.

> We'd love to see automotive retailers, dealership groups, leasing companies and manufacturers offering at least three different charge points

The same goes for the energy tariffs. Ofgem reported that around 40% of electric vehicle drivers who charge at home have switched energy tariffs. So, the majority of the market are still on standard variable or flat rate tariffs mean they're missing an opportunity to cut their bills by an average of £450 a year. That's another opportunity for EV retailers to differentiate themselves and to ease drivers into the EV market by helping them understand that it's cheaper than they think to own an electric car.

**What would you like to see in terms of support or action, or maybe even doing less from the government?**
Winding down grants on EVs was a bad decision. If we view the situation through the lens of the Paris Agreement, it's clear that we need to do everything we can to accelerate EV adoption. I'd love to see more support for used EV buyers. There's a large portion of society waiting to buy an EV that would go electric tomorrow if prices were a little lower. They could also benefit the most from support with the cost of a charge point installation.



# E40 Ones to Watch

A selection of companies outside the E40 that are rising fast and making waves in a rapidly growing industry. They are companies of all sizes, all have raised funding and are well on their way to advancing electric mobility and disrupting established incumbents, or pioneering new markets.

## Brill Power

Brill Power specialises in smart battery management and control technology to boost the lifetime and reliability of lithium-ion battery packs. It uses a combination of hardware and software to optimise the use of lithium-ion cells, which in turn makes the most of battery pack systems used in electric vehicles and at energy storage facilities. Its pioneering BrillMS product, developed at Oxford University, comes with key safety, durability and sustainability benefits.

## OX Delivers

OX Delivers aims to deliver affordable, clean transport into emerging markets, focusing on sub-Saharan Africa. Its "transport-as-a-service" strategy – led by the OX fully-electric truck – is part of a scalable business model which also extends to goods shipment, financial, and other services. By supporting the transition to EV in underrepresented global markets, OX Delivers plans to kickstart a cycle of sustainable economic growth and social impact in those regions.

## Magway

Magway's zero-emissions delivery system features self-driving electric carriages with capacity for multiple storage containers. Using electromagnetic waves, these are driven down pipe networks to their destination – enabling the delivery of any package anywhere without creating a carbon footprint. Magway's goal is to remove 90% of delivery vehicles from the roads with their pioneering vertical, horizontal and switched track concept; to dramatically reduce transport congestion and pollution.

## Munro

Munro is a company dedicated to building all-terrain EVs for heavy industry users ranging from miners to farmers, to search and rescue teams. The Munro MK_1 is the world's most capable all-electric 4x4 which boasts uncompromising capability in the toughest environments, with the lowest environmental impact. This Scotland-based start-up is filling a clear need in the market, with production starting in Q2 2023.

# E40 Ones to Watch

## Maeving

British designed and built, Maeving electric motorbikes are designed with the urban, environmentally conscious commuter in mind. The RM1 model combines British heritage styling with practicalities for everyday use, including a removable, lightweight battery that is chargeable from any plug socket. It also offers the choice of a second battery to double its range from 40 to 80 miles.

## 3ti Energy Hub

3ti funds, designs, and builds solar car park projects to help boost the roll-out of EV-charging infrastructure. One such project is Papilio3, a mini pop-up solar power and electric vehicle charging hub. The hub combines battery and EV charge points with solar panels and local mains power. It can be installed in 24 hours and requires minimal ground works, no new grid connection and rarely needs planning permission.

## Pure Electric

Pure Electric's market-leading range of electric bikes and e-scooters include slimline designs for easy storage, 500W motors to easily conquer hills and a state-of-the-art steering system for safe, seamless rides. The company has sold more than 200,000 e-scooters across four markets and has a partnership with Currys to stock its models online and in over 60 stores nationwide. Moving into Europe, Pure Electric has a further 150 points of distribution located in France and Spain, via a partnership with FNAC Darty.

## The Tyre Collective

Tyre wear is the second-largest source of microplastic pollution in our oceans and also affects the air we breathe, says clean tech startup The Tyre Collective. Along with helping to prevent tyre wear in fleets, the company wants to capture tyre pollution in new vehicles using an integrated device that utilises electrostatics and airflow. It is currently piloting its latest prototype.

# E40 Ones to Watch

## Green Lithium

Green Lithium is building Europe's first large-scale merchant lithium refinery, creating a supply of low-carbon, battery-grade lithium chemicals to meet enormous European demand for refined lithium. It is backed by the commodities trading giant Trafigura, and will build a £600m refinery for the battery material at PD Ports in Teeside.

## Paua

Paua has the UK's overly complex charging infrastructure in its sights with its Electric Fuel Card: a one-stop model that connects fleet managers to 23,000 EV charge points across the UK. Coupled with a powerful mobile app and management dashboard, the system allows fleet drivers to find, charge and pay for their EV vehicles in one fell swoop, saving precious company time and money in the process.

## Zest

Zest's vision is to drive the rollout of public fast-charging infrastructure points for electric vehicles throughout the UK by rapidly filling the gaps in the nation's maturing EV infrastructure. Backed by Zouk Capital, Zest offers to take care of everything from planning to installation and ongoing maintenance of chargers. As well as investing in sites for improved charge point access around the UK, its end-to-end charging management service is tailor-made for businesses, local authorities and communities considering the switch.

# Key E-Mobility Deals 2022–23

- Zenobē will service and finance up to 430 new e-buses in the UK and Ireland.

- Since 2017, the company has also raised equity of more than £220m, including a £150m investment in November 2020 from Infracapital.

**Zoomo International – electric last-mile delivery vehicles**
February 2022 = £14.7m ($20m) Series B investment

- Raise led by Collaborative Fund, with strategic investors including the VC arm of Mitsubishi UFJ, SG Fleet, Akuna Capital and WIND Ventures also joining the round.

- Funding used for new vehicle products, next-generation software and to accelerate Zoomo's expansion into new cities and countries.

**Gigamine - sustainable recycling of lithium-ion batteries**
February 2022 = undisclosed seed round

- Investment from global VC fund 7percent Ventures, as well as a number of prominent angel investors, including Formula E and Extreme E founder, Alejandro Agag.

- Gigamine expects to start construction of its first scalable recycling facility - or node - this year and is exploring sites across the UK. In the next five years, Gigamine aims to operate six nodes across the UK, as well as a refinery converting black mass into materials for re-use in cell manufacture.

**Electric Assisted Vehicles (EAV) – eCargo bikes**
February 2022 = undisclosed

- Funding led by H+ Partners.

- Funding will allow the business to increase production capacity, deliver customer orders, recruit key staff and scale up its R&D and engineering capabilities to accelerate the development of new models.

**Taur Technologies – portable, road-grade electric scooters**

February 2022 = £1.3m ($1.75m) seed round

- Funding from Trucks VC to support TAUR's product launch in California.

**Bonnet – All-inclusive EV charging subscription**
March 2022 = £4m Series A round

- Lightspeed, GV and 20VC took part in the round with prominent angel investors including the founder of Deliveroo Will Shu, ex-Tesla president Jon McNeill, co-founder of TIER, Lawrence Leuschner, and the founders of Zapp, Joe Falter and Navid Hadzaad.

- The investment is being used to triple the team's headcount and secure new charge point operator partnerships.

**Miralis Data (Fuuse) – EV Charge Point Management Platform**
March 2022 = £1.7m seed round

- Round led by Par Equity and backed by a syndicate of angel investors.

- The investment will support Fuuse's ambition to become the enterprise-level charge point management system of choice for workplaces, fleets and installers.

# Key E-Mobility Deals 2022–23

The most significant investments and acquisitions taking place across the field of electric mobility in 2022. Not a complete list, but thorough nevertheless.

**Urban-Air Port (UAP) – vertiports for eVTOL and drones**
January 2022 = undisclosed

- First investment from Supernal,which is linked to the Urban Air Mobility Division of Hyundai Motor Group.
- The funding will help support UAP's plans to develop 200 vertiport sites globally in the next five years.

**Volta Trucks – electric trucks for inner-city freight and urban distribution**
February 2022 = €230m ($260m) Series C funding round at a post-money valuation of $490m

- Round led by Luxor Capital, with participation from seed investor Byggmästare Anders J Ahlström, supply chain services giant Agility, and previous Series B investor B-FLEXION (formerly Waypoint Capital).
- Funding was used for engineering and business operations until series production began on the 16-tonne full-electric Volta Zero at the end of 2022.

**Bramble Energy – high-performance, low-cost, fuel cell stacks**
February 2022 = £35m Series B

- HydrogenOne Capital Growth led the round with participation by existing institutional investors (BGF, IP Group, Parkwalk Advisors and the UCL Technology Fund).
- Funds will also allow Bramble Energy to accelerate the global rollout of its portable power solutions, as well as continue the development of Bramble Energy's liquid-cooled fuel cell stack capabilities.
- Bramble Energy will use its innovative fuel cell stack technology in a range of strategic commercial applications during this phase to enable decarbonisation across different industries and sectors.

**Zenobē Energy – EV fleet and battery storage**
February 2022 = £241m debt raise

- The multi-source debt structure will enable the company to raise senior debt financing against the service contracts that Zenobē has entered with bus operator customers.

# Key E-Mobility Deals 2022–23

- It will also enable Fuuse to extend its sales and customer support operations, boost its innovation programme, accelerate the platform's product development roadmap and start its planned international expansion.

**Skyports – urban air mobility infrastructure provider and end-to-end drone deliveries**
March & August 2022 = £21.4m ($26.13m )Series BI/BII round

- $23m from Kanematsu Corporation, Goodman Group, Italian airport platform 2i Aeroporti, and GreenPoint who joined existing shareholders Deutsche Bahn Digital Ventures, Groupe ADP, Solar Ventus, Irelandia and Levitate Capital.
- $3.13m from ST Engineering's venture capital arm, ST Engineering Ventures.
- Skyports' flight operations capabilities already uses ST Engineering's drone system solution, DroNet, to implement autonomous Beyond Visual Line of Sight (BVLOS) flights to help monitor and inspect Singapore's network of reservoirs.
- Skyports, ST Engineering and Sumitomo Corporation formed a consortium in early 2022 to provide unmanned aircraft services for ship-to-shore parcel delivery in Singapore.

**Five – automated driving start-up**
April 2022 = acquisition by Bosch for an undisclosed sum

- Five became part of the Bosch Cross-Domain Computing Solutions division.
- Five has built a team of experts in cloud software, safety assurance, robotics and machine learning, and developed state-of-the-art software and AI based solutions for autonomous driving, through to SAE Level 4.

**Munro – all terrain commercial EVs**
April 2022 = £750k pre-seed round

- From social impact investor Elbow Beach Capital.
- The startup will use the funding to hire key staff, develop its order book and expand its sales network while building, testing and developing the prototype vehicle.

**Packfleet – electric e-commerce deliveries**
April 2022 = £8m seed round

- Led by Creandum, with participation from General Catalyst, Entrée Capital, and Founder Collective, as well as influential angel investors.
- The funding is being used to grow the team, expand delivery areas, and scale operations to support its recent growth.
- The announcement came eight months after Packfleet raised £1m in a pre-seed investment round in July 2021.

**RideTandem – sustainable shared transport solutions**
April 2022 = £1.75m seed round

- 1818 Venture Capital led the round, alongside Conduit Connect, Low Carbon Innovation Fund, previous investors Ascension and Seedrs, and angel investors.
- Funding is supporting product management and engineering team growth.

# Key E-Mobility Deals 2022–23

**Tevva – electric and hydrogen fuel cell range-extended trucks**
June 2022 = £41.6m Series B

- Funding is being used to get its 7.5-tonne all-electric truck into production and for ongoing development of its 7.5-tonne hydrogen-electric truck.
- The firm aims to produce 3,000 trucks each year by 2023.

**Laka – Emobility insurance**
June 2022 = $13.5m (£11m) Series A Funding from Porsche Ventures with existing investors Autotech Ventures, Ponooc, ABN AMRO Ventures, Creandum, LocalGlobe, 1818 Ventures and Elkstone Partners.

- Laka is using the new capital and network opportunities to facilitate its European expansion and broaden its product offering to e-scooters, e-mopeds and eventually EVs.
- The company is insuring many leading last-mile delivery companies in the UK including Zapp, Jiffy and Urb-it. Now, it will focus on expanding to cover commercial fleets.

**Onto – all EV subscription service**
July 2022 = £49.9m ($60m) Series C

- The round was led by Legal & General, with participation from existing investors, including Accelerated Digital Ventures, Alfvén & Didrikson, Cerebrum Tech Limited, and the family office of Jim O'Neill.
- Funding is being used to begin expansion into Europe, starting in Germany.
- The latest round brings the total raised to date to over $330m in equity and debt.

**WAU – long range electric bikes**
July 2022 = £650k pre-seed

- Funding from Angel Investment Network.
- The investment will allow WAU, which ams to offer a two wheel version of the electric car, to progress its near vision mapping offer.
- The funds raised also mean the business can double the production volume at its Essex factory to keep pace with growing customer demand for its ebikes.

**ZeroAvia – hydrogen-electric passenger aircraft**
July 2022 = $30m Series B

- Funding from Barclays Sustainable Impact Capital, NEOM, and AENU, with IAG.
- The latest round brings total funds raised to $68m.
- Funds are building refuelling infrastructure at airport sites and further advancing ZeroAvia's 2-5MW hydrogen-electric powertrain development programme, which aims to power 40-80 seat aircraft with zero-emission engines by 2026.

# Key E-Mobility Deals 2022–23

**Brill Power – intelligent battery management and control technology**
July 2022 = £8.7m ($10.5m) Series A

- Funding led by Legal & General Capital and Barclays Sustainable Impact Capital with participation from existing investors, including Oxford Science Enterprises, Oxford Investment Consultants, Oxford University, plus Shell Ventures and Climate KIC.
- Funds are being used to double the team across engineering and commercial operations while expanding Brill's range of products for EVs and static energy storage.
- Funding will also support the next phase in developing the company's data platform to help customers monitor the health, safety and performance of batteries.

**Nyobolt – end-to-end ultrafast charging battery solutions**
July 2022 = £50m Series B

- Round led by HC Starck Tungsten Powders, a subsidiary of Masan High-Tech Materials, alongside existing deeptech investor IQ Capital.
- The funding is helping Nyobolt to add staff and build its first battery manufacturing plant in the UK and expand its cell engineering facility in the US.

**Gridserve – electric highway EV charging hubs**
August 2022 = £200m

- Funding from Infracapital to roll out its Electric Forecourts and Electric Superhubs.
- Infracapital joins with existing partners, TPG Rise and Mitsubishi HC Capital UK plc, who also increased their shareholding in the company as part of the Infracapital transaction.

**Maeving – electric motorbike with removable batteries**
August 2022 = £1m seed

- Funding from the Midlands Engine Investment Fund, which is managed by Maven Capital Partners.
- Funding is providing working capital to help with the launch of the RM1, a British designed and built electric motorbike aimed at the urban commuter.

**Wejo – smart mobility cloud and software solutions for connected, EV and AV data**
August 2022 = $15.9m in public equity (PIPE) investment.

- Investment from Sompo Light Vortex Inc., a wholly owned subsidiary of Sompo Holdings.
- Under the PIPE, Wejo issued and sold nearly 11.3 million of Wejo's units, each consisting of one common share and one-third of one warrant.
- Investment is being used to draw down on the company's existing debt and equity.
- Wejo organises trillions of data points from connected cars. It partners with global automotive manufacturers to stream and standardise data at scale and speed which is then turned into insights.

# Key E-Mobility Deals 2022–23

**Zapmap – EV charging app and mapping service**
August 2022 = £9m Series A valuing it at £26.3m post-money

- £3.7m from existing investor Good Energy.
- £5.3m from strategic investor Fleetcor, a global fuel card and payment provider
- The investment will support Zapmap's international expansion plans.

**Anaphite – Graphene technology for EV batteries**
August 2022 = £4.1m seed

- Round led by Elbow Beach Capital, which invested £1.5m, and Wealth Club, Deeptech Labs, Zero Carbon Capital, Blue Wire Capital, Oxford Investment Opportunity Network and Silicon Roundabout Ventures.
- The funding is being used for a range of purposes, including testing potential niche applications for Anaphite's technology and building a materials demonstration reactor with a 100kg/day production volume.
- Anaphite plans for its technology to be used in commercial EV production by 2028.

**Moixa - smart battery company**
August 2022 = undisclosed acquisition

- Acquired by Lunar Energy, a US-based company seeking to electrify the home and deliver energy independence to people around the globe.
- Lunar plans to leverage and scale Moixa's GridShare software to manage batteries across Europe, the US and Japan. Through Lunar, GridShare software will provide a broader suite of solutions to electrify homes.

**Spoon Group – custom performance bikes for individual cyclists**
In September 2022 = £740k pre-seed at a £3.7m post-money valuation

- After the £300k private round, the long-term debt partner and institutional investor FSE Group matched funding through its Enterprise M3 initiative.
- Plans to launch a performance e-bike in 2023, allowing the company to capitalise in the surge in demand in the e-bike space.

**Connected Kerb - EV infrastructure specialist**
September 2022 = £110m

- Investment from insurance company Aviva.
- Funds used to install a total of 190,000 public AC chargers across the UK by 2030.
- As part of the agreement with Aviva, Connected Kerb aims to provide both public charging and charging infrastructure across the insurer's pan-European property portfolio.

# Key E-Mobility Deals 2022–23

**Be.EV – electric vehicle (EV) charging**
October 2022 = £110m Series A

- Investment from Octopus Energy Generation.
- Funding used to scale and install new charge points across the UK.
- Octopus Energy already supplies all of Be.EV chargers with 100% green electricity.
- Be.EV is committed to adding 1,000 further charge points across the North of England and beyond by 2024.

**Andersen EV - premium home charging**
October 2022 = undisclosed acquisition

- Evios acquired home charging business Andersen EV for an undisclosed sum.
- Evios says the two brands will continue to co-exist, serving different parts of the EV market and benefitting from shared investment in technology, installation personnel and customer support.

# Contact us

**We are Futurice, an outcome-focused digital transformation company.**
We help our clients solve their biggest challenges and empower them to make a positive impact on the world.

We design, develop and scale digital products and services across many industries. Over the last few years we've helped major automotive, mobility and logistics clients reach the forefront of the data and digital transformation that underpins the new electric ecosystem.

We deliver measurable, sustainable outcomes through close, business-focused collaboration with our clients.

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*Special thanks to*
*Poppy Brech, Jonathan Carrier and Pasi Virtakari.*

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