E40

Who's who in the EV revolution

June 2024

futurice

Meet the companies pioneering the net-zero mobility future

EV companies are under pressure. Slowing sales, a global pricing war, delays over the UK's ZEV mandate and fierce competition from China – the world's biggest EV market – are putting the UK's EV revolution under strain.

The situation isn't helped by Rishi Sunak's recent decision to push back the UK ban on new diesel and petrol cars from 2030 to 2035. The delay has dampened demand in an already volatile market (consumer uptake of new EVs fell by over 21% in April). And it's wrought confusion for OEMs, who must navigate the gap between EV sales and the ZEV mandate, which currently requires 22% of cars sold in the UK to be electric. Yet, the runners and riders spotlighted in this year's E40 have responded with admirable dynamism.

Futurice's annual report zeroes in on the brands, makers and innovators breaking ground in the global race to net-zero mobility. We examine global players from a UK perspective, distilling the best ideas at play in a tough and febrile climate.

There are twelve new entrants in this year's report: Agratas (the highest new entrant), Zenobē, Ripple Energy, Pure Electric, BMW, Munro Vehicles, Indra, Anaphite, QPT, BYD, Electric Miles and Skyports. Sixteen companies including Octopus Energy, MG, KIA, ZeroAvia and Zapmap increased their ranking while ten companies saw their ranking fall year-on-year – illustrating the turbulence in the sector. ↴

Find out more at futurice.com

Overall, Futurice's own internally weighted scoring revealed that outside the top five, the entries were incredibly close.

Vehicle-to-grid (V2G) technology, battery gigafactories and the emergence of more affordable vehicles are just some of the trends shaping the contours of a new EV industry this year. One in which advanced software is the starting point to all else.

Increasingly, software-defined vehicles are becoming the norm. EV contenders now include programme-builders and systems operators. Our top two EV companies perfectly illustrate this tech-first approach.

Tesla has made bold moves over the past year to shore up its e-mobility stronghold. As well as continuing to cut prices on its best-selling Model Y SUV and other editions, the EV pioneer is using its Cybertruck to take on the likes of General Motors and Ford in the lucrative pickup market.

Meanwhile, Octopus Energy is surfing the emerging V2G market with the recent launch of the UK's first mass-market V2G tariff.

The rate guarantees free charging for EV drivers who sell energy from their cars' batteries back to the grid during peak hours.

It's particularly smart timing, given manufacturers including Tesla, BMW and Volkswagen are currently working on models capable of bidirectional charging.

This form of energy efficiency – also championed by ev.energy (at no. 14 in our report), OVO Energy (no. 20) and new entrant, charge-management platform Electric Miles (no. 39) – could help propel mass-adoption of EVs. A self-contained, simpler, and cheaper energy system for homes is a deeply appealing prospect in cash-strapped times. We don't talk about its benefits enough.

At number three, MG is a great example of how manufacturers can combine brand heritage with competitive EV value. In an environment where price rules, its all-electric hatchback, the MG4, starts at just under £27,000 and is proving a popular choice.

Find out more at futurice.com

But it's the arrival of up-and-coming aviation star, ZeroAvia, at number five that stands out the most. With its trailblazing plan to retro-fit aeroplanes with hydrogen-electric powertrains, the UK-based operator already has 2,000 pre-orders in the bag from global airlines keen to mobilise its hydrogen propulsion tech (which may be certified as early as 2025).

ZeroAvia demonstrates how some of the industry's biggest developments are taking place beyond electric cars. Despite some setbacks, Bristol-based air taxi startup, Vertical Aerospace, (no. 29) continues building its second full-scale VX4 prototype, having secured additional government investment. And landing infrastructure platform Skyports (no. 40) recently signed an agreement to develop the UK's first vertiport testbed, enabling eVTOL operators to take off and land in and near cities.

This tenor of homegrown innovation deserves international investment – and the UK government should be doing more to stimulate that funding. With China's EV industry going from strength to strength, we need to act quickly here in Britain to prompt and protect our burgeoning, domestic EV ecosystem.

On the home front, the UK government should work to rectify nonsensical policies such as the 20% VAT rate on public chargers; a penalty set to hit the 40% of UK residents without access to off-road parking. Individual OEMs, meanwhile, can help themselves by collaborating more closely on manufacturing and tech facilities.

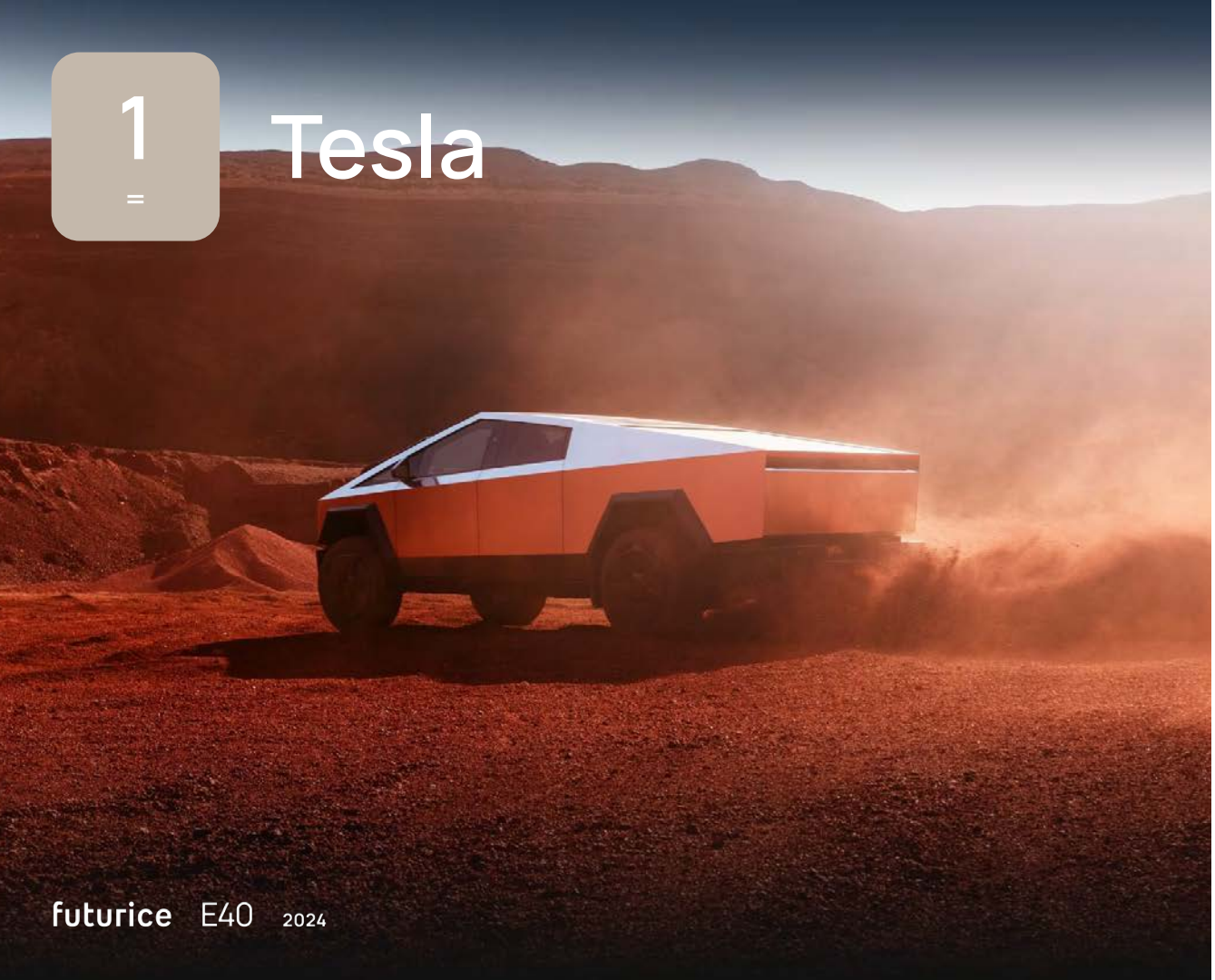
We stand at one of the most compelling, and challenging points in global EV history. Luckily, the industry innovators we see in this year's report are more than able to rise to the occasion. From eVTOL frontrunners to lithium-ion battery leaders, and the bright minds of urban mobility, I hope you enjoy reading our rundown of 2024's most exciting e-mobility players. Look out also for our key industry voices with their take on emerging trends.

David Mitchell
Co-Managing Director, Futurice UK

Matthew Edwards
Co-Managing Director, Futurice UK

The Electric 40

1 = Tesla	11 ● NEW Agratas	21 ▼ -2 Fastned	31 ● NEW Indra
2 ▲ +1 Octopus Energy	12 ▲ +5 Hyundai	22 ● NEW Pure Electric	32 ● NEW Anaphite
3 ▲ +5 MG	13 ▲ +11 Renault	23 ▼ -21 Myenergi	33 ● NEW QPT
4 ▲ +5 KIA	14 ▲ +12 Ev.energy	24 ▼ -6 Nyobolt	34 = EAV
5 ▲ +10 ZeroAvia	15 ● NEW Zenobē	25 ▼ -2 Stellantis	35 ▲ +1 Ford
6 ▲ +7 Zapmap	16 ▼ -11 Polestar	26 ▼ -1 Mercedes Benz	36 ▲ +6 InstaVolt
7 ▲ +13 Gridserve	17 ▲ +14 Volvo Cars	27 ▲ +2 Nexeon	37 ▲ +2 Motor Fuel Group
8 ▲ +29 Osprey Charging	18 ● NEW Ripple Energy	28 ● NEW BMW	38 ● NEW BYD
9 ▼ -3 VW Group	19 ▼ -7 Connected Kerb	29 ▼ -25 Vertical Aerospace	39 ● NEW Electric Miles
10 ▲ +6 Nissan	20 ▼ -9 Ovo Energy	30 ● NEW Munro Vehicles	40 ● NEW Skyports



2023 has been a major year for our serial E40 no. 1 title-holder, Tesla, with the launch of the long-delayed Cybertruck signalling a move from SUVs and sedans into the hugely profitable pickup market. With demand for both the new design and the Tesla Model Y surging, the EV pioneer is, nevertheless, facing hurdles with price cuts in a hugely competitive climate.

Founded
2003

Specialism
Electric vehicles, autonomous services, cell manufacturing

Website
tesla.com

Tesla

Cybertruck sensation
The hotly anticipated Tesla Cybertruck finally hit the road in late 2023, following years of delays and engineering difficulties. The first new Tesla vehicle to launch since the Model Y in 2020 has faced "enormous challenges in reaching volume production" of its showcase pickup model, said CEO Elon Musk. It is now aiming for a target of 250,000 Cybertrucks per year by 2025.

Demand is "off the hook", with up to 1.8m buyers placing deposits on the $50,000 vehicle at the time of launch. If technical barriers can be successfully navigated, the rewards may be huge – with Tesla pivoting from its sedan and SUV stronghold to compete with the likes of General Motors and Ford in the highly lucrative pickup sector.

Profits, price cuts and a Model Y win
Tesla shifted a total of 1.8m vehicles in 2023. This is lower than Musk's previously stated goal of 2m, but it still counts as a win, according to industry experts, who cite a "choppy" macro climate. The original EV trailblazer has spent much of 2023 slashing its prices by up to a fifth globally, including on the entry level Model 3, in order to stimulate demand in the face of stiff competition.

However, the fact that Chinese company BYD sold more electric vehicles than Tesla in the last three months of 2023 – despite a record 20% end-of-year jump in sales for Tesla – means there is zero room for complacency.

Ambition & Potential

With the Tesla Model Y named Europe's best-selling car of 2023, the brand is now planning a new mass-market model; a compact crossover EV codenamed "Redwood".

Impact

The electric pioneer shifted a total of 1.8m vehicles in 2023, and has 1.8m buyers lined up for the new Tesla Cybertruck.

Innovation

A first-of-its-kind lithium refinery on the Texas Gulf Coast will produce enough lithium hydroxide for 1m Tesla cars by 2025.

Momentum

Tesla is racing ahead in the highly lucrative pickup market, producing a target 250,000 Cybertrucks per year by 2025.

Tesla

Still, Tesla went on to score a significant triumph, as its Model Y was named Europe's best-selling car of 2023: the first time the title has gone to both an electric and to a non-European model.

A new mass-market model

At the beginning of 2024, news leaked of Tesla's plans to start production on a new compact crossover EV codenamed "Redwood". The mass-market model is likely to hit factory lines in Texas in mid-2025 and is a potential overlap with the brand's ambitions to make an affordable robotaxi.

Global grid growth

Meanwhile, Tesla is ahead on plans to construct a lithium refinery on the Texas Gulf Coast, supporting one of the manufacturer's key battery components. The first-of-its-kind facility in North America will give Tesla greater control over the EV supply chain, producing enough lithium hydroxide for 1m electric cars by 2025. It's now expected to launch as early as mid-2024. The company also announced that from 2025, bidirectional charging will be available in all its cars.

Closer to home, Tesla also made the first of its new V4 chargers available to drivers in Britain last August, in a bid to reduce range anxiety. The network, which has been specifically designed to be used by all-electric vehicle brands, boasts charging speeds of up to 250 kW.

> The construction of a lithium refinery on the Texas Gulf Coast will produce enough lithium hydroxide for 1m electric cars by 2025

Imogen Bhogal

Presenter and producer at Fully Charged

LinkedIn

What's your view on the UK EV market right now?

We've just emerged from this golden period of early adopters; keen converts who have driven new EV sales to around the 20% mark. They're evangelical about the technology, have greater spending power, and are willing to accept that parts of the system – e.g. charging infrastructure – aren't perfect.

But as we go back and forth over the prospect of a 2030 ICE ban, the UK's EV landscape is now entering into the early mainstream, and the beginning of a more divisive and challenging era. At the moment, many consumers are on the fence as to whether to make the EV leap; especially if that means accepting something that requires slightly different user behaviour, or is more expensive than their current set-up. This impasse is having a knock-on effect on OEMs; it makes it more difficult for automakers to commit to a long-term EV strategy.

What we urgently need right now is collaboration between various stakeholders – from manufacturers to utility companies, landlords, and the government – to decide an overall vision for the UK's EV market. We must develop a clear roadmap of what the future of clean transportation looks like in Britain, including unified targets and clearly signposted options for funding.

Given around 40% of people in the UK don't have access to off-road parking, we also need to tackle the issue of expensive public charging networks head-on (including 20% VAT rates flagged by the FairCharge campaign).

> We urgently need collaboration between stakeholders to decide an overall vision for the UK's EV market

What support or action do you want to see from the UK government?

I think we need better communication and support from policymakers to minimise the uncertainty around topics such as the upcoming ICE ban and plug-in grants. At the moment, there's a lot of confusing rhetoric around the shift to EV. And this uncertainty is expanding to impact OEMs, the supply chain and, of course, public buy-in.

We also tend to think of EV transition as a political issue, rather than tackling it holistically. The government in France is a shining example of how to champion the EV industry, with wide-ranging initiatives such as the Citroën all-electric "urban mobility object" (available to drivers as young as 14) or the (now-paused) €100-a-month electric car-leasing scheme aimed at low-income households.

There's space here for the UK to be much more inclusive, with clear policies aimed at supporting people from all socioeconomic backgrounds in the clean energy transition. As well as affordability, we need to focus more on electric transport as a whole, too – not just cars. Electric buses, cycling infrastructure and more visible charging locations all play into the larger government-led education piece we're currently lacking.

What are your emerging trends to watch in the EV space?

If we can truly understand the opportunity that Vehicle-to-Grid (V2G) brings – that bidirectional flow of electricity – we can combine the worlds of energy and mobility for the first time. It's exciting because it unlocks a whole new ecosystem; one that provides huge motivation in areas like solar power and home energy storage. The likes of OVO Energy and Octopus Energy are leading the way here, with large-scale V2G trials, proving the value of renewable innovation and a more balanced grid.

Here in the UK, we have an incredible level of R&D going on in the EV battery space by companies such as Nexeon, Nyobolt and About:Energy. The question is, how do we harness this homegrown tech, e.g. by licensing to big battery players elsewhere? And where's the opportunity for recycling at the end of battery life, for a self-sustaining system?

> There's space for the UK to be more inclusive, with clear policies aimed at supporting people from all backgrounds in the clean energy transition

How can the industry, as a whole, futureproof its ecosystem?

There are a number of changes due to take shape over the next five years. First, we're going to see a continued boom in commercial EV fleets, along with sharp growth in fast-charging networks to boost consumer confidence and support haulage operations e.g. long-distance lorries.

Another game-changer will arrive in the form of second-hand EVs flooding the market, with radical consequences; it'll make the electric sector a lot more affordable. And Chinese EV makers will cement their status as market disruptors, throwing down the gauntlet to the wider EV world.

2
▲+1

Octopus Energy

Octopus, 2024's second-highest entry, has continued its astonishing ascent as a Big Six challenger with the recent acquisition of Shell, making it Britain's largest energy supplier. The $8bn flagship celebrated by announcing a new green energy tariff, as well as turning its first annual profit on the back of a customer base that has more than doubled in the past two years.

Founded
2015

Specialism
Energy management, control and optimisation

Website
octopus.energy

Octopus Energy

Takeover of Shell
Octopus Energy capped its rapid growth curve at the heart of renewables in September by acquiring Shell's 1.4 million electricity and gas customers in a deal worth up to $100m. The powerhouse move saw the green tech disruptor become the UK's biggest energy supplier, further shaking up the dominance of Britain's Big Six.

The buyout was swiftly followed by news of an $800m funding round, pushing the company value to just under $8bn, an increase of 60% in two years. Sealing its status as an energy sector heavyweight, Octopus Energy expects to create up to 4,000 UK jobs in 2024 – from EV charger installers, to heat pump engineers – via a series of same-day hiring events designed to rapidly scale new talent.

First annual profit
The start of 2024 was another big moment for Octopus Energy, as the business – which serves more than 7.7 million customers in 18 countries – landed its first annual profit since its arrival on the EV scene in 2015. It comes after the company decided against a narrow annual profit in 2023, instead choosing to invest £150m into helping its customers avoid being impacted too badly by the energy crisis caused by Russia's invasion of Ukraine. The company's £283m pre-tax profit this year is likely helped by its customer reach more than doubling since April 2022, as well as the 54m accounts now contracted under its global fintech platform, Kraken.

Ambition & Potential

Octopus Energy's acquisition of Shell's electricity and gas customers, in a $100m deal last September saw the green tech disruptor become the UK's biggest energy supplier.

Impact

More than 10,000 UK households have cut bills by up to 30% with the company's Agile off-peak tariff. Meanwhile, Octopus Electroverse charging has tripled its customer base as the UK's biggest EV roaming service.

Innovation

The brand recently unveiled Octopus Power Pack, the UK's first mass-market vehicle-to-grid tariff that guarantees free charging for EV drivers.

Momentum

Octopus completed a $800m funding round in late 2023, pushing the company value to just under $8bn; an increase of 60% in two years.

Octopus Energy

Affordable energy
Octopus Energy has long been synonymous with the creation of a simpler, more affordable and accessible green energy system. That ambition has extended to Britain's best-known off-peak tariff – Octopus Energy's Agile – that allows customers to shift big chunks of their energy use to avoid expensive peaks. So far, more than 10,000 UK households have signed up to the scheme, cutting their bills by up to 30% with help from smart home tech such as solar panels and battery systems.

In addition, the company recently unveiled Octopus Power Pack, the UK's first mass-market vehicle-to-grid tariff that guarantees free charging for EV drivers. The platform is designed to leverage off-peak charging, exporting excess energy from EV batteries to the grid.

Octopus Electroverse
Award-winning charging solution Octopus Electroverse has also enjoyed a stellar year, almost tripling its customer base as the UK's biggest EV roaming service. London-based taxi firm Addison Lee is the latest partner to jump on board with the platform, enabling its drivers access to cheaper EV charging.

The wider team at Octopus is also playing a key role in a string of groundbreaking green energy projects. These include a collaboration with AeroVolt that will allow pilots of electric planes to charge their aircraft with one tap of a card. The business has also made a £200m investment into tech startup Deep Green, which intends to use energy from data processing centres to heat up to 150 public swimming pools around the UK.

> Octopus Electroverse has almost tripled its customer base as the UK's biggest EV roaming service

3
▲ +5

MG

Under SAIC's ownership, MG has become a force to be reckoned with – propelling it into the top three of this year's E40. Sales of the all-electric MG4 have been strong in the UK, with interest growing in the MG5. There's also a lot of excitement around the upcoming Cyberster, MG's return to the two-seater sports car market.

Founded
1924

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

Website
mg.co.uk

MG

Hatchback hero

Chinese-owned car brand MG continues to make rapid progress in the UK EV market, thanks to strong consumer interest in its all-electric hatchback, the MG4. With more than 20,000 sales in 2023, it ranked as the UK's second-best-selling EV of the year. For the second year running, the MG4 also did well on the awards circuit, taking home the Small Electric Car of the Year title from *What Car?* and winning twice at the Electrifying.com annual awards. Electrifying.com founder and CEO, Ginny Buckley, said: "We don't think there is a better value electric car on sale than the MG4, and it makes switching to electric for the first time easy."

Guy Pigounakis, MG Motor UK's commercial director, said part of the attraction of the MG4 is the car's "broad product line-up, from the accessible SE, through the high-value Long Range and distance-champion Extended Range, topping out with the XPOWER".

Not just consumer-friendly, the MG4 SE Long Range was also awarded top marks by Green NCAP, the European emissions assessment programme. The vehicle scored full marks in the Clean Air Tests in laboratory and road testing and rated 10/10 on the Clean Air Index.

Ambition & Potential

MG's popular electric hatchback, the MG4, achieved more than 20,000 sales in 2023, making it the UK's second-best-selling EV of the year.

Impact

The MG4 also did well on the awards circuit, winning the Small Electric Car of the Year prize at the *What Car?* Awards.

Innovation

MG owner SAIC launched the MG3 and the IM L6 saloon at the 2024 Geneva Motor Show. The IM L6 is seen as a potential rival to the Tesla Model 3 with a range of 600-800km.

Momentum

MG's expanding range also includes the MG5 EV, the MG ZS EV, and the MG Cyberster, which marks MG's return to the two-seater sports car market.

MG

A marque above
MG's expanding range of green vehicles also includes the MG5 EV, named by *What Car?* Judges (2023) as the Best Electric Estate. The MG ZS EV is another award-winning model, walking away from the contest with the title of Best Small Electric SUV for Value. The past year has also seen MG flex its muscles in new directions, too. For example, it has introduced the MG3, a hybrid supermini touted as having larger battery capacity and a more powerful motor than rivals, enabling "zero-emission running for longer".

Halo model
The manufacturer also recently unveiled the MG Cyberster, awarded Carwow's Most Anticipated New Car in its 2024 Car of the Year Awards. The Cyberster marks MG's return to its two-seater sports car mainstay. "It will be a true halo model for MG," said Pigounakis, "returning our brand to the sports car market, where it gained so much success and loyalty."

Shared destiny
Although MG has British roots, it is owned by Chinese company SAIC. And, at the 2024 Geneva Show, the launch of the MG3 shared top billing with the launch of SAIC's IM L6 saloon. The IM L6 is seen as a potential contender to the Tesla Model 3 and will have a range of 600-800km.

The IM L6 is seen as a potential contender to the Tesla Model 3 and will have a range of 600-800km

4
▲+5

Kia

Coming in fourth in our 2024 report, South Korean multinational Kia is moving up the E40 top 10 – with an annual sales target of 1m electric vehicles by 2026, increasing to 1.6m units per year by 2030. After a record-breaking year in sales, its hopes are pinned on EVs such as the Kia EV6 and EV9, which have been met with acclaim from trade and consumers, alike.

Founded
1944

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

Website
worldwide.kia.com

Kia

History maker
Kia had its best year ever in Europe in 2023, with 572,297 units sold. Electrified vehicles, which include hybrids and plug-in hybrids, as well as battery-electric vehicles, accounted for 217,145 units. This was 37.9% of total sales in 2023 – a 9% increase year on year. Kia expects this trend to continue as the newly launched Kia EV9 rolls out across Europe. Pure EV sales for the year rose by 22.7%, with 80,999 units sold. The Kia Niro EV sold 40,074 units, while the Kia EV6 followed with 36,195.

Hero models
Kia has doubled down on its EV credentials with the Niro EV, a relatively affordable all-rounder with a 400+km range. The EV9, meanwhile, is Kia's flagship seven-seat electric SUV, named Family Car of the Year at the 2023 TopGear.com awards. Impressively, the design is able to charge from 10% to 80% in 24 minutes, using the fastest public chargers. And the ever-popular EV6, introduced in March 2021, is equipped with vehicle-to-load functionality – meaning it can act as a backup source of electricity.

Ambition & Potential

Kia's goal is to achieve an annual sales target of 1m electric vehicles by 2026 and increase it to 1.6m units per year by 2030.

Impact

Kia had its best year ever in Europe in 2023 with the EV6 and Niro EV leading the way. The 'EV' sequence will eventually run from EV1-EV9.

Innovation

Kia is running a pilot scheme in the Netherlands to explore new services including Smart Charging and green energy provision (e.g. solar panels).

Momentum

Plans are underway at Kia to establish a robust system for EV production and battery supply, with the goal of expanding EV facilities to eight by 2025.

Kia

Production plans
Kia used its 2023 EV Day to promote upcoming models in the works. These cover the EV5, which is a compact SUV designed to meet the needs of millennial families; the Concept EV3, which is Kia's vision for a new-look electric compact SUV; and the Concept EV4: which is Kia's attempt to redefine the electric sedan, with a new design philosophy.

Kia also used the event to announce its production plans, with the aim of expanding its EV production power to a total of eight facilities – spanning EV research, development, production and supply facilities – by 2025. In Europe, it will focus on the production of small and medium-sized EVs, whereas in China, the emphasis will be on mid- to large-sized EVs. Strategically designed EV models for emerging markets will be produced in India, while North America is being earmarked for a new, diverse range of EVs. Kia is also in the process of actively establishing battery joint ventures to ensure a stable global battery supply system.

Kia Charge
Under Kia Charge, the umbrella brand for Kia's European charging activities, Kia now has over 700,000 charging points across 28 European countries. It has also launched a pilot via Kia Netherlands to develop additional Kia Charge services, e.g. smart charging and solar panels, in collaboration with the likes of Vattenfall, Jedlix, and others.

> Kia aims to expand its EV production power to a total of eight facilities – spanning EV research, development, production and supply facilities – by 2025

5
▲ +10

ZeroAvia

Rounding out our top five of 2024 is ZeroAvia; with its dream of retro-fitting aircraft with hydrogen-electric powertrains fast becoming a reality. Counting 2,000 pre-orders, a new wave of $116m funding and high-profile partners to its name, ZeroAvia looks set to trigger the aviation industry's hydrogen revolution in late-2025.

Founded
2018

Specialism
Electric aviation powertrains

Website
zeroavia.com

ZeroAvia

2025 take-off
ZeroAvia is aiming to put a hydrogen-electric engine in every existing aircraft. The company is starting with engines to support a 300-mile range aircraft with a nine- to 19-seat capacity by the end of 2025, and a 700-mile range in 40- to 80-seat aircraft by 2027.

The company's hero product is its ZA600 engine, which it plans to have certified before the end of 2025 by the UK's Civil Aviation Authority (CAA) and other regulators. The aviation trailblazer has signed engineering partnerships with major aircraft OEMs and has nearly 2,000 pre-orders from global airlines, with a future revenue potential of over $10bn.

At the end of 2023, the company completed a Series C funding round worth $116m. The UK Infrastructure Bank joined the round alongside Airbus, Barclays Sustainable Impact Capital and NEOM Investment Fund. ZeroAvia said the funding would "accelerate certification of its first engines", and advance R&D to scale its tech for larger aircraft.

High demand
In November 2023, ZeroAvia signed an agreement with new airline Ecojet for up to 70 hydrogen-electric, zero-emission engines. Ecojet is beginning operations with conventionally powered aircraft operating routes to and from Edinburgh, before converting its fleet to become what would be the world's first electric airline. The airline will retrofit its aircraft with ZeroAvia's ZA600 engines, once certified.

In 2023, Indian seaplane company, MEHAIR ordered up to 20 ZA600 hydrogen-electric engines. Based in the Indian subcontinent, MEHAIR plans to grow a range of sub-regional routes across India with both amphibian and wheeled aircraft.

Ambition & Potential

ZeroAvia is retrofitting aircraft with hydrogen-electric powertrains. Its technology is expected to hit the market in late 2025.

Impact

In March 2024, ZeroAvia topped TIME Magazine's list of America's Top Greentech Companies 2024.

Innovation

The company's hero product is its ZA600 engine. It has nearly 2,000 pre-orders from airlines, with future revenue potential of $10bn.

Momentum

ZeroAvia recently secured an agreement with new airline Ecojet for up to 70 hydrogen-electric, zero-emission engines.

ZeroAvia

In another announcement this year, ZeroAvia and flyv will explore using hydrogen-electric engines to power flyv's on-demand, low-cost flight business. Flyv plans to operate small aircraft carrying 10 passengers, and is looking at existing aircraft and zero-emission designs.

Challenges and accolades

In March 2024, ZeroAvia was named number one in *TIME* magazine's list of America's Top Greentech Companies 2024. The honour call celebrates and ranks companies based on "environmental impact, financial strength, and innovation".

Also, in 2024, ZeroAvia was selected by the UK's CAA as one of three brands to participate in the regulator's Hydrogen Challenge Sandbox. The challenge will see ZeroAvia work with the CAA to ensure regulatory readiness, reduce the risk of failure, and collaborate in the adoption of hydrogen propulsion tech.

Power player

At the beginning of this year, ZeroAvia forged a partnership with ScottishPower to work together to develop a low-carbon hydrogen supply to key airport locations around the UK. Along with exploring airport hydrogen supply models and financing, the collaboration will also assess the potential for future ZeroAvia sites within ScottishPower's distribution network.

ZeroAvia was selected by the UK's Civil Aviation Authority as one of three brands to participate in the regulator's Hydrogen Challenge Sandbox

6
▲ +7

Zapmap

Located at the heart of Britain's booming EV community, Zapmap has over 95% of UK public charging locations logged. Moving into sixth spot, it has expanded its footprint over the past year; both with coverage to five European locations, and via an API product suite designed for third-party integration.

Founded
2014

Specialism
Charging, mapping and data services

Website
Zap-map.com

Zapmap

Community cohesion
Bristol-based Zapmap claims to be home to the UK's largest EV online community, with around 1.5m downloads and 300,000 monthly users relying on the app to find chargers, plan routes and pay for their charging sessions. Charting the UK's most detailed map of EV charging points, Zapmap now has 95% of public charging locations logged, with over 75% displaying 24/7 live availability status.

This range is particularly impressive when you consider that the number of UK installations has leapt by almost 50% year on year to 2024, encompassing over 60,000 EV charging points. Given its reach, Zapmap is also the industry's go-to authority for regular updates on the growth of new and ultra-fast EV chargers in Britain. Having a finger on this pulse is, in turn, key to tackling wider adoption and range anxiety.

European debut
In December 2023, and by popular demand, Zapmap made its first foray into mainland Europe – mapping charger locations across France, Germany, Belgium, the Netherlands and Luxembourg. "Mapping chargepoints on the continent has been a frequent request from Zapmap users over the past few years," said Alex Earl, commercial director at Zapmap. "I'm very pleased to say that we've made it happen." The newly enabled international coverage will highlight chargers with a power rating of +60kW and feature a variety of payment options for drivers abroad.

Ambition & Potential

In December 2023 by popular demand, Zapmap made its first foray into mainland Europe – mapping charger locations across France, Germany, Belgium, the Netherlands and Luxembourg.

Impact

Zapmap is home to the UK's largest EV online community, with around 1.5m downloads, 300,000 monthly users and 95% of the UK's public charging locations logged (the majority displaying 24/7 live availability status).

Innovation

October 2023 heralded the arrival of Zapmap Spark, an innovative API product that allows third-party platforms to access Zapmap's data sets.

Momentum

Zapmap's latest strategic partnerships include integrations with on-street electric vehicle charging network Connected Kerb, ultra-rapid charging provider Fastned and chargepoint operator Mer into the fleet-based Allstar-Zapmap network.

Zapmap

Third-party integration
Another key moment for Zapmap arrived in October 2023, with the unveiling of Zapmap Spark, an innovative API product that allows third-party platforms to integrate Zapmap's data sets. Richard Bourne, Zapmap CEO, said the move would enable outside apps to access Zapmap's "world-class EV services [...] making it easier for organisations to offer their customers a robust set of tools for electric vehicle drivers – all from within their own digital estate". The integration will allow partner customers to search for and plan specific EV routes tailored to their charging needs, with live availability status. They will also be able to access all-in-one digital payments.

Fleet and rental partnerships
Zapmap is continuing its bid for a seamless public charging network via ongoing strategic partnerships. These include the recent integration of the on-street electric vehicle charging network Connected Kerb, ultra-rapid charging provider Fastned and chargepoint operator Mer on the Allstar-Zapmap network. As the UK moves to drive adoption rates for commercial EV fleets, the activations mean fleet drivers at all three sites can pay for charging using an Allstar One Electric card lodged digitally within the Zapmap app.

In other news, Europcar Mobility Group UK became the first major rental provider to partner with Zapmap last September, enabling it to embed the Zapmap charger map into its digital showroom for new, and experienced, EV drivers.

> The Zapmap Spark integration will allow partner customers to search for and plan specific EV routes tailored to their charging needs, with live availability status

Melanie Shufflebotham

Co-founder and COO of Zapmap

LinkedIn

What is Zapmap's role within the evolving EV market?

Our role is predominantly about supporting the EV driver, giving them practical help when they're out and about. We provide a single app which aggregates all the chargepoints across 60+ charging networks. It helps EV drivers find suitable, available charge points, plan their journeys and pay for charging. The core charging info is augmented by feedback from other drivers.

From a business-to-business perspective, our aim is to help businesses electrify. We track the overall market and publish key data on the website. With Zapmap Insights we support businesses with data to help them understand the EV charging landscape with regard to locations, utilisation and pricing and then make decisions such as where to install charge points or whether to invest in the sector.

How would you describe the current landscape of UK e-mobility?

We're at a really interesting time for the EV market with amazing growth since 2021. Currently there are just over 1m EVs on the road, or 3% of all cars, but by 2030 we forecast there will be around 6m EVs on the road, or about 20% of all cars – a large increase – but there are some headwinds as we move from early adopters to the mainstream.

Can you provide more insight into these headwinds?

One is the culture wars. There's a lot of myth-busting to be done. Another has been the government's decision to delay the ban on petrol and diesel cars until 2035. As for the supply side, the car OEMs are not yet providing the range and price of EVs I would like to see.

> We expect 600,000 more EVs over the next year and by 2029, there will be 6m pure EVs on the road

We know the Chinese manufacturers and legacy car companies are beginning to bring down prices, but that still feels like something of a headwind.

In terms of infrastructure, where does the UK stand on supporting the development of electric mobility and what improvements are still needed?

The infrastructure has been growing well over the last couple of years. There are currently over 60,000 public charge points across the UK – 45% increase on 12 months ago. In particular, the high power 'en route' charging is being installed at a fast pace, with more than 12,000 now available. Key trends include the shift to 150kW+ chargers and to installations increasingly being in hubs both providing a faster and more reliable experience for drivers.

At the other end of the scale, there is also growth in the low powered network, which is mainly used for close to home or overnight charging. However the rollout across the UK is quite patchy, with some local authorities fully engaged and others less so. The government LEVI(Local Electric Vehicle Infrastructure) scheme, which is now being rolled out, should start to make a difference across the country over the next 12 months.

How could the public charger infrastructure be boosted?

Whilst high powered chargers are key for en-route charging, at a local level the focus is on low powered charging to support those who are not able to have a charger on their driveway. There are different solutions which range from transforming lamp posts into chargers by companies such as Char.gy and adding dedicated on-street charging posts from companies such as Connected Kerb to BT's recent commitment to enable their network of green boxes for charging. Other simple solutions include gullies across the pavement from companies like Kerbo Charge. This allows people to connect to their domestic tariff and provides all the advantages of home charging.

What else could the government and regulators do to support e-mobility?

There is a lot of good work on combating the EV myths from organisations and campaigns such as Stop Burning Stuff, FairCharge, and Women Drive Electric but the government could do more to support this by providing education and clear facts.

The cost of charging on the public network has increased in recent years, and it disproportionately impacts those without access to a driveway. The government could support by equalising VAT on domestic and public charging.

> We'll see a lot more public charging and smart charging is really going to come into play – in the way it has on the home network

The government also needs to support the calls of the charging industry to reduce planning and grid connection issues which hamper the pace of infrastructure rollout.

What are your predictions for the immediate future?

As battery prices fall, and with competition from the Chinese OEMs, we hope that this will result in both a greater choice of affordable models and a fall in upfront cost of EVs.

For charging, there will be continued growth in the charging network both in en-route chargers, in particular high-powered hubs and also at the local level with the rollout of the LEVI scheme. We expect there to be greater integration of public charging with other services such as parking or the home to provide a more seamless experience for drivers.

Pricing is set to change with networks experimenting with dynamic pricing and promotions. Also, we expect networks to start to offer booking capability, especially at the strategically placed hubs, with resultant premium pricing.

Gridserve is at the top of its game right now, with over 1,200 charging bays in operation at 176 locations. It has opened a world-first flagship site at Gatwick Airport and is leading a powerful consortium that is building a UK charging infrastructure for eHGVs.

Founded
2017

Specialism
Fast-charging infrastructure for EVs

Website
gridserve.com

Gridserve

Record-breaking performance
Hot on the heels of 2023, hailed by Gridserve as "a record year", this Buckinghamshire-based operator is going from strength to strength. After securing a £500m loan in certified green financing to expand its network, the company added more than 300 charging bays across its Electric Super Hubs and Electric Retail Hubs last year – three times the amount installed in 2022. In fact, December 2023 broke all previous records, with more Gridserve charging bays opened in a single month than the entire course of 2022. A powerhouse year was capped by 1.9m charging sessions, the equivalent of 160m zero-emission miles.

Flagship developments
2024 began with a bang for Gridserve with the opening of the London Gatwick Electric Forecourt, the first international airport facility of its kind, complete with 30 charging bays. Gridserve CEO Toddington Harper described the moment as "a significant milestone in the evolution of sustainable transportation". Construction is also underway for a "state-of-the-art" EV forecourt on the iconic Knebworth Estate near Stevenage.

In February 2024, Gridserve began producing a new high-power charger: the ABB Terra 360. First trialled at its Braintree forecourt in October 2022, the charger will be introduced to several locations, including Northampton, Southwaite and Toddington. The Terra 360 is capable of a maximum output of 360kW, which means it can add 100 miles of charge in less than five minutes. Gridserve calls it "the fastest, and most powerful, commercially available charger".

Ambition & Potential

2023 was a record year, with more chargers installed and more electric cars charged than ever before. In total, the firm added 300 charging bays.

Impact

Gridserve is rolling out the ABB Terra 360 charger, which can add 100 miles of charge in less than five minutes.

Innovation

Gridserve is spearheading a government-backed consortium that plans to build a UK charging infrastructure for HGVs. The £100m 'Electric Freightway' partnership includes the likes of Amazon and Volvo Trucks.

Momentum

In January 2024, London Gatwick Electric Forecourt – the first of its kind – opened with 30 charging bays.

Gridserve

Electric Freightway
Gridserve is spearheading a government-backed consortium that plans to build a UK charging infrastructure for heavy goods vehicles (HGVs). The Electric Freightway consortium has access to a 140+ strong fleet of the latest eHGVs, which it plans to use in developing bespoke EV charging infrastructure. Amazon, Moto and Volvo Trucks are among over 30 partners of the £100m+, seven-year project. Gridserve's role is to install 200 high-power chargers within two years to help negate the high battery load needed for long-distance hauliers.

A-star reliability
In July 2023, logistics specialist Engineius surveyed 600 self-employed drivers and transport agents to ask them about charging networks. Out of 12 companies covered, Gridserve was voted leader in reliability, followed by Tesla and InstaVolt.

Gridserve also recently formed a division called Gridserve Technologies, which is responsible for durability testing existing EV chargers and trialling new equipment. It includes plans for a new Innovation and Operations Centre with an indoor EV charging laboratory.

> December 2023 broke all previous records, with more Gridserve charging bays opened in a single month than the entire course of 2022

8
▲ +29

Osprey Charging

2023 was Osprey's most successful year to date, propelling it up the E40 charts from 37th place (in last year's report) to a spot in the 2024 top 10. The company has more than doubled the number of chargers installed and is now seeking to accelerate growth through a range of savvy partnerships with the likes of Starbucks, Supermarket REIT and Wallbox.

Founded
2018

Specialism
Rapid EV charging network

Website
ospreycharging.co.uk

Osprey Charging

Expanding installations
In 2023, Osprey grew its installation base from 400 to over 1,000 EV chargers. That puts it well on track to hit its previously announced target of 1,500 chargers by 2025, backed by a £75m investment.

Key developments include the opening of the ultra-rapid EV charging hub at Salmon's Leap in Buckfastleigh, the largest facility of its kind in the South West, with 16 ultra-rapid charging bays. Active across the UK, the company also opened sites in Carmarthen, Workington and Wisbech.

As an added bonus, Osprey refreshed its app late last year. Powered by Osprey's Iris software platform, the new-edition Osprey app manages payment and charging and provides access to Hatch Card rewards. Drivers can win prizes such as free kWhs every time they charge through the app.

Teamwork, dream work
Increasingly, Osprey is choosing to expand its footprint via the creation of high-profile strategic partnerships. In 2023, it formed alliances with landlords, including Starbucks and Dacorum Council in Hertfordshire. It also joined forces with real estate investment trust Supermarket REIT in an innovative deal to install rapid EV charging hubs across the fund's supermarket portfolio. Osprey said this will "significantly improve public EV charging for millions of customers of retail brands such as Morrisons and Tesco".

Ambition & Potential

2023 was Osprey's most successful year to date, with the company more than doubling the number of chargers installed.

Impact

Osprey won Best EV Charging Network at the Transport and Energy awards. It also secured four wins at the EV Innovation and Excellence Awards, including Chargepoint Network of the Year.

Innovation

Osprey refreshed its app in 2023. Powered by Osprey's Iris software platform, the Osprey App manages payment, charging and rewards.

Momentum

Osprey is accelerating growth through a range of partnerships with the likes of Starbucks, Supermarket REIT and Wallbox.

Osprey Charging

In addition, Osprey recently agreed a supply partnership with Wallbox. The collaboration involves installing over 100 of Wallbox's Supernova DC rapid chargers at Osprey's low-voltage connection locations. The ultimate goal is to improve charging availability and access for EV drivers.

Industry recognition

It's been a year of accolades for Osprey, as the company secured four wins at the 2023 EV Innovation and Excellence Awards, including Chargepoint Network of the Year and Private Sector Infrastructure Strategy of the Year. The company also ranks in the top three UK networks for customer satisfaction by Zapmap, and it was recently crowned Best EV Charging Network at the Transport and Energy Awards.

In April 2023, Osprey CEO, Ian Johnston, was elected chair of the newly formed trade association for the UK's EV charging industry, Charge UK.

Nurturing inclusivity

In September last year, Motability Operations – which delivers the Motability Scheme to around 690,000 disabled people in the UK – selected Osprey as its first charge point operator partner. The collaboration will see the two organisations explore how public charging works for disabled drivers, their families, and their carers. The goal is for Motability Scheme customers to be able to seamlessly access Osprey's rapidly expanding network.

A collaboration with Motability Operations will see the two organisations explore how public charging works for disabled drivers, their families, and their carers

Busy renewing itself in the shadow of a tough global market, VW has dropped its E40 ranking just slightly. But its top 10 status reflects how the heavyweight enjoyed a 45% increase in new EV sales in 2023 – coupled with bold new partnerships and further progress on its super-plan to take battery production in-house. New models to hit the road, meanwhile, include the award-winning ID.7 all-electric saloon.

Founded
1937

Specialism
Vehicle manufacturer, battery production, fast charging

Website
www.volkswagenag.com

VW Group

Market mover
Volkswagen Group's new EV sales passed the half-million mark in the first nine months of 2023, defying both a sluggish European market and fierce pricing competition. Europe was, in fact, a "key growth driver" for the company's electric fortunes, contributing to a 45% year-on-year uptick in sales. The robust result – totalling 531,500 deliveries of fully electric vehicles – was led by demand for the VW ID.4 SUV and the ID.3 all-electric hatchback.

Smart collabs
In July 2023, VW joined forces with Chinese partner XPeng, as part of a strategy to regain market share against regional competitors. The two recently announced they will be developing an electric SUV together, using a joint sourcing programme to minimise costs.

Flagship models
2023 heralded the launch of the ID.7 all-electric saloon, the largest in the range so far and a clear contender to the Tesla Model 3. The hero model went on to be crowned winner of the prestigious German Car of the Year award – as voted by an international panel. Last year also brought with it the launch of the new ID Buzz Cargo electric van, the first commercial vehicle to launch in the ID range, as well as the ID.6 Crozz electric SUV.

In addition, the German car giant recently revealed its new ID.7 Tourer, a family estate car and an extended version of the ID.7, with fast charging and an enhanced battery range.

Ambition & Potential

2023 has seen the arrival of the ID.7 all-electric saloon, the award-winning contender to the Tesla Model 3; as well as the new ID Buzz Cargo electric van (the first commercial vehicle in the ID range), the ID.6 Crozz electric SUV and the ID.7 Tourer.

Impact

Volkswagen Group's new EV sales passed the half-million mark in the first nine months of 2023 – including a 45% year-on-year uptick in European sales – led by demand for the VW ID.4 SUV and the ID.3 all-electric hatchback.

Innovation

VW has audacious plans to build its own batteries via a series of gigafactories in Europe and North America, led by VW subsidiary Powerco. It is also developing an electric SUV with Chinese partner XPeng, as part of a strategy to regain market share in the region.

Momentum

One of the world's fastest road cars, the electric Porsche Taycan, is coming to the market this summer, alongside the 2025 launch of the ID 2 supermini. The models count among 10 new EVs that VW aims to launch by 2026.

VW Group

One of the world's fastest road cars, the electric Porsche Taycan, is coming to the market this summer and the launch of the ID 2 supermini remains on track for 2025, targeting a price point of around £22,000. The new arrivals count among 10 new EVs that VW aims to launch by 2026.

Battery strategy

VW is also racing ahead on audacious plans to build its own batteries by creating a series of gigafactories in Europe and North America. If successful, the $20bn project led by VW subsidiary Powerco will significantly reduce production costs and supply chain issues by bringing cell production in-house. Progress at VW's battery plant in the German city of Salzgitter is going well, as the factory gets set for series production by 2025. It is hoped that this facility, alongside two other global battery hubs, will eventually produce enough power for over 2m EVs.

Signalling further battery innovation, VW UK recently reached an agreement with battery recycling solution Ecobat to collect and process lithium-ion battery materials from its EVs at a range of dealer and distributor locations. And the brand last year unveiled a bidirectional charging function that allows many models in its ID collection to save costs by using self-generated electricity stored in the vehicle battery.

> VW UK reached an agreement with battery recycling solution Ecobat to collect and process lithium-ion battery materials from its EVs at dealer and distributor locations

Kate Jeffreys

Electric Vehicle Business Lead at Volkswagen UK

LinkedIn

Can you describe your company's role within the current UK electric mobility ecosystem.

We're helping to progress the decarbonisation of transport. We offer great products across multiple brands, our product portfolio is expanding and there is a wide range of electric vehicles now for different people's needs.

Consumer confidence is having a negative impact on people in the retail market switching, and we've seen that in the latest March figures. Fleet remains strong due to incentives that make it a no-brainer to switch. If we can start to improve consumer confidence, we hope that uptake in some of the retail space will continue to improve as well.

As an OEM, we've got a responsibility to support our customers in the transition to EVs. And we do this through partnerships. So whether that's your home wall box, your energy provider across BV charge solutions, we partner with people who are experts in that field to offer that seamless solution. That's what working together in this ecosystem means and it comes back to that consumer confidence. It's easier for consumers to make the switch with the hard work done for them. We're reducing friction points so consumers have a really positive buying experience.

In terms of infrastructure, where does the UK stand on supporting electric mobility and what improvements are still needed?

Rollout is obviously improving: there's been over 45% improvement year on year.

> As an OEM, we've got a responsibility to support our customers in the transition to EVs

However, the rollout of rapid and ultra rapid chargers still only make up 20% of UK chargers. Consumers want a very quick charge time if they are having to stop at all. When we're looking at the rollout of infrastructure, it's very important to have rapid and ultra rapid dominating in that space. At the minute it's the reverse of that. We do see more rapid and ultra rapid on motorways but the rollout in more residential everyday spaces is what's going to make a real shift in mindset.

What changes would you like to see to better support the growth of the EV market in the UK?

I'd like to see binding targets for an infrastructure rollout that are aligned to the ZEV mandate. If there are specific targets to meet regionally, that would give consumers the confidence that if they do switch now, into what's still deemed to be a new technology, they're not going to run out of charge, they're going to have the infrastructure to support them with that switch – with national, affordable and interoperable charging options.

What role do you believe the government and policy makers should play in shaping the future of electric mobility?

It is all around instilling confidence in customers. The government could launch a consumer awareness campaign about e-mobility and the transport sector could get behind that campaign and demonstrate that everyone's committed to decarbonising transport.

From our latest research, we know that 70% of non-BEV owners still see price as a barrier to adoption. There is a piece around educating the customers that some of the EV ownership costs are a lot less than with an ICE vehicle. So making clear to consumers the total cost of EV ownership: currently the initial upfront cost is what customers see. There are also policy changes that can support consumers' decisions to purchase an EV. Since the plug-in car grant was removed, we no longer have any incentives on the price of the vehicle, so reducing that VAT on the actual vehicle price would be welcome. You can see this working in the fleet market where there are very good reduced Benefit in Kind tax incentives. I'd also like to see a change in VAT on public charging. For a public charge, you're charged 20 percent VAT, while for home charging, you're charged 5%. That's not fair or equitable.

The government also needs to support the calls of the charging industry to reduce planning and grid connection issues which hamper the pace of infrastructure rollout.

> The government … needs to support the calls of the charging industry to reduce planning and grid connection issues

How do you envisage the electric mobility ecosystem in the UK evolving over the next five years?

Customers are really starting to embrace smart charging. Over the next five years bidirectional charging will be a big industry changer, where customers are able to have their own energy ecosystems. This will have a positive environmental benefit. It's also a financial gain for that customer who will be paid to allow energy providers to draw down from their vehicle battery when it has been set to discharge or when using the customer's solar panels.

I think consumer behaviour will change slightly once customers see how they can add on to that ecosystem to benefit themselves. In the long run people will start to adopt a different way of managing their energy at home and the vehicle will be an enabler of that with the battery storage.

Having raced past 1m EV sales in 2023, Nissan is now putting its foot down hard on the accelerator, transforming its UK production base to an all-electric hub and rounding off the E40 top 10 in style. The manufacturer is also pushing ahead with electrification in Europe, despite some hesitancy from national governments.

Founded
1933

Specialism
Vehicle manufacturer

Website
nissan.co.uk

Nissan

One mil milestone
In July 2023, Nissan announced that its global sales of EVs had surpassed the one million unit milestone. Key to this achievement is the Nissan LEAF, which contributed 650,000 sales to the landmark figure. The model, sold in 50 markets centred on Japan, the US, and Europe, continues to be a popular choice among customers. Other contributors to the million mark included the Nissan Ariya all-electric crossover and the Sakura mini vehicle. By region, Europe sales totalled 320,000 – followed by Japan (230,000), China (230,000) and North America (210,000).

EV36Zero hub
Also, in 2023, Nissan announced that it is set to go 100% electric at its EV36Zero hub in Sunderland. The company said the UKHQ, dubbed "Nissan's blueprint for future manufacturing", will cover three EVs, three gigafactories and up to £3bn in investment funding.

The EVs made in Sunderland will be all-electric versions of Nissan's flagship Qashqai and JUKE crossovers, as well as a next-generation Nissan LEAF. Both vehicle and battery manufacturing will be powered by the EV36Zero Microgrid, which will incorporate wind and solar farms at Nissan, with the capability to deliver 100% renewable electricity.

Nissan president and CEO Makoto Uchida said: "The EV36Zero project puts our Sunderland plant at the heart of our future vision. It means our UK team will be designing, engineering and manufacturing the vehicles of the future, driving us towards an all-electric future."

Nissan has previously confirmed that all its new cars in Europe going forward will be fully electric. Currently, EVs represent around 16% of Nissan's total sales in the market.

Ambition & Potential

Under its Nissan Ambition 2030 long-term vision, Nissan plans to launch 19 EV models by 2030.

Impact

Nissan announced that it is set to go 100% electric at its EV36Zero hub in Sunderland. Nissan continues to play an active role in Formula E, via the Nissan Formula E Team, including a commitment to 2025/26.

Innovation

The company aims to launch EVs powered by all-solid-state batteries developed in-house by 2028.

Momentum

Nissan passed 1m EV sales in 2023. Now, the Japanese pioneer is transforming its UK manufacturing base to an all-electric hub.

Nissan

Portfolio power
Under its 2030 vision, Nissan aims to launch 19 EV models by 2030. By 2028, the company also plans to launch EVs powered by all-solid-state batteries developed in-house. In early 2024, it unveiled the Ariya NISMO in Tokyo, with deliveries slated to begin in Japan in June 2024.

Game on
In the run-up to the 2023 Japan Mobility Show, Nissan unveiled five concept vehicles, including the Nissan Hyper Force. Designed for racing enthusiasts and gamers, it combines the adrenaline rush of the racetrack with eco-conscious value.

In a similar vein, Nissan continues to play an active role in Formula E via the Nissan Formula E Team. In Season 5 (2018/19), Nissan became the first Japanese manufacturer to enter the ABB FIA Formula E Championship. Two years later, Nissan announced a long-term involvement in Formula E, including a commitment to the Gen3 era (up to 2025/26).

> Nissan's UKHQ, dubbed the company's "blueprint for future manufacturing", will cover three EVs, three gigafactories and up to £3bn in investment funding

11
NEW

Agratas

Our highest new entry, Tata-owned Agratas, has been set up to design, develop and manufacture high-quality, high-performance, sustainable battery solutions. The company's plan is to enter production in 2026 via UK and India-based gigafactories powered by renewable energy plants.

Founded
2023

Specialism
Battery solutions

Website
agratas.net

Agratas

Giga glory
Tata's debut on the battery scene is good news for the UK, with the Indian industrial conglomerate announcing plans for a £4bn investment in a Somerset gigafactory which will have the capacity to produce 40GWh of battery cells, annually. The move to build one of Europe's largest battery cell manufacturing facilities will create up to 4,000 new green tech jobs.

The news was welcomed by Rishi Sunak, who described it as "a huge vote of confidence in Britain". "This will be one of the largest-ever investments in the UK automotive sector and strengthen our lead in the global transition to electric vehicles," he said.

The new plant is projected to contribute almost half of the battery manufacturing capacity required for the UK automotive sector by 2030. JLR and Tata Motors have been named as anchor customers. Another gigafactory is being constructed on Tata's home soil in India.

Circular thinking
Tata said Agratas will embed circular economy processes throughout its value chain to reuse, recycle and recover materials back into production. It will serve customers in passenger vehicle, commercial vehicle, two- and three-wheeler and energy storage solution industries, supplying state-of-the-art, high-energy density NMC and long-lasting LFP battery cells. Agratas will also support its customers with the integration of cells into their applications, such as modules and packs.

Ambition & Potential

Tata's entry into the battery business is good news for the UK, with the Indian industrial conglomerate announcing plans for a £4bn investment in a Somerset gigafactory.

Impact

Agratas' gigafactory is expected to contribute almost half of the battery manufacturing capacity required for the UK automotive sector by 2030. Another gigafactory is being constructed in India.

Innovation

Agratas is developing next-generation battery tech at R&D Innovation hubs in India and the UK, collaborating with universities and research institutions.

Momentum

Tata is considering spinning-off of the Agratas battery business. Reports in India speculate that Agratas would be valued at $5-$10bn.

Agratas

In addition to gigafactories, Agratas will develop next-generation battery technologies at R&D innovation hubs in India and the UK, collaborating with universities, research institutions and partners. Agratas said it will work with local partners, including Somerset Council and Bridgwater and Taunton College, to deliver bespoke education and training programmes in the vicinity of its UK gigafactory.

Spin-off rumours

Indian media outlets are reporting that Tata is considering spinning off the Agratas battery business. The company is only in early stage discussions about breaking out the Agratas business, so it is not yet willing to comment on it. If it goes ahead, the development will allow the business to raise funds and perhaps go public in Mumbai. The reports speculate that Agratas would be valued at $5-$10bn.

Bold new look

In January 2024, Agratas unveiled a new corporate identity and company purpose, which aims to reference the brand's links to Tata as well as reflecting its commitment to pioneering power for future generations.

> Agratas will embed circular economy processes throughout its value chain to reuse, recycle and recover materials back into production

12
▲+5

Hyundai

South Korean giant Hyundai wants to be a top-three EV-maker by 2030, eyeing a target of 3m units in global sales. The popularity of its IONIQ and KONA marques suggests this is more than purely blue-sky thinking. Backed by an ambitious $8bn investment, it is building huge new plants in the US and South Korea.

Founded
1967

Specialism
Electric vehicle manufacturer

Website
hyundai.com

Hyundai

Flying high
Hyundai continues to make stellar progress down the road to electrification, building its potential to be a top-three EV manufacturer by 2030. In 2023, it sold over 268,000 EVs globally, with its flagship IONIQ 5 and 6 leading the charge. It is confident it will hit the 300,000 sales mark in 2024 – in a 12% projected growth curve. Key international markets include North America, Europe, and India.

Hyundai is also part of the consortium of major automakers behind IONNA, a high-powered, best-in-class EV charging network joint venture. IONNA plans to deploy at least 30,000 chargers, with work around the first stations currently underway in the United States.

Production and pricing
Hyundai's top priority for 2024 is to increase production capacity as the creation of a new EV battery plant in Georgia, US, continues apace. In another landmark move, the company has unveiled plans for an EV-dedicated base in the Korean city of Ulsan. The new $1.53bn facility will start mass production from 2026, with the capacity to build 200,000 EVs per year.

The manufacturer is also expanding its EV market share via an aggressive pricing strategy. This includes a $7,500 purchase incentive for the IONIQ 6 in the US, a move that undercuts the new Tesla Model 3 by some margin. Hyundai has also redesigned its 2024 KONA EV model, starting at $33,000 in the US, making it one of the most affordable electric cars available.

Ambition & Potential

Backed by an ambitious $18bn investment, Hyundai wants to be a top-three EV-maker by 2030.

Impact

The IONIQ 5 and IONIQ 6 have both been picking up plaudits. The IONIQ 5 was named Best EV of 2024 by Cars.com, while the IONIQ 6 was selected as the 2023 CleanTechnica Car of the Year.

Innovation

Hyundai's Advanced Air Mobility (AAM) company, Supernal, used CES 2024 in Las Vegas to introduce the S-A2, its electric vertical take-off and landing (eVTOL) air taxi concept.

Momentum

Hyundai is growing market share through aggressive pricing. The 2024 KONA EV is one of the most affordable EVs on the market.

Hyundai

IONIQ plaudits
The IONIQ 5 has recently been named Best EV of 2024 by Cars.com for the second year running. Judges lauded its fast-charging ability, vast interior space, eye-catching design and advanced technology.

Meanwhile, the IONIQ 6 scooped the 2023 CleanTechnica Car of the Year award for a model that is "hyper-efficient and more spacious than it appears". Its 350kW ultra-fast charging capabilities mean the vehicle requires just 18 minutes to recharge from 10% to 80%.

Taking flight
Hyundai's Advanced Air Mobility company, Supernal, used CES 2024 in Las Vegas to introduce the S-A2, its pioneering electric air taxi. The four-passenger aircraft is Supernal's attempt to commercialise safe, efficient and affordable eVTOL travel by the year 2028.

> Hyundai's top priority for 2024 is to increase production capacity with the creation of a new EV battery plant in the US and an EV-dedicated base in the Korean city of Ulsan

13
▲ +11

Renault

Buoyed by the might of its EV manufacturing division, Ampere, along with the new and award-winning Scenic E-Tech, Renault is making good on its “Renaulution strategy”. The iconic brand landed third place in electric sales across Europe last year, and is also branching out into bidirectional charging tech.

Founded
1898

Specialism
Vehicle manufacturer

Website
renaultgroup.com

Renault

All hail the Renaulution
In a tough climate, Renault posted positive results for 2023, with revenue hitting €52.4bn (a 13% year-on-year hike). Renault CEO, Luca de Meo, heralded the company's "Renaulution strategy", and said the car-maker is forging ahead with its switch to electric: "We are leading, at an incredible speed, the in-depth transformation of the group, with important steps achieved for our major projects and an acceleration of our EV and software strategy."

The brand took third place in Europe for sales of electrified passenger cars (EVs and hybrids), up nearly 20% versus 2022. Its Dacia division also celebrated electric successes, with strong performances from the Dacia Jogger Hybrid 140 and Dacia Spring EV.

Ampere flair
While Renault continues to market its flagship vehicles under its legacy brand, the company has placed responsibility for the group transformation with Ampere: an autonomous sub-brand focused particularly on reclaiming Chinese market share with the production of affordable EVs.

Working to a target of 1m vehicle sales, and revenues of over €25bn by the year 2031, Ampere is an asset not to be underestimated. The spin-off is home to 11,000 employees, including 35% engineers, and teams are already working on the new Renault 5, Renault 4 and a smaller electric city car vehicle. A total of seven new electric models are expected in years to come.

Ambition & Potential

Renault's dedicated EV division Ampere is targeting 1m vehicle sales and revenues of €25bn+ by 2031.

Impact

Renault clinched third place in Europe for EVs and hybrids sales in 2023.

Innovation

Renault's efforts to create a 360-degree EV ecosystem have seen it become part of the Mobilize Powerbox charging consortium.

Momentum

Renault is expanding its EV range and is aiming for a 50% reduction of production costs per EV by 2027.

Renault

Grand designs
Renault EV designs are truly having their moment in the sun. The Megane E-Tech, launched in mid-2022, now claims a 2.2% share of the European EV market. 2024 will bring two new Renault EVs, the Renault 5 E-Tech, boasting a bidirectional onboard charger, and the Scenic E-Tech. The latter has already got off to a flying start by being voted Car of the Year 2024 at the Geneva Motor Show in Switzerland.

Renault's sports car brand, Alpine, is migrating towards electric, too. The company will present its first all-electric vehicle, the Alpine A290, this year. Eyeing the market ahead, Renault said it is aiming to reduce production costs by 50% per EV unit between now and 2027.

Home charging hero
Renault is part of a consortium behind the new Mobilize PowerBox, an emerging smart solution. Taking the shape of a bidirectional home charging station, the French-manufactured design can send electricity back to the grid and has an initial production capacity of 65,000 units a year.

> Renault's sports car brand, Alpine, is migrating towards electric and will present its first all-electric vehicle, the Alpine A290, this year

14
▲ +12

ev.energy

Ev.energy's smart cloud-based EV charging platform continues to bask in rapid growth, with 150,000 drivers now signed up in the US, the UK and Europe. Senior US-based hires, a recent acquisition and new funding, suggest the company is now eyeing a strategic North American expansion.

Founded
2018

Specialism
Smart cloud-based charging

Website
ev.energy

ev.energy

Intelligent charging
Ev.energy says its mission is to make “EV charging greener, cheaper, and smarter for utilities and their customers”. It operates an end-to-end software platform that wirelessly connects to a range of EVs and chargers. This manages EV charging while also working with utilities to return cash to customers’ wallets in exchange for charging at grid-friendly times. Currently, ev.energy manages 150,000 EVs on its platform every day.

2023 has been a productive year for the brand, which extended its Virtual Power Plant to include Vehicle-to-Grid (V2G) solutions, introduced fleet management platform Pando and entered the solar energy market.

Drilling down into the data, ev.energy estimates that drivers connected to its Virtual Power Plant completed over 4m charging sessions in 2023. Delivering 87m kWh of energy to EVs, this equates to savings of around 445 metric tonnes of carbon.

Cash injection
In July 2023, ev.energy secured $33m Series B funding to drive EV grid integration in North America and Europe. The platform said that the funds will “create a pathway” connecting millions of drivers, vehicles, and chargers to their Virtual Power Plant, enabling new V2G services.

Ambition & Potential
A new management team and company acquisition place ev.energy well for expansion into the lucrative US market.

Impact
Ev.energy estimates that drivers connected to its ‘Virtual Power Plant’ completed over 4m charging sessions in 2023, equating to savings of around 445 metric tons of carbon.

Innovation
Ev.energy’s end-to-end software platform manages EV charging, while also working with utilities to put cash back in customers’ wallets.

Momentum
A series B funding injection led by National Grid Partners, gives the company funds to scale its vehicle-to-grid technology.

ev.energy

National Grid Partners led the funding round, supported by other backers. Nick Woolley, CEO of ev.energy, said: “In the next few years, EV demand in most developed countries will surpass the output of even the largest power plants. As more EVs come online, optimised charging and load maintenance will be critical for ensuring grid stability.”

US expansion
In March 2024, ev.energy announced the integration of Rolling Energy Resources under its US operating arm. The deal expands the company’s growing network of transport and energy partners, and follows a separate announcement that ev.energy had been awarded $41m by the California Energy Commission to scale incentive-based EV programmes in the region.

Since 2018, ev.energy has won over 30 national, regional and municipal utility contracts in the US – while forging partnerships with charging brands and major OEMs such as VW Group.

Leadership changes
In December 2023, ev.energy added to its senior management team. Tanuj Deora joined as SVP of commercial, Julie Taylor was named VP of global partnerships, Bret Scott became head of automotive, and Kate Merson became director of grid services (North America). This flurry of high-profile hires brings the company’s global company headcount to over 100.

> In 2023, ev.energy extended its Virtual Power Plant to include Vehicle-to-Grid solutions, introduced fleet management platform Pando and entered the solar energy market

15

NEW

Zenobē

With £1.8bn in investment to date, high-flying new entrant, Zenobē, has established itself as a major player in the battery storage business. Building from a strong base in Scotland, the company has now gone global, while also claiming a central role in helping fleets to electrify.

Founded
2017

Specialism
Battery solutions & EV fleets

Website
zenobe.com

Zenobē

Circular sensation
Zenobē is a grid-scale battery storage and EV fleet specialist. In the seven years since its launch, it has gone from three founders to 250 staff. During that time, it has also raised around £1.1bn in total equity and debt finance, and is now active in Europe, Australasia and North America.

Zenobē's goal is to contribute to the circular economy. It said: "Our batteries capture renewable energy, balance its supply on the grid and transport it to EVs. At the end of their lifecycle, we repurpose them."

New sites and surplus power
The company estimates to have around 730MW of battery storage in operation or under construction, with another 900MW in advanced development in the UK – equating to a forecast 20% market share by 2026.

Zenobē's first site to go live was a 50MW grid-connected battery in Wishaw, North Lanarkshire. The battery can power 130,000 homes in Scotland for two hours, using electricity that would have, otherwise, gone to waste, due to lack of capacity to store surplus wind power. In 2023, it began construction of Blackhillock, a groundbreaking 300MW/600MWh BESS (Battery Energy Storage System)the first to provide stability services using a transmission connected battery. Zenobē says the project will increase the uptake of renewable power onto the grid and improve the reliability of the UK's renewable power infrastructure.

Ambition & Potential

Since its launch, Zenobē has gone from three founders to 250 staff members and raised around £1.8bn in investment.

Impact

The company has around 730MW of battery storage in operation or under construction, with another 900MW in development in the UK.

Innovation

Zenobē's Electric Transport-as-a-Service (ETaaS) solution helps with fleet electrification, by offering a suite of features that includes dedicated rapid chargers and a software platform to manage energy use.

Momentum

2023 saw KKR inject around £600m into Zenobē's business. This is supporting the construction of battery storage sites across Scotland.

Zenobē

At the start of 2024, it also started construction on its Kilmarnock South battery project. This 1.2 GW portfolio of projects aims to double battery storage in Scotland with the goal of reducing consumers' energy bills by an estimated £1bn over the next 15 years. It forms part of Zenobē's ambition for Scotland to become a world leader in renewables by preventing its wind energy being wasted.

Development capital
2023 saw global investment company KKR inject around £600m into Zenobē's business, becoming a joint majority shareholder alongside Infracapital which contributed an additional £270m. This investment is supporting the construction of battery storage sites across Scotland. And it will support the development of an extra 2.5GW of battery energy storage assets earmarked for North America and Australia by the year 2030.

Fleet-footed
Zenobē's Electric Transport-as-a-Service (ETaaS) solution helps fleets such as National Express in Coventry with electrification by offering on-board battery replacements, as well as a depot-based charging and grid infrastructure system featuring dedicated rapid chargers and a software platform to manage energy use.

> Zenobē s 1.2 GW portfolio of projects in Scotland intends to double battery storage there, in order to reduce consumers' energy bills by an estimated £1bn over the next 15 years

16
▼ -11

Polestar

A recent restructuring means Swedish EV manufacturer Polestar is now under the direct control of Chinese industrial giant Geely. With new funding and a robust manufacturing base in China, the company is steaming ahead with the roll-out of the new Polestar 3 and 4 vehicles.

Founded
2017

Specialism
Electric vehicle manufacturer

Website
polestar.com

Polestar

Global fleet
Polestar EVs are available in 27 markets across North America, Europe and Asia-Pacific. Having debuted in 2019 with Polestar 2, the electric performance fastback, the manufacturer is aiming to have a fleet of five EVs by 2026. This includes the Polestar 3, which was delayed until 2024 because it required extra software development. The luxury family SUV is now being rolled out internationally at the same time as the Polestar 4, hailed as "a new breed of SUV coupé".

Production of the Polestar 3 is underway in Chengdu, China, with additional manufacturing set to kick off in South Carolina, US, in the middle of the year. It will be the first Polestar to be produced on two continents, supporting the company's growth ambitions across North America, Europe and Asia. Polestar CEO, Thomas Ingenlath, said that its production marked "an important milestone on our journey from a one- to a three-car company".

With the Polestar 4 being delivered in phases across 2023 and 2024, the Polestar 5 – an electric four-door GT – and electric roadster Polestar 6 are next in line to wow.

Bottom line and batteries
Polestar delivered approximately 12,800 cars in Q4 2023, taking the total for the year to 54,600 cars, a modest growth of 6% compared with 2022. The company called it "a challenging market, resulting in fewer deliveries in Q4".

In late 2023, Polestar revealed that the Polestar 5 would use batteries supplied by South Korean manufacturer SK On. Polestar said SK On's tech offers "fast charging, efficient discharging and superior driving range".

Ambition & Potential

Now under the control of Chinese industrial giant Geely, Polestar has the funding and manufacturing clout to accelerate its expansion.

Impact

Polestar EVs are available in 27 markets across North America, Europe and Asia-Pacific. New additions to the family are Polestar 3 and 4.

Innovation

The upcoming Polestar 5 will use batteries supplied by South Korean manufacturer SK On that offer "fast charging, efficient discharging and superior driving range".

Momentum

After the restructuring that put Geely in charge, Polestar then secured an additional $950m in external funding from several leading banks.

Polestar

Revamped structure
Until 2024, Volvo owned a major stake in Polestar. But in February, it said it would stop funding Polestar to focus instead on its own rapidly expanding EV portfolio. In the process, Volvo handed a large stake in the company to its own controlling shareholder, China's Zhejiang Geely Holding.

In effect, the move means Geely will have a dominant position in both brands, with Volvo retaining an 18% stake in Polestar. Daniel Li, Geely Holding Group CEO and Polestar board member said Polestar "will have full access to technologies and engineering expertise from Geely Holding to realise its growth targets".

Money matters
No sooner had the restructuring been completed than Polestar secured an additional $950m in external funding. This is being provided by banks, including BNP Paribas, Natixis, Standard Chartered, BBVA, HSBC and SPDB, in the form of a three-year loan facility. The financial backing provides Polestar with support for the next stage of its development. The company is looking towards cash flow break-even in 2025.

> In late 2023, Polestar revealed that the Polestar 5 would use batteries supplied by South Korean manufacturer SK On

17
▲ +14

Volvo Cars

Propelled by the launch of its new luxury MPV and SUV models, Volvo is on a roll – with electric sales jumping 70% year on year. The manufacturer is also gaining pace in the wider energy solutions sector, as it works to hit its 2030 fully electric target.

Founded
1927

Specialism
Vehicle manufacturer, car subscription, mobility services

Website
volvocars.com

Volvo Cars

Sales sensation
Volvo is switching up gears in its race to be an electric-only operator by 2030. In 2023, fully electric cars accounted for 16% of its global sales; a headline-worthy uptick of 70% year on year. This momentum held strong into January 2024, with 17% fully electric sales for the brand.

Variety pack
One main reason why Volvo is striking gold in EV is down to its fast-expanding range. In 2023, it unveiled its premium MPV, the Volvo EM90 (a model that provides "a comfortable living room experience" complete with its own private cinema). The company said it was responding to booming popularity in the multipurpose vehicle segment, particularly in China, the world's largest car market.

Equally, the launch of the EX30 small SUV earlier in 2023 tees nicely with the growing global appetite for high-margin electric 4x4s. This competitive play will soon be enhanced, too, with the upcoming 2025 launch of its mid-size electric SUV line-up; the Volvo EX60. Volvo said the portfolio expansion "will help us to reach new audiences, cover more of the market and realise more profitable volume".

Ambition & Potential

Volvo plans to be fully electric by 2030 and is also diversifying into the energy solutions business.

Impact

In January 2024, Volvo updated its global sustainability strategy, setting new targets. For 2030, it aims to reduce its CO2 emissions per car by 75% compared with 2018 levels.

Innovation

In November 2023, Volvo launched a new Energy Solutions business which will develop energy storage and charging-related technologies and services.

Momentum

One growth-driver is Volvo's expanding range of EVs, which it says will help reach new audiences and realise more profitable volume.

Volvo Cars

Energy maker
If you needed any further proof of how serious Volvo's electric ambitions are, it's now flexing its muscle in the energy solutions arena, with a new business unit, Volvo Cars Energy Solutions, dedicated to energy storage and charging tech. Noting that "cars and their batteries can do so much more than eliminate tailpipe emissions", Volvo's latest arm will offer services built around the connection between cars, customers and society.

Examples include power for home appliances and bidirectional charging; where EVs return surplus battery power to the grid, helping to balance it during peak hours. The initiative goes hand-in-hand with the launch of Volvo's first V2G pilot programme alongside Gothenburg's grid company.

Circular vision
In January 2024, Volvo updated its global sustainability strategy, setting new targets for 2030 and 2040. In the next six years, it aims to reduce its CO2 emissions per car by 75% (compared with 2018 levels). It also wants to reduce energy usage in its operations by 40% per average car and reach 30% average recycled content across its fleet. The hope is that new Volvo car models will be made from at least 35% recycled content, too.

> In the next six years, Volvo aims to reduce its CO2 emissions per car by 75%, compared with 2018 levels

Steve Catlin

Managing Director, Volvo Car Financial Services

LinkedIn

Can you describe the UK's electric mobility ecosystem and Volvo's role within it?

The UK electric mobility landscape remains in its early development stage. Opportunities are still being identified and targeted, companies and company strategies are constantly being created and/or closed as the market develops in and around the EV ecosystem. This is happening at the same time as automotive manufacturers are on only their second or third serious iteration of products and are trying to understand their role in this new developing system.

In my view, the UK government has set a clear direction and some initial frameworks for industry and the general public to work with. The onus is now on those linked to the ecosystem to put the hard work in to make positive progress.

At Volvo Car Financial Services, we believe that our role is to continue to make electric vehicles accessible. Staying confident about the future of the ecosystem leads to a positive view of the future of the product and helps to ensure its affordability for consumers.

In terms of infrastructure, where does the UK stand on supporting electric mobility, and what improvements are still needed?

We've seen positive developments in terms of infrastructure expansion in the UK.

> The biggest gains to be made are around consumers' levels of knowledge and understanding

Clean air zones, financial Incentives and regulatory changes, have all helped to support this progress. Improvements are still required around standardisation and the interconnectedness of the charging system. These measures would help to avoid consumer confusion and support access.

The biggest gains to be made are around consumers' levels of knowledge and understanding. Significant myths and misunderstanding about availability and access abound which inhibit growth.

What do you see as the biggest opportunities for growth and innovation in the UK's electric mobility sector in the next 12 months?

I think there are two big developments that will impact the sector positively over the next year:

1. There will be a lower cost of entry to consumers due to a combination of government targets, OEM long-cycle product and supply planning and the arrival of new market entrants.

2. A growing volume of used electric vehicles will require retailers to increase their knowledge and understanding of EVs to a point that will support consumers' general level of knowledge around living with an EV.

Both these developments will support continued growth of EV sales, the wider ecosystem and the opportunities within it.

Are there any emerging technologies or trends that you believe could transform the electric mobility industry in the near future?

As UK consumers, we have yet to reach a good understanding as to how interconnected a vehicle can become within the broader areas of our lives. We're very used to our cars being great as a mode of transport which is fuelled on the go and then remains static and isolated at all other times.

Once we see Vehicle-to-Grid and connected car capabilities grow, and begin to understand the links these capabilities enable between the cars and the houses and towns that we live in, we will start to see cars become as integrated into our lives as mobile phones. They will support our overall human-efficiency across far more aspects of lives than they do now as modes of transport.

> We have yet to reach a good understanding as to how interconnected a vehicle can become in the broader areas of our lives

How do you assess the UK's competitive position in the global electric mobility market?

The UK market is significant in global volume terms, and in terms of maturity and complexity. These factors may, initially, act as barriers to some investors in the EV ecosystems. I think, ultimately, they will act as attractors to those who want to develop a best-in-class approach which can then be scaled and used elsewhere.

From a regulatory perspective, what changes would you like to see to better support the growth of electric mobility in the UK?

Changes which support grid integration and interoperability would help facilitate growth.

Is there anything you believe is often overlooked when discussing electric mobility?

The vision! Current discussions are around the struggles we face in an area of early development. We'll only have the tenacity to get through those struggles if we can clearly articulate, understand and share the vision that we're all working towards, which is a greener, more connected, and safer mobility system.

18
NEW

Ripple Energy

Rising EV star and new entrant, Ripple Energy, was launched in 2017 by wind energy industry veteran Sarah Merrick. Her eureka moment came when she asked: what if wind farms were owned by energy users, not energy companies? Community projects are now live across Wales, Scotland and Devon.

Founded
2017

Specialism
Co-operative wind and solar farms

Website
rippleenergy.com

Ripple Energy

The ripple effect
Ripple Energy's proposition is simple enough – members of the public pay for wind and solar farms to be built. In return for the power contributed to the grid, stakeholders get reductions in their bills. Ripple Energy runs the farm and takes a share of the overall revenues.

Participants are kept updated by Ripple at every stage. From pictures and videos during construction, to live generation data on a dashboard, the company aims to make "green energy ownership simple".

Founder Sarah Merrick wants to create "a wave of green energy ownership that enables people to make a real climate impact, as well as stabilising energy bills". The company said co-owning a wind farm "allows people to buffer themselves against the uncertainty of energy price caps".

Commercial partnerships
Over the past year, Ripple Energy has expanded its reach with a series of corporate collaborations. Virgin Money, for example, has completed a £14m deal to help develop a new 18.8MW wind farm in Scotland. The funding will facilitate the construction and operation of eight turbines, capable of generating enough electricity to power approximately 20,000 homes. The site goes live in 2024, and will be part-owned by around 19 SME businesses, 5,600 households and commercial property investor and developer, Bruntwood.
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Ambition & Potential

Ripple Energy wants to create a wave of green energy ownership that enables people to make a climate impact, as well as stabilising bills.

Impact

Ripple's model has captured the public's imagination, with community projects now live in Wales, Scotland and Devon.

Innovation

In 2023, Ripple diversified its co-operative model from wind into solar energy, announcing the launch of Derril Water Solar Park.

Momentum

The company has expanded its business model in the direction of corporate collaborations, with Virgin Money now a partner.

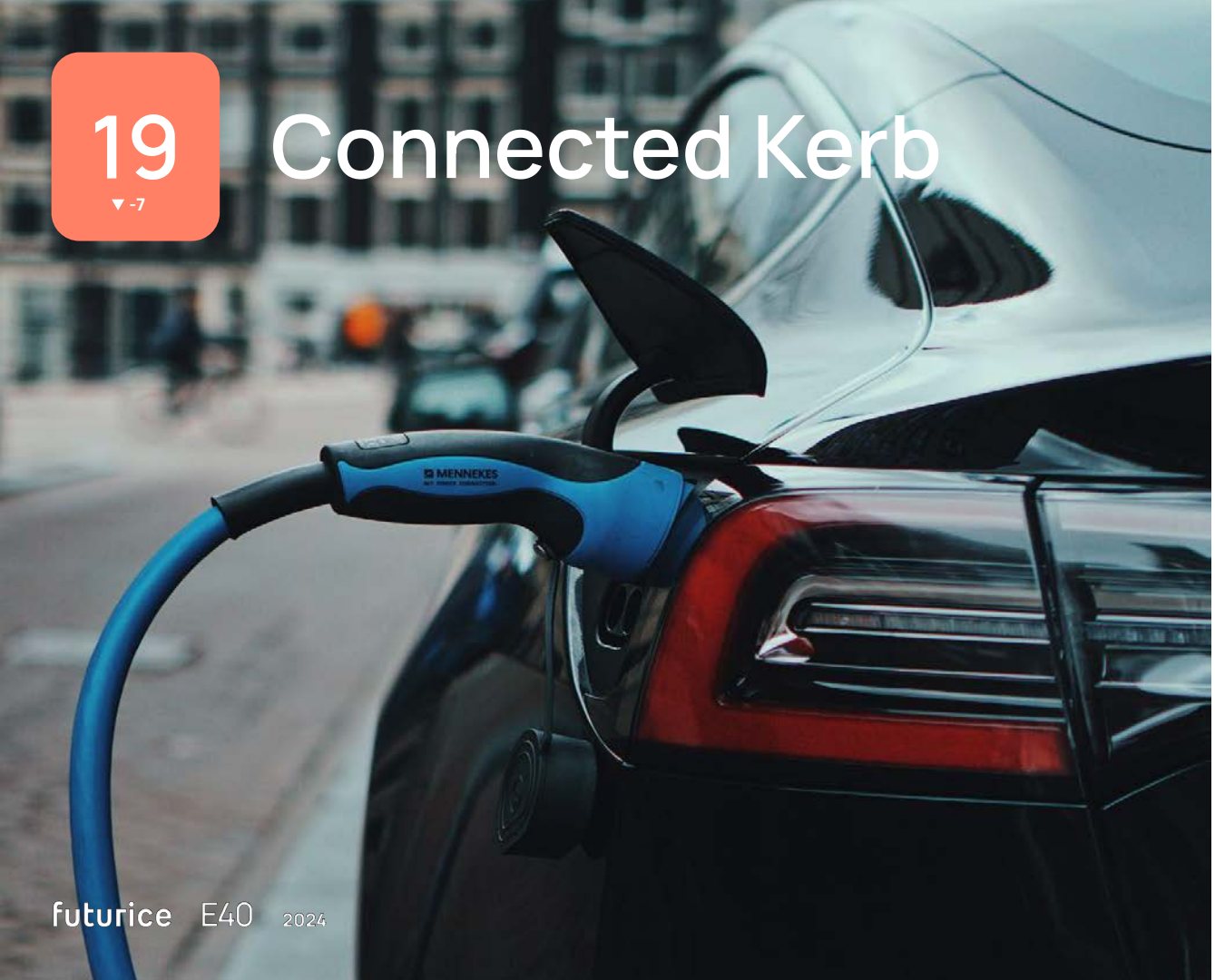
Ripple Energy

Solar, so good
In 2023, Ripple expanded its co-operative model from wind into solar energy, announcing the launch of Derril Water Solar Park in Devon – the result of a record-making £20m fundraising effort. Among thousands of local community stakeholders is Bridgerule CoE Primary School. When fully operational, the solar park will provide up to 42MW, with the potential to power around 14,000 homes. Derril Water became Ripple Energy's third people-powered project, following community-supported wind farms Graig Fatha in Wales and Kirk Hill in Scotland.

Green DNA
Ripple prides itself on being part of the UK's green revolution, noting that many of its community backers are EV drivers. As such, it's been quick to form relationships with like-minded organisations, including green search engine Ecosia, which recently invested €250,000 in a Ripple project.

Ripple is also part of a consortium of eco-energy companies supporting thermal energy storage specialist Sunamp's EXTEND project. The trial, which involves 30 homes, will replace boilers powered by fossil fuels with a storage system which includes smart controls and a heat pump charged by offsite wind energy. Ripple is offering customers involved in the project, part-ownership of a wind farm.

> Ripple founder Sarah Merrick wants to create "a wave of green energy ownership that enables people to make a real climate impact, as well as stabilising energy bills"



19
▼ -7

Connected Kerb

Connected Kerb has almost doubled its community infrastructure in the past year. Working with local authorities, it has carved out ambitious plans to deliver on-street and wheelchair-accessible charging in underserved areas such as the North East. Its new app is designed to bring affordable smart charging to the 40% of UK households without private parking for the first time.

Founded
2017

Specialism
Public charging infrastructure

Website
connectedkerb.com

Connected Kerb

Driving inclusion
Connected Kerb installed over 2,100 charging sockets in 2023, almost doubling its network across 800 locations. Major advances include rollouts in South East England and at Cambridge University, as well as a new partnership with South Tyneside Council.

Dubbed "the biggest single rollout of electric vehicle chargers the North has ever seen", the agreement will see Connected Kerb deploy 2,100 new chargepoints to the region over the next 20 years. Currently, the North East hosts just 2.7% of the UK's public charging infrastructure, despite housing nearly 4% of its population.

Community smarts
Following its world-first Agile Streets trial in 2022, Connected Kerb has started to expand its community smart charging network via a relaunched app. This allows on-street EV drivers to schedule charging sessions during off-peak times when tariffs are cheaper.

"Public smart charging barely existed until now," the company points out. "Drivers charging in public will have access to the more affordable tariffs that are usually only available to drivers charging privately." It added that the scheme will reduce grid strain and increase the supply of renewable energy during off-peak hours.

Connected Kerb predicts that its public smart charging rollout could save EV drivers a total of £1.5bn a year by 2030. The app is currently available in West Sussex, Scarborough, Lincoln, Sunderland and Ryedale, with more regions to follow. The company also underwent a brand relaunch, with a new visual identity and a "connected for good" strapline.

Ambition & Potential

Connected Kerb wants to make sure nobody lives more than a five-minute walk from a charger, with accessible designs that cater to the near 40% of UK households that don't have access to off-street parking.

Impact

Connected Kerb's total network now totals over 5,500 public chargers (almost double the amount of sockets in a year), with major expansions set for the underserved North East.

Innovation

The introduction of community smart charging via a new app could help generate annual savings of £1.5bn for drivers by 2030.

Momentum

In 2023, Connected Kerb won contracts for 5,627 sockets bringing the total to over 25,000 sockets across the UK.

Connected Kerb

Repair flair
Connected Kerb is tackling one of the industry's biggest problems – outdated or broken infrastructure – with a modular charging system that is easy to fix and update. Global research company Frost & Sullivan recognised this feature recently, by presenting the team with the 2023 European Company of the Year award.

Prajyot Sathe, research manager at Frost & Sullivan, said: "Connected Kerb's modular product design differentiates it from competitors, making upgrading, repairing, and replacing components easy and affordable. Straightforward repairs ensure reliable EV charging points, with the company boasting 99% operability in 2022."

Disability champion
Frost & Sullivan also gave a nod to the company's provisions for the UK's more than two million Blue Badge drivers (drivers with disabilities). Connected Kerb has taken aim at accessibility standards in EV, in what it describes as "a tough nut for the industry to crack."

As well as designing a range of wall-mounted, on-street and car park designs, its on-street "Chameleon" charger caters specifically to those with accessibility needs. It also started work on hundreds of wheelchair-friendly bays in the Cardiff area, as it gears up to a target of making one in five bays accessible to all.

Connected Kerb is tackling one of the industry's biggest problems – outdated or broken infrastructure – with a modular charging system that is easy to fix and update

Bristol-based energy supplier OVO is taking a holistic approach to net zero, meaning it is equally focused on both transitioning to affordable home energy, and supporting the wider EV ecosystem. Recent initiatives include the acquisition of Bonnet and a headline partnership with Volvo.

Founded
2009

Specialism
Energy management, control and optimisation

Website
ovoenergy.com

OVO Energy

Charge Anytime
2023 saw OVO Energy launch Charge Anytime plan, an intelligent charging add-on for EV home charging. Powered by OVO's much-vaunted tech platform Kaluza, the tool automatically optimises cars to charge when prices are low. The company claims it has saved customers charging their cars at home more than £6m, since launch.

In November 2023, OVO – which has around 4 million customers – went one step further, announcing that it had cut the cost of Charge Anytime by 30% to just 7p per kWh. This made it the cheapest plan on the UK market. OVO chief commercial officer, Mat Moakes, said: "The government may have delayed the ban on sales of petrol and diesel cars but with Charge Anytime making it 75% cheaper to run an EV than a petrol car, there's never been a better time to make the switch."

Under the Bonnet
In another key development, OVO Energy acquired UK public charging aggregator Bonnet in late 2023. By combining Bonnet's popular app with OVO's scale and expertise, the aim is to encourage an uptick in EV adoption. At the time of the deal, OVO said: "Bonnet is one of the largest public charging consumer apps, with over 80% of the UK's charge points on the app. EV drivers have access to over 27,000 chargers at 7,000 locations. EV drivers can locate, use and pay for public charge points without switching between cards or logins."

Ambition & Potential

OVO Energy, which has around 4 million customers, countered the government's delay on the ban of ICE cars, by cutting the cost of its Charge Anytime product by 30% in a bid to increase demand for EVs.

Impact

2023 saw OVO launch Charge Anytime, an intelligent charging add-on for EV home charging, which the company claims has saved customers charging their cars at home more than £6m since launch.

Innovation

In 2023, OVO and its tech platform Kaluza unveiled a partnership with Volvo Cars to develop charging solutions for EV customers in the UK, including bidirectional (V2X) charging.

Momentum

OVO Energy recently acquired UK public charging aggregator Bonnet, one of the largest public charging consumer apps.

OVO Energy

OVO + Volvo
A third big move for OVO came in November last year, via a partnership between its tech platform Kaluza and Volvo Cars aimed at developing charging solutions for their UK EV customers. These include one-way and bidirectional V2X charging (the collaboration broadly coincided with the launch of the Volvo EX90, the first Volvo vehicle capable of V2X charging). Volvo drivers now have the capacity to save money, too, through algorithms that shift EV charging to the cheapest, and most sustainable, times.

The deal is a sign of the significant role Kaluza is likely to play in the EV revolution. Neel Gulhar, chief product officer at Kaluza, said: "Launching managed charging services requires tight collaboration across retailers, OEMs and customers. Over the last four years, Kaluza has proven the cost and carbon savings potential of one-way charging – value which is multiplied several times over through V2X."

> The deal with Volvo Cars is a sign of the significant role Kaluza is likely to play in the EV revolution

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Fastned

Fastned wants to connect EV drivers with “the fastest charging experience in Europe”, opening 50 new stations last year alone. New territories include Denmark and Italy, as the brand moves ahead on plans to lease petrol forecourts and expand its map app to other network operators.

Founded
2012

Specialism
Fast-charging infrastructure for EVs using renewable energy

Website
fastnedcharging.com

Fastned

Fast by name, fast by nature
Fastned now operates 300 stations across eight countries. The company welcomed over 50 new hubs last year alone, with a further 29 under construction at the start of 2024. Recent launches bring the total UK network to 21, so far. The pan-European challenger has its sights set on 15-minute charging speeds (for up to 300km of range), powered by solar and wind energy.

However, by the company's own admission, its building pace this year may be affected by issues including delays in large tenders and grid congestion challenges.

Customer kudos
The company's strong rapport with EV drivers is perhaps why its customer base recently surged by 31% year on year, to a community of nearly 400,000 users. More than speed alone, its charging stations are hoping to provide consumers with the "most reliable, convenient and joyful charging experience."

It now covers more than 73% of 300kW chargers in Europe, with 5% coverage of 400kW chargers. Meanwhile, its revenue also jumped 44% in 2023, with a 64% increase in charging sessions.

Ambition & Potential

Fastned aims to offer EV drivers "the fastest charging experience in Europe", with drivers able to charge their EV with up to 300 km range in 15 minutes.

Impact

Fastned now has more than 300 fast charging stations in Europe and has established itself as a leading player across the continent.

Innovation

Fastned released a new app update in early 2024 which it claims will enable EV drivers to find an additional 150,000 charging locations across Europe.

Momentum

Fastned raised €24m in Q1 2024 through the issue of new bonds. To date, the bond programme has raised more than €180m.

Fastned

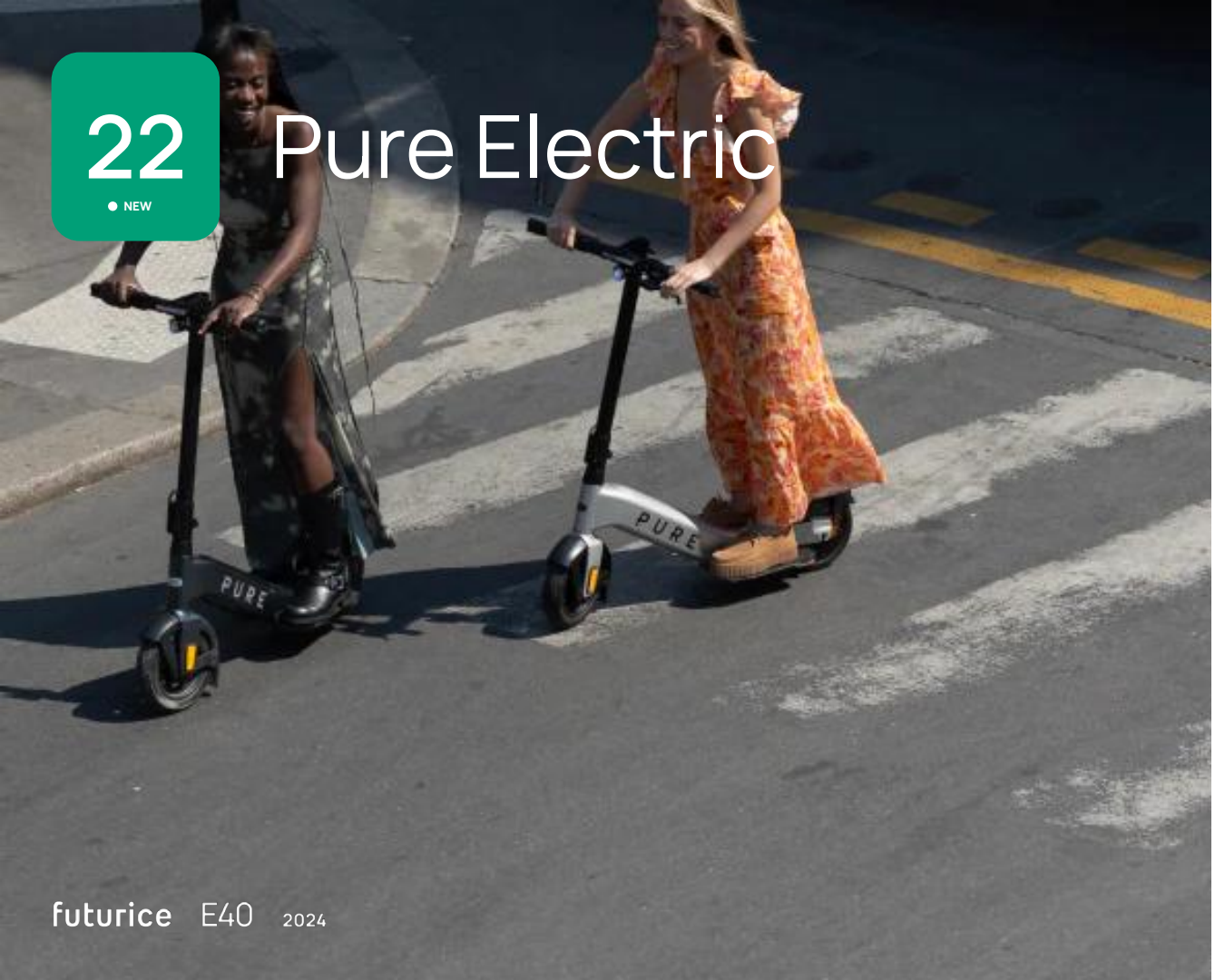
Location, location
Fastned secured 22 new locations in Q4 2023 (including seven in Spain and its first foray into Northern Ireland). It also became the first company to open a charging station in Germany under the important "Deutschlandnetz" tender, and is looking to grow its UK footprint by leasing existing petrol forecourts.

The EV forerunner is facing a major challenge to secure its charging infrastructure before a) rivals can catch up and b) the number of EV cars reaches critical mass. Its regular fundraising rounds – such as a February 2024 fundraise of €24m with the issue of new bonds – are aimed at keeping stride with the competition.

Charger-agnostic app
Fastned released a new app update in early 2024, enabling EV drivers to find an additional 150,000 charging locations across Europe. Crucially, its map now shows not only Fastned stations, but also charging locations managed by other networks.

Explaining the move, Robin Wouters, Fastned director product and engineering, said: "We want to make charging as simple as possible, so after adding Apple Carplay and Android Auto support, opening up our app to include chargers of other operators was the next step."

> Fastned released a new app update in early 2024, which it says will enable EV drivers to find an additional 150,000 charging locations across Europe



22

● NEW

Pure Electric

futurice E40 2024

Somerset-based Pure Electric – an E40 new entrant – is spearheading the electric scooter revolution. Latest data puts unit sales at around 200,000, primarily in the UK and Europe. However, CEO Adam Norris has global ambitions and sees the US and the Middle East as target markets.

Founded
2018

Specialism
E-scooter manufacturer

Website
pureelectric.com

Pure Electric

E-scoot champions
Pure Electric cites several benefits to its signature e-scooters, including eco-friendliness, cost-efficiency and physical wellbeing. It costs an average of 15-30p to fully charge an e-scooter; which balances out at around 1p per mile. The company said that its models are easy to look after, too. With sturdy, quick-to-clean, hard-wearing frames and decks and puncture-resistant tyres, they require very little effort to maintain.

Market opportunity
The global scooter market is predicted to reach over $111bn by 2030. The biggest barrier to this growth for electric models, however, is regulation. Currently, electric scooters are legal to use on the roads in most countries within the EU but in the UK, they are only usable on private land. The e-scooter lobby is anticipating rule changes but there is opposition to the vehicle class on safety grounds.

Ambition & Potential

Pure Electric is at the forefront of the electric scooter revolution. Active in Europe, it sees the US and the Middle East as target markets.

Impact

Pure Electric sells direct to consumer but also has major retail partnerships with Currys and FNAC-Darty.

Innovation

The Pure Advance model has added innovations including a parallel feet riding position, with fold-up floorboards on each side.

Momentum

In just three years, Pure Electric has sold 200k+ electric scooters, grown revenues to £35m, and raised £60m.

Pure Electric

Innovative designs
Pure Electric began with the Pure Air e-scooter in 2019, then added the Pure Advance in 2023 (shortly after, it claimed a distinction at the coveted Red Dot design awards). Key innovations in the latter included a parallel feet riding position, with two fold-up floorboards placing the rider's feet parallel to the direction of travel instead of one foot behind the other. The Air, by contrast, has a sideways stance. The Advance has three variants – the Advance, the Advance+ and the Flex (which cost between £600-£900).

The Advance and the Flex (a portable version) have a top speed of 15.5 miles per hour and a range just short of 25 miles. The Advance+ model has the same maximum speed but a range of 31 miles.

As well as technical credentials, Pure Electric also seeks to highlight the aspirational appeal of its e-scooters. They recently featured in a Paris event organised by Stella McCartney, with catwalk models walking by.

Funding fiesta
The most recent insight into Pure Electric's finances came during a crowdsourcing funding round at the end of 2022. At the time, the company said: "In just three years, we've sold 200k+ electric scooters, grown revenues to £35m, and raised £60m."

The new funding round secured £2m more in funding, directed at market expansion and product innovation. The company sells mainly through direct-to-consumer channels, as well as via major retail brands such as Currys and FNAC-Darty.

> The global scooter market is predicted to reach over $111bn by 2030, but the biggest barrier to this growth for electric models, is regulation

23
▼ -21

myenergi

futurice E40 2024

Volatile market conditions and a dip in profits has seen Myenergi fall from second place on the E40 last year. But the Grimsby startup is fighting back, helped by a recent £30m investment for new products and international expansions. Partnerships with Octopus and others are also set to fuel growth.

Founded
2016

Specialism
Renewable energy products manufacturer

Website
myenergi.com

myenergi

Challenging times
Founded by Jordan Brompton and Lee Sutton, myenergi is based around the design and manufacture of eco-smart renewable energy tech. Situated in Grimsby, the startup's flagship product is a solar-compatible EV charger "zappi". But there are other key innovations, including the "eddi" power diverter, the "harvi" energy harvesting sensor and the "libbi" smart home battery.

Despite its rapid growth within the EV scene, myenergi has suffered a series of setbacks recently, with a 30% fall in profits accompanied by potential company layoffs. The manufacturer blamed the downturn on energy prices, inflation and an ongoing cost-of-living crisis.

Zappi happy
Even in turbulent times, however, myenergi regularly appears on fastest-growing company lists; which is no surprise given the take-up of zappi. In October 2023, the company shipped its 600,000th unit. The UK is the company's biggest market, but it is also active in Australia, Germany, the Netherlands and Ireland.

One of myenergi's core claims is that it is not just helping customers reduce home charging costs, its zappi chargers are also alleviating pressure on the grid. With over 500MW of connected capacity in the UK, myenergi said its customers will play a crucial role in supporting a flexible, decentralised and distributed energy system.

Ambition & Potential

In October 2023, the company shipped its 600,000th unit. The UK is the company's biggest market, but it is also active globally.

Impact

Zappi chargers are playing a key role in supporting a flexible, decentralised and distributed energy system.

Innovation

Aside from EV charger 'zappi', innovations include the 'eddi' power diverter, the 'harvi' energy harvesting sensor and the 'libbi' smart home battery.

Momentum

A £30m investment gives the company the platform to invest in new products, including growth in grid services, and to expand internationally.

myenergi

£30m investment

2023 also brought a £30m investment from Energy Impact Partners (EIP), designed to accelerate myenergi's international rollout and support new product development. As part of the equity investment, Nazo Moosa, managing partner, EIP Europe, joined the myenergi board. He said: "Zappi is already one of the leading EV charger brands in the UK and Ireland and with the success of its libbi energy storage product, we believe myenergi is in pole position to become the leading home energy management provider."

Myenergi co-founder, Lee Sutton, said the investment would "help to deliver our next generation of product development and innovation, including our planned growth in grid services, such as demand-side response."

Partnership model

One of myenergi's strengths has been its ability to forge partnerships with adjacent businesses that can help it connect with more customers. Motor group Hendy, for example, recently signed up to promote the zappi as its charger of choice. Since March 2024, customers who purchase an EV or hybrid vehicle from any of Hendy's dealerships have been offered a myenergi zappi at a special discount rate. Myenergi has similar alliances in place with Direct Line and Cinch. The company is also contributing its smart controller technology to thermal storage specialist Sunamp's EXTEND project ,which is trialling replacing fossil fuel-powered boilers with thermal energy storage and heat pumps.

In a separate collaboration, the zappi can now be integrated with Octopus Energy's Intelligent Octopus Go tariff, enabling EV drivers to minimise their home charging costs with access to six hours of low-cost energy every night.

> With over 500MW of connected capacity in the UK , myenergi says its customers will play a crucial role in supporting a flexible, decentralised and distributed energy system

24
▼ -6

Nyobolt

Nyobolt says its state-of-the-art batteries will make recharging “as convenient as refuelling a petrol or diesel car”. Proof of this claim will come in 2026 when its solution goes into mass production. In the meantime, it has launched a concept car to validate its technology, alongside a mobile charger designed to tackle the shortage of public chargers.

Founded
2019

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

Website
nyobolt.com

Nyobolt

Cell of the century
Nyobolt's mission is to unlock the full potential of battery performance through its innovative technology. By leveraging new materials, advanced cell designs, efficient software controls, and cutting-edge power electronics, Nyobolt produces batteries with high-power density, enabling ultrafast charging within a compact footprint.

The company's core claim is that its cells can be fully charged "in as little as five minutes, with minimal degradation, while demonstrating superior cycle life compared to today's lithium-ion cells".

The company plans to begin EV battery production by 2026 from a production facility in Asia. Ultimately, it is targeting battery production in the UK. According to Nyobolt CEO, Sai Shivareddy, the company has raised £60m in funding to date, with its batteries already being used successfully in the robotics industry.

Moment of truth
Nyobolt teamed up with Lotus Elise designer Julian Thomson to create a concept car for the Goodwood Festival of Speed in 2023. Hosting Nyobolt's battery hardware, the vehicle may go into limited production if the prototype proves successful. However, the more important goal is to road-test Nyobolt's battery technology.

Weighing in at just 1,246kg, the car promises to combine ICE levels of sports car performance with a range of 155 miles. Nyobolt wants to demonstrate that it can reduce EV charging times to just a few minutes with scalable, manufacturable battery tech. Unveiling the car, the company said: "Batteries are no longer the limiting factor in EV development."

Ambition & Potential

Nyobolt says its batteries will make recharging as convenient as refuelling a petrol or diesel car.

Impact

Nyobolt has teamed up with Lotus Elise designer Julian Thomson, to create a concept car to road test its technology.

Innovation

Nyobolt's compact mobile supercharger: Bolt-ee is equipped with Nyobolt's ultrafast charging tech which delivers 100 miles of range in under 10 minutes.

Momentum

Nyobolt has secured United Nations (UN)38.3 certification for its first two production-ready pouch cells.

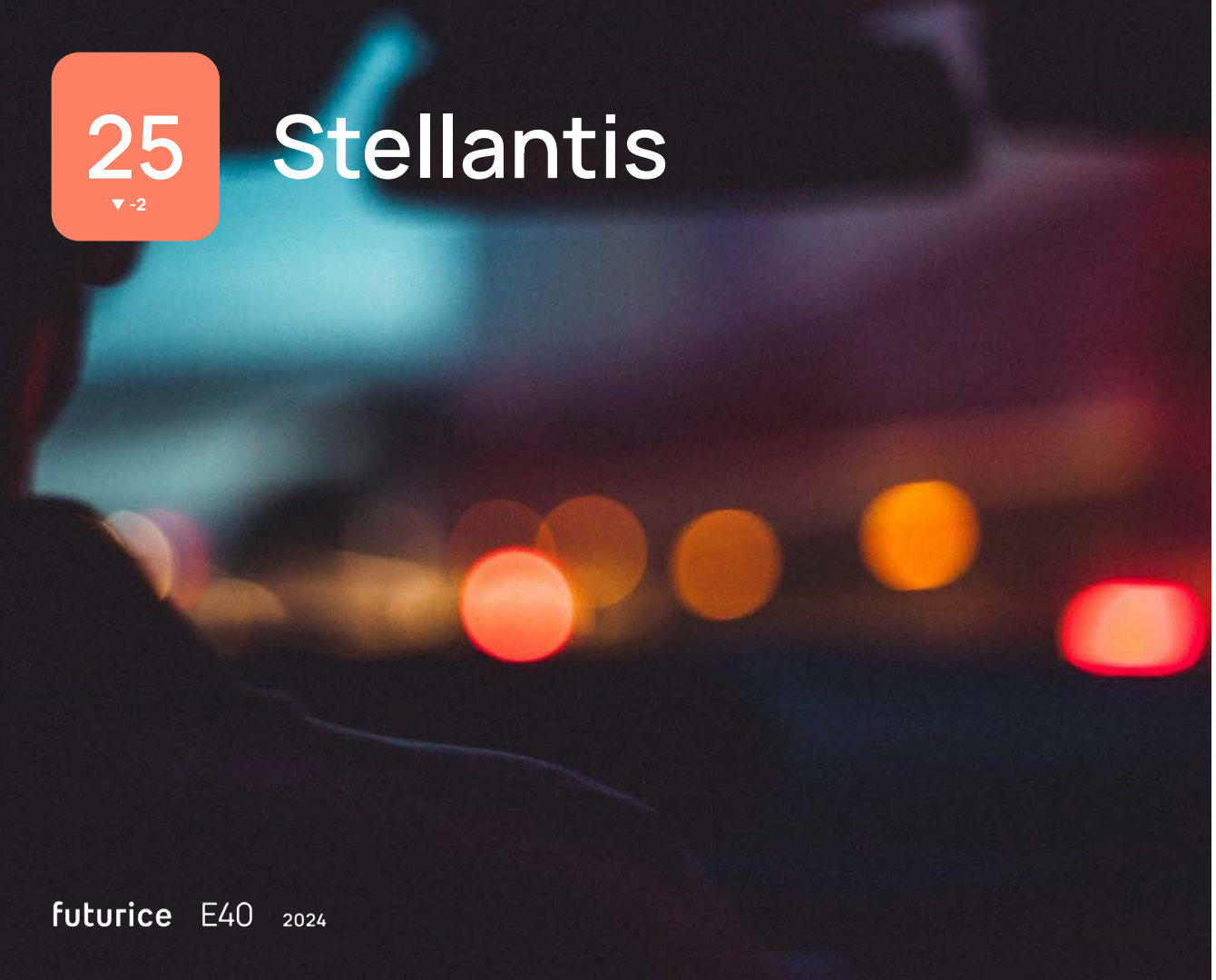
Nyobolt

Official endorsement
In January 2024, Nyobolt secured United Nations 38.3 certification for its first two production-ready pouch cells. The UN38.3 certification is a prerequisite for air shipping of all lithium-based battery chemistries and is awarded only after completion of rigorous environmental, electrical and mechanical safety tests.

Nuts and Bolt-ees
By 2030, EVs could make up 55% of total global vehicle sales. To accommodate this, Nyobolt argues that there needs to be a rapid increase in the availability of charging points. And it has a fix: the development of a compact mobile supercharger named Bolt-ee.

Bolt-ee is equipped with Nyobolt's 300kW DC ultrafast charging technology, delivering 100 miles of range in under 10 minutes. Because of its mobile design, Bolt-ee could potentially transform any parking space into a charging space. "The deployment of Bolt-ee will maximise parking flexibility and reduce investments in heavy infrastructure projects," the company said, revealing its product. "Bolt-ee can also support roadside assistance operations."

> Nyobolt's compact mobile supercharger Bolt-ee, is equipped with 330kW DC ultrafast charging technology, delivering 100 miles of range in under 10 minutes



25
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Stellantis

Automotive giant Stellantis has ambitious plans to be selling 100% EVs in Europe by 2030. In 2024 alone, it is planning to add 18 new EVs across its various brands. In support of this vision, Stellantis is busy investing in gigafactories, charging networks and battery swap solutions.

Founded
2021

Specialism
Vehicle manufacturer

Website
stellantis.com

Stellantis

Those who dare
Stellantis – owner of brands including Alfa Romeo, Chrysler, Citroën, Jeep, Maserati, Peugeot and Vauxhall – is investing €50bn in electrification over the next decade to deliver against its Dare Forward 2030 mission statement. This involves reaching a passenger car BEV sales mix of 100% in Europe, and a passenger car/light-duty truck BEV sales mix of 50% in the United States, by the close of the 2020s.

In support of these goals, the global manufacturer is also harnessing its scale by building EV 'platforms' that can be used across multiple vehicles. In January 2024, for example, it released the BEV-native STLA Large Platform. One of four such worldwide platforms that Stellantis has in the works, STLA has an 800km/500-mile range and the ability to cover car, crossover and SUV vehicle types. All told, eight vehicles across five brands will be designed on the platform, covering a global rollout period of 2024-2026. Dodge and Jeep will lead, followed later by Alfa Romeo, Chrysler and Maserati.

Award-winning BEVs
For 2023, Stellantis generated net revenues of €189.5bn, up 6% versus 2022. This included a 21% increase in global BEV sales. In a bid to hit its ambitious targets, the company announced plans for 18 additional BEVs to be launched in 2024, reaching a total of 48 models by the end of 2024. Recent additions include the Citroën ë-C3 and the Jeep Avenger, which was awarded European Car of the Year 2023.

Stellantis Pro One commercial vehicles have sector leadership in Europe, with 38.8% BEV market share. The business is targeting global leadership by 2027, with an expanded line-up including ICE, battery electric, fuel cell hydrogen and range-extended variants.

Ambition & Potential

Automotive giant Stellantis has ambitious plans to be selling 100% EVs in Europe by 2030.

Impact

Stellantis is investing €50bn in electrification over the next decade. In support of its EVs, it is investing in gigafactories, charging networks and battery swap solutions.

Innovation

Stellantis is leveraging its scale by building EV 'platforms' that can be used across a range of vehicles. By doing so, it could achieve its electrification goals faster.

Momentum

In 2024, the firm is planning to add 18 new EVs across its various brands.

Stellantis

Global collabs
In October 2023, Stellantis invested €1.5 bn in Chinese manufacturer Leapmotor. It now holds 21% equity, giving the company a crucial inroad into the China market, as well as global expansion opportunities via the joint venture.

In a separate development, Stellantis is part of IONNA, a joint venture between seven leading car manufacturers to create a high-powered EV charging network across the US and Canada. IONNA aims to install at least 30,000 charge points in urban areas and highways.

All about batteries
Meanwhile, Stellantis and Samsung SDI announced Kokomo, Indiana, as the site for a second US StarPlus Energy gigafactory. The partnership will invest $3.2bn into the battery plant, with production planned for early 2027. Stellantis calls its battery ecosystem "the foundation of our electrification strategy".

Stellantis recently joined forces with swapping solution Ample on a Europe-based battery swapping partnership that will make it possible to deliver a fully charged EV battery in less than five minutes. Battery swapping tech allows an EV customer who stops at a specified station to have its discharged EV battery swapped out for a fully charged one, rapidly.

> Stellantis and Ample joined forces on a Europe-based battery swapping partnership that will make it possible to deliver a fully charged EV battery in less than five minutes

Having backed off its 2030 EV-only target, Mercedes-Benz, nevertheless, continues to expand its range of electric vehicles, with particular success around EV vans and its first long-haul truck. The manufacturer is also expanding its global charging footprint, and is moving ahead on ambitious plans to leverage YASA e-motor tech.

Founded
1926

Specialism
Auto manufacturer

Website
mercedes-benz.com

Mercedes-Benz

On the up

Mercedes-Benz may have eased off plans to sell only EVs by 2030 amid tough market conditions, but the veteran carmaker's BEV sales were up an impressive 73% year on year in 2023. This surge was buoyed by the success of the new EQE SUV (particularly in the US) and the EQE Sedan. Combined with plug-in hybrids, EVs accounted for 19% of overall sales for the brand.

Trucking ahead

Meanwhile, new models are coming thick and fast. In October 2023, Mercedes-Benz Trucks presented the eActros 600, its first long-haul electric truck designed to charge during driver breaks – thereby covering more than 600 miles per day. Ones to watch also include the new eSprinter, available in the UK from May 2024. Made in two sizes, the upgraded eSprinter can travel up to 271 miles on a charge, compared with 95 miles for the current version. It follows the most successful year to date for Mercedes-Benz electric vans, with a 51% uptick in year-on-year sales.

Also due its moment in the sun in 2024 is the EQG, an electric version of the company's G-Class off-roader. Showcased at CES 2024, the EQG is expected to have a range of over 400 miles and 200kW rapid charging. The vehicle boasts a new G-Turn feature, allowing it to turn on the spot to get the driver out of tight situations on rough terrain.

Ambition & Potential

Mercedes-Benz wants to get as close as possible to full electrification by 2030. Currently 11% of its sales are fully EVs.

Impact

The group sold 222,600 EVs in 2023. This figure was up 73% year on year, globally, with sales in the US market more than doubling.

Innovation

Key innovations include the launch of the new eSprinter, available in the UK from May 2024. Available in two sizes, the upgraded eSprinter can travel up to 271 miles on a charge.

Momentum

The company plans to maintain its momentum with the EQG, an electric version of it s G-Class off-roader. The EQG is expected to have a range of over 400 miles.

Mercedes-Benz

Yes to YASA
Having acquired YASA in 2021, Mercedes-Benz is putting its pioneering axial flux e-motors to good use. The company is currently reviving one of its oldest plants in Berlin to focus on the mass production of YASA powertrains for future Mercedes-Benz models. Last summer, Mercedes-Benz also unveiled the Vision One-Eleven concept, an EV spin on the iconic C111 of the 1970s that showcased how lightweight, yet powerful, YASA tech may fuel future innovation.

Charging ecosystem
As of January 2024, Mercedes-Benz says that its customers can charge at 1.5m charging points globally via Mercedes me Charge. The platform (which includes 1,300 charge point operators) allows Mercedes-Benz drivers operator-independent charging at transparent prices. It also facilitates automated payment and billing.

So far, the Mercedes me Charge network has 100,000 charging points in North America; a figure that's growing by 40,000 charging points a month. Mercedes-Benz has also joined forces with six other manufacturers to launch IONNA, a high-powered EV charging network that aims to become one of the most accessible charging networks in North America. 2024 has also seen Mercedes-Benz launch its own "transportable wallbox" charger for flexible on-the-go power.

So far, the Mercedes me Charge network has 100,000 charging points in North America; a figure that's growing by 40,000 charging points a month

27
▲ +2

Nexeon

Oxford-based Nexeon believes it can revolutionise lithium-ion batteries, helping to dramatically improve the efficiency and range of EVs in the process. With a manufacturing plant being constructed in Korea and Panasonic now on board as a long-term client, it is poised for supersized brand expansion.

Founded
2006

Specialism
Materials for lithium-ion batteries

Website
nexeon.co.uk

Nexeon

Turbocharged batteries
Nexeon's core business is the development and manufacture of silicon-based anode materials, which it says "dramatically enhances" the performance of lithium-ion batteries in EVs. By delivering a step change in energy density, the company aims to realise a more sustainable world.

Currently, says Nexeon, a standard EV uses graphite materials in its lithium-ion battery cells but by switching to Nexeon's silicon anode material, it becomes possible to reduce pack size, mass and cost, while retaining at least the same range of performance. In fact, the company argues, the effective use of space enabled by Nexeon's batteries could even increase the range of a typical EV by 20-40%. Better still, the replacement process is straightforward, with silicon an easy swap for existing graphite-anode batteries.

South Korea plant
Nexeon made a significant step forward in 2023, by securing space for its first commercial volume silicon anode material plant in Gunsan, South Korea. It is using land next to a company called OCI that supplies it with monosilane – a critical raw material in Nexeon's manufacturing process. Nexeon and OCI have a long-term supply agreement starting in early 2025. CEO Scott Brown said the move will enable Nexeon to "rapidly scale our operations".

Ambition & Potential

Nexeon makes silicon-based anode materials, which it says "dramatically enhance" the performance of lithium-ion batteries in EVs.

Impact

Nexeon estimates that its batteries could boost the range of a typical EV by 20-40%, a claim that convinced Panasonic to become a customer.

Innovation

Standard EVs use graphite materials in their lithium-ion battery cells. But Nexeon's tech makes it possible to reduce cost, while retaining at least the same range of performance.

Momentum

The company secured a site for its first commercial volume silicon anode material plant in Gunsan, South Korea during 2023.

Nexeon

Panasonic power
A major new name joined Nexeon's line-up of global battery manufacturer and OEM clients in summer 2023: Panasonic. The company entered into a long-term supply agreement with the Japanese tech giant, aiming to power lithium-ion cells with the company's game-changing material from 2025. The partnership marks the industry's first significant announcement of the use of Nexeon's energy dense silicon anode materials in commercially supplied lithium-ion cells for EVs.

Asian investor interest
Nexeon is still riding strong financially after investments of around $200m in the company via multiple funding rounds. Backers include Asia-Pacific firms SKC, GLY Mobility Fund, Daishin Private Equity and Shinhan Investments. The capital is providing Nexeon with resources to expand its manufacturing capabilities, with a view to mass-producing tens of thousands of metric tonnes of its silicon-based anode materials every year.

> "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

BMW

Through BMW, MINI, Rolls-Royce and its motorcycle division, BMW Group is certain to be a key player in the electrification of the automotive industry. Heavy investment in its 'Neue Klasse' EVs and the transformation of its Munich plant, show it means business.

Founded
1916

Specialism
Vehicle manufacturer

Website
bmwgroup.com

BMW

Electric heritage
One in every four BMW vehicles registered in the UK in 2023 was fully electric; a compelling breakthrough that echoes success in the wider BMW Group – which enjoyed 74% year-on-year growth in EV cars last year.

Having already established a strong position with vehicles such as the newly launched BMW i5 and BMW i7 (not to mention the Rolls-Royce Spectre), the company is now investing billions in the development of "the Neue Klasse" as its next generation of EVs. The line is designed to "define the true-to-the-bone heritage of BMW" with examples of new classic vehicles such as the Vision X taking the market by storm.

Neue Klasse ambitions
BMW said its iconic Munich plant will start producing the Neue Klasse sedan from 2026. By the end of 2027, the factory will only manufacture all-electric models, making the Munich plant the first location in BMW's production network to shift to full e-mobility.

Currently, every second vehicle that rolls off the production line in Munich has an all-electric drive system – underlining the scale of the transition yet to take place. "We are investing €650m and will produce exclusively all-electric vehicles in our parent plant from the end of 2027," said Milan Nedeljković, member of the BMW production board.

By 2030, BMW will invest €1bn in e-drive production at its facility in Steyr, Austria. The plant will manufacture 600,000 e-drives a year alongside diesel and petrol units. BMW also has a cool €2bn put aside for high-voltage battery assembly for the Neue Klasse vehicles at a site in Hungary. Neue Klasse vehicles will be produced in China and Mexico, too, and the manufacturer recently announced plans for its rollout of the collection in the US.

Ambition & Potential

The German auto giant is investing millions in the development of "the Neue Klasse" as its next generation of EVs.

Impact

BMW sold more than 375,000 EVs in 2023, up 74%, and 15% of the group's total sales.

Innovation

From 2025, BMW Neue Klasse models will be equipped with technology for bidirectional charging.

Momentum

From 2027, BMW's iconic Munich plant will manufacture nothing but all-electric models, making it the first location in BMW's production network to shift to e-mobility.

BMW

MINI evolution
In 2024, BMW started production of an all-electric MINI Countryman at its plant in Leipzig. BMW said the vehicle is "a major step in the MINI brand's transition to full electrification by 2030 and combines an electrified go-kart feel with zero local emissions mobility". BMW expects output will rise to almost 500 units a day across the course of this year.

Meanwhile, BMW's legendary MINI Plant Oxford site is revving up for yet more innovation, following a £600m investment in the Oxford site and in Swindon's MINI factory, designed to set the path for all-electric production of MINI in the UK by 2030. The plant, which is over 100 years old, is currently preparing to build two new all-electric MINI models – MINI Cooper three-door and the compact crossover MINI Aceman – from 2026.

Bidirectional tech
From 2025, BMW Neue Klasse models will be equipped with technology for bidirectional charging. This means that the new BMW Vision Neue Klasse sedan and the BMW Vision Neue Klasse X SAV can act as energy storage devices, returning electricity to the owner's home, the power grid or remote locations (e.g. on camp sites).

BMW says the addition of bidirectional tech is connected to the expansion of its 360-degree charging offer. Starting in the summer of 2024, the company will also be offering cost-optimised charging, together with its partner E.ON, in a number of markets.

> A £600m investment in its Oxford and Swindon factories is designed to set the path for all-electric production of MINI in the UK by 2030

29
▼ -25

Vertical Aerospace

Bristol-based air taxi pioneer Vertical Aerospace has faced its fair share of challenges in the past year. But vital funding and a series of certification and testing milestones – plus high-profile backers – means it's still a lead player in the turbulent eVTOL race to take-off.

Founded
2016

Specialism
Electric vertical take-off & landing aircraft

Website
vertical-aerospace.com

Vertical Aerospace

Vote of confidence
After a bruising few years for urban air mobility, Vertical Aerospace recovered from the brink with two major funding rounds in early 2024. First, founder Stephen Fitzpatrick – a serial entrepreneur who also launched energy group OVO – put $50m of his own cash into the business, securing its future to the second quarter of 2025. "I see a huge opportunity," Fitzpatrick said of his investment after share prices in Vertical Aerospace plunged last year. "Of course, like every technological development, there are execution risks, but I really believe in the team that we've built."

This was followed by another £8m investment from the UK government, in what Fitzpatrick described as a "vote of confidence" in the Bristol-based startup's five-seater flying taxi vision – encapsulated by its VX4 prototype. To date, £37m of public money has been spent trying to get the UK's first eVTOL aircraft into the skies.

Aviation milestone
Before facing off against a series of technical and financial issues last year, Vertical Aerospace marked "a significant milestone" in March 2023, when the UK Civil Aviation Authority (CAA) awarded the company the first Design Organisation Approval (DOA) issued to an eVTOL manufacturer. "Receiving a DOA from the CAA is a huge testament to our team and the hard work we are doing to ensure safety is at the core of the VX4," said Paul Harper, Vertical's Head of Certification.

Ambition & Potential

The company began a series of untethered test flights of its VX4 battery powered aircraft in 2023. Trials "surpassed expectations" for flight stability, using "significantly less power" than expected while hovering at around 20 feet.

Impact

In February this year, the UK government made a "vote of confidence" in Vertical Aerospace with an £8m investment.

Innovation

In March 2023, the UK Civil Aviation Authority awarded the company the first Design Organisation Approval (DOA) issued to an eVTOL manufacturer.

Momentum

Founder Stephen Fitzpatrick put $50m of his own cash into the air taxi business this year, securing its future to 2025.

Vertical Aerospace

Untethered test flights

As part of its certification by the CAA, Vertical began a programme of untethered test flights of its VX4 from Cotswold Airport in Kemble in summer 2023. The company said that trials of the battery powered aircraft – which takes off vertically like a helicopter before levelling out like a conventional aeroplane – had "surpassed expectations" for flight stability. The VX4 used "significantly less power" than expected while hovering at around 20 feet – and reaching speeds of 74 km/h. However, the company was then dealt a major blow after the VX4 crashed during an unmanned test flight in August, causing "significant structural damage" to the aircraft. An AAIB investigation and Vertical's own enquiry identified 36 product and process improvements resulting from the findings.

Bullish outlook

With the regulatory framework for eVTOL aircraft still being defined, Vertical has now pushed its timeline for the scaled production and service entry of the VX4 back to 2026. However, its revolutionary vision of short-haul electric flights has considerable backing in the form of 1,400 pre-orders on the VX4 from the likes of Virgin Atlantic and American Airlines. The company itself has adopted a bullish outlook, promising a Heathrow Airport landing and "high-profile public flight featuring an iconic UK landmark" in the roadmap ahead.

> Founder Stephen Fitzpatrick put $50m of his own cash into the business, securing Vertical Aerospace's future to the second quarter of 2025

Munro Vehicles

E40 new entrant Munro Vehicles is building all-terrain EVs for heavy industry customers across mining, farming and construction sectors. The Scotland-based firm is also eyeing specialist areas such as search and rescue. Its first 50 vehicles are due to be ready during 2024, and it is aiming for sales of 2,500 units by the year 2027.

Founded
2019

Specialism
All-terrain EVs

Website
munro-ev.com

Munro Vehicles

Core demand
Nominated as a "one to watch" in last year's E40 report, Munro has sailed into a top 30 place this year, as it goes into production building dozens of 4x4 vehicles by mid-2024. Demand is high: right now, the company reckons to have £68m in customer orders, with fleets an obvious target. Prospective clients include Jakob Mining Vehicles, which distributes specialist vehicles to the mining sector, and civil engineering firm Morgan Sindall Infrastructure.

Minimal impact 4x4s
Munro's specialist 4x4s come under the M-Series brand and include the M170 and M280 (names which refer to their KW power). There are two different body types and power options to suit particular tasks, such as off-highway traction or towing performance. The M280, for example, can tow heavy loads and has a higher top speed. Both models have a range of 200 miles and take 30 minutes to charge.

Series M vehicles are also manufactured with an extended service life in mind. The modular design makes maintenance and repair relatively simple and cost-effective. The company also plans to offer a refurbishment option to its customers.

Ambition & Potential

Munro Vehicles is building all-terrain EVs for heavy industry, targeting the mining, farming and construction sectors, globally.

Impact

The first 50 Munro vehicles are due to be ready during 2024, with projected sales of 2,500 by 2027.

Innovation

Munro is building a new purpose-built site near Glasgow to ramp up production in line with anticipated global demand.

Momentum

The company recently secured an additional £1m in funding from long-term backer Elbow Beach Capital.

Munro Vehicles

Glasgow to global
With almost 220,000 farms and 2,000 active mines in the UK, Munro has a large domestic market to aim at. But Russell Peterson, CEO and co-founder, said Munro is also planning to capitalise on a “global market opportunity”. Its design can operate in harsh environments and low temperatures, opening up scope for multiple off-road uses around the world – particularly in Europe.

Financial heft
Munro has drawn strong support from social impact investor Elbow Beach Capital (EBC). After an initial £750,000 investment, EBC returned in late 2023 with a further £1m backing. EBC CEO, Jon Pollock, said: “This is a huge achievement for Munro. The company has achieved significant scale-up progress over the last 12 months, which is reflected in a material customer pipeline and orders.”

Together with a $2m crowdfunding drive, the new injection of cash will help Munro ramp up production. It will also support the company in its new purpose-built site near Glasgow. Munro is causing a lot of excitement in Scotland’s automotive industry, which has been shut out of light vehicle production since the closure of the Linwood car plant in 1981.

With almost 220,000 farms and 2,000 active mines in the UK, Munro has a large domestic market to aim at

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NEW

Indra

Sitting pretty from a £20m Series B, new entrant Indra is gaining momentum as a leading chargepoint manufacturer. The Worcestershire-based company is poised to shake up home charging with its curation of sleek, economical and smart designs. It's also set to make waves in emerging areas such as bidirectional tech.

Founded
2013

Specialism
Chargepoint manufacturer

Website
indra.co.uk

Indra

Smart, award-winning chargers
Launched in 2013, Indra has created a range of eight charging devices that are compatible with all EV brands. Sold under the Smart LUX and Smart PRO brands, they retail at around £900-£1,200 with installation.The new Indra Smart LUX launched in 2023, claims to be one of the fastest domestic smart chargers on the market and is able to divert surplus energy from home solar panels into an EV.

By offering solar matching and intelligent off-peak charging, Indra's EV chargers control energy costs and maximise renewable energy usage for drivers. They've been winning major plaudits, too. Indra was named Chargepoint Manufacturer of the Year at the 2023 EVIE Awards, with judges praising the brand's ability to launch quality products while investing in next-gen projects.

The consumer case for buying an Indra device hinges on cost. Indra says that its integration with the cheapest and greenest tariffs unlocks potential annual savings of nearly £1,400 per year compared with fuelling a petrol vehicle.

Backing from Big Oil
Last year was something of a boon for Indra, as the EV startup received around £20m of fresh investment following an oversubscribed Series B funding round. Gulf Oil International led the round, significantly increasing its equity stake in Indra. The funding will enable Indra to grow its customer base, increase revenue streams and push ahead with the development of its proprietary tech.

Ambition & Potential

With backing from Gulf Oil International, Indra sees scope to grow its customer base, increase revenue and further develop its proprietary tech.

Impact

Indra says integration of its device with the cheapest and greenest tariffs can unlock potential annual savings of up to £830, compared with other home charger brands.

Innovation

Indra is currently leading a large-scale V2H trial, with hundreds of people across the UK trialling its prototype bidirectional EV charger.

Momentum

Indra capped off a successful 2023 by being named Chargepoint Manufacturer of the Year at the EVIE Awards.

Indra

V2H innovation

Indra is currently leading a large-scale V2H trial, with hundreds of people across the UK trialling its prototype bidirectional EV charger as a two-way power flow between their homes and their EVs. The charger allows consumers to use their EVs as "batteries on wheels", charging up their car when electricity prices are low, storing that power in their car's battery and then using it to power their homes when grid prices are higher. Early results suggested that savings of up to £200 a month are possible. Indra is also involved in the UK Government's V2X (bidirectional charging) Innovation Programme.

Growth through partnership

In June 2023, Indra launched a partnership with EV charging services provider Starla Energy. The partnership means Starla can provide its car OEM, fleet, lease and dealer partners with an easy home EV charging hardware and installation service at the point of sale. Martyn Broadhead, Starla commercial director, said: "Indra has a great reputation, based upon the excellent Smart PRO range which we believe to be the best pound-for-pound charger in the market."

> Indra is leading a V2H trial, with hundreds of people across the UK trialling its prototype bidirectional EV charger as a two-way power flow between their homes and their EVs

32
NEW

Anaphite

Bristol-based Anaphite uses its skills in advanced chemistry to design and manufacture composite materials for the cathodes that go into lithium-ion batteries. Fresh from a robust funding round and government endorsement, this E40 new entrant is flying high on the promise of materials that improve battery performance and reduce cost and environmental impact.

Founded
2018

Specialism
Dry battery electrode coating technology

Website
anaphite.com

Anaphite

Cutting the cost of EVs
Anaphite's business case revolves around the fact that cost remains a significant obstacle to the widescale rollout of EVs. With batteries accounting for up to 30% of an EV's total cost, cutting this figure is a vital part of the wider project to make the transition to electric more affordable and accessible.

The company, which says it has "a very strong IP position and expert teams", is gearing up for a Series A investment round. If this proves successful, the goal is to have its tech integrated within commercial EVs by 2028.

The science bit
Anaphite's dry coated cathode Dry Coating Precursor technology (DCP®) is designed specifically for direct dry coating with no solvent, additives or mixing required for electrode coating. This dry electrode method of lithium-ion battery production is more energy efficient and cheaper and the Anaphite formulation process can achieve better electrochemical performance to match wet coating required for electrode coating.

Money, money, money
Anaphite has secured several tranches of investment as it builds the company into a viable proposition. In the early stages, it raised £4.1m in seed plus funding to be used for various purposes, including validating its production method.

Ambition & Potential

Anaphite's battery manufacturing tech could reduce the cost of EVs and increase their accessibility for consumers.

Impact

The company is working with auto manufacturers, battery cell manufacturers and electrode materials suppliers to develop its technology and tailor it to specific customer needs.

Innovation

Anaphite says its process enables dry coating to match the performance of wet coating so customers can make the switch without impacting performance.

Momentum

Anaphite has secured a steady stream of public and private money to help it scale up its battery based technology.

Anaphite

Elbow Beach Capital led the seed-plus round investing £1.5m, with CEO, Jon Pollock, saying: "The advancement of lithium-ion battery technology is an essential part of the green energy transition and Anaphite's technology has the potential to accelerate the EV market."

Since then, the money has kept flowing. In 2023, Anaphite was one of 14 companies to win a share of £2.5m funding provided via the UK government's Advanced Propulsion Centre Technology Developer Accelerator Programme, which helps technology developers bring innovations to life.

Explaining how it plans to use its £170,000 share, Anaphite said it wants to solve the material handling and processing challenges of dry coating that requires less energy, reducing cost and environmental impact. Anaphite CEO, Joe Stevenson, said: "The market for EV batteries is developing and growing very quickly, and accelerating our own development will be very valuable."

Government backing

Recently, Anaphite also secured another £1.6m from a combination of a government grant and private investment under the Investor Partnerships Future Economy Programme. This project will help Anaphite scale-up the application of its Dry Coating Precursor technology to enable a next generation of lower-cost, more sustainable, battery manufacturing.

The company says it is currently working with auto manufacturers, battery cell manufacturers ... to develop its technology and tailor it to specific customer needs.

> Anaphite said it wants to solve the material handling and processing challenges of dry coating that requires less energy, reducing cost and environmental impact.

Dr Jennifer Channell

Commercial and Partnerships Lead, Anaphite

LinkedIn

Tell us a bit about Anaphite and the story behind the business.

Anaphite is in the business of enabling dry battery electrode coating of lithium-ion batteries through our Dry-Coating Precursor technology (DCP®). Dry battery electrode coating is all about reducing the manufacturing cost of batteries and improving their sustainability by removing the need for those big long-drying ovens you see in gigafactories. These ovens take up a lot of space and money to buy and run. Removing the solvent from the coating process means you don't need the ovens to evaporate it.

Anaphite produces a composite material formed from the active material within the electrode, the binder, and conductive additives, including advanced carbon. This produces a homogenous dry powder that's tailor-formulated and ready for dry coating.

We work with customers in cell manufacturing, automotive OEMs, and other end users to provide them with a tailor-formulated dry coating precursor for their dry coating activities.

Anaphite's mission is to drive EV uptake. The technology we're implementing is a way to reduce the cost of EVs. As long as reducing that cost means an actual reduction in the price of the final product for consumers, that will increase the uptake of EVs.

> Anaphite technology unlocks dry battery electrode coating, which stands to produce significant cost reductions.

How does Anaphite fit into the supply chain, particularly considering the challenges Europe faces in owning the entire supply chain compared to China's enormous advantages of geography and infrastructure?

Anaphite is offering a way to unlock a new manufacturing technology that enables battery manufacturing to be more sustainable and lower cost both from a CAPEX and OPEX perspective.

So, it's a way to start competing on a cost basis. The materials ultimately have a cost floor. We're approaching that cost floor, particularly with materials for batteries like LFP, where the cost can't be reduced much further from a materials perspective. Reducing processing costs is going to be key.

Using Anaphite technology unlocks dry battery electrode coating, which stands to produce significant cost reductions.

What is your view on the EV market, specifically in the UK?

What's happening in the UK is reflected across Europe, where we see that while EV uptake is still increasing, the uptake rate has slowed. There are several reasons for this. Firstly, Europe has primarily focused on the higher-end luxury segment, which limits uptake by the average EV consumer, who can't afford that kind of vehicle. Meanwhile, China has cornered the lower cost vehicle market thanks to the level of subsidies available out there and because they've already achieved economies of scale for battery production.

A second reason the EV uptake rate is slowing is that in some cases, European governments such as Germany and the UK have removed some of the incentives around purchasing EVs.

Thirdly there's still a lot of tension between ICE and EV. Last year, the European Union cemented its 2035 milestone by banning the sale of ICE vehicles. Germany pushed this out to 2040, so they have an longer to get to 100% BEV sales. From a UK perspective, we originally targeted 2030 for that, but that's now been pushed back to 2035 although Labour are now looking at potentially pulling this forward to 2030.

How confident are you that the 2035 deadline will stick?

I'm optimistic we'll stick to that deadline for banning new ICE sales. You can see how automotive OEMs have committed to the EV transition. They're making significant investments that they would only do if committed.

> Europe has primarily focused on the higher-end luxury segment, which limits uptake by the average EV consumer

We only have ten and a half years to go. But a lot can change in that time.

As we start to see more gigafactories come online and more EV manufacturing and the supply chain localised within Europe, we'll be better placed to meet the deadline.

What should the industry do to help future-proof the system in the UK?

The biggest challenge in Europe at the moment is the supply chain. So, while we have quite a number of gigafactory announcements and customers in place to take up many of those batteries, we're still struggling on the material supply chain side. China still has 80-90% of the midstream processing.

There are ambitions to fill that. For example, Australia has many raw materials and could benefit from moving down the processing supply chain and introducing more peak-arm manufacturing. Here in Europe, we still have a significant material production deficit. If China chooses to cut Europe off from that supply, that will hamper our growth significantly. So that's a key area that needs to be invested in.

Is there anything the UK government should do to support EVs?

From our perspective as a startup company that is now ready to scale, our biggest challenge is having access to the right capital support. There's a big risk aversion to supporting pilot-scale capital. In terms of the later-stage capital, the bigger scale investments are a whole different issue. There's a gap before getting to large-scale capital investment; investors want to avoid taking on that risk, so the role of the government should be to de-risk that space.

Which businesses or organisations in the EV ecosystem are the ones to watch?

About:Energy is doing great work enabling customers to make informed decisions around their cell selection and reducing the time it takes to get from "we want to use a cell" to being able to implement a cell in their technology.

IONETIC does a lot of work addressing the gap in the mid-volume vehicle pack requirements. They help companies that don't have massive R&D budgets develop their own pack programmes using their technology to achieve a more sustainable solution at a much lower cost.

The UK has a few companies that excel in supporting the transition to electrification. With the new EU battery regulation, companies will have to comply with a whole realm of things.

> There's a gap before getting to large-scale capital investment… so the role of the government should be to de-risk that space.

Both Minviro and Infyos are doing great work to help companies prepare for the virtual regulation that's coming into effect.

Breathe Battery Technologies and Elysia are two companies making good progress on the software and data side, helping companies to increase battery life simply by improving how the algorithms manage the life of those batteries.

Where do you see Anaphite in five years?

In five years, I hope we'll see that Anaphite's technology has enabled the production of dry battery electrodes for some of the world's biggest EV brands. I'd hope that the EV market will generally be well-progressed in implementing dry battery electric coating as the new standard for battery manufacturing and will be looking at other parts of the battery production process for ambitious ways to improve battery sustainability and reduce costs.

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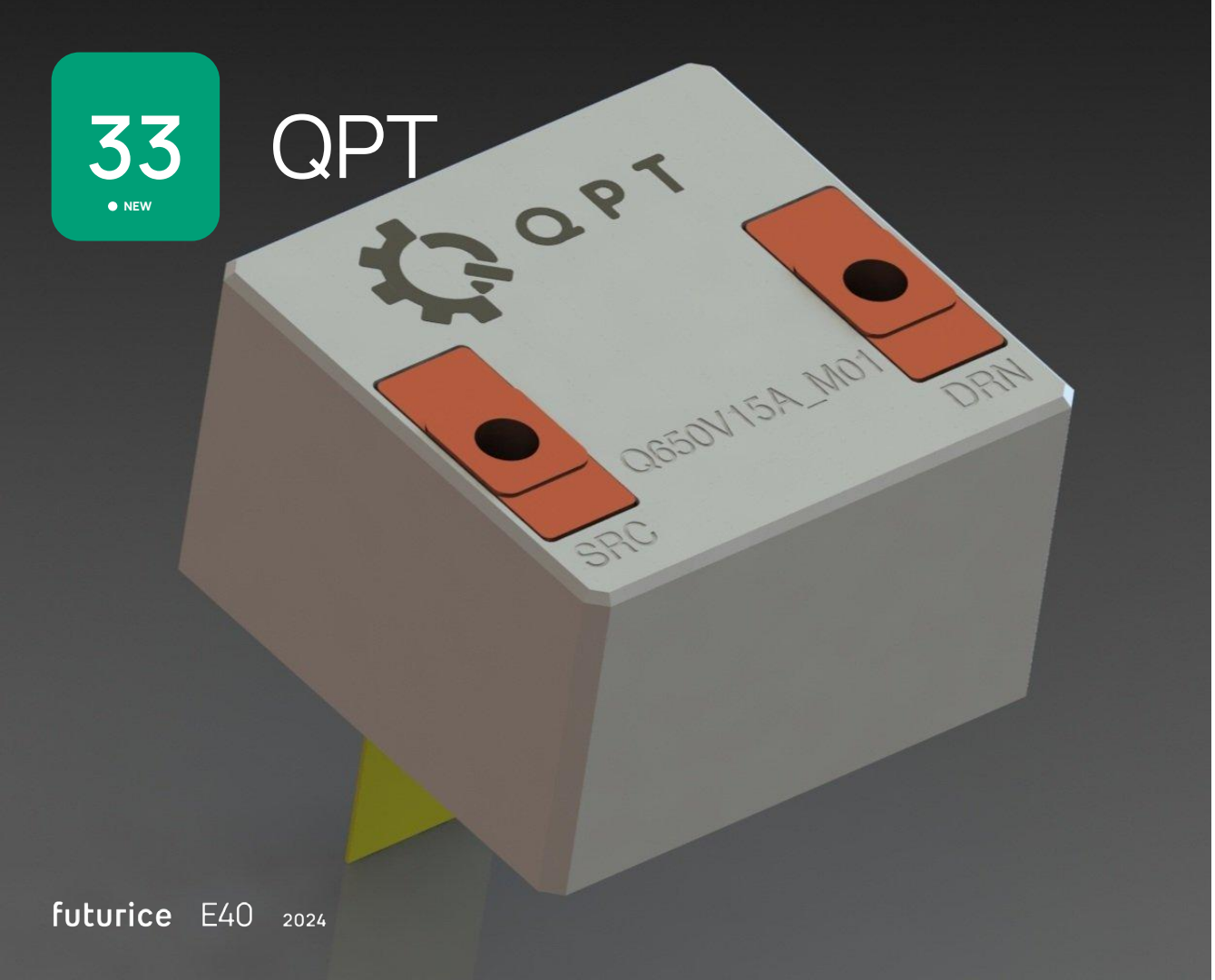
NEW

QPT



futurice E40 2024

Rising star and E40 new entrant QPT expects GaN-based tech to have a multibillion-dollar impact in EV and other areas. The Cambridge-based company has been endorsed by automation giant ABB and recently kicked off its first fundraising round.

Founded
2020

Specialism
Power electronics/motors

Website
q-p-t.com

QPT

Motor magnitude
Achieving net zero in the auto industry will require game-changing innovators at every stage of the electrification ecosystem – and motors are no exception. Step forward Cambridge-based cleantech company QPT, which has zeroed in on the issue of electrical efficiency.

QPT claims to be the first to develop the technologies needed to enable Gallium Nitride (GaN) transistors to function over the current limitations of 100 kHz. Its patented technologies enable GaN to operate at up to 20 MHz for the first time without running into problems with overheating or interference.

QPT's motor drive reduces energy losses by 80%. and is up to 100 times smaller than existing solutions. In lay terms, this will allow more efficient motors for air conditioning systems, robotics, industrial kit and, of course, EVs, in a cross-sector market worth around $365bn.

"Electric motors account for 45% of global electricity usage and our technology can make them more efficient and that means less CO2 emissions," said Rob Gwynne, QPT's founder and CTO.

Ambition & Potential

QPT believes its GaN-based technology will transform the EV sector, making electric motors more efficient and reducing emissions.

Impact

QPT is working with industrial giant ABB to enhance the efficiencies of its drives and motors after winning the ABB Power Density Start-up Challenge 2023 for Motor Drive Products.

Innovation

QPT claims to be the first company to enable Gallium Nitride (GaN) transistors to operate at well over the current limitations of 100 kHz; reducing problems with overheating or interference.

Momentum

QPT has appointed Rupert Baines as CEO to help the company scale up its proposition.

QPT

Industry plaudits
In January 2024, QPT won the ABB Power Density Start-up Challenge 2023 for Motor Drive Products; recognising its potential to deliver major power savings. ABB will now work with QPT's tech on projects to enhance the efficiencies of its drives and motors. The company was also a finalist in two categories in the prestigious Elektra Awards.

Transistor tech
QPT markets its tech under the "qGaN" name. Its qGaN modules are high-voltage GaN transistors packaged with a proprietary qDrive technology. This, in turn, is primed to achieve unparalleled switching speeds and a thermal design that allows full-scale power handling and energy efficiencies.

All about funding
In December 2023, as the company moved ahead with its initial prototypes, QPT opened its first funding round on Crowdcube. Gwynne said: "The UK is renowned for innovation so we wanted to provide people with the opportunity to invest in a technology that makes electric motors more efficient. Investors are keen on ways to help the planet and our technology does that without downsides."

> QPT's qGaN modules are high-voltage GaN transistors packaged with a proprietary qDrive technology

34 EAV

futurice E40 2024

With their impressive load capacity, EAV's eCargo bikes are putting some serious pedal power into the concept of urban sustainability. A recent partnership with Sydney-based e-bike innovator Zoomo has opened the door to new customers, as well as creating scope for international expansion.

Founded
2018

Specialism
Electric cargo bike manufacturer

Website
eav.solutions

EAV

Reinventing the wheel
Oxfordshire startup EAV claims that its eCargo bikes can be twice as efficient as vans in urban settings. The bikes have a range of up to 40 miles, but a dedicated holder also means that riders can travel with two batteries on board (with a charge time of six to seven hours each). The designs also boost a market-leading cargo volume of 2,000 litres, along with a 150kg payload. The company recently created a new wheel designed to ease the load impact if a cyclist hits the kerb; so becoming more resilient for regular urban use.

Zoomo fleet partner
EAV lives or dies by the calibre and volume of partners it secures. Long-standing partners include Amazon, Ocado, Asda and delivery firm DPD. In June last year, the company also made digital platform Zoomo an official fleet partner – providing EAV customers with a one-stop solution for financing, servicing and management software. The move means EAV eCargo bikes are now integrated into Zoomo's portfolio of light electric vehicles, representing a major step forwards in the emerging shift to eCargo bikes for fleets.

By becoming part of Zoomo's platform, EAV is also hoping to benefit from Zoomo's reach in Australia, North America and Europe. "Zoomo is perfectly placed to support the take up of EAVs in city centres across the world," said EAV founder and CEO, Adam Barmby.

Ambition & Potential

EAV claims that its eCargo bikes, with a range of 40 miles, can be twice as efficient as vans in urban contexts – and faster.

Impact

A partnership with digital platform Zoomo has opened the door to new customers, and raised the prospect of international expansion.

Innovation

The company has, literally, reinvented the wheel, so its eCargo bikes can withstand the rigours of heavy use in urban environments.

Momentum

EAV's eCargo bikes are winning customers among UK councils, with five London authorities backing the firm, to date.

EAV

A bike for Evri scenario
Off the back of the EAV/Zoomo partnership, delivery firm Evri is rolling out EAV eCargo bikes within its own network. The company has partnered with Zoomo to secure 15 EAV cargo bikes for its Wimbledon depot. Nancy Hobhouse, head of ESG at Evri, said: "Research shows that eCargo bikes deliver goods 60% faster than vans in city centres while reducing carbon emissions by 90% compared with diesel vans, and by one-third compared with electric vans." Evri is planning to triple its eCargo bike parcel deliveries to over 500,000 by Q4 2024.

Halfords and happy councils
At the beginning of last year, EAV appointed Halfords as its key UK service, maintenance and repair partner, helping connect their customers to a personal service that ensures hassle-free help if their bikes are off the road (including at remote locations).

EAV's eCargo bikes have also attracted the attention of some of London's more progressive councils. In 2023, Islington became the fifth local authority in the capital to switch to eCargo bikes, to help meet green targets. By replacing three diesel vans with five EAV bikes, the council estimates it will save 1,000 litres in fuel and four tonnes of CO_2 emissions per year.

Around 25 EAVs are now active in London boroughs, while five further councils across the UK have also opted for EAV eCargo bikes (Cambridge, Brighton & Hove, Oxford, Aberdeen and Bournemouth).

Off the back of the EAV/Zoomo partnership, delivery firm Evri is rolling out EAV eCargo bikes within its own network

35
▲+1

Ford

Ford is committed to an electric future but is cautious about investing too far ahead of the demand curve. In Europe, highlights include the arrival of the Explorer in 2024, as well as a new £24m development lab in Essex, UK. Ford is also doubling down on its charging networks, and investing in EV battery innovation.

Founded
1903

Specialism
Vehicle manufacturer

Website
ford.com

Ford

Careful does it

With 2023 revenues of $176bn (+11%), there's no question Ford's strategy will have a major impact on the transition to EVs. Right now, under the banner Ford+, the company is seeking to reinvent itself as a consumer-centric business – active across all engine types. Unveiling the latest results, CEO, Jim Farley, said: "We're the only company that gives customers such a wide range of choices – gas, hybrid and electric vehicles. Ford is creating a product, software and services powerhouse with huge potential for this year and the long-haul."

Ford Model e start-up segment reported an EBIT loss of $4.7bn in 2023, "reflecting a competitive pricing environment, along with investments in the development of clean-sheet, next-generation EVs". The manufacturer predicts that its e-division will be loss-making again in 2024.

Given this context, Ford presents a cautious perspective on EVs, saying: "EVs are here to stay, and their long-term upside is central to Ford+. However, with adoption of EVs happening at a slower rate than expected, Ford said months ago that it is deferring certain investments in EVs until they're justified by demand and prospects for acceptable returns."

Lab innovation

Earlier this year, Ford cut the ribbon on a £24m Propulsion Development Laboratory at its UK headquarters in Dunton. The site features eight testing rooms that are able to flex between EV, hybrid and combustion technologies, in line with changing customer demand. With Ford set to unveil five EV vans by 2025, the campus will lead on testing for the E-Transit Courier and E-Transit Custom models.

Ambition & Potential

Despite some caution, Ford acknowledges that "EVs are here to stay, and their long-term upside is central to Ford." Sales of Ford's electric F-150 Lightning pickup and Mustang Mach-E SUV were both up year-on-year.

Impact

Ford has EV manufacturing capability around the world, with plants in the US, Canada and Germany pivotal to its strategy.

Innovation

The Ford BlueOval Charge Network is North America's largest public charging network, with 106,000 chargers. Ford is also building a lithium iron phosphate battery plant in Michigan.

Momentum

The company started by electrifying its most iconic products – the Mustang, F-150 and Transit. An electric Explorer crossover is launching in Europe during summer 2024.

Ford

Elsewhere, Ford has four plants in the US, including the new Rouge EV Center in Michigan and BlueOval City. It has also broken ground on a new Canadian site situated in Ontario. In Germany, meanwhile, Ford is making the Ford Cologne Electrification Center the production home of the electric Ford Explorer in Europe.

Moving into the wider EV ecosystem, the Ford BlueOval Charge Network is North America's largest public charging network, with 106,000 chargers. Additionally, Ford is building a lithium iron phosphate battery plant in Michigan. Production is slated for 2026, with 2,500 employees.

Icons reinvented
Ford started by electrifying its most iconic products – the Mustang, F-150 and Transit. As part of its repertoire, it also has an electric Explorer crossover and an electric Puma in Europe.

The Explorer is launching in Europe during summer 2024. Unlike the US version, it's a five-seat electric car that shares parts with the Volkswagen ID4. It's viewed as an alternative to the Kia EV6, and will have up to 374 miles of range.

Movers and shakers
In September 2023, Ford, BMW and Honda entered into an agreement to create ChargeScape, an equally-owned company that will create a unified platform connecting utilities, automakers and EV customers. Ford also announced that its EV customers would gain access to Tesla Superchargers across the US and Canada from spring 2024. Eligible Ford EV customers will be able to reserve a complimentary adapter.

> Ford opened a £24m Propulsion Development Laboratory at its UK headquarters, featuring eight testing rooms that can flex between EV, hybrid and combustion technologies

36
▲ +6

InstaVolt

EQT-backed InstaVolt's UK network of fast chargers topped 2,000 in 2023. In the next few years, the company's goal is to connect 16,000 chargers across multiple European markets. A new CEO and commercial officer, intuitive pay-as-you-go access and high-profile partnerships should fuel further growth.

Founded
2016

Specialism
EV fast-charging

Website
instavolt.co.uk

InstaVolt

Capital raise
Hampshire-based InstaVolt develops, installs, owns and operates rapid EV charging stations. The company claims to be the largest fully public owner-operator of rapid DC charging stations in the UK. Its chargers operate at between 50kW and 150kW and are supplied by 100% renewable energy. Its "open charger" model also makes it easy for any driver to plug in and use on a pay-as-you-go basis.

InstaVolt was acquired by private equity company EQT Infrastructure in 2022. InstaVolt claims 2023 was "an impressive year" with its network now having more than 2,000 chargers in operation or construction. At the start of 2024, the company announced "a significant capital raise" from EQT to ensure the pace of its rollout continues.

Eyes on Europe
InstaVolt's initial focus was on the UK market, but now it has ambitions to become Europe's largest rapid-charging network with "plans in place to install 11,000 chargers in the UK and Ireland, 5,000 across Spain and Portugal, and over 300 in Iceland". To this end, it has appointed Simon Smith as chief commercial officer. In addition, Delvin Lane has been hired as CEO, replacing Adrian Keen who is stepping down after seven years. Both Smith and Lane join from digital services energy company eEnergy Group, where they drove impressive growth.

Underlining its international focus, InstaVolt launched Iceland's largest ultra-rapid EV charging hub in June 2023.

Ambition & Potential
A significant "capital raise" from parent EQT and a new CEO and COO, underline InstaVolt's plan to be Europe's largest rapid-charging network.

Impact
InstaVolt's network of fast chargers topped 2,000 in 2023. It claims to be the largest fully public owner-operator of rapid DC charging stations in the UK.

Innovation
2023 saw InstaVolt plug into Octopus Energy's Electroverse platform to make charging easier for EV drivers.

Momentum
In Q1 2024, InstaVolt opened a 14-charger superhub at Syon Park in West London, currently the largest hub in London.

InstaVolt

Expanding UK footprint
In March 2024, InstaVolt revealed that it will be working with pan-European operator Qwello to supply up to 500 state-of-the-art EV charging points to Solihull, in the West Midlands. Qwello will partner with InstaVolt to install charging points within council car parks and on-street destinations by 2026.

Also in Q1 2024, InstaVolt opened a 14-charger superhub at Syon Park in West London. Offering speeds of up to 160kW, the facility is the largest of its kind in the capital, conveniently located close to the M4 motorway.

Ecosystem allies
InstaVolt announced several key industry alliances in 2023. In September, it plugged into Octopus Energy's Electroverse platform to make charging easier for EV drivers. Electroverse gives drivers access to over half a million public chargepoints, globally, with one tap. InstaVolt also partnered with Paua, a provider of EV charging solutions; and Allstar, an EV payment platform.

> InstaVolt says it has plans in place to install 11,000 chargers in the UK and Ireland, 5,000 across Spain and Portugal, and over 300 in Iceland

37
▲+2

Motor Fuel Group

At the time of its management buyout in 2011, MFG had just a few dozen fuel forecourts. Today, the company controls in excess of 900 sites. That figure is set to grow further with the £2.5bn acquisition of 337 sites belonging to supermarket chain Morrison's.

Founded
2007

Specialism
Independent forecourt operator

Website
Motorfuelgroup.com

Motor Fuel Group

Morrisons makeover
By the end of 2023, MFG had installed 500 ultra-rapid EV chargers across its 'EV Power' network. A leading player in public charging, it claims its ultra-rapid chargers powered 50m zero carbon miles in the UK across the year.

In January 2024, the company took its business to the next level by entering into an agreement to acquire 337 Morrisons petrol forecourts (including fuel, retail kiosk and ancillary services) and more than 400 associated sites across the UK, for Ultra-Rapid EV charging development. The transaction is worth £2.5bn and will see Morrisons take a minority stake of approximately 20% in MFG. As a consequence of the deal, MFG plans to install 800 Ultra-Rapid 150kW EV chargers, in hubs, within the first five years. Combined with its existing business, MFG says it will be "one of the largest and most significant ultra-rapid EV chargepoint operators in the UK, with over 1,300 sites serving and powering millions of customers a week".

Ramped up roll-out
Even prior to the Morrisons news, MFG was making waves, having earmarked £400m to complete its EV roll out by 2030.

Ambition & Potential

MFG's acquisition of 337 Morrisons forecourts in a £2.5bn transaction shows it is now in the public charger big league. The company is also eyeing expansion into retail parks and roadside developments

Impact

In 2023, MFG introduced 230 ultra-rapid EV chargers at 59 locations. The company is now one of the largest public charging networks in the UK, with 5.4% of the Ultra-Rapid network.

Innovation

Not only is MFG rolling out chargers at a rapid pace, it is ensuring the customer experience is of the highest quality.

Momentum

MFG plans to commit an impressive £400m in electric charging by 2030, with emphasis on rapid charging.

Motor Fuel Group

In 2023, MFG introduced 230 ultra-rapid EV chargers at 59 locations. It says this investment is vital because (in England), more than 60% of homes in urban areas are dependent on electricity from publicly accessible networks. As a result, it says the speed of MFG's EV roll-out will continue to accelerate as the company invests "ahead of the curve". Currently, a typical MFG hub consists of between four and eight 150kW EV chargers per site. These will be boosted with 300kW and 400kW chargers as battery technology improves.

People's choice

In November 2023, MFG came second on Zapmap's annual survey of charging networks, scoring highly for reliability and ease of use. Melanie Shufflebotham, co-founder & COO at Zapmap, has praised MFG for its commitment to supporting the shift to sustainable transport. "The network's fast-paced roll-out of eye-catching blue charging hubs is certainly impressive. Safe, reliable and easy to use, we know that MFG charging locations are well received by drivers." In 2022, MFG's EV Power network joined Zap-Pay, the seamless Zapmap payment solution for EV charging across networks.

Opportunities for expansion

MFG is targeting other charging segment opportunities. Aside from rolling out EV Power on its forecourts, it is targeting retail parks, roadside developments and other strategic locations.

> MFG is targeting other charging segment opportunities aside from rolling out EV Power on its forecourts, including retail parks, roadside developments and other strategic locations

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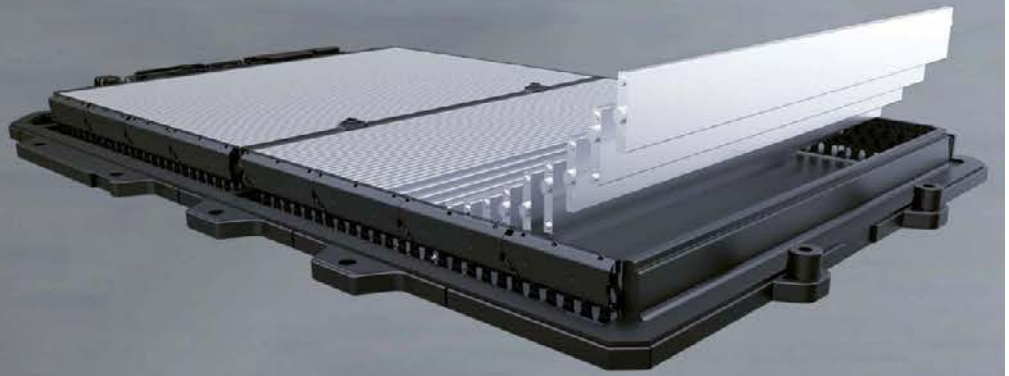
NEW

BYD



futurice E40 2024

Chinese EV manufacturer BYD outsold Tesla at the end of 2023, and has revelled in a flying start to this year, too. With its state-of-the-art Blade battery technology, and an expanded European dealership network, this E40 new entrant has emerged as a frontrunner in the global race to electrification.

Founded
1995 (BYD Auto 2003)

Specialism
EV manufacturer

Website
byd.com

BYD

Challenger status
After outselling none other than Tesla in Q4 2023, BYD continued its winning streak, with EV sales rising almost 50% in January 2024. Production was also up significantly. While most people view Tesla vs. BYD as a battle for sector supremacy, BYD itself says the two market leaders are allies against ICE technology. BYD's GM of branding and public relations, Yunfei Li, claims the two car giants need to work together "to increase the new energy vehicle cake".

That said, BYD clearly intends to grow its share of the global market aggressively. The company rapidly expanded its dealer network in 2023 to drive sales. It has also revealed plans for a new EV factory in Hungary. The manufacturer is already well-established in Thailand, Brazil, and Colombia, and has also launched in Mexico, India, Australia and Indonesia.

UK spread
Supporting its UK aspirations, BYD signed a deal with Octopus Electric Vehicles in March 2023. The deal signalled an intent for Octopus EV to purchase 5,000 EVs from BYD over the next three years.

BYD is not a UK newcomer, however. The company has been present in the market with pure-electric buses since 2013. In that time, BYD buses have driven 43 million kilometres, reducing CO2 emissions by a wow-worthy 46,000 tonnes.

Ambition & Potential

Chinese EV manufacturer BYD outsold Tesla at the end of 2023 and has targeted Europe for expansion.

Impact

The fully electric BYD ATTO 3 is competitively priced and has garnered praise from pundits, winning the News UK Electric Car of the Year award.

Innovation

BYD's award-winning Blade Battery offers efficiency, long range, fast charging and long life cycle.

Momentum

BYD rapidly expanded its dealer network in 2023 and also unveiled plans for a new EV factory in Hungary.

BYD

Zippy and smart
One of BYD's key vehicles is the fully-electric BYD ATTO 3, which launched in the UK in August 2023. The car is equipped with a highly efficient 60.48 kWh BYD Blade Battery with a 260-mile range and DC charging in 29 minutes. BYD says it brings "the latest in EV innovation to UK customers".

The BYD ATTO 3 has already received the thumbs-up from experts, landing the News UK Electric Car of the Year award. Nick Rufford, motoring editor, *The Sunday Times*, said: "Starting at £37,000, this zippy and smart-looking EV gives Tesla's £44,990 Model Y a run for its money."

Secret sauce
At its heart, BYD is a tech innovator. Its award-winning Blade Battery offers efficiency, long range, fast-charging and a long life cycle. BYD also trumpets the battery's safety features, saying: "The flat rectangle shape improves cooling efficiency and preheating performance. Blade passed the nail penetration test without emitting fire or smoke."

BYD is best-known for low-cost EVs like the ATTO 3 and the Dolphin electric hatch, but the company is expanding into new segments. It recently unveiled its luxury Yangwang U7 electric sports sedan.

> Supporting its UK aspirations, BYD signed a deal with Octopus Electric Vehicles in March 2023 with an intent for Octopus EV to purchase 5,000 EVs from BYD over the next three years

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● NEW

Electric Miles

New E40 entrant Electric Miles is pinpointing a growing need for software that automatically time-shifts EV electricity demand to protect the grid and minimise customer energy costs. V2G innovation, investor backing and a partnership with the National Grid all bode well for this burgeoning SaaS player.

Founded
2019

Specialism
SaaS charge management platform

Website
electricmiles.com

Electric Miles

A central nervous system
All too often, leading EV agents – including charger manufacturers, energy suppliers and OEMs – lack the software to optimise grid use. That's where Electric Miles (EM) comes in, with a SaaS model that performs as a "central nervous system" for manufacturers, installers, electricity suppliers and EV fleets on the connected grid.

Success stats
In 2023, EM facilitated over 500,000 smart-charging sessions. In the process, it delivered 1.9M kWh to drivers, hitting a 95% charge success rate. In addition, the company now has a network of 1,600 registered installers supporting its infrastructure.

The platform has also secured backing from several investors. These include the Low Carbon Innovation Fund, Blue Lake VC and entrepreneur Vipul Amin – a founding member of uSwitch, owner of energy tech business MyUtilityGenius and co-owner of Kelkoo Group.

National Grid buy-in
A major moment for Electric Miles arrived in September 2023, when the company rolled out a partnership with the UK's National Grid. As part of the agreement, EM set about harnessing its network of domestic EV chargers to reduce peak energy demand, helping to keep the country's energy system balanced.

Ambition & Potential

EM wants to help create an "internet of energy." In 2023, it facilitated over 500,000 smart charging sessions.

Impact

In September 2023, Electric Miles unveiled a partnership with the National Grid in the UK, to help reduce peak energy demand.

Innovation

By providing a software solution to charger manufacturers, installers, electricity suppliers and EV fleets, the company wants to be "the central nervous system" for the connected grid.

Momentum

Electric Miles is engaged in a consortium exploring vehicle-to-grid (V2G) technology and its potential impact on the EV landscape.

Electric Miles

Helen Sawdon, National Grid's flexibility commercial lead, said relationships with aggregators like EM are about "increasing UK household participation in distribution level flexibility to reduce peak network demand".

"We're committed to continue the use of flexibility to support our network at times where we see electricity demand peak, lowering the cost of maintaining our network for all customers," she said.

Vision for V2G

In December 2023, Electric Miles joined forces with Austrian energy giant VERBUND and automotive company Magna, in a project that centres on V2G technology and its future impact on the EV landscape. Working alongside Ambibox and Smatrics, the three partners are leading a proof-of-concept trial to unlock the full potential of V2G. According to Electric Miles, the results may enable EVs to participate in energy trading markets.

Electric Miles joined forces with Austrian energy giant VERBUND and automotive company Magna, in a project that centres on V2G tech and its future impact on the EV landscape

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NEW

Skyports

futurice E40 2024

E40 new entrant Skyports is situated right at the heart of one of the most dynamic areas of e-mobility: the electric air taxi revolution. Its landing infrastructure, known as “vertiports”, will allow eVTOL operators to take off and land in and near cities – in work that’s attracting lots of interest from Asia.

Founded
2018

Specialism
Vertiport provider and operator

Website
skyports.net

Skyports

From vertiports to drone tech
Skyports positions itself as "the leading provider of infrastructure for the Advanced Air Mobility industry." In addition to vertiports, the brand also operates Skyports Drone Services. This comprises drone tech to help businesses enhance logistics, capture data and double down on efficiencies.

Destination Bicester
In 2024, Skyports signed an agreement to develop the UK's first vertiport testbed at Bicester Motion, Oxfordshire – a 444-acre estate dedicated to pioneering mobility tech. The new vertiport includes a compact 160 sqm passenger terminal, and is designed to test ground infrastructure and flight operations for the UK market.

The vertiport is slated to open by the end of 2024, with backing from the Advanced Mobility Ecosystem Consortium and Innovate UK's Future Flight Challenge. The site will be used by Bristol air taxi innovators, Vertical Aerospace, to conduct demonstration flights and test key procedures ahead of its commercial launch.

Skyports CEO, Duncan Walker, said: "Bicester Motion is ideally located to serve as a central hub for the UK's advanced air mobility industry. It will be a key location for early demonstration flights and help to pave the way for permanent operations in the future."

Ambition & Potential

Skyports' vertiports will enable eVTOL operators to take off and land in and around cities around the world.

Impact

Skyports is developing the UK's first vertiport testbed at Bicester Motion, Oxfordshire. The company also has a 'Living Lab' terminal in the US and a European vertiport testbed in France.

Innovation

In addition to vertiports, the firm uses drone tech to help businesses improve logistics, capture data, and increase efficiency.

Momentum

In February 2024, Skyports, the Dubai Roads and Transport Authority and Joby Aviation penned an agreement to launch commercial air taxi services in Dubai by 2026.

Skyports

The Bicester vertiport is not Skyports' first advanced mobility hub. The company also has a "Living Lab" terminal in the US with aircraft partner Joby Aviation, as well as a European vertiport testbed with Groupe ADP in France. It is also making inroads into the Japanese and Korean eVTOL markets.

Lift-off in Dubai

In February 2024, Skyports, along with Joby Aviation and the Dubai Roads and Transport Authority, penned a deal to launch commercial air taxi services in Dubai by 2026. The agreement, signed at the World Governments Summit in Dubai, gives Skyports exclusive rights to build and operate vertiports in the city. It means that the UAE should become the world's first location with a commercial electric air taxi service.

Series B triumph

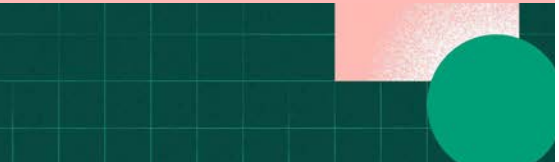
Skyports closed its Series B funding round in August 2022 with a £2.56m investment from Singapore-based ST Engineering's venture capital arm, ST Engineering Ventures. That funding injection brought Skyports' Series B to a total of over £21m. The vertiports pioneer has received a wave of support from international investors, including Japan-based Kanematsu Corporation and Italian airport platform, 2i Aeroporti.

> In 2024, Skyports signed an agreement to develop the UK's first vertiport testbed at Bicester Motion in Oxfordshire

E40 Ones to Watch

The following companies are movers and shakers in the world of EVs. Not yet influential enough to make this year's E40 list, they're nevertheless growing fast, with the funding and ideas to be major disruptors in years to come.

From battery innovators to urban specialists and purveyors of the luxury EV market, our Ones To Watch cover brands of all sizes. Together, they act as a powerful barometer of emerging industry trends.



Eskuta

UK-based Eskuta is focused on last-mile delivery and personal mobility with its electric eCargo bikes, eBikes and eScooters – which have 50 miles range and take less than eight hours to charge. A recent expansion at its HQ will create increased capacity for its "moped-styled" eBikes. Over the next 12 months, the company plans to start its export business and develop a replacement product line for its hero model, the SX-250.

About:Energy

London startup About:Energy offers its customers world-class expertise in testing and software for the predicted $950bn battery industry. Its digital platform, known as "The Voltt", streamlines R&D processes, enhancing decision-making by reducing reliance on physical research – and optimising design, management and cost via virtual prototyping. Its vision is to become a central hub for battery data.

Elysia

The mission of Elysia, from Fortescue WAE is to unlock the untapped potential of batteries. Among its solutions, it can increase battery life by up to 30% and detect faults and anomalies through its proprietary technology. Spun out of Williams Grand Prix Engineering, Elysia is driven by a team of experienced experts, whose understanding comes from deploying batteries in the real world on race tracks. In parallel, Elysia's cloud platform and embedded algorithms are powering a new generation of electrified mining trucks for Fortescue.

Forseven

Surrey manufacturer Forseven's goal is to streamline the way luxury, dynamically engaging vehicles are made, and offer them via a circular ecosystem. By combining world-class EV engineering with British design in their high-end models, CEO, Nick Collins, says: "We are creating something genuinely different, a new take on an established industry, with a growing team that is knowledgeable, experienced and deeply passionate about this endeavour."

E40 Ones to Watch

Altilium Metals

Altilium is a Plymouth-based cleantech group supporting the shift to a zero-carbon energy sector. Its vision is for a circular and domestic EV battery supply chain. In a bid to preserve natural resources, its processing tech seeks to extract the critical minerals powering the transition by recycling end-of-life EV batteries and mine tailings. Its aim is to be OEMs' first choice of recycler by providing on-demand access to the lowest-carbon and best-quality battery materials.

Axle Energy

With financial backing from Picus Capital and Eka Ventures, London company Axle Energy is seeking to build a flexible, dynamic decarbonised grid. Its ambition is to allow home energy devices including EVs, heat pumps, solar panels and batteries, to participate in this new energy ecosystem, via software that makes it simple to connect to electricity markets. By replacing the centralised structure of the traditional grid with a dynamic interplay of supply and demand, its ultimate aim is to "help kick fossil fuels out" of the ecosystem.

Ilika

Hampshire pioneer Ilika has developed a niche in solid-state battery technology that's designed to meet the specific demands of a range of applications. In 2018, Ilika began developing its "Goliath" solid-state batteries for EVs, with a scale-up plan from kWh through MWh and onto GWh. Goliath cells have the potential to offer manufacturers improved safety, faster charging, longer lifespan and greater temperature resilience.

Zapp Electric Vehicles

UK-based Zapp designs, manufactures and sells high-performance EVs. Zapp's debut product, the i300, is an urban electric two-wheeler capable of traditional motorcycle levels of performance. Vehicle battery packs are ultra-portable, light and, once depleted, can be sent for second use at energy storage farms. Other components are fully recyclable. The company's assembly plant, meanwhile, features solar-powered, low-energy and automation-free systems.

E40 Ones to Watch

Helixx

Global tech operator Helixx has created a range of four compact EVs to service last-mile delivery and urban mobility. All four can be used for a virtually uninterrupted 24-hour duty cycle with rapidly swappable battery packs. Key innovations include a digital-first business model and the fact that the vehicles are offered on a subscription basis. Helixx has also innovated a franchising model whereby partners can create a manufacturing hub from scratch and have mini commercial EV vehicles rolling off the production line within 180 days.

Blink Charging

Blink Charging UK is a subsidiary of Nasdaq listed global EV charging provider Blink Charging Co. Blink specialises in EV charging equipment and services, enabling drivers and fleets to transition to electric transportation through innovative charging solutions. Alongside physical products, its cloud-based software monitors and operates data from charging stations connected to its EV network. Blink's wide variety of global EV partners includes universities, airports, supermarkets and medical facilities. It launched its advanced bidirectional V2G EQ 200 charger in the UK in 2023.

Contact us

We are Futurice, an outcome-focused digital transformation company.

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

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.

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Special thanks to
Poppy Brech, Jonathan Carrier and Sam Tremayne

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