mina

# EV Report
# Autumn 2022

# How we did it...

**Mina's platform is built on a rich bed of data which comes from EV charges performed by employees with company electric vehicles at home using Mina Homecharge® and also on the road using a Mina Chargepass®.**

"From this we have the ability to see costs, trends and behaviours in a way no other business can. We are able to understand when a particular vehicle is charged, how long for, and how much power it consumed.

"Combined with Mina's unique energy supplier tariff monitoring system, and key partnerships with our public charging networks, including Allstar and InstaVolt, we can then track the accurate cost per kilowatt for each employees' charges.

"Taking this a step further, when we then cross-reference this against the mileage efficiency of their vehicle, we're able to see how much it ultimately costs per mile for each and every charge made through Mina.

**MATT BETTINSON**
PRINCIPAL PRODUCT MANAGER

**Following the success of our first report back in Summer 2022, the number of downloads far exceeded our expectations and we have been overwhelmed with people asking if we're going to release a second.**

Well, this is it. This second report of what will be an ongoing series, contains additional data points, insights and trends that have never surfaced before and is again the only report of its kind, using data from multiple fleets, energy suppliers, charge point operators and hardware providers.

It's been well publicised that the cost of electricity has risen again, and to an extent, our latest EV Report for Autumn 2022 reflects that.

Our report also throws up some very interesting figures which show that the increased costs of electric vehicle charging are far lower than the overall rise in energy prices.

If drivers can access the right tariffs, plug in at the right times, drive well and choose the right vehicles, the rise in costs can be minimised. The average pence-per-mile (ppm) for cars for the period only went up by 1p, contradicting the sensational headlines that EVs are now costing more than petrol or diesel cars to run.

Our previous report highlighted the challenges drivers face with the 5ppm Advisory Electricity Rate (AER). The new revised 8ppm is a welcome increase, however as our current report shows, 100% of charge sessions consumed in public, and 80% consumed at home cost more than the 8ppm. With more than 800 different tariff rates being used by drivers with Mina Homecharge®, one simple AER figure will just never work when it comes to paying for EV charging.

At Mina, we pay energy suppliers directly and most importantly accurately, no matter which of the 800-plus tariffs your driver might be on. In the past 12 months we've seen a huge uptake in our products as businesses realise there is a radical, yet simple and fair way to pay and manage EV charging."

**ASHLEY TATE**
CEO AND CO-FOUNDER, MINA


# Autumn 2022 Data Download

## Average cost of **home** charging (p per kWh):

# 30p

**Up 4p** (Summer 2022)

Not surprisingly, the cost of charging an EV at home has risen over the quarter. But the rate of change is not as much as might be expected, even after the energy price rises in the autumn. A 70 kWh EV being charged fully at home in September would have cost, on average, £18.20. By late November it would have been £21.70. Assuming a 250-mile range, that's an average increase of only 1.4p per mile.

## Average cost of **public** charging (p per kWh):

# 70p

**Up 14p** (Summer 2022)

Public charging has seen increases in cost that outstrip those of home charging. Why? Firstly, the Mina Chargepass® network* is rapid and DC charging has higher infrastructure and energy costs than home or public AC points. Also, unlike home electricity, which is capped, public charging energy is not, so providers have no choice but to pass it on. They have also been hit by increased business rates and all the other inflationary issues that companies face: rising maintenance costs, wages and interest rates. Added to which, is that through the autumn and winter there is less cheap renewable energy available.

*Mina Chargepass is part of the Allstar network alongside the InstaVolt network.

63p*

**Highest recorded cost**

*This rate was from September, before the Energy Price Guarantee was implemented in October 2022

5p

**Lowest recorded cost**

### HOW THINGS CHANGE

**26p→30p→31p**

The average price of home electricity for EV charging stayed level during September at 26p, then rose to 30p in October, and 31p in November. We'll share analysis of our December numbers, after the energy price cap rise, over the coming months. As you've signed up to receive our reports, this will be emailed directly to your inbox.

£2.53

**Highest recorded cost**
(p per kWh, including other charges such as overstay)

30p*

**Lowest recorded cost**

* not including free charge points

### HOW THINGS CHANGE

**14p in 3 months**

The average cost of public charging is up 14p in three months. This means that, as an example, 1,000 miles at 25 kWh/100 miles using public chargers would now cost £175, £35 more than in Summer 22. While these costs have increased the real-life impact is mitigated because, as our data shows, drivers use public charging only as a back-up with 92% of charge sessions at home.

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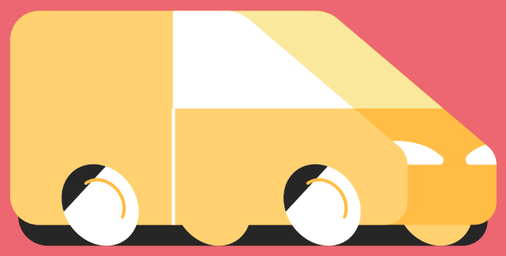
# ...and broken down by **vans** and **cars**



## 13p

### Overall average van ppm cost (home and public)

**Up 2p** (Summer 2022)

Not a surprise that costs are going up this autumn, but say a driver did 1000 miles at 13p. That's £130. A 40mpg diesel van doing 1000 miles at the UK average of 188p per litre* would still cost £213 - £83 more. Or £996 a year. Still a long way to go before there's price parity, despite press reports to the contrary...

*Allstar UK average at 20/12/2022

## 9p

### Overall average car ppm cost (home and public)

**Up 1p** (Summer 2022)

Electric cars, charging most of the time at home with some public charging to get to destination, are still the most cost-efficient way to drive by some distance. Because of the increasing efficiency of the UK EV fleet, overall PPM costs have only risen by 1p, offsetting the overall energy price rises we're seeing in the UK. It's a remarkable performance.

## 19p

### Average car ppm cost (public)

**Up 3p** (Summer 2022)

Public charging costs for cars have not risen as much as for vans. Why's that? It's because of the increasing maturity of the electric car market. They are inherently more efficient, they're going further and drivers are getting smarter, by public charging only when they need to.

## 28p

### Average van ppm cost (public)

**Up 6p** (Summer 2022)

The reasons are discussed on the previous page, but public charging costs are outstripping home ones. For van operators the decision is stark: make sure you can plug in at home, or use cheaper, slower chargers, otherwise costs will rise quickly.

## 12p

### Average van ppm cost (home)

**Up 2p** (Summer 2022)

Home charging for vans is incredibly good value. Over the course of a year, a 1000 mile a month driver would save £930 over a diesel equivalent*. But watch out – apply the current 8p AER for repayments and they will still be out of pocket by £400.

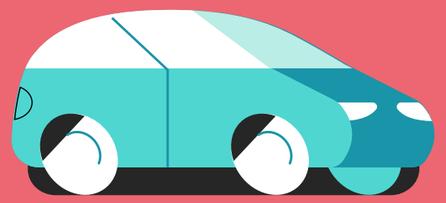
*Using Allstar UK diesel average of 188p per litre at 20/12/2022

## 8p

### Average car ppm cost (home)

**Up 1p** (Summer 2022)

Why has the overall car cost gone by the same amount as home charging, while public charging has risen far more? Might seem like it doesn't make sense, but it's volume related. This last quarter has seen a huge growth in home charging as a proportion of all plug-ins, and so the two numbers are likely to match each other more closely in future.

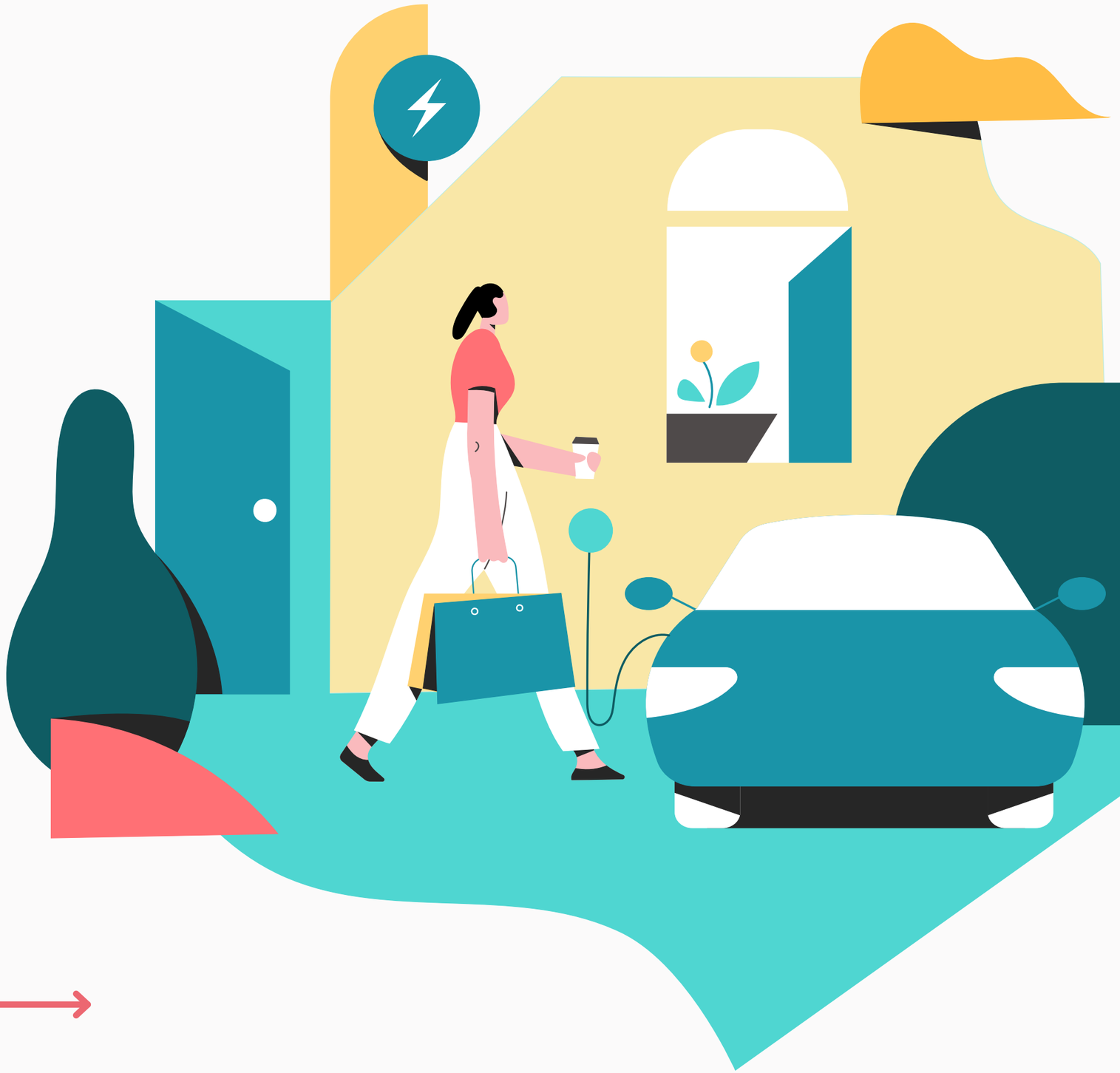


### But! Home charging can cost up to 17ppm

It's so important to be on the right tariff and to charge at the right time: the most expensive home charging cost this quarter in our data is 17ppm. It's still cheaper than petrol or diesel, but there are far bigger savings to be made.

# A Tarrifying Choice...

Drivers are on more than 800 different home charging tariffs and it can cause confusion if not manged properly.



> “It’s great there is so much choice when it comes to tariffs, but for a business, and its drivers, they need to be able to keep track. Too much data can be a burden, if you can’t manage it properly.”

**ASHLEY TATE**
CEO AND CO-FOUNDER, MINA

Electric vehicles provide a large range of cost flexibility. Our data shows there are 811 different home charging tariffs that cost between 5p and 63p per kWh, and include different ways of paying.

This is in contrast to petrol and diesel, where although there are slight variations in the pence per litre costs, in general the pricing profile is very similar everywhere. With this wide choice come challenges.

## 1 Hundreds of tariffs are still above the AER, despite the recent increase from 5ppm

80%

of all journeys based on charging at home exceed the 8ppm AER.

As a result, hundreds of tariffs of many different types will result in a real world ppm cost for the EV driver that is higher than 8ppm.

As electricity costs rise during the winter, we expect the number of journeys above the 8ppm to rapidly increase, back to the 90%-plus levels we saw when the AER was 5ppm. How can businesses keep up to date with this constantly shifting situation?

With such a huge variety of tariffs, working out manually who is above or below the AER is always complex. At Mina we do this automatically, saving massive amounts of administration, calculation and, most importantly, accuracy.

## 2 With lots of tariffs, comes lots of confusion

The problem is that with this great variety of rates there is the potential for confusion.

Two drivers could be in different parts of the country, but have the same electricity provider and be on the same tariff product. What they pay in terms of pence per kilowatt, because of the way that energy is produced and delivered, could be different.

Our data shows that charging often occurs across differing rates. For example, an EV specific tariff with low rates overnight could lead to a battery being charged partially on the low off-peak rate and also on the much higher peak rate.

## 3 Digital innovation can solve all of this, simply

With these many different factors in play, and as there will be more choice in future as renewable and home generation becomes more prominent, how can one simplistic figure, the Advisory Electricity Rate, be fit for purpose?

It is possible to not only know every piece of data, but also manage it too. There's no need to have one figure to try and apply across all payments when at Mina we can pay directly to the supplier, simply and exactly for every driver's charge.

19%

of home charge sessions cost less than the AER

Drivers at the lower end of the scale, for charge sessions costing less than the AER, were drivers on low price EV specific tariffs provided by Octopus Energy. It's through products such as Intelligent Octopus and Octopus Go which show there can be savings to be had.

Octopus Energy is one of the leading energy suppliers in the UK and a smart tariff pioneer. Their Intelligent Octopus tariff allows drivers to charge for 10p an hour during a six hour window when it is best for the grid - helping drivers cut charging costs while balancing the grid.

"EV uptake has taken off in the UK - drivers are increasingly aware of the benefits of switching out their old school gas guzzling car. As Mina's report confirms, EV tariffs such as Intelligent Octopus allow drivers to tap into the lower running costs available with electric cars, while helping to balance the grid and bring down bills for everyone. As more low cost renewables join the grid, these costs will only fall further - helping reduce the impact of travel on our wallets, as well as the planet."

**ALEX SCHOCH**
HEAD OF FLEXIBILITY AT OCTOPUS ENERGY GROUP

### The Mina Energy Cost Calculator

Mina's goal is to make the transition to electric vehicles much simpler for businesses. The cost of energy consumed will be unique to each business, which is why we've created a handy tool designed for you to gain a clearer picture of energy costs for your fleet based on estimated mileage, vehicle type and charge location.

→ **Calculate your fleet's energy costs here**

# The charging crunch break

Commercial vehicle drivers are stopping for longer, but all at the same time.

The biggest change in public charging trends during 2022 was with van users. All year we've been seeing a growth in the amount of charging, both in length of time plugged in, the number of vehicles involved, and the amount of charge being delivered.

It all points to one thing: electric vans are rapidly becoming a significant proportion of the working fleet in the UK.

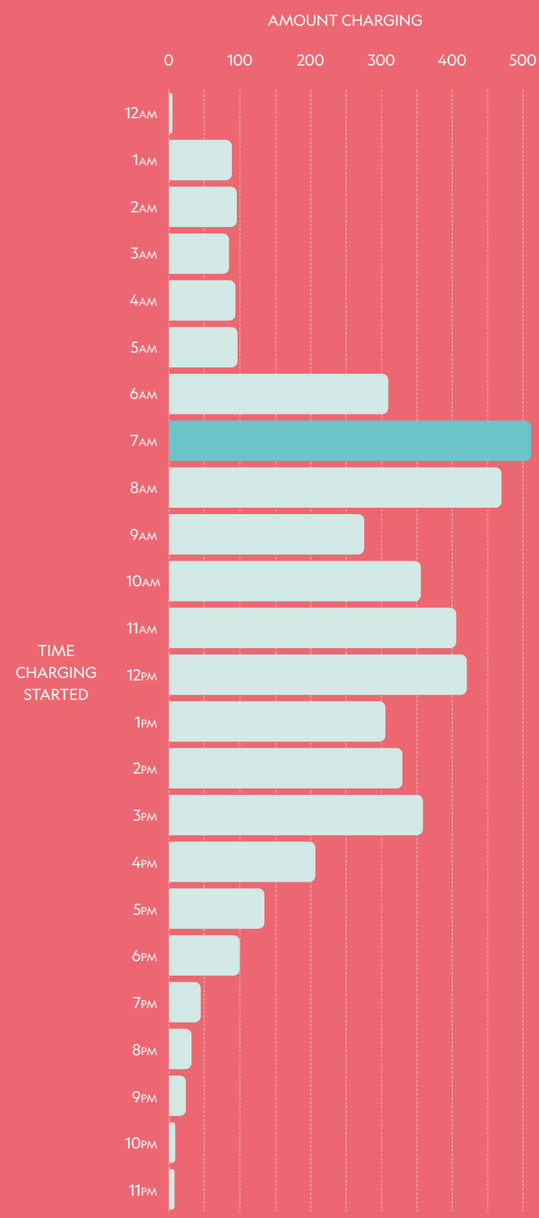
## Average time stopped **charging** (public)

# 57 mins 32 secs

**Up 10 mins 12 secs** (Summer 22)

But there are some issues for businesses to consider. In the last quarter the amount of time spent charging has increased by 10 minutes on average, to just under an hour. As a rough guide, that hour-long charge adds about 100-150 miles of range, depending on the speed of the charger and what power the van can take.

Our data shows that there are two times of day when vans are mostly charging: between 7-9am and 11-1pm. The graph here shows that trend.




**PEAK PLUG-IN TIME**

# 7-8am

A coffee and a charge: our data shows that the hour between 7 and 8 am is the busiest time on the UK public network, followed by 8 to 9am.

> Charging time is going to become part of the regular working day for many, and it needs to be integrated into workflows and schedules.
>
> In order to do this effectively, you need to know when drivers have to stop. Once you've got this, you can make big improvements in productivity."

**ASHLEY TATE**
CEO AND CO-FOUNDER, MINA

For most businesses, an hour or so spent charging at breakfast would not have a major impact on daily routines and productivity, albeit it might not fully charge the batteries. But the second biggest peak, after 11am and continuing until 1pm, may need managing in future if the trend continues and numbers of vans increase (which they will).

Obviously, everyone should have a lunch break, and if they can combine that with time spent plugged in, then great.

But as the electric van fleet increases in size it's in danger of creating a bottleneck. We're calling it the 'charging crunch break' and without enough chargers to service this lunchtime rush, it is going to have a number of effects:

1. The hour-long lunch will start to extend beyond 60 minutes as drivers have to wait for a charger to become available. If it eats into working time, what is the cost of this downtime to your business?

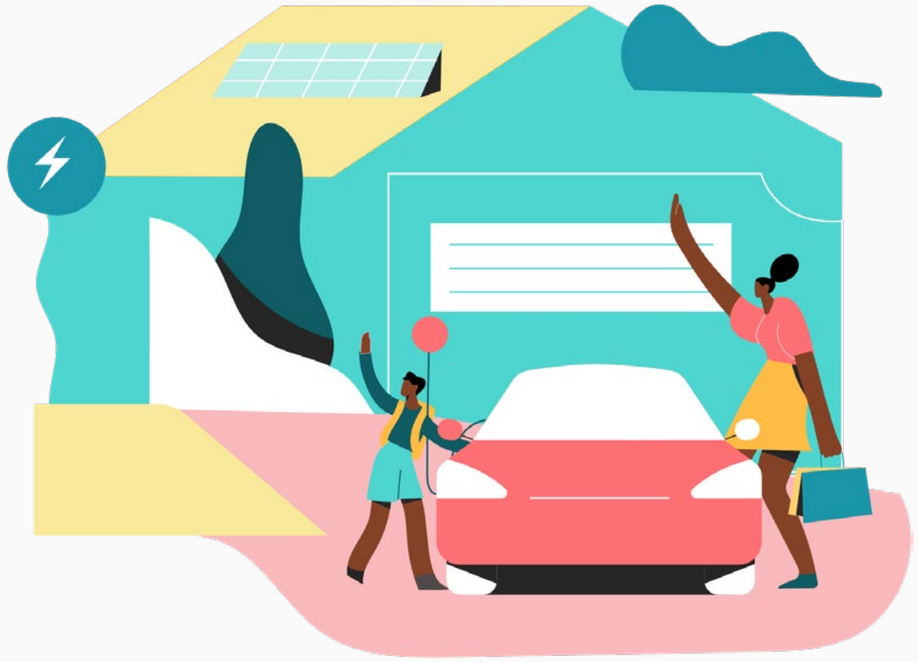
2. Lunch breaks will get earlier as drivers begin to get in early to plug in before the rush. What effect will this have on their working day and job or delivery schedules?

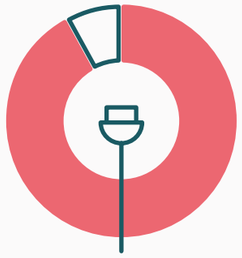
3. More vehicles on chargers potentially means slower charging. Would they be better to be charged at other times when it's less busy, with more power available, for shorter stops?

4. There's a huge drop off in charging levels from 4pm onwards. Could the working day be restructured to take advantage of this, smoothing out the breakfast and lunchtime rushes, potentially reducing downtime through faster charging speeds and more plug availability?

# Home is where the heart is

EV drivers need more options to cost-effectively charge at home





92%

of all charges throughout Autumn were consumed at home

Our data shows that for those drivers who use an EV for business, by some distance most of the charging is done at home: 92% of all charges in the Mina data comes from plugging in there.

This is to be expected, because our product makes paying for EV charging at home radically simple and accurate, and so, even with thousands of drivers also using our Chargepass public charging network every day, there is likely to be a heavier weighing toward those drivers who can park up and plug in at home.

But EV drivers still need more help to access cheaper home charging.

The average cost of electricity used at home across all our customers and drivers is 30p after VAT, which is only marginally less than the national average kWh for home electricity during the quarter.

It shows that more EV drivers need to be able to take advantage of specialist or off peak tariffs to charge overnight at cheaper rates to maximise savings. In our data, there are 129 multi-rate tariffs - more than enough choice for EV drivers.

> Choosing the right tariff is a question of balance, and requires holistic understanding of all home energy needs - not just the EV."

**ASHLEY TATE**
CEO AND CO-FOUNDER, MINA

But the average cost of home charging shows not enough are using these super-low off peak rates.

For some drivers it's because they have taken the decision that the savings for their EV at the low rate don't outweigh their electricity bills the rest of the time (when often the peak rates are higher than average).

Many homeowners have not been able to access these charges in the past few years due the major shake-up in the energy industry which has often prevented movement between suppliers.

Then, there's the fact that many drivers just don't know what their best option is, and find it hard to understand.

It needs the electricity suppliers to provide more clarity and advice. The data is there, as we can show. It needs forming into easily understandable, digestible examples for homeowners.

"We know in our discussions with energy providers such as Octopus there are great savings to be had when you are on the right tariff," said Mina CEO Ashley Tate. "And we speak to EV owners who have been contacted by forward-thinking firms such as them about the possibilities of switching to a more suitable tariff, and that's really good to see.

"There is no lack of desire from energy suppliers to offer EV tariffs and help drivers make the switch, but with current wholesale energy costs being so high and unpredictable, they're finding it hard to launch such tariffs. However, I do think we'll see these coming to the market over the next 2 years."

Often EV-specific tariffs have a smaller low cost window at night for charging than standard off-peak, but the charges are considerably less during that period - perhaps only a third of the cost.

A few things drivers should be aware of when considering an EV tariff:

1. Do you understand how much energy you are using at home to charge your EV?
2. Is a nightly 4-5 hour EV tariff window enough for daily charging needs, and can you schedule your EV (or EVs!) charge to fit into it?
3. Often the accompanying peak tariff is higher than average. Would the rest of your home energy bills negate the savings of the EV-specific element?
4. Would a standard off-peak tariff, which is a higher cost at often around two-thirds of that of peak, but goes on for longer (usually around eight hours), be a better bet?

## MAKE YOUR HOUSE AN EV HOME...

Move from a standard rate charge to an EV-specific one

**Standard rate**
(30p per kWh for a 60 kW Ev)
**£18.00** →

**EV-specific rate**
(5p per kWh for a 60 kW Ev)
**£2.40** →

# The Mina EV Drivers

Driving electric for work, with our real life Mina motorists.

## Sarah

Nissan e-NV200

**Florist**

**8,000 miles a year, mostly urban deliveries**

| | Autumn 2022 average | 2022 average |
|---|---|---|
| **Miles** | 1,768 | 7,956 |
| **Real world efficiency** | 3.5 m/kWh | 3.78 m/kWh |
| **Total consumption** | 492.5 kWh | 2,104.8 kWh |
| **Home charging cost** | £101.88 (89% off peak/11% peak) | £300.33 (88% off peak/12%) |
| **Public charging costs** | £0 | £90.90 |
| **Home/public charging split** | 100%/0% | 91%/9% |
| **PPM** | 5.7 | 4.9 |

Sarah does most of her charging overnight on off peak rates, and it has hugely helped her running costs this year. Even as the **off-peak rate has risen in the last quarter to 19p**, and she has managed to do all of her work without needing to charge in public, Sarah is still **averaging only 5.7p per mile**.

Her challenge will be that the e-NV200 doesn't have the greatest range, perhaps only about 130 miles in ideal conditions. As the weather gets colder that range will drop which may mean she needs to use more public charging. Added to which, the off-peak rate is due to rise over the winter too. So it will be interesting to see how she manages costs in the next quarter.

Even with those considerations, she is an ideal EV driver, driving the e-NV200 efficiently, and using it in the way it was designed. But if the business had been paying Sarah back at the 8ppm AER, it would have overpaid her.

## Noah

Jaguar iPace

**Sales Director**

**15,000 miles a year, nationwide**

| | Autumn 2022 average | 2022 average |
|---|---|---|
| **Miles** | 3,930 | 14,877 |
| **Real world efficiency** | 2.9 m/kWh | 3.1 m/kWh |
| **Total consumption** | 1,355 kWh | 4,799 kWh |
| **Home charging cost** | £308.94 (100% standard rate) | 985.72 (100% standard rate) |
| **Public charging costs** | £224.38 | £564.36 |
| **Home/public charging split** | 76%/24% | 79%/21% |
| **PPM** | 13.5 | 10.4 |

Noah drives a lot of miles a year in his iPace, but because he has a defined sales area generally he can charge a lot at home, and is able to make it back each day without needing to charge in public a lot.

But when he is out on the road, he uses a Mina Chargepass, and it's noticeable that in the last quarter his efficiency has dropped slightly, and the amount of charging he has had to do in public has risen. Combined with the rise in public charging costs, his **pence per mile figure has increased from 10.4ppm throughout the year to 13.5ppm** through the autumn.

Almost no journey Noah makes is below the AER because his home tariff is a standard rate one, but because he uses Mina his company is able to pay accurately for all the electricity he uses.

## Estelle

Polestar 2

**Account Manager**

**25,000 miles a year, nationwide**

| | Autumn 2022 average | 2022 average |
|---|---|---|
| **Miles** | 6,724 | 24,012 |
| **Real world efficiency** | 3.1 m/kWh | 3.5 m/kWh |
| **Total consumption** | 2,169 kWh | 6,861 kWh |
| **Home charging cost** | £84.80 (98% EV tariff/2% standard rate) | £171.25 (96% EV tariff/4% standard rate) |
| **Public charging costs** | £545.72 | £1,344.56 |
| **Home/public charging split** | 63%/37% | 65%/35% |
| **PPM** | 9.3 | 6.3 |

At first glance, you might look at Estelle's public charging costs and think how high they are. But she does a lot of long sales trips that necessitate rapid charging.

**What she does very cleverly is use her extremely low home EV-specific tariff to its absolute maximum**, and it compensates hugely for plugging in while she's on the road. For most of this year her PPM cost was just above the AER, so using Mina ensured she was not out of pocket.

As the AER has risen to 8ppm, so have Estelle's costs, at the same time as the autumn weather started to have an effect on efficiency. Even Estelle, a model long distance EV driver, can't get below the AER.

## Jordan

Vauxhall e-Vivaro

**Engineer**

**7,000 miles a year, mostly urban**

| | Autumn 2022 average | 2022 average |
|---|---|---|
| **Miles** | 2,142 | 7,231 |
| **Real world efficiency** | 2.4 m/kWh | 2.6 m/kWh |
| **Total consumption** | 892.7 kWh | 2,781.2 |
| **Home charging cost** | £0 | £0 |
| **Public charging costs** | £580.13 | £1529.66 |
| **Home/public charging split** | 0%/100% | 0%/100% |
| **PPM** | 27.1 | 21.2 |

Jordan doesn't have the ability to charge at home so mostly plugs his van in first thing in the morning on a public charger, using a Chargepass card to pay for it. He also carries a lot of kit, and so can't drive especially efficiently.

The result is his costs are considerably higher per mile than our other EV Drivers, with **21.2ppm for the year and 27.1ppm for the last quarter**. But it's worth considering this in the context of a diesel van doing 40mpg. Based on an average of 188p per litre it would have still cost slightly more, at £1,545.

It's early days for Jordan's employer in the transition to EV and it is looking at introducing workplace charging, or providing employees with a home charger. Looking at their costs, either option would probably be worth the investment.

Please contact **sales@mina.co.uk**
should you have any enquiries
about our products or services.

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