

Can electric vehicles save the world?

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Article co-written by [Vinli](#) and ALD Automotive

Reductions in carbon emissions have been among the few silver linings of the COVID-19 pandemic and its associated lockdowns. As vehicle travel begins to return to pre-COVID-19 patterns, however, eco-conscious fleet managers are wondering if there's any way to maintain those lower emissions levels beyond the pandemic.

Through a study of data from over 10,000 connected vehicles in the UK, ALD Automotive and Vinli have found that a strong majority of drivers are prime candidates for electric vehicle (EV) conversion. Moreover, if these drivers were to convert to EVs, our data suggests that emission levels could permanently be reduced to the lowest levels experienced during the heights of the COVID-19 pandemic. Let's look at the numbers.

Range anxiety: no worries for most drivers

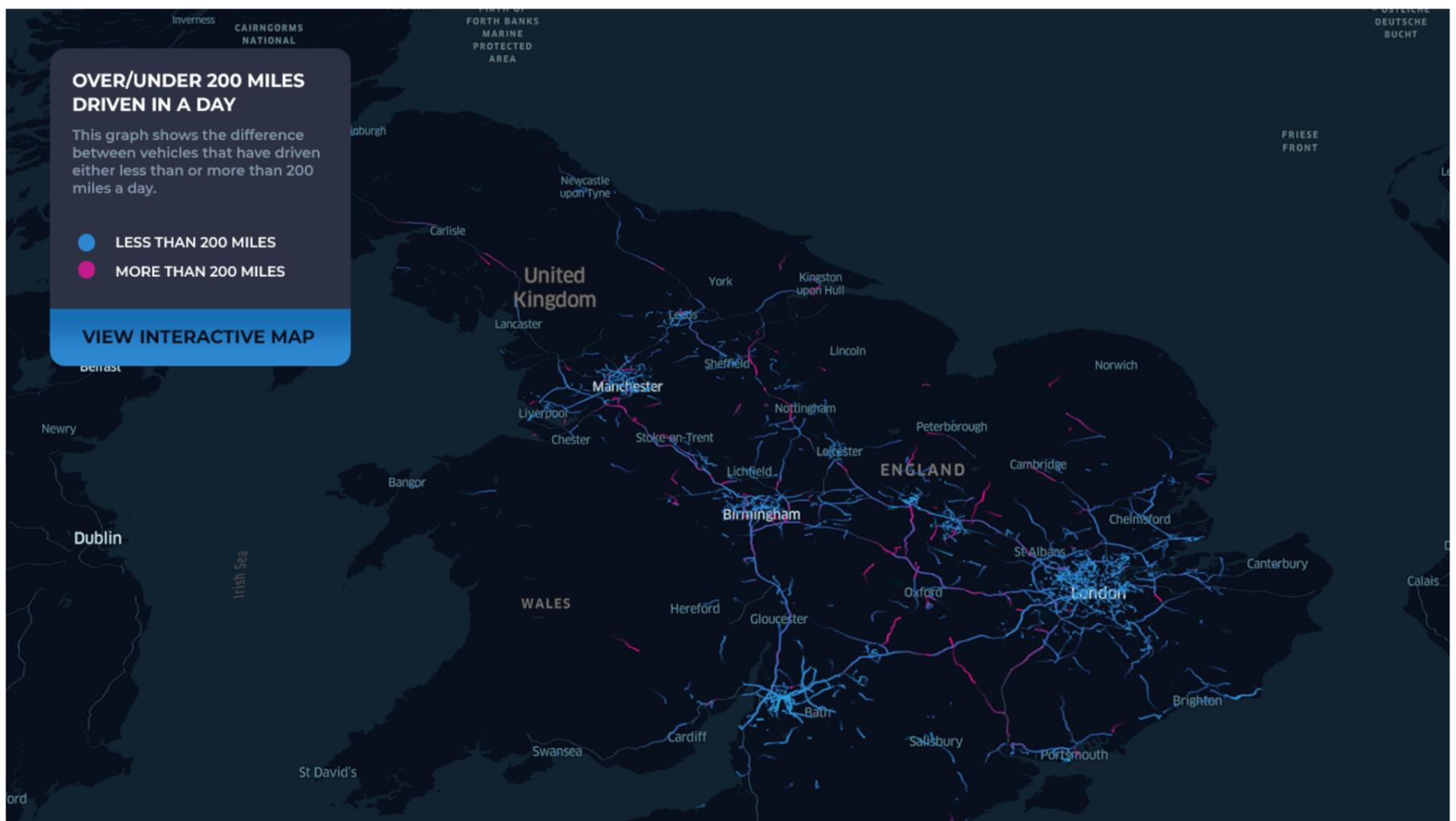
Any conversation about EV adoption must start with range anxiety. Despite advances in battery capacity, many drivers still doubt whether EVs offer enough range for all the trips they need to make. But is that true? How many drivers ever travel far enough in a day to be concerned about range? And of those that do, how often? Many electric vehicles on the market today offer 200-350+ miles on a single charge.

Range of electric vehicles

Less than 100 miles	101 to 200 miles	More than 200 miles	Range
Uniti One 12 kWh	Hyundai Ioniq Electric	TESLA Model S Long Range	379
Smart EQ fortwo	BMW i3	FORD Mustang Mach-E 210kW	370
Renault Twizy	Mazda MX-30	TESLA Model 3 Long Range	348
REVA G-Wiz	Nissan e-NV200 Combi	SKODA ENYAQ iV 80 77.1 kWh	316
Mahindra e2o	VW e-up!	JAGUAR I-PACE EV400 S 90kWh	292

*Source: <https://www.nextgreencar.com/>

But since 200 miles (c. 320 km) per day is the often-cited benchmark where range anxiety kicks in, we used that as our yardstick. Using real world UK driving data from over 10,000 ALD Automotive vehicles prior to the COVID-19 pandemic, it's vividly clear from this map visualization that the vast majority of daily journeys never go beyond 200 miles.



Over the six months preceding the COVID-19 lockdown, when we break down those journeys by frequency, the numbers tell a similar story. Almost half (49%) of all drivers drove only once or twice over 200 miles during that period, or about once a quarter at most. And over 27% never drive more than 200 miles in a day.

Most significantly, 97% of the time, almost 69% drive less than 200 miles per day i.e. they drive one 200-mile day per month or less – the 'Close-to-Homers'. It is this group, the Close-to-Homers, who are most primed for EV conversion.

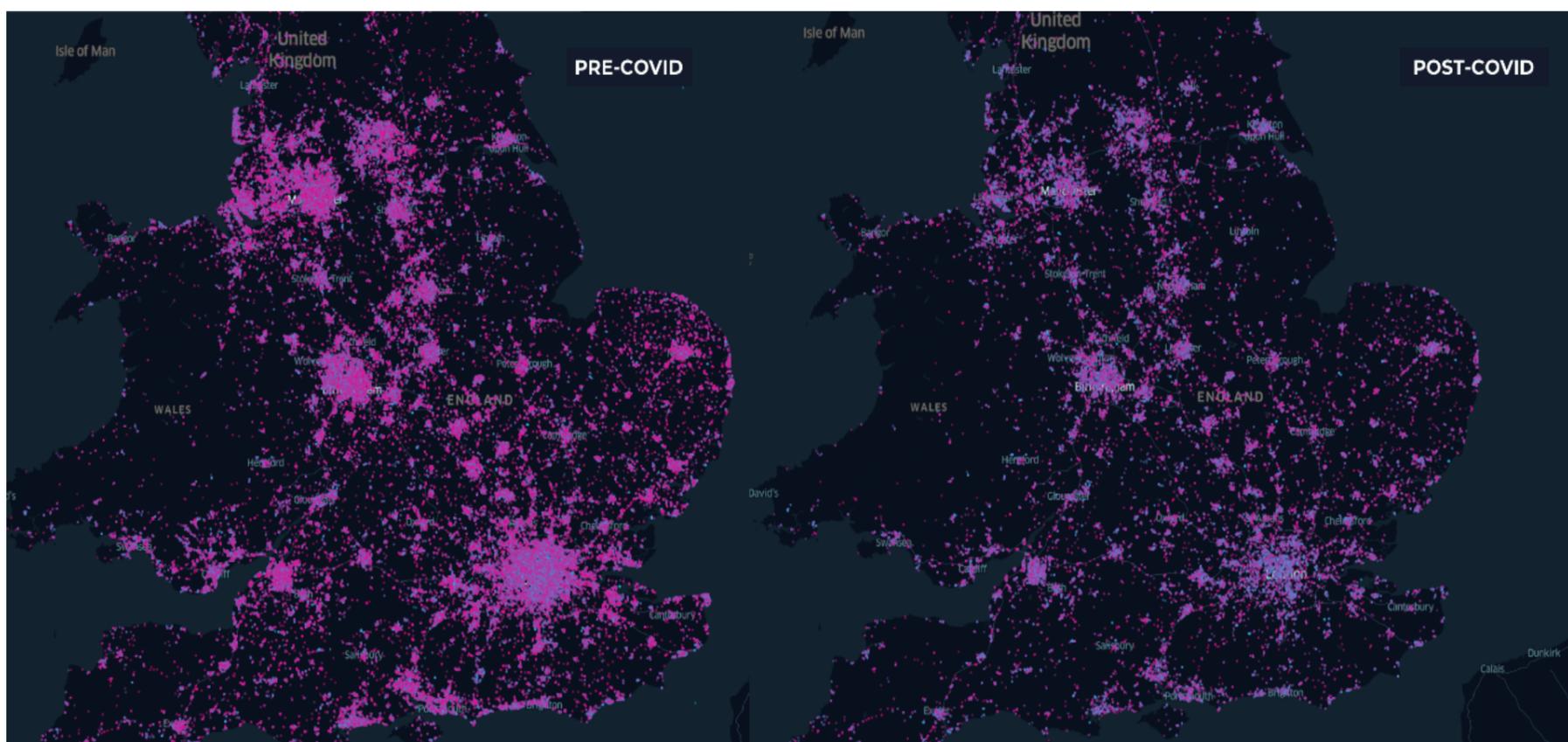


Based on 6 Months Pre-COVID { Sep/19 - Feb/20 }	Percent	Cumulative Percentage
People that <u>never</u> drove more than 200 miles	27.70%	27.70%
People that drove more than 200 miles once (1)	12.09%	39.78%
People that drove more than 200 miles twice (2)	9.24%	49.02%
People that drove more than 200 miles three times (3)	6.08%	55.10%
People that drove more than 200 miles four times (4)	5.64%	60.73%
People that drove more than 200 miles five times (5)	4.26%	65.00%
People that drove more than 200 miles six times (6) -- once a month	3.99%	68.98%

When the range anxiety threshold is increased to 250 miles per day, however, the share of Close-to-Homers rises to 86%; with 43% of the 10,000 drivers never reaching that threshold at all. Our findings, with a conservative 200-mile benchmark represent the floor of the potential opportunity, not the ceiling.



Emissions: the COVID-19 carbon collapse



So, if 69% of personal vehicles were converted to EV, how would that compare to the dramatic reductions in emissions seen during the most intense periods of the COVID-19 lockdown?

First, let's quantify those reductions.

Pre-COVID-19, the 10,000 cars in our study averaged total emissions of 90 tons of CO₂ per day*. Carbon emissions dropped by 70% (to 27 tons per day) during the most restrictive initial phase of lockdown in the UK in March and April 2020.



Vehicle level emissions data is provided by the in-vehicle OBD device for accurate readings. When this information is not available, we have used an accepted standard for UK vehicle emissions to fill missing data. [Carbon Emissions Table]

As restrictions loosened, we saw those emissions nudge back up to 43 tons per day during May through to July, but this was still a reduction of 53% on pre-COVID-19 levels. With guidelines more relaxed from August through to October the rise then continued to 64 tons per day of CO2, but this was still 29% down from before the pandemic.

And this is where the data really hits home. 70% reduction achieved in carbon emissions during lockdown. 69% of drivers are Close-to-Homers - strong candidates for EV conversion.

The conclusion is clear. Converting potential EV drivers would allow the UK to return to and maintain vehicle CO2 emissions at the levels achieved during the national lockdown, even if travel returned to pre-COVID-19 levels.

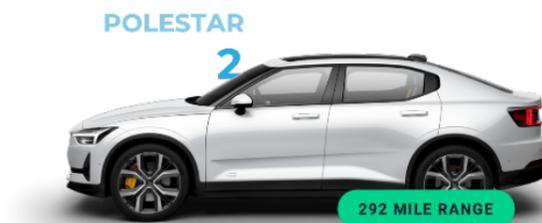
Close-to-Homers drive a mix of vehicle types

As we've found, almost 70% of our sample fleet drives less than 200 miles per day, at least 97% of the time. But what if these Close-to-Homers just like the cars they drive now? What if they don't think EVs offer the same features, comfort or performance?

Our data shows that there is a wide range of vehicle types spread throughout Europe that are still great candidates for an EV conversion. Below we focused on the more popular vehicle makes/models in our dataset, and how they could transition to one of the popular EVs available in the UK that are comparable in capacity.

Our data shows that the 7,500 plus Close-to-Homers prefer various vehicle types with the top ten most common vehicle make and models being...

Make	Model	% of Fleet Sample
VOLKSWAGEN	GOLF HATCH	2.68%
FORD	TRANSIT	2.66%
NISSAN	QASHQAI 5 DOOR HATCH	2.30%
OPEL - VAUXHALL	CORSA	2.22%
MERCEDES-BENZ	GLC CLASS	1.88%
KIA	NIRO	1.73%
RENAULT	CLIO	1.71%
TOYOTA	C-HR	1.68%
OPEL - VAUXHALL	INSIGNIA	1.66%
BMW	5 SERIES G30 SALOON	1.62%



Turning a crisis into an opportunity

By disrupting the standard patterns of daily life, the COVID-19 lockdowns have created opportunities for a fundamental change in everyday activity. Perhaps nowhere is that more evident than in our collective approach to vehicle transportation and the climate crisis.

As businesses and individuals everywhere re-examine their old habits and preferences, and as perceptions catch up to the reality of improving EV range, there's never been a better time for EVs to become the transport of choice for millions of drivers in the UK ... and billions of drivers worldwide.

PRE-COVID

90 TONS OF CO2
PER DAY

LOCKDOWN

27 TONS OF CO2
PER DAY

EV SWITCH

28 TONS OF CO2
PER DAY*

During lockdown, we've seen what can happen when vehicle emissions are cut by 70%. this data shows that EVs have real potential for keeping us there.

Additional research

Month	# Trips (millions)	Distance (millions km)	Avg CO2 (g/km)	Total CO2 (Tons)
2019-08	1.01	21.07	127.17	2,679
2019-09	1.04	20.27	126.54	2,567
2019-10	1.14	23.38	126.97	2,969
2019-11	1.09	22.02	126.86	2,794
2019-12	1.00	19.03	126.33	2,404
2020-01	1.06	21.27	126.88	2,699
2020-02	0.99	20.12	126.86	2,552
2020-03	0.88	15.85	127.75	2,024
2020-04	0.42	5.75	127.74	735
2020-05	0.54	7.75	127.00	998
2020-06	0.72	10.57	127.06	1,343
2020-07	0.83	12.79	126.91	1,623
2020-08	0.83	15.76	126.67	1,996
2020-09	0.84	15.56	126.62	1,970

<https://vin.li/era/uk-ev-switch/>

Fleet Europe Summit 2020 Webinar

In case you missed it, we recently hosted a dedicated webinar - **“From data to reality, electrification can make a difference (we’ve got the proof)”** - at the Fleet Europe Summit 2020 with Annie Pin, Chief Commercial Officer and Benjamin Huvé, Senior Consultant and EV expert at ALD Automotive, alongside Mark Haidar, CEO of Vinli.

The video is available for replay by [clicking here!](#)

Would you like to find out more about how we can help you transition your fleet? Feel free to contact us at: consultancy@aldautomotive.com