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# autovolt

The Electric and Hybrid Vehicle Magazine

**DRIVEN:  
MINI'S  
FIRST  
PHEV**



**Revealed: Tesla Semi + Roadster**  
**Fully Autonomous Taxis**  
**Forecourt EV Charging**  
**Silicon Battery Revolution**  
**Record Breaking in a Tesla**



**erod**

**Beth Lily Georgiou  
drives the radical  
electric fun car**

ISSN 2399-9926



# Editor's Letter



In only a matter of months, electric vehicles have been on the tip of everyone's tongue as though they're the bread and butter of the motoring industry. From the Frankfurt and Tokyo to Las Vegas and Dubai, motor shows are now dominated by electric vehicles. However, whether any of these can yet be driven is another matter entirely. For the moment, at least, most of these cars remain semi-fiction - they're real concepts, but production - for many - is less than guaranteed. Nevertheless, that's not to suggest that these cars are a flash in the pan. Without exception, car makers all have an electrification plan in progress, whether that's mild-hybrid, hybrid, plug-in hybrid, battery electric, capacitor powered or hydrogen. More than that, the realisation these cars will effectively carry stored energy is beginning to sink into those who manage our electricity grid and power demands. The idea is simple: The combined expected total of electric vehicles will equate to more than ten times as much energy stored as the entire UK uses in a year. That's a lot of power. I'm talking hundreds of gigawatts. And if, just suppose for a moment, we can use that power to balance energy supply and demand, then our energy production can be that much more reliant on less-consistent means of energy generation, such as wind and solar. If that's not an exciting prospect for us, the vehicles we use to get from one place to another, the planet and our environment, then I don't know what is.

Jonathan Musk | Editor

COVER: MINI Cooper S E ALL4 PHEV Countryman

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## AUTOVOLT

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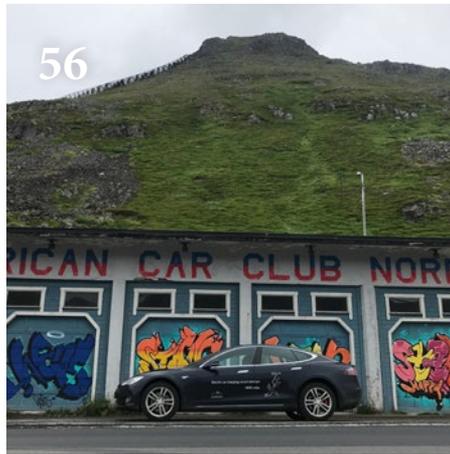
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**REAR VIEW**  
**BY LUCY HARGRAVE**



# ACROSS EUROPE

WORDS & PHOTOS: *Jeff Allan*

In August 2015, a pioneering journey was undertaken by three German men - Michael Willberg, Frank Mischkowski and Martin Wrobel - across Europe from Tarifa in Spain to Nordkapp in Norway over a period of 5 days. They set a Guinness World Record for charging time of 19 hours and 58 minutes over a distance of around 4,000 miles in a Tesla Model S 85D. This record stood for almost two years.

A few months later in October 2015 my son, Ben Cottam-Allan, and I - both from the UK - undertook a much shorter journey of about 850 miles in a Model S P85D, from Land's End to John O'Groats and back again. On the return journey we set a Guinness World Record for charging time of 3 hours 44 minutes across Britain and a new electric car record journey time of 18 hours 53 minutes across Britain. This gave us an appetite for an attempt at the cross Europe record. In 2017 we did make an attempt but ours was not the only one. This article describes the

three attempts at the cross Europe record this year and demonstrates the tremendous improvement in Tesla charging infrastructure and Tesla car capability in less than two years.

The first attempt at breaking the cross Europe record was in June 2017. The intention was for four women to attempt to complete the reverse journey from Nordkapp to Tarifa in just 4 days by driving continuously and stopping only for recharging. Their website [www.4girls4days.com](http://www.4girls4days.com) contains a superb time lapse video of their entire journey. Their attempt was organised by The CarTell, a young Luxembourgish start-up. Sadly, one of the women, Sandra Heinisch (Luxembourg) could not join the expedition, as she injured herself during training and was unfit to take part. So in the end the three drivers were Marie Guerre (France), Sascha Bloemhoff (Netherlands) and Paule Kiénert (France). They drove a Tesla S P85+.



Marie, Sascha and Paule beat their target of 4 days by 58 minutes, as well as achieving a charging time of 18 hours 22 minutes, thus beating the original Guinness World Record. Their overall consumption rate was 304 watt-hours per mile over the 4,000 miles covered. Marie, Sascha and Paule had an advantage over the conditions Michael, Frank and Martin faced nearly two years earlier - the Tesla Supercharger network had extended to Spain. Unfortunately, two charging stops in Norway still had to be carried out at slower chargers and they needed a CHAdeMO in Malaga, Spain, before reaching Tarifa.

In late July 2017, Ben and I set off on our attempt from Nordkapp to Tarifa in the same Tesla S P85D we had used on the previous Guinness World Record run in the UK nearly two years before. We chose a different strategy to Marie, Sascha and Paule. We decided to drive mainly during the day, rest overnight and drive slowly to reduce overall energy consumption. There were problems with this strategy, not least when charging at the beginning of the day with a cold battery. This was almost certainly a mistake. The other problem was that we only had 86% charge when we set off from Nordkapp and did not have the confidence to complete the 250 miles to the first Supercharger, so we charged for an hour and a half at a slow charger at a hotel en route. We did, however, manage the final 250 miles from the last Supercharger in Spain to Tarifa. Therefore, apart from the one slow charger in Norway, we used Tesla Superchargers the whole way.

We completed the full 4,000-mile distance in 8 days, with an overall charging time of 13 hours and 7 minutes, which gained us a second Guinness World Record. Our consumption rate was only 247 watt-hours per mile.

We had the advantage that in the month since the previous attempt, two further Tesla Superchargers had been made live including the one at Sørkjosen, which is over 400 miles above the arctic circle - the most northern Supercharger in the world!

This set the scene for the third and most successful attempt in 2017.



Marie Guerre (France), Sascha Bloemhoff (Netherlands) and Paule Kerkhof



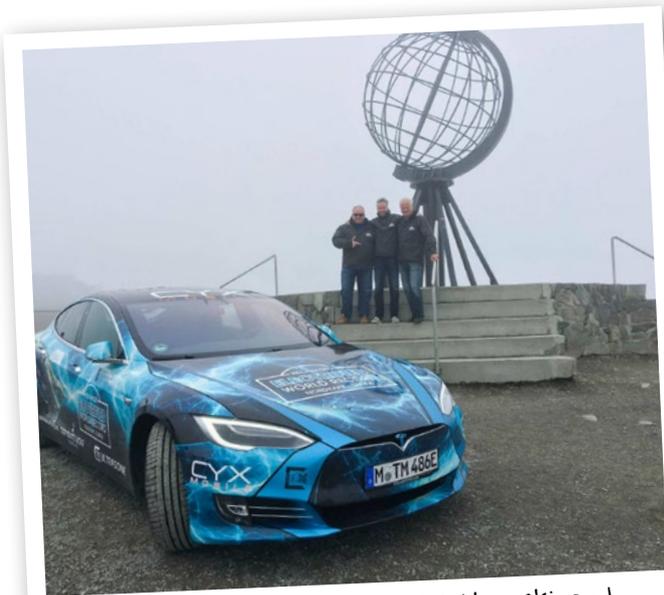
18h 22m charge time!



13h 7m charge time!



Ben and Jeff



Michael Willberg, Frank Mischkowski and Martin Wrobel



19h 58m charge time!

Michael Willberg, Frank Mischkowski and Martin Wrobel sensibly used the largest battery currently available. They drove a Tesla S 100D which has a 100kWh battery. They set off on July 28th, just two days after completing our attempt from Nordkapp. Michael, Frank and Martin drove continuously, stopping only for recharging. They showed great skill in their strategy, charging while the charge rate was high, driving to Superchargers with very low charge at the destination Supercharger and missing out a number of Superchargers that the other teams had used. The overall result was a total journey time of just over 3.5 days and a charging time of only 9 hours 51 minutes and 54 seconds. The consumption rate was 283 Watt-hours per mile. One of their great achievements was that they only used Tesla Superchargers between the Nordkapp start and Tarifa end.

Each team achieved something unique with their attempts: Michael, Frank and Martin set the record in 2015. Marie, Sascha and Paule were the first to drive the furthest distance in an electric car in four days; Myself and Ben achieved the lowest energy consumption; Michael, Frank and Martin then achieved the shortest charge time and shortest journey time. And, of course, all teams experienced an unforgettable extended road trip.

The table below summarises each attempt.

DATES	TEAM	CHARGE TIME	CONSUMPTION
7-11 August 2015	Michael Willberg, Frank Mischkowski and Martin Wrobel	19 hours 58 minutes	
9-12 June 2017	Marie Guerre, Sascha Bloemhoff and Paule Kiéner	18 hours 22 minutes	308 watt-hours/mile
18-26 July 2017	Jeff Allan and Ben Cottam-Allan	13 hours 7 minutes	247 watt-hours/mile
28 July to 1 August 2017	Michael Willberg, Frank Mischkowski and Martin Wrobel	9 hours 51 minutes 54 seconds	283 watt-hours/mile

## The Journey

Starting at Nordkapp, the most northerly point in Europe on an island reached from the Norwegian mainland via tunnel. It is over 600 miles within the Arctic Circle, providing an eerie midnight sun in summer. The photos show the globe structure at the visitor centre. The photo of Ben and me is taken outside the visitor centre and marks the start of the route. The road through Norway is a major part of the whole 4,000-mile journey and provides stunning scenery all the way to Sweden. The route takes in much less of Sweden than the lengthy coast of Norway and soon there is another change of country to Denmark, over the famous Øresund bridge that links the two countries. Next, there is a substantial drive through both Germany and France before reaching Spain. The end point is outside the town hall at Tarifa. The substantial difference in temperature between the start and end points in Europe can be clearly seen in the photos.





The most recent record run by Michael, Frank and Martin has demonstrated that this journey from one end of Europe to the other can be undertaken at normal driving speeds using Tesla Superchargers alone. It shows the rapid development of the Tesla Model S and the Europe wide network of Superchargers.

There is now no longer an excuse in Europe for driving anything other than electric. **AV**

