FRANKS & CO

European Patent & Trade Mark Attorneys

Exhibition Summary Report

Fully Charged Live Exhibition, June 09 – 10, 2018 Silverstone, England.

Franks & Co attended the 2018 Fully Charged Live exhibition at Silverstone on June 09, 2018 to check out the latest technology and state of the electric vehicle charging market.

The exhibition was organised by Ecotricity, a major provider of electric vehicle charging points in the United Kingdom. The purpose of the exhibition was to accelerate the rollout of electric charging points throughout the United Kingdom by providing information and promotion of electric vehicle charging points, battery technology, fully electric and hybrid electric vehicles.

The exhibition consisted of a number of stands in the main Silverstone building above the pits at Silverstone racetrack. Most of the exhibitors were UK companies, including those with foreign parent companies, but there were also companies from Germany, and Slovenia.

In the car parks and the garages underneath there were numerous electric vehicles on display, including those from Nissan, the all electric Jaguar i Pace, Tesla model S, Tesla Model X sports utility vehicle, BMW i3 and i8, Kia Soul EV, Kia Optima petrol hybrid, and Mitsubishi Outlander PHEV petrol hybrid electric vehicle.

Outside, the garages was a Nissan campervan, based on the Nissan fully electric commercial vehicle platform, Edd China's electric ice cream van and electric converted classic cars including a Ferrari 308 GTB, a Jaguar XJS, a BMW 3000i, a Land Rover defender, and a first generation Range Rover. There was even an electric Morgan.

Exhibitors were not restricted solely to electric vehicle charging, but also included other green technologies for integration with EV charging stations, such as solar panels, solar canopies/car ports with EV charging stations, wall or floor mounted battery technology, including an example of the Tesla wall mounted domestic storage battery, and vehicle to grid technologies.

Nissan, who produce the fully electric Leaf small passenger car as well as fully electric commercial vans displayed their vehicle to grid system, combining home battery storage with photovoltaic solar generation and connection to the vehicle battery.

In addition there were companies providing electric vehicle rental, accessories for electric vehicles, conversion of classic cars to all electric propulsion, and location map software for locating electric vehicle charging points.

At the same time as the exhibition, Silverstone was also hosting a round of the British GT Championship (britishgt.com). Electric cars have some way to go before electric racing will be as addictive as internal combustion engines. Somehow an electric motor is just not the same as the sound of a Bentley GT twin turbo V8 racing engine as the driver lifts off into Abbey.

The taxi service was provided by the Tesla owners club, and provided a free ride in a Model S P100D . For those familiar with Tesla model naming, the 100 is the battery size, meaning 100kWh, the P means performance, and the underline "_____" means that the Ludicrous performance mode option is fitted, which increases 0 – 60 mph acceleration from an already respectable 4.2 seconds to a ludicrous 2.5 seconds. This is the fastest acceleration available for the money in the UK car market at the moment and is a unique selling point of the Tesla Model S, until the even faster accelerating new Tesla roadster appears.

We arrived in a BMW i3 having driven 85 miles on electric charge only and the last 10 miles on the 600cc range extender petrol engine. On arrival, the purpose of the exhibition became very obvious - instead of having one EV charging point per parking space, there were no electric vehicle charging points at all in the Silverstone car park, and a high proportion of Teslas in the car park, none of which could be left charging. On the return journey, power was supplied by the 600cc range extender engine under the rear seat in the BMW i3 until the first service station north on the M1 near Northampton. There was one Ecotricity charging point with two parking spaces adjacent and one bay was already taken by an all electric Nissan Leaf. After connecting the electric cable to the i3, it would not supply power, and then would not release from the i3's charging point. The Ecotricity service technicians arrived and informed us that the charger could only charge one car at once. Eventually the cable released, without giving any charge. We then drove to the next charger on the iPhone app, a Holiday Inn on the outskirts of Northampton and found an available fast charger. It took 25 minutes to charge the i3 battery from 4% to 80%, giving an electric range of around 106 miles, at a cost of £7.06 to "fill up".

The short term commercial advantage to a business of having an electric charging point then became apparent; you can sell the driver and passengers some drinks or a meal whilst they are waiting for their battery to charge. It then turned out that we were holding

up an all electric Kia who had waited for our i3 to charge before they could use the charger, more beverage sales for Holiday Inn. The return journey was then electric all the way.

The electric vehicle charging industry is no longer in its infancy, but is still in its formative years. There are many small companies offering electric vehicle charging points, for both domestic and commercial use. The industry is fragmented and clear market leaders in EV charging point supply and installation have yet to emerge. Some companies look stronger than others, but the EV charge point industry is ripe for consolidation, mergers and takeovers. The goals are (i) reduction of cost of electric vehicle charging points including installation, (ii) widespread provision of many EV charging points in every car park place, petrol service station, supermarket car park and home, (iii) increasing charging rates so as to decrease vehicle charging times. This last goal is pushing towards higher charge currents and higher voltages. 50kW chargers were present at the exhibition which can charge a Tesla Model S P100D fully in less than two hours. However, much of the technology on display was for lower charge rates, and was already heading towards obsolescence.

As shown by our journey, electric vehicle charging points are still too thin on the ground. The delays in rolling out electric vehicle technology are not primarily technical, but rather financial. It still costs more to buy an electric car than an equivalent petrol or diesel hybrid, even with government incentives. Further, the utility of the vehicle from the owner's perspective is still diminished compared to an internal combustion engine version of the same vehicle. The exception to this is the Tesla Model S with Ludicrous mode option, which can out accelerate almost anything else on the UK highways, including cars at ten times the price. At the moment, the scarcity of electric vehicle charging points and the time taken to charge adds significantly to journey times and requires detours from the quickest route and this is hindering adoption of existing electric vehicle technology.

In time as EV charging points become more common these problems will disappear. The cost of electricity per mile for an electric vehicle is significantly less than the cost of petrol or diesel for the same equivalent vehicle having an internal combustion engine, but the cost of electric vehicle charging points remains high, and to be sure of finding one, drivers need to fit one at home, if they have a parking space. To buy and install a home EV charging point costs several thousand pounds, and the latest EV fast chargers can cost up to £30,000 to install.

Although petrol and diesel engines are destined to reduce in number, petrol service stations are not going to go out of business anytime soon, but over time sales of petrol

and diesel for transport use will reduce as electric vehicles become more common. The 1997 first generation of the most successful mass-market electric hybrid car, the Toyota Prius, have mostly already exceeded their economic useful lives and have already gone to the breakers. And yet 20 years later, some car manufacturers still offer only internal combustion engines in their range of vehicles. Changing the mass vehicle market to greener technology takes decades, but it will happen eventually.

Once we get to the stage where every new build house having a drive or garage has an electric vehicle charging point as standard, and every parking space on every new office development, factory or car park is built with EV charging points as standard, then displacement of petrol or diesel engine vehicles by electric or plug in electric hybrids will accelerate.

If you have an invention or design which contributes to the new electric vehicle revolution, then please contact one of our automotive team patent attorneys.

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