**For immediate release**

**Ford Study Shows Blockchain, Dynamic Geofencing And Plug-In Hybrid Vans Can Help Improve Urban Air Quality**

* Ford research reveals how emerging technologies such as dynamic geofencing and blockchain can combine with hybrid-electric vehicles to help improve air quality in cities
* Trial employed hybrid vehicles that could switch to zero emission driving based on air quality data, and an innovative plug-in hybrid van with electrically powered chiller unit
* Landmark pan-European study demonstrates efficiency, productivity and sustainability benefits of hybrid electric vehicles across variety of real-world settings

**Dubai, UAE. December 22, 2020** – Pioneering research by Ford has shown how emerging technologies such as blockchain and dynamic geofencing can complement plug-in hybrid-electric vehicles (PHEVs) to help contribute to cleaner air in urban centres, offering benefits for cities, citizens and operators.

The findings follow an extensive three-year study into the potential for commercial PHEVs to help cities solve air quality challenges. More than 400,000 kilometres of data was collected during the programme with dozens of Ford Transit and Tourneo PHEVs deployed to a variety of municipal and commercial fleets in London; Cologne, Germany; and Valencia, Spain.

Among the learnings was how geofencing and blockchain technology can complement PHEVs to further improve urban air quality by triggering zero-emission running based upon local air quality. The trial also featured an innovative PHEV van fitted with an electric refrigeration unit powered independently of the vehicle’s batteries, showcasing the operational flexibility and range of use cases supported by the platform.

“Our research has shown how plug-in hybrid vehicles, and emerging connected technologies such as dynamic geofencing and blockchain, can play a major role in transforming cities,” said Mark Harvey, director, enterprise connectivity, Ford of Europe. “With their zero-emission capability with no range anxiety, PHEVs offer a practical, flexible alternative to diesel, making them ideal as general-purpose vehicles for work in and around cities.”

The Ford Transit Custom PHEV was the International Van of the Year 2020 and, along with the Tourneo Custom PHEV, is part of Ford’s global move towards electrification. The company’s extensive range of electrified commercial vehicles in Europe also includes the 48-volt mild-hybrid Transit, Transit Custom and Tourneo Custom EcoBlue Hybrid variants, Fiesta Van EcoBoost Hybrid and the fully electric E-Transit arriving in spring 2022.

**Dynamic geofencing**

Low-emission zones are increasingly common in urban centres across Europe. Ford’s [geofencing feature](https://media.ford.com/content/fordmedia/feu/en/news/2020/07/06/supporting-cleaner-air-for-cities--schools-and-play-areas--ford-.html), fitted as standard on Ford Transit Custom PHEV, can help cities to maximise air quality benefits where they are most needed. With geofencing, the vehicle’s zero-emission electric-drive mode can be activated automatically whenever it enters a low‑emission zone, without intervention from the driver. 1

The Cologne municipal fleet trial took this one step further, showing how blockchain technology can complement geofencing to further enhance efforts to improve air quality. The time a trial vehicle entered or left a geofenced zone was recorded into a blockchain – a secure and transparent digital ledger that creates permanent time‑stamped records which are saved on multiple computers – ensuring ‘green miles’ driven could be safely stored and potentially shared among relevant parties such as city authorities and fleet owners.

The trial also tested dynamic geofencing: instead of a fixed low-emission zone triggering the vehicles’ zero-emission modes, Ford’s dynamic geofencing pilot constantly adjusted the boundaries based on air quality data captured by Climacell and the City of Cologne.

As Ford’s connected PHEVs entered these constantly fluctuating zones, they automatically switched to low-emission mode – taking the decision making out of drivers’ hands, improving air quality for citizens and helping vehicles maintain compliance with local restrictions.

Both the Cologne and Valencia studies proved the value of connecting vehicles and cities to help reduce air pollution and develop low-emission zone compliance; of the 218,300 km covered by the 20 vehicles in Cologne and Valencia, almost half (105,600 km) were driven on purely electric power, rising to more than 70 per cent in the Cologne geofenced zones.

“Our pioneering research demonstrates that operators of all types really can get the best of both worlds with PHEV technology, electrifying fleets for improved sustainability without compromising on productivity,” said Harvey. “With our latest studies in Cologne and Valencia, we’ve shown the additional sustainability and compliance benefits that connected technologies such as geofencing and blockchain can bring to cities, citizens and operators.”

**Cool running**

The small- and medium-sized businesses taking part in the Valencia study included delivery, cleaning, and private security fleets, with irregular itineraries that sometimes took them outside of the city boundaries. For these longer journeys, fleets were able to benefit from the PHEV’s onboard 1.0-litre EcoBoost petrol engine which can charge the battery on demand and extend the vehicle’s range to more than 500 km (310 miles) WLTP. 2

The Valencia fleet also included an innovative PHEV refrigerated van fitted with a Zanotti Invisible electrically powered chiller unit. Rather than using a generator to power the refrigeration system, Ford – along with Zanotti, a leader in transport refrigeration and part of the Daikin Group, and local transport refrigeration specialists, Mebauto – created an electric solution that cools the load compartment in 18 minutes and offers true zero-emission driving when the van is operating in electric-only mode.

The chilled vehicle successfully coped with intensive work schedules through Spain’s hot summer, delivering meals, perishable goods and pharmaceutical products from urban supermarkets to vulnerable people sheltering from Covid-19 at home.

The refrigerated van achieved 82 per cent of its mileage in electric-drive mode, rising to 90 per cent in the Valencia geofenced area. Drivers could top up the van’s battery while reloading and fully recharge it each night. When required, the range extender enabled trips of up to 143 km between supermarkets and customers in the city centre.

The refrigerated conversion elements further increased operating flexibility. The additional fans and cooling systems were packaged under the load floor to minimise aerodynamic impact, optimising range and efficiency – this also helped with access to tight streets, height-restricted car parks and underground loading bays.

The research in Valencia was funded in part by the Valencia Regional Government with the aim of working with small and medium businesses from different industries to identify how they could adapt their operations to support and benefit from electrification. Along with a further 130 connected commercial vehicles, the Transit PHEVs collected important road traffic data for the Valencia Smart City platform to further understanding of how vehicle connectivity can help cities become more efficient and sustainable.

The work in Cologne and Valencia concludes a successful research programme that began in London in 2018. Supported by the U.K. Government-funded Advanced Propulsion Centre and Transport for London, participants including Addison Lee Group, British Gas, Metropolitan Police and Sky helped to show how [PHEVs could offer a compelling solution for commercial vehicle owners](https://media.ford.com/content/fordmedia/feu/en/news/2019/07/08/hybrid-electric-vans-present-practical--accessible-solution-for-.html) in cities with low-emission zones.

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