

Transit Custom Plug-In Hybrid  
Geofencing Guide

Ford



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# Plug-In Hybrid Geofencing



Welcome to the Transit Custom Plug-In Hybrid (PHEV) Geofencing Guide, which aims to aid you in communicating key selling points of Plug-In Hybrid Geofencing technology to Commercial Vehicle customers



## Learning objectives

1. **Define** the key benefits of Transit Custom Plug-In Hybrid Geofencing technology
2. **Identify** the different CV customer profiles and what geofencing means for them
3. **Outline** to customers how Transit Custom Plug-In Hybrid's geofence technology functions through the vehicle and the app
4. **Recognise** the importance of utilising all four driving modes to extend battery life

# Introduction to Geofencing

A geofence is a virtual fence or a perimeter around a physical location. When a Plug-In Hybrid enters this location, it switches to run on purely electric energy



Ford of Europe is piloting innovative geofencing technologies in the Commercial Vehicle industry. Geofencing creates virtual geographic boundaries, which can be government-led or defined by the user. When entering low emission zones the vehicle will automatically switch to zero-emission driving; the vehicle adapts in real time so drivers don't have to worry about how and when they should switch to electric-only power.

## **Government-defined geofences**

Government-defined low emission zones are being introduced across cities in Europe to combat city pollution and lower CO<sub>2</sub> emissions. These changes present new responsibilities for drivers where remaining compliant is crucial.

## **User-defined geofences**

Users can create their own geofence zones with Transit Custom Plug-In Hybrid Geofencing technology. Geofences can be set up around schools or hospitals to improve air quality, or around built up areas in order to reduce noise pollution. This allows users to actively engage in lessening the environmental impacts of commercial vehicles in their locality.

# Transit Custom Plug-In Hybrid Overview



**Transit Custom Plug-In Hybrid** is the latest addition to Ford's global portfolio of electrified vehicles and the first 1-tonne Commercial Vehicle to offer plug-in hybrid technology.

Transit Custom Plug-In Hybrid is a versatile performer that offers uncompromised load space volume and increased payload capacity, compared to fully electric vehicles. Unlike a battery electric vehicle (BEV), Transit Custom Plug-In Hybrid offers the freedom to complete long-distance journeys, without relying on charging points. It provides the best of both worlds; with zero-emission capability and a range extender that can generate additional charge when required.

## DRIVING MODES:

- 1 EV Auto** is the default setting. As the name suggests, it will automatically use the batteries and the petrol engine, as required. This means that in some high-demand situations, such as accelerating uphill with a heavy payload, the petrol engine will kick in to support the electric motor's demands on the battery.
- 2 EV Now** forces the van to use zero-emissions electric power motor only, until the batteries run out. The driver might select this manually, for use in cities.

- 3 EV Later** switches on the petrol engine in order to preserve whatever battery capacity is left for the driver to use, well, later. This can be helpful for trips where the driver has an emissions controlled zone coming up later on in their journey.

- 4 EV Charge** uses the petrol engine to both power the electric motor and recharge the batteries – again, in the name of building up zero-emissions capability to use later. However, this is the least efficient way to use the petrol engine, as it consumes more fuel.

The physical button located in the vehicle allows the customer to cycle through each of the modes.

The first 1-tonne  
Commercial Vehicle  
to offer plug-in hybrid  
technology

Geofencing technology will be deployed across all Transit Custom & Tourneo Custom Plug-In Hybrid vehicles from Q2/Q3 2020.

Any Transit or Tourneo Custom Plug-In Hybrid vehicles already in circulation can be retrofitted with geofencing technology at no additional cost to the owner.

# Geofencing deployment

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Deployment on  
Transit Custom and  
Tourneo Custom  
Plug-In-Hybrid

For further information  
on Transit Custom Plug-In  
Hybrid (PHEV) geofencing  
technologies visit  
[www.CustomGeoPHEV.com](http://www.CustomGeoPHEV.com)



# Geofencing technologies



## How to Access

Download App & register. It is also possible to register through web portal.



## Connectivity

Tech will connect via Wi-fi, Bluetooth or 4G once set up by Bluetooth.



## Zones

Transit Custom Plug-In Hybrid Geofencing module is pre-loaded with government-defined low emissions zones. It is also possible to create user-defined zones.



## Regular Updates

Connecting to the App to update legislative zones to remain compliant.



## Fleet & User Optimisation

Creating user-defined geofences for multiple vehicles bulk updates. While a private-user can define their own geofences for their business, a fleet manager can manage their entire fleet's geofences in one go.



## Zoning technology

Approach Zones / Geofenced Zones.



## Data Tracking

Auto recording of critical vehicle Geofence data (entry and exit from geofenced zones).



## Security

All recorded data is automatically encrypted.

# Geofencing module display

## Outside Geofence

Normal vehicle operation

## EV Manual Select Enabled



## Approaching Geofence

Module takes an action based on state of charge to target Minimum 60% State of Charge (SoC)

## EV Manual Select Enabled



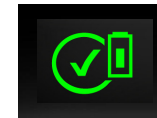
## Inside Geofence

Automatic switch to all electric driving

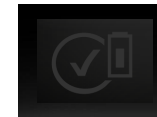
## EV Manual Selected Disabled



## Battery-power only



Vehicle is driving on battery power alone



Vehicle is using the engine

## Manual mode



Manual mode selection button active- driver can switch between all 4 driving modes



Manual mode selection button is deactivated. Upon entering geofence zone, driving mode automatically switches to EV Now. Manual mode selection button reactivates after leaving the geofence zone



**Battery-power only mode and Manual mode options clearly indicate what power the vehicle is using**

# Custom GeoPHEV app



## Data Transfer

The user must set up their geofence module on the Transit Custom Plug-In Hybrid through the app or on a laptop/PC. They will need to register the account to the vehicle and once set up, the geofence module will be able to store the following data:

- Time/date of entry/exit to geofence zones
- GPS location of point of entry/exit to geofence zones
- Battery Usage
- Fuel Consumption

This data is backed up onto the cloud and only available for transfer after a journey; as the data must be downloaded through a connected device, such as a mobile phone or laptop/PC.



## Display

With colourful graphics and a basic icon list, the customer is able to manage Trips, Geofences, Settings and their Account from the app.



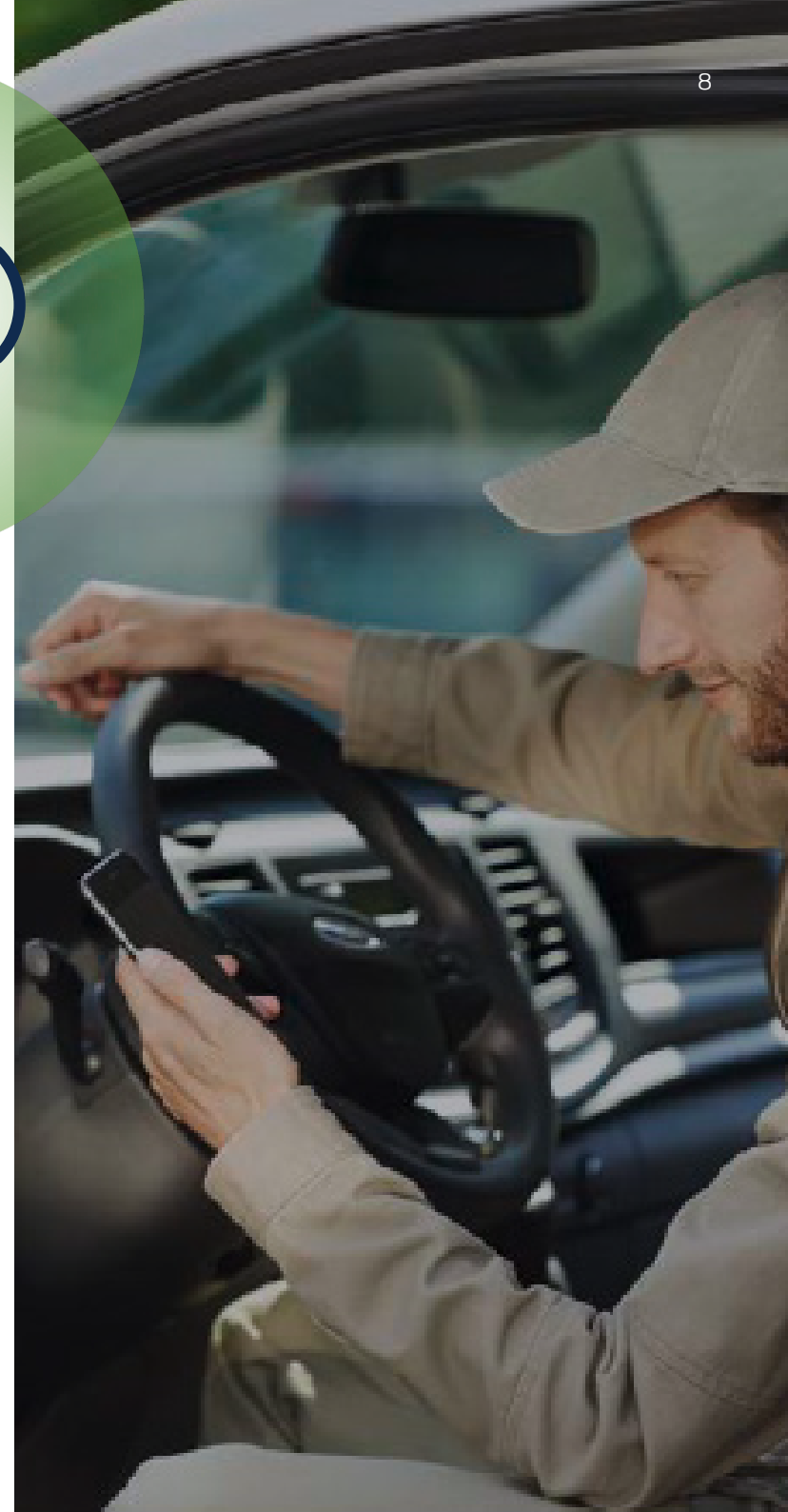
## Disable The Vehicle Display Setting

A visual mode that clears the vehicle and ring graphics from the app screen, even while the geofence module is active. It provides a clear, dark display, to discourage customers from using mobile devices when operating the vehicle.



## Connectivity

The geofence features that allow users to create personal geofence zones, update legislative low emission zones and alter display settings, requires the configuration of the user's mobile phone or laptop/PC to the vehicle.





# The benefits of Geofencing



Assists the driver or fleet manager in adhering to new government regulations as the vehicle automatically switches to electric power only in geofenced zones

Improves air quality in geofenced zones

### Environmental Benefits

By switching to **EV Now** mode when the vehicle enters a geofenced area, the Plug-In Hybrid will run entirely on electric power. This will help to improve air quality in urban areas by reducing overall emissions and therefore, reduce the overall environmental impact of commercial vehicles in city centres.

### Compliance

It is crucial that all drivers comply with new emissions regulations. Geofencing technology is a helpful tool that assists the driver in remaining compliant. Entry into a geofenced zone triggers an automatic switch to **EV Now** mode in low emission zones and Ultra Low Emissions Zones (ULEZ).

### Fleet Management

Fleet Managers are able to monitor their employees' electric usage in comparison to petrol usage in geofence locations. This knowledge will allow Fleet Managers to track fuel costs to ensure a seamless management of their business' finances; ultimately allowing them to save money through increased EV usage in geofenced locations.

# Voice of the customer

OWNER DRIVER



Entering and exiting LEZs  
simplified through Geofencing  
Technology

## Brian, 36, One-Man Electrician Company

- When looking into options for potential work vehicles, Transit Custom Plug-In Hybrid's geofencing technology appealed to Brian as it will simplify his journey through low emission zones when working around the city
- The technology ensures that on entering a low emission zone, the vehicle will switch to **EV Now** mode\*. When Brian drives out of the built up area, the petrol engine allows him to reach his next appointment without concerns about range
- After further research, the ability to contribute to improved air quality in specific areas became another desirable factor
- Geofencing technology allows Brian to set-up a geofence around his children's school and other public places including hospitals and care homes; helping to improve the air quality in his community
- As a bonus, if he has to leave early, EV mode is so quiet he can drive away without waking the kids!

*\*Until battery runs low*

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# Voice of the customer

OWNER MANAGER



Geofencing technology  
enables Maria to put her  
company's ethical manifesto  
into practice

## **Maria, 42, Owner of an Organic Food Delivery Company**

- Maria runs a small fleet with five employee drivers. As the business promotes the ethical and environmental credentials of what it sells, it is important to her that every aspect of the business reflects these values
- For Maria, utilising Transit Custom Plug-In Hybrid vehicles, with geofencing capability, is a strong marketing tool for her business. Geofencing technology enables her to put her company's ethical manifesto into practice

# Voice of the customer

FLEET MANAGER



User-defined geofences help fleet managers track when their vehicles enter a congestion charge zone

## Harriet, 29, Fleet Manager, Courier Company

- Transit Custom Plug-In-Hybrid's mix of generous payload, effortless petrol range and zero emission mode for cities, make it an ideal choice for the eight vans Harriet manages
- Due to constantly changing routes and destinations, in the past, drivers have incurred fines by passing through congestion charge zones or toll bridges and forgetting to inform Harriet
- User-defined geofences mean that Harriet can see when a vehicle has entered a chargeable area on her daily report and make sure the charge is paid promptly

# Industry insights

## Ford's Commitment to an Energy-Efficient Future

New Transit Custom Plug-In Hybrid's geofencing technology is the first of its kind; allowing Ford to be ahead of the game with forging an energy-efficient future for commercial vehicles.

When Low Emission Zones are established in the future, Ford's connected vehicles will update automatically and switch to EV Now mode when entering these new zones. This automated action reduces stress for customers who may not be aware of the changes and assists them in remaining up to date with new government regulations. Fleet Managers will also be able to encourage their drivers to use geofencing to lessen the business' impact on the environment in urban and built-up areas.

## Competitor analysis

### Mercedes

The Mercedes PRO app allows customers define their personal geofencing zones based on their specific business needs. As soon as the vehicle enters or leaves the zone, the customer receives a notification.

However, Mercedes' system does not switch the vehicle's operating mode when approaching the geofence zone, unlike Ford's Transit Custom Plug-In Hybrid.

### Nissan

The NissanConnect app allows users to receive messages when a vehicle moves outside a geofence area, exceeds a set speed, or is driven outside of set hours.

Nissan's technology also does not switch the vehicle's operating mode when approaching a geofence zone, unlike Ford's Transit Custom Plug-In Hybrid.

### BMW

BMW currently offer geofencing on their plug-in hybrid passenger vehicles. The geofence technology, named 'eZones' work by automatically switching from hybrid mode to pure electric when the vehicle approaches the geofence zone.

Much like the Transit Custom Plug-In Hybrid, BMW's Plug-In Hybrid passenger vehicle eliminates the need for a driver to manually change vehicle operating modes while driving.

BMW are also developing BMW Points; a point scheme to encourage drivers to maximise their time in EV-mode driving. They can use the points to gain rewards for products in the BMW mobility sphere.

**1st**

**New Transit Custom Plug-In Hybrid's geofencing technology is the first of it's kind in the 1-tonne van segment**



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# Summary

**Adhering to new regulations is crucial for all drivers. Transit Custom Plug-In Hybrid's Geofencing technology is a valuable tool to assist drivers with their new responsibilities.**

**For further resources head to: [www.CustomGeopHEV.com](http://www.CustomGeopHEV.com)**

## Key Learnings

### 1. Define the key benefits of Transit Custom Plug-In Hybrid Geofencing technology

Transit Custom Plug-In-Hybrid Geofencing technology helps to improve air quality in urban areas by reducing overall emissions. The geofencing technology assists drivers in remaining compliant in low emission zones and allows Fleet Managers to track fuel costs vs electric usage.

### 2. Identify the different CV customer profiles and what geofencing means for them

From small company owners to fleet managers, geofencing technology offers a variety of benefits for businesses. As governments introduce more ULEZ, geofencing technology reduces the risk of fleets incurring fines. Geofencing technology also enables communities to help improve air quality in their cities.

### 3. Outline how Transit Custom Plug-In Hybrid's geofence technology functions within the vehicle and the app

Customers must set up their geofence module on Transit Custom Plug-In Hybrid through the mobile app or on a laptop/PC in order to transfer data or use geofence features.

### 4. Recognise the importance of utilising all four driving modes to extend battery life

Customers can choose between the four driving modes: EV Auto, EV Now, EV Later and EV Charge in order to best suit their journey and preserve their zero-emission battery charge for trips in urban areas.

**You can now take the Transit Custom Plug-In Hybrid Assessment via the Ford Learning Centre.**