LowCVP
Low Carbon Vehicle Partnership

WLTP AUTOMOTIVE INDUSTRY GUIDE

WLTP GUIDANCE FOR –

The Automotive Industry

Executive Summary

The purpose of this guide is to provide an overview of WLTP and its transition into UK policy and consumer information.

What is WLTP?

The Worldwide Harmonised Light Vehicle Test Procedure (WLTP) is a new global regulation (test) for measuring the level of air pollutants, CO_2 emissions and energy consumption in light duty vehicles – cars and vans. It replaces the outdated New European Driving Cycle (NEDC) test that has been used for over 20 years. WLTP embraces an improved range of dynamic and robust testing procedures, and better reflects real-world driving conditions for all vehicle powertrains. These improvements produce much more accurate and realistic results, giving the consumer more confidence in fuel economy, CO_2 emissions and electric range values presented for a new car.

What new data will be available?

WLTP produces CO_2 emissions and fuel economy values for four phases (driving conditions) plus a combined figure. Plug-in hybrids will additionally have a weighted combined value, representing driving with both electricity and fuel consumption. Two electric range figures for battery electric and plug-in hybrid cars will be reported. WLTP data will be available for individual car models and specifications to account for the range of optional equipment that can be fitted to a car. During the transition phase cars tested under WLTP will also show NEDC CO_2 and fuel consumption values until 2020.

Key Policy Milestones in the Transition To WLTP

Manufacturer type approval for new cars

- WLTP has been mandatory for new car models approved from 1 September 2017 and will be mandatory, with exceptions, for all new car registrations from 1 September 2018.

Taxation

- From 1 September 2017 cars approved under WLTP will continue to be taxed against NEDC CO_2 emission figures.
- From 6 April 2020 taxation will adopt the WLTP CO_2 emission figure.

Consumer Information

- From 1 September 2017 consumer information, covering car labels and displays at dealer showrooms plus manufacturers' printed marketing material, will show NEDC CO_2 and fuel consumption figures for cars approved under WLTP.
- During 2018 manufacturers will start showing WLTP performance data for new car models on their websites; this data will also be shown on the VCA website.
- From January 2019 consumer information will switch to presenting WLTP fuel and electricity consumption plus electric range figures. The NEDC CO_2 value will continue to be presented in consumer information; the WLTP CO_2 value will not be shown.
- From 6 April 2020 consumer information will switch to showing the WLTP CO_2 emission figure.
- The Vehicle Certification Agency (VCA) will be releasing guidance on presenting WLTP values in consumer information over the next few months. The VCA will start showing WLTP values on the Government's fuel economy and CO_2 database from September 2018.

Introduction

The LowCVP is working in collaboration with a variety of stakeholders, including the automotive industry and Government, to facilitate the transition to WLTP, with a particular focus on car buyer information. The introduction of WLTP offers a wealth of opportunities to build consumer confidence in official vehicle performance and emission data, by giving results much closer to those achieved under real-world driving conditions.

Our ultimate goals are:

- To stimulate the adoption of low emission cars through the provision of more reliable car buyer information.
- To ensure consumers receive more accurate and representative car environmental performance data as soon as possible after the introduction of WLTP.
- To ensure that WLTP data is presented and communicated in a consistent, transparent and harmonised manner across the automotive industry.
- To provide clarity and guidance during the transition to WLTP to help avoid consumer confusion.

The purpose of this guide is to provide an overview of WLTP and its transition into UK policy and consumer information. The guide also presents recommendations to galvanise consistency and harmonisation across the automotive industry with regards to presenting and using WLTP data, whilst taking into account the availability of NEDC data during the transitional period.

The LowCVP is additionally producing a WLTP Car Buyer Guide to help communicate the introduction of WLTP using simple and clear language. This guide will be released in the next few months and will be disseminated across the automotive industry. We hope the industry will adopt this guide as part of its communication about WLTP with its customers.

What is WLTP and why has it been introduced?

The Worldwide Harmonised Light Vehicle Test Procedure (WLTP) describes a new global regulation for measuring the level of air pollutants, CO_2 emissions and energy consumption in light duty vehicles – cars and light goods vehicles. This test procedure will replace the New European Driving Cycle (NEDC) that has been in existence since 1992. The test cycle and associated procedure have become outdated and no longer represent individual day-to-day driving behaviour. There has been a growing gap between the MPG consumption values obtained via the official NEDC test and the figures that drivers really achieve on the road.

One of the main benefits of WLTP is that it will introduce more realistic testing conditions for new vehicles, providing consumers with more representative and accurate fuel consumption and emission values, closer to what they could achieve under real-world driving conditions. It is important to highlight that the purpose of the test is still to enable comparisons between different car models. Fuel and electricity consumption will vary during real world driving conditions due to factors such as traffic, the use of heating and air conditioning, and vehicle load, as well as driver behaviour.

How have test conditions been improved under WLTP?

WLTP tests are conducted in a laboratory to ensure accuracy and repeatability, but introduce much more representative testing conditions based on data from 'real driving' and will provide a more accurate basis for measuring emissions and calculating a car's fuel consumption. This will provide consumers with more detailed and realistic car performance data. The new test involves a significant number of key changes compared to the 'old' NEDC test.

Realistic and broader range of driver journeys – from congested city driving to free-flowing motorway traffic:

- Cycles based on real driving
- Fewer stops and less idling time
- Higher average and maximum speeds – including real motorway speeds
- Longer overall testing time – increased from 20 to 30 minutes

More realistic driving styles:

- More dynamic acceleration and deceleration – typical of today's road traffic
- Representative gear changing points determined for each vehicle

More realistic test conditions:

- Ambient temperature is based on 23 +/-3°C with a 14°C correction result for a vehicle family
- Inclusion of optional equipment – fuel consumption figures are provided for specific vehicles as sold to the customer, with the options fitted
- Much better test preparation, set up and control – to reflect the capability of today's facilities
- Incorporates an improved test procedure for hybrids, taking into account hybrid architecture and amount of electric range

What new data will we see for WLTP tested cars?

Fuel consumption values will be presented for four different driving conditions with an overall combined figure for petrol, diesel, hybrid and plug-in hybrid cars. Each of these elements is based on the typical types of journeys made by drivers.

OLD NEDC test

Urban

Extra Urban

Combined

A mixed journey average of both of the elements in the test.

NEW WLTP test

Low Speed (City Driving)

City Centre journey with maximum **35 mph**.

Medium Speed (Town Driving)

Town or suburban driving, maximum **50 mph**.

High Speed (Rural Driving)

Rural driving, A-road or dual carriageway journey, maximum **60 mph**.

Extra High Speed (Motorway)

Motorway driving with maximum speed of **81 mph**, typical of a European motorway.

Combined

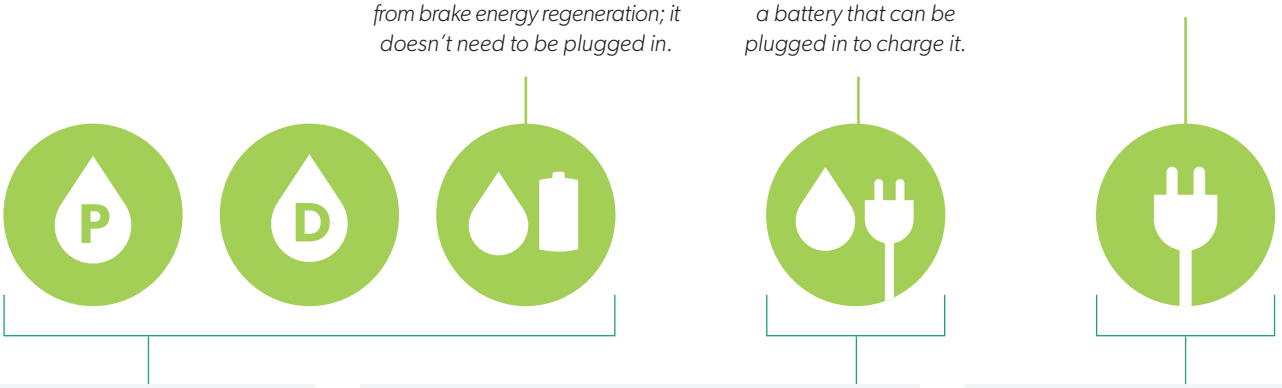
A mixed journey average of all the elements.

Fuel consumption

Hybrid
A hybrid car has a petrol or diesel internal combustion engine with an electric motor and small battery. The battery is charged from brake energy regeneration; it doesn't need to be plugged in.

Plug-in Hybrid
A plug-in hybrid car has a petrol or diesel internal combustion engine with an electric motor and a battery that can be plugged in to charge it.

Battery Electric
A battery electric car has an electric motor and a large battery that can be plugged in to charge it.



Petrol, Diesel & Hybrid

Conventional petrol and diesel or hybrid cars will have fuel consumption figures for each of the five elements above.

Plug-in Hybrid

Plug-in hybrid cars are more complex and will have figures for each cycle showing consumption when the engine is running (battery depleted) and a weighted combined figure which accounts for the vehicle operating on both the battery and the internal combustion engine, typical of a longer journey.

Battery Electric

Battery electric cars have an electricity consumption value for the combined cycle only.

Driving range

Dual electric ranges

Plug-in hybrid and battery electric cars will now have two electric range figures – a 'city' range, using the low city and medium town cycles, and a combined range, using the complete cycle. These give the ranges when running on electricity only.

All these figures are designed to help consumers understand which technology and vehicle is best suited to their driving and journey patterns.

Petrol and diesel plug-in hybrid cars will have fuel consumption figures for each of the five elements above, as well as an electricity consumption figure that represents the vehicle driving in 'all-electric' mode. Plug-in hybrid cars will also have a weighted combined figure, which essentially accounts for the vehicle with the internal combustion engine and the electric motor operating as appropriate during the different phases of the drive cycle.

Plug-in hybrid and battery electric cars will now have two electric range figures called **electric combined range** and **electric city range**. The electric combined range will be used for taxation and grants. Electric city range will give consumers much better information on the likely range when driving in city (low speed) conditions.

When determining fuel and energy consumption and CO_2 emissions, the new test places more emphasis on the **mass and aerodynamics of the vehicle, the rolling resistance of the tyres and the options fitted** to the car by the manufacturer. This will give much more representative fuel consumption values for an individual vehicle which will be much closer to what is capable of being achieved in normal driving. Examples of car options taken into account include alloy wheels, tyres, panoramic roofs, towbars, roof bars, active cruise control, air conditioning and autonomous emergency braking.

In other words, even for the same model of car, a vehicle's CO_2 value can only be finally determined once its options have been chosen. A car model range will have more than one WLTP CO_2 value, depending on the type of optional equipment fitted by the manufacturer. This will also apply to fuel consumption and electric range.

The table below shows the WLTP type approval data that will be available from manufacturers for consumer information. The format in which this data will be presented in consumer information is currently being developed by the LowCVP working with manufacturers and other stakeholders.

Data Field	*Petrol/Diesel*	*Petrol/Diesel Hybrid*	*Plug-in Hybrid*	*Battery Electric*
Fuel Consumption	Low Medium High Extra High Combined	Low Medium High Extra High Combined	Low Medium High Extra High Combined Weighted Combined	
Electricity Consumption			Weighted Combined	Electricity consumption
Electric Range			Electric Range Electric City Range	Electric Range Electric City Range
CO_2 emissions	Combined	Combined	Weighted Combined	

The improvement in testing procedures associated with WLTP results in higher reported values for CO_2 emissions, and lower (worse) fuel consumption, than the old NEDC test for the same car model. Care must therefore be taken when presenting and using WLTP and NEDC data to avoid confusing the consumer, and ensuring they make the right choice in terms of choosing the most efficient vehicle.

Why will WLTP type approved cars also have NEDC fuel consumption and CO_2 figures?

Reporting against European CO_2 emission targets

During the transition phase, cars tested under WLTP will also show NEDC CO_2 and fuel consumption values until 2020. Manufacturers will use the NEDC CO_2 figure to report against European CO_2 emission targets (which were set against NEDC) for new cars until the switch to WLTP has been completed. The CO_2 and fuel consumption value will either be calculated from WLTP data or measured under a physical test generating an NEDC 'equivalent' CO_2 value. The NEDC 'equivalent' figures will also be used for car taxation and consumer information for an interim period.

Taxation

From 1 September 2017, new cars type approved via the new WTLP process will be taxed based on the NEDC combined CO_2 emission figure. Taxation will switch to adopting the WLTP CO_2 emission figure on 6 April 2020. Only cars registered after 6 April 2020 will be affected, those registered prior to this date will continue to be taxed against the NEDC CO_2 emission figure. The UK Government has committed to give notice of any necessary changes to VED (Vehicle Excise Duty) and BIK (Benefit in Kind) bandings as a result of the introduction of WLTP figures in 2020 via the usual annual Budget process.

Consumer Information

Consumers are required to have access to new car CO_2 and fuel consumption information at the 'point of sale' under the Passenger Car (Fuel Economy and CO_2 Emissions) Regulations. This covers car labels, posters and displays at dealer/retailer showrooms and manufacturers' printed marketing materials including adverts and brochures. The regulations were amended during the first week of June 2018 to take into account the introduction of WLTP. The transitional timetable for consumer information at the point of sale is as follows:

- From 1 January 2019 consumer information will show WLTP fuel and electricity consumption values plus electric ranges. The NEDC CO_2 emission value will continue to be presented, the WLTP CO_2 value will not be shown.

  During the interim period until January 2019, consumer information will show NEDC fuel consumption values.

- From 6 April 2020 consumer information will switch to presenting only the WLTP CO_2 emission figure.

The Vehicle Certification Agency (VCA) is planning to produce new guidance over the next few months explaining how WLTP values should be presented in consumer information.

The VCA fuel economy and CO_2 emissions database is currently being updated and will be able to provide WLTP data to the public from September 2018. WLTP vehicle emissions data will be presented separately from NEDC.

The European Commission has released guidance in relation to consumer information and presentation of WLTP values.

This states:

> *'From 1 September 2017, certain new vehicles will be type-approved using the World Harmonised Light Vehicle Test Procedure (WLTP), which is a new, more realistic test procedure for measuring fuel consumption and CO_2 emissions. From 1 September 2018 the WLTP will fully replace the New European Drive Cycle (NEDC), which is the current test procedure. Due to more realistic test conditions, the fuel consumption and CO_2 emissions measured under the WLTP are in many cases higher compared to those measured under the NEDC.'*

When consumer information switches to WTLP, in some instances vehicle specific data will be presented for a car model, for example on the car fuel economy label and outputs from manufacturers' website configurators. For other consumer information channels, such as manufacturers' brochures and the VCA fuel economy and CO_2 database, a range of WLTP figures will be presented to account for the model range and options fitted by the manufacturers.

The LowCVP and SMMT will be revising the Best Practice Principles for Environmental Claims in Automotive Marketing[1] in collaboration with the ASA and ISBA to take into account the introduction of WLTP.

Manufacturers are currently taking different approaches to presenting WLTP data on their websites with information becoming progressively available over the next few months.

[1] *https://www.smmt.co.uk/2013/12/best-practice-principles-environmental-claims/*

Recommendations for consumer information

- While consumers should receive WLTP fuel consumption and electric range data as early as possible, it is essential that they are not confused by the existence of both NEDC and WLTP data.
- WLTP data should be shown separately to NEDC on manufacturers' websites, car buying websites and print media. A person could mistakenly think a car tested under WLTP was less efficient and so more expensive to run than a similar car tested under NEDC.
- It should be made clear that the NEDC CO_2 emission value is used for taxation. Consumers should be informed of any changes in taxation (VED/BIK), as a result of the switch to the WLTP CO_2 figure, well in advance of April 2020.
- Comparison tools and filters, plus tax and fuel calculators, on car buying websites should appropriately use NEDC and WLTP fuel consumption and CO_2 emission figures; taking into consideration both new and used cars. Motoring websites that list cars in categories such as 'best MPG', 'most economical', 'lowest CO_2', 'best city cars', should ensure that data used as the basis of these ratings is not a combination of NEDC and WLTP data. Like for like comparisons should be adopted. Consideration should be given to regulatory switch dates for taxation and consumer information.
- Consumers should be made aware of the impact of optional equipment fitted by the manufacturer on CO_2 and fuel consumption figures as well as electric range. Presenting a range of values for a particular car model could assist with communicating this in consumer information. This could, for example, show a car model's base CO_2 emissions (lowest value) and then with all optional equipment fitted (high value).
- It should be made clear to consumers which 'official' test procedure the figures presented for CO_2, fuel and electricity consumption and electric range are based upon. This will avoid confusion and misinterpretation when comparing different car models.
- Consumers should be presented with fuel consumption and electric energy consumption figures for plug-in hybrid cars, in conjunction with electric range figures. This will help the consumer understand how plug-in hybrids perform under different journey patterns and enable comparison with other technologies.

Further information

www.lowcvp.org.uk/wltp

secretariat@lowcvp.org.uk