NFDA
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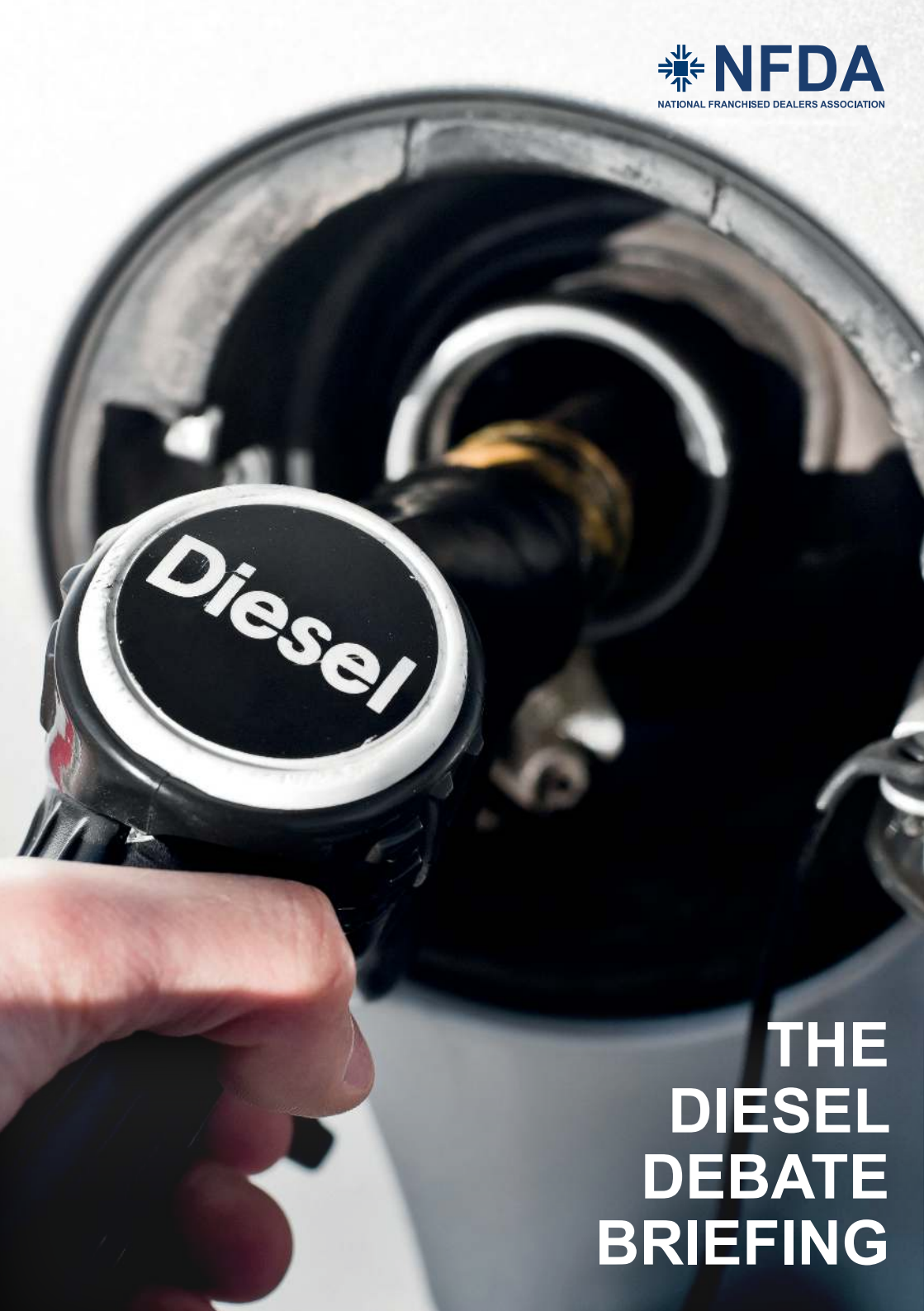
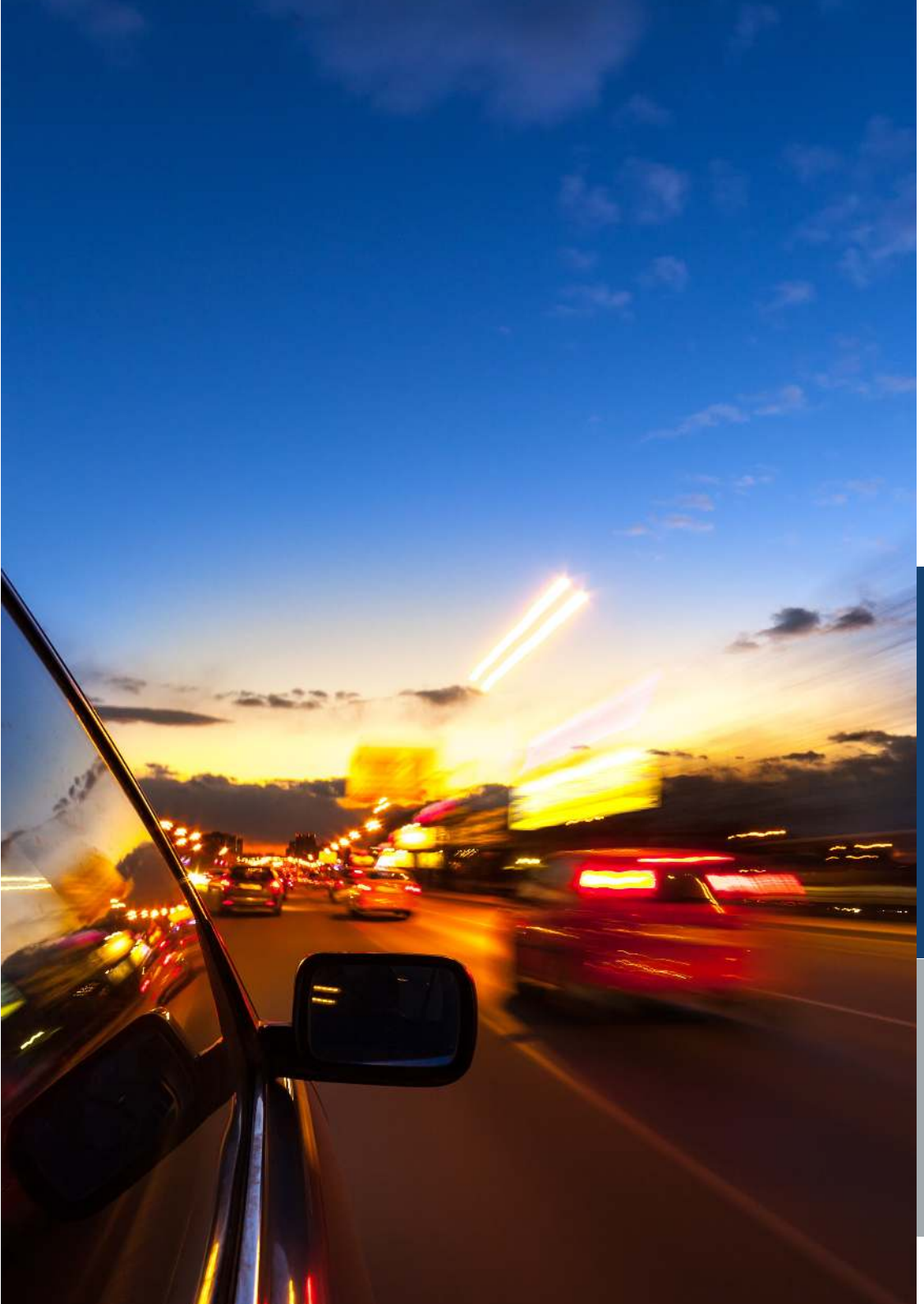


THE DIESEL DEBATE BRIEFING



INTRODUCTION

The Diesel Debate Briefing aims to help car retailers understand the complex implications of the air quality debate and ultimately support their role in educating the consumer.

This brochure provides an analysis of the main pollutants, their effects and where they derive from. In this context, the role of cars is examined: how they contribute to air pollution and how changes in consumer preferences are influencing this. The brochure describes the EU wide Euro Standards which establish vehicle emission levels and how the new Worldwide Harmonised Light Vehicle Test Procedure (WLTP) testing regime affects these.

Finally, it provides an overview of what both national government and local authorities are doing to tackle emissions including: Clean Air Zones, new taxation for diesel cars as well as parking charges.

Vehicles emit NO_x and $PM_{2.5}$, as well as CO_2. These emissions have very different impacts on human health and the environment.

CO_2	NOx (NO & NO_2)	$PM_{2.5}$
Impacts Global Warming	Local Air Quality Concern	Local Air Quality Concern

The EU places restrictions on the emissions of these pollutants

The UK is currently only in breach of its NO_2 obligations. NO_2 limits are being exceeded around UK roads, which is why Government is focusing on road emissions.

CO_2 EMISSIONS

Higher numbers of vehicles on UK roads and a change in consumer preference for larger cars have affected UK's progress in reducing vehicle CO_2 emissions.

Previously, average CO_2 emission levels from new cars were decreasing by approximately 3.5% a year. However, due to the increasing preference for larger vehicles, new car average CO_2 emission levels decreased by just 1.1% in 2016.[1]

Secondly, as a result of the increase in miles driven on UK roads, total CO_2 emissions from cars have been rising for the last two years.[1]

Diesel cars are more efficient than petrol, using less fuel and producing on average 20% less CO_2 than their equivalents. Because of their efficiency, larger vehicles are mostly diesel and this has lessened the CO_2 impact of motorists moving to larger cars.[1]

The decline of the diesel market share in 2017 meant that average new car CO_2 increased for the first time in two decades.[2]

1. New Car CO2 Report 2017 SMMT 2. SMMT Press Release 05 Jan 2018

NOx EMISSIONS

NO_X levels are at their highest at the roadside and this is where the UK is in legal breach.

Contributors to Roadside NO_x Pollution – UK 2015

	Diesel					Petrol		Other			
Source	Cars	Vans	HGV's	Busses	Taxis	Cars	Other	Road traffic back-ground	Homes, industry & com-merce	Re-gional back-ground	Non-road trans-port & mobile machin-ery
Share	21%	13%	10%	10%	1%	5%	<1%	18%	9%	8%	5%

The NOx Roadside Table: Department for Transport, Department for Environment Food and Rural Affairs and Ricardo Energy & Environment (2017)

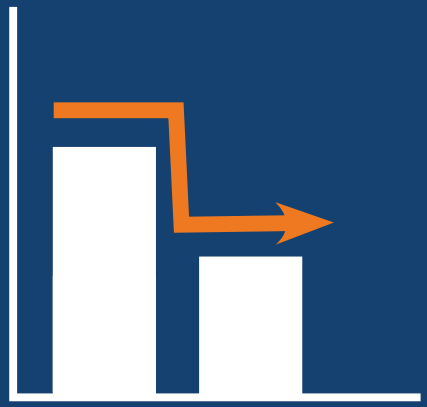
While they emit lower CO_2 levels than petrol equivalents, diesel cars emit more NOx. Essentially, there is a trade off in combustion with the factors that improve diesel efficiency, high combustion temperatures and lean burning, producing higher levels of NOx.

While the nature of diesel engines means that it has been difficult to lower NO_X emission levels, new technological advances are changing this.

Specifically, selective catalytic reduction (SCR) systems have been a big step forward. These use an external reducing agent, known in Europe as AdBlue, to turn NO_X into nitrogen.

These converters can achieve NO_X conversion rates of 80-95% making diesel vehicles very clean and still efficient.

EMISSION STANDARDS & REAL-WORLD DRIVING



Vehicle emissions levels are dictated by EU wide 'Euro standards'. These have been repeatedly updated since the 1990s. As a result, diesel cars are now required to be the cleanest they have ever been. Currently, according to the Department for Transport, there are around 12.5 million diesel cars on UK roads and 10% of these are Euro 6.

Petrol and Diesel Cars Euro Standards g/km

TIER	ALL CARS FROM	PETROL CARS			DIESEL CARS		
		CO_2	NOx	PM	CO_2	NOx	PM
EURO 3	2001	1.0	0.15	0.005	0.64	0.5	0.05
EURO 4	2006	1.0	0.08	0.005	0.5	0.25	0.025
EURO 5	2010	1.0	0.06	0.005	0.5	0.18	0.005
EURO 6	2015	1.0	0.06	0.005	0.5	0.08	0.005

Cars have not performed as well in real-world driving conditions as under laboratory testing. This has resulted in motorists experiencing different levels of fuel consumption and emissions than those recorded during laboratory testing.

NEW TESTING REGIME – WLTP & RDE

A new more stringent lab test, called the Worldwide Harmonised Light Vehicle Test Procedure (WLTP) has been introduced for all new car types (newly produced cars) from September 2017 and all new cars (newly registered cars) from September 2018. This should be a big step in bringing laboratory results in line with real world car performance.

Real Driving Emission (RDE) tests are also being introduced to check that cars meet Euro 6 standards while being driven on the road. A car undergoing an RDE test must pass it to be allowed onto the market. RDE tests are being brought forward in two steps:

1

RDE Step 1 requires that cars' NOx levels are no more than 110% higher than Euro 6 limits. This will be in place from September 2017 for new car types and will apply to all new cars from September 2019.

2

RDE Step 2 is stricter. It requires that cars' NO_X levels are no more than 50% higher than Euro 6 limits. This will apply in January 2020 to new types and then from January 2021 to all new cars.

NATIONAL GOVERNMENT RESPONSE TO AIR POLLUTION PROBLEM

Government is focused on reducing roadside NO_X emissions to meet their legal obligations. Government has announced that Clean Air Zones (CAZs) and diesel taxation will be the main tools to achieve compliance with emission limits.

Clean Air Zones

Government produced a CAZ framework to provide a consistent approach to the introduction of CAZs by local authorities.

CAZs can either be 'charging' or 'non-charging' zones. Charging CAZs have different classes of severity. Only under the strictest charging CAZ category will cars be included. London's Ultra Low Emission Zone (ULEZ) follows the same format as the strictest charging CAZ.

If a local authority decides to implement a charging CAZ of the strictest class, then cars that, based on their Euro standards, do not meet entry requirements, will face a charge to enter the zone. In London, this has been set at £12.50 per day.

Car minimum standards to enter a CAZ without being charged:

- Petrol cars must be Euro 4 or above, which is 2006 or newer
- Diesel cars must be Euro 6, which is 2015 or newer

Government has required 29 local authorities to make action plans to tackle local air pollution levels.

Local authorities have the power to decide:

- Whether they have a charging Clean Air Zone or not
- If they do have a charging Clean Air Zone, what category it is
- What size the Clean Air Zone is

29 local authorities requiring action plans:

Basildon	Coventry	Leeds	Nottingham	Southampton
Bath and North East Somerset	Derby	Manchester	Rochford	Stockport
Birmingham	Fareham	Middlesbrough	Rotherham	Surrey
Bolton	Gateshead	New Forest	Rushmoor	Tameside
Bristol	Greater London	Newcastle	Salford	Trafford
Bury	Guildford	North Tyneside	Sheffield	

Government estimates that 69% of people whose cars do not comply with a charging CAZ will not use their car in the zone, while 14% will upgrade their cars to be compliant and 17% will pay.

Diesel Taxes

From April 2018, the first year Vehicle Excise Duty (VED) rate for diesel cars will be increased by one band. This will apply to all new diesels which have not met RDE Step 2 standards.

Even if manufacturers are unable to meet the RDE Step 2 standards, the impact of this on consumers will be quite limited. A band movement for the majority of diesel cars will mean that the first VED payment will only increase by £20.00 to £40.00.

After the first year VED payment, all subsequent payments remain at a flat rate of £140.00, regardless of whether the car is petrol or diesel (up to a vehicle value of £40,000). As these new cars under current plans will not face any charges from CAZs, they still present an attractive option to high mileage drivers.

The company car diesel surcharge has also been increased from 3% to 4%. This will only apply to diesel cars which do not meet the RDE Step 2 standards.

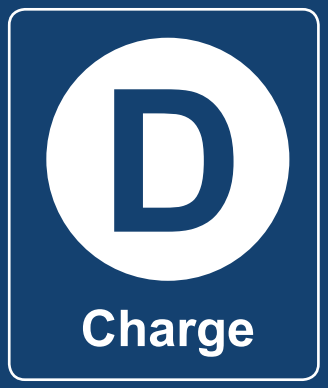
LOCAL GOVERNMENT RESPONSE

Whilst Government is leading national action against air pollution, some local authorities are taking additional measures. These measures are less consistent across different authorities and are mainly concentrated in areas which feel Government has not gone far enough. Key measures are Zero Emission Zones (ZEZs) and diesel parking surcharges.

Zero Emission Zones

ZEZs require that cars which drive into them emit no exhaust emissions while they are within the zones or face a steep fine. This would effectively limit cars in a ZEZ to being electric vehicles, plug-in hybrids in electric mode or hydrogen vehicles.

ZEZs are not yet a major trend but a possible sign of things to come. Oxford City Council is looking to put a ZEZ in place from 2020 in their city centre. In London a ZEZ in the heart of the city has been suggested for 2025.



Diesel Parking Charges

A number of local authorities are in the process of implementing higher parking charges for diesel cars. For some authorities, these charges only apply to pre-Euro 6 (pre-2015) diesels but for others they apply across diesel cars of any age.

Some authorities considering implementing charges are Islington, (£2-an-hour surcharge for all diesel drivers using parking bays from January), and Westminster (trialling a £2.45-an-hour levy for pre-2015 diesel cars).

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