

Solving poor air quality quickly and fairly: *How the consequences of Dieselpgate have been misunderstood*

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Oxford Air Quality Meeting

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What have been the consequences of Dieselgate?

- Diesel technology is inherently and insolubly dirty
- Petrol vehicles are cleaner than diesels
- All Euro 6 vehicles are clean
- Restricting older vehicles will be sufficient to solve urban air quality problems
- A quick and direct shift to pure electric vehicles is necessary and possible

False perceptions after Dieselgate...

	Petrol	Diesel: Best Euro 6 AIR Index A	Diesel: Worst Euro 6 AIR Index E	Full hybrid	Plug-in hybrid	Battery Electric
NO_x	Green	Green	Red	Green	Green	Green
CO₂	Red	Yellow	Yellow	Yellow	Green	Green
CO	Red	Green	Green	Yellow	Yellow	Green
PM_{2.5}	Yellow	<i>Negative</i>	<i>Negative</i>	Green	Green	Green
Ultrafine particles	Yellow	<i>Negative</i>	<i>Negative</i>	Green	Green	Green
	<i>Avoid</i>	<i>Good for medium-term</i>	<i>Avoid</i>	<i>Good for medium-term</i>	<i>Careful usage vital</i>	<i>Upstream critical</i>

The current scattergun approach to solving the air quality crisis...

Southampton scraps plan for emissions charging zone




...has one big problem


The basis for all CAZ policy today is...

Euro standards

- Based on laboratory testing
- Don't reflect actual emissions
- Threatening CAZ effectiveness



Department
for Environment
Food & Rural Affairs



Department
for Transport


Clean Air Zone Framework


Principles for setting up Clean Air Zones in England


May 2017

Irish government's NOx-based car tax plan welcomed

18/10/2019 in Environment News



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The Irish government's plans to introduce a tax based on a vehicle's NOx emissions, has been welcomed by the AIR Alliance, publishers of the AIR Index.

The proposed NOx-based approach would replace the current one per cent diesel surcharge and is set to be applied to new car purchases and used imports from January 1, 2020.

...they should be based on real world emissions

The AIR Index: on-road emissions not laboratory tests...

AIR sources vehicles independently

- Tested to CWA17379 protocol
- 2 matching vehicles
- 3 tests on paved streets
- At least 5 x 10km valid trips
- Cars and LCVs rated 'A' to 'E'
- Results published freely



...a legal framework to enable effective policy

AIR Index ratings illustrate the Euro 6 problem: RDE & pre-RDE

33 mg/km



URBAN NO_x **A** B C D E 0 - 80 mg/km
BEST WORST

2018 Land Rover Discovery
HSE Luxury

137 mg/km



URBAN NO_x **A** B C D E 80 - 168 mg/km
BEST WORST

2017 Nissan Qashqai
Acenta

231 mg/km



URBAN NO_x **A** B **C** D E 168 - 270 mg/km
BEST WORST

2015 MINI Hatch

429 mg/km



URBAN NO_x **A** B C **D** E 270 - 600 mg/km
BEST WORST

2017 Ford Focus
Titanium

651 mg/km



URBAN NO_x **A** B C D **E** 600+ mg/km
BEST WORST

2017 Renault Clio
Dynamique Nav



A



B



C



D



E

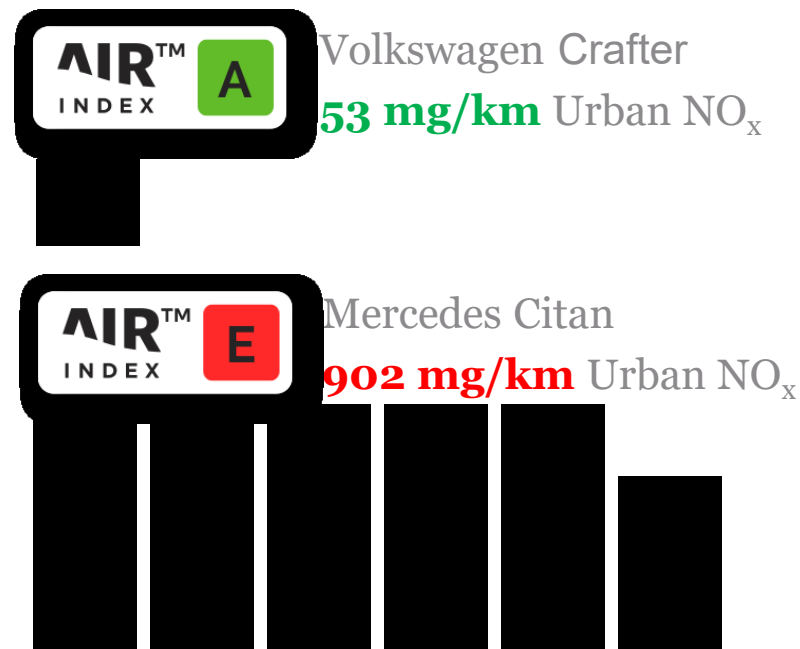
The AIR Index urban NO_x ratings for vans



- First ever AIR Index urban NO_x van ratings
- First insight for policy makers into van emissions
- First insight for fleet owners to inform van choices
- Results are both disturbing and also encouraging
- They show retrofitting can have a real impact

The AIR Index urban NO_x ratings for vans...

- 10 vans rated (small, medium & large)
- All are Euro 6, pre-RDE diesels*
- Only three are 'A' rated (0-80 mg/km)
- Five are 'D' (270-600 mg/km) or 'E' rated (600+ mg/km)
- The worst is 17x the cleanest



* plus one Euro 5 van

The AIR Index urban NO_x ratings for vans...

Make	Model	Year	AIR Index Rating	Fuel Type	Official NO _x limit*	Euro Standard	Actual Urban NO _x mg/km
Volkswagen	Crafter CR35 LWB High Roof 2.0	2019	A	Diesel	125 mg/km	Euro 6	53
Peugeot	Partner Asphalt 1.6	2019	A	Diesel	80 mg/km	Euro 6	73
Volkswagen	Caddy C20 Highline TDI 2.0	2018	A	Diesel	80 mg/km	Euro 6	73
Volkswagen	Transporter T30 Highline TDI Bluemotion 2.0	2018	B	Diesel	105 mg/km	Euro 6	102
Mercedes	Vito CDI 114 LWB 2.1	2017	B	Diesel	105 mg/km	Euro 6	147
Mercedes	Vito CDI 111 LWB 1.6	2017	C	Diesel	105 mg/km	Euro 6	256
Vauxhall/ Opel	Vivaro CDTI 2900 1.6	2019	D	Diesel	105 mg/km	Euro 6	399
Citroen	Relay L3h2 Enterprise BlueHDi 2.0	2018	D	Diesel	125 mg/km	Euro 6	553
Ford	Transit Connect 1.8	2012	E	Diesel	180 mg/km	Euro 5	695
Mercedes	Citan 109 Dualiner 1.5	2019	E	Diesel	80 mg/km	Euro 6	902

How the AIR Index can improve CAZ policy



Example – ULEZ, London: free for Euro 4 (petrol) and Euro 6 (diesel) cars, 120,000/day

	Today	Enhancement with the AIR Index
Policy:	Euro standards	Choose on-road emissions level <270 mg/km i.e. allow AIR Index 'A' to 'C'
Restrictions:	Can still pay to enter	Discourage/manage access for 'D' and 'E'
NO_x Reduction:	27% v pre-ULEZ ¹	89% v pre-ULEZ ¹

¹ Emissions Analytics estimate

...a massive boost using the AIR Index

Without the AIR Index, a plausible scenario is...



- CAZs are not sufficient to achieve air quality compliance
- Client Earth and other NGOs persist
- Drip-drip of further “cheat” revelations
- Consumer class-action lawsuits
- Cities tighten restrictions further: Bristol...



... AIR Index draws an independent and credible line

To be politically palatable the solution must be fair...

- ✓ Ambient air pollution disproportionately affects the less well off
- ✓ They are more likely to have a high-emitting vehicle
- ✓ Are least likely to be able to afford to upgrade, especially to an electric vehicle
- ✓ Any taxpayer help can be concentrated on a smaller group of people in need of help

... AIR Index makes this possible

AIR Index is also protection from an unattractive outcome...



- ✓ Cities do not have to restrict mobility any more than they want to
- ✓ Car makers do not take a hit on genuinely clean vehicles
- ✓ Consumers can stop worrying

... And finally the Dieseltgate spiral can end

AIR ALLIANCE's core mission

*'To help reduce the negative impacts of **vehicle emissions** in the short and long term.'*

Implementation commenced:

1. Initial focus on enabling NO_x solutions for today and into the future
2. Comparative, realistic and repeatable CO₂ data to prevent 'Petrolgate'

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