



# The 2017 National Air Quality Plan and its Implications for LAQM

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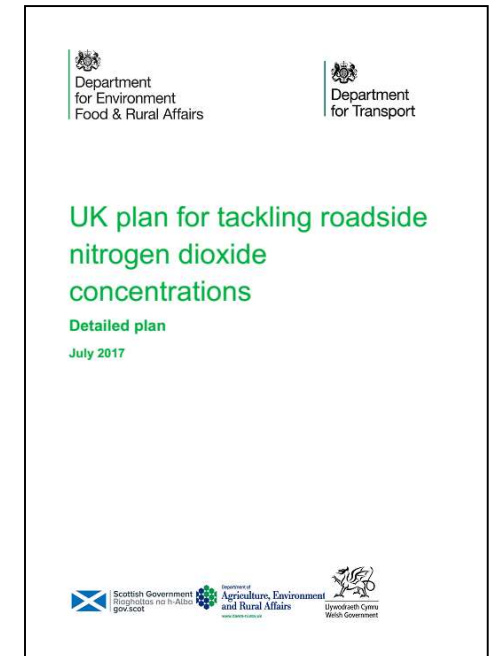
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# The 2017 National Air Quality Plan and its Implications for LAQM



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# Two Parallel Air Quality Management Systems

## **NATIONAL**

Defra:

- Monitoring
- Modelling
- Reporting (to Commission)



## **LOCAL**

Local authorities:

- Monitoring
- Modelling
- Reporting (to Defra)

Same Pollutants - Same Concentrations

Same aim but completely separate processes

# Two Parallel Air Quality Management Systems

## National AQP

- Directive 2008/50/EU
- Air Quality Standards Regulations 2010 (+ for devolved administrations)
- Secretary of State – Competent authority
- Limit values are mandatory
- Compliances assessment methods in directive

## LAQM

- Part IV Environment Act 1995
- Air Quality Strategy
- Air Quality (England) Regulations 2000
- LA required to review and assess air quality, declare AQMA, AQAPs
- Statutory Technical and policy guidance
- AQAP - “*in pursuit of the achievement of air quality standards and objectives*”
- Objectives are targets not mandatory limits
- Secretary of State can give LAs directions

# Two Assessment Processes

- **Different criteria**
  - Where there is relevant exposure (LAQM)
  - Everywhere where public have access, except where H&S at work provisions apply, within 25m of a road junction, etc. (EU limits)
- **Different modelling**
  - Dispersion model (LAQM)
  - Pollution Climate Mapping (PCM) model and streamlined PCM (SL-PCM) model
- **Different results**
  - PCM  $\pm 29\%$  (Directive allows  $\pm 30\%$ )
  - PCM over-estimates at low  $\text{NO}_2$  and under-estimates at high  $\text{NO}_2$  (change over around  $40 \mu\text{g}/\text{m}^3$ ?). This bias not seen with LAQM modelling

## National 2017 AQP vs. 2015 AQP

- What changed:
  - Scale of challenge 5 cities + GLA increased to 43 (2020)
  - “wait and see” no longer appropriate for ca. 30 LAs
  - Greater emphasis on PCM model uncertainty
  - Growing recognition from ‘First Five CAZ Cities’ of the differences between the results of local and national modelling
  - Two expert panels established for 2017 Plan - air quality modelling and cost-benefit analysis

# 2017 Air Quality Plan

7.7  
**Table 1: UK zones meeting statutory NO<sub>2</sub> limit values in 2015<sup>9</sup>**

UK zones meeting statutory NO <sub>2</sub> limit values in 2015	
Meeting hourly mean limit value for NO <sub>2</sub> (200mg/m <sup>3</sup> )	All forty-three UK zones <u>except</u> : Greater London Urban Area South Wales
Meeting annual mean limit value for NO <sub>2</sub> (40mg/m <sup>3</sup> )	Brighton/Worthing/Littlehampton Blackpool Urban Area Preston Urban Area Highland Scottish Borders Northern Ireland

## Scale of problem

Table **Ex.2** presents the results of this modelling to show the projected number of reporting zones not in compliance between 2017 and 2030. However, it is important to stress that these estimates of future air quality are subject to a level of uncertainty.

**Table Ex.2: Number of zones<sup>I</sup> projected to be non-compliant with the limit value for NO<sub>2</sub> assuming no additional policy interventions to those currently in place<sup>II</sup>**

Year	2017	2018	2019	2020	2021	2022	2023
No. of zones	37	36	34	31	22	18	9
Year	2024	2025	2026	2027	2028	2029	2030
No. of zones	3	3	3	1	1	1	1

<sup>I</sup> Out of the total 43 reporting zones.

<sup>II</sup> These projections are based on COPERT 5 emission factors. If Euro standards are less effective than predicted (as has been the case with historical real-world operations), the number of non-compliant zones will be higher.



# PCM Uncertainties – Expert Panel View

**Table 4.3: Uncertainty-propagating assumptions in the air quality modelling, with quantitative and qualitative descriptions**

Assumption	Quantitative description	Qualitative description
Emission factors	Light duty diesel vehicles: $\pm 60\%$ (standard deviation)*  <i>HBEFA emission factors as an alternative source<sup>†</sup></i>	Low confidence (Medium agreement and limited evidence)
Dispersion modelling (including the inability to reflect the 'canyon effect')	-	Very low confidence (Limited agreement and limited evidence)
Primary NO <sub>2</sub> fraction	Ambient measurements suggest c.40% lower <sup>‡</sup>	Low confidence (Medium agreement and limited evidence)
Traffic composition	<i>DfT National Transport Model high and low traffic forecasts**</i>	Medium confidence (Medium agreement and medium evidence)
Use of annual average meteorological data from a single site	-	High confidence (High agreement and medium evidence)
Relationship between traffic speed and emissions	-	High confidence (High agreement and medium evidence)

## How good is the PCM Model?

- 2017 National AQP Technical Report devotes 20 pages to its uncertainties
  - “ *air quality is often a local environment problem. This means that local characteristics can affect local levels of air pollution. In these circumstances, national modelling will not pick up all the local detail and so it is important that local information and evidence are considered as part of decision making.*”
- The PCM model was developed to report compliance to the European Commission. Now used for policy development purposes
  - Not fit for policy forecasting
  - Considerable time needed – 3+months to run PCM

## “Determined Target”

- Where difference between PCM and local modelling greater than 30%
- Defra “experts’ will determine the target LA has to aim for.

## Systems start to cross in 2017?

- 2017 AQP:-
  - For LAs to resolve NO<sub>2</sub> issue
  - Nationally sent benchmark (based on charging CAZs)
  - LA to find politically acceptable alternatives
  - (Too politically difficult for national Government?)



## UK AQMAs for NO<sub>2</sub>

- 2014 - 579
- 2015 - 613
- 2016 - 627
- 2017 - 650+?

## **LAs in UK with at least one AQMA**

- 2014 – 248 (64%)
- 2015 – 259 (67%)
- 2016 - 278 (71%)

## 2017 AQP - Local authorities' roles:

- Best placed to take the lead and chose / implement measures to achieve statutory NO<sub>2</sub> limit values in the shortest possible time.
- Expected to set a lead in cleaning up their own fleets
- Expected to meet local air quality objectives.
- Assess the benefits that retrofitting, in particular of public transport fleets in Clean Air Zones.

## National contribution

- AQP says it recognises the need for strong national leadership.
- Government will set a clear national framework for the steps that local authorities need to take.
- £220m air quality fund to enable local authorities to develop and implement their plans
- To be raised by increasing VED for new diesel cars (Euro 6d cars which will not be available in April 2018)
- National measures to reinforce LA efforts.
- Requires local plans to be developed and implemented so that air quality limits are achieved within the shortest possible time.

# Local Authorities

- Local problem needs local action
- But actually a national problem (over 70 LAs affected)
- Over time air quality hotspots are going to become even more localised – the importance of action at a local level will increase.
- Local knowledge is vital to finding air quality solutions that are suited to local areas and the communities and businesses affected.

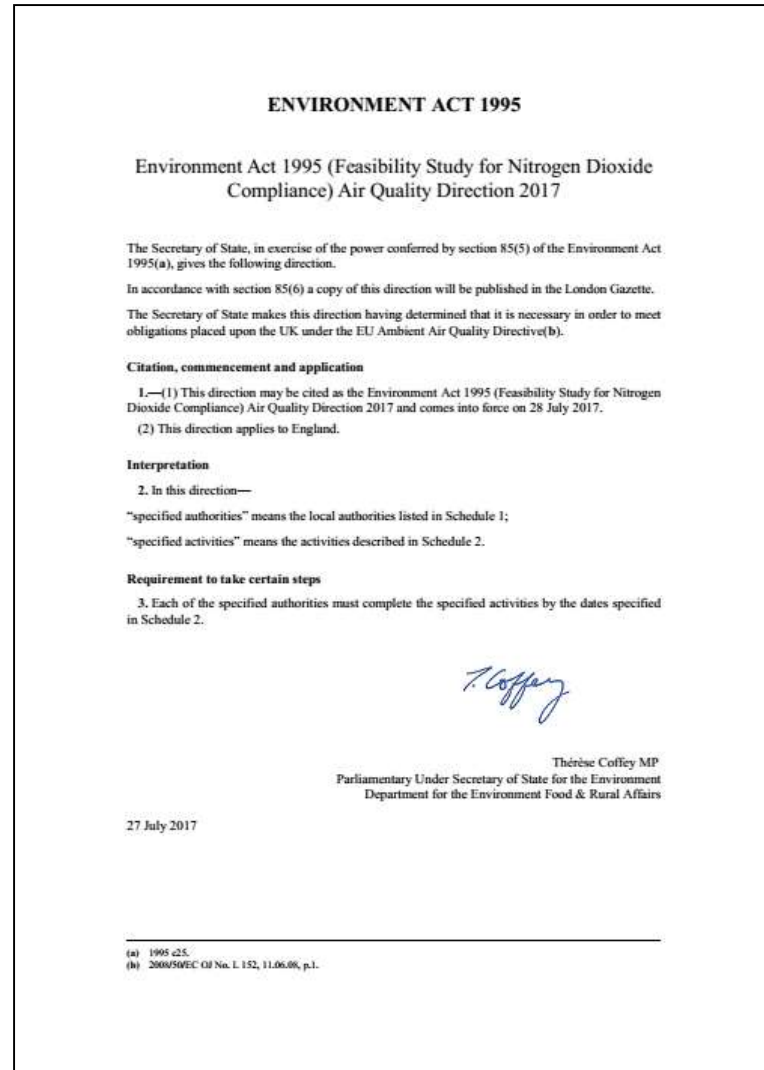


## LAs with persistent exceedances

- LAs with persistent exceedances (i.e. > 3-4 years) – must develop local plans – 22 LAs
  - Initial plans - end March 2018.
  - Final plans - end of December 2018
- LA can immediately draw on its implementation fund and central government expertise.
- Upper tier local authorities and Highways England to work with the local authorities where appropriate.

# SoS's Direction

- Powers under Part IV Environment Act 1995
- Same legislation that established LAQM
- Another example of the 2 AQM systems joining up?



## Other LAs with exceedances

- 45 not required to produce plans
- Normal approach adopted “wait and see”
- Even thought exceedances predicted up to 2020
- What happens if PCM is wrong/under-estimates?
- But expected to take steps now to reduce emissions if there are measures they could take to bring forward when they meet limits.

# Planning - Air Quality Assessments: Conventional Thinking

## Limit Values

- Typically no assessment against LVs
- Except Highways England road schemes/nationally important infrastructure –PCM road link data + impact of scheme to assess against limit values
- PPG “ *it is important that the potential impact of new development on air quality is taken into account in planning where the national assessment indicates that relevant limits have been exceeded or are near the limit.*”

## Objectives

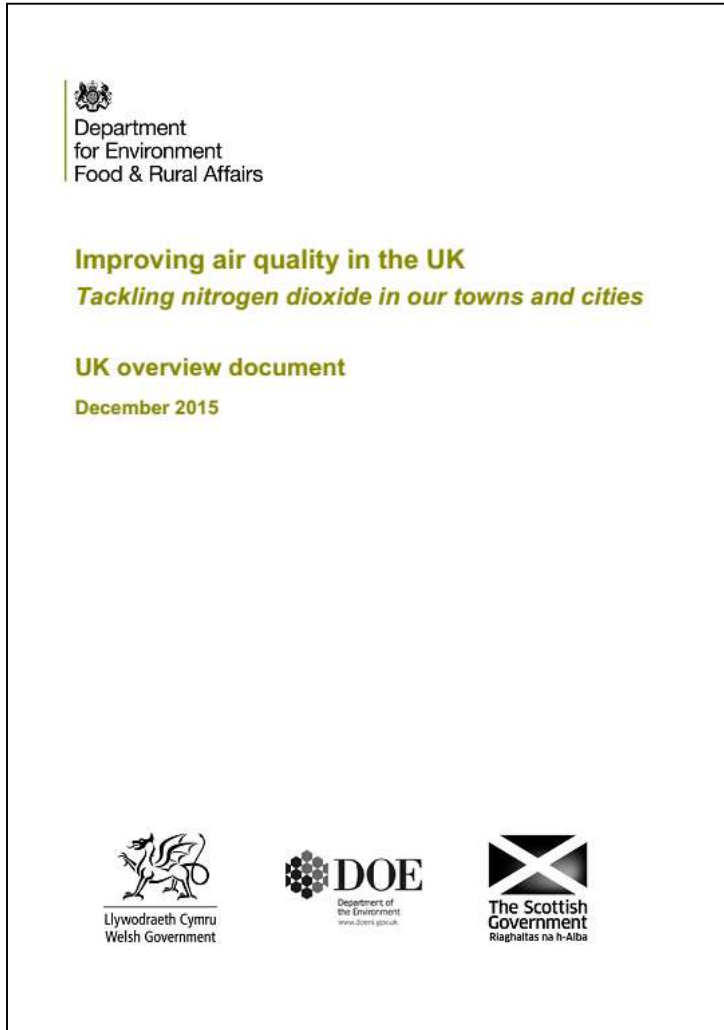
- Assessment against objectives
- Significance based on EPUK/IAQM guidance
- If objective exceeded development may proceed, and may make things worst
- NPPF has little to say on this


# Planning

## Assessment of compliance with EU Limit Values

- If LAs are responsible for compliance with LVs **and** local modelling is better than national modelling should planning applications assess compliance against EU limit values?
- EU limit value mandatory. If new exceedances created or existing exceedances exacerbated compliance may be delayed (especially in the 'non persistent' LAs) should consent be refused as it is a legally binding limit?
- More Judicial Reviews of planning decisions?
- Plan also expects LAs to achieve objectives. If consent given is it contrary to the national AQP? What weight will be given in planning to the national AQP?


# The 2017 National Air Quality Plan





  
Department  
for Environment  
Food & Rural Affairs

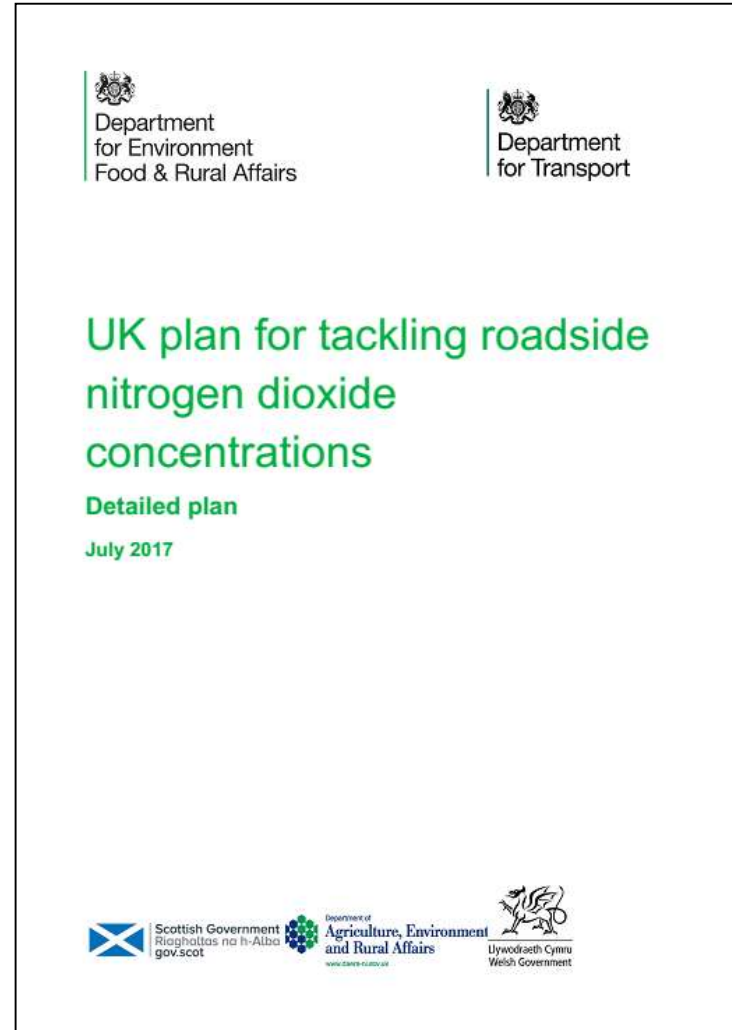
**Improving air quality in the UK**  
*Tackling nitrogen dioxide in our towns and cities*


**UK overview document**  
December 2015


  
Llywodraeth Cymru  
Welsh Government

  
Department of  
the Environment  
www.doe.gov.uk

  
The Scottish  
Government  
Riaghaltas na h-Aibis





  
Department  
for Environment  
Food & Rural Affairs


  
Department  
for Transport

**UK plan for tackling roadside  
nitrogen dioxide  
concentrations**

**Detailed plan**  
July 2017

  
Scottish Government  
Riaghaltas na h-Aibis  
gov.scot

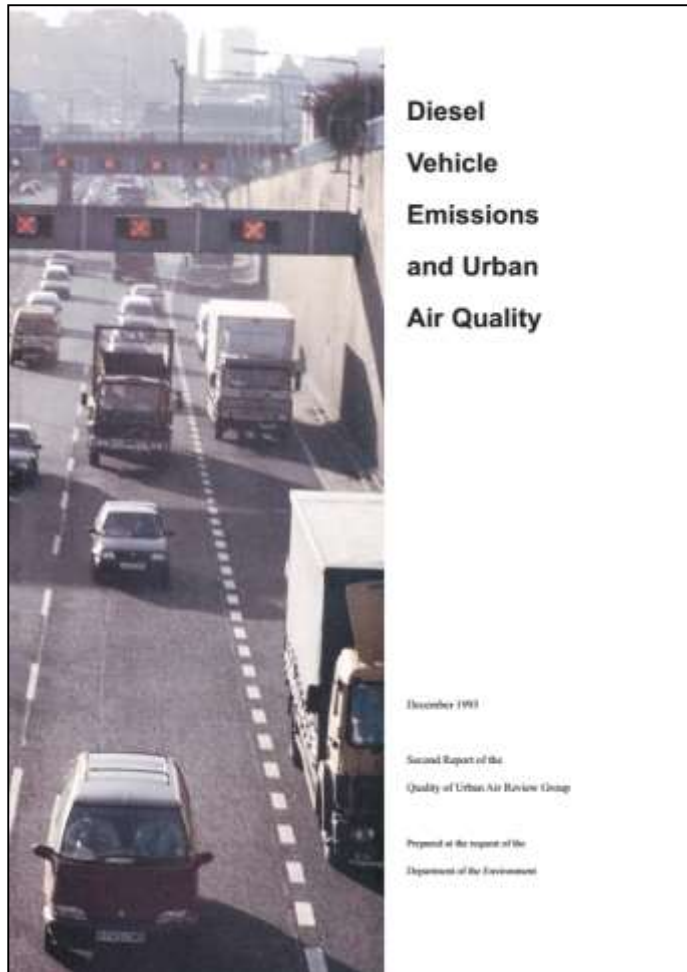
  
Department of  
Agriculture, Environment  
and Rural Affairs  
www.eaer.gov.uk

  
Llywodraeth Cymru  
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# Summary

- EU LV compliance + LAQM becoming more joined up
- LA given responsibility for LV compliance in their area with SoS oversight
- LA expected to meet objectives
- AQA for planning may need to assess compliance against EU LVs not just objectives.
- Expect more Judicial Reviews of planning decisions

# Not a new problem!



## Quality of Urban Air Review Group, 1993

“...unless some improvements in the emissions from diesel vehicles can be achieved, there must be considerable concern over any increase in the proportion of diesel vehicles on our urban streets as their impact on urban air quality is undoubtedly quite serious.”

**EU Limit value agreed ca. 1997 and adopted in 1999 Directive**



Thank you

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