Air quality is mostly improving…
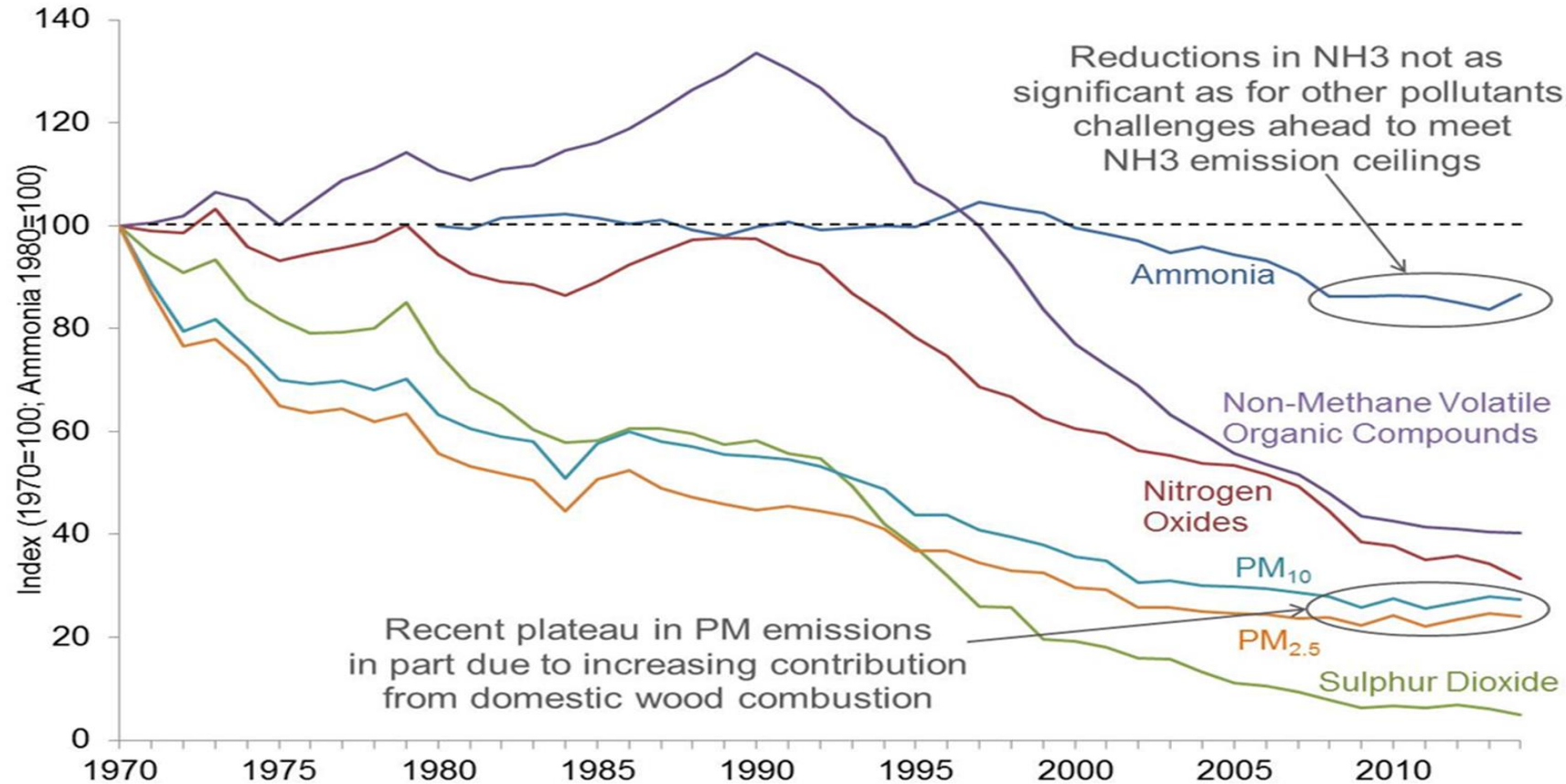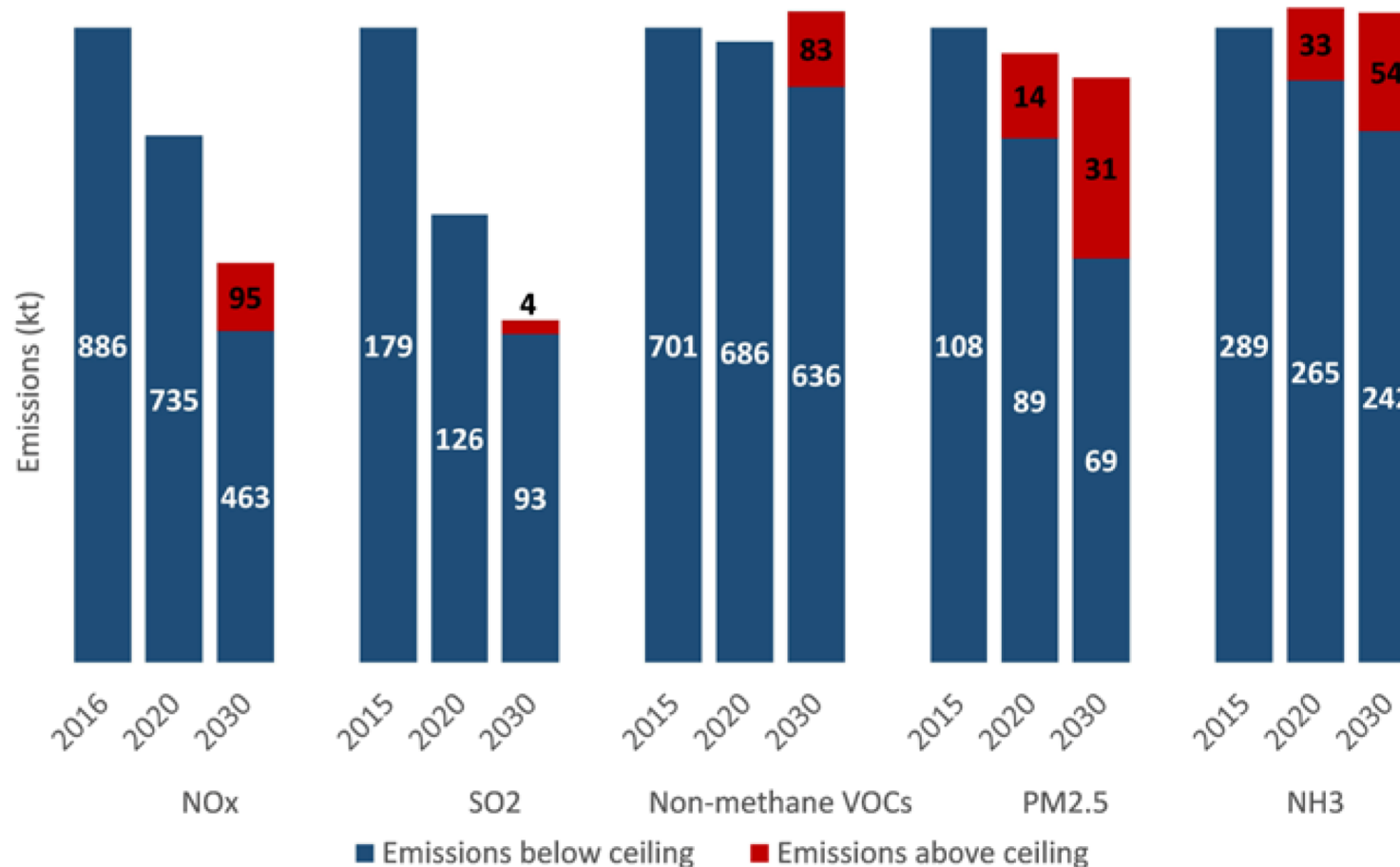

- Long-term decline in the emissions of key air pollutants since 1970.
- With the exception of ammonia and PM2.5, emissions of all pollutants continued to decrease in 2015.

Meeting our Emissions Ceilings in 2020 and 2030

If we took no further action, we would be likely to breach our emission ceilings for PM2.5 and NH3 in 2020 and all five of our emissions ceilings in 2030.

Emissions abatement challenges to 2030

The most straightforward interventions have all been implemented. In order to meet our 2020 and 2030 ceilings, we are now needing to manage increasingly diverse and diffuse sources of air pollutants, for example VOCs
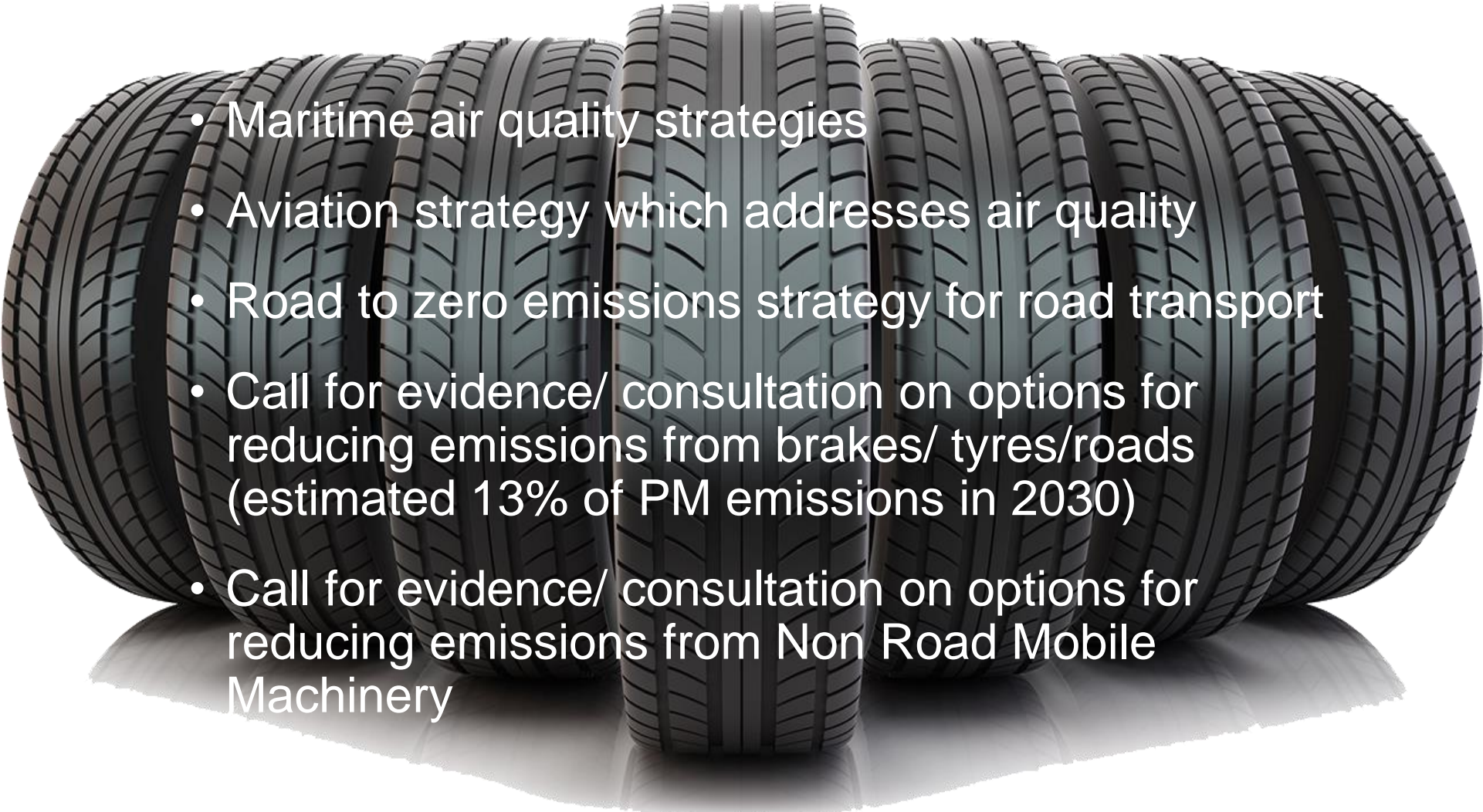
- For NOx, there is significant potential for abatement in non-road transport.

- For NMVOCs the largest opportunities are associated with industrial processes and domestic solvent use.

- For PM2.5 we need to look for reductions in the domestic burning and energy & industry sectors.

- Reductions in NH3 emissions are expected to be delivered exclusively in the agricultural sector.

- We believe that the commitments set out in the Clean Air Strategy will enable us to meet four of our emission ceilings.

- We need to identify further options to reduce NMVOC emissions in time to meet our 2030 emissions ceiling.

Contribution to air emissions abatement by broad sector

Where our policies will look for emission reductions across all sectors
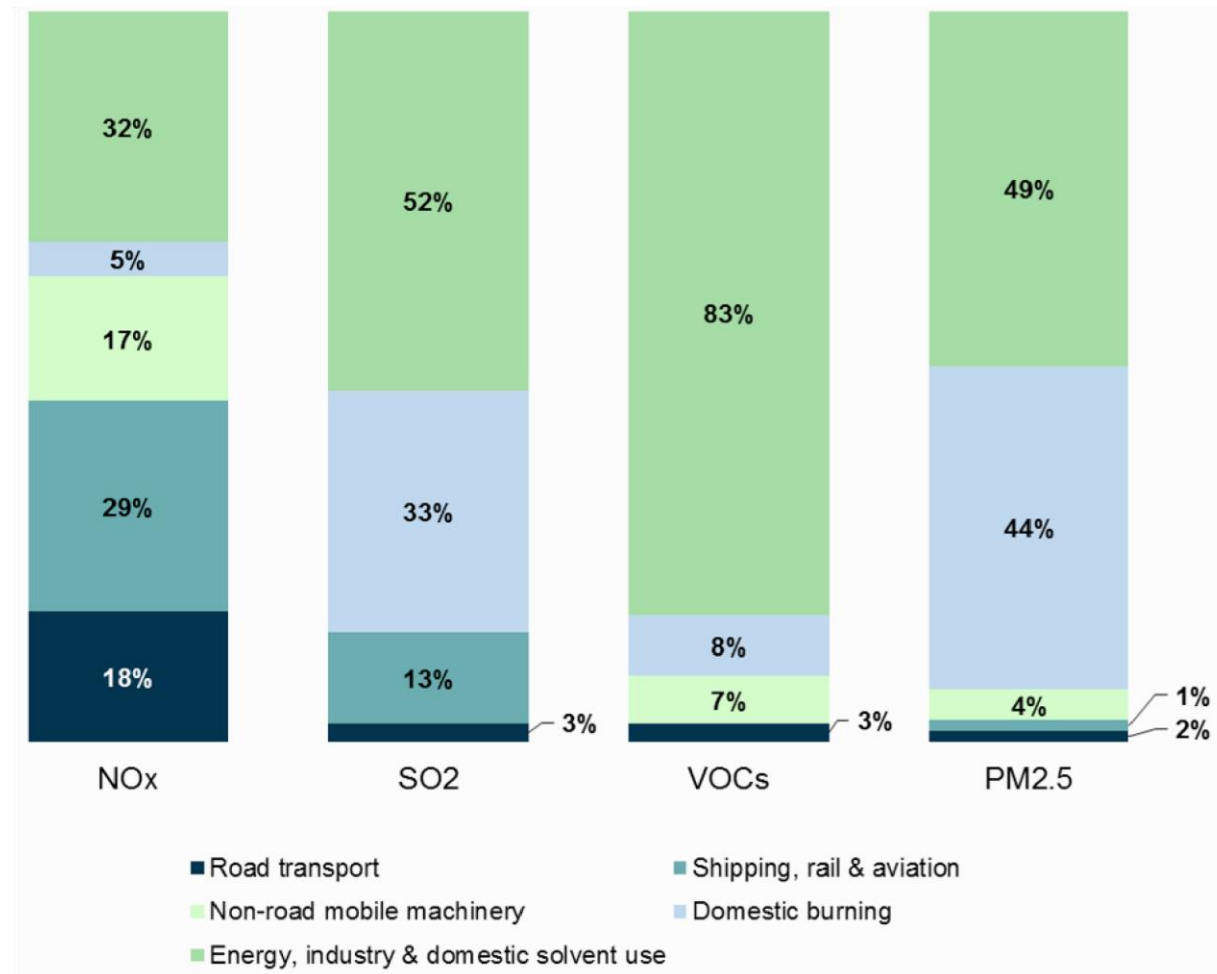
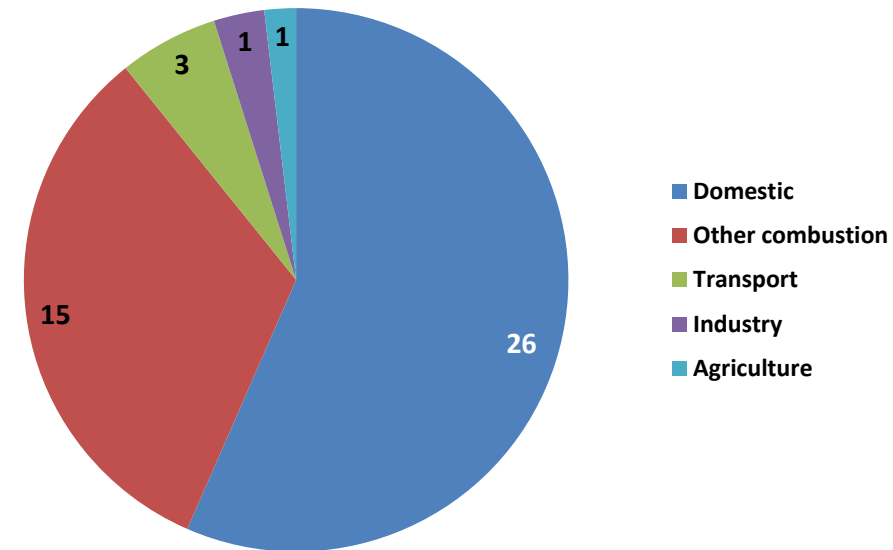# Whole Government approach: Transport

- Maritime air quality strategies

- Aviation strategy which addresses air quality

- Road to zero emissions strategy for road transport

- Call for evidence/ consultation on options for reducing emissions from brakes/ tyres/roads (estimated 13% of PM emissions in 2030)

- Call for evidence/ consultation on options for reducing emissions from Non Road Mobile Machinery

WHO guidelines & fine particulate matter

- We will halve the number of people living in areas above the World Health Organisation $PM_{2.5}$ guideline level by 2025;

- It is estimated that the mortality attributable to $PM_{2.5}$ is equivalent to 29,000 deaths in the UK annually (COMEAP);

- PHE has published new research this week that suggests that even small changes can make a big difference – just a 1ug / m^3 in PM2.5 concentrations this year could prevent 50,000 new cases of coronary heart disease and 9000 new cases of asthma by 2025.

Estimated policy potential to reduce PM2.5 by sector

Legend:
- Domestic
- Other combustion
- Transport
- Industry
- Agriculture

Values shown: 26, 15, 3, 1, 1
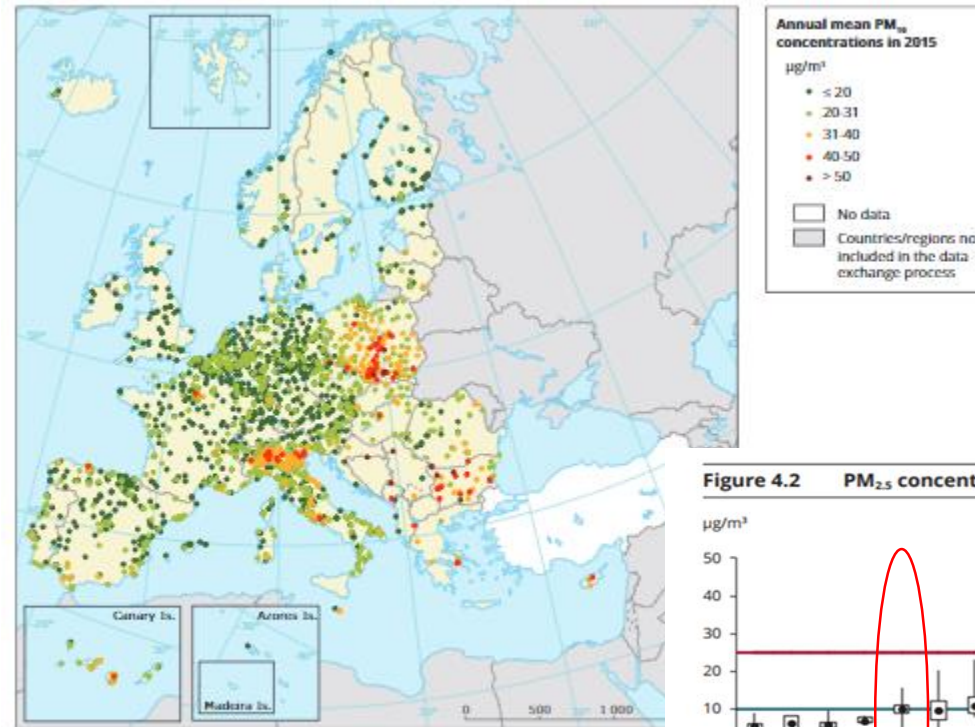
Total PM$_{2.5}$ emissions by year

In 2016, the UK had already met the more stringent 2020 limit for PM2.5 as well as the exposure reduction target for the whole of the UK.

Total PM$_{2.5}$ Emissions by year
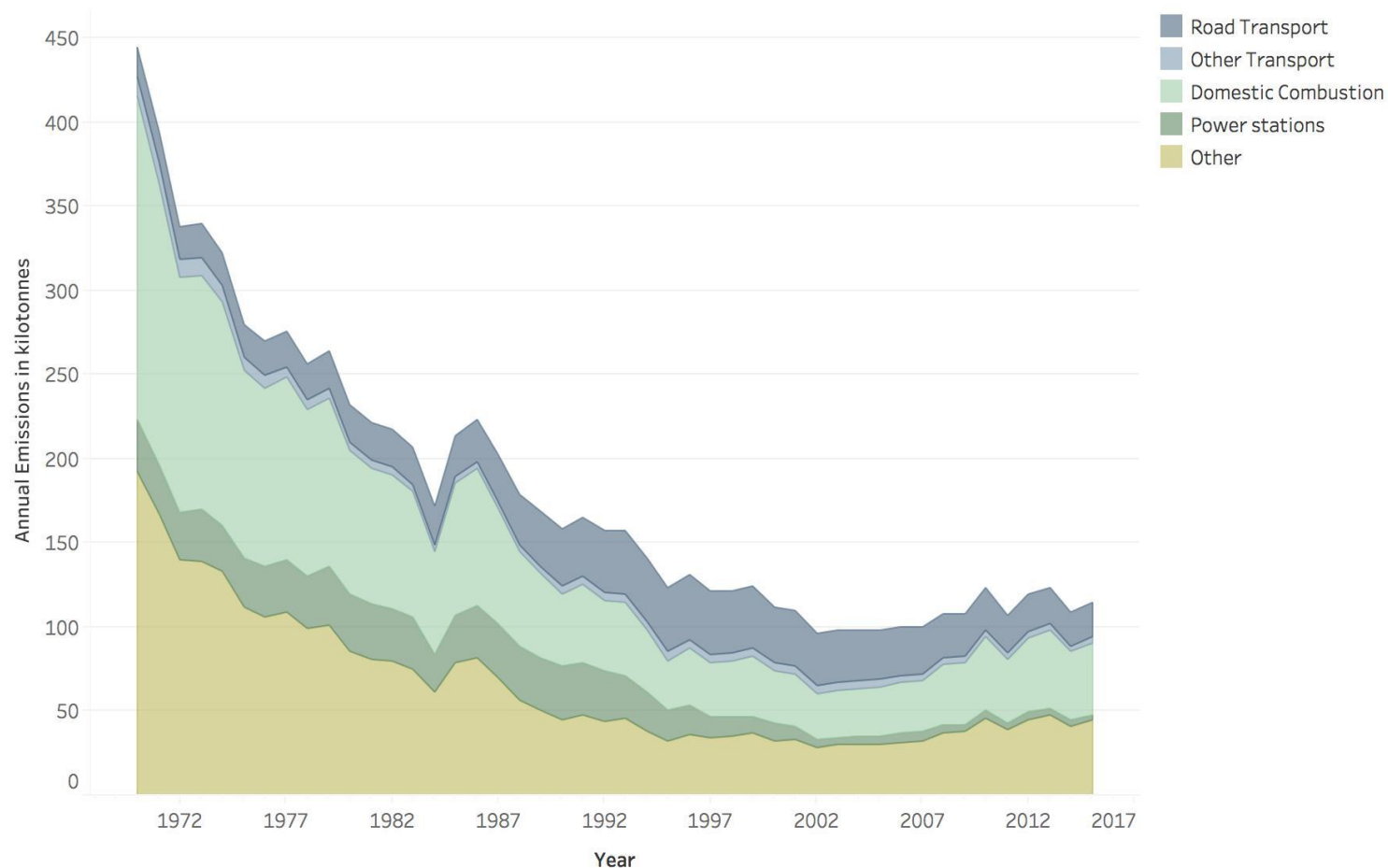
A European Comparison

Map 4.2   Concentrations of PM₁₀, 2015 — annual limit value

Annual mean PM₁₀ concentrations in 2015

μg/m³

- ≤ 20
- 20-31
- 31-40
- 40-50
- > 50

No data

Countries/regions not included in the data exchange process

Canary Is.

Azores Is.

Madeira Is.

Notes: The dark red and red dots indicate stations reporting concentrations above the EU annual indicate stations reporting values below the WHO AQG for PM₁₀ (20 μg/m³). Only station in the map. The stations from the former Yugoslav Republic of Macedonia are not inclue

Source: EEA, 2017a.

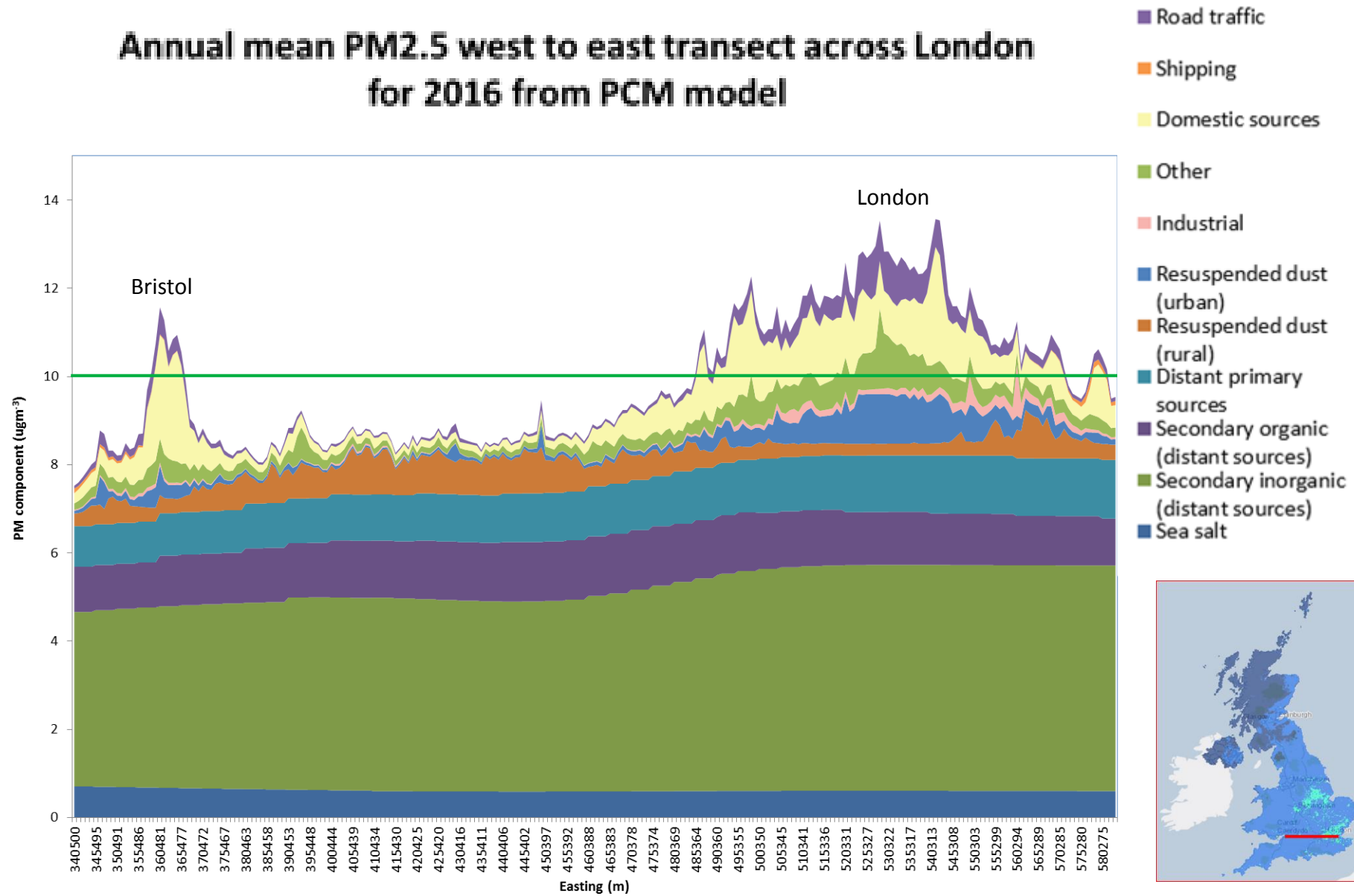Figure 4.2   PM₂.₅ concentrations in relation to the limit value in 2015 in the EU-28
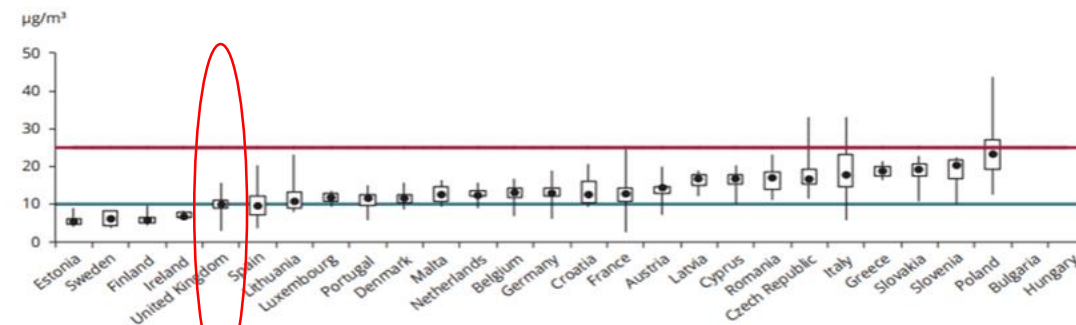
Notes: The graph is based on annual mean concentration values. For each country, the lowest, highest and median values (in μg/m³) at the stations are given. The rectangles mark the 25th and 75th percentiles. At 25 % of the stations, levels are below the lower percentile; at 25 % of the stations, concentrations are above the upper percentile. The limit value set by EU legislation is marked by the red line. The WHO AQG is marked by the blue line.
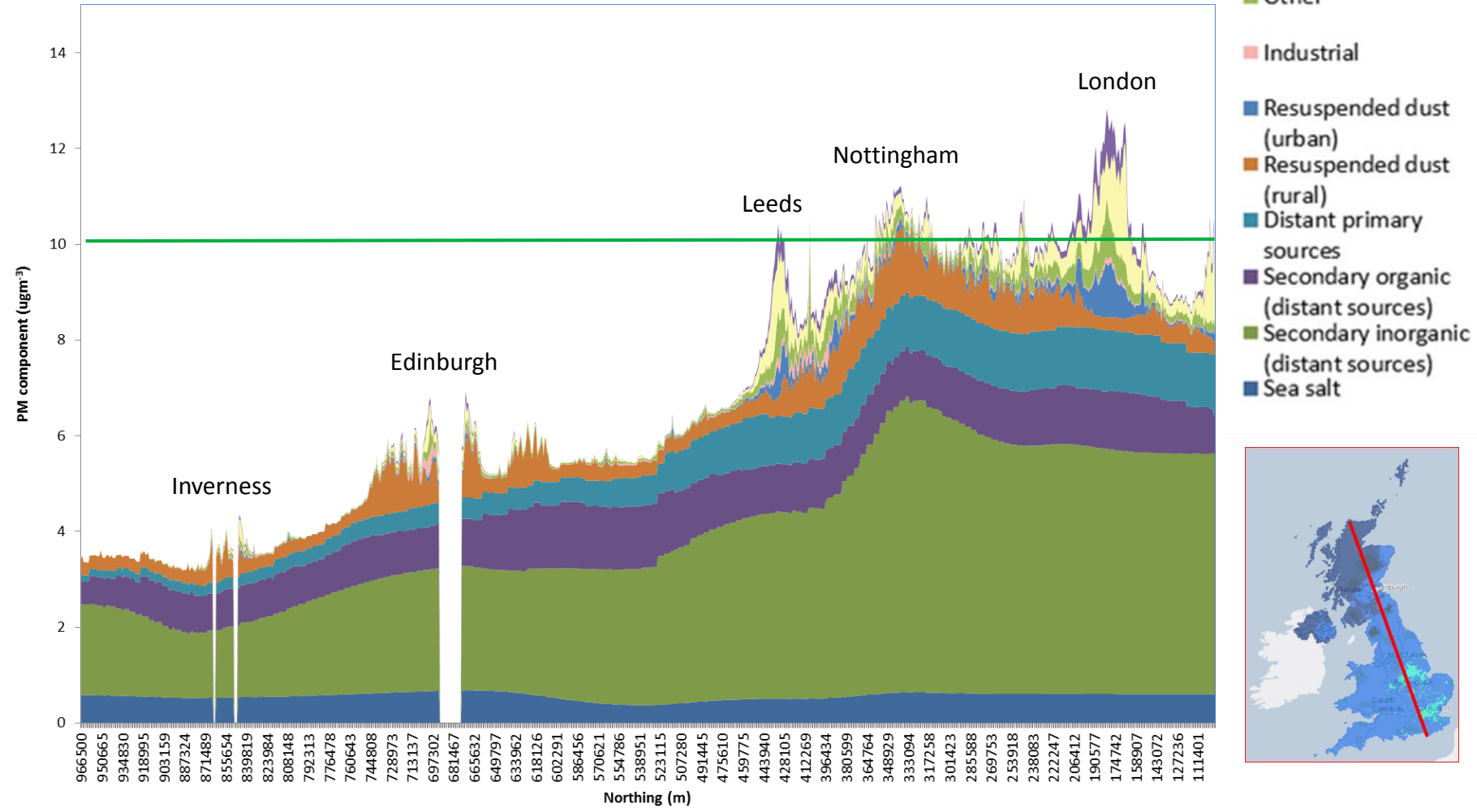
The graph should be read in relation to map 4.3 as the country situation depends on the number of stations considered.

Source: EEA, 2017a.

Annual mean PM2.5 west to east transect across London for 2016 from PCM model

Annual mean PM2.5 north to south transect across the UK for 2016 from PCM model

Legend:
- Road traffic
- Shipping
- Domestic sources
- Other
- Industrial
- Resuspended dust (urban)
- Resuspended dust (rural)
- Distant primary sources
- Secondary organic (distant sources)
- Secondary inorganic (distant sources)
- Sea salt

City labels: Inverness, Edinburgh, Leeds, Nottingham, London

Y-axis: PM component (ugm⁻³)
X-axis: Northing (m)

Wood burning: a changing fuel mix since 1990

Emissions from residential burning since 1990
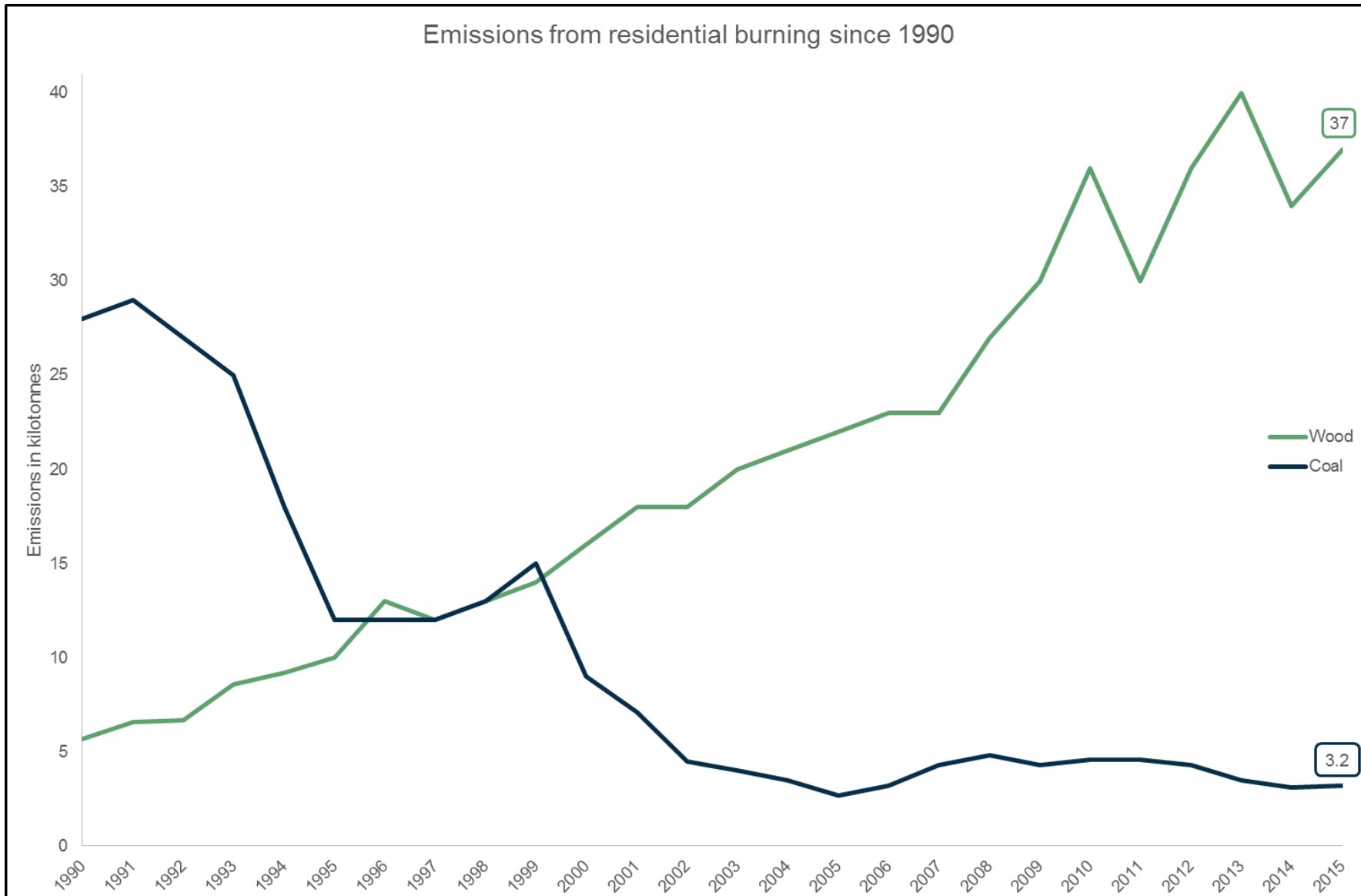
Challenges in delivering clean air towards 2030

- The technical feasibility and affordability of technological solutions to reduce emissions further becomes more challenging.

- We will need a significant change in public attitudes and behaviours to achieve some of the more challenging emissions targets.

- We need to anticipate "new" problems (e.g. UFPs) and avoid "perverse consequences", whereby interventions to reduce one pollutant create new air quality problems.

- The need to make data and evidence more accessible to the wider community, improving our use of a wider range of data sources, and the granularity of data (i.e. sectoral, spatial, temporal).

- Demonstrating progress in improving air quality and attributing improvements to specific actions or interventions.

- Estimating the public health benefits of action, both in informing decisions on potentially expensive interventions, and in demonstrating the outcomes.

Challenges in delivering clean air towards 2030

- <u>Uncertainty will always be a theme in using evidence to make decisions</u>. That should not delay us taking appropriate action. Our challenge is to identify where we can live with uncertainty, and where we need to focus more effort to improve granularity of data and understanding to inform decision making.

- While we need to continue improving our tools to characterise the problem and track our progress, <u>they do not in themselves solve air pollution</u>.

- We can regulate, advise and apply all sorts of incentives to make change happen. <u>But investment in innovation to deliver the technical solutions will help deliver the required abatement across all sectors of the UK economy</u>.

Innovation to find solutions

Through discussion with academics, industry and NGOs we have identified a number of priority areas where innovation funding will support us to achieve our air quality goals:

- Particulate matter emissions from industrial combustion, tyre, brake and road wear, industrial processes and domestic burning;

- Zero or ultra-low emission heavy goods vehicles;

- Volatile organic compounds from industrial processes; and product formulation;

- Low and zero-emission options for non-road mobile machinery;

- Ammonia emissions from agriculture.

Thank you