

Draft UK National Air Pollution Control Programme

1. FIELD DESCRIPTIONS

All fields in this common format that are marked (M) are mandatory. Optional fields have been removed.

2. COMMON FORMAT

2.1 Title of the programme, contact information and websites

<u>2.1.1 Title of the programme, contact information and websites (M)</u>	
Title of the programme:	Draft UK National Air Pollution Control Programme for consultation
Date:	22/07/2022
Scope:	United Kingdom
Name of competent authority responsible for drawing up the programme:	Department for Environment, Food and Rural Affairs (DEFRA)
Telephone number of responsible service:	See Citizen Space
Email address of responsible service:	See Citizen Space
Link to website where the programme is published:	See Citizen Space
Link(s) to website(s) on the consultation(s) on the programme:	See Citizen Space

2.3 The national air quality and pollution policy framework

2.3.1 Policy priorities and their relationship to priorities set in other relevant policy areas					
The national emission reduction commitments compared with 2005 base year (in %) (M):	SO₂	NO_x	NMVOC	NH₃	PM_{2.5}
2020-2029 (M):	59%	55%	32%	8%	30%
From 2030 (M):	88%	73%	39%	16%	46%
<p>The air quality priorities: national policy priorities related to EU or national air quality objectives (incl. limit values and target values, and exposure concentration obligations) (M):</p> <p><i>Reference can also be made to recommended air quality objectives by the WHO.</i></p>	<p>The UK air quality framework is derived from a mixture of domestic and international legislation and consists of three main strands:</p> <ol style="list-style-type: none"> 1) Legislation regulating total emissions of air pollutants – domestic legislation (National Emission Ceilings Regulations) and international law (the Gothenburg Protocol to the UNECE Convention on Long-range Transboundary Air Pollution). 2) Legislation regulating concentrations of pollutants in the air. (Air Quality Standards Regulations 2010, the Air Quality Standards (Wales) Regulations 2010, the Air Quality Standards (Northern Ireland) 2010 and the Air Quality Standards (Scotland) Regulations 2010). 3) Legislation regulating emissions from specific sources, such as the Environmental Permitting Regulations (England and Wales) 2016, the Pollution Prevention and Control (Scotland) Regulations 2012 and the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 which cover specific industrial activities. And medium combustion plant and specified generators (covered by Environmental Permitting Regulations (England and Wales) 2018; The Pollution Prevention and Control (Industrial Emissions) (Amendment) Regulations (Northern Ireland) 2018; and The Pollution Prevention and Control (Scotland) Amendment Regulations 2017). <p><u>The Environment Act 2021</u></p> <p>The Environment Act 2021 (Environment Act 2021 (legislation.gov.uk)) establishes a duty to set a target on PM_{2.5} alongside at least one further long-term target on air quality as part of the wider</p>				

framework for setting legally binding environmental targets. Consultation on the new targets closed on the 27 June 2022.

The Environment Act 2021 also amended the 1995 Environment Act ([Environment Act 1995 \(legislation.gov.uk\)](https://www.legislation.gov.uk)) and the Clean Air Act 1993 ([Clean Air Act 1993 \(legislation.gov.uk\)](https://www.legislation.gov.uk)) to enable stronger, more effective action to be taken under the existing local authority air quality management and smoke control framework to address the health impacts associated with poor air quality, and to increase transparency and accountability at all levels.

The UK Air Quality Strategy

The Environment Act 1995, as amended by the Environment Act 2021, requires that a National Air Quality Strategy be published, containing policies for assessment and management of air quality. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland was first published in March 1997. The latest completed review was in 2007. However, this strategy is currently being reviewed and the revised strategy will be published in May 2023.

The Strategy has established objectives for eight key air pollutants, based on the best available medical and scientific understanding of their effects on health available at the time they were set. ([Air Quality Strategy Vol 1 \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk) [Air Quality Strategy 2007 Vol 2 \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk))

Clean Air Strategy 2019

The Clean Air Strategy (CAS) sets out a range of initiatives that will help reduce air pollution in England, providing healthier air to breathe, enhancing the economy and protecting nature. The CAS outlines a comprehensive and ambitious programme of actions to reduce emissions across all sectors, including transport, the home, farming, and industrial sources. Air quality is a devolved policy in the United Kingdom; the CAS summarises action being taking in Scotland, Wales and Northern Ireland as well. The CAS can be found at: [Clean Air Strategy 2019](https://www.gov.uk/government/policies/clean-air-strategy).

Air quality plan for nitrogen dioxide (NO₂) in UK (2017)

In July 2017 the UK government published the Air Quality Plan for NO₂, available at: [Air quality plan for nitrogen dioxide \(NO₂\) in UK \(2017\)](#), with a Supplement in 2018, see: [Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations](#).

In order to deliver the actions set out in the 2017 plan and supplement, UK government has collaborated with 61 English local authorities that were within non-compliant zones to agree plans for delivering NO₂ compliance in the shortest possible time. A number of these authorities have completed this process and have implemented measures to reduce NO₂, supported by UK government, or have determined that no further action is required. UK government also continues to work with a number of authorities on the development and implementation of their plans. We have provided £880 million to help local authorities develop and implement their local air quality plans and to support those impacted by these plans. This is part of the UK government's wider support for air quality and cleaner transport.

There are a range of interventions to reduce NO₂ concentrations that have been delivered through this programme of work, which are highly dependent on local circumstances. This includes measures such as road layout and signalling changes, reduced speed limits, or installation of emission reduction technology in the local bus fleet.

Clean Air Zones have also been identified as necessary in a number of areas; The first Clean Air Zone was introduced in Bath on 15 March 2021; Birmingham followed with the second Clean Air Zone on 1 June and Portsmouth with its CAZ on 29 November 2021. Further zones are expected to be introduced over the next 1-2 years, following exploration of all alternative measures.

In Scotland, at the end of May 2022 Low Emission Zones came into force in Aberdeen, Dundee and Edinburgh, together with an expansion in scope of the Glasgow Low Emission Zone (LEZ) originally introduced in 2018.

The first annual report for the evaluation of local NO₂ plans was published in February 2021 and details research that has been undertaken in several Local Plan areas and provides a baseline for evaluation. The report can be found here: [2020 Annual Report for the Evaluation of Local NO₂ Plans | Ipsos](#). The second annual report was published May 2022 and can be found here [Local NO₂](#)

[plans: Research findings](#), and presents early findings from the first Local Authorities to implement CAZs.

Cleaner Air for Scotland 2

Cleaner Air for Scotland 2 – ‘Towards a Better Place for Everyone’ was published in July 2021 and sets out the air quality policy framework for Scotland over the period to 2026. The actions in the strategy are largely based on the recommendations arising from an independent review of the Scottish Government’s previous air quality strategy ‘Cleaner Air for Scotland – The Road to a Healthier Future’ which was published in 2015. Although further reducing transport related emissions remains central to the new strategy, there is an increased focus on other emissions sources, notably agriculture and domestic fuel combustion. Cleaner Air for Scotland 2 can be found at: [Cleaner Air for Scotland 2 - Towards a Better Place for Everyone - gov.scot](#).

Clean Air Wales: Healthy Air, Healthy Wales (2020)

The [Clean Air Plan for Wales](#) sets out our ten-year pathway for achieving cleaner air. The Clean Air Plan for Wales covers four key themes: people, environment, prosperity and place, to enable a collaborative approach to reducing air pollution across a variety of sectors including industry, transport, agriculture and domestic sources. A number of the actions under these themes correspond to measures under the NAPCP.

Welsh Government Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations (November 2018)

The [Welsh Government Supplemental Plan](#) to the UK plan for tackling roadside nitrogen dioxide concentrations was published in November 2018. The plan sets out actions being taken to deliver compliance with statutory limits for NO₂ in the shortest possible time, and in accordance with the Air Quality Standards (Wales) Regulations 2010. The plan identified five areas of exceedance on the strategic road network, and also on roads located in the Cardiff and Caerphilly local authority areas.

Reduced speed limits of 50mph have been introduced on the strategic road network as evidence indicated this had the potential to reduce concentrations at each of the five locations. Additional

'precautionary retained measures' are being developed for potential introduction should the speed limits fail to ensure long-term compliance.

Welsh Government has also been working with Caerphilly County Borough Council, and Cardiff Council, to confirm mitigating actions which are being supported with funding of £25m.

An update to the supplemental Plan is due to be published in 2022.

Northern Ireland

The [Northern Ireland Executive's draft Programme for Government](#) includes a supporting indicator on air quality, based on monitored levels of roadside nitrogen dioxide across Northern Ireland. One of the key measures in the Delivery Plan for this indicator is the preparation of an Air Quality Strategy for Northern Ireland.

DAERA also releases an annual [Air Pollution in Northern Ireland Report](#). The 2020 report, which was published on 15 December 2021 shows that Regulation limit values, target values and corresponding AQS objectives, have been met for the following pollutants in Northern Ireland –

- Particulate matter as PM10
- Nitrogen Dioxide
- Ozone
- Sulphur dioxide

Of the three sites that measured PM_{2.5}, all met the Regulations Stage 1 (25 µg m⁻³) and Stage 2 (20 µg m⁻³) limit values for PM_{2.5}.

As a result of lockdown measures, no sites in the network exceeded the annual mean objective for NO₂, for the first time since 2002.

Environment Strategy for Northern Ireland

In November 2021, the Department of Agriculture, Environment & Rural Affairs (DAERA) launched a consultation exercise on Northern Ireland's first overarching Environment Strategy at COP26 in Glasgow, found here: [Draft Environment Strategy for Northern Ireland](#). 336 responses

	<p>were received by the closing date of 18 January 2022. The draft Strategy sets out 6 Strategic Environmental Outcomes (SEOs). The Strategy covers Air Quality under SEO1: “Excellent air, water, land & neighbourhood quality”, with a focus on providing cleaner air in Northern Ireland and reducing pollutants via the forthcoming ‘Clean Air Strategy’ and ‘Ammonia Strategy’. The draft Strategy has been revised to take into account comments received from stakeholders and the AERA Committee, and a summary report of the consultation responses was published in March 2022 and can be found here: Responses to public consultation summary report. The final Executive endorsed Environment Strategy cannot be published until it has received final sign-off from the Northern Ireland Executive.</p> <p><u>Clean Air Strategy for Northern Ireland</u></p> <p>Work is well underway within DAERA to develop Northern Ireland’s first Clean Air Strategy. A twelve-week public consultation on the Clean Air Strategy Discussion Document ran from November 2020 to February 2021. This consultation sought views on a wide variety of matters relating to air quality (e.g. transport, household emissions, industry and agriculture). It did not set out policy options or indicate a particular policy position.</p> <p>Following the period of public discussion, responses were reviewed. Officials have now completed analysis of these comments and an initial synopsis of responses has been drafted. Preliminary analysis, recommendations and actions have been presented to the Minister. Once they have considered the options and decided on a policy direction, officials will engage with other Departments to develop preferred options and policy positions more fully.</p> <p>Officials will then begin to draft the first Clean Air Strategy for Northern Ireland. This will be a more focused and shorter document than the Discussion Document and will contain proposals relating to policy and other measures which can improve air quality. This draft Clean Air Strategy will be subject to an additional public consultation and due to the cross-cutting nature of the policy area, Executive approval will also be sought at that time.</p>
<p>Relevant climate change and energy policy priorities (M):</p>	<p><u>UKG:</u></p> <p>The Net Zero Strategy sets out policies and proposals for decarbonising all sectors of the UK economy to meet our net zero target by 2050. It includes:</p>

- Our decarbonisation pathways to net zero by 2050, including illustrative scenarios
- Policies and proposals to reduce emissions for each sector
- Cross-cutting action to support the transition.

Scottish Government:

- The update to Scotland's 2018-2032 Climate Change Plan, published in December 2020, sets out the Scottish Government's pathway for achieving a 75% reduction in greenhouse gas emissions by 2030 (compared to 1990 levels) and net zero by 2045: [Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update.](#)
- The Scottish Government's Energy Strategy position statement, published in March 2021, provides an overview of key priorities for the short to medium-term in ensuring a green economic recovery, whilst remaining aligned to net zero ambitions: [Energy strategy: position statement.](#) The Scottish Government's Energy Strategy, published in 2017, provides the broader policy framework: [The future of energy in Scotland: Scottish energy strategy.](#)
- The Heat in Buildings Strategy, published in October 2021, sets out the Scottish Government's vision for the future of heat in buildings, and the actions being taking in the buildings sector to deliver our climate change commitments, maximise economic opportunities, and ensure a just transition, including helping address fuel poverty: [Heat in Buildings Strategy - achieving net zero emissions in Scotland's buildings.](#)

Welsh Government:

- The Welsh Government's emissions reduction plan titled '[Net Zero Wales - Carbon Budget 2](#)' was published in October 2021. This builds on *Prosperity for all: A Low Carbon Wales*.
- It focuses on our second carbon budget (2021-2025), but also looks beyond to start building the foundations for Carbon Budget 3 and our 2030 target, as well as net zero by 2050.
- The plan contains 123 policies and proposals and over 100 pledges for action recognising that the 2020s must be a decade of action, where Welsh Government need to cut emissions more over the next 10 years than has been done in the last 30.

Northern Ireland: Energy Strategy - Path to Net Zero Energy

- Energy accounts for almost 60 per cent of Northern Ireland’s greenhouse gas emissions. The Energy Strategy sets out a pathway for energy to 2030 that will mobilise the skills, technologies and behaviours needed to take us towards our vision of net zero carbon and affordable energy by 2050. A link to the Energy Strategy can be found at: [Northern Ireland Energy Strategy ‘Path to Net Zero Energy’](#).
- Decarbonisation of heat in Northern Ireland will be the subject of a future detailed consultation in order to gather evidence to inform policy development. Once policies have been developed, it will be possible to model these in future updates to the NAPCP.

Green Growth Strategy for Northern Ireland

- DAERA is leading on the development of the Executive’s multi-decade Green Growth Strategy. Green Growth means using the move from a high to a low greenhouse gas emissions society to improve people’s quality of life through green jobs and a clean environment. Through tackling climate change together, we can deliver outcomes which will contribute to a resilient, greener, low carbon and circular economy for Northern Ireland. Therefore, the aim of the Green Growth Strategy will be to ensure future Government policy making has climate and environment action at its core and therefore will set out the long-term vision, ambition and a solid framework for tackling the climate crisis in the right way. The last Executive approved the draft strategy for consultation in advance of the UN Climate Change Conference of the Parties (COP26) last year. Analysis of the feedback from the consultation and an associated EQIA has been used to amend the Strategy which has also been adjusted to align with the new Climate Change Act (NI) 2022.
- Due to the cross-cutting nature of the Green Growth Strategy, final approval has not yet been possible due to the absence of a functioning Executive. However, attention is now focused on development of a Climate Action Plan, in line with the target set within the new Climate Change legislation. The Action Plan will set out in more detail the actions that will be taken to meet sector-specific greenhouse gas emission targets. Inter-departmental working and stakeholder engagement will continue to be an important element throughout the development of the Action Plan.

Climate Change Act (Northern Ireland) 2022

- The Climate Change Act (Northern Ireland) 2022 received Royal Assent on 6 June 2022.

	<ul style="list-style-type: none"> • The Act sets a net zero greenhouse gas emissions target by 2050, along with interim targets for 2040 and 2030, with a level for the reduction of methane emissions for the year 2050 not required to be more than 46% lower than the baseline. • The methane level is not a supplementary target, but a clarification on a fair and equitable contribution towards net zero as it is consistent with the Intergovernmental Panel on Climate Change’s and the UK Climate Change Committee’s evidence and advice in regard to reducing methane to achieve long term global temperature goals in the Paris Agreement. • The Act also requires the setting of 5 yearly carbon budgets, sectoral plans and also annual air quality and greenhouse gas emissions reduction targets to be set within 5 yearly climate action plans.
<p>Relevant policy priorities in relevant policy areas, incl. agriculture, industry and transport (M):</p>	<p>Domestic Combustion</p> <p><u>UKG:</u></p> <p>The Clean Air Strategy for England includes a number of actions to reduce emissions at home, including a commitment to legislate to prohibit the sale of the most polluting fuels. Most measures in the Air Quality (Domestic Solid Fuels Standards) (England) Regulations 2020 came into force on 1 May 2021. These regulations introduce, in relation to England, restrictions on the sale of wet wood for domestic burning, limits on the emission of sulphur and smoke from manufactured solid fuels and phase out the sale of bituminous coal (traditional house coal).</p> <p>In the Clean Air Strategy, Defra committed to enabling greater local action to tackle domestic solid fuel burning, by updating the current Smoke Control Area framework to make it easier for local authorities to enforce.</p> <p>Through the Environment Act 2021, the Clean Air Act 1993 was amended for England to create a simpler mechanism for local authorities to tackle smoke emissions. Smoke emissions in a Smoke Control Area are now subject to a civil rather than criminal regime, enforced with a financial penalty, making it easier for local authorities to tackle illegal domestic solid fuel burning.</p> <p>The Environment Act 2021 also introduced measures to enable local authorities to prosecute when smoke is emitted from private dwellings under the statutory nuisance regime.</p>

As set out in the Clean Air Strategy, Defra intend to identify an appropriate test standard for new solid fuels entering the market. As a first step, a market study of these new fuels has already been commissioned.

These measures form part of a wider package of action to tackle pollution from domestic burning. Since January 2022, only Ecodesign compliant stoves will be able to enter the market for sale across England. Defra have also developed a dedicated communications campaign targeted at domestic burners, to improve awareness of the environmental and public health impacts of burning and help reduce exposure to harmful pollution. This will also help raise awareness of more efficient fuels which provide better heat with reduced emissions.

Defra continue to undertake regular monitoring of emission sources of air pollutants to inform future policy.

Scottish Government:

The Scottish Government's Cleaner Air for Scotland 2 strategy sets out a series of actions to tackle emissions from domestic fuel combustion, including taking forward a ban on the sale of house coal and the most polluting manufactured solid fuels, considering the requirements for controls on the sale of wet wood, a greater focus on education and awareness raising around good burning practice amongst the general public, encouraging the uptake of the cleanest and most technologically advanced stoves on the market and a comprehensive review of the 1993 Clean Air Act as it relates to Scotland.

The Scottish Government is also committed to introducing regulations (where possible within our legal competence) to require that all homes use zero emissions heating (and cooling) systems by 2045. We will regulate to phase out the need to install new or replacement fossil fuel boilers, and to install zero direct emission heating systems in their place. Whilst the proposed standard is likely to be technology agnostic, we anticipate that compliant technologies will include electrically driven heat pumps, heat network connections and direct electric heating technologies. The combustion of fossil fuels (which contributes to air pollution) within individual dwellings will not be compliant with the proposed standard.

We are committed to decarbonising the heating of at least 1 million homes, and the equivalent of 50,000 non-domestic buildings, by 2030. Subject to consultation, these regulations will apply at

certain trigger points (with point of sale being considered), with a backstop of 2045 for all remaining homes. We will be consulting on these proposals for zero emission heat standards in the coming year and will introduce primary legislation thereafter (subject to limits on devolved competence) that will provide the regulatory framework for zero emissions heating and energy efficiency, and underpinning powers to support this transition and ambitious programme.

Welsh Government:

The Clean Air Plan for Wales makes a commitment to tackle emissions from domestic burning of solid fuels, such as wet wood and traditional house coal. This includes improving the energy efficiency of homes for people living on a lower income. It is one of the ways in which Welsh Government is reducing emissions from homes and tackling fuel poverty.

Welsh Government consulted on options for prohibiting the sale of traditional/bituminous house coal and restricting the sale of wet wood in 2021. Following the consultation, Welsh Government is considering introduction of necessary legislation in 2023, with a ban on bituminous coal commencing 2024/5. Welsh Government will work with industry and other governments to establish test standards for new manufactured solid fuels entering the market by 2024 to ensure they are compliant with appropriate regulations on smoke and sulphur emissions.

Northern Ireland:

The Northern Ireland Government is considering potential restrictions on the types of solid fuels burnt in domestic combustion, as outlined in the new Energy Strategy: Path to Net Zero, which was published in December 2021: [Northern Ireland Energy Strategy 'Path to Net Zero Energy' | Department for the Economy \(economy-ni.gov.uk\)](#)

A policy options consultation on phasing out domestic combustion of coal and certain solid fuels will be the first step to gathering further data on current usage, and therefore understanding further the people who would be most affected by this policy, before consulting on our plans to support these people. This may include energy efficiency support where relevant, along with proposals on how we intend to bring an end to coal, wet wood and certain other solid fuels as sources of home heating.

Subject to the outcome of the consultations and ministerial approval, legislation will be introduced to bring to an end to coal, wet wood and certain other solid fuels as sources of home heating.

Given the early stage of development of this policy, it is not possible to provide an exact date for when any policy could be adopted and implemented, types of fuels that restrictions will apply to, or the method of implementing the restrictions, as these are all subject to further consultation and analysis, with any resultant policy proposals requiring Ministerial approval.

Policy development regarding the restrictions on the types of solid fuels burnt in domestic combustion in Northern Ireland is at an early stage, with the exact date for adoption and types of fuels that restrictions will apply to subject to further analysis and consultation. Therefore, with regards to modelling this policy for the NAPCP, the restrictions imposed in England to phase out the use of house coal and wet wood for domestic combustion have been applied to the Northern Ireland data as a purely illustrative scenario to demonstrate a possible pathway to reducing the risk of exceeding 2030 Emission Reduction Commitments. This illustrative modelling does not reflect policy development in this area which, at present, remains under development.

Industry

UKBAT:

The Environmental Permitting Regulations (England and Wales) 2016 provides the regulatory framework to control and reduce emissions to air, water and land from specific industrial activities. Operators are required to use ‘Best Available Techniques’(BAT), which relates to the type of abatement technologies, methods of operation and the associated emissions limit values to be set within environmental permits.

Industrial emissions regulation is a devolved matter but, following EU exit, UKG and DAs agreed to create a regime for developing BAT for large industries previously set through an EU process. A joint UK/DA consultation in January 2021 sought views on the design of the regime. The Government and Devolved Administrations are considering responses and refining the proposals and will publish the Government Response setting out BAT system implementation across the UK in due course.

The UK BAT regime provides:

- Continuous improvement building on existing principles
- A flexible sector-by-sector process tailored to UK needs

- A transparent rolling prioritisation process of industrial sectors based on emissions risk assessment
- Level playing field in setting emission limit values for relevant sectors across UK.

Sectors outside of UKBAT:

The sectors falling outside of the scope of UKBAT industry priorities across the UK are set out in section 2.6.1 of the NAPCP.

Scottish Government:

The Scottish Government's industrial emissions policy is set out in the Cleaner Air for Scotland 2 strategy.

Welsh Government:

The Welsh Government's industrial emissions policy in relation to emissions to air is set out in the Clean Air Plan for Wales. The Welsh Government is working in close collaboration with UK government in relation to non-BAT measures as set out in section 2.6.1.

Northern Ireland:

Due to the Ireland / Northern Ireland Protocol, NI is required to remain aligned with part of the Industrial Emissions Directive (IED). The IED is named at Annex 4 of the Protocol for energy installations providing power to the Single Energy Market (SEM) for the island of Ireland in order to preserve the integrity of the SEM. It has been agreed with the EC (by Defra) that this will apply to four installations in NI: three large combustion plant (LCP) (Kilroot, Ballylumford and Coolkeeragh); and one Waste Incinerator (WI) (Evermore Energy). This involves applying EU Best Available Techniques (BAT) emissions standards. Outside of this requirement NI is aligned with the rest of the UK in terms of the regulation of industrial emissions and BAT.

Work is currently being taken forward within DAERA as part of the Department's Regulatory Transformation Programme (RTP) to develop new subordinate legislation to introduce a new environmental permitting regime using the powers provided by the Environmental Better Regulation Act (Northern Ireland) 2016. As a result, the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 (The PPC Regulations) will be

revoked. This work will create a more streamlined and standardised regulatory process in respect of the regimes to be included in environmental permitting.

Agriculture

UKG:

The Clean Air Strategy sets out the action that Defra will take to require and support farmers to reduce ammonia emissions from agriculture in England. On-farm advice, demonstration events and case studies have been delivered through the Catchment Sensitive Farming Partnership. To date advice has been offered in high priority water catchments, and national coverage is set to expand over the next 3 years to cover all farms. Defra published the Code of Good Agricultural Practice in 2018 and grant funding has been made available through the Farming Ammonia Reduction Grant, Countryside Stewardship, Countryside Productivity and the Farm Equipment and Technology Fund to help farmers invest in low emissions equipment such as slurry covers, slurry management equipment such as low emissions spreaders and slurry scrapers and in tree shelter belts.

The Clean Air Strategy committed to introduce new rules to reduce ammonia emissions from the management of organic manures, through spreading slurries and digestate using low-emission spreading equipment, rapid incorporation of solid manure and solid digestate, and covering slurry and digestate stores. Defra is preparing to consult on these rules later this year.

Defra consulted from November 2020 - January 2021 on options to reduce ammonia emissions from the use of urea fertilisers in England. Urea fertilisers have higher ammonia emissions than any other inorganic fertilisers such as ammonium nitrate. The [Government Response](#) to this consultation was published in April 2022. The response outlines government's support for a proposal from a consortium of fertiliser and farming organisations to use Red Tractor farm assurance standards to reduce ammonia emissions from fertilisers containing urea. The approach will only allow the spreading/spraying of untreated urea fertilisers between 15 January and 31 March (when conditions are generally colder and reduce volatilisation); and require farmers to spread/spray urease inhibitor (UI) treated/protected urea fertilisers in the rest of the year. Defra will assess the ammonia emissions reductions achieved annually and regulation may be brought in at a later stage if the industry's approach does not achieve sufficient ammonia emissions reductions.

The Environment Agency is working with technical experts from the farming industry to develop best available techniques (BAT) for the dairy and intensive beef sector. This technical work is nearing completion and Defra plans to engage with stakeholders to explore how adoption of these measures can best be encouraged over the coming years.

The Clean Air Strategy committed to introduce a mandatory standard for new livestock housing and work will begin this year to gather evidence for development of the standard.

An independent Nutrient Management Expert Group has been convened to advise Defra on how to minimise pollution from the use, manufacture, storage and distribution of nutrients intended for crops. The group is due to provide recommendations this year and these will be considered in future policy development.

Defra is developing and launching three new environmental land management schemes that will pay farmers for delivering public goods. This includes supporting good soil and nutrient management, among other actions, which can also support reductions in ammonia pollution.

Anaerobic Digestion (AD) is an important technology for generating biogas and recovering nutrients from food waste and is important in achieving net zero objectives. The government's Heat and Buildings Strategy alongside its landmark Net Zero Strategy states that biomethane has a clear role to play in decarbonising our energy supplies and the Climate Change Committee state that biomethane will be valuable across all decarbonisation pathways and recommend continued government support. Biomethane is currently the only green gas commercially produced in the UK and the building of AD plants is currently supported by the Green Gas Support Scheme (GGSS) for the purpose of injecting biomethane into the grid. AD produces a nutrient rich by-product, digestate, which can be used to displace chemical fertilisers but is also rich in ammoniacal nitrogen leading to ammonia emissions. As a result of the GGSS, use of AD is set to grow leading to an additional 1.73-2.15kt ammonia from 2020 levels by 2030. There are indications that the production of biomethane and biogas may increase further by 2030, generating higher level of ammonia.

Permitted plants in England are already required to cover new digestate stores and digestate produced from AD plants funded by the GGSS must be spread using low emission spreading equipment. More generally, GGSS plants are expected to do all they can to mitigate ammonia emissions as a result of the AD process. BEIS is also funding a techno-economic study to identify

cost-effective technologies to reduce environmental impacts, including ammonia emissions, from digestate. The use of such technologies could become part of eligibility criteria for future funding schemes to drive more sustainable biogas production. Defra is planning to consult on measures to reduce ammonia from storage and spreading of organic manures including digestate later this year.

Scottish Government:

Scotland's third Land Use Strategy sets out the Scottish Government's vision, objectives and policies to achieve sustainable land use. The strategy covers the next five years and aims to provide a more holistic understanding of our land, the demands we place upon it and the benefits we get from our land: Land use - getting the best from our land: strategy 2021 to 2026 - gov.scot (www.gov.scot). Further information on the Scottish Government's agriculture policy can be found in the Cleaner Air for Scotland 2 strategy.

Welsh Government:

The Welsh Government introduced a Code of Good Agricultural Practice (CoGAP) guidance on reducing ammonia losses from agriculture in Wales in 2019, to supplement the CoGAP for the Protection of Water, Soil and Air for Wales. The guidance reflects the UNECE Framework Code for Good Agricultural Practice for Reducing Ammonia Emissions. In April 2021, an online tool was launched to help farmers cut ammonia emissions. The tool contains the guidance from the CoGAP on reducing ammonia emission to present practical advice on steps farmers can take to lower emissions.

In April 2021, the Welsh Government introduced The Water Resources (Control of Agricultural Pollution) (Wales) Regulations which apply to all farms in Wales. The Regulations set mandatory requirements which will reduce ammonia emissions. These include nutrient management planning to ensure nitrogen applications are not applied in excess of crop need, manure management planning, incorporation of manures applied to bare soil, covering of poultry manure stored in field heaps, prohibited nutrient applications in proximity to watercourses.

The Welsh Government is currently developing future support for agriculture following withdrawal from the European Union, to replace the Common Agricultural Policy (CAP). The [Sustainable Farming and our Land consultation](#) and the [Agriculture \(Wales\) White Paper](#) set out how Sustainable Land Management (SLM) will be the overarching principle for future agricultural

policy and support. The proposed Sustainable Farming Scheme (SFS) will replace the current Basic Payment Scheme. The fundamental change will be that the level of payment will be linked to the actions which a farmer carries out to deliver the SLM outcomes, one of which is “clean air”. The SFS will do this by:

- Giving farmers up-to-date advice on how to lower ammonia emissions through the Knowledge Exchange and Innovation Programme (Farming Connect).
- Rewarding farmers for farming practices which lower ammonia emissions.
- Supporting collaborative approaches for farmers to deliver actions to lower ammonia targeted to where they will have the most benefit to ecosystems
- The Welsh Government will publish an outline of the scheme this summer to begin the next phase of co-design before the scheme launches in 2025.

The Welsh Government has set a target to plant 43,000 hectares of new woodland by 2030, and 180,000 hectares by 2050 to meet the ‘balanced pathway’ set out by the UK Climate Change Commission. Work has begun to develop a National Forest for Wales. The National Forest will create areas of new woodland and help to restore and maintain some of Wales’ irreplaceable ancient woodlands. In time, it will form a connected network running throughout Wales, which will bring social, economic and environmental benefits. Last year the Deputy Minister for Climate Change led a deep-dive exercise into how we can remove the barriers to planting trees in Wales. This identified a series of actions, including a new funding scheme for woodland creation and an industrial strategy to coordinate the timber supply chain and construction sectors.

Farmers will play a big role in helping to achieve the tree planting targets and doing so in a way which delivers against multiple SLM outcomes such as clean air and resilient ecosystems. Strategic tree planting next to sources of ammonia such as slurry lagoons and livestock buildings, or buffering sensitive sites such as ancient woodlands from ammonia sources have been shown to intercept or disrupt the deposition of ammonia. These options will be supported through the SFS. The Woodland Opportunity Map, a GIS tool which indicates where new woodland creation would maximise ecosystem benefits, has been updated and now includes a data layer showing areas where new woodland creation would intercept ammonia deposition which has been shown to have a detrimental effect on habitats. Woodland proposals in areas of higher ammonia emissions within the map receive a higher score, which contributes to their likelihood of being selected for planting grant.

Northern Ireland:

In Northern Ireland, DAERA has developed a draft ammonia strategy which will be published shortly. This draft strategy will propose a series of farm measures to reduce ammonia and are designed to ensure that Northern Ireland as a region is making a full contribution to the UK's delivery of the UK's 2030 target for ammonia reduction. They will build on measures already taken to reduce ammonia through the Nutrients Action Programme which requires all new above ground slurry stores to be covered and mandates to use of low emission slurry spreading equipment for all spreading of digestate and for the spreading of slurry by contractors and on all larger livestock farms (200 livestock units or equivalent).

Transport

UKG:

The Department for Transport has five Strategic Priorities to set the overall direction of its work. The first three have also been agreed as 'Priority Outcomes' by HM Treasury and No10 as part of the Spending Review 2021, and so form the basis of departmental performance reporting. Our Strategic Priorities are:

- **Grow & Level-up the Economy:** Improve connectivity across the United Kingdom and grow and level up the economy by enhancing the transport network on time and on budget.
- **Improve Transport for the User:** Ensuring that the transport system is safe, reliable, joined-up and inclusive, building passenger and supply chain confidence following COVID-19, and reflects evolving travel patterns and demand.
- **Reduce Environmental Impact:** Tackle climate change and improve air quality including by decarbonising transport.
- **Increase our Global Impact:** Boost our influence and maximise trade by having an innovative, outward-facing approach.
- **Be an Excellent Department:** Be a well-run department that focuses on delivery, drives value for money and embodies our values in all that we do.

These priorities are interlinked and mutually support each other: delivery of one will in many cases contribute to the delivery of the others. Our Strategic Priorities also support wider government priorities, including build back better, levelling up and net zero greenhouse emissions by 2050.

The Transport Decarbonisation Plan sets out how the transport sector in the UK will meet net zero by 2050 through a series of actions, commitments and timings. It is built around six strategic priorities which frame our approach to decarbonising the transport sector: accelerating modal shift to public and active transport; decarbonising road transport; decarbonising how we get our goods; the UK as a hub for green transport technology and innovation; reducing carbon in a global economy; and place-based solutions to emissions reduction.

In England, the [Rail Environment Policy Statement \(2021\)](#) set out how we will:

- Commission a comprehensive review of the regulations, standards and guidelines governing air quality on the railway. The review will assess UK and EU air quality legislation, health and safety regulations and WHO air quality guidelines to inform the development of industry targets to improve air quality in problem locations such as enclosed railway stations. The review will be completed in 2022.
- Fund a £4.5 million Stations Air Quality Monitoring Network, working with rail industry to monitor the impact that diesel trains have on air quality. This is being rolled out in phases, with the first phase of air quality monitors installed in around 100 stations since February 2022. Once fully established, the network will be used to target air quality improvements, to ensure clearer and healthier travel for passengers and staff.

For the **Maritime sector**, the Department of Transport published the [Clean Maritime Plan](#) in 2019, setting out several domestic policies to reduce greenhouse gases and pollutant emissions from shipping. Recent examples of work in this area include a [call for evidence](#) on the uptake of shore power in the UK for ships at berth and making renewable hydrogen and ammonia fuels eligible for incentives under the Renewable Transport Fuel Obligation (RTFO). A consultation on establishing a ‘course to zero’ for the domestic maritime sector was published in July 2022 and a consultation on the possible extension of the existing emission control area (ECA) is also planned, before a refreshed Clean Maritime Plan is published in 2023.

Aviation 2050 — the future of UK aviation: The Department for Transport sought feedback on its green paper which outlined proposals for a new aviation strategy. At the time, it was envisaged that the strategy would focus on:

- Developing a partnership for sustainable growth which meets rising passenger demand, balanced with action to reduce environmental and community impacts

- Improving the passenger experience, including through technology and innovation, a new passenger charter and action to reduce delays at the border
- Building on the UK's success to establish new connections across the world and create greater choice for consumers.

COVID-19 has meant people have had to profoundly change the way they live, work and travel, and it is clearly sensible that the governments plans to reduce the overall impact of aviation on the environment look to understand and take account of this. We will therefore be considering what changes may be needed to aviation air quality policy in due course, including how we take forward the proposals in the 2018 consultation.

Scottish Government

The Scottish Government's transport policy framework is set out in the National Transport Strategy 2 (NTS2), published in February 2020: [National Transport Strategy 2 | Transport Scotland](#).

NTS2 sets out an ambitious vision for Scotland's transport system for the next 20 years. The Strategy does not identify or present specific projects, schemes, initiatives or interventions, but sets out the strategic framework within which future decisions on investment will be made. More detailed information on specific actions is set out in the second NTS2 Delivery Plan, covering the period 2022/23.

The NTS2 vision is underpinned by four priorities, each with three associated outcomes, to deliver a transport system that:

Reduces Inequalities

- Will provide fair access to the services we need
- Will be easy to use for all
- Will be affordable for all

Takes Climate Action

- Will help deliver the Scottish Government's 2045 net zero target
- Will adapt to the effects of climate change
- Will promote greener, cleaner choices

Helps Deliver Inclusive Economic Growth

- Will get people and goods where they need to be
- Will be reliable, efficient and high quality
- Will use beneficial innovation

Improves our Health and Wellbeing

- Will be safe and secure for all
- Will enable us to make healthy travel choices
- Will help make our communities great places to live in

The strategy was developed following a comprehensive review of the original National Transport Strategy (published in 2006), based on three pillars: collaborative working with partners, engaging with stakeholders and building an evidence base.

Welsh Government:

‘[Llwybr Newydd](#)’, the Wales Transport Strategy, published in 2021 will shape Wales’ transport system over the next 20 years. The strategy includes targets for a shift to more sustainable transport modes such as active and public transport.

Based on our current analysis, we have set a target of 45% of journeys to be made by public transport, walking and cycling – by 2040. This represents an increase of 13 percentage points on the estimated current mode share of 32%. We have also committed to keeping this under review if justified by the evidence.

The Strategy supports remote working so people can work from an office near their home one or more days a week instead of commuting long distances, in line with our wider Welsh Government target of 30% of the workforce to work remotely on a regular basis

We have set out bold ambitions to shift to zero tailpipe emission vehicles with targets for the bus fleet, taxi and private hire vehicle fleet as well as the Welsh public sector vehicle fleet. These changes will reduce emissions as well as contributing to our climate change goals.

Northern Ireland:

Planning for the Future of Transport – Time for Change outlines how the Department’s priorities for the future of transport here can be supported by the improved planning, management and development of the transport networks over the next 10 to 15 years.

We will reduce carbon by reducing how much we travel and by using more energy efficient modes and active modes where possible. We will take full account of the structured hierarchy in reducing the carbon impact of transport in the order of:

- Substitute trips
- Remove them completely
- Shorten them;

Shift modes (increase the percentage of journeys made by walking, wheeling, cycling or public transport

- Use a more energy efficient mode of transport
- By increasing the percentage of journeys made by walking, wheeling, cycling or public transport
- Switch fuels
- Use zero or less carbon intensive fuels

Exploration will be taken forward of other, more energy efficient modes of transport, through mobility innovation with new technologies and enhanced mobility choices such as Micro-mobility (e-scooters and e-bikes); Mobility as a service (MaaS, technology that provides the opportunity for digital services); Shared mobility (car-sharing/pooling, bike-sharing and ride); and Dynamic demand responsive transport (shared public transport that respond to passenger demands for pick-up and drop-off).

In respect of public transport, the Department for Infrastructure has been supporting Translink, the public transport body for Northern Ireland, to green its fleet. This includes replacing c.100 diesel buses with zero emission vehicles by December 2022 and removing all diesel buses in Belfast Metro service by 2030. In addition, 1500 additional Bus & Rail Park and Ride spaces will be available across NI by 2023.

In partnership, Translink and the Department for Infrastructure have already delivered Phase 1 of the Belfast Rapid Transport project (BRT Glider) and the development of Phase 2 of the project is

	<p>under consideration following conclusion of a public consultation on route options. In addition a new integrated Transport Hub for Belfast is being developed. Further strategic projects are also being advanced.</p> <p>The Department has established a Blue/Green Infrastructure Fund, which supports a number of projects designed to encourage modal shift. Projects include walking and cycling schemes; capital grant funding for Local Councils to construct greenways; a pilot project with the overall aim of assessing the feasibility of using electric vehicles for Community Transport while also increasing awareness of Blue-Green energy across NI; a pilot scheme to introduce electric vehicles into the Department’s operational fleet and a pilot project to reduce use of petrol and diesel vehicles on Rathlin island as part of a wider Executive aim for the island to become carbon neutral by 2030.</p> <p>When assessing potential investment, the Department carries out an Environmental Impact Assessment Report (EIAR) which is published for roads projects. EIAR includes an assessment of the potential impacts of the proposed scheme on local and regional air quality and pollution both during construction and operation.</p>
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<u>2.3.2 Responsibilities attributed to national, regional and local authorities</u>		
List the relevant authorities(M):	<p>Describe the type of authority (e.g. environmental inspectorate, regional environment agency, municipality) (M):</p> <p>Where appropriate, name of authority (e.g. Ministry of XXX, National Agency for XXX, Regional office for XXX):</p>	<p>Describe the attributed responsibilities in the areas of air quality and air pollution (M):</p> <p>Select from the following as appropriate:</p> <ul style="list-style-type: none"> • Policy making roles • Implementation roles • Enforcement roles (including where relevant inspections and permitting) • Reporting and monitoring roles • Coordinating roles • Other roles, please specify:
National authorities (M):	Department for Environment, Food & Rural Affairs (Defra)	<p>Policy making role</p> <p>Implementation role</p>

		Reporting and Monitoring
	Department for Business, Energy and Industrial Strategy (BEIS)	Policy making role Implementation role Reporting and Monitoring
	Department for Transport (DfT)	Policy making role Implementation role Reporting and Monitoring
	Welsh Government (WG)	Policy making role Implementation role
	Scottish Government (SG)	Policy making role Implementation role
	Department of Agriculture, Environment and Rural Affairs Northern Ireland (DAERA)	Policy making role Implementation role
	Department for the Economy (DfE) Northern Ireland	Policy making role Implementation role
	Department for Infrastructure (DfI) Northern Ireland	Policy making role Implementation role
Regional authorities (M):	Environment Agency (EA)	Implementation role Enforcement role Reporting and monitoring role
	Scottish Environment Protection Agency (SEPA)	Implementation role Enforcement role

		Reporting and monitoring role
	Natural Resources Wales (NRW)	Implementation role Enforcement role Reporting and monitoring role
	Northern Ireland Environment Agency (NIEA)	Implementation role Enforcement role Reporting and monitoring role
Local authorities (M):	Local authorities in England, Scotland, Wales & Northern Ireland (LAs)	Implementation role Enforcement role Reporting and monitoring role

2.4 Progress made by current policies and measures (PaMs) in reducing emissions and improving air quality, and the degree of compliance with national obligations, compared to 2005

2.4.1 Progress made by current PaMs in reducing emissions, and the degree of compliance with national emission reduction obligations	
Describe progress made by current PaMs in reducing emissions, and the degree of compliance with national emission reduction legislation (M):	<p>Emissions in 2020 were:</p> <ul style="list-style-type: none"> - 61% lower than in 2005 for NO_x - 83% lower than in 2005 for SO_x - 42% lower than in 2005 for NMVOC - 34% lower than in 2005 for PM_{2.5} - 7% lower than in 2005 for NH₃ <p>The UK has been compliant with emission ceilings for 2010-2019 set under the NECR for all pollutants and years between 2010 and 2019, taking into account the approved adjustment for NO_x across the years 2010-2012.</p>

	<p>In 2020 the UK was compliant with all of its emission reduction targets, except for ammonia. As provided for by Regulation 4 of the NECR the UK has prepared an adjusted ammonia inventory for 2020 on the basis of emissions from non-manure digestates, a source that was not known at the time the reduction commitments were agreed.</p>
<p>Provide complete references (chapter and page) to publicly available supporting datasets (e.g. historic emission inventory reporting) (M):</p>	<p>Information on the UK inventory, including methodology reports and emissions data including for the historic inventory can be found at http://naei.beis.gov.uk/.</p>

<p><u>2.4.2 Progress made by current PaMs in improving air quality, and the degree of compliance with national air quality obligations</u></p>	
<p>Describe progress made by current PaMs in improving air quality, and the degree of compliance with national air quality obligations by, as a minimum, specifying the number of air quality zones, out of the total air quality zones, that are (non)compliant with air quality objectives for NO₂, PM₁₀, PM_{2.5} and O₃, and any other pollutant(s) for which there are exceedances (M):</p>	<p>The Air Quality Standards Regulations within each administration requires reporting of ambient air quality data on an annual basis. These data are reported on behalf of Defra (the Department for Environment, Food and Rural Affairs) and the Devolved Administrations of Scotland, Wales and Northern Ireland.</p> <p>For the purposes of air quality monitoring and assessment of compliance with the Air Quality Standards Regulations, the UK is divided into 43 zones. The 2020 results are summarised below:</p> <ul style="list-style-type: none"> • The UK met the limit value for hourly mean nitrogen dioxide (NO₂) in all 43 zones. 2020 is the first year in which the UK has achieved full compliance with the hourly mean limit value, which came into force in 2008. • 38 zones met the limit value for annual mean NO₂, with only five zones exceeding.

- All non-agglomeration zones complied with the critical level for annual mean NO_x concentration, set for protection of vegetation. (This has been the case in all years from 2008 onwards).
- All zones met the limit value for daily mean concentration of PM₁₀ particulate matter, without the need for subtraction of the contribution from natural sources.
- All zones met the limit value for annual mean concentration of PM₁₀ particulate matter, without the need for subtraction of the contribution from natural sources.
- All zones met both limit values for annual mean concentration of PM_{2.5} particulate matter: the Stage 1 limit value, which came into force on 1st January 2015, and the indicative Stage 2 limit value to be met by 2020.
- The UK has achieved its 2020 national exposure reduction target for PM_{2.5}, based on the Average Exposure Indicator (AEI) statistic.
- All zones met both the target values for ozone; the target value based on the maximum daily eight-hour mean, and the target value based on the AOT40 statistic.
- Three zones were compliant with the long-term objective for ozone, set for the protection of human health. This is based on the maximum daily eight-hour mean.
- 27 zones met the long-term objective for ozone, set for the protection of vegetation. This is based on the AOT40 statistic, which is explained in Section 4 and Section 5 of this report.
- All zones met the limit values for sulphur dioxide, carbon monoxide, benzene and lead.
- All zones met the target values for arsenic and cadmium.
- Four zones exceeded the target value for nickel.
- Three zones exceeded the target value for benzo[a]pyrene, as has been the case in the previous three years.

<p>Provide complete references (chapter and page) to publicly available supporting datasets (e.g. air quality plans, source apportionment) (M):</p>	<p>1. 2017 Air quality plan for nitrogen dioxide (NO₂) in UK (2017) https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017</p> <p>2018 The Welsh Government supplemental Plan to the UK plan for tackling roadside nitrogen dioxide concentrations</p> <p>Air quality plan: roadside nitrogen dioxide GOV.WALES</p> <p>2. Air Pollution in the UK report 2020: https://uk-air.defra.gov.uk/library/annualreport/viewonline?year=2020_issue_1#report_pdf</p> <p>3. Air Quality Monitoring data (UK-Air website): https://uk-air.defra.gov.uk/data/ Air Quality Modelling data (UK-Air website): https://uk-air.defra.gov.uk/data/gis-mapping/</p>
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2.4.3 Current transboundary impact of national emission sources	
<p>Where relevant, describe the current transboundary impact of domestic emission sources (M):</p> <p><i>Progress can be reported in quantitative or qualitative terms.</i></p> <p><i>If no issues were identified, then state that conclusion.</i></p>	<p>The key data source for transboundary impacts of UK domestic emissions is the work undertaken through the UNECE European Monitoring and Evaluation Programme (EMEP), specifically by the Meteorological Synthesizing Centre, West (MSC-W, http://emep.int/mscw/index_mscw.html).</p> <p>Transboundary fluxes, transboundary concentrations of ozone and transboundary concentrations of particulate matter were modelled using EMEP, combined with meteorological and emissions data for the year 2019. Reductions in exposure to ozone, exposure to PM_{2.5} and nitrogen deposition were modelled using the Abatement Strategies Assessment Model (ASAM) module of the UK Integrated Assessment Model (UKIAM).</p>

	<p>The modelling runs indicate that the benefits from further UK emission reductions will mainly be accrued in the UK, with much smaller, although still significant, benefits accruing to other European countries. At long distances, the change in individual exposure to air pollution is minute, but such changes are not negligible when accumulated over large populations and when considered in parallel with the effects of emissions reductions in other countries as well.</p> <p>Due to prevailing wind patterns, the non-UK benefits of UK emission reduction are focused on those countries immediately to the East and South, in particular France, Germany, the Netherlands, Belgium, Denmark and Luxemburg as well as the Republic of Ireland to the West.</p>
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2.5 Projected further evolution assuming no change to already adopted policies and measures

2.5.1 Projected emissions and emission reductions (WM scenario)									
Pollutants (M):	Actual (2020) and Projected (2025, 2030) Total emissions (kt), consistent with inventories for year x-2 or x-3 (year to be specified) (M):				Actual (2020) and Projected (2025, 2030) % emission reduction achieved compared with 2005 (M):			National emission reduction commitment for 2020-2029 (%) (M):	National emission reduction commitment from 2030 (%) (M):
	2005 base year:	2020:	2025:	2030:	2020:	2025:	2030:		
SO ₂ :	788	136	134	114	83%	83%	85%	59%	88%
NO _x *:	1,737	675	610	514	61%	65%	70%	55%	73%
NM _{VOC} *:	1,125	659	658	654	41%	42%	42%	32%	39%
NH ₃ :	280	259	268	272	7%	4%	3%	8%	16%
PM _{2.5} :	121	84	82	79	30%	33%	35%	30%	46%

Date of emission projections (M):	July 2022
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Where the projected evolution demonstrates non-attainment of the emission reduction commitments under the WM scenario, section 2.6 shall outline the additional PaMs considered in order to achieve compliance.

Notes:

The data are based on the latest National Atmospheric Emissions Inventory (NAEI) published in 2022. The NAEI does not fully consider all implemented policies or new evidence that have arisen since those projections were developed. In some cases, it also excludes some policies implemented historically. This is usually because there is a lack of sufficiently robust available data limiting the extent to which those policies can be included in the official projections. To account for this, baseline adjustments were used to account for these more uncertain factors, or events that have occurred since the NAEI projections were developed. Baseline adjustments are an increase or decrease in air pollutant emissions and are based on the best available information. They affect the level of additional abatement that is necessary to reach compliance with the ERCs.

** NMVOCs and NOx emissions from NAEI categories 3B and 3D (agriculture) are not accounted in the National Total for the purpose of complying with the 2020 and 2030 emission reduction commitments.*

2.5.2 Projected impact on improving air quality (WM scenario), including the projected degree of compliance
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2.5.2.1 Qualitative description of projected improvement in air quality (M)	
<p>Provide a qualitative description of the projected improvements in air quality and projected further evolution of degree of compliance (WM scenario) with air quality objectives for NO₂, PM₁₀, PM_{2.5} and O₃ values, and any other pollutant(s) that present(s) a problem by 2020, 2025 and 2030 (M):</p> <p>Provide complete references (chapter and page) to publicly available supporting datasets (e.g. air quality plans, source apportionment) describing the projected improvements and further evolution of degree of compliance (M):</p>	<p>The UK is compliant with the concentration limit values set out in legislation, except for NO₂ where we face a significant challenge along with many other European countries.</p> <p>In July 2017, the UK Government published the Air Quality Plan for NO₂ and subsequently published the Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations in October 2018. These documents outline a range of measures that enable local authorities to meet NO₂ limit values in the shortest possible time.</p> <p>Some local authorities are introducing Clean Air Zones to deliver targeted action in NO₂ hotspots to protect public health and the</p>

environment, supporting economic growth. CAZs encourage the replacement of old, polluting vehicles with modern, cleaner technologies, such as ultra-low emission vehicles.

Three Clean Air Zones are now live in Bath, Birmingham and Portsmouth, and further zones are expected in 2022 including in Bristol and Bradford.

If a local authority can identify measures other than charging zones that are at least as effective, those measures should be preferred.

The first [annual evaluation report for local NO2 plans](#), and a second evaluation report is due to be published later this year (see below for hyperlink).

Birmingham City Council has published a six-month CAZ report (see below for hyperlink).

Hyperlinks:

2017 Plan: <https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017>

2018 Supplement: [Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations \(publishing.service.gov.uk\)](#)

CAZ Framework Document: [Clean Air Zone Framework \(publishing.service.gov.uk\)](#)

Bath CAZ: [Bath's Clean Air Zone | Bath and North East Somerset Council \(bathnes.gov.uk\)](#)

Birmingham CAZ: [Brum Breathes Homepage](#) and its [Clean Air Zone six month report | Brum Breathes](#)

Portsmouth CAZ: [Home - Cleaner Air Portsmouth](#)

[2020 Annual Report for the Evaluation of Local NO2 Plans | Ipsos](#)

2.6 Policy options selected for further consideration in order to comply with the emission reduction commitments for 2020, and 2030, intermediate emission levels for 2025

2.6.1 Details concerning the PaMs considered in order to comply with the emission reduction commitments (reporting at PaM level) :												
Name and brief description of individual PaM or package of PaMs (M):	Affected pollutant(s), select as appropriate : SO ₂ , NO _x , NMVOC, NH ₃ , PM _{2.5} , (M); BC as a component of PM _{2.5} , other (e.g. Hg, dioxins, GHG) (O) please specify:	Objectives of individual PaM or package of PaMs* (M):	Type(s) of PaM(s) [^] (M):	Primary, and where appropriate , additional sector(s) affected [†] (M):	Implementation period (if adopted):		Authorit(y)(ies) responsible for implementation (if adopted):		Details of the methodologies used for analysis (e.g. specific models or methods, underlying data) (M):	Quantified expected emission reductions (for individual PaM or for packages of PaMs, as appropriate) (kt, per annum or as a range, compared to WM scenario) (M):		Qualitati ve descripti on of uncertai nties (M, where available):
					Start	Finish	Type	Name		2025	2030	
<i>1. Solid fuels (see details below)</i>	<i>Impact on NO_x, SO₂, NMVOCs, PM_{2.5} and NH₃ all assessed</i>	<i>Other energy supply</i>	<i>Regulatory Source based pollution control</i>	<i>Energy supply Energy consumption</i>	<i>2022 - 2030</i>	<i>Beyond 2030</i>	<i>Policy maker</i>	<i>Defra DAERA, SG, WG LAs</i>	<i>Underlying projections data as per the 2020 NAEI Analysis of abatement based on: estimated difference in emissions between burning wet & dry wood; estimated difference in emissions between burning coal and SSF; estimated share of fuel consumption</i>	<i>NO_x: 0.0</i>	<i>NO_x: -0.3</i>	
										<i>SO₂: -0.4</i>	<i>SO₂: -1.7</i>	
										<i>NMVOCs: 0.3</i>	<i>NMVOCs: 2.3</i>	
										<i>PM_{2.5}: 0.6</i>	<i>PM_{2.5}: 1.9</i>	
										<i>NH₃: </i>	<i>NH₃: </i>	

									<i>in Smoke Control Areas</i>	0.0	0.0	
2. Communications on burning <i>(see details below)</i>	<i>Impact on NOx, SO2, NMVOCs, PM2.5 and NH3 all assessed</i>	<i>Improved behaviour</i>	<i>Voluntary Information Education</i>	<i>Energy consumption</i>	<i>2022-2030</i>	<i>Beyond 2030</i>	<i>Policy maker</i>	<i>Defra</i>	<i>in Smoke Control Areas</i>	<i>NOx:</i> <i>0.0 to 0.5</i>	<i>NOx:</i> <i>0.0 to 0.5</i>	
										<i>SO2:</i> <i>0.0 to 0.8</i>	<i>SO2:</i> <i>0.0 to 0.6</i>	
										<i>NMVOCs:</i> <i>0.0 to 0.4</i>	<i>NMVOCs:</i> <i>0.0 to 0.4</i>	
										<i>PM2.5:</i> <i>0.0 to 0.2</i>	<i>PM2.5:</i> <i>0.0 to 0.1</i>	
										<i>NH3:</i> <i>0.0</i>	<i>NH3:</i> <i>0.0</i>	
										<i>NOx:</i> <i>-0.1 to -1.0</i>	<i>NOx:</i> <i>-0.1 to -1.3</i>	
3. Cleaner stoves <i>(see details below)</i>	<i>Impact on NOx, SO2, NMVOCs, PM2.5 and NH3 all assessed</i>	<i>Other energy supply</i> <i>Efficiency improvement in the energy and transformation sector</i> <i>Efficiency improvement of appliances</i>	<i>Source-based pollution control</i> <i>Regulatory</i>	<i>Energy supply</i> <i>Energy consumption</i>	<i>2022-2030</i>	<i>Beyond 2030</i>	<i>Policy maker</i> <i>Local Authorities</i>	<i>Defra, SG</i>	<i>in Smoke Control Areas</i>	<i>NOx:</i> <i>-0.1 to -1.0</i>	<i>NOx:</i> <i>-0.1 to -1.3</i>	
										<i>SO2:</i> <i>0.0</i>	<i>SO2:</i> <i>0.0</i>	
										<i>NMVOCs:</i> <i>0.4 to 5.2</i>	<i>NMVOCs:</i> <i>0.5 to 6.6</i>	
										<i>PM2.5:</i> <i>0.3 to 5.3</i>	<i>PM2.5:</i> <i>0.4 to 7.0</i>	
										<i>NH3:</i> <i>0.0</i>	<i>NH3:</i> <i>0.0</i>	
										<i>NOx:</i> <i>-0.1 to -1.0</i>	<i>NOx:</i> <i>-0.1 to -1.3</i>	

<p>4. Agriculture (see details below)</p>	<p>NH3</p>	<p>Low-emission application of fertiliser/manure on cropland and grassland Improved livestock management and rearing installations Improved animal waste management systems</p>	<p>Economic Information Regulatory Voluntary</p>	<p>Agriculture Waste</p>	<p>2022-2030</p>	<p>2027</p>	<p>Policy maker</p>	<p>Defra, DAERA, SG, WG</p>	<p>Underlying projections data as per the 2019 NAEI. Abatement analysis based on medium and high feasibility scenarios, with measures prioritised by marginal cost of abatement.</p>	<p>NH3: 27.9</p>	<p>NH3: 33.6 to 44.7</p>	<p>Ranges indicate lower and upper scenarios for abatement, based on expected uptake of measures by 2020 and 2030</p>	
<p>5. Industry (see details below)</p>	<p>Impact on NOx, SO2, NMVOCs, PM2.5 and NH3 all assessed</p>	<p>Reduced emissions from industrial installations</p>	<p>Source-based pollution control Regulatory controls through collaborative standard setting with industry, regulators and other stakeholders</p>	<p>Energy supply Industrial processes</p>	<p>2022-2030</p>	<p>Beyond 2030</p>	<p>Policy maker Enforcement role</p>	<p>Defra, DAERA, SG, WG EA, SEPA, NRW, NIEA</p>	<p>Underlying projections data as per the 2020 NAEI</p>	<p>NOx: 3.1</p>	<p>NOx: 5.6</p>		
											<p>SO2: 1.1</p>	<p>SO2: 3.9</p>	
											<p>NMVOCs: 2.3</p>	<p>NMVOCs: 4.2</p>	
											<p>PM2.5: 0.5</p>	<p>PM2.5: 1.1</p>	
											<p>NH3: 0.1</p>	<p>NH3: 0.4</p>	

<p>6. Road transport (decarbonisation) <i>(see details below)</i></p>	<p><i>Impact on NOx, SO2, NMVOCs, PM2.5 and NH3 all assessed</i></p>	<p><i>Road transport – ZEV mandate and efficiency improvements;</i></p> <p><i>Active travel – investment in cycling and walking</i></p>	<p><i>Fiscal instruments ;</i></p> <p><i>Voluntary/negotiated agreements ;</i></p> <p><i>Information ;</i></p> <p><i>Regulatory;</i></p> <p><i>Education</i></p> <p><i>Research;</i></p> <p><i>Planning;</i></p>	<p><i>Transport</i></p>	<p>2022-2030</p>	<p><i>Beyond 2030</i></p>	<p><i>Policy maker</i></p> <p><i>Local Authorities</i></p> <p><i>LAs</i></p>	<p><i>DfT, BEIS, WG (for modal shift)</i></p>	<p><i>Underlying projections data as per the 2020 NAEI</i></p>	<p><i>NOx:</i></p> <p>10.7</p>	<p><i>NOx:</i></p> <p>14.9</p>
										<p><i>SO2:</i></p> <p>0.0</p>	<p><i>SO2:</i></p> <p>0.1</p>
										<p><i>NMVOCs:</i></p> <p>0.8</p>	<p><i>NMVOCs:</i></p> <p>2.1</p>
										<p><i>PM2.5:</i></p> <p>0.1</p>	<p><i>PM2.5:</i></p> <p>0.2</p>
										<p><i>NH3:</i></p> <p>0.4</p>	<p><i>NH3:</i></p> <p>1.2</p>
<p>7. Net Zero – Power, Industry and Residential</p>	<p><i>Impact on NOx, SO2, NMVOCs, PM2.5 and NH3 all assessed</i></p>		<p><i>Voluntary/negotiated agreements</i></p> <p><i>Information</i></p> <p><i>Regulatory</i></p> <p><i>Education</i></p> <p><i>Research</i></p>	<p><i>Transport</i></p> <p><i>Cross-cutting</i></p>	<p>2022-2030</p>	<p><i>Beyond 2030</i></p>	<p><i>Policy maker</i></p> <p><i>Local Authorities</i></p>	<p><i>Defra, LA</i></p>	<p><i>Underlying projections data as per the 2020 NAEI</i></p> <p><i>Abatement analysis based on low, medium and high feasibility scenarios for each sector, with measures prioritised by health impacts relative to costs</i></p>	<p><i>NOx:</i></p> <p>17.9</p>	<p><i>NOx:</i></p> <p>35.5</p>
										<p><i>SO2:</i></p> <p>27.3</p>	<p><i>SO2:</i></p> <p>36.4</p>
										<p><i>NMVOCs:</i></p> <p>1.0</p>	<p><i>NMVOCs:</i></p> <p>2.1</p>
										<p><i>PM2.5:</i></p> <p>1.9</p>	<p><i>PM2.5:</i></p> <p>4.9</p>
										<p><i>NH3:</i></p> <p>0.1</p>	<p><i>NH3:</i></p> <p>0.0</p>

<i>Total for all policy packages</i>	<i>Impact on NOx, SO2, NMVOCs, PM2.5 and NH3 all assessed</i>	<i>All of the above</i>	<i>All of the above</i>	<i>All of the above</i>	<i>2022-2030</i>	<i>Beyond 2030</i>	<i>Policy maker</i>	<i>Defra, DfT, BEIS, DAERA, SG, WG</i>	<i>Underlying projections data as per the 2019/2020 NAEL, excluding anaerobic digestion due to data concerns.</i>	<i>NOx:</i> <i>31.3 to 31.7</i>	<i>NOx:</i> <i>54.9 to 55.5</i>	<i>Ranges indicate lower and upper scenarios for abatement, based on expected uptake of measures by 2025 and 2030</i>
										<i>SO2:</i> <i>28.0 to 28.8</i>	<i>SO2:</i> <i>38.6 to 39.3</i>	
										<i>NMVOCs</i> <i>4.9 to 10.0</i>	<i>NMVOCs:</i> <i>11.3 to 17.8</i>	
										<i>PM2.5:</i> <i>3.3 to 8.4</i>	<i>PM2.5:</i> <i>8.4 to 15.2</i>	
										<i>NH3:</i> <i>28.5</i>	<i>NH3:</i> <i>34.3 to 46.3</i>	

Policies and Measures (PaMs) selected for further consideration in order to comply with the emission reduction commitments.

Seven packages of PaMs are being considered further in order to comply with the emission reduction commitments. These packages are:

1. Solid Fuels
2. Communicating on Burning
3. Cleaner Stoves
4. Agriculture
5. Industry
6. Road Transport (Decarbonisation)
7. Net Zero (Power, Industry and Residential)

Further details of the potential individual components of these packages are set out below.

Note: All PaMs where an official government decision has been made and are in the course of implementation or there is a clear commitment to proceed with implementation are considered ‘adopted PaMs’ and have been detailed in section 2.3 and accounted for in part 2.4 of the NAPCP.

Except where specified otherwise Policies and Measures (PaMs) which will be considered further remain subject to further policy analysis, development, consultation and government decision processes.

1. Solid fuels

In England:

- *Look to extend the domestic solid fuels legislation to pubs, restaurants, holiday lets etc* - The Domestic Fuels Regulations introduce restrictions on the sale of wet wood in smaller volumes, limits on the emission of sulphur and smoke from manufactured solid fuels and phase out the sale of bituminous coal (traditional house coal) for use in domestic burning only. We plan to develop this policy further to consider extending this legislation to wider commercial properties such as pubs, restaurants and holiday lets.
- *Look to consider further restrictions on emissions limits for Manufactured Solid Fuel across England* – The Domestic Fuels Regulations introduced emission limits from manufactured solid fuels across all of England. We introduced emissions limits of 5g smoke per hour, in the future it may be feasible to reduce emissions of smoke from 5g to 3g per hour across England.
- *Look at the option of extending the solid fuels legislation to fuels burnt outside* - this would provide consistency in the market making it easier for consumers, improve compliance with legislation and improve air quality. This would not introduce new requirements for traditional fuels used for BBQs, such as charcoal.

In Scotland:

- *Introduction of a ban on the sale of house coal and high sulphur content manufactured solid fuels* – this would be similar to the ban introduced in England in May 2021. This is an agreed policy in the Cleaner Air for Scotland 2 strategy and is currently in development.
- *Minimum renewables content for manufactured solid fuels* – this is included in Cleaner Air for Scotland 2 as a policy for further consideration.
- *Controls on the sale of wet wood* – discussions are ongoing with business/industry and other interested parties around how this could be taken forward in Scotland.

In Wales:

- The Welsh Government will reconsider the introduction of necessary legislation to restrict sales of wet wood and coal in 2023/4, with any resulting restrictions commencing no earlier than 2024/5.

In Northern Ireland:

- *Northern Ireland: Solid fuels restrictions* - Policy development regarding the restrictions on the types of solid fuels burnt in domestic combustion in Northern Ireland is at an early stage, with the exact date any policy could be adopted and types of fuels that restrictions will apply to subject to further analysis and consultation. Therefore, with regards to modelling this policy for the NAPCP, the restrictions imposed in England to phase out the use of house coal and wet wood for domestic combustion have been applied to the Northern Ireland data as a purely illustrative scenario to demonstrate a possible pathway to reducing the risk of exceeding 2030 Emission Reduction Commitments. This illustrative modelling does not reflect policy development in this area which, at present, remains under development. [Northern Ireland Energy Strategy 'Path to Net Zero Energy' | Department for the Economy \(economy-ni.gov.uk\)](#).

2. Communications on burning

In England:

- Extending the previous dedicated communications campaign focused on educating consumers on the risks of domestic burning and if they need to burn how to do it in the cleanest way possible and to maximise heat efficiency from available fuels.
- Look to work across government and more widely with Local Authorities and community groups to consider the benefits and impact of developing outdoor burning best practice guidance.

3. Cleaner stoves

In England:

- *Look at reducing the Emission Limit Values (ELV)s for appliances in Smoke Control Areas (SCAs)* from 5g to 3g smoke per hour. Currently within SCAs Defra exempt appliance enable consumers to burn otherwise unauthorised fuels, such as wood providing that the emissions from the appliance do not exceed 5g (+ 0.1g per 0.3kw output) of smoke per hour. We propose to consider reducing this emission limit to 3g (+ 0.1g per 0.3kw output) per hour, this would have a direct impact on the emissions in SCA from wood burning. This would support advancements in appliance technology and fuel innovation and encourage homeowners to consider upgrading their current system to a new cleaner appliance. We will consider cost of living and fuel poverty implications when analysing this policy.
- *Investigate the benefits of incentivising a shift to cleaner stoves (stove/open fire replacements)* - Whilst legislation is in place to control what can now be installed into properties and improved technology continues to increase efficiency and reduce emissions from stoves, there is little

that can be done to impact on appliances already in place. We are keen to encourage consumers to take steps so that if they must burn it is done in the cleanest way possible.

- *Support the development of technological innovation for solid fuel burning* – we have provided £1 million worth of funding to help support industry innovation via Innovate UK. This fund will help industry develop new or fledgling technology that could help abate emissions from solid fuel burning.
- **In Scotland:**
- *Accelerated replacement of pre Ecodesign appliances with Ecodesign compliant alternatives* - discussions are ongoing with business/industry and other interested parties around how this could be taken forward in Scotland.

In Wales:

- *Incentivise the replacement of old stoves with eco-design stoves to meet 2022 regulations*

4. **Agriculture**

In England:

In addition to the package of committed policies and measures set out in 2.3.1 which sets out the policies and measures already adopted, there are several measures, set out below, which could be implemented by various policy levers, incentives and grants:

- Low protein livestock diet (dairy and pig) - matching protein intake to the dietary requirements of livestock reduces the nitrogen content of excreta and subsequent losses of ammonia to air.
- Washing dairy collection yards – washing and scraping flooring and milking yards regularly reduces emissions from deposited livestock excreta.
- Drying poultry litter – with forced air or by ventilation on belts can reduce ammonia emissions.
- Manure sheeting covers - covering manure heaps with an impermeable cover reduces ammonia emissions.
- Poultry/pig acid scrubber - ammonia can be scrubbed out of air extracted from livestock housing using acid.
- Cattle housing grooved floor system grooved floors enable urine to drain easily to a covered storage tank, reducing ammonia loss from flooring.
- Extending grazing period (dairy and beef) - keeping animals at pasture (rather than indoors) for longer means that a greater proportion of urine will wash straight into soil, with lower ammonia loss than from hard floors.
- Improved genetics (dairy, beef, pig and poultry) - genetic improvement can produce animals which can utilise nutrients more effectively.

- Tree shelter belts around pig, poultry and dairy housing - if designed correctly using a dense layer of trees, shelter belts can recapture ammonia emissions from animal housing units.

Defra is developing and launching three new environmental land management schemes that will pay farmers for delivering public goods. This includes supporting good soil and nutrient management, among other actions, which can also support reductions in ammonia pollution.

In Scotland:

- *Covering slurry and digestate stores* – this policy is under discussion and does not currently have an implementation timeline.
- *Precision fertiliser spreading equipment* – for slurry, this will be regulated under the Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2021, rather than fertilisers in general. From 1 January 2023 precision slurry spreading equipment must be used by contractors and on farms with more than 100 milking cows, 200 beef cattle livestock units, 800 fattening pigs or 800 sows. In all other cases the requirement is 1 January 2027. For other fertilisers, there is no current implementation timetable.
- *Bringing into regulation beef and dairy units* – this could involve similar regulation to that already in place for pigs and poultry, and will be explored during the lifetime of the Cleaner Air for Scotland 2 strategy (i.e. by 2026).

In Wales:

- *Further reduce ammonia emissions from agriculture* – Welsh Government recently introduced legislation to control agricultural pollution, including ammonia, and published a Code of Good Agricultural Practice (CoGAP) on reducing ammonia losses from agriculture. Welsh Government will continue to support farm businesses to implement nutrient efficiency measures through the Rural Development Programme 2014-20 (RDP), which runs until the end of March 2023. On 1 April, plans were announced to provide a package of support for farmers, foresters, land managers and food businesses worth over £227 million over the next three financial years to support the resilience of the rural economy. Interventions which will be supported as part of this programme include investments that will enhance the technical and environmental performance of farm businesses and support for infrastructure investments through a Yard Coverings scheme and a new Nutrient Management Investment scheme. The Sustainable Farming Scheme (SFS), planned to be launched in 2025, aims to reduce ammonia emissions from agricultural practices which includes interception from source by strategic tree planting. The Welsh Government is actively considering whether additional measures are necessary to achieve further reductions in ammonia emissions, taking account of uptake of relevant SFS measures and results of the Control of Agricultural Pollution Regulations.

In Northern Ireland:

- Northern Ireland intends to achieve its proportionate share of the required UK ammonia reduction through the implementation of an ammonia strategy. The forthcoming consultation on the draft ammonia strategy will propose a series of farm measures to reduce ammonia emissions. The Northern Ireland measures currently proposed as part of this NAPCP are:
 - Ammonia reduction technologies for installation in livestock housing
 - Low emission slurry spreading
 - Longer grazing seasons
 - Lowering crude protein in livestock diets
 - Increasing feed efficiency through genetic improvement
 - Replacement of urea fertiliser with a protected urea product
 - Covering above ground slurry stores
 - Well-designed tree plantations around livestock housing

The nature of the final series of measures to reduce ammonia will take account of the results of the ammonia strategy consultation.

5. Industry

UKBAT (UKG, Welsh Government, DAERA, Scottish Government)

- The UK BAT regime will enable industry and regulators to work together collaboratively to raise standards and reduce emissions over time. Due to the regulator-led, collaborative, evidence-based and transparent process for setting BAT, it is not possible for the NAPCP to identify in advance the specific technologies BAT will deliver by 2030 therefore we have used historical data on the impacts of previous BAT reviews on emissions to identify trends and project emissions savings from future BAT reviews.

Sectors outside of UKBAT

In England:

- *Combustion*: This measure explores the potential introduction of a cap on operating hours for generators (combustion plant which generate electricity) under 50 megawatts thermal (MWth) unless they comply with tightened emission limits. This could align with the proposed policy for generators over 50 MWth, correcting a market distortion and reducing NO_x emissions from this source.

- *Crematoria*: A review of the [guidance](#) is underway, and the final standards will be agreed as part of the BAT-style standards setting process through the Technical Working Group. For the purpose of this NAPCP process, the government has considered what magnitude of abatement might be possible both through a less ambitious and a more ambitious approach for both NO_x and PM_{2.5} abatement.
- *Minerals and aggregate*: A review of standards for this sector is currently underway, and therefore this measure has used EEA guidebook figures and applied them to the relevant parts and processes within the sector.
- *Metals*: A review of standards for this sector will be underway in due course. To estimate this measure we have modelled alignment with BAT conclusions for larger installations.
- There are additional policies in the pipeline for industry (e.g., medium combustion plants) which we have not been able to quantify for inclusion in the draft NAPCP for consultation, however, will provide additional abatement.

In Wales:

- By way of the ‘Sectors outside of UKBAT’, through governance arrangements established through the BAT Common framework, the Welsh Government is working in close collaboration with UKG on industrial emissions related to combustion, crematoria, minerals and aggregate and metals sectors as set out above.

In Northern Ireland:

- *Ireland / Northern Ireland Protocol* - Officials within DAERA remain committed to ensuring that NI plays its part in meeting the UK emission reduction commitments for 2020, 2030, and intermediate emission levels for 2025. We are working closely with our Defra and DA’s counterparts on a programme for the development and implementation of new UK Best Available Techniques (BAT). However, due to the Ireland / Northern Ireland Protocol, NI is required to remain aligned with part of the IED. The IED is named at Annex 4 of the Protocol for energy installations providing power to the Single Energy Market (SEM) for the island of Ireland in order to preserve the integrity of the SEM. This involves applying EU BAT emissions standards to agreed four sites in NI. Outside of this requirement NI is aligned with the rest of the UK in terms of the regulation of industrial emissions and BAT.
- *Regulatory Transformation Programme* - Work is currently being taken forward within DAERA as part of the Department’s Regulatory Transformation Programme (RTP) to develop new subordinate legislation to introduce a new environmental permitting regime using the powers provided by the Environmental Better Regulation Act (Northern Ireland) 2016. As a result, the Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 (The PPC Regulations) will be revoked. This work will create a more streamlined and standardised regulatory process in respect of the regimes to be included in environmental permitting.

6. Road transport (decarbonisation)

In preparing this NAPCP the policies and proposals relating to road transport from the following strategies have been taken into account:-

- (UKG) The Net Zero Strategy: Build Back Greener – This strategy sets out policies and proposals for de-carbonising all sectors of the UK economy to meet net-zero by 2050. [Net Zero Strategy](#)
- (Scotland) The Reducing Car Use for a healthier, fairer and Greener Scotland: A route map to achieve a 20 per cent reduction in kilometers by 2030 – This proposes a 20% reduction in vehicle kilometers in Scotland by 2030. transport.gov.scot
- (Wales): The [Clean Air plan for Wales](#) and [Net Zero Wales: Carbon Budget 2](#) set out a range of transport policies including promoting a modal shift to active travel and public transport, remote working, and supporting the shift to EV.

7. Net zero (Power, Industry and Residential)

- The Net Zero Strategy sets out policies and proposals for de-carbonising all sectors of the UK economy to meet out net zero by 2050 target. As climate change and air pollution have many of the same contributing emission sources, the decarbonisation of the UK economy contributes to reducing air pollution. We assessed the impact of the Net Zero Strategy on the air quality, accounting for potential benefits and trade-offs. Further details on the Net Zero policy packages for specific sectors of the UK economy which we have taken into account in the development of this NAPCP can be found at [Net Zero Strategy](#)
- Further detail on the Welsh Government’s policies for net zero policy can be found in Net Zero Wales: Carbon Budget 2 (2021-25).

Policies and Measures considered but not quantified and will not be considered further

Two packages of policies and measures have been considered but have not been quantified and will not be considered further. Further details on the individual components of these packages are set out below.

1. Domestic burning

- *Banning domestic burning package-* We are not considering a ban on domestic burning in England. The UK government recognises that some households are reliant on solid fuel burning as a primary source for heating, hot water and cooking, with this in mind government is not seeking to ban burning. This is particularly pertinent in light of the current focus on energy security, and the global rise in energy prices.

- *Banning domestic outdoor burning (including bonfires, BBQs, firepits etc).* This would be considered disproportionate. A ban on outdoor burning could also have a high-cost implication to Local Authorities as an alternative would be needed for domestic garden waste as households would no longer be able to burn it.
- *Restrictions on domestic burning (Welsh Government):* The Welsh Government are not proposing to introduce restrictions on the sale of wet wood at this time. The Welsh Government recognises that some households are reliant on solid fuel burning for heating, hot water and cooking. In light of increasing global fuel prices, and the general cost of living, it is considered that such restrictions have the potential for a disproportionate impact on homes that may be finding themselves in fuel poverty. The proposal to ban bituminous house coal and restrict sales of wet wood will be reviewed in 2023/4.

2. Additional Agriculture Package

- **Requiring all urea to be protected or treated with urease inhibitors** – The UK government’s response to the consultation on reducing ammonia emissions from solid urea fertilisers, published in March 2022, outlined the intended approach to reducing emissions from this source in England. An industry consortium will set up and run a non-regulatory approach to reduce emissions from urea fertilisers. This will utilise the Red Tractor farm assurance schemes, to reduce ammonia emissions from the use of fertilisers containing urea (both solid and liquid), in England from April 2023. Once implemented, Defra will monitor the industry’s scheme and its success in reducing ammonia emissions. Should the scheme not achieve sufficient ammonia emissions reductions and the global supply and pricing of fertilisers be more stable, government will consult on draft regulations which is likely to require all urea fertilisers to be protected or treated with urease inhibitors from 2025/26.

2.6.2 Impacts on air quality and the environment of individual PaMs or packages of PaMs considered in order to comply with the emission reduction commitments (M, where available)

Where available, impacts on air quality (reference can also be made to recommended air quality objectives by the WHO) and environment:

The impact of achieving the 2030 ERCs has been considered as part of the UK government’s consultation on new PM_{2.5} concentration targets: [Consultation on environmental targets](#).

A detailed assessment of the impacts on air quality of the packages of PaMs selected for further consideration for the NAPCP has not been prepared at this point. However, there is a reasonable expectation that all of the PaMs selected for further consideration could lead to improvements in air quality.

Estimating the impacts on air quality of the individual PaMs or packages of PaMs comes with many challenges. Firstly, it should be noted that whilst reducing UK emissions of air pollutants helps to reduce atmospheric concentrations in the UK, the level of reduction in atmospheric concentrations is not always proportionate to the reduction in emissions. Weather conditions, transboundary impacts, secondary formation of pollutants and local factors all have an impact on concentrations experienced at a local level. Additionally, a number of uncertainties arise from estimating projections, although emission projections are calculated following best practice, they will always contain some uncertainties, and that uncertainty increases the further into the future you go. This arises from not only the uncertainties in the base year, but also the data that is used to project future emissions. This can be further influenced by changes in economic and geopolitical factors such as covid-19 or the recent global energy cost impacts, which impact behavioural change which can have positive or negative impact on future emissions.

Furthermore, there are a number of additional policies in the pipeline, particularly for industry, which we have not been able to quantify at this time however will likely provide additional abatement before 2030. These have not been included in the NAPCP however they will lead to improvements in air quality. This includes further policies being developed for smaller industrial sources (e.g. medium combustion plants), and specific technologies BAT which due to the regulator led process for setting BAT it has not been possible to identify.

Pollution (including air, water, and chemical pollution) has been identified as one of the top 5 drivers of biodiversity loss and has a devastating impact on our natural environment. Ammonia is the main source of nitrogen deposition on sensitive habitats. This causes irreversible changes in soil chemistry, resulting in loss of sensitive species and reduces habitats' ability to sequester carbon and mitigate flooding. NOx accounts for around 21% of Nitrogen deposition in England and nearly 30% across the UK. Therefore, the policies and measures which will be considered further in order to reduce NH3 emissions (package 5) and NOx emissions (packages 6 and 7) could reduce the impact AQ has on the environment.

2.6.4 Additional details concerning the measures from Annex III Part 2 to Directive (EU) 2016/2284 targeting the agricultural sector to comply with the emission reduction commitments

	<p>Is the PaM included in the national air pollution control programme? Yes/No (M):</p>	<p>If yes, - indicate section/page number in programme: (M):</p>	<p>Has the PaM been applied exactly? Yes/No (M): If no, describe the modifications that have been made (M):</p>
<p>A. Measures to control ammonia emissions (M):</p>			
<p>1. The Secretary of State shall establish a national advisory code of good agricultural practice to control ammonia emissions, taking into account the UNECE Framework Code for Good Agricultural Practice for Reducing Ammonia Emissions of 2014, covering at least the following items:</p> <ul style="list-style-type: none"> a) nitrogen management, taking into account the whole nitrogen cycle; b) livestock feeding strategies; c) low-emission manure spreading techniques; d) low-emission manure storage systems; e) low-emission animal housing systems; f) possibilities for limiting ammonia emissions from the use of mineral fertilisers. 	<p>Yes (England) Yes (Wales) Yes (Northern Ireland) The Northern Ireland Code of Good Agricultural Practice for Reducing Ammonia Emissions was published in May 2019. A new code for Scotland covering these points will be prepared starting later in 2022. An existing code 'The Prevention of Environmental</p>	<p>Table 2.3.1</p>	<p>Yes (England) Yes (Wales). The Welsh Government has published revised guidance. https://gov.wales/sites/default/files/publications/2019-04/code-of-good-agricultural-practice-guidance-on-reducing-ammonia-emissions.pdf</p>

	Pollution from Agricultural Activity' remains in place at present.		
2. The Secretary of State may establish a national nitrogen budget to monitor the changes in overall losses of reactive nitrogen from agriculture, including ammonia, nitrous oxide, ammonium, nitrates and nitrites, based on the principles set out in the UNECE Guidance Document on Nitrogen Budgets :	Yes (Scotland only)		Yes (Scotland)
3. The Secretary of State shall prohibit the use of ammonium carbonate fertilisers and may reduce ammonia emissions from inorganic fertilisers by using the following approaches: a) replacing urea-based fertilisers by ammonium nitrate-based fertilisers; b) where urea-based fertilisers continue to be applied, using methods that have been shown to reduce ammonia emissions by at least 30 % compared with the use of the reference method, as specified in the Ammonia Guidance Document; c) promoting the replacement of inorganic fertilisers by organic fertilisers and, where inorganic fertilisers continue to be applied, spreading them in line with the foreseeable requirements of the receiving crop or grassland with respect to nitrogen and phosphorus, also	Yes (England) Yes (Northern Ireland)	Table 2.6.1	Ammonium carbonate fertilisers are not used in the UK. The sale and use of ammonium carbonate fertilisers is not enabled in the UK either through the Fertilisers Regulations 1991 (in England, Wales and Scotland), the Fertilisers Regulations (Northern Ireland) 1992 (in Northern Ireland), or the EU Fertilisers Regulation (Regulation (EC) No. 2003/2003 of the European Parliament and of the Council relating to fertilisers). The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021 require nutrient management planning. In addition, the Welsh Government provides advice to farmers on Nutrient Management Planning through Farming Connect to reduce the amount of fertiliser used. The Northern Ireland Code of Good Agricultural Practice for reducing ammonia

<p>taking into account the existing nutrient content in the soil and nutrients from other fertilisers.</p>			<p>emissions highlights the use of protected urea instead of straight urea and nutrient management planning as important measures to deliver reductions in ammonia emissions. The College of Agriculture, Food and Rural Enterprise provides training on nutrient management planning.</p>
<p>4. The Secretary of State may reduce ammonia emissions from livestock manure by using the following approaches:</p> <p>a) reducing emissions from slurry and solid manure application to arable land and grassland, by using methods that reduce emissions by at least 30 % compared with the reference method described in the Ammonia Guidance Document and on the following conditions:</p> <p>i. only spreading manures and slurries in line with the foreseeable nutrient requirement of the receiving crop or grassland with respect to nitrogen and phosphorous, also taking into account the existing nutrient content in the soil and the nutrients from other fertilisers;</p> <p>ii. not spreading manures and slurries when the receiving land is water saturated, flooded, frozen or snow covered;</p> <p>iii. applying slurries spread to grassland using a trailing hose, trailing shoe or through shallow or deep injection;</p>	<p>Yes (England) Yes (Northern Ireland) No (Scotland)</p>	<p>Table 2.6.1</p>	<p>Defra’s plans to reduce emissions from livestock numbers are detailed in section 2.3.1.</p> <p>Welsh Government</p> <p>4a: The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021 require nutrient management planning and prohibit the application of nutrients, including nitrogen in excess of crop need. The Regulations are also mandatory requirements for all recipients of CAP funding. Wider NMP is supported via Farming Connect/Glastir. Rural Development Programme Wales (RDP) funding is provided to purchase/use low trajectory slurry applicators.4b: RDP funding for covered manure stores 4a and b are potential delivery mechanisms for the delivery of improved air quality public goods and are therefore candidate actions to be included in the proposed Sustainable Farming Scheme.4c – Environmental Permitting</p>

<p>iv. incorporating manures and slurries spread to arable land within the soil within four hours of spreading;</p> <p>b) reducing emissions from manure storage outside of animal houses, by using the following approaches:</p> <p>i. for slurry stores constructed after 1 January 2022, using low emission storage systems or techniques which have been shown to reduce ammonia emissions by at least 60 % compared with the reference method described in the Ammonia Guidance Document, and for existing slurry stores at least 40 %;</p> <p>ii. covering stores for solid manure;</p> <p>iii. ensuring farms have sufficient manure storage capacity to spread manure only during periods that are suitable for crop growth:</p> <p>c) reducing emissions from animal housing, by using systems which have been shown to reduce ammonia emissions by at least 20 % compared with the reference method described in the Ammonia Guidance Document;</p> <p>d) reducing emissions from manure, by using low protein feeding strategies which have been shown to reduce ammonia emissions by at least 10 % compared with the reference method described in the Ammonia Guidance Document.</p>			<p>Regulations currently apply to pig and poultry production.</p> <p>Northern Ireland’s plans for achieving ammonia reductions include:</p> <ul style="list-style-type: none"> • Ammonia reduction technologies for installation in livestock housing • Low emission slurry spreading • Lowering crude protein in livestock diets • Covering above ground slurry stores.
<p>B. Emission reduction measures to control emissions of fine particulate matter (PM_{2.5}) and black carbon (M)</p>			

<p>1. The Secretary of State may ban open field burning of agricultural harvest residue and waste and forest residue. The Secretary of State shall monitor and enforce the implementation of any ban implemented in accordance with the first subparagraph. Any exemptions to such a ban shall be limited to preventive programmes to avoid uncontrolled wildfires, to control pest or to protect biodiversity.</p>	<p>Yes (England) No (Scotland)</p>	<p>Table 2.3.1</p>	<p>The Crop Residues (Burning) Regulations 1993 (legislation.gov.uk) apply in England and Wales.</p>
<p>2. The Secretary of State may establish a national advisory code of good agricultural practices for the proper management of harvest residue, on the basis of the following approaches:</p> <p>a) improvement of soil structure through incorporation of harvest residue;</p> <p>b) improved techniques for incorporation of harvest residue;</p> <p>c) alternative use of harvest residue;</p> <p>d) improvement of the nutrient status and soil structure through incorporation of manure as required for optimal plant growth, thereby avoiding burning of manure (farmyard manure, deep-straw bedding).</p>	<p>No</p>		
<p>C. Preventing impacts on small farms (M)</p>			
<p>In taking the measures outlined in Sections A and B, The Secretary of State shall ensure that impacts on small and micro farms are fully taken into account. The Secretary of State may, for instance, exempt small and micro farms</p>	<p>Yes</p>		<p>A full impact assessment will be carried out prior to implementing all regulatory policies and the impacts on small and micro farms will be considered as part of this assessment.</p>

<p>from those measures where possible and appropriate in view of the applicable reduction commitments (M):</p>		<p>Wales: Record keeping exemptions have been included in The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021 requiring nutrient management planning for extensive farms, which have low nutrient inputs.</p>
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2.7 The policies selected for further consideration by sector, including a timetable for their adoption, implementation and review and the competent authorities responsible

<p align="center"><u>2.7.1 Individual PaMs or package of PaMs considered and the competent authorities responsible</u></p>					
<p>Name and brief description of individual PaM or package of PaMs (M):</p> <p><i>Refer to those listed in table 2.6.1 as appropriate.</i></p>	<p>Currently planned year of adoption (M):</p>	<p>Currently planned timetable for implementation (M)</p>		<p>Currently planned timetable for review (in case different from general update of the national air pollution control programme every four years) (M):</p>	<p>Competent authorities responsible for the individual PaM or package of PaMs (M):</p> <p><i>Refer to those listed in table 2.3.2 as appropriate.</i></p>
		<p>Start year</p>	<p>End year</p>		
<p>See table 2.6.1 above</p>					

<u>2.7.2 Explanation of the choice of selected measures and an assessment of how selected PaMs ensure coherence with plans and programmes set up in other relevant policy areas</u>	
<p>Coherence of the selected PaMs with air quality objectives at national level and, where appropriate, in neighbouring Member States (where applicable) (M):</p>	<p>The 7 packages of measures which will be considered further align with the policy priorities outlined in section 2.3.</p>
<p>Coherence of the selected PaMs with other relevant plans and programmes established by virtue of the requirements set out in national or Union legislation (e.g. national energy and climate plans) (M):</p>	<p>The packages of measures selected for further consideration have been analysed both in terms of pollution and GHG abatement, to ensure that these two key policy objectives are tackled together.</p> <p>Analysis indicates that considered PaMs will reduce GHG emissions by between 1.5 and 1.8 Mt CO₂e per annum by 2030. This estimate excludes the impact of the PaMs targeting GHG emissions (i.e. Net Zero – Power, Industry and Residential and Road transport (decarbonisation)) which can be found in Net Zero Strategy: Build Back Greener - GOV.UK (www.gov.uk).</p> <p>As climate change and air pollution have many of the same contributing emission sources, the decarbonisation of the UK economy offers major opportunities to significantly reduce air pollution and therefore improve human health and reduce the impact of some air pollutants on ecosystems. This is primarily driven through the reduction of petrol and diesel cars towards green alternatives, as well as the continual shift away from fossil fuels in heat and power generation. However, some technology choices could result in negative air quality impacts. Defra is working with other government departments to ensure that the co-benefits of actions to achieve Net Zero and improved air quality are maximised and that any potential negative impacts are carefully managed.</p> <p>The estimated impact of the decarbonisation of the UK economy is based on possible pathways to reach Net Zero in 2050 as specified</p>

	<p>in the Net Zero Strategy (net-zero-strategy-beis.pdf (publishing.service.gov.uk)). However, there is uncertainty associated to the estimates made. The main sources include: uncertainties associated with data and assumptions (activity and trend in air pollution emission factors); changes in the wider environment; and unexpected events or risks that may influence the outcome. The uncertainty is the highest for particulate matter (PM).</p>
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2.8 Projected combined impacts of PaMs ('With Additional Measures' - WAM) on emission reductions, air quality and the environment and the associated uncertainties (where applicable)

The below projections are based on estimated abatement from all adopted measures and measures which will be considered further as set out in section 2.6.

<u>2.8.1 Projected attainment of emission reduction commitments (WAM)</u>									
Pollutants (M)	Total emissions (kt), consistent with inventories for year x-2 or x-3, please specify the year (M):				% emission reduction achieved compared with 2005 (M)			National emission reduction commitment for 2020-2029 (%) (M):	National emission reduction commitment from 2030 (%) (M):
	2005 base year	2020	2025	2030	2020	2025	2030		
SO₂:	788	136	105 to 106	75 to 76	83%	87%	90%	59%	88%
NO_x:	1737	675	578	459	61%	67%	74%	55%	73%
NMVOC:	1125	659	648 to 653	637 to 643	41%	42%	43%	32%	39%
NH₃:	280	259	248	235 to 247	7%	11%	12% to 16%	8%	16%

PM_{2.5}:	121	84	73 to 78	64 to 71	30%	36% to 40%	42% to 47%	30%	46%
Date of emission projections (M):			July 2022*						

Note:

* The Defra model used for the calculation of the abatements of the measures applied in the agriculture sector, responsible for 87% of ammonia emissions in 2020, is based on the NAEI projections published in March 2021, as it could not be updated in time to reflect the latest projections for the years 2025 and 2030 published in 2022.

2.8.2 Non-linear emission reduction trajectory

Where a non-linear emission reduction trajectory is followed, demonstrate that it is technically or economically more efficient (alternative measures would involve entailing disproportionate costs), will not compromise the achievement of any reduction commitment in 2030, and that the trajectory will converge on the linear trajectory from 2025 onwards (M, where relevant):

Refer to costs listed in table 2.6.3 as appropriate.

The UK measures selected for further consideration would go beyond the required 2025 linear point for NMVOCs, SO₂ and NO_x. The projection exceeds the 2025 linear point for NH₃ by 1% or 2.5kt. We expect the reductions from the adjusted inventory would ensure compliance. The PM_{2.5} 2025 linear point is within the projections for emissions though the lower scenario would miss this point.

2.8.3 Flexibilities

Where flexibilities are used, provide an account of their use (M):

- **Adjustments:** Agriculture accounted for 87% of UK ammonia emissions in 2020 and the UK was technically in breach of ammonia emissions reduction targets in this year which required the UK to reduce ammonia by 8% from 2005 levels. However, as provided for by regulation 4 of the NECR the UK has prepared an adjusted inventory in relation to NH₃ emissions. The basis of that adjustment is to take account of new science and new sources of ammonia emissions, in particular non-manure digestate, which was not included in inventory reporting at the time the targets were agreed. The adjusted inventory will reduce the national compliance total for ammonia by 12.75kt and bring the UK into compliance with the 2020 ammonia target. If this adjustment were to be applied to our current projections for 2030, we would therefore expect a reduction to our 2030 compliance total of around 21kt, which would reduce the risk of the UK exceeding the 2030 ERC for NH₃. The UK has submitted its adjusted inventory for independent and expert scrutiny by UNECE experts who will review the inventory by September 2022. Details of the adjustment application can be found in the ‘Adjustments’ chapter of the Informative Inventory Report (https://naei.beis.gov.uk/reports/reports?report_id=1071) A decision from UNECE is expected by September 2022. At this point, we have not used this flexibility in the NAPCP.
- **Derogations** – despite the availability of derogations in the NECR, the UK has not used this flexibility to reduce the risk of missing the 2030 ERCs.
- Under the CLRTAP and NECR reporting guidance most countries must report emissions from the road transport sector on the basis of fuels sold for compliance purposes. The UK, however, is one of several countries permitted to report their National Total for Compliance on a fuel used basis and we consider this method to be more scientifically robust for calculating UK emissions.