

## SOCIO-ECONOMIC DUTY ASSESSMENT

### **What evidence has been considered to understand how the proposal contributes to inequalities of outcome experience as a result of socio-economic disadvantage?**

The overarching aim of the Bill is to bring forward measures that will contribute to improvements in the quality of the air environment in Wales and reduce the impacts of airborne pollution on human health, biodiversity, the natural environment and our economy.

The Bill needs to be seen in a broad context, and not in isolation. It:

- is a crucial part of a package of measures set out in our Clean Air Plan and Noise and Soundscape Plan to reduce airborne pollution and improve the air environment in Wales; and
- builds on a suite of existing air quality and noise legislation.

By introducing this Bill, we also aim to maximise our contribution to the sustainable development principle of the Well-being of Future Generations Act 2015 (WFGA) to improve the economic, social, environmental and cultural well-being of Wales. The Bill is firmly grounded in the seven well-being goals in the WFGA. We have also taken account of the Welsh Ministers' socio-economic duty, duties under the Equality Act 2010 (the 2010 Act) and the United Nations Convention on the Rights of the Child (UNCRC) when developing the Bill's proposals.

Outdoor air pollution is the largest environmental risk to health. Air pollution can affect everyone, and air in all areas of Wales contains some proportion of man-made air pollutants.

The main conditions associated with breathing in air pollutants over the long-term include heart and lung diseases, and lung cancer. There is also evidence of effects on dementia, low birth weight and Type 2 diabetes. Shorter-term exposure symptoms can include eye, nose and throat irritation. The health effects of pollution depend on how much people are exposed to and for how long. The Royal College of Physicians' report, '[Every breath we take: the lifelong impact of air pollution](#)', presents the findings of multiple international studies regarding each of these health effects.

Airborne pollution affects people in different ways; risks and impacts change over a lifetime too. Children, older people and those with heart or lung problems are more likely to be affected. Children can suffer from poor lung development and asthma symptoms because of air pollution exposure<sup>1</sup>. People who work in highly polluted places or who regularly travel in or through polluted areas (such as city centres) may also be at higher risk of pollution-related health problems. People who live in the most deprived areas – where health and air and soundscape quality tend to be poorest – are also more likely to be harmed by airborne pollution exposure.

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<sup>1</sup> Air Pollution and Child Health: Prescribing Clean Air, WHO 2019. [apps.who.int/iris/bitstream/handle/10665/275545/WHO-CED-PHE-18.01-eng.pdf?ua=1](https://apps.who.int/iris/bitstream/handle/10665/275545/WHO-CED-PHE-18.01-eng.pdf?ua=1)

Estimating the health impact of air pollution is complex. The UK expert Committee on the Medical Effects of Air Pollution (COMEAP) has previously estimated that air pollution is responsible for “an effect equivalent of between 28,000 and 36,000 deaths (at typical ages) each year”.<sup>2</sup> This does not mean there are ‘actual’ deaths from air pollution exposure; rather, that the reduced life expectancy which everyone experiences because of air pollution exposure (6-8 months on average, but could range from days to years), is ‘equivalent’ to between 28,000 and 36,000 deaths when summed.

In Wales, based on modelled air pollution data pre-pandemic<sup>3</sup>, Public Health Wales estimated the burden of long-term air pollution exposure to be around the equivalent of 1,000 to 1,400 deaths each year. This estimate was calculated using a more accurate method that considers the combined effects of different pollutants, meaning that the overlapping effects of PM<sub>2.5</sub> and NO<sub>2</sub> are accounted for.<sup>4,5,6</sup> Studies have found that, with a few exceptions, poorer people tend to live in lower-quality environments and are more exposed to air pollution<sup>7</sup>. This includes the identification of patterns that deprived populations, although not always more exposed, experience greater harmful effects of air pollution because of vulnerability factors<sup>8</sup>. These inequities affect people across their lives from the prenatal stage through to old age. They are compounded by the limited opportunities available for deprived communities to improve their environments.

Air pollution, impaired health and deprivation status interactions can modify associations and create disproportionate disease burdens within and between communities (inequalities) i.e. a ‘triple jeopardy’ effect. In the context of particulate matter air pollution, research suggests, compared with ‘low’ pollution and ‘least’ deprived areas, rates of respiratory disease mortality were twice as high in ‘low’ pollution and ‘most’ deprived areas, and increased to 2.4 times in ‘high’ pollution and ‘most’ deprived areas<sup>9</sup>. For all-cause mortality, compared with ‘low’ pollution and ‘least’ deprived areas, mortality rates were 56% higher in ‘low’ pollution and ‘most’ deprived areas and 65% higher in ‘high’ pollution and ‘most’ deprived areas. This available evidence suggests it is important to consider air pollution problems (and solutions) collectively<sup>10</sup>.

<sup>2</sup> COMEAP (2018). Associations of long-term average concentrations of nitrogen dioxide with mortality.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/734799/COMEAP\\_NO2\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/734799/COMEAP_NO2_Report.pdf)

<sup>3</sup> Welsh Government StatsWales. <https://statswales.gov.wales/Catalogue/Environment-and-Countryside/Air-Quality/airqualityindicators>

<sup>4</sup> PHE (2014). Estimating local mortality burdens associated with particulate air pollution.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/332854/PHE\\_CRCE\\_010.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/332854/PHE_CRCE_010.pdf)

<sup>5</sup> Welsh Government/PHW (2016). Working together to reduce air pollution, risks and inequalities.

<https://gov.wales/sites/default/files/publications/2019-06/working-together-to-reduce-outdoor-air-pollution-risks-andinequalities.pdf>

<sup>6</sup> Public Health Wales (2018). Making a difference – reducing health risks associated with road traffic air pollution in Wales.

<http://www.wales.nhs.uk/sitesplus/documents/888/PHW%20Air%20pollution%20report%20%28final%20English%29.pdf>

<sup>7</sup> Royal College of Physicians: Every breath we take: the lifelong impact of air pollution. <https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>

<sup>8</sup> Richardson EA, Pearce J, Tunstall H. Particulate air pollution and health inequalities: a Europe-wide ecological analysis. *International Journal of Health Geographics* 2013; 12: 34.

<sup>9</sup> Air pollution, deprivation and health: understanding the relationships to add value to local air quality management policy and practice in Wales, UK. Brunt H, Barnes J, Jones S J, Longhurst J W S, Scally G, Hayes E. 3, s.l. : *Journal of Public Health*, 2017, Vol. 39, pp. 485-497.

<sup>10</sup> Clean Air Plan for Wales – Healthy Air Healthy Wales (2020). <https://gov.wales/sites/default/files/publications/2020-08/clean-air-plan-for-wales-healthy-air-healthy-wales.pdf>

The Bill includes powers and duties for the setting of air quality targets to drive actions across Wales to reduce national levels of air pollution. However, at this stage it is not possible to predict the eventual impact of introducing the duty to set a target for PM<sub>2.5</sub> without knowing the design of the target that will be subsequently set, and the timescale that will be allowed. Socio-economic factors will be considered, including equity and the overall distribution of public health benefits, within a cost-benefit analysis in the detailed assessment of potential target options prior to full public consultation. These considerations will help ensure that proposed targets are equitable, achievable and affordable, whilst still driving ambitious changes to the environment.

**What information has been gained through engagement with those affected by the proposal/decision and specifically those who suffer socio-economic disadvantage?**

During both the initial policy formulation and formal consultation phases for the Bill active engagement was undertaken with a range of groups and individuals who represent those who are at socio-economic disadvantage. During the formal consultation period a number of written responses were put forward to assist such individuals. These included suggestions around expanding anti-Idling zones in areas more vulnerable individuals are more likely to use such as schools, hospitals and play areas in a similar way to smoke free areas. Additionally, it was highlighted that the reduction in noise generated by unnecessary idling engines would prove a benefit to the neuro-diverse community.

Proposals around road user charging in the Bill, which will better enable Clean Air Zones/Low Emission Zones (CAZ/LEZs) where needed, were highlighted as having the potential, if introduced, to place a greater burden on the most socio-economically disadvantaged as a 'mobility tax' on accessing services / work where little or no realistic public transport options exist. Examples given highlighted the 2020-22 COVID lockdowns indicating the proportion of travel by individuals in the lower socio-economic groups may have been higher. Specifically, amongst those who were classified as 'key workers' or needed to attend their physical workplace due to the type of role they undertake. This was put forward to demonstrate the potential for negative impacts CAZ/LEZs may have if adequate alternatives are not offered. This will be carefully considered as we develop future proposals.

**Have protected characteristics been considered?**

Consultation with a wide range of representatives, the public and stakeholder groups was undertaken during the drafting of the Bill. This included engagement with:

- Representative of the Children's Commissioner in Wales;
- The Senedd Cross-Party Group on the Clean Air Bill;
- The Royal College of General Practitioners;
- The Royal College of Paediatrics and Child Health;
- The Trades Union Congress Cymru;
- Healthy Air Cymru;
- The Institute of Acoustics;
- Local authorities; and
- Academics and members of the public with an interest in air quality and soundscape.

During the production of the Bill, we have placed a focus on mitigating the impact of air pollution and soundscapes on the most vulnerable in society. Groups representing a wide range of physically disabled and neuro-diverse communities have worked with us to develop our proposals. It was generally acknowledged that air pollution has a disproportionate effect on the most socio-economically vulnerable. For example, the closeness of a pollution source could see cheaper / less desirable housing which would then be attractive to the less economically able and this would be a potential cause of additional health detriment. The Bill itself does not present any changes which would harm individuals with protected characteristics. The introduction of additional policy changes, such as Clean Air Zones would be subject to separate consultation and impact assessments.

**Have communities of interest and places interest been considered.**

Yes.

**What information has been considered regarding future trends?**

The evidence being developed to underpin national air quality target choices includes analysis and modelling to understand the achievability of different target values and dates. Air quality modelling is being used to understand the impact of emissions reductions on pollutant concentrations. By modelling a range of scenarios it is possible to gain insight into future concentration reduction potential, and therefore target achievability, along with the associated socio-economic implications of each. The results will be, however, only indicative of potential future scenarios.

Future pollutant emissions will be determined by multiple factors, for example, public behaviour, industry practice, socio-economics, and other external factors (e.g. potential pandemics). We are working with technical experts to review individual sectors to identify possible policies and measures which could affect air pollutant emissions into the future. This includes consideration of current and future technologies and policies, behaviour changes and trends. The policies and measures do not necessarily directly correspond with a potential specific Welsh Government policy, and the scenarios developed should not be policy plans or pathways. The scenarios will indicate the types of action and scale of intervention that would be needed to achieve different concentrations by different dates in the future. This is being informed by stakeholder workshops and independent expert advice.

The effect of emission reduction is in relation to the baseline national emissions inventory and projections datasets, produced as part of the National Atmospheric Emissions Inventory<sup>11</sup>. These are official statistics produced on behalf of UK Government and the Devolved Governments for determining and reporting on compliance with international agreements on UK air pollutant emissions reduction targets. The projections data are based on data such as projected energy use, traffic, gross domestic product, population growth and legislative changes. Emissions projections are being considered up to 2040.

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<sup>11</sup> National Atmospheric Emissions Inventory website. <https://naei.beis.gov.uk/>

## Summary of evidence and links

Air quality in Wales is improving. However, local level variations in exposure risk still exist. There is clear evidence that people with a low income are affected by air pollution in a number of different ways. This is because they are more likely to:

- have existing medical conditions.
- live in areas with poorer outdoor and indoor environments, including the quality of air (for example, near to industry or busy roads).
- have less access to jobs, healthy food, decent housing and green spaces, which all contribute to poorer health.

System-wide action must ensure air quality related benefits are equitable and acknowledge current evidence about the harms that even low levels of air pollution can have on health.

<b>Effects</b>	<b>References</b>
Epidemiological studies have shown that long-term exposure to air pollution (over years or lifetimes) reduces life expectancy, mainly due to cardiovascular and respiratory diseases and lung cancer. Short-term exposure (over hours or days) to elevated levels of air pollution can also cause a range of health impacts including effects on lung function, exacerbation of asthma, increases in respiratory and cardiovascular hospital admissions and mortality.	Committee on the Medical Effects of Air Pollutants (COMEAP) on the effects of particulate air pollution on mortality in the UK: <a href="https://www.gov.uk/government/publications/comeap-mortality-effects-of-long-term-exposure-to-particulate-air-pollution-in-the-uk">https://www.gov.uk/government/publications/comeap-mortality-effects-of-long-term-exposure-to-particulate-air-pollution-in-the-uk</a>
Short-term exposure to NO <sub>2</sub> , particularly at high concentrations, is a respiratory irritant that can cause inflammation of the airways (for example, cough, production of mucous and shortness of breath).	COMEAP: review of the UK air quality index. <a href="https://www.gov.uk/government/publications/comeap-review-of-the-uk-air-quality-index">https://www.gov.uk/government/publications/comeap-review-of-the-uk-air-quality-index</a>
Outdoor air pollution is the largest environmental risk to health. Air pollution, deprivation and poor health status are inextricably linked; highlighting issues of environmental injustice, social and health inequalities.	Horton A, Jones S J, Brunt H. Air pollution and public health vulnerabilities, susceptibilities and inequalities in Wales, UK. <i>Journal of Public Health</i> 2022.

<p>Findings of multiple international studies regarding the health effects of air pollution.</p> <p>There is significant inequality in exposure to air pollution and related health risks: air pollution combines with other aspects of the social and physical environment to create a disproportionate disease burden in less affluent parts of society.</p>	<p>Royal College of Physicians: Every breath we take: the lifelong impact of air pollution:  <a href="https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution">https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution</a></p> <p>World Health Organization: Review of evidence on health aspects of air pollution – REVIHAAP project: final technical report  <a href="https://www.who.int/europe/publications/i/item/WHO-EURO-2013-4101-43860-61757">https://www.who.int/europe/publications/i/item/WHO-EURO-2013-4101-43860-61757</a></p> <p>Richardson EA, Pearce J, Tunstall H. Particulate air pollution and health inequalities: a Europe-wide ecological analysis. <i>International Journal of Health Geographics</i> 2013; 12: 34.</p> <p>Brunt H, Barnes J, Jones S J, Longhurst J W S, Scally G, Hayes E. Air pollution, deprivation and health: understanding the relationships to add value to local air quality management policy and practice in Wales, UK. <i>Journal of Public Health</i>, 2017, Vol. 39, pp. 485-497.</p>
<p>National Atmospheric Emissions Inventory: national air pollutant emissions and projections data.</p>	<p><a href="https://naei.beis.gov.uk/">https://naei.beis.gov.uk/</a></p>

**How could the proposal potentially further exacerbate inequality of outcome experienced as a result of socio-economic disadvantage?**

The proposals will largely be delivered through the development of secondary legislation. The evidence to underpin the proposals will take account of socio-economic and distributional factors.

Reductions in exposure to air pollution are beneficial to health, but greater reductions demand more action and will entail greater cost and/or scale of change for businesses and individuals. Targets set under the Bill will reflect the current evidence and the uncertainty in the analysis, balancing the desirability of achieving lower levels sooner, and associated health benefits, against the impacts on society and the costs and impacts of measures required to achieve them.

Many interventions require significant financial investment by individuals, small businesses, industry and government; as well as time to implement. However, based on analysis of potential pathways to achieve a notional Welsh share of UK national emission national emissions reduction targets, the overall public health benefits greatly outweigh the implementation costs. The distributional analysis identified how impacts of the potential pathways may fall on certain populations geographically. Areas with the most deprived income groups and areas with the highest proportion of children were near cities and had the highest concentrations (based on National Atmospheric Emissions Inventory<sup>12</sup> projections data for 2030).

<sup>12</sup> National Atmospheric Emissions Inventory. <https://naei.beis.gov.uk/overview/ap-overview>

Areas with the highest proportion of older people were in rural areas and had the lowest baseline concentrations. All emission reduction pathway scenarios modelled resulted in the largest improvements in areas with the most deprived income groups and highest proportion of children.

In addition to measures which contribute to Wales' share of UK emission reduction targets, we will consider policies which reduce air pollutant concentrations further in working towards any more ambitious targets set under the Bill, including for PM<sub>2.5</sub>. A do-nothing approach would result in significant public health costs which would be particularly felt by more vulnerable groups, such as young children, older people and those with pre-existing health conditions.

**How could the decision potentially improve outcomes for those who experience socio-economic disadvantage?**

Measures which support Wales's contribution to UK national emission reduction targets by 2030 will benefit vulnerable groups (see above). Measures required to go beyond this to achieve more ambitious air quality targets set under the Bill would help to reduce air pollution levels further, with expected positive and disproportionate benefits for vulnerable groups. However, at this stage it is not possible to predict the eventual impact of introducing the duty to set a target for PM<sub>2.5</sub> without knowing the design of the target that will be subsequently set, and the timescale that will be allowed. Socio-economic factors will be considered, including equity and the overall distribution of public health benefits within a cost-benefit analysis, in the detailed assessment of potential target options prior to full public consultation. These considerations will help ensure that proposed targets are equitable, achievable and affordable, whilst still driving the ambitious changes we need to the environment.

**How will you monitor the impact of this decision? (Please consider wider outcomes)**

The policy objective is for the proposals in the Bill to collectively work towards improving the quality of the air environment in Wales. They complement measures set out in our Clean Air Plan for Wales and our Noise and Soundscape Action Plan.

As we implement the Bill, we will continue to seek opportunities to contribute to our response to the climate and nature emergencies.

The Welsh Government will conduct a post implementation review of the legislation no later than five years after it has come into force. It is envisaged the review will assess the effectiveness of the policy in achieving its objectives of improving the quality of the air environment and reducing the impacts of airborne pollution on human health, nature, the environment and our economy.

Full details of the review are to be determined. However, we intend to evaluate the impact the Bill and measures taken to implement the Bill have had on the air environment in Wales through the following:

### **National Targets**

For national targets set under the target-setting framework, there are already comprehensive requirements in relation to reporting on, and review of, targets which will require the Welsh Ministers to publish progress on meeting air quality targets set under the Bill. Welsh Ministers are also required by section 6 of the Bill to publish the outcome of the required five-yearly review of the targets. There are a significant number of steps that need to be undertaken before such targets can be set.

The policy intention is to ensure targets are set in a transparent way and with full consultation. The process will be informed by a number of sources of evidence including scientific data and models, historical datasets, and assessment of what is feasible from a socio-economic perspective. It will be an iterative process and rely on input, expertise and scrutiny from others. Experts will be asked to publish their views at appropriate points during this step of the target development process, enabling scrutiny and input from experts, stakeholders, delivery partners, the public and Senedd Cymru. We will provide the Senedd and other relevant stakeholders with an annual progress update against project delivery milestones.

This combined approach will ensure all stakeholders are able to play a role in making sure we have robust targets that drive environmental outcomes.

### **Promoting Awareness**

Our promoting awareness delivery plan will include a framework for monitoring and evaluation. We will work with stakeholders to develop appropriate methods for collecting baseline evidence to enable evaluation and will report on progress through Clean Air Plan governance mechanisms.

### **National Air Quality Strategy and National Soundscapes Strategy**

The Bill requires our Clean Air Plan and our Noise and Soundscape Plan to be reviewed and revised with a full public consultation on draft changes no later than in 2028. As part of that exercise, we will gather evidence on the effectiveness of the existing Plans and seek to improve them where we can. This review and update exercise will then be repeated every five years.

### **LAQM**

Local authorities Annual Progress Reports and the Air Pollution in Wales reports are published annually and provide an opportunity for regular review and scrutiny of the effectiveness of the LAQM regime. Broader reviews of the regime will take place as part of work to develop future Clean Air Plans or strategies.

### **Clean Air Zones/Low Emission Zones**



For road charging schemes for reducing or limiting air pollution, it is intended the schemes themselves will have detailed monitoring and assessment mechanisms embedded within them. Individual schemes will set clear expectations around the improvements they would be required to deliver, along with a suitable monitoring and evaluation plan to observe progress against this which could be reported on through local authorities' LAQM Annual Progress Reports.

### **Idling**

In respect of vehicle idling, an annual survey could be instituted in relation to the regime governing the issuing of Fixed Penalty Notices to record key details, such as the number of fixed penalties issued per year; the number of fixed penalties paid; the number of cases of non-payment taken to court; the number of cases of non-payment awaiting court action; the amount collected annually; and the number of warning letters issued. We anticipate the number of Fixed Penalties issued per year will be low.

### **Smoke Control**

Smoke control approaches, actions and any data, such as complaints, number of interactions with householders, collected by a local authority should be considered as available evidence to be reported on through the LAQM Annual Progress Reports. Smoke control actions could be supported through the LAQM Support Fund. Should local authorities apply to this fund, their proposals will be subject to assessment and review and could also become part of their annual evidence submission.

### **Existing review measures that will operate alongside the Bill**

Alongside a post-implementation review of the Bill, measures to deliver air quality, as set out in the Clean Air Plan, are regularly monitored and reviewed to ensure progress.