

Environmental Audit Committee

Oral evidence: Air Pollution in England, HC 21

Wednesday 20 May 2026

Ordered by the House of Commons to be published on 20 May 2026.

[Watch the meeting](#)

Members present: Mr Toby Perkins (Chair); Julia Buckley; Jonathan Davies; Carla Denyer; Barry Gardiner; Sarah Gibson; Chris Hinchliff; Sojan Joseph; Manuela Perteghella; Martin Rhodes; Dr Roz Savage; Sammy Wilson.

Questions 127 - 153

Witnesses

I: Dr Gary Fuller, Associate Professor in Air Quality Measurement, Imperial College London; Dr Claire Holman, Director, Kalaco Group, and President, Institute of Air Quality Management; and Kieran Laxen, Vice Chair, Institute of Air Quality Management.

Written evidence from witnesses:

- [Written submission from Dr Gary Fuller \(AIR0152\)](#)
- [Written submission from The Institute of Air Quality Management \(IAQM\) \(AIR0081\)](#)

Examination of witnesses

Witnesses: Dr Gary Fuller, Dr Claire Holman and Kieran Laxen.

Q127 **Chair:** Welcome, everybody, to the second of the Environmental Audit Committee's panel events looking at the issue of air quality. I am delighted to say that we have an excellent panel with us to help us through the inquiry. I invite each panellist to introduce themselves, the organisation they represent and the particular areas of interest with which they will be able to help our investigations.

Dr Holman: My name is Claire Holman. I am the president of the Institute of Air Quality Management. I work for a small environmental consultancy called Kalaco. I have done a lot of work in the planning system, and I know that the relationship between air quality and planning is of interest.

Dr Fuller: Hello, everyone. Thank you for inviting me along. I am Gary Fuller. I am an air pollution scientist at Imperial College London. My interests are mostly in urban air pollution, how it is changing and how it affects our health. I should probably say that I am a member of DEFRA's air quality expert group, but I am not speaking on behalf of the group today. I was—with Suzanne Bartington, who is sitting behind me—one of the UK clean air champions. I think the Committee met Stephen Holgate at the last session, and he is part of our group. For a full declaration, I should also say that I write for *The Guardian* on air pollution science.

Kieran Laxen: Good afternoon. Thank you for inviting me to speak. My name is Kieran Laxen. I am also at the Kalaco consultancy, and I am vice chair of the Institute of Air Quality Management. I am also on the clean air advisory panel of the Welsh Government and the Scottish advisory panel, which is why it is nice to be here today to talk about England. A lot of my expertise is in dispersion modelling and in planning and assessment.

Q128 **Chair:** Just explain what the Institute of Air Quality Management is, Mr Laxen.

Kieran Laxen: The Institute of Air Quality Management, or IAQM, is a professional body that represents practitioners in air quality. It has over 700 members—people who carry out air quality modelling, dispersion modelling and assessment, lots of which is to do with the planning system. It produces guidance and documents for members and others to use.

Q129 **Chair:** Dr Fuller, I will start with you. We heard in our first panel event about the major pollution sources, and we talked about urban and rural air pollution. Can you talk us through what you see as the most misunderstood pollution sources? Which sources tend to be missing from the pollution inventories that we look at?

Dr Fuller: I think pollution inventories are a bit of a misnomer. If you think about inventories, you perhaps think about stock taking—how many widgets you have on the shelf, or something like that—whereas these are all models, so there are lots of uncertainties in each piece of information that goes into them. For instance, for wood burning, you may know the



HOUSE OF COMMONS

emissions per fireplace, the number of hours that they are used and the number that are in an area, and that is how you work out the total.

Having said that, there is also some tension between many of the inventories. The national inventory is done on a national level for compliance with, formerly, the EU and now the Gothenburg protocol and other things. It focuses on getting national totals, whereas when it comes to local air quality management, we really need to know what is happening where we are. Those are the tensions.

Some things have been done more recently to try to improve this. A project that we looked after in the clean air programme sought to address some of these things by putting concepts such as time in inventories, so that we can understand that there are more ammonia emissions from agriculture in spring and summer than in winter. Sadly, that one has been mothballed and has not really been taken forward.

On things that are misunderstood, we all think about transport sources a great deal, and a lot of people view air pollution through a transport lens. Things that we struggle to understand a lot will be wood burning—if I can put that in there—cooking, which is in the London inventory but not the national one, and non-exhaust emissions from road traffic, which, when it comes to PM, is now greater than we get from car exhaust pipes.

Q130 Chair: Thank you very much. We were speaking about the many things that we do not know and the need to improve our data, but I noticed in your written evidence that a number of global and international studies have looked at air quality and air pollution in great detail. Do you think that, broadly, we understand the extent to which air pollution poses a real threat to health? Although we could do with knowing more locally, are the fundamentals broadly understood now?

Dr Fuller: I am not a health expert, but I have worked on many epidemiological papers. The case is made, and it has been made for a very long time, that air pollution is harming our health. It is shortening our lives and adding to the burden of chronic diseases that we see all around us, which impose great costs on the NHS, wider society and our economy. The difficulty is in translating that evidence into action. That is where we need to do more.

Q131 Chair: Mr Laxen, is there anything you would like to add about misunderstood pollution sources?

Kieran Laxen: Not so much misunderstood, but the issues that we might encounter, as with the policy drivers, will change for net zero and the like. If we are moving to use ammonia as a fuel, for example, there will be other pollutants, and there could be ammonia slip from shipping. We know those pollutants could be an issue, but we are not necessarily focusing on them. There is such a wide range of pollutants when you dig down into the detail. As Gary said, it is accepted that there are air pollution issues, risks and health impacts, but we are not necessarily there yet with the detail of which subsection of particulate matter is causing the most issues and what we need to do. There is an overarching desire to reduce emissions—that is



the key message—but there also might be targeted areas that we need to focus on.

Q132 Chair: On that, Dr Fuller, do you think that the Government's current approach to improving air quality, which focuses on limit values, is adequate? Should there be a restructuring of what the Government monitor and target?

Dr Fuller: The whole structure around limit values stems from a time in the 1990s when we thought there was a safe or zero-effect threshold for air pollution. That is the science of the 20th century. In the 21st century, we have learned that that is not the case. We are in a position whereby the focus on limit values is maybe even leading to perverse outcomes. It is causing local authorities to focus on, say, the busy road junction that they may have in the centre of town, rather than suburban areas where mainly elderly people or young people may be exposed to pollutants from wood burning or traffic. It is giving us the wrong priorities.

We also have to think about transparency and accountability, and limit values are very clear to people and they drive action. The alternative would be to think about tightening them. I live on the south coast. Just 60-odd miles away from me across the channel, people have far greater protections against air pollution than we enjoy in the UK.

I will pull out one more thing on limit values. I do not know whether you have seen the work in Canada, where they have a couple of different mantras. It is not just the attainment of a limit value; continuous improvement is part of their policy and philosophy, as is keeping clean areas clean. There is a lot we could do in shaping things that are complementary to limit values.

Kieran Laxen: I echo what Gary says, but one of the issues is the communication of what limit values are. At the moment, DEFRA's website says that limit values are there to protect health, including the health of vulnerable groups. That definition, as we all accept and know, is not based on health evidence at all. The communication of what they represent is misinformative and does not help the wider agenda of trying to protect health.

Dr Fuller: I think we are in quite a perilous position in terms of UK air quality management and our capability to act. From the 1970s, we thought we had it all worked out. The smog of the 1950s was over, and we dismantled a lot of our capacity to be able to act. We are in a similar position today. We are retaining limit values. Local authorities are revoking their air quality management areas and, to some extent, removing their measurement programmes. Having these things in place, and having certain things triggered within planning that are close to limit values, means a whole ecosystem of agencies are working together. Once we begin to dismantle that by revoking air quality management areas and just slipping half a microgram below a limit value, we run the risk of losing a lot of capacity to act.

Q133 **Chair:** Dr Holman, do you want to come in on that point?

Dr Holman: In terms of planning, the national planning policy framework explicitly talks about compliance with air quality standards, limit values and the objectives. My experience of working in the planning system is that you are cross-examined by a barrister, and they will always point to that paragraph. Even though there are references to protecting health throughout the NPPF, that one paragraph, which explicitly talks about compliance, dominates the whole air quality debate in the planning system. While that remains, air quality will probably never be taken seriously, especially now that the limit values and objectives are met so widely.

We have relatively few exceedances compared with what we had. Gary was just talking about the number of air quality management areas that are being revoked. In my daily work, we work with local authorities, and many of them are thinking about revoking and going through the process. We might have reduced them from the maximum number there was, but that is going to carry on. As Gary said, as a consequence of that, we are gradually losing expertise within local authorities.

Many local authorities do not regard air quality as a problem any more. In the 1990s, more or less every local authority across the country had an air quality officer. Now you have combined officers. You might have a contaminated land officer who also has the air quality portfolio. They are both extremely technical areas. One person really cannot get into the depths of both those issues.

Chair: We are going to explore the issue of local government with the second panel, but thank you very much for that.

Q134 **Sammy Wilson:** If you move away from limit values to a wider definition—you have mentioned health, for example—would you not finish up with different requirements for different areas? For example, a lot of elderly people or a lot of children might live in an area, or maybe there is a school that later disappears because it moves somewhere else. Do you not then get less clarity on what the limits or measurements should be? How do local authorities cope with that kind of situation?

Dr Holman: In a way, we are already moving in that direction. Some local authorities have their own targets, particularly targets that are lower than 40 micrograms per cubic metre for nitrogen dioxide. We are already going into that arena of having different standards. I personally think there needs to be a national standard that is much more representative of the health impacts. The 40 micrograms per cubic metre limit for nitrogen dioxide is based on health evidence from the 1990s. There has been a huge amount of research into it over the last 30 years. The WHO air quality guidelines published in 2021 have an annual mean of 10 micrograms per cubic metre. That is a quarter of our standard.

I believe we need a new standard, whether it is a limit value or an objective. That is another thing that complicates the whole issue. We have a dual system—two different systems—of air quality management in the



HOUSE OF COMMONS

UK. One originates in air quality legislation from 1995 and the other comes from European legislation. That confuses everything. We have objectives that are target values for local authorities, and then we have limit values, which are mandatory. Since we left the EU, that has all become more merged and confusing. Sometimes even some of the documents that DEFRA produces seem not quite to understand the difference and the origins of those two parallel systems. Whether we call it a standard, an objective or a limit value, I believe we need to have an appropriately set level for it. We do not have that at the moment.

Chair: Let's carry on. I think we will be asking questions that come to many of these issues.

Q135 **Sarah Gibson:** Dr Fuller, sticking with what Dr Holman has been talking about—the concern about focusing on limit values and different measuring tools—how should the UK's monitoring networks evolve to fully capture the totality of England's air pollution and include emerging pollutants such as ultrafine particles? You talked about there being less pollution from exhaust pipes than from other elements of vehicles.

Dr Fuller: That is a really good question, and one that we should be asking at this time. We need to move beyond compliance measurement. Most of the measurement networks we have are designed to tell us whether we meet something—just yes or no—but not why or what the underlying causes are. There are different models of being able to do that if you move to a next generation of air pollution measurement sites. We have some examples in the UK of so-called super sites where you measure multiple pollutants.

When it comes to particle pollution, we are looking at things like chemical composition. That way, we can see what sources are affecting an area, how they are changing, and how they are changing in response to policy. We can also collect data that is useful for future health studies. That would be my first point: an evolution towards measurements that explain what is going on rather than just ticking yes or no. We already have some examples of those in the UK. I can talk more about them if you wish.

We also have sensor networks that are becoming well established. To be honest, I was quite cynical about the accuracy of instrumentation when they first appeared. However, having worked with communities that are using them, I know that the main thing they do is to give them voice. It means they can say, with some degree of objectivity, "Air pollution in my area is bad", and they can then take matters to the Environment Agency or their local council. It gives them voice and agency.

Lastly, we need to be evolving into the indoor arena. Most of our air pollution exposure occurs indoors, but in the UK we have no systematic way of assessing indoor exposure. Kieran's point was that, looking forward over the next couple of decades, we will be making huge changes in how we heat, insulate and ventilate our buildings, yet we have no systematic programme that can say where we are at now and what is changing.



HOUSE OF COMMONS

Kieran Laxen: An area that Gary has not covered is personal exposure monitoring. We could have a campaign on how individuals journey through life—through their day—and how they truly get exposed, and a system that can represent different groups of people depending on where their exposure is and whether or not they commute to the office, for example. Most of this is dealing with static locations and concentrations in locations, but that true exposure is such an important thing to be able to understand in order to change behaviour—for people to reduce and manage their exposure as they travel around—and improve health. There can be academic studies, but if there were a more complete picture, with a monitoring programme, a lot more information could be fed back to help inform decisions.

Q136 **Sarah Gibson:** That is interesting. I was going to ask what sort of improvements in measurement would most benefit research, so that we can have policy development. From what you are saying, if we are only monitoring the places and not the people, we will not know. We have already heard from previous witnesses that there are people whose long-term, life cycle approach has been detrimental to them. Dr Holman, would you like to comment?

Dr Holman: Sorry, what was the question?

Sarah Gibson: What improvements in measurement would most benefit the research?

Dr Holman: Exposure is a really interesting one. If you think about the way that we look at air quality management and air pollution management, we start by looking at the sources—the emission inventory—and then we do some modelling and some monitoring. But it is the last bit of that chain—the exposure—that is important, and that is the area that we know least about.

Some of Gary's colleagues did a really interesting piece of work many years ago—I think it was sponsored by Dyson—whereby they had kids measuring it with their backpacks. The assumption was that because they often travelled along a busy road to go to school, that would be the main source of their exposure, but the main source of exposure was actually in their homes.

This whole thing about indoor air quality is something to consider. We spend—I don't know—80% to 90% of our time indoors, and it is still very much a black box. There are studies going on—Gary's colleagues are doing some great work—but we are still at quite an early stage of getting to grips with the indoor environment, and it is very difficult policy-wise, because the Government does not feel like the public want people to interfere with their personal space. We do have building regulations, but they are weak in terms of air quality within new build buildings. That is an area that you might look at—part F on ventilation.

Q137 **Sarah Gibson:** That is an interesting point. We have been quite happy to have smoke alarms in our houses, and most businesses have carbon



HOUSE OF COMMONS

monoxide monitors, but in my office we had a carbon dioxide monitor. That was really interesting, because by the afternoon we were well over the limit, which explained why we were all exhausted and tired.

Dr Holman: Sleepy, yes.

Sarah Gibson: I think there is a lot to be said for that, so thank you very much.

Q138 **Carla Denyer:** The answers so far have been really interesting; thank you. I agree with the points on indoor air quality. Unfortunately, that is not part of this inquiry, but I hope we can look into it separately soon.

I have a set of questions that are all about measurement versus modelling, although I know it is not as straightforward as "versus". First, Mr Laxen and Dr Holman, you talked about exposure measurement. Do you literally mean people walking around with a little sensor on them, like the ones that people who work with radiation have to wear?

Kieran Laxen: That is one route to do it, yes. Then, as Dr Holman explained, there are academic studies, which follow people around. There are also models that have been developed to consider exposure during different phases of people's journey in a day, whether they are travelling or at home. One example is the DIMEX model, which came out of Manchester University and looked at where you get exposed. That was an interesting one: there was not always a correlation between where the highest pollution was and someone's greatest exposure during a day, because of where they travelled. That was individual exposure monitoring, in order to understand that, but there are other exposure journeys, including through modelling.

Q139 **Carla Denyer:** You have led me perfectly into my next question, which is about that. Fortunately, I have a background that helps me to understand this. When I worked in renewable energy, I was working with both wind measurements and models, so I know from first-hand experience that, surprisingly, models sometimes can be better than direct on-site measurements at predicting long-term wind resource at a potential wind farm site, for example.

I totally understand that sometimes modelling is the better way forward, but I also understand that there are several different models out there. What are the advantages and disadvantages of the current UK models? Are there particular areas where they are not capturing things and we need to see improvements in modelling?

Kieran Laxen: Do you ask in the context of national modelling or local-scale modelling?

Carla Denyer: National.

Kieran Laxen: We are in slight flux and change at the moment. Historically, limit value compliance modelling has been carried out by one organisation. That is changing as we speak, and the modelling approach is changing as part of that. The historical version was developed over many



HOUSE OF COMMONS

years, and it was effectively based on some spreadsheets that built up an understanding of how dispersion occurs from roadside pollution.

A step change is about to happen towards chemical transport models, which model much more of the evolution of pollution, at what I understand is a better spatial scale. It is in process right now, so a change is about to happen. But you almost need to go back to understand that national scale modelling is not well designed to look at the fine detail around, for example, a road junction, hence why compliance reporting with limit values simply avoids looking and reporting within a certain distance of a junction. Even though we know that is where the highest pollution might be, national scale models exclude those areas. When you go down to smaller-scale models, you can start to look at those, but there is currently a disconnect between those two models and the different domain sizes.

There are already advances in looking at using machine learning to link those two together really well. Nvidia is developing a project to look at downscaling from large, national modelling to very local modelling by training up datasets. There are opportunities there in the future, but at the moment we have different models for different purposes.

We actually have pretty advanced modelling capabilities in England to do stuff—we have a good understanding of it—but like in any model there are assumptions and simplifications, so there is a limit on how many scenarios you can test. You need a clear purpose for what you are trying to achieve out of the modelling and what you are trying to test.

Q140 Carla Denyer: I will drill down on that, but first I want to see whether Dr Holman and Dr Fuller agree with that analysis of where the weaknesses are, and whether there is anything they want to add.

Dr Fuller: I think models are brilliant, and they have come forward hugely in the 30-odd years that I have been doing this. National modelling was done on spreadsheets. We now deterministically understand a lot of the mechanisms. Still, we are going to need a lot of good measurements and the right type of measurements—that goes to your earlier question—to feed into them. It is Rumsfeld's known unknowns.

The example I would give is dieselgate. If you sat in the measurement room at our place around that time, when we were at King's, all the graphs on the wall were going upwards; if you went next door into the emissions inventory and modelling room, all their graphs were going downwards. We have to make sure that, yes, we use models, which have huge advantages and capabilities, but also that our measurement systems are designed to be able not just to validate them, but to feed into them.

Q141 Carla Denyer: Zooming out, are there lessons that we can learn from outside the UK? Are there best-practice examples in terms of modelling that other countries are doing better than us?

Dr Holman: That is an interesting question.

Carla Denyer: It is usually worth asking, because often the answer is yes.



Dr Holman: Things are done differently in different countries. The US has much more of a mandatory model. The US EPA develops its own models, and it puts into the federal register which models can be used, so it is very much a top-down approach. In the UK, we have a very laissez-faire approach—a “you can use any model you like, so long as you can show that it works” sort of attitude. In Germany, they are closer to the US approach; they are much more, “This is the model and you’ve got to use it.”

The problem with that sort of top-down approach is that it is inflexible. Models are evolving all the time and new things come on stream, so I think having a more laissez-faire attitude is probably the right approach. That is looking at local modelling rather than national. The national-scale modelling obviously is done depending on who DEFRA’s contractor is, but at the local level, I prefer that we should be able to use the models that we think are suitable for any particular purpose that we are trying to apply them to.

In the mountainous Alpine countries, they have special models to take into account the topography. There are circumstances in the UK where we might want to use those models and we do not, and we get completely the wrong answers in our models because we assume it is much flatter. Particularly where you have valleys, you get radiation inversion, so you do not get the mixing of the air and you get much higher concentrations at ground level. There have been a few cases where that has been a problem.

Q142 **Carla Denyer:** So you are saying that, if anything, it should be more laissez-faire here so that we can use models developed in other countries where they are applicable to the geography. Kieran, would you agree?

Kieran Laxen: I would. Claire has added the caveat that I was going to give: there are situations where complex terrain presents challenges. A modelling suite that we do not use very much in the UK for air quality is computational fluid dynamics at a very small scale. That is used for thermal wind comfort studies in street canyons and how wind moves around. We very rarely look at using it with planning designs of urban areas. It is definitely done—I am not saying it is not—but more so in the academic world. For development and planning-type scenarios, we don’t ever really use it, even though it is clearly the best tool for looking at how pollution and air move around those complex areas. If you go to Australia or the US, it is used more for those types of design scenarios.

Q143 **Carla Denyer:** Finally, I want to ask you about uncertainty. In my experience, outside of people in the engineering and science professions, quantifying uncertainty is not terribly well understood, including in local government. How is uncertainty currently quantified in the modelling, and do you feel that that is sufficiently clearly communicated to the people who are then using the results, whether they are planners, local authority employees or, indeed, politicians?

Dr Holman: If you give a planner a number, then that is the number.

Carla Denyer: Yes, that is my experience too.

Dr Holman: But Kieran is more of a modeller than I am, so he should probably answer it. There are guidelines in the local air quality management technical guidance about the sort of statistics you should use.

Kieran Laxen: As we have already established, there is uncertainty in modelling. There is uncertainty in monitoring as well. As Gary said earlier, the best modelling studies are grounded in the truth of the monitoring, so they understand that. There is good practice in doing a model performance study based on monitoring; that is accepted practice. Obviously, that allows us to understand the now, not the future.

As Claire mentioned, there is technical guidance for local authority air quality management on what is acceptable model performance when considering road emissions. There are fewer standards and less performance evaluation for other types of emission sources. If you have a plume coming out of a stack, the uncertainty in that is dealt with by doing sensitivity tests—scenario testing of different meteorological years—or assuming that there is or is not terrain, but there is only a finite number of runs you can practically do within a model. The issue is actually all the communication—understanding which is right. Is it worth adding error bars? Potentially not; it depends on the message you are trying to get across.

As I think Claire said at the start, the expertise to understand what modelling results really show is being lost by decision makers, or the people informing decision makers. Without the ability to scrutinise modelling and understand what it is truly saying—it sounds like you are familiar with that yourself—it is not possible to trust the exact number, but it is also not possible to question the number, so you have to trust it almost blindly. The loss of expertise that is sort of happening is a high risk.

This is going over old ground, but that links back to the fact that air quality, as measured by roadside NO₂, is treated almost as solved, so air quality management areas are disappearing. There was a stage when local authorities would do detailed modelling assessments for hotspot areas. They would then have a really good understanding of the requirements. There is modelling guidance set out in the technical guidance for local air quality management. That skillset is largely lost from local authorities now. That is the risk. We can give a number, but without the skillset to actually interpret the number, it is really challenging. It is possible to provide all the information and provide the uncertainty, but even the uncertainty range is meaningless unless someone understands what those extremes mean, what is unrealistic and what is realistic. You can run a model to show you anything you want—that is the problem.

Q144 **Carla Denyer:** In summary, the loss of air quality experts in local authorities is a big part of the problem in terms of informing decision makers about the uncertainty, so they do not just say, “Oh, well, that



number is 0.01 below the limit, so we're fine," when the error bar is 0.5 or something.

Kieran Laxen: Exactly. I am sure we will come on to it in a bit, and it is possibly a discussion for later sessions, but there is a potential risk, with the reforms to the NPPF, of losing the requirement to consult the existing expertise—EHOs—within local authorities. They are being removed from the decision making. Those authorities that have retained knowledge are going to get isolated and removed, so there is a real risk of disconnecting those even further.

Carla Denyer: And not listening to experts.

Q145 **Chris Hinchliff:** Following on from that discussion, my questions relate to the planning system and whether it is fit for purpose in terms of improving air quality. Dr Holman, when we had Professor Sir Stephen Holgate in front of us in a previous session, I asked whether the majority of development in this country is being planned sustainably from the perspective of health and air quality. He replied variously that, "It is a ragtag and a mess," that, "It is...shameful," and that "it is a shambles and it is not working." Do you agree with that assessment and, in particular, do you think that cumulative impacts are being properly considered?

Dr Holman: Okay, that is quite a big question, but I think I have probably already answered it to a certain extent. Because we just have this annual mean NO₂ limit of 40 micrograms per cubic metre, we can say, "We're meeting it," and tick the box—"Fine, don't care." Actually, the planning system is about determining, when someone has a piece of land that they want to develop, whether what they propose for that piece of land is a suitable use for it. In the planning system we should be asking much more, "What's the air quality here, and what is it being used for?" Is it being used for a school, a children's nursery, a care home or a hospital? All of those are for members of the population who are more sensitive to the effects of air pollution. In the way we deal with it at the moment, we assume that everybody is the same. I think there should be greater granularity in how we deal with planning depending on the use of the land.

One of the assumptions is that if a piece of land is being used for an industrial activity, people there will be healthier—they are in the workplace and they are less sensitive—but you might be very careful about where you put a children's nursery, because children's lungs are developing and you do not want them to be exposed to things. Does that answer your question?

Chris Hinchliff: That is a good starting point.

Dr Holman: The next thing was about cumulative impact—

Kieran Laxen: Is it okay to add something before we go on to the cumulative impact? Claire almost touched on this: the planning balance is about balancing trade-offs. We have to allow development; that is the right thing to do. If you are balancing scales, you have to consider the air quality health effect—obviously there are other ecological effects, but this



HOUSE OF COMMONS

is about health. To truly do that, comparing it to a limit value or an air quality objective is the wrong assessment scenario; it is about the health effects. A scheme needs to be compliant with the objectives or the limit values, and you need to make sure that it does not inhibit the ability to achieve those, but that is one part of the assessment.

The actual health bit—the air quality health assessment—looks at the people using it: how people will access the site and how they will get there. If it is a school, do they have to walk along a really busy road to get there, or can they walk along less exposed routes? You need to truly think about design, but that is not considered at all in the planning system, because the simple test is: is it above or below a certain number? When it is below that number, it is very hard for local authorities to push back and ask developers to do better, even though we know they can. We need to separate these considerations.

As I said, IAQM is a professional body, and its guidance has historically been used quite effectively within the planning system. That is now being rewritten to try to truly address this issue. There is compliance, but understanding the health effects is also important. I am not saying that the WHO guideline levels are the right levels; I am saying that we have to base it on the health evidence and do two separate considerations.

We are not obstructing the ability to comply with the objectives or limit values of a scheme, but at the same time, has it been designed in the best possible way to reduce emissions? Has it been designed to reduce exposure? Has it been designed to make sure that when people are trying to get to a site or leave a site to go to work, their journey through the day has been optimised? Currently, the planning system does not consider that in any way, shape or form. The ability to consider good design and whether design is good for air quality will deliver the greatest benefit to the planning system.

Q146 Chris Hinchliff: We will come back to cumulative impacts, but I have a couple of further questions, so can we keep it brief?

Dr Holman: We consider cumulative impacts when we do an air quality assessment, but we are very much in the hands of the transport consultants. Transport consultants look to the future, knowing that traffic will grow. They look at the future baseline with the development, which includes traffic growth, and they put the impact of the development on top of that. For air quality, we just take those traffic numbers that are given to us, so we are not really looking at the cumulative impacts of the different developments; we are just looking at what is projected to happen in the future, plus a bit more from the development that we are looking at. That is to put it in very simple terms. If it is an environmental impact assessment, the local authority might say, "Here's a list of developments and the transport guys might explicitly consider them," but in my opinion, we do not deal with it well.

Q147 Chris Hinchliff: Mr Laxen, I come back to you on a point related to what you said before about balance. Over the last 20 years or more, we have



HOUSE OF COMMONS

had more deregulation of our planning system with an aim to permit more development. What we know about air quality is that there are severe health impacts, and it relates very closely to deep structural inequality in our society. Do we need to have a firmer red line in our planning system, where we say that beyond that point, it is no longer a question of balance; the risk of harm is too high to permit in the circumstances?

Kieran Laxen: Most of the thresholds we talk about are about long-term exposure. If there is any scenario where there is acute short-term exposure that will cause harm, that should be a hard red line. It is really hard to give a firm answer, because there are clear health impacts, but there are also health benefits to certain schemes. That trade-off is important. It is normally considered at the first stage of looking at a development; the second stage is about what the development can do to mitigate the exposure.

There is a hard line in terms of not wanting to expose people unnecessarily where there is better design. For me, if you can do better and you are not, that is the key issue. At national level we should be driving emissions down. If every scheme is minimising their emissions and exposure, we are delivering overall. That design is the key thing. I do have another point on cumulative impacts, but I will let Gary jump in first.

Dr Fuller: To crystallise that point, I presume you have come across Vision Zero, which we hear a lot about in road transport. We should not be building road junctions where 10 or 12 people will die over a five-year period; we should be looking for every opportunity to get towards zero. Bringing that philosophy into air pollution, more or less in the way you are saying, could be a good framing for a way forward.

Kieran Laxen: Can I come back in?

Chris Hinchliff: Briefly, on the cumulative impact.

Kieran Laxen: In Northern Ireland they have recently rolled out APAS—the Air Pollution Assessment Service—which is an online Government service. That is becoming a register of the permits and planning applications that have gone in. Through that centralised register, you can start to take account of cumulative development. It will be the first time there is a centralised register for Northern Ireland. With an equivalent for England—a centralised register of all the planning applications and permits that was easily accessible—you could start to account for it. The flipside of that is that you never know what is truly built versus what has been put in for planning and how it evolves after it has been submitted.

Q148 **Chris Hinchliff:** That is a possible recommendation for England for this Committee to consider.

Dr Holman, you mentioned the national planning policy framework and the paragraph that refers to compliance with limit values. We have already discussed that. How would you recommend amending it? What is the detailed change that needs to be made to the NPPF to get us to a better place on air pollution?



HOUSE OF COMMONS

Dr Holman: I thought you were going to ask me what the paragraph number was. It is important that compliance with any limit values we might have in the future is still in there, but it is about explicitly considering exposure and the health impacts. It needs to be a dual thing: compliance, tick; exposure, tick.

Q149 **Chair:** Is there a danger that we look at new planning applications and consider the exposure that someone living there will have, but do not consider where they are now? The houses have not created the people; the people are already here. Those people might be living in over-intensive urban environments. There might be an air quality conclusion for wherever they move to, but it might be a hell of a lot better than where they were before.

Are we actually weighing up what we are creating in comparison with how those people are living now, or are we just thinking, "Well, this new place we moved to might be imperfect so let's stop it"?

Dr Holman: You do not know who is going to live in a new development, so you cannot do that. You want to make things better in the future. Housing stock is there for 80 to 100 years, or however long, and you have to make sure that it is going to be good. We know there is no threshold below which there is no health effect for these communities.

Q150 **Chair:** By the same token, we are saying that there is a deprivation index here. The more deprived you are, the more urban you are, and the more intensive and packed together you are in a property, the greater your exposure. Then we are saying, "Well, we can't really measure that, so let's just try and make sure we build it better in future." I am obviously not against building it better in the future, but that is the other part of this whole equation. We might be stopping these houses being built because it is less than perfect and actually leaving people in much worse environments as a result.

Kieran Laxen: There are obvious easy wins. We talk about log burners being in houses, and we are permitting them to be installed in existing properties. Yes, they might be certified, but we know they are a source of pollution in the existing household stock—nothing to do with the planning system—and yet we are still permitting them.

There are definitely things that can be done to improve existing housing stock as well. I take your point that people might be moving from old housing stock in areas of potential high pollution to new houses, and that might be a step improvement, but we need to focus on improving the existing housing stock as well. Gas combustion in residential properties—in fact, any combustion, whether it is from log burners, cooking or central heating—needs to go. Obviously, there are massive challenges.

I want to come back to the planning thing. Two important things have not been mentioned. We are talking about development control and the specifics of individual developments, but strategic planning is not considering air quality in any way, shape or form. Well, that is unfair—it does not consider it anywhere near as much as it should. When we are



HOUSE OF COMMONS

allocating land at strategic planning level for certain development types or certain land use, air quality is not considered in any specific detail. We can have an allocation of land for residential, mixed use or commercial, but we do not ask, "Is this the best location for that in regard to air quality?" Those studies are sometimes done—we have done them for local authorities—but they are done very rarely.

The important point is that, when the planning system does look into the detail, inequalities are missed out. Let's say we have a patch of land allocated for residential. We do not say, "Are those who are more vulnerable exposed to the locations nearest to the road? Is there a disparity between people's susceptibility to poor air quality and where they are physically put on the site?" That is not tested in the planning system at all at the moment. The inequality of exposure is not tested. I think that should feature in an NPPF test. How is inequality being considered in the health context?

Q151 Dr Savage: I will direct my question to Dr Holman first, but I invite the other two panellists to weigh in afterwards if they would like to. At the moment, there is a bit of a mismatch between responsibility and the power to actually do anything about it. Local authorities have the responsibility for measuring air quality and coming up with action plans if there are exceedances that need to be reduced or mitigated, but a lot of the factors that contribute to air pollution are outside the control of the local authority—national transport policy, planning rules, vehicle standards, infrastructure and things like that. Is there a fairer way to allocate the legal responsibility for air quality exceedances between developers, local authorities and central Government?

Dr Holman: When they set up local air quality management, they had objectives, which were policy targets, in recognition of the fact you set out that so much of what affects air quality is determined at national and, to a certain extent, international level. We now have limit values. When we were part of the EU, the competent authority for the whole of the United Kingdom was DEFRA. They had to report annually to the European Commission.

We are not in the EU now. I am a bit confused about exactly what position we are in. I know that DEFRA devolved responsibility for achieving the air quality limit values to London. I know that where the limit values are exceeded now, the local authorities are responsible for coming up with an action plan and whether or not to adopt a clean air zone, but I do not know exactly where the responsibility lies any more. You guys might be able to find that out. There is confusion because the legislation has remained on our statute book because we introduced it through the Air Quality Standards Regulations 2010.

That does not actually answer your question, which is on where the responsibility should be. I think central Government need to take more responsibility than they have at the moment. Having said that, I was the technical expert for ClientEarth when they sued the Government over the

air quality plans in 2015 and 2017. At that time, the Government did not take it very seriously, but then they were forced to.

Outside London, seven local authorities in England have clean air zones, and they were basically forced to because of the ClientEarth action. They were funded by central Government, which have funded all the studies that have been done. Personally, I think that an awful lot of money has been wasted on it and the whole process has been incredibly bureaucratic. This is probably not where you were going with this, but I am going somewhere different—I am sorry.

Dr Savage: It is very interesting, so please keep going.

Dr Holman: The clean air zones in the seven local authorities were not started until between 2021 and 2023. I remind you that the limit values were meant to be achieved in 2010. Not only does this go back to the 2008 directive, but the same limit value was in a 1999 directive. That shows a long, long history—decades—of Governments of both persuasions not taking air pollution seriously. In more recent years, it has been a case of, “Push it down to the local authorities. We don’t want this problem,” which has not solved anything. As I said, it has wasted a lot of public money, which as a taxpayer I do not like to see, but has it really achieved that much? It has achieved a bit, but maybe not value for money—I do not know.

Q152 **Dr Savage:** That is a very revealing answer, thank you. Mr Laxen?

Kieran Laxen: I will try to answer your actual question. We are talking about limit values as if there is only one, but it is pollutant-specific, which we have missed in this conversation. If we are talking about roadside NO₂ concentrations, that is a local problem. The emission source dominating that is road transport, and local measurements and local authorities have the true understanding of what is going on. It is very hard to pick up that detail from national modelling.

In my experience of working on modelling for clean air zones, having the detail of how the road is set up and what is going on, and having those conversations at local authority level, can make the biggest improvements. There has to be responsibility at the local authority level to solve problems where there are localised emissions sources. Overall delivery is a central Government responsibility, as that delivery can come through emissions standards or other policy drivers, which we have talked about, but local knowledge is an essential part of what is going on.

If we are talking about a different pollutant, such as PM_{2.5}, which we have not really spoken about, the monitoring shows that the annual mean concentration target for 2040 is breached in only one measurement location in the UK: in London. That is because it is much harder to deliver on, because the pollutant is not exclusively caused by local pollution—it is driven by regional pollution as well. There is a lot more to consider, so it has to be taken from a national perspective. My point is that it is pollutant-dependent. It is whether you engage with the local authorities



HOUSE OF COMMONS

that have the local knowledge to get their feedback and buy-in to support things, or whether it can be best delivered at the national level.

Dr Fuller: To say a word in defence of the low emission zones that have been rolled out over the UK, in response to Claire's point, the one in London, which, okay, is done through a different process, has been astonishingly effective in reducing NO₂ concentrations. Even before lockdown, NO₂ in central London had been reduced by nearly 40%. We have health studies from the Bradford one, which is the second largest in the UK outside London, finding reductions in GP visits for both cardiovascular and respiratory problems in the order of 25%. That is an astonishing result, not only for hard-working GPs and their workload, but for the individuals involved, in how much it has lessened harms and improved their everyday lives. I would not like to write off the low emission zones.

Dr Holman: I wouldn't either, Gary.

Dr Fuller: Oh, okay. Sorry—this shouldn't be a debate between us!

Dr Holman: I am not anti-low emission zones. It is just that they took so long to be introduced. They would have been a lot more effective if they had been introduced sooner. I was just trying to illustrate that Governments have taken an awfully long time to actually do anything.

Dr Savage: I see that Mr Laxen wants to come in again.

Chair: We need to move on shortly.

Kieran Laxen: It is a subsidiary point, so I will wait to see what other questions come up.

Q153 **Sojan Joseph:** My question follows on from the previous one, and you have already touched on it somewhat. We have received several submissions of written evidence from various local authorities, and almost all of them stated that they feel that local authorities do not have the resources or power, including money and clear direction from central Government, to control air pollution. Where is the biggest gap or inconsistency in current air quality assessment guidance, and how can that be improved?

Dr Holman: The guidance is old. The first guidance was originally written in 1997, and fundamentally it has not changed; it has been tweaked. I think it needs to start again. Is that a radical thought?

Dr Fuller: I will chip in with one point. What would it look like if we moved this away from compliance and a tick-box approach of, "Did we achieve 40 micrograms per cubic metre?", and handed this over to public health people, going back to Sammy's point, to see how we can get maximum gain from the investment we make in reducing air pollution? That might bring us to a focus on vulnerable communities, or we might want to invest a lot more around schools, for instance, but we do not have that in our policy portfolio at the moment.



HOUSE OF COMMONS

I will set up Suzanne behind me, who is a public health person. Later, she might be able to say something about how viewing air quality management through a public health lens could be different, asking how we achieve the greatest impact rather than just ticking a box of 40 micrograms.

Kieran Laxen: I want to think about local air quality management and local authorities' perspective. At the moment, there is a real risk in that we are losing low emission zones and clean air zones; we are also losing air quality management areas, which are different. As we lose air quality management areas because of compliance with the 40 microgram threshold, we are losing air quality action plans. Local authorities have to develop those action plans, but they do not have to have them once an air quality management area is gone, and they are being revoked, as Gary said; at least 50% of them have already gone.

The requirement is then on local authorities to develop an air quality strategy, but there is no guidance on what should be included in that. There is no steer from central Government or DEFRA on what should be focused on. There are very specific prescribed requirements for developing an air quality action plan and it has to deliver meaningful results, but there is nothing for air quality strategies.

There is also a scenario where local authorities generate annual status reports to report their monitoring. They are meant to submit them by a certain month of the year, and DEFRA is meant to respond by a certain month, but we are still waiting on DEFRA to review those that are overdue and come back. As long as the reviewing of those documents by central Government takes such a long time and is not being done to their own timescales, everyone starts to lose interest in the purpose of them and whether they are delivering anything. No one is marking their homework on time, and then you lose the story, the information and the communication from those annual status reports on the monitoring. They are meant to be timely so you can use that data throughout the rest of the year to help with communicating air quality stories, but that does not happen, because you do not get it until near the end of the year.

There is a role for central Government to play in giving information back and responding quickly to these things for local authorities, and there is a role for local authorities in being able to do more once they are removing their air quality action plans. But it would be helpful to be steered by central Government or DEFRA on what the content of the air quality strategy should be, because we are losing that specific requirement and targeted focus is going. Air quality strategies are now just, "Let's do some improvements and minimise emissions where we can," and they are much more high-level, which is not necessarily a bad thing, but some targeted guidance would be super useful from DEFRA.

Dr Fuller: Can I dip in with a quick fact? Out of 910 air quality management areas that had been declared, according to what I looked up two days ago, 449 have since been revoked. None of those locations will



HOUSE OF COMMONS

be meeting WHO guidelines for air pollution, and I think very few of them will be meeting the EU ones.

Chair: Dr Holman, Dr Fuller and Mr Laxen, thank you very much indeed for what has been an excellent and informative session. We will bring this first panel to a close.