Environment and Climate Change Committee

Uncorrected oral evidence: Methane

Wednesday 24 April 2024

10.50 am

Watch the meeting

Members present: Baroness Sheehan (The Chair); Baroness Bakewell; Baroness Bray of Coln; Lord Duncan of Springbank; Lord Frost; Lord Giddens; Lord Grantchester; The Earl of Leicester; Lord Ravensdale; The Earl Russell; Lord Trees; Duke of Wellington; Baroness Whitaker.

Evidence Session No. 6 Heard in Public Questions 99 - 112

Witnesses

I: Kevin Austin, Deputy Director for Fisheries and Nature (and currently covering Deputy Director for Agriculture role), Environment Agency; Steve Molyneux, Deputy Director for Waste & Resources Regulation, Environment Agency.

Examination of witnesses

Kevin Austin and Steve Molyneux.

Q99 **The Chair:** Good morning and welcome to our second panel. This time we have representatives from the Environment Agency joining us. I thank you both for making time to be with us. The session will be webcast live and will subsequently be made available to view via parliamentlive.tv and the parliamentary website. A transcript will be taken and made public. Witnesses will have the chance to review it and may make necessary amendments with the agreement of the committee clerk. I remind Members should declare any relevant interests the first time they speak. Can the panel please introduce themselves?

Kevin Austin: I am a deputy director in the Environment Agency and have had oversight of our regulation of agriculture for the last seven years.

Steve Molyneux: I am the deputy director for waste regulation and resources in the environment and business directive in the Environment Agency. I have been in post for around two years but have been with the organisation since 1996, so a considerable time.

The Chair: I refer to my interests as on the parliamentary website. I am also a director of Peers for the Planet, which is an unpaid position.

Which UK regulators are responsible for regulating methane emissions from the agriculture, waste management and energy sectors? Can you also outline in which specific areas you are responsible for regulating methane emissions and which areas are outside your remit?

Kevin Austin: I will clear up the agriculture side of this first and then hand over to Steve to cover the rest.

On agriculture, we do not have a specific remit around methane. We have regulatory duties around water, the nitrate-vulnerable zones, silage, slurry and fuel oil regulations, and around the farming rules for water. Also, through the environmental permitting regulations, we have an intensive farming regime for pig and poultry, which is primarily around regulating ammonia emissions, but we do not have specific regulatory duties in agriculture related to methane.

The Chair: You do have them for methane as an air pollutant, is that right?

Steve Molyneux: The Environment Agency is the principal environmental regulator for England. We have sister organisations in Scotland, Wales and Northern Ireland in terms of respective regulators. Under what is set out in the environmental permitting regulations, we regulate certain sectors that involve fugitive emissions of methane. Principally, those will be around the landfill sector, which is the biggest contributor to the waste contribution of methane, and the anaerobic

digestion sector around waste. We do not currently regulate the anaerobic digestion of non-waste materials.

We then have a regulatory role, in parts, in terms of onshore oil and gas regulation. That tends to be around the reuse and recovery of waste gases in onshore oil developments, where compressors are worked in the onshore network. We do not have a role offshore.

We have a limited role on methane in terms of where there are requirements to regulate sectors under the environmental permitting regulations. Methane does not have an air quality standard, so it is generally around fugitive emissions that we regulate, through permitting requirements.

Q100 **Baroness Whitaker:** You are clearly not the only regulator. There is quite a plethora of regulators, as of course different sectors require different expertise, but there is a government policy, a national policy, for methane reduction. All this requires co-ordination. What is the co-ordination?

Kevin Austin: We are used to reporting to multiple government departments across all the sectors that we regulate—

Baroness Whitaker: You report to separate government departments?

Kevin Austin: We will be reporting in terms of the pollution emissions that we regulate for across multiple government departments. We are used to doing that, but there is some join-up in relation to biomethane.

Steve Molyneux: Regulation is usually a very complex issue with multiple regulators, so in terms of the environmental permitting regulations, where we are the principal regulator, that is about site-based regulations. Obviously, the sites require authorisations to be in place, which is done through the planning authorities. We have relationships with other regulators on a day-to-day, week-to-week and strategic basis. Those regulators report to different government departments, so whether we are working with local authorities on planning requirements or with the Health and Safety Executive—as methane is an explosive gas and the HSE has regulatory responsibilities there—or with other government organisations, we tend to have different sponsorship bodies within government. As a regulator, we are always working across regulators and across government departments as it comes together.

A good example is on biomethane. Recently, the Department for Energy Security and Net Zero pulled together a biomethane strategy board which has brought in all the regulators and government departments looking at biomethane in terms of developing their action plan. That has resulted in a call for evidence on the future of biomethane.

Our sponsoring department is Defra, which sets out our requirements and our legislation, but there is always close co-operation with regulatory bodies and government departments where needed.

Baroness Whitaker: There was mention of a join-up. Is the Department for Energy Security and Net Zero responsible for it? What is the join-up and how does it relate to that department, which presumably is the lead department in all this?

Steve Molyneux: It is the lead department for methane and climate change, yes.

Baroness Whitaker: What does it have as a mechanism to co-ordinate?

Steve Molyneux: In terms of overall strategy, you would need to direct that question to the department.

Baroness Whitaker: From what you say, would the UK benefit from a single body to oversee and co-ordinate efforts to reduce methane emissions across the different departments and regulators?

Steve Molyneux: If you ask any regulator a question about whether they would benefit from a single point of contact or a single department, they will probably say yes. Whether that is a reality that can be achieved through government is another question. However, we do rely on close co-operation and close collaboration between regulators on the ground and government departments. I am sure that anyone would wish for a single direction and a single point of contact.

Baroness Whitaker: Is there even a Cabinet committee concerned with net zero?

Steve Molyneux: Not one that I would get involved with in my role as the Environment Agency's regulator.

Q101 **Lord Duncan of Springbank:** Steve, I think this question will be directed at you, as you are the one who regulates the various sectors; the answer might be more technical, so it might be better if you write to us. How do you monitor methane emissions in the areas that you regulate? I am looking for the technical methodology by which you currently regulate methane emissions. Would it be better to write to us about that, or do you want to explain it now?

Steve Molyneux: I can certainly try to explain it. It very much depends on the sector that we are dealing with. Let us pick up landfill, which is the biggest contributor to methane emissions through waste. Operational landfill sites are permitted under the environmental permitting regulations. There are permits that set out what operators need to do, which includes environmental monitoring of methane, recognising that methane is a fugitive emission from landfill operations. Site permits will require operators to carry out perimeter monitoring for methane, because not only does it have an impact on climate change but it is an explosive gas, so it has to be controlled in terms of any migration off site. There are usually monthly requirements for perimeter monitoring of methane.

There is then leak detection and repair monitoring—that is an operator checking whether there are fugitive emissions from gas control

infrastructure on site. There is also oversight monitoring, which is used for flame ionisation detection, and detection monitoring, which looks over capped and restored areas of landfill to make sure that there are no fugitive emissions from controlled areas. There is then flux box monitoring, where emissions of methane are measured over time in a kind of controlled box on site. So operators monitor a number of areas in terms of landfill emissions and then report that to us through our pollution inventory.

We recognise that one of the challenges around monitoring methane is how industry and regulators measure the overall releases of methane from a landfill site. Most of the methane released from landfill sites—around 70%—is from the operational areas, so it is where waste is tipped or flanks around those areas. That is very difficult to control because you are operational at that time. Once an area is capped, those emissions reduce by orders of magnitude. Principally, our regulation is around making sure that operators control the deposit of waste in landfill sites in smaller areas that are well capped and that they are then moved on to help to reduce those emissions.

On monitoring, we are currently undertaking some research, which we hope to report back on in 2025, around how best we could move to a situation where operators were required to monitor the overall fugitive emissions from a site. It is quite a complicated area where a number of research projects have been undertaken by the Environment Agency over the past decade. Some of that has included tracer elements for dispersion monitoring or using aerial surveillance. There is still work to do to understand how we best monitor overall emissions of methane, but there are strict requirements in operators' permits to monitor on a number of levels and frequencies.

Lord Duncan of Springbank: You are telling me that 80% of the emissions from a landfill site happen at the very outset when the material is deposited and, presumably, moved around. How would you monitor that? How on earth would you capture exactly what methane is released at that point? I can understand how you can do it once it is capped, but if it is 80% before it is capped, how do you monitor it?

Steve Molyneux: That is the challenge. Methane is not a point-source emission; it is a fugitive emission. They are some of the challenges around monitoring methane, not just in the landfill sector but in the anaerobic digestion sector. We know from our research that it is the emissions from the uncapped space that have the biggest impact. How do we monitor that? The most important thing is that we set out in permits how operators should control that. What we should not see is landfill sites having huge operational areas; an operator should deposit waste in a small, discrete area that is well controlled. Once that is completed, it is capped off and they move to a separate section of the landfill, so that a large landfill site is segregated into small, discrete areas that are individually operated.

Lord Duncan of Springbank: I understand the good practice that you

are setting out, but that would still leave us with 80% unmonitored. The good practice should reduce the emissions, but 80% is unmonitored. That is fugitive, and we cannot capture that data.

Steve Molyneux: That is on a time basis. Let us think of the overall lifetime of a landfill site. A large landfill site may be operational for a number of years or a decade, but that will be generating methane potentially for the next 30, 40, 50, 60 or 70 years—at decreasing levels.

Lord Duncan of Springbank: You can monitor that once it is capped, but the point I am making is that if it is 80% before it is capped, you already have a more significant contribution very early in the life cycle. At that point, you basically have untrammelled methane release. Good practice can reduce it, but you are not able to monitor it.

Steve Molyneux: It is challenging to monitor it, and that is why we are looking at the research on the best techniques. Obviously, flux box is looking at the transition between the landfill and the atmospheric phase, but that is impractical to use in an operational phase.

Lord Duncan of Springbank: That is helpful. I have one question for Kevin. Agricultural methane is not monitored at all; you have no statutory obligation to do so. Would you like one?

Kevin Austin: To be absolutely clear, we have no statutory duty around methane. However, in the intensive pig and poultry sector, where we are regulating particularly around ammonia emissions, there is still a duty on farmers to report their methane emissions if they reach a certain threshold, which I believe is 10,000 kilograms a year. That captures only about 200 farms out of the 100,000 farms we regulate. [1]They report on methane, but they do not have any regulatory duty to bring those methane emissions down; they just have to report on it.

Lord Duncan of Springbank: How do they monitor it in those farms?

Kevin Austin: You will appreciate that the scale of methane on an average farm compared to a landfill site is significantly lower, so it is not monitored by physically monitoring the methane emission; we look at particular emission factors such as the type of feed going into the animals, some of the systems around how they manage their slurries and so on.

Lord Duncan of Springbank: So you have a formula that you would use. You would plug in the elements to that formula and a predictive element would emerge.

Kevin Austin: Exactly. It is a science-based algorithm that produces an output of what you would expect the methane emissions to be. We had the conversation earlier about how switched on farmers are in terms of climate change. In our permitted sector,[2] we find farms which are really

[1] Out of 1326 intensive pig and poultry farms we regulate under environmental permitting (out of 100,000 farms we regulate overall)

hot on understanding their diets, the number of animals and what the impacts would be, not just on ammonia, which is what they are principally regulated on, but on a whole load of other factors including methane. We will talk about it. I was on a poultry farm a few weeks ago and brought it up with the owner.

Lord Duncan of Springbank: So you do not seek a regulatory duty to monitor methane in farms. It is not something that you would wish to have; you would simply make a predictive element based on formulas and you could calculate that in your office rather than on-site or on-farm monitoring.

Kevin Austin: You are moving me into a policy-shaping space which is not really my role. There is obviously a challenge to bring down our climate emissions. Methane is a significant contributor. I think that agricultural methane is about 49% of our emissions now. We saw agricultural emissions come down between 1990 and 2009 by about 14%, but they have flatlined, so we have seen very little progress from the agricultural sector on reducing methane since then. Obviously, a whole range of options is open to government, from voluntary approaches to mandatory regulations, but they are not for me to make recommendations on.

The Chair: Are you done, Lord Duncan?

Lord Duncan of Springbank: I am never done, but that will satisfy me for the moment.

The Chair: Okay. Before we move on to Baroness Bray, I want to ask a question raised by what Lord Duncan said. There are gaps in monitoring or even awareness of methane in terms of regulators. This goes back to the question that Baroness Whitaker asked. There are some challenges in having multiple regulators. What are the important things that fall between the stools of those multiple regulators? I am talking about the different sectors that produce methane emissions that are not picked up by any of the regulators.

We looked at on-farm emissions of methane. The Environment Agency has a regulatory role to oversee air quality and environmental damage. Methane is an enabler of a fairly a potent air pollutant, ozone, which is harmful to crops and humans, but there are large sectors where that methane release into the environment is not monitored, measured or regulated.

Steve Molyneux: The first point to appreciate is that methane does not have any air quality standards associated with it.

The Chair: Should it?

Steve Molyneux: That would be a policy position for Defra and government. Our role as a regulator as set out in statute, as an arm's-

[2] Pig and poultry sector

length body, is to enforce those regulations and require those high standards that protect people and the environment. What should be regulated rather than what the regulator does is more around government policy position.

The Chair: Can you make a recommendation to Defra? What is your relationship? Would that be a recommendation?

Steve Molyneux: Having an air quality stand for methane would give more clarity around what we would be required to regulate and how that could be put into place. We see certain gaps around anaerobic digestion. Our role there is to regulate anaerobic digestion of waste where it is produced. We have around 230 sites that are taking controlled waste. Our regulators are currently going through improvements to our re-permitting under the industrial emissions directive, requiring higher standards of the sector. However, there is no requirement to regulate or bring in regulation under the environmental permitting regulations for crop-fed anaerobic digestion. We believe that there are around 86 similar sites for anaerobic digestion for waste which are crop fed but with no regulatory control in place. We would see that as a gap.

Kevin Austin: Within agriculture, the biggest contributing subsector is dairy and beef, with about 80% of methane emissions[3]. That would be the gap if you are looking to capture most methane within the scope of something that is not currently regulated.

The Government in their clear air strategy—

The Chair: Is slurry management not regulated at all?

Kevin Austin: Slurry management is regulated on the amount of slurry storage required and the timing of when you then take the slurry out of that storage and spread it on the ground. Of course, although the environmental reason underpinning that legislation being introduced was water quality management, there will be some inferred benefits in terms of methane from that.

Q102 **The Chair:** Sticking with regulation for the time being, is it just the ones under EPRs that are regulated—the ones that operate under a permit? What about the ones without a permit?

Kevin Austin: We have only a relatively small number of farmers under a permit, about 3000 pig and poultry farms[4] which are under a permit once they reach a certain threshold in terms of livestock. For the nitrate-vulnerable zones—

The Chair: We will stick with methane.

Kevin Austin: For all those other regulations around water, that cover the breadth of the farming community, there is no specific requirement

[3] Agriculture methane emissions
[4] Correct figure: 1326 pig and poultry farms

for methane. It would involve management of slurry storage space but not for methane.

The Chair: Where are the gaps in managing methane emissions from wastewater?

Steve Molyneux: All wastewater treatment companies currently digest sewage sludge under anaerobic digestion, so there is a requirement for those facilities to come under environmental permitting as part of the industrial emissions directive. There is currently an ongoing permitting programme bringing those facilities into regulation through environmental permitting. It is around about 110 or 111 sites across the country.

One area where we do see not necessarily potential policy gaps but issues is around renewable obligation certificates for recovery of energy from landfill sites, a government policy that is ending. One clear thing about my perspective as an environmental regulator is that it is always good to incentivise good performance and incentivise people to do the right things. Therefore, capturing landfill gas to then be burned which helps in terms of methane releases and generates electricity is a very positive thing, rather than trying to regulate in terms of enforcing requirements. We see that as a potential gap with the sector. Any replacement for that and any issues surrounding it have been picked up in the Department for Energy Security and Net Zero call for evidence on the future of biomethane. That is an area where we see potential issues.

It is not a direct regulatory issue, but it could impact on the performance of the sector in terms of incentivisation.

Q103 **Baroness Bray of Coln:** How are methane emissions accounted for in the national inventory, in the areas that you regulate, and do you play a role in this reporting?

Steve Molyneux: With landfill we do. It is very much a top-down approach at the moment, due to the fugitive nature of the emissions from the sector. Work is undertaken by Ricardo, a consultant. You envisage one landfill site for the country, looking at waste deposit rates, gas recovery rates through landfill gas infrastructure and determining what the overall emission rate would be for the sector that is then produced for the inventory. In 2001, that was 613,000 tonnes of methane a year from the sector. The same processes are worked through in Scotland and Wales.

One of the most important things to recognise about the landfill sector is that it has been a huge success story with government in terms of reducing emissions in the sector by around 75% since the 1990s, most or all of which is due to the recognition that landfill is at the bottom of the waste hierarchy and its disposal. In the UK, government has policies to improve recycling rates and drive material up the waste hierarchy through to a circular economy. The introduction of landfill tax in 1996 and the progressive escalation of that has resulted in significant diversion of

waste from landfill and into energy recovery. We have seen huge progress in methane emission reductions from the landfill sector.

Government strategy is to go further than that by introducing a near ban on biodegradable waste to landfill by 2028. Again, this will start to reduce landfill inputs and therefore reduce methane emissions. While the majority of the methane that the waste releases is landfill, there have been huge improvements in government strategy, and it is about going further along that route.

Kevin Austin: Methane from agriculture is clearly incorporated into Defra's greenhouse gas emission inventories and reporting, but the Environment Agency does not have a role in terms of providing the data for that.

Baroness Bray of Coln: Is this data verified using monitoring data? If so, to what extent do these different sources of data agree?

Steve Molyneux: For landfill, this probably comes back to my previous answer. We do not currently have a methodology for measuring overall emission of methane from a landfill site. That research work is going on at the moment to develop into a methodology that we can use. For example, industry best practice is that you would be looking at about 85% recovery rates on methane emissions from landfill sites. We have a methodology which has been developed allowing us to test and benchmark that. That allows us to combine both measuring approaches, so you have the top-down approach in terms of the basket and what waste goes into landfill sites, what is captured and what is emitted, benchmarked against on-site individual monitoring methodologies for methane. But we are not there at the moment.

Baroness Bray of Coln: So there is more to do, in your opinion.

Steve Molyneux: Yes. That research has already been commissioned by Defra. We hope to publish it in around 2025.

Q104 **The Earl of Leicester:** This is a question for Steve Molyneux. Over the last two questions, we have heard that the waste sector produces 30% of total methane emissions. You have said, rather shockingly, that 80% of methane is lost prior to it being capped in a waste dump.

Steve Molyneux: I probably need to clarify that.

The Earl of Leicester: I hope so.

Steve Molyneux: Any operational landfill site is required under permit to collect and utilise landfill gas. It is required to have landfill gas infrastructure that carries that out. The benchmark is that 85% of landfill gas should be recovered in that way.

The Earl of Leicester: Collected.

Steve Molyneux: Yes, collected. Of the emissions that happen, 70% or 80% are from the operational phase of the landfill site, so it is the tipping

areas. It is not that 80% of methane is lost; actually, in good, well-performing and well-operated landfill sites, the industry benchmark is that around 85% of what is released is captured. Of what is released, that 15%, 70% to 80% is around the operational aspect, which is difficult to control because you cannot put landfill gas wells into an area being tipped by heavy vehicles. That is the challenge. It is a small operational area from which most of the releases come, but on a well-performing site, 85% is captured.

The Earl of Leicester: In a previous evidence session, I asked a question about cowboy operators. It was very interesting and concerning that that was a large part of waste dumped illegally. Can I assume that the 30% of total methane emissions from the waste sector does not include that amount of methane produced from waste that is illegally dumped?

Steve Molyneux: I would have to write back on that, but I do not believe that the Ricardo assessment includes illegal landfill sites.

The Earl of Leicester: Presumably, for you as a regulator, illegal dumping is one of your biggest concerns.

Steve Molyneux: Waste crime across the board is one of our top priorities. We know from our waste crime survey, which was in January and February last year, that about 18% of waste through the supply chain may be handled illegally at some point—that is equivalent to about 34 million tonnes a year. I am not suggesting by any means that that is illegally landfilled. There are a number of priorities for us in terms of waste crime, which are illegal dumping, illegal waste sites, misdescription of waste and export of waste. One of the Government's top priorities is to eliminate waste crime by 2042; it is part of the 25-year environmental improvement programme. We recognise that it is an issue, not just in terms of landfill and methane but across the board.

The Earl of Leicester: We also heard that the Environment Agency does not have the resources to fight it effectively. Is that correct?

Steve Molyneux: The Government have granted in previous spending reviews £10 million a year to invest in fighting waste crime. I think that any organisation would say, "We could do more with more resources", but we make sure that that money is put to best effect. We use a process called MoRiLE, or management of risk in law enforcement. This is Home Office best practice to understand where the strategic risks and tactical issues are around waste crime and to invest that resource in the right places to have the biggest impact, which is to reduce threat risk and harm in communities and the environment.

We know through successive Magenta Book evaluations using Treasury standards that every pound we invest in tackling waste crime brings back £5 of economic benefit. We spend the money that the Government give us on the highest threats, and we know that that has a return on investment for the country.

The Chair: Can I ask you, Mr Molyneux, about the importance of making sure that organic waste is separated out, because it is anaerobic degradation of a lot of organic waste that produces the methane in landfill sites? Could that be taken out upstream?

Steve Molyneux: Yes. The Government are looking at the near-elimination of biodegradable waste to landfill. If that is taken out, we will certainly see less breakdown and less methane. Some of the waste regulatory reforms to improve recycling rates across the country are also important. The Simpler Recycling programme will introduce mandatory food waste collection by local authorities.

The Chair: Am I right in thinking that 2026 is the date we have for all local authorities to separate out food waste from general waste? Or is it 2028?

Steve Molyneux: Where the legislative development is up to is probably a question for Defra.

The Chair: Excellent. That will help enormously, will it not, to capture the 80% of those wastes?

Steve Molyneux: Again, it is about ensuring that waste is dealt with higher up the waste hierarchy. Separating waste at source means that it is more economic to recover and recycle. We and government want to see the further development of a circular economy.

Q105 **Duke of Wellington:** I should again declare my agricultural interests as detailed in the register. This session is devoted mainly to agricultural emissions of methane, so my question is directed to Mr Austin—I know that you are no longer responsible for agriculture, but I think you said earlier that you were until very recently. You have said that you do not wish to comment on policy, but in that you have overseen agricultural aspects of this for a number of years, can you suggest to us—because we are trying to influence government policy here—ways in which, in your opinion, agricultural emissions of methane could be reduced further in the next 10 years? What would be your recommendations, given your previous responsibilities?

Kevin Austin: I think there is a suite of measures—you heard some of them in the previous session. It would be helpful if farmers understood and reported on what was happening on their farm, which might be by way of a climate calculator which incorporates methane. A good start is just greater behavioural change in terms of farmer awareness of their contribution to climate change and then monitoring what they are doing.

Even then, unless we go down the extremes of national diet changing, as Tom Bradshaw said, we would still probably look to export our production. So we are looking at how we reduce the carbon footprint, and the methane footprint specifically. We are probably looking at diet, which we heard about earlier, and that could include feed additives. Changes in cattle diet can significantly reduce methane even without some of the newly approved additives. For example, Marks & Spencer has recently

introduced an initiative to change the feedstuffs going into their animals. It is not about some of the new-tech seaweed products; it is some other type of diet change. It will have a smaller impact than is suggested by some of the lab-quoted figures we have heard for the newer tech, but it still has a 10% reduction in methane. You can do a lot with diet even without those brand-new, untested-in-the-field products. There is also the potential to do more with slurry stores.

I would like to see emissions managed in the round, because there is a risk of trade-off: you do something for methane; you make it worse for nitrous oxide; you do something for ammonia; you make it worse for methane. Things like slurry certification we know work really well for ammonia. There is probably quite good evidence that it could do something towards methane as well, but then there are trade-offs there, possibly with nitrous oxide, although the science is a bit ambiguous. You heard again this morning about genetics. There is definitely still opportunity for further progress in terms of livestock genetics.

They would be the three things we want to see happen on the ground in terms of farming changes, as well as greater understanding from farmers themselves and some of the land management and spreading practices with those manure management materials afterwards as well.

The Duke of Wellington: Did you, in your recently relinquished responsibilities over seven years, consider methane one of the most important elements that you would wish to diminish through whatever powers the regulator might have, or is it not as great a danger as other gas emissions that you would have to consider?

Kevin Austin: That is quite subjective. We have something like 50,000 premature deaths a year as a consequence of air quality problems, which is one of the drivers behind our regulation of ammonia. Clearly, climate change in the round is a much more fundamental threat to society, but they do come down to policy choices about where you are going to find those carbon savings from. There is clearly a big opportunity to reduce methane from farming, which probably by now accounts for half of our methane emissions. That could be a significant contributor to our net-zero goals. There are clearly trade-offs which you have heard about from the speakers this morning.

Q106 **Lord Frost:** I refer to my interests as an unpaid director of the Global Warming Policy Foundation. I want to refer briefly to the methane action plan that we brought out earlier this month. One of the headings is "Maximise the Effectiveness of our Regulation". Both witnesses said something about this subject already, but can they summarise from where they sit in the organisation what they see as the challenges to maximising the effectiveness of the regulation and whether more could be done?

Steve Molyneux: For waste regulation and waste management, the action plan is for 2024-26, two years, so a relatively short time. Within the sector that I am talking about there are a number of priority areas for

us to work on. One is bringing in anaerobic digestion fully into the industrial emissions directive requirements. That is about improving standards across the industry. When we have talked about fugitive emissions for the anaerobic digestion sector, that is around making sure that digestion tanks are covered, that there is pressure relief valves and processes are suitably designed and monitored, that the air leak detection repair regimes that are permitted are up to best--practice standards in terms of looking at where fugitive emissions and leaks might be occurring across membranes.

In terms of our regulation, we take a risk-based approach. We look at regulating what we believe to be the worst performers or poor performers as part of our constant on-the-ground inspection regimes. We are looking to adapt new technology in terms of optical sensing, to look for methane emissions as part of our regulatory work. We have currently got four optical methane that we have brought in.

On the landfill sector, again we have talked about that briefly on previous questions. A lot of this is around how we can bring in new techniques to look at how we monitor the overall methane emissions from landfill sites, which can be quite challenging. Again, from the landfill sector, we have around 2,000 permitted sites, about 600 of which are operational. Not all are dealing with municipal waste that is broken down and is producing methane, but again we have our day-to-day and week-to-week inspection work and auditing work on those sites to ensure that best practice is being used.

Certainly, there are improvements in terms of how we look at reporting data in terms of the national inventory, which we have talked about. We have predicated on developing some of these new monitoring techniques and making it easier for industry to report through improved digital portals and things like that.

Kevin Austin: Agriculture does not really feature in our methane action plan because we do not have a regulatory role for agricultural methane, so I will leave it with Steve's answer.

Q107 **Lord Ravensdale:** I declare my engineering interests as in the register and I am also a director of Peers for the Planet. To dig more broadly into the methane action plan, you have a whole range of actions within it. In terms of the timescales, are they all for 2026? Do you have specific timescales for those actions or activities that you have in the plan? Within that, can you say a bit about what the most likely barriers are to achieving your objectives in the planned time that you have?

Steve Molyneux: The improvements that we have talked about in questions around government policy moving towards banning non-biodegradable waste in landfill, and Simpler Recycling, will be what make the most strategic differences to the overall sector for waste regulation.

On some of the specifics around timescales, we are looking to bring all water company and anaerobic digestion into permitting by March 2025.

We have 111 sites to bring in; we have issued about nine permits at the moment, so those will be progressing. On the anaerobic digestion sites, the waste industry, we are almost through the 220 re-permitting, so that is now about going out and inspecting to make sure that those sites are meeting the standards that we have set out and, if there are improvement conditions, that industry invests in the capital in terms of bringing infrastructure or processes up to speed. Again, that is within that two-year timescale, which is realistic in terms of what we can achieve.

I think I have said before that we are due to report back in terms of what development techniques we may be able to bring in in terms of overall emissions from landfill. We then plan to report back in 2025 on that.

Lord Ravensdale: Do you have anything to add on the barriers to achieving those targets in the methane reduction plan?

Kevin Austin: Obviously, where you have a regulatory gap, there are no incentive drivers, which is what we heard this morning, so obviously it is difficult. Then you also need behavioural acceptance in terms of industry, so obviously you are not going to see a change in terms of driving down methane, so on one level that has to change.

Q108 **Lord Ravensdale:** You have some activities and actions in your methane action plan. For example, on the data side of things you have an action on "Quality assurance – we will increase support for our local area teams to prioritise achieving good quality data, monitoring standards" etc. In terms of how you measure activities or goals like that, is there anything sitting underneath this to break these activities and actions down into more detail on what the success criteria are for those activities?

Steve Molyneux: Basically, through our regulation, we have a sector-based approach. The Environment Agency has 14 operational areas. Within those, there will be a portfolio of sites that our officers regulate, because it is site-based regulation, but we have a sector-based approach. So nationally we have a sector group for landfill and a sector group for anaerobic digestion. We bring our officers together and look at the priorities for regulatory improvement over the next 12 to 18 months. We have a sector-based plan that looks at how we co-ordinate our approach across our 14 operational areas.

When a sector such as anaerobic digestion goes through an improvement programme, officers nationally will be brought together with our national technical experts to work through how we prioritise, based on risk, what areas we want to focus our inspections on during that next 18 months or so. There is an ongoing programme of co-ordination of how we lean into the sector to make sure that we focus on the highest-risk areas, be that landfill, anaerobic digestion or metal shredders—which is not relevant to this committee.

Lord Ravensdale: If upstream oil and gas are brought into the Emissions Trading Scheme, as may happen, how would that affect you as a regulator?

Steve Molyneux: It is not my area of expertise, but we are the regulator for the Emissions Trading Scheme. That tends to be outside our regulatory requirements under environmental permitting regulations. The Emissions Trading Scheme is a market-based mechanism, whereas our environmental permitting regulations are a site-based regulatory mechanism. The lead government department is the Department for Energy Security and Net Zero. We have regulatory requirements to administer the ETS. There is an interest for me in that energy from waste is planned to be brought into emissions trading in 2028. We have regulatory overlay, but they are managing separate types of issues: one is around carbon and the other is around site-based performance, where we see fugitive emissions of methane.

Q109 **Baroness Whitaker:** We heard earlier that farmers do not collect measurements on their methane emissions. Would it help your effectiveness if they did?

Kevin Austin: Only about 200 farmers deal with very high production of methane, in the intensive pig and poultry sector; the rest do not. From the perspective of Defra reporting and understanding of greenhouse emissions and departmental targets, I would think that it would be supportive, but from an EA perspective, because we do not have a specific role aside from with that small number of farms, it does not have a huge impact on our role at the moment.

Q110 **Lord Grantchester:** I declare my interest as having a dairy farm. I apologise if in an earlier session on a supplementary question I omitted that declaration. I want to thank you, gentlemen; it is a very interesting session that we are having today. We spoke earlier about gaps that exist at the moment. Activities that monitor them often start with voluntary schemes. Your methane action plan committed to engaging with industries, both regulated and partially regulated, through voluntary schemes. In your experience as a regulator, to what extent are voluntary schemes effective in bringing about change? Is there a balance between strict prescriptions and a knowledge and awareness approach in improving behaviours where there are a multitude of small businesses?

Kevin Austin: Should I try to answer that from the perspective of farming? Was that where you were coming from, Lord Grantchester?

Lord Grantchester: That seems to be the impact of the question in terms of unregulated industries, where we spoke earlier about there being gaps.

Kevin Austin: There is a role for voluntary schemes. They work best when the issue is quite singular and focused. We have recently seen the industry, working with Red Tractor, bring forward a voluntary scheme for urea, for example, which I am sure you are aware of. The difficulty with a voluntary scheme in relation to methane—it is not precluded by any means—is that there are multiple measures that a farmer could take to deliver for methane across several dimensions. It could be the slurry: you may have a housed unit; it is very different if you have a field-based

unit—we heard about some of that this morning too. There needs to be a degree of advisory capacity to farmers one way or the other around the types of measures they can take and their net outcome.

I talk about that also with regard to pollution swapping, which I referred to earlier; for example, where you have a voluntary scheme for methane, but it ends up producing more ammonia or more nitrous oxide. That is where the relative benefits of a regulatory permitted approach come in, because by going through the permit process our intensive pig and poultry farms understand the whole system. They understand the different levers they can pull to reduce their emissions factors and what impact that could have on other things too. That is the benefit of a permitting approach. "Voluntary" may be the wrong word in this instance, but I do not think that having something that gives that degree of integration and having an industry-led approach are necessarily mutually exclusive. You could potentially have the regulator looking at the reporting, for example, of something that is coming out of the industry. So there are hybrid approaches that could work in between too.

Lord Grantchester: Could our witnesses see a role for the Environment Agency concerning methane when it is regulating other potentially polluting emissions through farm monitoring? Would that role be best guided by other agencies, and how would the EA work with them?

Kevin Austin: On farm, if we had a regulatory duty that was integrated and was looking at ammonia, methane and water joined up—it could be a permit which brought all the farm requirements into one place, arguably reducing the regulatory burden on the farmer or at least making it more straightforward—then it would obviously make sense for us also to have holistic monitoring that looked across the piece at all those things too.

As I said earlier, methane monitoring for 100,000 farmers is a lot more difficult than it is for landfill. We are looking at things such as MethaneSAT—new satellite developments which could look at very big units and measure plumes of methane and so on—but these are very early days. We will always be reliant to some extent on our knowledge of science, telling us that if a farmer takes X action, it will produce X outcome. That is probably where we will mostly be with the farming system, with farmers filling out an explanation of the kind of activities that they have undertaken to change their practice and then our calculating what change we have had in methane outputs as a result of that, rather than measuring the methane in the atmosphere.

The Chair: We are three minutes over time, and I have a supplementary also to ask. Steve, would you like to respond to Lord Grantchester's question?

Steve Molyneux: Yes, I shall probably be very brief. In the waste management industry, regulation has tended not to be voluntary because we are coming from a position that goes back at least 20 years. Methane is an explosive gas, so it has wider hazards and risk beyond just GWP. That is where we interface with regulators such as the HSE in terms of

DSEAR regulations around explosive mixtures. Where sites can store large amounts of methane, they can come under major accidents and hazards regulations as well. So it has tended not to be voluntary.

Q111 **The Chair:** Thank you. I have a question. First, let me start by thanking whoever was responsible for getting the methane action plan to us, just two weeks before you were due to appear before the committee, so that was very much appreciated. The plan is ambitious; I read it with some enthusiasm. For example, it states that the Environment Agency intends to work with sectors where they are responsible for some regulation already but where they do not currently regulate methane. Examples given are methane sludge water treatment and methane capture from slurry stores. It also states ambitions to support sectors which it does not currently regulate, such as certain exempt anaerobic digestion installations. Are those ambitions realistic, and what needs to happen to make them come about?

Steve Molyneux: On what needs to happen, that is part of our ongoing engagement with industry bodies such as Water UK for the water sector. On ongoing conversations with government and advice to government, we have mentioned in previous answers the differences in relation to anaerobic digestion, where it is controlled waste or crop based, so there need to be ongoing conversations with government around that. Our plans will always be stretching and ambitious, because we want to set an agenda that we want to move into. The speed of development of things will depend on a number of factors—available resource is always one. In terms of dealing with the immediate priorities within the plan, there is certainly bringing the water sector into IED. Part of that ambition is engagement with the trade bodies and government on what is the art of the possible. This is a two-year plan, but our commitment to regulating methane under EPR does not end after two years; this will develop and go on.

Q112 **The Chair:** I have just one other question, which is to do with the onshore oil and gas sector, which I believe is under your remit. We have heard that the EA's regulation of onshore oil and gas sites may be less effective than it should be. Little data exists on the amount of methane gas emitted through the onshore oil and gas sector, making it difficult to know how much this area contributes to methane emissions and to measure progress. Is that an area where you recognise the room for improvement and what are you currently doing about it?

Steve Molyneux: It is not necessarily my area of expertise, but we have a more limited role—

The Chair: Please write to us with your response if necessary.

Steve Molyneux: We can do that. We have a more limited role in terms of our regulation of the onshore oil and gas sectors. That is around refineries that have come under environmental permitting requirements—methane is not believed to be a huge issue in terms of loss from [oil] refineries. Then it is extractive waste; that is, the waste gas that is

extracted as part of onshore oil wells. We are looking for that not to be vented and to be reused and recovered for energy generation. We have examples of where we have worked with the sector to look at specific sites where we have made interventions for energy recovery rather than venting. Then we have work in relation to compressor stations in the network which are powering more than 50 megawatts. They need to come into regulation, but we do not have overall responsibility for the onshore gas network.

The Chair: And the gas pipes?

Steve Molyneux: The gas pipeline is regulated by the HSE. That is part of our ongoing sharing of best practice with bodies such as the North Sea Transition Authority and HSE to understand each other's respective role and what is best practice, but we do not have overall-oversight responsibility for onshore oil and gas and not at all for offshore.

The Chair: There is no body that has overall oversight of methane emissions. If we are serious about bearing down on methane emissions, that seems to be a requirement that needs to be addressed.

Earl Russell: If you are going to write to the committee about the onshore oil and gas industry, perhaps I could add one question to that. There has been a lot of change in the offshore oil industry, with all new licences having zero venting and flaring and a 50% reduction. Is that practice shared with onshore? Are there any mechanisms for that? That is a simple question that could be answered in writing.

Steve Molyneux: I think we would have to reply in writing. It is not my field of expertise and we do not have a regulatory role offshore.

The Chair: Thank you, both, very much and for bearing with us while we went over time quite comprehensively. Thank you.