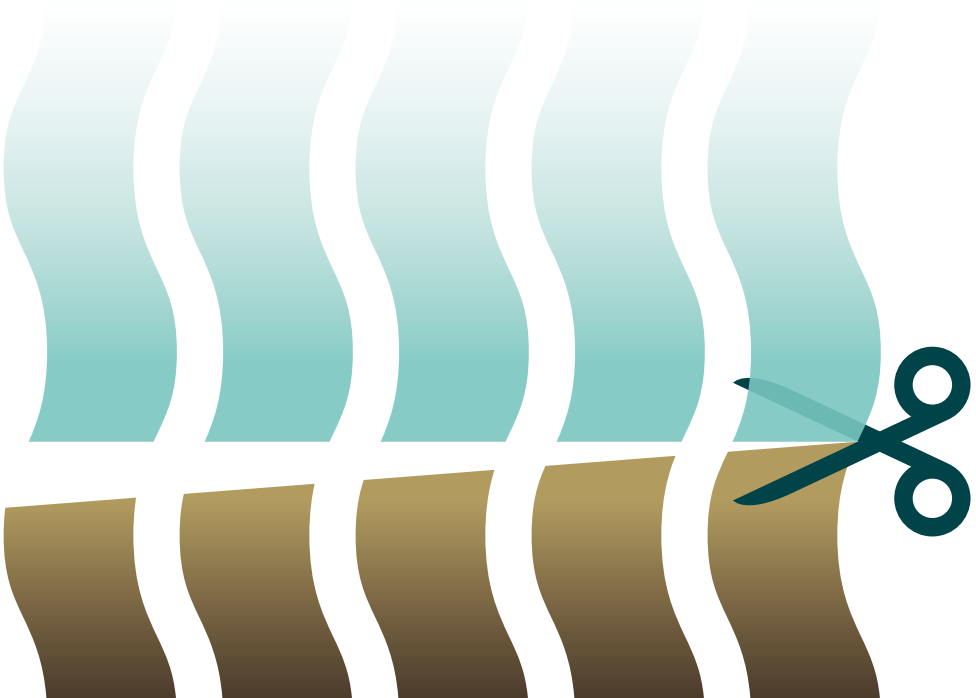
Why the UK should do more to cut methane emissions

green alliance...



Why methane matters

Methane is a potent greenhouse gas, almost 30 times stronger than CO_2. It has been responsible for around 0.5°C of global warming to date.[1]

Because it is short-lived in the atmosphere, cutting methane emissions now could rapidly slow down climate change, reducing average temperatures by 0.2°C.[2]

The world is currently at about 1.2°C of warming.[3] The science of climate tipping points suggests there will be multiple risks to planetary stability below 2°C of warming.[4]

Recognising the importance of methane, the 2021 Global Methane Pledge is a commitment to cut the world's emissions by 30 per cent by 2030.

As we show, because of the urgency to prevent global warming and methane's immediate contribution to it, the UK, along with other countries that have pledged to act, should be going even further 30 per cent where possible.

According to UNEP, the most cost effective way to stay within the internationally agreed target of no more than 1.5°C of warming, would be to ensure methane cuts of over 40 per cent.[5]

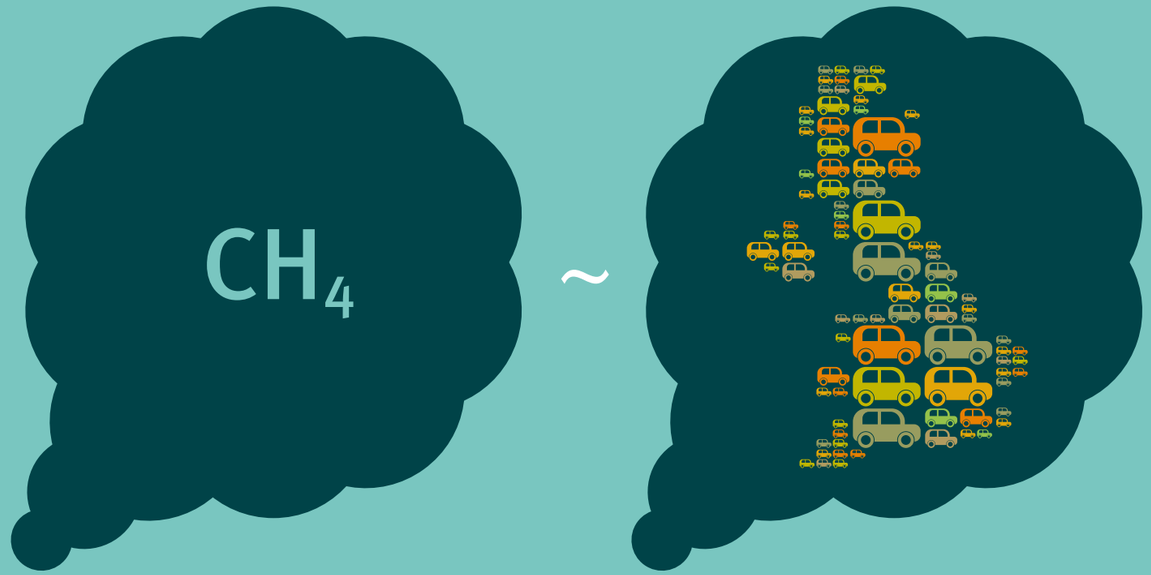
Many countries will be bringing their national methane action plans to the COP28 climate summit in Dubai in December 2023.

The UK has signed the Global Methane Pledge but has no plan to meet it, even though it has scope to cut its emissions now by over 40 per cent.

The COP28 climate summit will be a chance for the UK to showcase its actions, demonstrate leadership and urge more countries to act on methane.

An ambitious methane action plan would help to restore the UK's former climate credibility. Here, we show what the UK should do and why.

Currently, in the UK, total methane emissions have the same global warming impact over a 100 year time frame as the emissions from all the passenger cars in the country[6]



This illustrates the scale of methane's warming impact over 100 years by comparing with CO_2, another major greenhouse gas. However, as it is more short-lived, over the short term, methane is worse than CO_2. See page 20 to understand why.

Why pledge signatories and China need to cut their methane by at least 44%

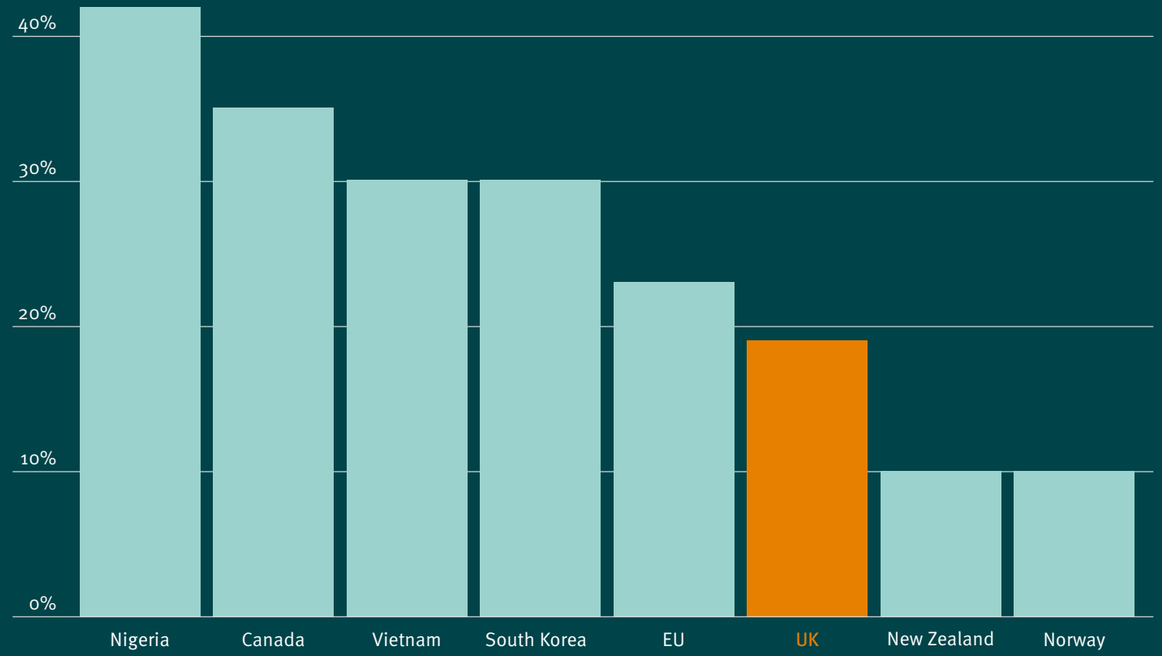
The UK is not alone in its inaction. Few signatories to the Global Methane Pledge have produced goals or plans to meet them.

For those few countries that do have plans, if implemented, their methane emissions will fall by an average of 28 per cent by 2030. Even if all the signatories achieved this, total global emissions of methane would fall by only 15 per cent.[7]

While China has not signed the pledge, it has promised to act. But to reach a total global reduction in emissions of 30 per cent, countries signed up to the pledge and China would together have to reduce their methane emissions by 44 per cent by 2030.

All countries should raise their ambition and more countries should be encouraged to sign the pledge.

The UK's methane reduction ambition lags behind other countries



The UK is trading on its past successes with no new action

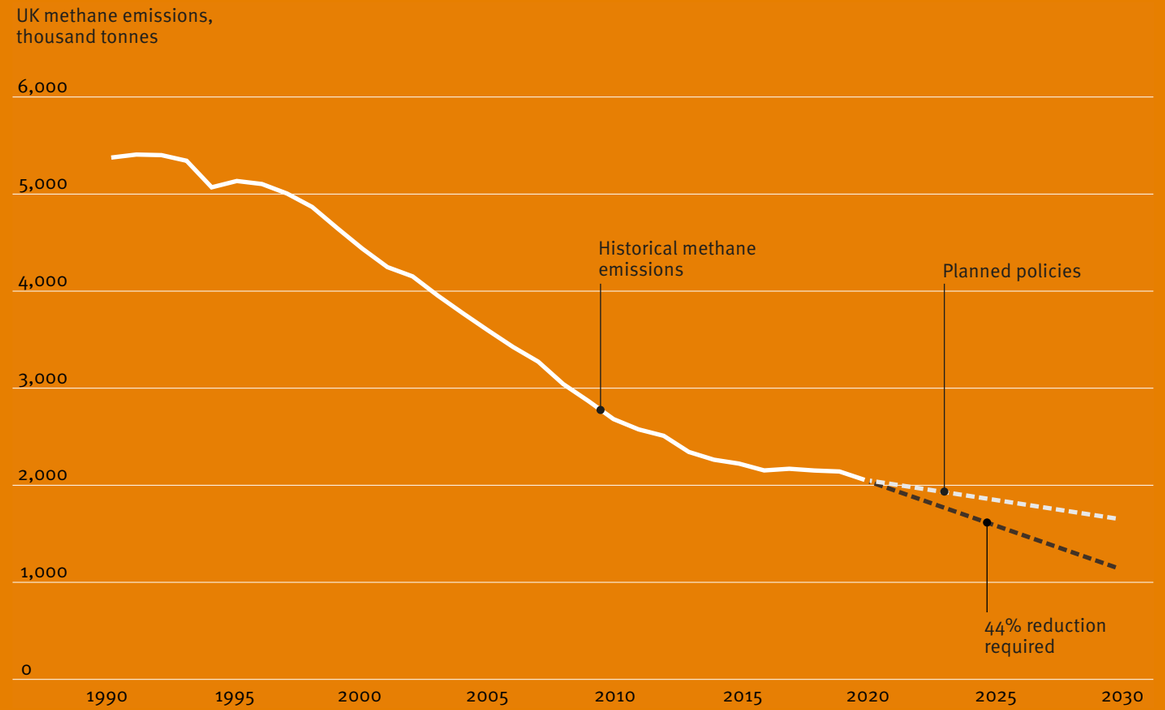
Although the UK has been a climate leader in the past, this reputation rests on historic emissions cuts made between 1990 and 2008, before the UK passed its flagship Climate Change Act.

The government claims its domestic plans are “consistent with commitments made under the Global Methane Pledge”.

In 2022, the UK’s Methane Memorandum celebrated past success at cutting emissions, but introduced hardly any new ambition or policy to go further.

On current plans, the UK will reduce its methane emissions by a further 19.3 per cent by 2030, at the most.[8]

UK methane emissions have flatlined since 2015



The UK has scope to go much further

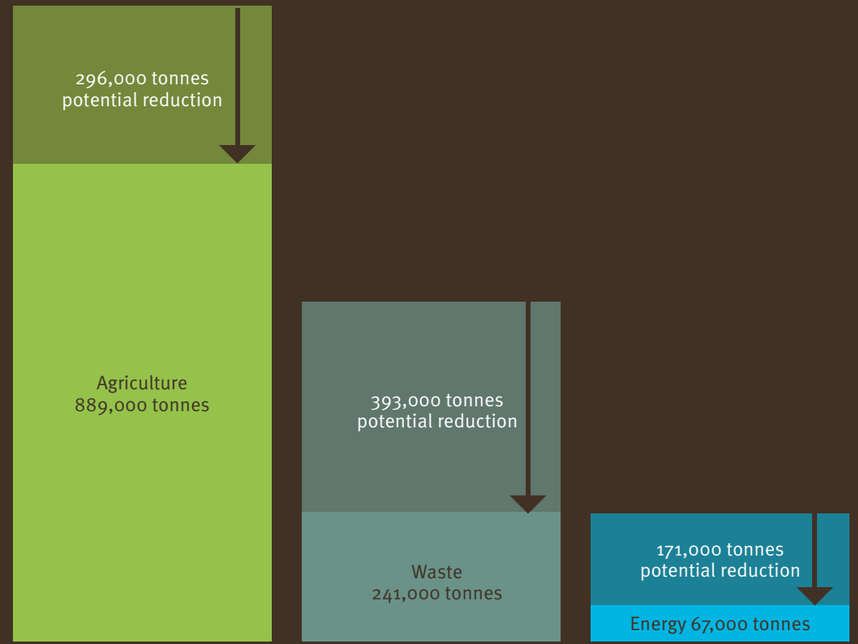
UK methane emissions mainly come from the agriculture, waste and energy sectors.

In the past, emissions cuts have largely been due to the closure of coal mines and the capture of landfill gas. There were few options to reduce methane emissions in other sectors.

But new technologies and practices mean much greater reductions in all sectors are now possible.

There is now no excuse to go slow on methane.

Large methane reductions are possible in agriculture, waste and energy[9]



Agriculture is the UK's biggest source of methane

Cows are the biggest source of methane, and there are almost five million cows in England alone.[10]

Their emissions can now be reduced using methane suppressing feed additives and better slurry management techniques. Methane can be captured from slurry tanks and used for energy. Alternatively, acid can be added to the tanks to neutralise methane production.

To cut agriculture's methane emissions, the government should:

- Make methane suppressing feed additives compulsory for dairy cows
- Encourage farmers to capture methane from slurry, or pay them to acidify it
- Encourage people to substitute some meat and dairy for more alternative proteins, fruit and vegetables

UK agricultural methane emissions by animal[11]

Waste has the greatest emissions reduction potential

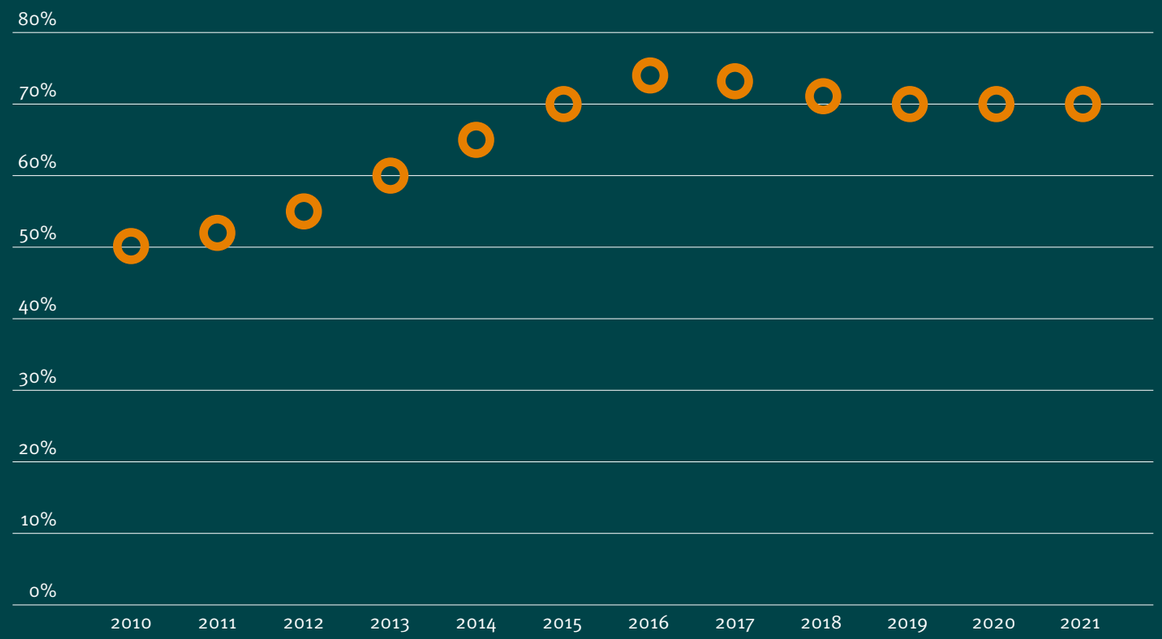
More could be done to capture and prevent methane from landfill sites. As the UK is ahead in good waste management practice, it could share its policy expertise to speed up emissions reductions in other countries.

But methane emissions from waste are still contributing over 30 per cent of the UK total and the rate of gas capture from landfill has fallen.

To cut the waste sector's methane emissions, the government should:

- Stop biodegradable waste going to landfill from 2025
- Require a minimum 80 per cent methane capture rate on landfill sites

Progress on landfill gas capture has stopped as subsidies have waned[12]



UK oil and gas operations routinely waste methane

Norway heavily taxes methane from fossil fuel operations, to prevent routine venting, and, in 1971, it banned routine flaring (where methane gas is disposed of by burning).

Over half a century later, the UK continues to allow both practices, wasting enough gas to supply 750,000 homes.

The proposed Whitehaven coal mine will produce 17,500 tonnes of methane a year, equivalent to about half the beef herd of Cumbria.

The government should:

- End routine flaring and venting in oil and gas operations from 2025
- Require companies to routinely detect and repair gas leaks
- Approve no more new coal mines

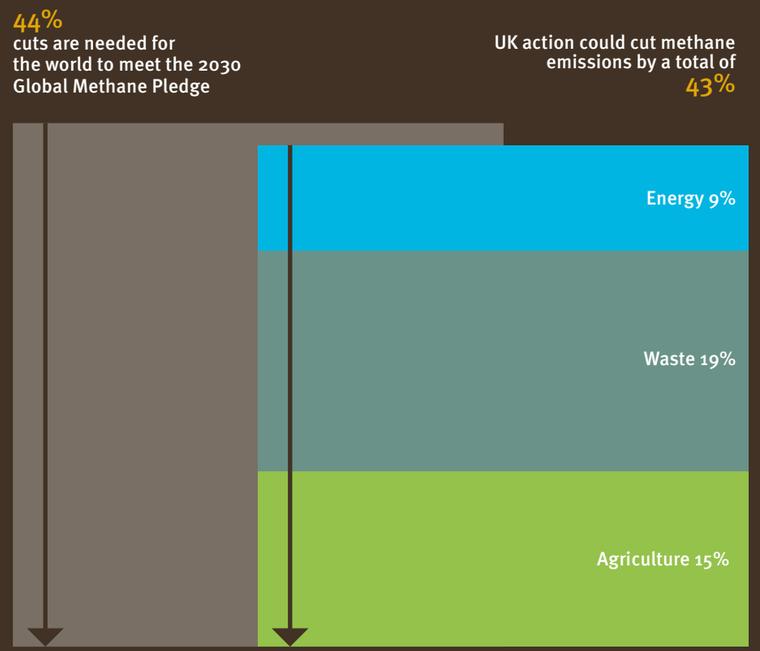
North Sea oil and gas operations waste enough gas to supply 750,000 homes[13]

What should the UK do now?

The UK is capable of leading the world on methane reduction, and cutting the risk of reaching dangerous climate tipping points (see our explainer on page 20).

It needs a methane action plan, with quantified emissions reductions and specific policy pledges. It should set an ambitious overall target of at least 43 per cent methane reduction by 2030 which, as we have shown, is easily achievable by acting now on agriculture, waste and energy.[14]

More ambitious UK action in three sectors would contribute to meeting the global pledge



Climate tipping points and methane's role explained

Climate tipping points happen where changes in a part of the global climate system become self-reinforcing. These changes could result in "abrupt, irreversible, and dangerous impacts with serious implications for humanity".[15]

Recent science has shown that the risk of tipping points is higher than previously thought, with some likely to be triggered below 2°C.[16] Average temperatures are now 1.1-1.3°C above pre-industrial levels.[17]

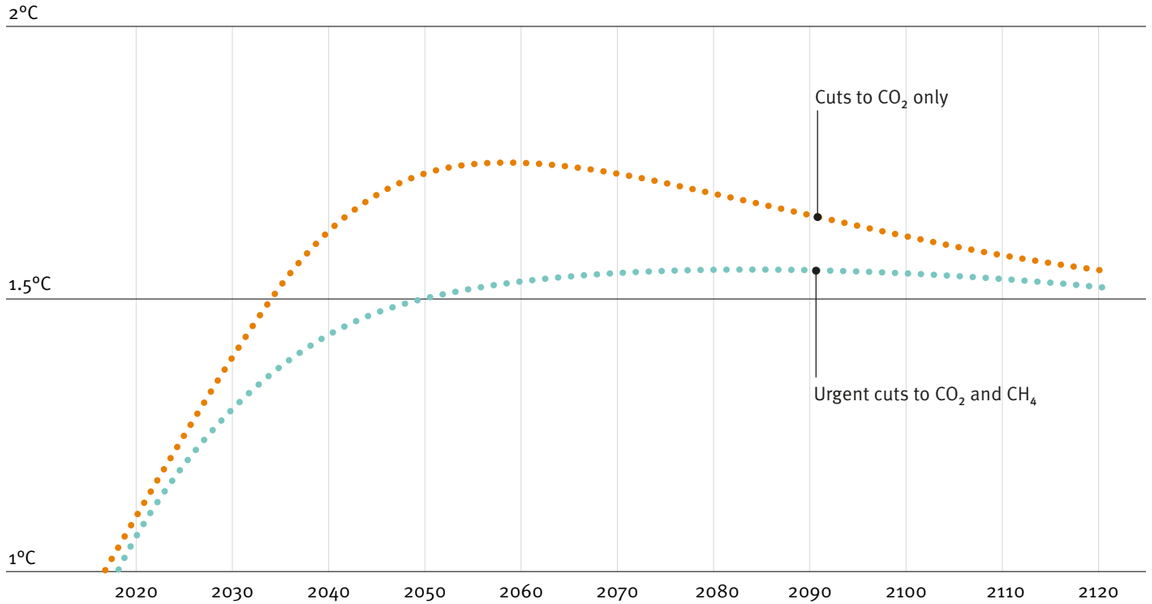
It is difficult to estimate the impact of methane emissions cuts in isolation from other changes, including cuts to CO_2 and other pollutants.

Cutting methane emissions alone by 30 per cent could result in a cooling effect of 0.1°C by 2050.[18] Going beyond 30 per cent, using readily available low cost interventions, could reduce temperatures by 0.2°C.[19] But, in both cases, this cooling will be temporary if CO_2 emissions are not also brought down rapidly.

To stay below the Paris Agreement goal of no more than 1.5°C of warming and avoid dangerous tipping points, the world must cut both CO_2 and methane emissions urgently.

Urgent cuts are needed to both CO_2 and methane to avoid overshooting 1.5°C of global warming[20]

Projected warming trajectories, depending on action taken to reduce greenhouse gases



Endnotes

1 Methane has a global warming potential of 28 over a hundred year timescale. The IPCC Working Group 1 *Sixth assessment report* shows that methane is responsible for over 0.5°C of warming to date (figure 6.12 in the report).

2 Climate and Clean Air Coalition and UNEP, 2021, *Global methane assessment: benefits and costs of mitigating methane emissions*

3 Z Hausfather, January 2023, 'State of the climate: how the world warmed in 2022', *Carbon Brief*

4 D I Armstrong Mackay, et al, 2022, 'Exceeding 1.5°C global warming could trigger multiple climate tipping points', *Science*, vol 377, issue 6611

5 Climate and Clean Air Coalition and UNEP, 2021, op cit

6 'Final UK greenhouse gas emissions national statistics: 1990-2021', March 2023, Department for Energy Security and Net Zero

7 Only 54 per cent of 2020 global methane emissions were produced in countries currently signed up to the Global Methane Pledge.

8 The UK does not have a quantified goal for methane reduction, but analysis of the government's Carbon Budget Delivery Plan (March 2023), which includes actions outlined in the Methane Memorandum (November 2022) suggests a reduction of 19.3 per cent is possible by 2030, if all policies planned are implemented.

9 L Hardy and D Benton, November 2022, *The Global Methane Pledge: how the UK can meet its commitment*, Green Alliance

10 Department for Environment, Food and Rural Affairs, 'Farming Statistics 2021'

11 National Atmospheric Emissions Inventory

12 L Hardy and D Benton, November 2022, op cit

13 BBC News, 28 November 2022, 'Climate change: wasted methane gas 'a scandal''

14 L Hardy and D Benton, November 2022, op cit

15 D I Armstrong Mackay, et al, op cit

16 Ibid

17 Z Hausfather, op cit

18 P Forster, C Smith and J Rogelj, November 2021, 'Guest post: The Global Methane Pledge needs to go further to help limit warming to 1.5C', Carbon Brief

19 Climate and Clean Air Coalition and UNEP, op cit

20 Stylised reproduction based on: M Allen, 2015, policy paper, 'Short-lived promise? The science and policy of cumulative and short-lived climate pollutants', Oxford Martin School

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Green Alliance

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