ClientEarth

August 2020

ClientEarth's feedback to the European Commission's Methane Strategy Roadmap

ClientEarth's feedback

1. Introduction

ClientEarth welcomes the European Commission's initiative to reduce methane emissions through the development of a comprehensive Methane Strategy. As noted in the Roadmap for the European Union (**EU**) Methane Strategy (**Roadmap**), reducing methane emissions is important in slowing global warming.

Set out below are considerations relating to the methane sources in the energy and agriculture sectors that should be addressed in the Methane Strategy, and recommendations for legal mechanisms to regulate them.

Section 2 and 3 explain why the EU should act urgently on methane emissions and section 4 deals with legal basis and form. Section 5 proposes regulatory responses for different emissions sources, section 6 details the need for coherence between different EU legislation, and section 7 identifies practical measures for countering misinformation around methane. Section 8 addresses considerations relating to methane in agriculture, with particular focus on reform of the Common Agricultural Policy.

We have not addressed the waste sector's contributions to anthropogenic methane but acknowledge the importance of improved regulation of this sector.

2. Why the EU must act urgently on methane

Given that current levels of methane emissions make it the second most important greenhouse gas, it has been remarkably under-regulated. Recent studies demonstrate that global anthropogenic methane emissions are vastly higher than reported under existing mechanisms – up to 40% higher, with the fossil fuel industry being the largest contributor.[1] The EU Regulation 2018/1999 on the Governance of the Energy Union and Climate Action highlights the importance of rapidly addressing methane emissions.[2] As is noted in the Regulation, the high global warming potential of methane means it has a highly significant impact on the environment in the short- and medium-term (including a 100-year timeframe)[3], despite its shorter atmospheric lifetime compared to carbon dioxide.[4]

If the EU is to do its part in delivering the 1.5°C temperature goal under the Paris Agreement, the fossil fuel and agriculture sectors that have benefited from the lack of regulatory scrutiny of methane must be brought into line – urgently. According to the IPCC, in order to limit global warming to 1.5°C we must achieve 45% reductions in carbon dioxide emissions from 2010 before 2030, along with deep reductions for non-CO_2 greenhouse gases (GHGs), including reductions of methane emissions of 20% by 2030 and at least 35% by 2050.[5] This is a totally different trajectory to the one the world is currently on - since 2006, methane emissions have spiked rapidly, increasing by 25 teragrams per year.[6] This means that annual global emissions of methane in 2017 (the latest year for which data is available) were around 9%

[1] Benjamin Hmiel et al., 'Preindustrial CH4 Indicates Greater Anthropogenic Fossil CH4 Emissions' (19 February 2020) *Nature*, available at https://www.nature.com/articles/s41586-020-1991-8.

[2] Recital 53.

[3] Over short and medium timeframes, methane has a significantly higher global warming potential than CO_2 (86 times higher in a 20 year timeframe and 34 times higher in 100 years, according to the 2013 IPCC AR5 Fifth Assessment Report, at page 713).

[4] Article 16.

[5] IPCC Special Report on Global Warming of 1.5 °C, available at https://unfccc.int/topics/science/workstreams/cooperation-with-the-ipcc/ipcc-special-report-on-global-warming-of-15-degc#eq-4 and section C.1.2 of IPCC Summary for Policy Makers of the Special Report on Global Warming, available at https://www.google.com/url?q=https://www.ipcc.ch/sr15/chapter/spm/&sa=D&ust=1596591932599000&usg=AFQjCNFFxASEWGyFJzVOSNSTQIiveAbFOw.

[6] John R. Worden, A. Anthony Bloom, Sudhanshu Pandey, Zhe Jiang, Helen M. Worden, Thomas W. Walker, Sander Houweling & Thomas Röckmann, 'Reduced biomass burning emissions reconcile conflicting estimates of the post-2006 atmospheric methane budget' (2017) *Nature Communications* 8:2227, available at: https://www.nature.com/articles/s41467-017-02246-0. A teragram is a unit of weight so large that NASA notes over 200,000 elephants would equal one teragram.

higher than the 2000-06 average.[7] A team led by scientists at NASA confirmed that the fossil fuel industry is responsible for the largest share of these rising methane emissions.[8]

Given that methane emissions are currently on a steep upward trajectory,[9] this issue requires urgent and meaningful policy change. The EU has a unique opportunity to turn the tide on methane emissions as part of a vital effort to curb climate change. Collectively, the EU is the world's largest importer of fossil gas – it buys over half of the globally traded product.[10] As the world's largest economy, the EU has the commercial power to shift the emissions profile of gas for the entire world. It must make clear to producers within and outside of the EU that achieving very low methane emissions throughout the gas supply chain is a prerequisite to gas being sold into the EU internal market. Given methane's shorter atmospheric lifetime, such action could have a marked impact on overall climate outcomes.[11]

Addressing methane emissions does not need to come at a cost to businesses or consumers. According to the International Energy Agency, the fossil fuel industry can achieve a 75% reduction in methane emissions with currently available technologies – and 40% of those reductions can be achieved at no net cost.[12]

In certain markets, for a limited period until replacements are available, methane/fossil gas[13] may have a role as a back-up or peaking fuel in electricity generation and for other, very confined purposes. Properly regulating methane emissions – including through the introduction of strict emissions limits – is key to minimising the impact of these functions and staying on track to achieve the goals of the Paris

[7] Robert McSweeney, 'Scientists concerned by 'record high' global methane emissions' (14 July 2020) *CarbonBrief* available at https://www.carbonbrief.org/scientists-concerned-by-record-high-global-methane-emissions.

[8] Alan Buis, 'NASA-led Study Solves a Methane Puzzle' (2 January 2018) *NASA* available at https://www.nasa.gov/feature/jpl/nasa-led-study-solves-a-methane-puzzle.

[9] E. G. Nisbet et al, 'Very Strong Atmospheric Methane Growth in the 4 Years 2014–2017: Implications for the Paris Agreement' (February 2019) *Global Biochemical Cycles* available at https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2018GB006009.

[10] See Eurostat (November 2019). EU Imports of Energy Products - Recent Developments. Available at:

https://ec.europa.eu/eurostat/statistics-explained/pdfscache/46126.pdf ; see also Eurostat (webpage, last visited 9 March 2020). Where Does Our Energy Come From? Available at https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2a.html; Eurostat (webpage, last visited 9 March 2020). From Where Do We Import Energy and How Dependent Are We? Available at https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html.

[11] J. K. Shoemaker, D. P. Schrag, M. J. Molina, V. Ramanathan, 'What role for short-lived climate pollutants in mitigation policy?' (2013) *Science* 342, pages 1323–1324.

[12] See International Energy Agency, *Methane Tracker* available at https://www.iea.org/reports/methane-tracker-2020/.

[13] Methane is the primary component of fossil gas (also known as natural gas), but the typical composition of fossil gas also includes other gases such as butane, ethane, propane and CO_2. We note that the Roadmap refers to 'methane' as a greenhouse gas and to 'natural gas' as fuel. For the sake of clarity we have kept that convention in this document. However, this word choice should be justified and clarified in the Methane Strategy. Clear definitions should be set to ensure clarity and consistency with other strategies like the Energy System Integration Strategy and the Hydrogen Strategy (see section 6.B below, on terminology).

Agreement. The EU is in a position to lead and influence the global gas industry both by ensuring minimal methane emissions throughout the supply chain, and by properly accounting for methane emissions in greenhouse gas costings, in the same way it is doing with carbon dioxide.

3. Regulation should not be delayed on the basis of insufficient data

Given the urgency of the need to deal with methane emissions, claims of a lack of data must not excuse methane emitters from appropriate regulation. Indeed, the precautionary principle requires that lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.[14]

Sufficient data already exists to support the enactment of legislation to properly account for the climate damage caused by methane, while more detailed data will be forthcoming. ClientEarth echoes the European Climate Action Network (CAN-E)'s calls for immediate mandatory methane monitoring, reporting and verification as a prerequisite to gas being placed in the EU's market.[15] This should initially be based on the most current, evidence-based emissions factors, with a requirement to move to measurement data within two years.

4. Legal basis and form

Following up on the above the most appropriate legal basis for this initiative is Article 191 TFEU. Given the climate emergency, the adoption of a regulation will guarantee the direct applicability of the relevant provisions across Member States**.**

5. Sources of energy-related methane emissions and regulatory responses

Methane emissions from the oil and gas industry are among the largest sources of methane, responsible for around 25% of the total.[16] At the same time, recent studies show much higher rates of methane

[14] Principle 15, Rio Declaration on Environment and Development, Rio de Janeiro, June 1992.

[15] CAN-E, 'Eliminating Methane Emissions from the Energy and Petrochemical Sectors' available at http://www.caneurope.org/docman/climate-energy-targets/3606-joint-ngo-discussion-paper-methane/file.

[16] EDF calculation based on these emission datasets (Food and Agriculture Organization of the UN 2018, US EPA 2012, IEA World Energy Outlook 2018, Alvarez et al. 2018) - see Poppy Kalesi, 'EU's climate credibility rests on tackling methane emissions from gas' (7 January 2020) *Euractiv* available at:

emissions from coal mining, which might even exceed those from the oil and gas sectors.[17] Needless to say, there is an urgent need for the EU to apply a precautionary approach and immediately mitigate emissions from these sectors, as set out below.

a. Methane gas lifecycle

Methane emissions occur across the entire fossil gas supply chain – at pre-production, extraction, processing, liquefaction, transmission, distribution, storage and use – both inside and outside of the EU. Current data indicates that around 80% of methane emissions from fossil gas occurs at the upstream level (production and processing).[18] This means that a serious effort to address methane emissions from fossil gas used in the EU requires regulation of gas that comes from outside the EU's borders, including from countries such as Algeria, Russia, Qatar and the US.

Where the methane leakage rate along the gas supply chain is over 3%, the climate impact of fossil gas is worse than that of coal in power generation.[19] Sadly there are signs of extensive methane leaks across the gas supply chain indicating that this threshold could be exceeded for much of Europe's gas. An investigation using satellite data from the European Space Agency has recently found huge methane plums from the Yamal pipeline that carries gas from Siberia into Europe.[20] Energy consultancy Kayrros estimated one such leak was emitting 93 tonnes of methane per hour.[21] This means the daily emissions from the leak were equivalent to the amount of carbon dioxide pumped out in a year by 15,000 cars in the United States.[22] LNG is possibly even more polluting than piped gas[23] – evidence is growing that

https://www.euractiv.com/section/climate-environment/opinion/eus-climate-credibility-rests-on-tackling-methane-emissions-from-gas/.

[17] Nazar Kholod, Meredydd Evans Raymond C.Pilcher, Volha Roshchanka Felicia Ruiz Michael Coté Ron Collings, 'Global methane emissions from coal mining to continue growing even with declining coal production' (May 2020) *Journal of Cleaner Production*, available at: https://www.sciencedirect.com/science/article/pii/S0959652620305369.

[18] Sonja van Renssen, 'US scientist: Methane leakage reports "have an inherent low bias"' (20 November 2019) *Euractiv* available at https://www.euractiv.com/section/energy-environment/interview/us-scientist-methane-leakage-reports-have-an-inherent-low-bias/.

[19] In-Depth Analysis in Support of the Commission Communication COM (2018) 773: A Clean Planet for All: A European Long-Term Strategic Vision for a Prosperous, Modern, Competitive and Climate Neutral Economy. Page 51, footnote 128. Available at https://ec.europa.eu/clima/sites/clima/files/docs/pages/com_2018_733_analysis_in_support_en_0.pdf.

[20] Shadia Nasralla, 'Satellites reveal major new gas industry methane leaks' (26 June 2020) *Reuters* available at https://www.reuters.com/article/climatechange-methane-satellites/insight-satellites-reveal-major-new-gas-industry-methane-leaks-idUSL1N2DZ0KI.

[21] Ibid.

[22] Ibid.

[23] Testimony of Robert W. Howarth, Ph.D. Cornell University, before the Joint Committee on Climate Action House of Oireachtas, Ireland (9 October 2019) available at: https://data.oireachtas.ie/ie/oireachtas/committee/dail/32/joint_committee_on_climate_action/submissions/2019/2019-10-10_opening-statement-robert-w-howarth-ph-d-cornell-university_en.pdf.

LNG has a higher global warming impact than originally thought,[24] which is particularly significant for Europe given its plans for importing gas on tankers from the US and other jurisdictions.

Underground storage of fossil gas also causes methane fugitive emissions. It is difficult to calculate the volume of such emissions with accuracy, but some evidence suggests that current methane emission budgets may have underestimated them. For example, a recent field study undertaken over 12 underground storage facilities in California shows that emissions estimated based on in-situ airborne surveys were five times higher than reported methane emissions.[25] Underground storage of fossil gas has also been found to have other serious adverse impacts, such as increased and erratic seismic activity.[26]

The current financial crisis is also revealing the risk of stranded fossil gas assets causing ongoing methane leaks after being abandoned. A New York Times-commissioned analysis of recently bankrupt American oil and gas companies' financial statements shows a shortfall in those companies' finances for properly restoring and sealing oil and gas wells.[27] This is occurring at a time when the US government estimates that there are already more than three million abandoned oil and gas wells across the country, two million of which are unplugged, releasing the methane equivalent of the annual emissions from more than 1.5 million cars.[28] At the same time, Europe is increasing its dependence on US LNG.[29]

ClientEarth supports CAN-E's calls for immediate measures to reduce methane emissions throughout the gas supply chain both within and outside of Europe, as set out in the attachment to its submission to the Roadmap at pages 2-3.[30] In addition, given the risk of stranded and abandoned gas assets, we urge the Commission to require that any gas exporter to the EU, and any EU enterprise with gas infrastructure, be legislatively bound to completely seal from leaks all methane infrastructure for which it is responsible, and show evidence of having taken out a security of the value required to do so.

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[24] Ted Nace, Lydia Plante, and James Browning, 'The New Gas Boom: Tracking Global LNG Infrastructure' (2019) *Global Energy Monitor* available at:

https://globalenergymonitor.org/wp-content/uploads/2019/06/NewGasBoomEmbargo.pdf. See also Adam Morton, 'Booming LNG Industry Could Be as Bad for Climate as Coal, Experts Warn' (2 July 2019) *The Guardian* available at: https://www.theguardian.com/environment/2019/jul/03/booming-lng-industry-could-be-as-bad-for-climate-as-coal-expertswarn.

[25] Andrew K. Thorpe et al 2020 Environ. Res. Lett. in press https://doi.org/10.1088/1748-9326/ab751d

[26] Ruiz-Barajas, S., Sharma, N., Convertito, V. *et al.* Temporal evolution of a seismic sequence induced by a gas injection in the Eastern coast of Spain. *Sci Rep* 7**,** 2901 (2017). https://doi.org/10.1038/s41598-017-02773-2

[27] Hiroko Tabuchi, 'Fracking Firms Fail, Rewarding Executives and Raising Climate Fears' (17 July 2020) *New York Times* available at https://www.nytimes.com/2020/07/12/climate/oil-fracking-bankruptcy-methane-executive-pay.html.

[28] Ibid.

[29] Sabina Zawadzki, 'U.S. LNG exports pick up, with Europe a major buyer' (8 March 2019) *Reuters* available at https://www.reuters.com/article/us-lng-usa-idUSKCN1QO1KC.

[30] Available at https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12504-EU-Methane-Strategy/F540092.

b. Coal mine methane emissions

According to UNFCCC reporting, EU coal mines have leaked 31 million tonnes of CO_2-e of methane. Given fossil fuels are likely to account for significantly more methane emissions than is currently reported,[31] this could considerably underestimate the true extent of coal mine methane leakage.

Recent research suggests that coal mines might be a larger source of methane emissions than the oil and gas industry, and without improved regulation, would continue to grow as an emissions source even if coal production is stopped.[32] The same group of US scientists undertaking this research proposed a new methodology for calculating emissions from abandoned mines.[33]

In terms of the regulatory response to this issue, ClientEarth supports CAN-E's recommendations for measures on coal as set out at page 3 of the attachment to its submission to the Roadmap.[34]

c. Oil extraction methane missions

Fossil gas is often vented or flared during oil extraction because it is not considered commercially viable to be captured and sold. Supply of oil from operations where this has occurred within or outside of the EU should be banned in the EU. The only exception to this should be where flaring or venting is done for a legitimate purpose such as safety and it is not possible to capture the methane.

There are undeniable indications that the oil sector is massively exploiting the gap in current EU law dealing with methane from oil extraction. A study published by GEOMAR scientists in July 2020 discovered methane bubbles emerging from the seabed near abandoned oil and gas wells.[35] The main author of the study said that '[t]he results clearly show that thousands of tons of methane are leaking from old drill holes on the North Sea floor every year.'[36]

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[31] Benjamin Hmiel et al., 'Preindustrial CH4 Indicates Greater Anthropogenic Fossil CH4 Emissions' (19 February 2020) *Nature*, available at: https://www.nature.com/articles/s41586-020-1991-8.

[32] Nazar Kholod, Meredydd Evans Raymond C.Pilcher, Volha Roshchanka Felicia Ruiz Michael Coté Ron Collings, 'Global methane emissions from coal mining to continue growing even with declining coal production' (May 2020) *Journal of Cleaner Production*, available at https://www.sciencedirect.com/science/article/pii/S0959652620305369.

[33] Ibid.

[34] Available at https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12504-EU-Methane-Strategy/F540092.

[35] Christoph Böttner et al, 'Greenhouse gas emissions from marine decommissioned hydrocarbon wells: leakage detection, monitoring and mitigation strategies' (September 2020) *International Journal of Greenhouse Gas Control* available at: https://www.sciencedirect.com/science/article/pii/S1750583619306504.

[36] Helmholtz Centre for Ocean Research Kiel (GEOMAR), 'Extensive gas leaks in the North Sea: Abandoned wells' (30 July 2020) *ScienceDaily* available at: https://www.sciencedaily.com/releases/2020/07/200730113055.htm.

d. Fossil gas liquids

CE supports CAN-E's calls for measures to regulate methane emissions from gas liquids, as set out in the attachment to its response to the Roadmap at pages 4-5.

6. Coherence between the regulatory frameworks applicable to methane

In order to ensure methane is regulated in alignment with the EU's emissions reductions targets, it is critically important that coherence is achieved between the various legislative frameworks designed to regulate GHG emissions. This section outlines how the main EU legal instruments regulating GHGs should be amended to properly take account of the climatic impact of methane.

a. Emissions Trading Scheme

Emissions trading schemes (**ETSs**) across the world have tended to focus on long-lived pollutants, the most significant of which is carbon dioxide. However scientific evidence shows how seriously underestimated methane emissions have been in causing global heating, while at the same time the gas industry is successfully lobbying for mass expansion of gas infrastructure. As such, there is a glaring and urgent need for emissions reductions tools to be extended to methane.

Progressive and climate-concerned countries have started to apply emissions reductions schemes to methane. For example, in New Zealand, where agricultural emissions account for around half of total emissions, the emissions trading scheme has been expanded to cover methane.[37]

We support the inclusion of methane in market-based instruments for emissions reduction, either by expansion of the EU ETS to cover methane from coal, oil and gas, agriculture and waste management, or by designing and implementing specific mechanisms for methane adapted to the diffuse nature of its emissions. In any case, the following conditions should be met:

- Price signals should be set so as to encourage responsible parties to reduce methane emissions at a rate consistent with a Paris-aligned pathway. Allowances for methane emissions should be strictly confined to set emitting industries on a credible path to reach this goal.

[37] New Zealand Ministry for the Environment, 'Action on agricultural emissions' available at https://www.mfe.govt.nz/consultation/action-agricultural-emissions.

- The price on methane should include a permanent price floor with an upward trajectory. This provides emitters with certainty to ensure their investments in appropriate methane emissions-reductions equipment and resources will pay-off.

b. Carbon border adjustment mechanism

The EU Commission is currently running a public consultation on introducing a carbon border adjustment mechanism (**CBAM**).[38] Given the cross-boundary nature of fossil fuel supply to the EU, a CBAM that covers imports of methane-emitting fossil fuels is a vital measure in the EU's commitment to limit methane emissions.

The European Green Deal notes that a CBAM should be introduced if differences in levels of climate ambition worldwide persist while the EU increases its carbon ambition. Diverging levels of climate ambition are indeed continuing – of the EU's largest two trading partners (the US and China), the US has no credible national emissions reductions policy, and in the first six months of 2020 China commissioned 11.4GW of coal-fired plants.

It is clear that the EU should introduce a CBAM to protect its economy from GHG emissions leakage, and to provide incentives for its trading partners to decarbonise. However given the need for serious action to mitigate the EU's contribution to methane emissions, such a mechanism should not be limited to carbon dioxide. The mechanism should cover emissions of methane from the entire lifecycle of fossil gas occurring outside of Europe's borders as well as methane emissions from offshore coal mining and oil extraction.

In April this year ClientEarth and Ember provided joint feedback on the Roadmap for a CBAM detailing why fossil fuel imports to the EU should be subject to a CBAM.[39] In particular, the feedback noted that as the EU develops infrastructure for increased importation of fossil gas, LNG and oil, and continues to import coal from countries such as Russia, stopping GHG border leakage will be critical. This is particularly so if the EU acts responsibly in limiting methane emissions within its borders.

In order to avoid perverse incentives for the use of imported fossil fuels, the Commission, as part of the Methane Strategy, should ensure the CBAM properly accounts for the methane emissions involved in fossil fuel imports.

[38] In its response to the CBAM Roadmap, ClientEarth requested that the EU Commission consider changing the terminology for this instrument to encompass emissions beyond carbon dioxide, calling it instead an emissions border adjustment mechanism, or similar.

[39] Available at https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism/F510348.

c. Industrial Emissions Directive

ClientEarth urges the Commission to expand the Industrial Emissions Directive (**IED**) to directly cover GHG emissions including carbon dioxide[40] and methane, and to encompass the above-described industrial processes in which high levels of methane are emitted. In our response to the Inception Impact Statement on the Industrial Emissions Directive, we submitted the following to Commission:[41]

> **Decarbonisation:** Article 9(1) prevents Member States including limits on greenhouse gases in integrated permits, yet doing so would complement rather than undermine the ETS market-based approach. Article 9(2) renders [best available technique associated energy efficiency levels (**BAT-AEELs**)] optional. In addition to revising the IED to focus on promoting the lowest environmental impact technologies, any BAT-AEELs should have binding force. In the context of the Green Deal's decarbonisation agenda, Member States should be permitted and required to use all tools at their disposal to drive decarbonisation.

Expanding the IED to cover methane would greatly improve the EU's ability to signal to industry emissions limits for discrete projects, while complementing efforts to reduce emissions over time under the ETS. It also reflects the Commission's stance in the Industrial Emissions Inception Impact Assessment in which it stated that:[42]

> Industry regulated by the IED will need to largely decarbonise over the next thirty years. To optimise the benefit to society that process should ensure that changes also deliver improvements in all other environmental aspects.

Mitigating emissions of a GHG far more potent than carbon dioxide in the short to medium-term is indeed such an environmental benefit. In regulating such emissions under the IED, GHG emissions limits from industrial processes should be based on the entire lifecycle of the relevant emission. For example, GHGs from coal emissions should encompass the methane emitted as part of the mining process, as well as the carbon dioxide emitted during combustion.

d. Energy Taxation Directive

As part of the EU's revision of energy taxation, we urge the Commission to ensure that the revision of the Energy Taxation Directive takes account of the need for significant methane reductions across the world before 2030. The revised Directive should complement and not undermine the other mechanisms that seek to ensure the cost of climate harm is added to the price of different fossil fuels.

[40] ClientEarth notes that the IED includes certain requirements relating to geological storage of carbon dioxide as set out in Article 36.

[41] Available at https://www.documents.clientearth.org/wp-content/uploads/library/2020-04-22-ied-update-inception-impact-assessment-clientearth-response-ce-en.pdf.

[42] Available at https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12306-EU-rules-on-industrial-emissions-revision.

e. Timescale for global warming potential

Given that the above considerations might lead to methane being regulated in a similar manner to longer-lived greenhouse gases such as carbon dioxide, methane's different global warming timescale and potency need to be accounted for. This requires re-evaluation of the timescale on which the global warming potential of greenhouse gases is calculated, for example from 100 years to 20 years. With respect to legal frameworks such as the ETS, in order to ensure incentives are in place for mitigation of methane emissions, a dual-track system may be required, reflecting the short- to medium-term climate damage this gas causes.

7. Countering misinformation about the impacts of methane

The gas industry appears to be conducting a concerted campaign to convince consumers, voters and decision-makers of the central role of gas in future energy systems, and that gas is a clean, relatively non-harmful energy source. Advertising billboards in train stations and airports,[43] online advertisements,[44] astroturfing on social media[45] and unbranded websites promoting fossil gas[46] are becoming prolific. The gas sector in the US and Australia is also paying Instagram influencers to post positive statements about benefits of gas, without identifying their benefactors.[47] We are greatly concerned that such campaigns are giving consumers a false impression of the consequences of increased fossil gas dependence.

[43] See, for example, Harry Dempsey, 'Gas is 'not a low-carbon fuel', UK watchdog rules' (16 September 2019) *Financial Times* available at https://www.ft.com/content/788005cc-d3e9-11e9-8367-807ebd53ab77 and French fossil fuel company Total's description of its advertising campaigns featuring displays in 15 international airports, commercials on 80 television channels, advertisements in more than 230 publications worldwide and over 1 billion impressions delivered online - https://www.total.com/media/news/press-releases/new-brand-baseline-and-global-corporate-advertising-campaign-total?%FFbw=kludge1%FF.

[44] See for example, ClientEarth, *Complaint against BP in respect of violations of the OECD Guidelines*, (December 2019) available at https://www.documents.clientearth.org/library/download-info/complaint-against-bp-in-respect-of-violations-of-the-oecd-guidelines/.

[45] Sandra Laville and David Pegg, 'Fossil fuel firms' social media fightback against climate action' (10 October 2019) *The Guardian* available at https://www.theguardian.com/environment/2019/oct/10/fossil-fuel-firms-social-media-fightback-against-climate-action.

[46] See for example the unbranded websites established by the Australian Petroleum and Production Agency (the Australian fossil fuel lobby) at https://bright-r.com.au/about/ and https://energyinformationaustralia.com.au/.

[47] Rebecca Leber, 'The Gas Industry Is Paying Instagram Influencers to Gush Over Gas Stoves' (17 June 2020) *Mother Jones* available at https://www.motherjones.com/environment/2020/06/gas-industry-influencers-stoves/ and Michael Marzengarb, 'The Australian Instagram influencers being paid to promote gas' (25 June 2020) *RenewEconomy* available at https://reneweconomy.com.au/the-australian-instagram-influencers-being-paid-to-promote-gas-18028/amp/.

Given the significant effect that such campaigns have likely had on people's perception of methane, we consider it incumbent on the Commission to address such misinformation with two changes to help consumers and decision-makers better understand the nature of this product, as outlined below.

a. Consumer warnings of the health impacts of gas

While we are not aware of any studies tracking consumer understanding of the risks of fossil gas to human health, ClientEarth is concerned about the lack of government-backed information about this issue. We urge the Commission to require consumer health warnings on household fossil gas appliances and fossil gas contracts.[48]

According to the US Environment Protection Agency, emissions from fossil gas-fired stoves, ovens, boilers and furnaces include nitrogen oxides, carbon monoxide, and carbon dioxide, methane, nitrous oxide, volatile organic compounds, trace amounts of sulfur dioxide, and particulate matter.[49] These pollutants are released in quantities that have been shown to harm human health.

Recent studies in the US (where fossil gas is used in similar cooking appliances to Europe) show that households in which gas stoves are used have high levels of pollutants, and consequently are associated with adverse health outcomes compared to electrical alternatives.

For example, a recent study by UCLA Berkeley in California found that when cooking for one hour with a fossil gas stove and oven, peak levels of nitrogen dioxide inside the kitchen are so high they exceed national acute air-quality standards in more than 90% of homes modelled.[50] In apartments, this rate was even higher, at 98%.[51] This means that, in nearly every household scenario in the study modelled, air quality inside the dwelling was so bad it would be illegal if measured outside.

Exactly how the chemicals from fossil gas stoves affect children is not well understood. However a 2013 meta-analysis found that children in homes with fossil gas stoves have a 42% higher risk of being

[48] ClientEarth is separately calling for requirements for fossil fuel advertising to contain climate health warnings, similar to health warnings on tobacco products - see https://www.clientearth.org/the-whole-truth/.

[49] *Natural Gas Combustion*, AP 42, Fifth Edition, Volume I Chapter 1: External Combustion Sources (1998) US Environmental Protection Agency, https://www3.epa.gov/ttn/chief/ap42/ch01/final/ c01s04.pdf at 1.4.3.

[50] Yifang Zhu, Rachel Connolly, Yan Lin, Timothy Mathews, Zemin Wang, 'Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California' (April 2020) *UCLA Fielding School of Public Health*, available at https://ucla.app.box.com/s/xyzt8jc1ixnetiv0269qe704wu0ihif pages 20-21, 41.

[51] Ibid.

diagnosed with asthma by a doctor.[52] Also, children exposed to elevated levels of nitrogen dioxide are more vulnerable to lung infections, asthma and allergens, as well as at risk of lowered IQ.[53]

There are also significant health risks for people living near fossil gas production facilities. In a study published in July 2020, researchers from the University of California, Los Angeles and University of Southern California, Los Angeles examined birth records and satellite observations of flaring activity during pregnancy within 5km of maternal residence. The study showed that pregnant women living in areas where flaring events were common had a 50% higher chance of preterm birth and shorter gestation compared with no exposure.[54] These births occurred before 37 weeks of gestation, when incomplete development raises a baby's chance of numerous disorders, even death.

ClientEarth considers an EU-sanctioned health warning on the sale of gas appliances and gas contracts to be an appropriate response to this evidence. EU consumers now have available to them clean technologies for indoor heating and cooking, which are likely to be a more economical choice overall.[55] Given the range and cost-effectiveness of clean alternatives, consumers should be told about the health risks of fossil gas, so that they can make informed decisions for themselves and their families.

b. Terminology

As new types of gas beyond fossil gas grow widespread, the adoption and use of a clear and consistent terminology becomes increasingly important. The recent Hydrogen[56] and Energy System Integration[57] Strategies have both identified as key actions the introduction of a comprehensive terminology and a European certification system for hydrogen and renewable and low carbon fuels.

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[52] Weiwei Lin, Bert Brunekreef, and Ulrike Gehring, "Meta-analysis of the effects of indoor nitrogen dioxide and gas cooking on asthma and wheeze in children," International Journal of Epidemiology, Volume 42, Issue 6, (December 2013): 1724–1737, https://doi.org/10.1093/ije/dyt150.

[53] Brady Anne Seals and Andee Krasner, *Health Effects from Gas Stove Pollution*, Rocky Mountains Institute, https://rmi.org/insight/gas-stoves-pollution-health at page 13.

[54] Lara J. Cushing, Kate Vavra-Musser, Khang Chau, Meredith Franklin and Jill E Johnston, 'Flaring from Unconventional Oil and Gas Development and Birth Outcomes in the Eagle Ford Shale in South Texas' (2020) *Environmental Health Perspectives* 128(7), available at https://ehp.niehs.nih.gov/doi/10.1289/EHP6394?campaign_id=54&emc=edit_clim_20200722&instance_id=20534&nl=climate-fwd%3A&regi_id=93956107&segment_id=34078&te=1.

[55] Louise Sunderland, 'Getting Off Gas: Future Risks for Energy Poor Households' (15 July 2020) *Foresight Climate and Energy* available at https://foresightdk.com/getting-off-gas-future-risks-for-energy-poor-households/.

[56] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A hydrogen strategy for a climate-neutral Europe, Brussels, 8.7.2020 COM(2020) 301 final. Available at: https://ec.europa.eu/energy/sites/ener/files/hydrogen_strategy.pdf

[57] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Powering a climate-neutral economy: An EU Strategy for Energy System Integration, Brussels, 8.7.2020 COM(2020) 299 final. Available at https://ec.europa.eu/energy/sites/ener/files/energy_system_integration_strategy_.pdf

We consider the Methane Strategy should also address this issue by recognising the importance of setting or revising definitions for fossil gas and methane as a greenhouse gas, consistent with the rest of Strategies.

In particular the terminology should take into account that the term 'natural gas' may be misleading, as it may connote being non-toxic, sustainable and able to be returned to its original environment. This term might become even more confusing for citizens and consumers as synthetic but cleaner gases increasingly become available. More accurate terminology would be 'fossil gas' or 'methane gas'. Similarly, the term 'liquefied natural gas' could be replaced with 'liquefied methane' or 'liquefied methane gas'.

8. Agriculture

As acknowledged in the Roadmap, the EU agricultural sector contributes to slightly more than half of the total EU methane emissions. More specifically, the livestock sector represents the main source of methane emissions in agriculture, due to enteric fermentation and manure management.

The Common Agricultural Policy (**CAP**) supports intensive livestock production, mainly through voluntary coupled support (**VCS**). Coupled support to ruminant livestock is likely to raise their numbers, and higher livestock numbers are associated with higher emissions. Although the new CAP post 2020 – currently being discussed by co-legislators – has been announced as increasingly ambitious in terms of climate and environment, VCS will continue to incentivise livestock production. In particular, Article 29 in coordination with Article 30, paragraph 2, of the proposal for a CAP Strategic Plan Regulation', foresees the possibility for Member States to grant coupled income support, through their CAP Strategic Plans, to specific sectors including milk and milk products, sheepmeat, goatmeat, beef and veal.

In addition, the livestock sector indirectly benefits from CAP subsidies, insofar as VCS can cover protein crops, largely used for animal feed. The Farm to Fork Strategy recognises the negative impact that unsustainable feed production has on emissions from the animal sector. It envisages in Q4 2021 a new proposal for a revision of the feed additives Regulation to reduce the environmental impact of livestock farming. By continuing to support intensive livestock production, the CAP Strategic Plan Regulation proposal does not seem in line with such an initiative. Nor does it seem to align with the need, expressed in the Farm to Fork Strategy, to 'reduce the environmental and climate impact of animal production'.

In order to address methane emissions from agriculture, the above-described income support mechanisms under the CAP should be stopped, while EU incentives should support a livestock sector that contributes to the EU's climate and biodiversity targets.

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