FACULTY OF PUBLIC HEALTH

Protecting and improving the health of the public through the organised efforts of our members

Position Statement

Fossil Fuels, the Fossil Fuel industry and Public Health: the case for ending extraction and exploration to protect public health

April 2024

Summary

Health impacts of fossil fuels and their extraction

Fossil fuels like oil and gas, and our continuing reliance on them, are a serious threat to our health - from their extraction, through their transport, consumption and air pollution, to toxic waste at the end of extraction sites' life cycles. The harms they cause range from the air pollution that is produced when they are burnt, which kills around 40,000 people every year in the UK, and millions of people worldwide, to people being unable to afford to heat their homes, because of high oil and gas prices, whilst emissions from fossil fuels contribute to the climate crisis, and the ways in which it harms people's health. These impacts increase the widening inequalities in the UK, and often fall on those who are least responsible for climate change and pollution.

At the global level, a focus on fossil fuel extraction and prioritising companies' profits, often happens at the cost of people's health and other social issues, shaped by historical factors like racism, inequality and colonialism. Direct impacts from coal, oil and gas extraction include impacts from waste, spills, accidents, and impacts on workers and local communities, many of which affect the health of poor communities, particularly in the global South. Less direct impacts of fossil fuel companies' operations include driving conflict and instability around the world; and sustained injustices in whose health is most affected by climate change.

The fossil fuel industry and drawing on public health lessons from other industries

The fossil fuel industry is known to use many of the same tactics as other industries with a history of harming health and promoting harmful products. This has included working to influence science, policy-making and public understanding, for example by systematically working to create doubt about science, and delaying laws and regulations that restrict harmful industries and promote public health. A ‘Commercial Determinants of Health’ lens can help Public Health professionals to draw on lessons learned from other harmful industries, such as tobacco, in making the case for action to protect health from the fossil fuel industry’s practices.

A future without fossil fuels

Creating a fossil-free, fairer and healthier future offers immense public health benefits, both directly through local, short-term health benefits, e.g. in terms of transport, housing, food and cleaner air, and in terms of longer-term health gains through addressing climate change. Whilst it may involve many challenges, a future like this is also an opportunity to reduce inequalities, if done appropriately. To achieve that, a ‘Just Transition’ for the people and communities most affected (including fossil fuel workers) must be prioritised in all planning and advocacy on these issues, and the people most impacted by climate change and fossil fuels should be included in developing solutions that work for everyone.

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About this Position Statement

Purpose and scope

This Position Statement sets out a platform for advocacy and action by the FPH and its members in relation to fossil fuel (oil, gas and coal) expansion in the UK in particular, and the fossil fuel industry's impacts on health more broadly, aiming to inform both proactive and reactive advocacy activities. It is aimed at members of the Faculty, members of the public health workforce working within international, national, regional and local public health teams, policymakers, and members of the public. It aims to inform stakeholders on the Faculty's position on fossil fuel expansion and the fossil fuel industry, and its detrimental impact on public health. It also draws some parallels with other harmful industries such as the tobacco industry. The recommendations in this statement speak particularly to members of the Faculty of Public Health (FPH), with proposed responsibility for implementation lying primarily with the Special Interest Group (SIG) and Committee members, and the wider FPH community.

Objectives

I. To provide the public health case for ending fossil fuel expansion, acting as a reference point for FPH members and the public health workforce.
II. To serve as a guiding document for FPH members to take action on fossil fuel expansion, including countering harmful practices of the fossil fuel industry.
III. To inform local, regional and national and international public health action and advocacy on fossil fuel expansion.

Summary of recommendations

This Position Statement calls on public health professionals (and commits the FPH) to:

- Raise awareness of the issues of the many harms fossil fuel extraction causes to public and global health, including through impacts on the climate, and work to de-legitimise and de-normalise the fossil fuel industry;
- Advocate for an end to all new fossil fuel (oil and gas) extraction in the UK;
- Over the longer term, to reduce dependency on fossil fuels through a range of measures with health co-benefits;
- Work to restrict the influence of the fossil fuel industry and related corporate interests,
- Support international policy measures and advocacy efforts (including the Fossil Fuel Non-Proliferation Treaty) towards these goals.

(Detailed recommendations are listed on page 16).

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I. Introduction

Background

The Faculty of Public Health (FPH) in its Climate and Health Strategy 2021-25 envisions becoming a credible and respected voice on climate, environment, health impacts and their inequitable distribution, and supports the public health workforce to lead on strategies to protect health and wellbeing for current and future generations. It aimed to prioritise advocacy where the outcomes will have the most impact such as high impact topic areas or where the opportunity to influence is greatest.

Members of the FPH Special Interest Group (SIG) on Sustainable Development alongside the Climate & Health Committee have together identified fossil fuel expansion as a priority focus area for the Faculty's advocacy. In September 2022, the FPH signed the fossil fuel non-proliferation treaty (FFNPT), and co-signed a letter alongside 192 international health bodies demanding that governments lay out a legally binding global plan to phase out fossil fuel use.[1]

As the professional membership body for public health, the FPH will work to promote and protect health for everyone and will advocate for equity and justice to be core to all work on climate, the environment and health, recognising that climate injustice creates health inequalities locally and globally.

II. How fossil fuels harm public health

Key points

- Our public health approach must recognise extractivism as practices aimed at prioritising gains through extraction over health or society and that these practices have enabled and mirrored colonial power relations
- Fossil fuel industry products and practices (and the structures and systems that enable them) cause a range of health harms and contribute to injustice through environmental impacts of extraction, production and dealing with waste, occupational health effects and exploitative working practices, and contribution to instability, conflict and human rights abuses in the international context
- Our fossil fuel-dependent energy system also harms health through direct impacts including the air pollution created when fossil fuels are burnt (for transport, energy or other uses), and through energy poverty and cold homes (which transitioning towards more sustainable energy sources, alongside better home insulation, could help to reduce).

[1]International health organisations call for fossil fuel non-proliferation treaty to protect the lives of current and future generations. Press Release. https://fossilfueltreaty.org/health-letter-press-release

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- More indirectly, emissions from fossil fuel combustion are the main driver of the myriad health impacts of the climate crisis, which are rapidly growing and deeply inequitable.

For further background on the harms of the fossil fuel industry, please see Appendix 1.

1 Extractivism and Public Health

1.1 Defining Extraction and Extractivism

Extraction of fossil fuels (coal, oil and gas) is defined as the mining and drilling of these resources from the earth. Extractivism is the removal of large quantities of natural materials from the environment, particularly for export with minimal processing. Historically, they have been extracted along lines reflecting colonial power relations, and the resulting profits have often been a driving force for colonisation, supporting the economic development of Global North countries such as the UK.[2],[3] The present-day actions of (Global North-headquartered) fossil fuel corporations often mirror these behaviours in Global South countries, extracting both fossil fuels and profits.[4] Extractivism can also define "a way of thinking, and the properties and practices organised toward the goal of maximising benefit through extraction, which brings … violence and destruction."[5] Countries in the Global North like the UK have often evaded responsibility for the damages done during industrialisation and colonisation, as well as there being a historical amnesia,[6] in addition to ongoing damages from emissions. Colonialism's role in disrupting planetary health and eroding minoritised populations' and communities' power to address climate change is increasingly recognised.[7]

1.2 Environmental and health impacts of fossil fuel extraction

The extraction, transport and refinement of coal, oil and gas causes a range of environmental impacts including air pollution, groundwater pollution[8] and noise pollution. Living near petrochemical plants, often situated within socially and racially minoritised communities, may be

[2] Arteaga, E, Jailer, T, Mukhopadhyay, B (2022) Beyond Development and Extractivism. New Paradigms for Health. https://magazine.scienceforthepeople.org/vol25-2-bleeding-earth/beyond-development-and-extractivism/#easy-footnote-bottom-4-15574
[3] Alberto Acosta, "Extractivism and Neoextractivism: Two Sides of the Same Curse," in Beyond Development: Alternative Visions from Latin America, ed. Miriam Lang and Dunia Mokrani (Amsterdam: Transnational Institute and Rosa Luxemburg Foundation, 2013), 61–86.
[4] People's Health Tribunal. Hadjer Nacer and Isobel Braithwaite. June 12, 2023 https://betterhealthforall.org/2023/06/12/peoples-health-tribunal-blog/
[5] Durante, Francesco; Kröger, Markus; LaFleur, William (2021-05-19), Shapiro, Judith; McNeish, John-Andrew (eds.), "Extraction and Extractivisms", *Our Extractive Age* (1 ed.), Abingdon, Oxon: Routledge, pp. 17–30, doi:10.4324/9781003127611-3, ISBN 978-1-003-12761-1, S2CID 236582804
[6] Sultana, F (2022) The Unbearable heaviness of climate coloniality
[7] Climate Change 2022: Impacts, Adaptation and Vulnerability. https://www.ipcc.ch/report/ar6/wg2/
[8] Concerned Health Professionals of NY & Physicians for Social Responsibility, 2022. Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking and Associated Gas and Oil Infrastructure. Online, (accessed 6 July 2022).

associated with increased cancer risks,[9,10] whilst fossil fuel transportation carries risks of spills and explosions.[11] Oil and gas extraction can also have significant local impacts, including by contaminating land, water and local food chains, and air pollution impacts e.g. from methane gas flaring. Fossil fuel processing is also water-intensive, leading to competition with water for human consumption and agriculture.[12] Legacy fossil fuel infrastructure can also continue to harm the health of communities living near these sites even after decommissioning.

1.3 Occupational health impacts and risks

Workers involved in the extraction of fossil fuels face many occupational health hazards, including fatalities, serious injuries, and long-term conditions such as certain cancers and respiratory diseases.[13] For example, coal workers' pneumoconiosis (black lung) affects c.16% of coal workers.[14] In a systematic review and meta-analysis, petroleum industry work was found to be associated with an increased risk of cancers including lung, prostate and bladder cancers.[12] Risks facing oil and gas workers include those from flammable petroleum, hazardous substance exposure, and injuries.[15]

1.4 Contribution to instability, conflict and human rights abuses in international context

There are countless examples of where the fossil fuel industry's involvement in countries in the Global South has increased civil instability or exacerbated conflicts, often in already unstable regions where local populations are struggling to meet basic needs. For example, the work of the People's Health Tribunal recently has brought this to light in 4 countries where Shell and Total have been operating in Africa, focusing on the consequences this has had for human and planetary health.[2] These companies have also frequently abused human rights, and benefit from weak human rights protections, in such contexts.[16,17]

2 Direct health impacts of the fossil fuel economy

2.1 Air pollution: chronic disease impacts and inequalities

[9] Jephcote et al, 2020. A systematic review and meta- analysis of haematological malignancies in residents living near petrochemical facilities. Environmental Health 19, 53. doi.org/10.6084/m9.figshare.12572483.v1.
[10] Lim et al, 2021. Cancer cluster among small village residents near the fertiliser plant in Korea. PLoS ONE 16(2): e0247661 doi.org/10.1371/journal.pone.0247661
[11] Généreux et al, 2019. Monitoring Adverse Psychosocial Outcomes One and Two Years After the Lac-Mégantic Train Derailment Tragedy (Eastern Townships, Quebec, Canada). Prehospital and Disaster Medicine 34(3): 251-259. doi.org/10.1017/S1049023X19004321
[12] https://www.ucsusa.org/resources/hidden-costs-fossil-fuels#:~:text=Externalities%20are%20sometimes%20easy%20to,impacts%20of%20sea%20level%20rise
[13] Onyije et al, 2021. Cancer Incidence and Mortality among Petroleum Industry Workers and Residents Living in Oil Producing Communities: A Systematic Review and Meta- Analysis. Int J Environ Res Public Health. 18(8): 4343. doi. org/10.3390/ijerph18084343
[14] https://www.lung.org/lung-health-diseases/lung-disease-lookup/black-lung/learn-about-black-lung
[15] https://www.hse.gov.uk/offshore/healthrisks.htm
[16] People's Health Tribunal. Hadjer Nacer and Isobel Braithwaite. June 12, 2023 https://betterhealthforall.org/2023/06/12/peoples-health-tribunal-blog/
[17] Du S, Vieira ET. Striving for legitimacy through corporate social responsibility: Insights from oil companies. Journal of business ethics. 2012 Nov;110:413-27.

99% of the global population breathe air that exceeds WHO guideline limits on air quality, and polluted air causes approximately 6.7 million premature deaths/year;[18] the majority of this being caused by fossil fuel combustion (within high- and middle-income countries).[19] The health harms caused by air pollution are increasingly well-recognised, including cardiovascular disease, lung cancer, chronic respiratory disease and dementia.[20,21,22] In the UK, outdoor air pollution is estimated to cause between 28,000 and 36,000 deaths each year,[23] and has been described as a 'public health emergency'.[24] A high proportion is caused by the fossil fuel-dependent nature of our economic and social systems. This includes their use for energy generation, industrial processes, and particularly in transport (where people are in close proximity to their combustion products), as well as indoor air pollution in our homes (for heating and cooking).[25] 26% of UK carbon emissions were from transport (the largest contributor to poor air quality[26]), 20% from energy supply and 16% from the residential sector in 2021.[27]

Meeting WHO $PM_{2.5}$ recommendations in the UK could halve pollution-related deaths.[28] These impacts disproportionately affect poorer people, racialised and minoritised communities[29] and those living near industrial sites/power plants, both in the UK[30] and globally.[31,32] For example,

[18] https://www.who.int/data/gho/data/themes/air-pollution?lang=en
[19] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5800116/#B17-ijerph-15-00016
[20] World Health Organization, Ambient air pollution. https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health (accessed 6 June 2023).
[21] Lelieveld et al, 2019. Effects of fossil fuel and total anthropogenic emission removal on public health and climate. PNAS; 116 (15): 7192-7197 doi.org/10.1073/ pnas.1819989116
[22] https://pubmed.ncbi.nlm.nih.gov/30775976/
[23]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/734799/COMEAP_NO2_Report.pdf
[24] https://www.bmj.com/content/378/bmj.o1664
[25] https://www.parliament.uk/globalassets/documents/post/postpn366_indoor_air_quality.pdf
[26] Our World in Data - Air Pollution https://ourworldindata.org/air-pollution (accessed 6 June 2023).
[27] Provisional Emissions Statistics Report - 2021 and 2022 - UK Government https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1134664/greenhouse-gas-emissions-statistical-release-2021.pdf https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/ and 1147372/2022_Provisional_emissions_statistics_report.pdf (accessed 6 June 2023).
[28]https://www.clientearth.org/latest/press-office/press/thousands-of-needless-air-pollution-deaths-as-uk-government-ignores-health-experts-clientearth-reaction/
[29] Deivanayagam TA, English S, Hickel J, Bonifacio J, Guinto RR, Hill KX, Huq M, Issa R, Mulindwa H, Nagginda HP, de Morais Sato P. Envisioning environmental equity: climate change, health, and racial justice. The Lancet. 2023 May 29.
[30]https://www.nice.org.uk/media/default/About/what-we-do/NICE-guidance/NICE-guidelines/Public-health-guidelines/Additional-publications/Spatial-planning/the-marmot-review-implications-for-spatial-planning.pdf
[31] Brunt H, Barnes J, Jones SJ, Longhurst JWS, Scally G, Hayes E (2017). Air pollution, deprivation and health: understanding relationships to add value to local air quality management policy and practice in Wales, UK. *J Public Health (Oxf)* 2017;39:485-97.pmid:27613763
[32] Fecht D, Fischer P, Fortunato L. Associations between air pollution and socioeconomic characteristics, ethnicity and age profile of neighbourhoods in England and the Netherlands. Environmental Pollution. 2015; 198:201-210.

children in London face stark deprivation-related inequalities in the air that they breathe where they live, learn and play.[33,34]

2.2 Energy poverty and the role of fossil fuel dependence in driving it

The dependence of our energy system on fossil fuels, and our slow transition to date towards cleaner renewable energy sources (alongside the UK's relative lack of investment over many years in measures such as home insulation and heat pumps, whilst other countries are moving ahead more rapidly) also contributes to increased energy poverty, and exacerbates and increases the health impacts of cold homes. The UK has some of the worst-quality housing in Europe and the OECD, and since 2012 the rate of retrofitting homes has fallen dramatically relative to the rate achieved from 2008-2011, as the Committee on Climate Change highlights.[35] These factors have left the UK highly vulnerable to gas price volatility from external changes, and have exacerbated the impacts of these price rises during the cost of living crisis of 2022-23. Shifting away from fossil fuels whilst investing adequately in resilient, energy-efficient housing, will help to improve health by addressing the issue of cold homes, cut emissions, reduce energy demand and provide a better buffer against future shocks.[36]

3 Fossil Fuels in the UK - the main driver of climate change

3.1 Fossil Fuel use and production in the UK - how much of our energy is fossil fuel and where do we get it from?

The UK has high greenhouse gas emissions and energy consumption relative to the global average. Fossil fuels accounted for 78.3% of the UK's primary energy consumption in 2021.[37] This is higher than the European Union average (70%), France (48%) and Sweden (32%).[38] Gas is used mainly for heating, cooking and generating electricity, whilst oil is mainly used for transport (as petrol/diesel).[39] In 2021 the UK exported £3.4 billion of gas, an increase from £1.3 billion in 2020, and imported £19.6 billion of gas.[40] The North Sea Oil and gas fields produce a

[33] Sheridan CE, Roscoe CJ, Gulliver J et al. Inequalities in Exposure to Nitrogen Dioxide in Parks and Playgrounds in Greater London. Int J Environ Res Public Health. 2019 1;16 (17).
[34] Brook R, King K. Updated Analysis of Air Pollution Exposure in London. Aether Ltd; 2017. Accessed 15 October 2019. Available from https://www.london.gov.uk/sites/default/files/aether_updated_london_air_pollution_exposure_final.pdf.
[35] Committee on Climate Change. UK Housing: Fit for the Future? https://www.theccc.org.uk/wp-content/uploads/2019/02/UK-housing-Fit-for-the-future-CCC-2019.pdf
[36] Mulrenan C, Braithwaite I, Brook A, Crossley R, Loud E, Mavrodaris A. Comment: A sustainable and equitable response to the cost-of-living crisis is urgently needed. Public Health in Practice. 2023 Jun;5.
[37] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1135950/DUKES_2022.pdf
[38] Our World in Data - Per capita energy use by source 2022 https://ourworldindata.org/grapher/energy-consumption-by-source-and-country?country=~GBR (accessed 6 June 2023).
[39] Government Publications The UK remains dependent on fossil fuels https://publications.parliament.uk/pa/ (accessed 6 June 2023).
[40] Office for National Statistics 2022 Balance of Payments https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/articles/trendsinukimportsandexportsoffuels/ (accessed 6 June 2023).

decreasing share of the UK's oil and gas (83% of domestic oil and 50% of gas).[41] Meanwhile, the renewable share of electricity generation reached a record 47.8% in the first quarter of 2023, up substantially from 5.8% in the same quarter of 2010.[42]

The 2022 Lancet Countdown showed that in 2019 the UK effectively provided net subsidies for fossil fuels, and in 2020-21, committed more resources to supporting fossil fuel energy than clean energy sources.[43] Net imports of fossil fuels make up half of the UK's carbon footprint. If the UK continues to rely on fossil fuels, these imports will increase.

3.2 Health Effects of Climate Change

Climate change has been called the biggest threat to global health of this century, and emissions from fossil fuels are the main driver of climate change.[44] The UK is becoming warmer and wetter in winter and drier in summer, with more frequent extreme weather events. Heatwaves, flooding and wildfires pose a significant health concern, and an estimated 1.8 million people in the UK are at significant risk of flooding. This is of particular concern in relation to mental health impacts such as stress, depression and PTSD for those affected.[45,46]

These impacts have key justice dimensions: lower income and minoritised groups for example often live in poorer-quality housing in locations that are vulnerable to flooding or other climate impacts (e.g. homes which are more prone to overheating and/or which have limited access to green spaces).[47] Low-income households in the UK are 8 times more likely to be affected by flooding than high-income households.[48] Increasing invasive mosquito numbers and rising Lyme disease cases[49],[50] are being observed in the UK[51],[52] and similar climate-related impacts on multiple infectious diseases are of global concern. Climate-related crop failures and reduced

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[41] North Sea Energy: The UK's valuable national asset https://www.gisreportsonline.com/r/north-sea-energy/ (accessed 6 June 2023).

[42] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1165986/Energy_Trends_June_2023.pdf

[43] https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)01540-9/fulltext

[44] https://www.un.org/en/climatechange/science/causes-effects-climate-change

[45] UK Government Press Release 2020 https://www.gov.uk/government/news/prepare-for-flooding-to-reduce-impacts-on-mental-health

[46] Jermacane D, Waite TD, Beck CR, Bone A, Amlôt R, Reacher M, et al.. The English National Cohort Study of Flooding and Health: the change in the prevalence of psychological morbidity at year two. *BMC Public Health.* (2018) 18:330. 10.1186/s12889-018-5236-9

[47] Preston I, Banks N, Hargreaves K et al. Climate change and social justice. JRF; 2014. Accessed 15 October 2019. Available from: https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/climate-change-social- justice-full.pdf

[48] UK Climate Change Risk Assessment 2017 Chapter 5: People and the built environment https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Chapter-5-People-and-the-built-environment.pdf (accessed 6 June 2023).

[49] Climate Change and Vector-Borne Disease in Humans in the UK Research Briefing 2019 https://post.parliament.uk/research-briefings/post-pn-0597/

[50] Lyme Borreliosis Epidemiology and Surveillance - Government Publication https://www.gov.uk/government/publications/lyme-borreliosis-epidemiology/lyme-borreliosis-epidemiology-and-surveillance

[51] Baylis, M. Potential impact of climate change on emerging vector-borne and other infections in the UK. *Environ Health* 16 (Suppl 1), 112 (2017). https://doi.org/10.1186/s12940-017-0326-1

[52] JT Walker, 2018 The influence of climate change on waterborne disease and Legionella: a review Volume 138, Issue 5 https://doi.org/10.1177/1757913918791198

yields in many countries[53] are also likely to impact on food availability and prices globally, with consequent impacts on dietary quality and nutrition in the UK.[54] Climate change and related economic impacts can also undermine security, potentially driving conflict and instability.[55] Increasing population movement is likely,[56] and will demand a humane and ethical collective response that centres health, particularly in view of the historical responsibility of countries in the Global North.

III. Understanding the fossil fuel industry from a commercial determinants of health (CDOH) perspective

Key points

- Commercial determinants of health (including fossil fuel industry practices and products) contribute substantially to people dying too young and living too long in poor health.
- Public Health professionals are well-placed to draw on the lessons learned in addressing other harmful industries, to make the case for effective action to protect health from the practices and products of the fossil fuel industry.

For more detailed background on the practices of the fossil fuel industry, see Appendix 1.

1. Parallels with other harmful industries

It is well-evidenced that the practices and products of the commercial sector, and the way these are regulated, have profound implications for health, equity, and the environment. Applying a commercial determinants of health (CDOH) lens to major public health issues, such as air pollution and the climate crisis, is critical to addressing the harmful commercial practices that represent important barriers to a timely transition to just and sustainable policy regimes.[57]

The Lancet Series on the CDOH proposes 'a broad definition of the commercial determinants of health as: the systems, practices, and pathways through which commercial actors drive health and equity'.[58] Exposure to health-harming products (such as tobacco, alcohol, high fat, salt and sugar foods, gambling products, fossil fuels) causes many non-communicable diseases (NCDs), which shorten people's lives, cause years of poor-health and deepen inequities. Initial estimates suggest commercial determinants (from just four industries: tobacco, alcohol, food and fossil

[53] UK Food Security Report 2021 https://www.gov.uk/government/statistics/united-kingdom-food-security-report-2021 (accessed 6 June 2023).
[54] Scheelbeek, P. F. D. et al. (2018). Effect of environmental changes on vegetable and legume yields and nutritional quality. Proc. Natl Acad. Sci., Vol 115, 6804–6809.
[55] Pörtner HO, Roberts DC, Poloczanska ES, Mintenbeck K, Tignor M, Alegría A, Craig M, Langsdorf S, Löschke S, Möller V, Okem A. IPCC, 2022: Summary for policymakers.
[56] Human Security Chapter on Climate Change Intergovernmental Panel on Climate Change (IPCC) 2014 https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap12_FINAL.pdf
[57] van Schalkwyk, May CI, Nason Maani, and Mark Petticrew, 'The Fossil Fuel Industry: Fuelling Doubt and Navigating Contradiction', in Nason Maani, Mark Petticrew, and Sandro Galea (eds), The Commercial Determinants of Health (New York, 2022; online edn, Oxford Academic, 20 Oct. 2022), https://doi.org/10.1093/oso/9780197578742.003.0012,
[58] https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(23)00013-2/fulltext

fuels) contribute to at least one-third and probably >58% of all deaths, and probably >78% of deaths from NCDs globally.[58]

Commercial practices serve to promote the business interests of a corporation or industry sector which can be in direct conflict with public health goals. Such practices act directly, such as through the promotion of harmful products, and indirectly through influencing science, policy making and public understanding. Commercial sectors can also undermine health and equity by adopting exploitative labour and employment practices, externalising costs and responsibilities through supply chains and off-shoring, and harmful financial practices, e.g. tax avoidance. Comparative analyses have shown that many of these practices are highly consistent across industries, particularly health-harming industries.[59]

Research on the activities of the fossil fuel industry and those receiving its funding demonstrates long-standing attempts to create widespread doubt among the public and policymakers about the science on the existence of climate change and its human causes to block and delay regulations restricting the extraction and use of fossil fuels. For example, analysis by Supran & Oreskes[60] and Oreskes & Conway[61] (among others) has demonstrated the methods the fossil fuel industry has used to create uncertainty. While actively casting doubt on climate change's existence and then potential effects, certain members of the fossil fuel industry held back evidence which predicted with great accuracy the impacts of ongoing fossil fuel dependence.[62] The industry thus has a long history of acting against the interests of public health and environmental sustainability, and in several places globally, litigation is now being taken against the industry for their role in misleading the public and policymakers on the harms associated with their products. Also of concern is fossil fuel-related interests' role in criminalising civil society protest. For example, ExxonMobil funds Policy Exchange, whose 2019 report was influential in the creation of the Public Order Bill, which effectively criminalises a high proportion of non-violent public protest in the UK.[63]

The experience of the public health community in countering the practices of tobacco industry can inform efforts to address the harmful practices of the fossil fuel corporations, such as:

- changing the narrative away from individuals and their so-called 'poor choices' and adopting a stronger cohesive public narrative;
- developing robust governance processes (to safeguard the development of policy from industry interference);
- partnering with climate advocates and communities (including to raise awareness of the commercial determinants approaches with the public, politicians and decision-makers);
- considering the need for and building in legal support up front;

[59] https://www.ijhpm.com/article_4440.html
[60] https://iopscience.iop.org/article/10.1088/1748-9326/aa815f and https://iopscience.iop.org/article/10.1088/1748-9326/abbe82
[61] Merchants of Doubt, Oreskes & Conway, 2010, Bloomsbury
[62] https://www.science.org/doi/10.1126/science.abk0063
[63] https://www.opendemocracy.net/en/dark-money-investigations/policing-bill-policy-exchange-exxonmobil-lobbying/

- using robust science, and making the case for proper investment in public health through taxation (including to avoid funding from vested interests).[64,65]

The role of the fossil fuel industry in the current climate crisis cannot be overlooked and addressing their practices, including their use of greenwashing and dissemination of misinformation,[66] represents a core element of a public health approach to mitigating and adapting to climate change and other environmental challenges such as plastic pollution.

2. The Role of Public Health, and the wider health community, in countering the influence of the Fossil Fuel Industry

- Health professionals are well-placed to communicate the health risks of fossil fuels and draw attention to the CDOH-related evidence base. Evidence from the US suggests that health professionals are amongst the most trusted to deliver messages on climate to the public, and that health-based messaging is effective in increasing understanding, support, and intentions to advocate for solutions[67].
- There is also an ethical imperative for the health sector to address the health impacts of fossil fuels and the fossil fuel industry, and to challenge harmful and unethical policies/activities.
- This could include, for example, working towards ending any existing partnerships and relationships involving the fossil fuel industry at local or regional levels (e.g. through sponsorship deals such as the INEOS-sponsored Daily Mile, or advertising of high carbon products - see for example the Badvertising campaign/Ad-free cities etc), divestment from fossil fuels (e.g. of local/institutional pension funds), and/or fossil fuel subsidy reform. This is potentially in addition to the more directly-contested areas - in some parts of the country - of planning and licensing of new coal, oil or gas extraction sites, such as the Rosebank oil & gas field and Cumbria coal mine.
- Local PH teams can also work with educational settings to ensure programmes and materials on the climate crisis are accurate and independent of industry funding/other forms of influence.
- Countering the narratives and tactics of the fossil fuel industry that promote an understanding that the industry is essential for progress, energy security, and wellbeing, drawing on the CDOH literature and experiences with the tobacco and other industries for what works in reducing their influence. See section III above for some examples and evidence.
- This could involve efforts at a regional level to implement evidence-based counter-marketing initiatives to address fossil fuel industry misinformation alongside informing about the harms of climate change and the need for energy transformation, drawing on

[64] https://www.ucsusa.org/sites/default/files/attach/2016/04/establishing-accountability-climate-change-damages-lessons-tobacco-control.pdf
[65] https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(22)00185-1/fulltext
[66] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0263596
[67] Communication research to improve engagement with climate change and human health: A review, 2023, Eryn Campbell, Sri Saahitya Uppalapati, John Kotcher, Edward Maibach https://www.frontiersin.org/articles/10.3389/fpubh.2022.1086858/full

the evidence from the tobacco Truth campaigns.[68] Similarly, local and regional public health teams can use evidence from pre-emptive messaging campaigns that 'inoculate' populations against climate change disinformation that is disseminated by vested interests.[69]

- Making the case for proper investment via taxes to reduce dependence on industry funding, and the conflicts of interest that can arise, when imposed scarcity or austerity means that public health and community initiatives struggle to access funding.[70]
- Making the case for positive alternatives, such as proposing Wellbeing Economy models that put health, society, planetary boundaries and equity at the heart of decision making and economy in service of those goals[71]. Local examples include Cornwall's Doughnut Economics decision making and the community wealth-building such as the Preston model or taking a One Health approach[72]. An example exploring this can be found from Public Health Wales here.

IV. Imagining a Future without Fossil Fuels: Health Co-Benefits and Ensuring a Just Transition

Key points

1. There are substantial potential health and wellbeing benefits to be gained from pursuing a fossil-free, just and healthy future.
2. There is also the potential for health benefits to occur more quickly from mitigation actions as well as the longer-term health benefits of reducing or limiting increases of global temperatures[73].
3. Embedding social justice as a priority within planning for the transition to a fossil-free future will be critical to ensuring that health benefits are achieved equitably.

Phasing out fossil fuels across sectors will confer substantial benefits to health in both the short and long term. A multi-sectoral approach that targets the household energy, transport, food, and energy generation sectors has the potential to reduce overall fossil fuel consumption, reduce emissions and improve both physical and mental health, driving cost-saving health 'co-benefits'.[74] For example, expanding public transport as well as walking and cycling infrastructure contributes to increased physical activity and cleaner air, preventing illness and deaths from non-communicable diseases, and further helps to reduce fossil fuel use. And creating greener,

[68] https://truthinitiative.org/
[69] https://onlinelibrary.wiley.com/doi/full/10.1002/gch2.201600008
[70] Commercial determinants of health: future directions, 2023, Lancet, Sharon Friel, Jeff Collin, Mike Daube, Anneliese Depoux, Nicholas Freudenberg, Anna B Gilmore, Paula Johns, Amos Laar, Robert Marten, Martin McKee, Melissa Mialon
[71] https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(22)00063-8/fulltext and https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(23)00011-9/fulltext
[72] https://www.who.int/health-topics/one-health#tab=tab_1
[73] Public health benefits of strategies to reduce greenhouse-gas emissions: overview and implications for policy makers, Haines et al, Lancet 2009.
[74] https://www.who.int/news/item/05-12-2018-health-benefits-far-outweigh-the-costs-of-meeting-climate-change-goals

more liveable cities with less pollution and higher living standards can help to reduce urban health inequalities, as well as being more pleasant to spend time in, benefitting local circular economies and building increased social capital and improved mental health and wellbeing.

Scaling up renewable energy has an important role to play in combating air pollution. Evidence indicates that the health benefits of achieving the $PM_{2.5}$ target level by 2030 would result in 98,000 life years gained annually with people living longer, suffering less ill-health, a reduced burden on the health service, and fewer days lost to absenteeism in the workplace.[75] The current government target is to achieve this by 2040. Energy poverty is also linked to surges in the price of oil and gas following the invasion of Ukraine, exacerbating health inequalities, whilst sustainable investment in insulation of homes and a transition towards sustainable energy can help to buffer the most vulnerable in society from such shocks, and provide long-term energy security, without harming planetary or human health.

As the Marmot Review '10 years on' states, climate action can help to mitigate health inequalities.[76] Air pollution, energy poverty and climate impacts driven by fossil fuel dependence all disproportionately harm people in lower-income groups, Black and minority ethnic groups and people with health conditions and disabilities, so addressing these environmental health injustices should be a core public health priority.

In transitioning away from fossil fuels towards more renewable energy sources, social equity and justice must be assured through a just transition framework. We need to ensure that the human rights and health of the whole population are protected in this process, as well as acting in solidarity with affected communities globally. This includes creating green jobs and ensuring support for communities potentially adversely affected by transition, such as with retraining and finding new employment opportunities for miners and oil rig workers, as well as protecting those who are most adversely affected by climate change and pollution. The International Energy Agency estimates that the new jobs required for transition to cleaner energy will more than offset the jobs lost in the fossil fuel industry.[77] However, explicit and targeted action is required to ensure that these potential benefits are realised and are fairly distributed.

It will be critical for decarbonisation plans and local industrial strategy for a just transition to be codesigned with workers and communities. This means putting workers at the heart of a just transition, empowering them and communities through the process, ensuring workers are protected and helped to decarbonise, retrained and supported into different sectors.[78]

When calculating the costs of fossil fuel extraction, the hidden costs of externalities (indirect costs) from health and environmental impacts are often not factored in. These are incurred throughout the fossil fuel supply chain from extraction, transportation, water-supply stress,

[75] https://www.bma.org.uk/media/6332/2022-lancet-countdown-uk-policy-brief.pdf and https://s40026.pcdn.co/wp-content/uploads/The-Pathway-to-Healthy-Air-in-the-UK.pdf
[76] Marmot M (2020) The Marmot Review 10 Years On - https://www.instituteofhealthequity.org/resources-reports/marmot-review-10-years-on (accessed 6 June 2023).
[77] https://www.iea.org/reports/world-energy-outlook-2021/people-centred-transitions
[78] https://neweconomics.org/uploads/files/A-Just-Transition-in-YH.pdf

burning, including climate impacts, land contamination, and waste production.[79] Increasingly, fossil fuel companies are being called on to compensate communities for these impacts, with the necessary reparations being estimated at c.US$209 billion per year.[80] The averted externality costs of pollution and climate change that could be saved by a rapid increase in renewables by 2030 could total US$4.2 trillion/year worldwide.[81]

[79] https://www.ucsusa.org/resources/hidden-costs-fossil-fuels#:~:text=Externalities%20are%20sometimes%20easy%20to,impacts%20of%20sea%20level%20rise
[80] https://www.offshore-technology.com/news/top-fossil-fuel-companies-owe-209bn-in-climate-reparations/
[81] https://www.irena.org/-/media/files/irena/agency/publication/2016/irena_remap_externality_brief_2016.pdf

V. Conclusion, calls to action and recommendations

Conclusions

- The continued extraction of fossil fuels does not align with public health values, undermines the human right to health[82] and a clean, healthy and sustainable environment,[83] and poses a fundamental risk to human and planetary health.
- Fossil fuels harm human and planetary health at each stage from extraction to combustion - including both pollution and climate impacts - to waste management.
- The industry is unethical in its behaviour, with a long history of deliberately creating widespread doubt about climate science to delay meaningful action, including to block and delay regulations restricting extraction, often whilst giving a false impression of environmental action. This has often used the same 'playbook' of tactics as other corporate actors such as tobacco companies.
- In transitioning away from fossil fuel dependence and towards cleaner energy and different ways of organising our society, we have an unprecedented opportunity to create a wellbeing-oriented economy, realise substantial health co-benefits, and reduce health inequalities.

Call to FPH and FPH members

We call for the FPH, all public health professionals and FPH members to add their voices to this issue, and work towards making the health case to end fossil fuel extraction, as a matter of urgency.

At local, regional and national levels, we call for the public health community to:

1. Raise awareness of the harms caused by fossil fuels;
2. De-normalise and de-legitimise the fossil fuel industry, and high-carbon products which contribute disproportionately to climate impacts as well as directly harming health;
3. Influence and organise action focused on advertising and sponsorship, and offer a route through which local- and regional-level public health action can contribute towards this goal.

Policy recommendations

We call for the FPH, all public health professionals and FPH members to organise action towards the following focused national and local policy recommendations:

1. In the short- to medium-term, end fossil fuel extraction in the UK, by ensuring no new licences for oil or gas extraction, and ensure a just transition for workers.

[82] https://www.ohchr.org/en/climate-change/impact-climate-change-enjoyment-right-health#:~:text=Expanding%20on%20this%2C%20the%20Preamble,%5D%20the%20right%20to%20health%22.
[83] https://www.ohchr.org/en/special-procedures/sr-environment#:~:text=The%20Right%20to%20a%20Clean%2C%20Healthy%20and%20Sustainable%20Environment&text=Resolutions%20from%20the%20Human%20Rights,library%20of%20internationally%20recognized%20rights.

2. In the longer term, work to reduce dependency on fossil fuels and fossil fuel imports by increasing the use of renewable energy and reducing energy demand across homes, buildings, agriculture and transport, for example through home energy efficiency measures and by prioritising active and public travel, all of which have co-benefits for health.
3. To restrict the influence of the fossil fuel industry and related corporate interests at local/regional/national levels, initially through a ban on the advertising of high-carbon products and fossil fuels, as well as systematically addressing the industry's influence on the determinants of health.

At an international level, we call for local, regional and national and international public health bodies to:

1. Sign onto and support the fossil fuel non-proliferation treaty initiative (https://fossilfueltreaty.org/), joining thousands of scientists and health workers internationally,[84] and support international efforts to reduce the fossil fuel industry's influence within international climate negotiations, using the WHO Framework Convention on Tobacco Control (FCTC) as a precedent.[85]
2. Support a just transition in order to protect the livelihoods of workers in affected sectors and mitigate potential impacts on social and health inequalities.
3. Advocate for rapid and equitable fossil fuel phase-out and scaling up of climate finance at the international level, and reject the unproven technologies that are being used to justify further fossil fuel extraction such as carbon capture and storage and coal co-firing with ammonia (which would cause substantial ongoing health harms and require ongoing extractivism).

[84] https://www.theguardian.com/environment/2022/sep/14/fossil-fuel-non-proliferation-treaty-who-environmental-vandilism

[85] https://www.bmj.com/content/375/bmj.n2293

Appendix: The harms of the fossil fuel industry

1 Health harms from fossil fuel industry practices and products

The relevant estimates for fossil fuels are that air pollution (particulate matter & ozone) causes 4.5 million deaths globally (8% of global) and that commercial practices (primarily occupational hazards and injuries) cause 1.2 million (2.2% of global)[86]. The Lancet Commission on Pollution provides further estimates: that pollution-related (air, water, occupational, soil, heavy metals, and chemicals, and lead) disease was responsible for 9 million premature deaths in 2015: 16% of total global mortality[87]. The authors point out that this is only a partial estimate, and does not include the impacts of climate change on health.

2 Commercial practices

The same kinds of tactics have been used by corporate actors to mislead the public, sow denial and doubt and influence policies/regulation. Over time, academics have documented the deployment of a shared corporate playbook (including 'political, scientific, and marketing practices which … maximis(e) the use of potentially harmful products, either directly or by enabling corporations to block, delay, or weaken policy and deter litigation,' 'labour, supply chain, and financial practices which mainly harm health when a narrow focus on profit at any cost fails to consider societal effects' and reputation management practices' which protect their legitimacy and corporate brand image. These together help create systems, norms and an environment which enable the other practices[88]). There is evidence the fossil fuel industry uses very similar strategies.

3 Funding of climate denial campaigns and influence on scientific research

Analysis by Supran & Oreskes[89] and Oreskes & Conway[90] (among others) has demonstrated the methods the fossil fuel industry has employed to generate uncertainty about climate science. For example, analysis of Exxon Mobil's communications that compares their positions in different types of documents (from peer reviewed to advertorial) on climate change 'as real, human-caused, serious, and solvable' finds that 'as documents become more publicly accessible, they increasingly communicate doubt.[91]' Further to a challenge by Exxon executive (which suggested their claims were misleading), the authors analyse more information (including that cited by Exxon in the claims) and demonstrate that 'by the early 1980s, more than a decade before Mobil launched a vast advertising campaign to attack climate science and its implications, they were already explicitly aware of the potential for their products to cause

[86] Appendix to https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(23)00013-2/fulltext using GBD 2019
[87] https://www-sciencedirect-com.sheffield.idm.oclc.org/science/article/pii/S0140673617323450#cesec50
[88] https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(23)00013-2/fulltext
[89] https://iopscience.iop.org/article/10.1088/1748-9326/aa815f and https://iopscience.iop.org/article/10.1088/1748-9326/abbe82
[90] Merchants of Doubt, Oreskes & Conway, 2010, Bloomsbury
[91] https://iopscience.iop.org/article/10.1088/1748-9326/aa815f

dangerous global warming… [they] also observe that part of the comment is based on material provided by a contributor recruited and paid by ExxonMobil Corp, in our opinion as part of a product defence strategy. The comment does not disclose that. This is a case in point of what we argue is misleading behaviour documented in our original study.'[92]

4 Implications for public perception, policy-making, and health advocacy

The fossil fuel industry has a history of funding and influencing education (e.g. authors of an analysis of Canadian education materials funded by fossil fuel industries suggest they 'centre, legitimise, and entrench a set of beliefs relating to climate change, energy, and environmentalism that align with the interests of fossil fuel industry …. consistent with neoliberal environmentalism centred on individual actions designed to insulate fossil fuel industries from criticism and dissuade young people from questioning or understanding the role of corporate power in the climate crisis.'[93] or in the UK an analysis of BP's involvement in primary and secondary education found a similar pattern[94]). Industry messaging, which often promotes uncertainty about established facts, has been demonstrated to generate significantly greater uncertainty in the public about fossil fuel harms than independent information[95].

[92] https://iopscience.iop.org/article/10.1088/1748-9326/abbe82
[93] https://www.tandfonline.com/doi/full/10.1080/13504622.2019.1650164
[94] https://www-tandfonline-com.sheffield.idm.oclc.org/doi/full/10.1080/13504622.2020.1724891
[95] https://www.sciencedirect.com/science/article/pii/S2352827321002846?via%3Dihub