

LETTER TEXT: As global health leaders, we are committed to achieving health and well-being for all – this is not possible without a safe and stable climate. The Paris Agreement enshrined the “right to health” as a core obligation for climate action. Yet, communities, health workers and health systems around the world already face the alarming impacts of a changing climate. Climate change-induced extreme weather events are becoming more frequent and severe – many countries are grappling with the health consequences of extreme heat, unprecedented storms, floods, food and water insecurity, wildfires and displacement. For COP28 to truly be a “health COP,” it must address the root cause of the climate crisis: the continued extraction and use of fossil fuels including coal, oil and gas. **We call on the COP28 Presidency and the leaders of all countries to commit to an accelerated, just and equitable phase-out of fossil fuels as the decisive path to health for all.**

SUPPORTING EVIDENCE:

- ***Climate change is harming the health of communities around the world.*** Climate change reduces agricultural productivity, and is increasing food and water insecurity, food- and water-borne illness, and under- and malnutrition. Every region of the world is experiencing increases in morbidity and mortality from extreme heat. The incidence of vector-borne diseases is increasing and the range and transmissibility of vector-borne illnesses is expanding. Climate change is worsening mental health, driving migration and displacement, increasing communicable and non-communicable diseases, and increasing premature death.¹²³⁴ The scale of these climate-related health impacts is large: it is estimated that 37% of heat-related deaths are attributable to human-caused climate change.⁵ Without action to mitigate climate change, one study finds there could be over 80 million excess premature deaths from exposure to heat alone between 2000 and 2100.⁶ Climate change disproportionately harms the health and wellbeing of

¹ IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

² Romanello, M, Di Napoli, C, Drummond, P, Green, C, Kennard, H, Lampard, P, et al. 2022. The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels. *The Lancet*; 400(10363):1619 – 1654. DOI: [https://doi.org/10.1016/S0140-6736\(22\)01540-9](https://doi.org/10.1016/S0140-6736(22)01540-9).

³ Cisse, G, McLeman, R, Adams, H, Aldunce, P, Bowen, K, Campbell-Lendrum, D, et. al. 2022. Health, Wellbeing, and the Changing Structure of Communities. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. DOI: <https://doi.org/10.1017/9781009325844.009>.

⁴ Mora, C, McKenzie, T, Gaw, IM, Dean, JM, von Hammerstein, H, Knudson, TA. 2022. Over half of known human pathogenic diseases can be aggravated by climate change. *Nature Climate Change*; 12:869 - 875. DOI: <https://doi.org/10.1038/s41558-022-01426-1>.

⁵ Vicedo-Cabrera, AM, Scovronik, N, Sera, F, Roye, D, Schneider, R, Tobias, A. 2021. The burden of heat-related mortality attributable to recent human-induced climate change. *Nature Climate Change*; 11(6):492 - 500. DOI: <https://doi.org/10.1038/s41558-021-01058-x>.

⁶ Bressler, RD. 2021. The mortality cost of carbon. *Nature Communications*; 12:4467. DOI: <https://doi.org/10.1038/s41467-021-24487-w>.

vulnerable and marginalized communities:⁷ children,⁸ the elderly,⁹ low-wealth countries and communities, Indigenous communities, small island nations, and communities facing racial, economic, and other forms of systemic discrimination.¹⁰¹¹¹²¹³¹⁴¹⁵¹⁶

- ***Fossil fuels are at the heart of the climate crisis.*** Human burning of fossil fuels is the principal driver of climate change, alongside human-driven activities in the land use and agricultural sectors.¹⁷ The IPCC states that it is “unequivocal that human influence has warmed the atmosphere, ocean and land...Observed increases in well-mixed greenhouse gas (GHG) concentrations since around 1750 are unequivocally caused by human activities.”¹⁸ Fossil fuels account for around 80% of global energy production and

⁷ WHO. 2021. COP26 Special Report on Climate Change and Health: The health argument for climate action. Available at: <https://www.who.int/publications/i/item/9789240036727>.

⁸ Perera, F and Nadeau, K. 2022. Climate change, fossil-fuel pollution, and children’s health. *New England Journal of Medicine*; 386:2302 – 2314. DOI: <https://doi.org/10.1056/NEJMra2117706>.

⁹ Romanello et al 2022

¹⁰ Tessum, CW, Apte JS, Goodkind, AL, Muller, NZ, Mullins, KA, Paoletta, DA, et al. 2019. Inequity in consumption of goods and services adds to racial-ethnic disparities in air pollution exposure. *PNAS*; 116(13):6001 - 6006. DOI: <https://doi.org/10.1073/pnas.1818859116>.

¹¹ Deivanayagam, TA, Selvarajah, S, Hickel, J, Guinto, R, de Moraes Sato, P, Bonifacio, J, et al. 2023. Climate change, health, and discrimination: Action towards racial justice. *The Lancet*; 401(10370):5 - 7. DOI: [https://doi.org/10.1016/S0140-6736\(22\)02182-1](https://doi.org/10.1016/S0140-6736(22)02182-1).

¹² Report of the Special Rapporteur on contemporary forms of racism, racial discrimination, xenophobia and related intolerance. Ecological crisis, climate justice and racial injustice. A/77/549. Available at: <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/651/88/PDF/N2265188.pdf?OpenElement>.

¹³ Berberian, AG, Gonzalez, DJX, Cushing, LJ. 2022. Racial disparities in climate change-related health effects in the United States. *Current Environmental Health Reports*; 9:451 - 464. DOI: <https://doi.org/10.1007/s40572-022-00360-w>.

¹⁴ Deivanayagam, TA, English, S, Hickel, J, Bonifacio, J, Guinto, R, Hill, KX et al. 2023. Envisioning environmental equity: climate change, health, and racial justice. *The Lancet*; 402(10395):64 - 78. DOI: [https://doi.org/10.1016/S0140-6736\(23\)00919-4](https://doi.org/10.1016/S0140-6736(23)00919-4).

¹⁵ Mycoo, M, Wairiu, M, Campbell, D, Duvet, V, Golbuu, Y, Majaraj, S, et al. 2022. Small Islands. In: *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. DOI: <https://doi.org/10.1017/9781009325844.017>.

¹⁶ Cisse, G, McLeman, R, Adams, H, Aldunce, P, Bowen, K, Campbell-Lendrum, D, et al. 2022. Health, Wellbeing, and the Changing Structure of Communities. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. DOI: <https://doi.org/10.1017/9781009325844.009>

¹⁷ IPCC. 2023. Summary for Policymakers. In: *Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva, Switzerland. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

¹⁸ IPCC. 2021. Summary for Policymakers. In: *Climate Change 2021: The Physical Science basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3 - 32. DOI: <https://doi.org/10.1017/9781009157896.001>.

consumption.¹⁹²⁰ In 2019, 64% of global greenhouse gas emissions came from fossil fuels and emissions overall have increased since 1990.²¹

LETTER TEXT: Ending our dangerous dependency on fossil fuels will improve the health prospects of future generations and will save lives. Keeping the global temperature increase within the 1.5°C target of the Paris Agreement is essential to ensure good health and economic prosperity for all. This will only be possible if we rapidly phase out fossil fuels. Fossil fuel phase-out will limit global warming, thereby protecting health from the devastating impacts of extreme weather, and preventing further ecological degradation and biodiversity loss. Failing to do so will lead to overwhelming health consequences, as well as the loss of key natural resources and ecosystem services that are critical to both [human and non-human species health](#), thereby undermining One Health and planetary health.

SUPPORTING EVIDENCE:

- ***Every incremental increase in temperature rise increases the health risks and harms of climate change.*** Every marginal increase in temperature will bring greater and compounding climate hazards.²² The impacts of climate change on human health, and on the social factors that affect human health (e.g., livelihoods, food and water security, and economic development) all become increasingly severe as global average temperatures rise. The IPCC found greater adverse impacts at 2C than 1.5C for many health indicators and health determinants.²³²⁴ And greater risks are anticipated at lower levels of warming than previously thought.²⁵

¹⁹ IEA World Energy Balances. Available at:

<https://www.iea.org/reports/world-energy-balances-overview/world#abstract>

²⁰ IEA, IRENA, UNSD, World Bank, WHO. 2023. Tracking SDG 7: The Energy Progress Report. Available at:

https://cdn.who.int/media/docs/default-source/air-pollution-documents/air-quality-and-health/sdg7-report2023-full-report_web.pdf?sfvrsn=669e8626_3&download=true

²¹ IPCC. 2022. Summary for Policymakers. In: Climate CHange 2022: Mitigation of Climate Change.

Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate CHange. DOI: <https://doi.org/10.1017/9781009157926.001>.

²² IPCC. 2021. Summary for Policymakers. In: Climate Change 2021: The Physical Science basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3 - 32. DOI: <https://doi.org/10.1017/9781009157896.001>.

²³ IPCC. 2018. Summary for Policymakers. In: Global Warming of 1.5C. An IPCC Special Report on the impacts of global warming of 1.5C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. DOI: <https://doi.org/10.1017/9781009157940.001>.

²⁴ Ebi, K, Campbell-Lendrum, D, Wyns, A. 2018. The 1.5 Health Report: Synthesis on health and climate science in the IPCC SR1.5.

²⁵ IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

- ***Achieving a 1.5C pathway demands no new fossil fuels and the phase out of existing use.*** According to the IPCC, in order to limit warming to 1.5°C, consistent with the Paris Agreement and in line with climate change limits needed to maximally protect health, global emissions must peak before 2025 and reduce by nearly half, 43%, by 2030 compared to 2019 levels.²⁶ All possible paths to keep warming below 1.5C “involve rapid and deep and, in most cases, immediate greenhouse gas emissions reductions in all sectors this decade”.²⁷ According to the IEA, there can be no new oil, gas, or coal development, beyond that which is already committed, in a net zero pathway.²⁸ However, planned fossil fuel production is more than double what can be produced to remain within a 1.5°C pathway, and most fossil fuel producers anticipate increasing production over the coming decade.²⁹ Recent evidence suggests that emissions from already developed coal, oil, and gas projects alone would result in warming of over 1.5°C.^{30,31}
- Adaptation can protect health including building resilient health systems, expanding access to safe water and sanitation, expanding surveillance, early warning, and response systems for extreme heat and other climate events, strengthening public health infrastructure.³² There is progress in adaptation, however, there are limits to adaptation and these limits are already being reached in some regions.³³ Mitigation is imperative to avoid exceeding the limits of adaptation.³⁴

²⁶ IPCC. 2022. Summary for Policymakers. In: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Intergovernmental Panel on Climate Change.

<https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/>

²⁷ IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland.

https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

²⁸ IEA. 2021. Net Zero by 2050: A Roadmap for the Global Energy Sector. International Energy Agency. Paris, France. <https://www.iea.org/reports/net-zero-by-2050>.

²⁹ SEI, IISD, ODI, E3G, and UNEP. 2021. The Production Gap Report 2021.

<http://productiongap.org/2021report>.

³⁰ Trout, K, Muttitt, G, Lafleur, D, Van de Graaf, T, Mendelevitch, ,R, Mei, L and Meinshausen, M. 2022. Existing fossil fuel extraction would warm the world beyond 1.5C. Environmental Research Letters; 17:064010. DOI: <https://doi.org/10.1088/1748-9326/ac6228>.

³¹ IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland.

https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

³² IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland.

https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

³³ IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland.

https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

³⁴ United Nations Environment Programme. 2022. Adaptation Gap Report 2022: Too Little, Too Slow – Climate adaptation failure puts world at risk. Nairobi, Kenya. <https://unep.org/adaptation-gap-report-2022>.

- ***Climate change is threatening natural resources and ecosystem services essential for health, One Health and planetary health.*** Biodiversity and healthy ecosystems are important underpinnings for human health.³⁵³⁶ Climate change is negatively impacting biodiversity and ecosystem services, with higher temperatures having greater harm on biodiversity.³⁷³⁸

LETTER TEXT: In addition to climate-related health impacts, air pollution caused in part by burning fossil fuels causes 7 million premature deaths [annually](#). The [economic costs](#) of air pollution-related health impacts amounted to over US\$8.1 trillion, or 6.1% of global GDP, in 2019. By improving air quality, governments can reduce the burden of disease from multiple cancers, heart disease, neurological conditions including stroke, and chronic and acute respiratory diseases, including asthma and chronic obstructive pulmonary disease (COPD). Investments in clean energy sources will save hundreds of billions of dollars in health care costs associated with air pollution every year, while reducing economic losses from extreme weather events with damages [worth US\\$253 billion \(in 2021\)](#).

- ***Fossil fuel combustion generates air pollution with major effects on health and mortality,*** in addition to the long-term impacts of climate change. In addition to climate warming carbon dioxide, fossil fuel combustion results in health harming air pollutants including fine particulate matter, sulfur dioxide, nitrogen oxides, volatile organic compounds, ozone, and mercury.³⁹ These air pollutants damage virtually every human organ system; exposure to air pollution is associated with increased risk of cardiovascular illnesses, respiratory diseases, diabetes, kidney disease, diseases of the gastrointestinal system, numerous cancers, dementia, and poorer mental health outcomes, among other health risks.⁴⁰⁴¹ Air pollution is a leading cause of early death globally, and fossil fuel emissions contribute a large share of overall mortality from air

³⁵ World Health Organization and Convention on Biological Diversity. 2015. Connecting global priorities: biodiversity and human health: a state of knowledge review. Available at:

<https://www.who.int/publications/i/item/connecting-global-priorities-biodiversity-and-human-health>

³⁶ Chiabai, A, Quiroga, S, Martinez-Juarez, P, Higgins, S, Taylor, T. 2018. The nexus between climate change, ecosystem services and human health: Towards a conceptual framework. *Science of the Total Environment*; 635(1):1191 - 1204. DOI: <https://doi.org/10.1016/j.scitotenv.2018.03.323>.

³⁷ Nunez, S, Arets, E, Alkemade, R, Verwer, C, and Leemans, R. 2019. Assessing the impacts of climate change on biodiversity: is below 2C enough? *Climatic Change*; 154:351 - 365. DOI: <https://doi.org/10.1007/s10584-019-02420-x>

³⁸ Talukder, B, Ganguli, N, Matthew, M, vanLoon, GW, Hopel, KW, Orbinski, J. 2022. Climate change-accelerated ocean biodiversity loss and associated planetary health impacts. *Journal of Climate Change and Health*; 6, 100114. DOI: <https://doi.org/10.1016/j.joclim.2022.100114>.

³⁹ Keswani, A, Akselrod, H, and Anenberg, S. 2022. Health and clinical impacts of air pollution and linkages with climate change. *NEJM Evidence*; 1(7). DOI: <https://doi.org/10.1056/EVIDra2200068>.

⁴⁰ Keswani, A, Akselrod, H, and Anenberg, S. 2022. Health and clinical impacts of air pollution and linkages with climate change. *NEJM Evidence*; 1(7). DOI: <https://doi.org/10.1056/EVIDra2200068>.

⁴¹ Rajagopalan, S and Landrigan, P. 2021. Pollution and the heart. *New England Journal of Medicine*; 385;1881 – 1892. DOI: <https://doi.org/10.1056/NEJMra2030281>.

pollution.⁴² The World Health Organization estimates that 7 million people die prematurely each year as a result of indoor and outdoor air pollution. In 2020, 3.3 million people died from exposure to ambient anthropogenic particulate matter, and 1.2 million of these deaths were directly related to fossil fuel combustion.⁴³ Some studies estimate that air pollution from the burning of fossil fuels is associated with as many as 8.6 million deaths annually, or one out of every five deaths globally.⁴⁴ Climate change-driven increases in wildfires, drought, and extreme heat further worsening air quality, through increases in wildfire smoke, dust, ozone, and pollen and other allergens.⁴⁵

- ***Current action and ambition do not put us on track to achieving the goals of the Paris Agreement and protect health.*** Global average temperatures are now 1.1°C higher than pre-industrial levels.⁴⁶ Over time, clean energy technologies and climate policy progress have made it significantly less likely that we will experience the worst levels of warming.⁴⁷ However, we remain well short of achieving the 1.5°C ambition of the Paris Agreement.⁴⁸ There are major gaps between countries' stated commitments and the level of emissions reductions required to achieve the 1.5°C goal.⁴⁹ Analysis of the climate policies currently in place suggest these will not decrease emissions and could lead to between 2.8°C and 3.2°C of warming by the end of the century.^{50,51} There are also major implementation gaps – with countries far off track from achieving their stated emissions

⁴² Lelieveld, J, Klingmuller, K, Pozzer, A, Burnett, RT, Haines, A, and Ramanathan, V. 2019. Effects of fossil fuel and total anthropogenic emission removal on public health and climate. PNAS; 116(15):7192 – 7197. DOI: <https://doi.org/10.1073/pnas.1819989116>.

⁴³ Romanello, M, Di Napoli, C, Drummond, P, Green, C, Kennard, H, Lampard, P, et al. 2022. The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels. The Lancet; 400(10363):1619 – 1654. DOI: [https://doi.org/10.1016/S0140-6736\(22\)01540-9](https://doi.org/10.1016/S0140-6736(22)01540-9).

⁴⁴ Vorha, K, Vodonos, A, Schwartz, J, Marais, EA, Sulprizio, MP, Mickley, LJ. 2021. Global mortality from outdoor fine particle pollution generated by fossil fuel combustion: Results from GEOS-Chem. Environmental Research; 195:110754. DOI: <https://doi.org/10.1026/j.envres.2021.110754>.

⁴⁵ Cisse IPCC

⁴⁶ IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

⁴⁷ IEA. 2022. World Energy Outlook 2022. International Energy Agency. Paris, France. www.iea.org/reports/world-energy-outlook-2022.

⁴⁸ IPCC 2022.

⁴⁹ Fransen, T, Henderson, C, O'Conner, R, Alayza, N, Caldwell, M, Chakrabarty S, et al. 2022. The state of Nationally Determined Contributions. World Resources Institute. DOI: <https://doi.org/10.46830/wriprpt.22.00043>.

⁵⁰ IPCC. 2022. Summary for Policymakers. In: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Intergovernmental Panel on Climate Change. <https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/>

⁵¹ UNEP. 2022. Emissions Gap Report 2022: The Closing Window – Climate crisis calls for rapid transformation of societies. United Nations Environment Programme. Nairobi, Kenya. <https://www.unep.org/emissions-gap-report-2022>.

reductions commitments.⁵² The level of progress currently being made across all sectors – from energy to buildings to transport and beyond – is not of the speed or scale required to achieve global climate goals.⁵³

- ***The health impacts of this inaction are tremendous.*** Under current warming trajectories, as many as one third of all people could live in areas with unhealthy and potentially unlivable levels of extreme heat,⁵⁴ and this would be even higher without further climate action.⁵⁵ According to the IPCC, by 2100 half to three quarters of all people could be exposed to deadly heat stress.⁵⁶ By the middle of this century, as many as 80 million people could face climate change driven food insecurity and hunger, and 1.4 million additional children could experience severe stunting.⁵⁷ Millions more could be at risk of malaria and dengue.⁵⁸
- ***There are large economic costs of inaction.*** The WHO estimates that the direct costs of climate change for health will reach between USD 2 – 4 billion by 2030.⁵⁹ The economic costs of air pollution are even greater: The World Bank estimates that in 2019 the cost of mortality and morbidity from PM2.5 exposure was \$8.1 trillion, or 6.1% of global GDP.⁶⁰
 - In 2021, extreme weather events resulted in USD 253 billion in damage globally.⁶¹

⁵² IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

⁵³ Boehm, S, Jeffery, L, Kevin, K, Hecke, J, Schumer, C, Fyson, C, Majid, A, et al. 2023. State of Climate Action 2022. Bezos Earth Fund, Climate Action Tracker, Climate Analytics, ClimateWorks Foundation, NewClimate Institute, the United Nations Climate Change High-Level Champions, and World Resources Institute. DOI: <https://doi.org/10.46830/wriprt.22.00028>.

⁵⁴ Lenton, TM, Xu, C, Abrams, JF, Ghadiali, A, Loriania, S, Sakschewski, B, et al. 2023. Quantifying the human cost of global warming. Nature Sustainability. DOI: <https://doi.org/10.1038/s41893-023-01132-6>.

⁵⁵ Xu, C, Kohler, TA, Lenton, TM, Svenning, JC, and Scheffer, M. 2020. Future of the human climate niche. PNAS; 117(21)11350 – 11355. DOI: <https://doi.org/10.1073/pnas.1910114117>.

⁵⁶ IPCC AR6 WG II

⁵⁷ IPCC AR6 WGII

⁵⁸ Colon-Gonzalez, FJ, Sewe, MO, Tompkins, AM, Sjodin, H, Casallas, A, Rocklov, J, et al. 2021. Projecting the risk of mosquito-borne diseases in a warmer and more populated world: a multi-model, multi-scenario intercomparison modelling study. Lancet Planetary Health; 5(7):E404 – E414. DOI: [https://doi.org/10.1016/S2542-5192\(21\)00132-7](https://doi.org/10.1016/S2542-5192(21)00132-7).

⁵⁹ WHO. Climate Change and Health Fact Sheet.

<https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>

⁶⁰ World Bank. The Global Health Cost of PM2.5 Air Pollution: A Case for Action Beyond 2021. International Development in Focus. Washington, DC: World Bank. DOI:10.1596/978-1-4648-1816-5. Available at:

<https://openknowledge.worldbank.org/entities/publication/c96ee144-4a4b-5164-ad79-74c051179eee>

⁶¹ Romanello, M, Di Napoli, C, Drummond, P, Green, C, Kennard, H, Lampard, P, et al. 2022. The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels. The Lancet; 400(10363):1619 – 1654. DOI: [https://doi.org/10.1016/S0140-6736\(22\)01540-9](https://doi.org/10.1016/S0140-6736(22)01540-9).

- o In the U.S., it is estimated that the monetized costs of health harms from climate change and climate pollution are over USD 820 billion each year.⁶²
 - o In 2021, the monetized value of heat-related mortality globally was around USD 144 billion.⁶³
 - o In 2021, 470 billion hours of potential work were lost globally due to heat exposure, largely the result of fossil-fuel driven climate change. In countries with low human development index, this loss of potential earnings is equivalent to 5.6% of GDP.⁶⁴
 - o Developing countries will bear the greatest economic costs of climate change. The Climate Vulnerable Forum estimates that climate change related economic losses in the V20 countries may be as high as 20% of GDP over the past two decades.⁶⁵
- ***The health benefits of climate action are tremendous.*** Climate mitigation and adaptation resilience across all sectors can significantly improve health.⁶⁶ Mitigation efforts that reduce air pollution can save lives: Eliminating fossil fuel-related emissions could save 3.6 million lives annually from reductions in outdoor air pollution,⁶⁷ and can contribute to significant reductions in childhood asthma and adverse birth outcomes.⁶⁸ Mitigation solutions in transportation, food systems, and urban design can also save lives and improve health. Modeling the health co-benefits of achieving the NDCs in nine countries found that elevating health in climate policy implementation could save 1.18 million lives from improved air pollution, 5.98 million lives from improved dietary practices, and 1.15 million deaths from greater physical activity annually by 2040.⁶⁹

⁶² De Alwis, D, and Limaye, VS. 2021. The costs of inaction: The economic burden of fossil fuels and climate change on health in the United States. The Medical Society Consortium on Climate and Health, Natural Resources Defense Council, Wisconsin Health Professionals for Climate Action. <https://www.nrdc.org/sites/default/files/costs-inaction-burden-health-report.pdf>

⁶³ Romanello, M, Di Napoli, C, Drummond, P, Green, C, Kennard, H, Lampard, P, et al. 2022. The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels. The Lancet; 400(10363):1619 – 1654. DOI: [https://doi.org/10.1016/S0140-6736\(22\)01540-9](https://doi.org/10.1016/S0140-6736(22)01540-9).

⁶⁴ Romanello, M, Di Napoli, C, Drummond, P, Green, C, Kennard, H, Lampard, P, et al. 2022. The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels. The Lancet; 400(10363):1619 – 1654. DOI: [https://doi.org/10.1016/S0140-6736\(22\)01540-9](https://doi.org/10.1016/S0140-6736(22)01540-9).

⁶⁵ Vulnerable Twenty Group. 2022. Climate vulnerable economies loss report: Economic losses attributable to climate change in V20 economies over the last two decades, 2000 - 2019. Vulnerable Twenty Group. Available from: https://www.v-20.org/wp-content/uploads/2022/06/Climate-Vulnerable-Economies-Loss-Report_June-14_compressed-1.pdf

⁶⁶ Cisse IPCC

⁶⁷ Lelieveld, J, Klingmuller, K, Pozzer, A, Burnett, RT, Haines, A, and Ramanathan, V. 2019. Effects of fossil fuel and total anthropogenic emission removal on public health and climate. PNAS; 116(15):7192 – 7197. DOI: <https://doi.org/10.1073/pnas.1819989116>.

⁶⁸ Milner, J, Hughes, R, Chowdhury, S, Picetti, R, Ghosh, R, Yeung, S, et al. Air pollution and child health impacts of decarbonization in 16 global cities: Modelling study. Environment International; 175:107972. DOI: <https://doi.org/10.1016/j.envint.2023.107972>.

⁶⁹ Hamilton, I, Kennard, H, McGushin, A, Hoglund-Isaksson, L, Kiesewetter, G, Lott, M, et al. 2021. The public health implications of the Paris Agreement: A modelling study. Lancet Planetary Health; 5(2):E74 - E83. DOI: [https://doi.org/10.1016/S2542-5196\(20\)30249-7](https://doi.org/10.1016/S2542-5196(20)30249-7).

- ***These health improvements come with sizable economic benefits.*** Improvements in air quality from climate action could save trillions of dollars annually from avoided premature mortality.⁷⁰ Delivering the emissions reductions committed in the NDCs in Europe would result in savings equivalent to 1 – 2% of regional GDP, a significant portion of which are savings from reduced health care treatment costs.⁷¹ The costs of climate action will be offset by the health co-benefits of climate mitigation.⁷²⁷³ In the U.S., every dollar invested in air pollution control has yielded returns of around USD 30.⁷⁴ Nationwide, reducing energy-related emissions could yield USD 608 billion in benefits from avoided PM-related illness and death.⁷⁵ In China and India, the costs of reducing GHG emissions could be compensated with savings from resulting health co-benefits alone.⁷⁶⁷⁷

LETTER TEXT: A full and rapid phase-out of fossil fuels is the most significant way to provide the clean air, water, and environment that are foundational to good health. We cannot rely on unreliable and inadequate solutions, like Carbon Capture and Storage (CCS), that extend the use of fossil fuels but do not generate the real and immediate health improvements which a renewable energy transition provides. False solutions like CCS risk making harmful emissions worse, straining the health of overburdened communities and delaying our progress toward meaningful climate progress.

SUPPORTING EVIDENCE:

- ***There are grave health impacts that result at every stage of the fossil fuel life cycle*** from exploration and extraction to refining, transport, storage, combustion, and waste

⁷⁰ Scrovrnick, N, Budolfson, M, Denning, F, Errickson, F, Fleurbaey, M, Peng, W, et al. 2019. The impact of human health co-benefits on evaluation of global climate policy. *Nature Communications*; 10:2095. DOI: <https://doi.org/10.1038/s41467-019-09499-x>.

⁷¹ WHO Regional Office for Europe. 2019. Health and Climate Action: POLICY Brief. Available at: <https://apps.who.int/iris/handle/10665/345528>.

⁷² Tang, R, Zhao, J, Liy, Y, Huang, X, Zhang, Y, Zhou, D, et al. 2022. Air quality and health co-benefits of China's carbon dioxide emissions peaking before 2030. *Nature Communications*; 13:1008. DOI: <https://doi.org/10.1038/s41467-022-28672-3>

⁷³ Markandya, A, Sampedro, J, Smith, SJ, Van Dingenen, R, Pizarro-Irizar, C, Arto, I, et al. 2018. Health co-benefits from air pollution and mitigation costs of the Paris Agreement: A modelling study. *Lancet Planetary Health*; 2(3):E126 – E133. DOI: [https://doi.org/10.1016/S2542-5196\(18\)30029-9](https://doi.org/10.1016/S2542-5196(18)30029-9).

⁷⁴ Landrigan, P, Fuller, R, Acosta, NJ, Adeyi, O, Arnold, R, Basu, N et al. 2018. The Lancet Commission on pollution and health. *The Lancet*; 391(10119):462 - 512. DOI: [https://doi.org/10.1016/S0140-6736\(17\)32345-0](https://doi.org/10.1016/S0140-6736(17)32345-0).

⁷⁵ Maillous, NA, Abel, DW, Holloway, T, pAtz, J. 2022. Nationwide and regional PM 2.5-related air quality health benefits from the removal of energy-related emissions in the United States. *Geohealth*; 6(5):e2022GH00603. DOI: <https://doi.org/10.1029/2022GH000603>.

⁷⁶ Markandya, A, Sampedro, J, Smith, SJ, van Dingenen, R, Pizarro-Irizar, C, Arto, I, et al. 2018. Health co-benefits from air pollution and mitigation costs of the Paris Agreement: A modelling study. *Lancet Planetary Health*; 2(3):e126 - e133. DOI: [https://doi.org/10.1016/S2542-5196\(18\)30029-9](https://doi.org/10.1016/S2542-5196(18)30029-9).

⁷⁷ Huang, H and Sanchez, L. 2019. Health Co-Benefits from NDC Implementation in China. IISD and Global Subsidies Initiative. Available at: <https://www.iisd.org/system/files/publications/health-ndc-implementation-china.pdf>

disposal. These activities in the coal, oil, and gas industries generate health-harming air, water, soil, light, and noise pollution. Workers in the fossil fuel industry and communities living near fossil fuel infrastructure, as well as near facilities manufacturing fossil fuel derived products like plastics and chemicals, face increased risk of numerous health challenges including respiratory, cardiovascular, liver and metabolic diseases, some cancers, poor maternal and child health outcomes, and premature mortality.^{78,79,80,81,82,83,84,85,86,87,88,89,90}

- **CCS is widely unproven as a feasible climate solution:** According to the IPCC, implementation of technologies like carbon capture and storage face significant “technological, economic, institutional, ecological-environmental and socio-cultural barriers”.⁹¹ There are concerns about the scalability and feasibility of CCS technology,

⁷⁸ Johnson, JE, Lim, E and Roh, H. 2019. Impact of upstream oil extraction and environmental public health: A review of the evidence. *Science of the Total Environment*; 657:187 – 199. DOI: <https://doi.org/10.1016/j.scitotenv.2018.11.483>.

⁷⁹ Gonzalez, DJX, Francis, CK, Shaw, GM, Cullen, MR, Baiocchi, M and Burke, M. 2021. Upstream oil and gas production and ambient air pollution in California. *Science of the Total Environment*; 801(1):150298. DOI: <https://doi.org/10.1016/j.scitotenv.2021.150298>.

⁸⁰ Johnson, JE, Lim, E and Roh, H. 2019. Impact of upstream oil extraction and environmental public health: A review of the evidence. *Science of the Total Environment*; 657:187 – 199. DOI: <https://doi.org/10.1016/j.scitotenv.2018.11.483>.

⁸¹ Johnson, J and Cushing, L. 2020. Chemical exposures, health, and environmental justice in communities living on the fenceline of industry. *Current Environmental Health Reports*; 7: 48 – 57.

⁸² Hill, EL and Ma L. 2022. Drinking water, fracking, and infant health. *Journal of Health Economics*; 82:102595. DOI: <https://doi.org/10.1026/j.hhealeco.2022.102595>.

⁸³ Cortes-Ramirez, J, Naish, S, Sly, PD, and Jagals, P. 2018. Mortality and morbidity in populations in the vicinity of coal mining: a systematic review. *BMC Public Health*; 18:721. DOI: <https://doi.org/10.1186/s12889-018-5505-7>.

⁸⁴ Hendrix, M, Zullig, KJ, and Luo J. 2020. Impacts of Coal Use on Health. *Annual Review of Public Health*; 41:397 – 415. DOI: <https://doi.org/10.1126/annurev-publihealth-040119-094104>.

⁸⁵ Li, L, Dominici, F, Blomberg, A, Bargagli-Stoffi, FC, Schwartz, J, Coull, BA, et al. 2022. Exposure to unconventional oil and gas development and all-cause mortality in Medicare beneficiaries. *Nature Energy*; 7:177 – 185. DOI: <https://doi.org/10.1038/s41560-021-00970-y>

⁸⁶ Black, KJ, Boslett, AJ, Hill, EL, Ma, L, and McCoy, SJ. 2021. Economic, environmental, and health impacts of the fracking boom. *Annual Review of Resource Economics*; 13:311 – 334. DOI: <https://doi.org/10.1146/annurev-resource-110320-092648>.

⁸⁷ Deziel, NC, Brokovich, E, Grotto, I, Clark, CJ, Barnett-Itzhaki, Z, Broday, D, and Agay-Shay, K. Unconventional oil and gas development and health outcomes: A scoping review of the epidemiological research. *Environmental Research*; 182:109124. DOI: <https://doi.org/10.1016/j.envres.2020.109124>.

⁸⁸ Jephcote, C, Brown, D, Verbeek, T, and Mah, A. 2020. A systematic review and meta-analysis of haematological malignancies in residents living near petrochemical facilities. *Environmental Health*; 19:53.

⁸⁹ Onyije, FM, Hosseini, B, Togawa, K, Schuz, J, and Olsson, A. 2021. Cancer incidence and mortality among petroleum industry workers and residents living in oil producing communities: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*; 18(8):4343. DOI: <https://doi.org/10.3390/ijerph18084343>.

⁹⁰ Landrigan, P, Raps, H, Cropper, M, Bald, C, Brunner, M, Canonizado, EM, et al. 2023. The Minderoo-Monaco Commission on Plastics and Human Health. *Annals of Global Health*; 89(1):23. DOI: <https://doi.org/10.5334/aogh.4056>.

⁹¹ IPCC AR6 WGIII 2022

and its efficacy relative to renewable energy mitigation solutions.⁹² Existing CCS facilities effectively capture less than 1% of global emissions, and these facilities capture only a small percentage of emissions from the facilities in which they are installed.⁹³ Emissions reductions gained through investments in renewable energy provide a generally greater return than those from CCS.⁹⁴ The scale of CCS deployment has been slow, many demonstration projects have failed to become operational, and the reductions in carbon emissions have been substantially lower than anticipated.⁹⁵⁹⁶ Early evidence suggests that current methods of industrial carbon removal, such as CCS, release more CO₂ than is removed.⁹⁷

- ***CCS, particularly when used for enhanced oil recovery, may extend fossil fuel use and may not reduce air pollution.*** CCS is designed to only address emissions at one stage of the fossil fuel lifecycle and does not address emissions along the full lifecycle from extraction to use.⁹⁸ CCS in the power sector may increase human health risks through potential increases in pollution.⁹⁹ A study of carbon capture in coal plants found that carbon capture and use technology captured only around 10% of total CO₂ emissions, while increasing air pollution, including by increasing the use of fossil fuels to power carbon capture equipment.¹⁰⁰ CCS requires energy, thus facilities with CCS use more fossil fuels than those without, which can increase both direct and indirect emissions. Some air pollutants, including particulate pollution, are estimated to increase with the use of CCS.¹⁰¹ Over 80% of currently deployed CCS has been used for enhanced oil recovery, which can increase the economic viability of CCS technology, yet can result in continued air pollution and greenhouse gas emissions.¹⁰² Potential additional health

⁹² Sgouridis, S, Carbajales-Dale, M, Csala, D, Chiesa, M, Bardi, U. 2019. Comparative net energy analysis of renewable electricity and carbon capture and storage. *Nature Energy*; 4:456 - 465. DOI: <https://doi.org/10.1038/s41560-019-0365-7>

⁹³ Center for International Environmental Law. Why Carbon Capture is Not a Climate Solution. Available at:

<https://www.ciel.org/wp-content/uploads/2021/07/Confronting-the-Myth-of-Carbon-Free-Fossil-Fuels.pdf>

⁹⁴ Sgouridis, S, Carbajales-Dale, M, Csala, D, Chiesa, M, and Bardi, U. 2019. Comparative net energy analysis of renewable electricity and carbon capture and storage. *Nature Energy*, 4:456 - 465. DOI: <https://doi.org/10.1038/s41560-019-0365-7>.

⁹⁵ Martin-Roberts, E, Scott, V, Flude, S, Johnson, G, Haszeldine, RS, Gilfillan, S. 2021. Carbon capture and storage at the end of a lost decade. *One Earth*; 4. DOI: <https://doi.org/10.1016/j.oneear.2021.10.002>.

⁹⁶ Abdulla, A. et al. 2021. Explaining successful and failed investments in U.S. carbon capture and storage using empirical and expert assessments. *Environmental Research Letters*; 16, 014036.

⁹⁷ Sekera, J and Lichtenberger, A. 2020. Assessing carbon capture: public policy, science, and societal need. *Biophysical Economics and Sustainability*; 5:14. DOI: <https://doi.org/10.1007/s41247-020-00080-5>

⁹⁸ Center for International Environmental Law.

⁹⁹ Mikunda, T, Brunner, L, Skylogianni, E, Monteiro, J, Rycroft, L, and Kemper, J. 2021. Carbon capture and storage and the sustainable development goals. *International Journal of Greenhouse Gas Control*; 108, 103318. DOI: <https://doi.org/10.1016/j.ijggc.2021.103318>.

¹⁰⁰ Jacobson, MZ. 2019. The health and climate impacts of carbon capture and direct air capture. *Energy & Environmental Science*; 12, 3567. DOI: <https://doi.org/10.1039/c9ee02709b>.

¹⁰¹ European Environment Agency. 2011. Air pollution impacts from carbon capture and storage (CCS). EEA Technical Report No 14/2011. Available at:

<https://www.eea.europa.eu/publications/carbon-capture-and-storage>

¹⁰² Center for International Environmental Law.

effects may result from air, water, and soil pollution from leaks in CCS storage and transport infrastructure.¹⁰³¹⁰⁴ The IPCC Special Report on 1.5C suggests that local air pollution is “likely to be exacerbated” in CCS coal power plants and there is a “non-negligible risk of carbon dioxide leakage from geological storage and the carbon dioxide transport infrastructure.”¹⁰⁵

- **Affordable clean, renewable energy solutions are available:** Many existing and scalable mitigation solutions – from renewable energy to electrification of energy infrastructure to reducing food waste – are technically and economically feasible.¹⁰⁶ In the words of the IEA “the technologies needed to achieve the necessary deep cuts in global emissions by 2030 already exist, and the policies that can drive their deployment are already proven”.¹⁰⁷ The costs of producing renewable energy fell dramatically in the past decade and continue to decline, making renewables increasingly competitive with fossil fuel energy sources,¹⁰⁸ and decreasing the value of technologies like CCS.¹⁰⁹ CCS is more costly than other mitigation solutions, and can increase the cost to operate fossil fuel infrastructure and the cost of the energy produced at facilities using CCS.¹¹⁰ Long-term goals must be accompanied by credible short-term plans and actions to make those visions achievable – net zero pledges cover approximately 70% of global CO2 emissions,

¹⁰³ Fogarty, J and McCally, M. 2010. Health and safety risks of carbon capture and storage. JAMA; 303(1):67-68.

¹⁰⁴ Center for International Environmental Law.

¹⁰⁵ Roy, J., P. Tschakert, H. Waisman, S. Abdul Halim, P. Antwi-Agyei, P. Dasgupta, B. Hayward, M. Kanninen, D. Liverman, C. Okereke, P.F. Pinho, K. Riahi, and A.G. Suarez Rodriguez, 2018: Sustainable Development, Poverty Eradication and Reducing Inequalities. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 445-538, doi:[10.1017/9781009157940.007](https://doi.org/10.1017/9781009157940.007). Section 5.4.1.2

¹⁰⁶ IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

¹⁰⁷ IEA. 2021. Net Zero by 2050: A Roadmap for the Global Energy Sector. International Energy Agency. Paris, France. <https://www.iea.org/reports/net-zero-by-2050>.

¹⁰⁸ IRENA. 2022. Renewable Power Generation Costs in 2021. International Renewable Energy Agency. Abu Dhabi, UAE. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2022/Jul/IRENA_Power_Generation_Costs_2021.pdf?rev=34c22a4b244d434da0accde7de7c73d8

¹⁰⁹ Grant, N, Hawkes, A, Napp, T, Gambhir, A. 2021. Cost reductions in renewables can substantially erode the value of carbon capture and storage in mitigation pathways. One Earth; 4(11):1588 - 1601.

¹¹⁰ Center for International Environmental Law. Why Carbon Capture is Not a Climate Solution. Available at: <https://www.ciel.org/wp-content/uploads/2021/07/Confronting-the-Myth-of-Carbon-Free-Fossil-Fuels.pdf>

yet less than one quarter are underpinned in legislation and by specific policies to reach these goals.¹¹¹

LETTER TEXT: The energy transition must be just and equitable for all. In transitioning to a clean energy future, there is an opportunity to undo the injustices of the fossil fuel dependent system, taking a systemic approach and emphasizing health, care and community well-being, leaving no one behind. Global leaders must ensure everyone, including fragile states and the most remote and excluded communities, has access to non-polluting, affordable, reliable, accessible and resilient clean energy, as well as to emerging technologies that make best use of this energy. A just transition offers the opportunity to reduce health inequities faced by minority and marginalized communities, especially with respect to the health effects of ongoing fossil fuel use and dependence.

SUPPORTING EVIDENCE:

- Around the world, it is the communities and regions that have contributed the least to climate pollution, that have benefited the least from fossil-fuel driven economic growth, and who have the least capacity to adapt and respond to climate threats that face the greatest burden of climate change and climate-driven health harms.¹¹²¹¹³ At a global level, high-income countries in the global north continue to be responsible for a large share of global emissions,¹¹⁴ and emit more greenhouse gasses than their fair share based on a global carbon budget consistent with global climate goals.¹¹⁵ Historic emissions follow the same pattern.
- 675 million people lack access to electricity, and 2.3 billion people lack access to clean cooking.¹¹⁶ 59% of health facilities in low- and middle-income countries lack sufficient electricity needed for basic health care delivery,¹¹⁷ and around one billion people in low-

¹¹¹ IEA. 2021. Net Zero by 2050: A Roadmap for the Global Energy Sector. International Energy Agency. Paris, France. <https://www.iea.org/reports/net-zero-by-2050>.

¹¹² IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

¹¹³ Levy, BS and Patz, JA. 2015. Climate Change, Human Rights, and Social Justice. *Annals of Global Health*; 81(3):310 – 322. DOI: <https://doi.org/10.1016/j.aogh.2015.08.008>.

¹¹⁴ Romanello 2022

¹¹⁵ Hickel, J. 2020. Quantifying national responsibility for climate breakdown: an equality-based attribution approach for carbon dioxide emissions in excess of the planetary boundary. *Lancet Planetary Health*; 4(9):E399 – E404. DOI: [https://doi.org/10.1016/S2542-5196\(20\)30196-0](https://doi.org/10.1016/S2542-5196(20)30196-0).

¹¹⁶ IEA, IRENA, UNSD, World Bank, WHO. 2023. Tracking SDG 7: The Energy Progress Report. World Bank. Available at: <https://iea.blob.core.windows.net/assets/9b89065a-ccb4-404c-a53e-084982768baf/SDG7-Report2023-FullReport.pdf>

¹¹⁷ Romanello, M, Di Napoli, C, Drummond, P, Green, C, Kennard, H, Lampard, P, et al. 2022. The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels. *The Lancet*; 400(10363):1619 – 1654. DOI: [https://doi.org/10.1016/S0140-6736\(22\)01540-9](https://doi.org/10.1016/S0140-6736(22)01540-9).

and middle-income countries are served by health facilities with unreliable or no electricity.¹¹⁸ Access to energy can improve health and health care access.¹¹⁹

- Renewable energy is becoming more economically competitive with fossil fuels.¹²⁰
- There are many energy sector solutions that can both move us towards our climate goals while also reducing vulnerability to climate change and increasing access to reliable and affordable energy.¹²¹

LETTER TEXT: Unlocking finance is essential to deliver a healthy and just transition. Achieving climate and health goals will only be feasible if we stop investing in fossil fuels and invest instead in proven climate and health solutions. Each year, countries spend hundreds of billions of dollars subsidizing the fossil fuel industry, money that could be spent investing in a healthy future. High-income countries, development finance institutions, and the private sector must dramatically increase – and fulfill – their commitments to drive investments in clean energy, clean air, and economic development for the communities most harmed by climate change and fossil fuel pollution.

SUPPORTING EVIDENCE:

- ***Countries around the world heavily subsidize the fossil fuel industry.*** From 2017 to 2019, governments of the G20 countries provided an average of USD 584 billion in fossil fuel subsidies each year.¹²² In 2020, global fossil fuel subsidies were USD 5.9 trillion, representing 6.8% of global GDP, and this is anticipated to increase to 7.4% of global GDP by 2025.¹²³ Fossil fuel production and consumption subsidies increased in 2021 and

¹¹⁸ World Health Organization, the World Bank, Sustainable Energy for All, and the International Renewable Energy Agency. 2023. Energizing health: Accelerating electricity access in health-care facilities. Geneva, Switzerland. <https://www.who.int/publications/i/item/9789240066984>

¹¹⁹ Irwin, BR, Hoxha, K, Grepin, KA. 2019. Conceptualising the effect of access to electricity on health in low- and middle-income countries: A systematic review. *Global Public Health*; 15(3): 452 - 473. DOI: <https://doi.org/10.1080/17441692.2019.1695873>.

¹²⁰ IEA Renewable Energy Updates 2022.

¹²¹ IPCC. 2023. Summary for Policymakers. In: *Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva, Switzerland. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

¹²² Geddes, A, Gerasimchuk, JC, Berman, T, Brouillette, C, Campbell, R, Chen, H, et al. 2020. Doubling Back and Doubling Down: G20 scorecard on fossil fuel funding. International Institute for Sustainable Development, Overseas Development Institute, and Oil Change International. <https://www.iisd.org/system/files/2020-11/g20-scorecard-report.pdf>.

¹²³ Parry, I, Black, S, and Vernon, N. 2021. Still not getting energy prices right: A global and country update of fossil fuel subsidies. IMF working Paper 21/236. International Monetary Fund. <https://www.imf.org/en/Publications/WP/Issues/2021/09/23/Still-Not-Getting-Energy-Prices-Right-A-Global-and-Country-Update-of-Fossil-Fuel-Subsidies-466004#:~:text=IMF%20Working%20Papers&text=Global y%2C%20fossil%20fuel%20subsidies%20were,percent%20of%20GDP%20in%202025>.

2022, to an all-time high of USD 1 trillion.¹²⁴¹²⁵ Capital investments in fossil fuels remain nearly double investments in renewable energy.¹²⁶ Several countries, including Indonesia and Iran, have successfully reduced fossil fuel subsidies, pairing this with increased spending on universal health coverage programs.¹²⁷

- ***Significantly greater financial investment is essential to drive the transformative adaptation and mitigation needed to meet climate goals.*** Developed countries pledged to mobilize USD 100 billion each year to support mitigation and adaptation in developing countries – however this commitment remains to be met.¹²⁸¹²⁹ Finance to achieve mitigation targets – across all regions and sectors – is substantially less than what is required to keep warming below 1.5°C.¹³⁰ This lack of finance threatens the achievement of global climate goals and constrains the uptake of low-emission technologies in developing countries.¹³¹ Financing for adaptation also falls severely short of need, reducing the ability of impacted countries and communities to respond to current and future climate threats. The gap between adaptation finance and adaptation needs is growing.¹³² The estimated financing needs for adaptation are five to ten times larger than current levels of adaptation finance.¹³³ The IMF estimates that annual costs of adaptation may be greater than 1% of GDP in some developing countries and greater

¹²⁴ OECD. 2022. Support for fossil fuels almost doubled in 2021, slowing progress toward international climate goals, according to new analysis from OECD and IEA.

<https://www.oecd.org/newsroom/support-for-fossil-fuels-almost-doubled-in-2021-slowing-progress-toward-international-climate-goals-according-to-new-analysis-from-oecd-and-iea.htm#:~:text=New%20OECD%20and%20IEA%20data,rebound%20of%20the%20global%20economy>

¹²⁵ IEA. 2023. Fossil fuel consumption subsidies 2022. International Energy Agency. Paris, France.

<https://iea.org/reports/fossil-fuels-consumption-subsidies-2022>.

¹²⁶ IRENA. 2023. World Energy Transitions Outlook 2023: 1.5C Pathway, Volume 1. International Renewable Energy Agency. Abu Dhabi, United Arab Emirates. www.irena.org/publications.

¹²⁷ Gupta, V, Dhillion, R, and Yates, R. 2015. Financing universal health coverage by cutting fossil fuel subsidies. *Lancet Global Health*; 3(6):E306 – 307. DOI: [https://doi.org/10.1016/S2214-109X\(15\)00007-8](https://doi.org/10.1016/S2214-109X(15)00007-8).

¹²⁸ OECD. 2022. Climate Finance Provided and Mobilised by Developed Countries in 2016 – 2022: Insights from disaggregated analysis. Climate Finance and the USD 100 Billion Goal. OECD. Paris, France. DOI: <https://doi.org/10.1787/286dae5d-en>.

¹²⁹ UNFCCC Standing Committee on Finance: Report on progress towards achieving the goal of mobilizing jointly USD 100 billion per year to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation. https://unfccc.int/sites/default/files/resource/J0156_UNFCCC%20100BN%202022%20Report_Book_v3.2.pdf

¹³⁰ IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

¹³¹ IPCC Synthesis report

¹³² IPCC. 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

¹³³ UNEP Adaptation Gap Report 2022

than 10% of GDP in small island nations.¹³⁴ Mitigation finance must increase by three to six times to make achieving emissions reductions targets feasible.¹³⁵¹³⁶¹³⁷

- ***There is a major gap in financing specifically for climate change and health.*** Presently, international climate finance largely does not prioritize health – missing significant opportunities to leverage the health co-benefits of investments in the energy, transportation, agriculture and other sectors.¹³⁸ Less than one percent of multilateral climate finance supports health adaptation.¹³⁹ In 2021, only 15% of funds spent by the Green Climate Fund supported adaptation interventions with benefits for health.¹⁴⁰ Little health development assistance supports climate change mitigation or adaptation activities.¹⁴¹

LETTER TEXT: Fossil fuel interests have no place at climate negotiations. The fossil fuel industry cannot be allowed to continue its decades-long campaign of obstructing climate action at the UNFCCC negotiations and beyond. Just as the tobacco industry is not allowed to participate in the WHO Framework Convention on Tobacco Control, it is imperative to safeguard global collaboration on climate progress from the lobbying, disinformation, and delays in favor of industry interests.

SUPPORTING INFORMATION:

- ***The fossil fuel industry has long engaged in mis- and dis-information.*** Scientists and leadership within the fossil fuel industry were aware of the climate change impacts of fossil fuel combustion for decades.¹⁴² By the 1970's, fossil fuel scientists generated projections of future global warming consistent with academic and government models

¹³⁴ Aligishiev, Z, Bellon, M, Massetti, E. 2022. Macro-fiscal implications of adaptation to climate change. IMF Staff Climate Note, 2022/022. International Monetary Fund.

¹³⁵ UNEP Emissions Gap Report 2022.

¹³⁶ IPCC 2022

¹³⁷ IRENA 2023 World Energy Transitions Outlook

¹³⁸ UCSF and Open Consultants. 2023. Improving investments in climate change and global health: barriers to and opportunities for synergistic funding. Available at: https://globalhealthsciences.ucsf.edu/sites/globalhealthsciences.ucsf.edu/files/climate_and_health_financ_e_final.pdf

¹³⁹ Cisse IPCC

¹⁴⁰ Romanello, M, Di Napoli, C, Drummond, P, Green, C, Kennard, H, Lampard, P, et al. 2022. The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels. The Lancet; 400(10363):1619 – 1654. DOI: [https://doi.org/10.1016/S0140-6736\(22\)01540-9](https://doi.org/10.1016/S0140-6736(22)01540-9).

¹⁴¹ UCSF and Open Consultants. 2023. Improving investments in climate change and global health: barriers to and opportunities for synergistic funding. Available at: https://globalhealthsciences.ucsf.edu/sites/globalhealthsciences.ucsf.edu/files/climate_and_health_financ_e_final.pdf

¹⁴² Franta, B. 2018. Early oil industry knowledge of CO2 and global warming. Nature Climate Change; 8:1024 - 1025. DOI: <https://doi.org/10.1038/s41558-018-0349-9>.

and with later observed temperature rise.¹⁴³ Throughout this time, fossil fuel companies have pursued strategies to mislead the public about climate change science.¹⁴⁴

- ***Industry political engagement can delay climate action.*** Industry lobbying and political contributions have contributed to slowing policy efforts to mitigate climate change at the global and national levels,¹⁴⁵ and vested industry interests present a challenge to the transformational change required to achieve climate goals.¹⁴⁶
- ***There is precedent for limiting industry participation in global policymaking.*** The Framework Convention on Tobacco Control states that when establishing and implementing tobacco control policies “Parties shall act to protect these policies from commercial and other vested interests of the tobacco industry”.¹⁴⁷ In contrast, the fossil fuel industry has an outsize presence in global climate policymaking forums such as the UNFCCC COP meetings, as indicated by the over 600 oil and gas industry lobbyists registered to attend COP27.¹⁴⁸

¹⁴³ Supran, G, Rahmstorf, S, Oreskes, N. 2023. Assessing ExxonMobil’s global warming projections. *Science*; 379(6628). DOI: <https://doi.org/10.1126/science.abk0063>.

¹⁴⁴ Supran, G and Oreskes, N. 2017. Assessing ExxonMobil’s climate change communications (1977 - 2014). *Environmental Research Letters*; 12:084019. DOI: <https://doi.org/10.1088/1748-9326/aa815f>.

¹⁴⁵ Stoddard, I, Anderson, K, Capstick, S, Carton, W, Depledge, J, Facer, K, et al. 2021. Three decades of climate mitigation: Why haven’t we bent the global emissions curve? *Annual Review of Environment and Resources*; 46:653 - 689. DOI: <https://doi.org/10.1146/annurev-environ-012220-011104>.

¹⁴⁶ IPCC 2022. Mitigation WG III

¹⁴⁷ WHO Framework Convention on Tobacco Control. 2003. World Health Organization. Available at: <https://fctc.who.int/who-fctc/overview>.

¹⁴⁸ Michaelson, R. November 10, 2022. Explosion in number of fossil fuel lobbyists at COP27 climate summit. *The Guardian*. <https://www.theguardian.com/environment/2022/nov/10/big-rise-in-number-of-fossil-fuel-lobbyists-at-cop27-climate-summit>