



## The health and equity benefits of a just transition away from fossil fuels

March 2026

**Submitting organisation:** Pathfinder Initiative at the London School of Hygiene & Tropical Medicine

This submission by the Pathfinder Initiative at the London School of Hygiene & Tropical Medicine (LSHTM) provides evidence-based recommendations for accelerating a just and healthy transition away from fossil fuels. The submission responds to the call for input to the COP30 Presidency Roadmap for Transitioning Away from Fossil Fuels in a Just, Orderly and Equitable Manner, drawing on evidence from the Pathfinder Initiative on pathways to a healthy, net-zero future.

Building on the decision of the first Global Stocktake at COP28 to transition ‘away from fossil fuels in energy systems, in a just, orderly and equitable manner, accelerating action in this critical decade, so as to achieve net zero by 2050 in keeping with the science’ ([Decision 1/CMA.5](#), paragraph 28(d)), the COP30 Presidency Roadmap provides the critical next step towards implementation. The development and operationalisation of the roadmap must be guided by evidence on both the costs of inaction, and the major health, economic and societal benefits that can be achieved through a just transition away from fossil fuels. This submission identifies barriers preventing the transition, levers to facilitate implementation, and opportunities to maximise health and equity gains.

### Key points:

- A rapid transition away from fossil fuels will bring major near-term health and economic gains.
- Barriers to the transition include: economic dependence on fossil fuels; fossil fuel subsidies; lack of accounting for health impacts and costs of inaction into policies, and for health benefits and health cost savings of scaling up action; lack of international and public finance for the transition, with conflict and geopolitical instability causing further delays.
- Potential levers include: integrating health into the roadmap and NDC implementation; cross-sectoral coordination and systems changes, integrating health and implementing cross-cutting solutions such as carbon pricing; rigorous monitoring and evaluation of health and economic benefits of policies to accelerate the transition away from fossil fuels; and sharing knowledge and examples of best practice.
- The roadmap should prioritise just transition pathways, aligning action with the Just Transition Work Programme and just transition mechanism; health should be embedded in these frameworks and incorporated as a key metric of success.

### Health benefits of transitioning away from fossil fuels

Implementing ambitious policies to transition away from fossil fuels, alongside broader climate mitigation measures, is a public health imperative. Fossil fuel combustion is the primary driver of climate change and its associated impacts, and a major cause of air pollution. According to recent estimates, fossil fuel related air pollution is responsible for around 5 million premature deaths worldwide each year, including deaths linked to ischemic heart disease, stroke, and chronic pulmonary disease ([Lelieveld, 2023](#)). Fossil fuel dependence also harms health through pollution from extraction, transport and processing ([Pathfinder Initiative, 2023](#)).



A rapid transition away from fossil fuels will deliver substantial near-term health gains, in addition to reducing longer term climate risks. Evidence from the Lancet Pathfinder Commission report shows that cleaner air from phasing out fossil fuels and replacing them with renewable energy, is a key pathway through which climate mitigation benefits health ([Whitmee, 2023](#)). Shifting from fossil fuel-powered transport systems to clean, efficient public transport and active travel can also benefit health through increasing physical activity. Climate mitigation actions across all fossil fuel-intensive sectors including energy, transport, industry, and buildings are needed and provide major public health opportunities.

Coal combustion is responsible for over half of fossil fuel-related air pollution globally, although exact contributions vary widely by country, and will bring the largest climate and health benefits through phase out ([Whitmee, 2023](#)). Gas combustion is also responsible for substantial greenhouse gas emissions, including CO<sub>2</sub> when burnt and methane, a short-lived climate pollutant with harmful health impacts, released from gas leaks.

Evidence shows that the economic gains from health benefits of well-designed mitigation policies would offset or outweigh the costs of implementation ([Moutet, 2025](#); [Markandya, 2018](#)). These immediate health and economic gains should inform decision making, and can strengthen public support for ambitious policies.

### **Addressing barriers to the transition away from fossil fuels**

Despite the harms of fossil fuel dependence, barriers to accelerating a just transition persist, and progress remains insufficient to meet the Paris Agreement goal of limiting global temperature rise to well below 2°C above pre-industrial levels. The latest UNEP Emissions Gap Report estimates that the world is on course for 2.3-2.5°C of warming with the full implementation of Nationally Determined Contributions (NDCs), and 2.8°C based on current policies ([UNEP, 2025](#)). The WMO State of Climate report confirms 2015-2025 as the hottest 11 years on record ([WMO, 2026](#)), with devastating impacts on health and livelihoods globally, in particular on climate vulnerable communities with the least resources to respond.

Economic dependence on fossil fuels is the main barrier to accelerating progress. While many arguments against fossil fuel phase out focus on costs, climate policies do not sufficiently account for the health and economic costs of inaction, or fully integrate health co-benefits into actions and evaluations ([Haines, 2026](#)). For example, economic damages from air pollution are estimated at around US\$6.1 trillion a year ([World Bank, 2025](#)); heat exposure from rising temperatures are estimated to have resulted in around 639 billion work hours lost in 2024, worth US\$1.09 trillion; and extreme weather events caused around US\$304 billion in economic losses ([Romanello, 2025](#)).

Better integration of health co-benefits into the design, implementation and evaluation of policies is also needed to accelerate action. One analysis found that around a third of NDCs identify health co-benefits of mitigation, but only 10% quantify/monitor these benefits ([WHO, 2023](#)). Evidence also shows under-reporting of health co-benefits of climate mitigation actions at the city level ([Anton, 2026](#)).

In addition, total fossil fuel subsidies globally amount to around US\$7 trillion annually, further delaying the transition ([IMF, 2022](#)). Fossil fuel subsidy reform is needed to address this and redirect funds towards improving energy access and increasing investments in healthcare and other public services. Carbon pricing is another key policy instrument that, when implemented as part of a broader policy package, can contribute to the transition away from fossil fuels, reduced emissions, and improved health and equity ([Cuevas, 2024](#)). Evidence



on health co-benefits and their monetised value can inform effective carbon pricing policies ([Whitmee, 2023](#)).

Lack of international and public finance towards the transition also continues to hinder progress. Geopolitical instability and fossil fuel-intensive conflicts are diverting financial resources from climate action, intensifying climate impacts and creating further barriers to a rapid transition away from fossil fuels. ([Šedová, 2025](#))

## **Potential levers for accelerating the transition**

### **Integrating health into NDC implementation**

As of March 2026, 132 countries have submitted updated NDCs ([Climate Action Tracker, 2026](#)). The implementation of national climate plans provides an opportunity to accelerate the transition away from fossil fuels and embed a health-centred approach ([Wellcome Trust, 2025](#)). Health should be fully integrated into NDC implementation through a health-in-all-policies approach. The 2024 WHO quality criteria for integrating health into NDCs provides guidance for incorporating health into climate plans. ([WHO, 2024](#))

Evidence on climate and health is rapidly growing, with new advances in research including the use of AI-assisted tools enabling data to be made available to policymakers and practitioners in real time. Closing the implementation gap requires decision makers to use the latest evidence to identify win-win actions for climate and health, and capitalise on health and economic gains that well-designed policies and actions can deliver.

### **Cross-sectoral coordination and systems approaches**

Cross-sectoral coordination is needed to facilitate a just transition away from fossil fuels. Incorporating health as a cross-cutting element can enable more coherent action at global, national and local levels. Carbon pricing, for example, can be implemented across sectors and designed to improve health outcomes through targeted use of revenue to improve food security, subsidise healthier diets or promote active transport. ([Cuevas, 2024](#); [WHO Regional Office for Europe, 2025](#))

Systems approaches that address both efficient resource use and demand reduction by tackling the drivers of unsustainable behaviours will be crucial to accelerate change at the scale needed ([Whitmee, 2023](#)). Circular economy approaches that reduce waste and demand for materials also offer potential to support the transition away from fossil fuels, while bringing wider environmental benefits.

Integration of climate mitigation and adaptation strategies is also important to achieve benefits and avoid trade-offs, for example, widespread use of air conditioning to cope with rising temperatures can increase energy demand and greenhouse gas (GHG) emissions if powered by fossil fuels. ([Haines, 2026](#))

### **Monitoring and evaluation of health and equity impacts**

Monitoring and evaluation of health impacts of climate actions is vital for a just transition. Assessing the health and equity impacts of climate policies will highlight opportunities to maximise benefits and provide a more comprehensive picture of the economic gains from the transition away from fossil fuels, addressing arguments against net-zero policies and associated costs.

Guidance to inform rigorous monitoring and evaluation of climate and health interventions is being developed by researchers at LSHTM as part of the Pathfinder Initiative in consultation



with global experts ([Benton, 2025](#)). Guidance on the economic evaluation of the health impacts of climate action and inaction is also under development ([MacClancy, 2025](#)).

### **Best practice and knowledge sharing**

Evidence on the impact of real-world actions highlights the large health and economic gains of effective policies, as well as challenges to be addressed. For example, in the US power sector, 147 megatonnes of CO<sub>2</sub> emissions were avoided in 2015 by replacing some coal and natural gas energy generation with solar and wind power, and between 2007 and 2015, air quality improvements from the transition prevented 3,000 to 13,000 premature deaths ([Millstein, 2017](#); [Barbose, 2016](#); [Pathfinder Initiative](#)). Further estimates suggest that from 2019 to 2022, wind and solar generation in the US provided around US\$249 billion of climate and air quality benefits and led to over 1,000 fewer premature deaths in 2022 ([Millstein, 2024](#)).

Clean air actions in China from 2013 to 2020 have also been linked to public health benefits. Measures such as controlling industrial emissions, promoting clean energy sources, improving vehicle emissions standards, and optimising air-quality monitoring systems resulted in a 48% decrease in PM<sub>2.5</sub> concentration and a 21% reduction in attributable deaths from around 1.75 million in 2013 to 1.39 million in 2020 ([Xue, 2024](#)).

The Model Communities Programme in New Zealand, a central and local government-funded initiative focusing on promoting cycling and walking, and infrastructure investment, aimed to improve urban active travel networks in New Plymouth and Hastings ([Pathfinder Initiative](#)). A cost-benefit analysis showed that the benefits, mainly from improved health and reduced injury, outweighed the costs of investing in active travel, with a benefit/cost ratio of 11:1 ([Chapman, 2018](#)). While such interventions alone are not enough to accelerate the transition at the rate and scale needed, they can form part of systems-wide transformation to net-zero, fossil-free economies.

Further case studies of implemented climate and health interventions, can be found on the Pathfinder Initiative Climate and Health Evidence Bank ([Pathfinder Initiative](#)). These include transitioning away from fossil fuels in Romania; improved cooking solutions in Senegal, The Gambia and Guinea Bissau; and urban road pricing schemes in London, Stockholm and Milan. Local and national governments and all actors involved in implementation, should share examples of best practice and lessons learnt.

### **Prioritising just transition pathways**

A just transition away from fossil fuels must take into account different national priorities and stages of development, as well as current and historical contributions to GHG emissions. There are large disparities in emissions between countries, with the world's largest 20 economies accounting for about 77% of global GHG emissions in 2023 ([UNEP, 2024](#)). A just transition must address fossil fuel dependence among the highest emitters as a priority. Adequate funding, including grant-based public finance from developed to developing countries, is a prerequisite for countries to avoid fossil fuel lock-in and adopt low-carbon development pathways.

A just transition away from fossil fuels must also ensure that vulnerable groups such as low-income households or workers in fossil fuel-related industries are not unfairly impacted ([Pathfinder Initiative, 2023](#)). A coordinated, multisectoral approach and robust evaluations of the impacts of policies is essential to prevent unintended consequences. Rapid decarbonisation across sectors must be balanced with measures to provide social protection



for workers and communities affected, including adequate compensation, assistance and re-training ([Whitmee, 2023](#)). As renewable energy is scaled up, the extraction of critical minerals for renewable energy infrastructure can also put local communities at risk, requiring careful planning to mitigate negative impacts ([Pathfinder Initiative, 2023](#)).

Aligning the roadmap with the Just Transition Work Programme and the development of the just transition mechanism, is essential to ensure equitable, inclusive transitions. Health should be embedded in these frameworks, and incorporated as key metric of successful transitions ([Pathfinder Initiative, 2025](#)).

### For more information, contact:

Sarah Sharpe

Communications Manager

Pathfinder Initiative, London School of Hygiene & Tropical Medicine

[Sarah.sharpe@lshtm.ac.uk](mailto:Sarah.sharpe@lshtm.ac.uk)

### References

Anton, B., Haines, A., Green, R., et al. (2025). Pathways to health: Reporting on health co-benefits from urban climate mitigation action varies by sector. *npj Urban Sustainability*, 6(1). doi: <https://doi.org/10.1038/s42949-025-00311-y>

Barbose, G., Wiser, R., Heeter, J., et al. (2016). A retrospective analysis of benefits and impacts of U.S. renewable portfolio standards. *Energy Policy*, 96, pp.645–660. doi: <https://doi.org/10.1016/j.enpol.2016.06.035>

Benton, L., Brousselle, A., McDavid, J., et al. (2025). Need for planetary health perspective in guidance for complex interventions for climate and health. *BMJ*, [online] 389, p.e083337. doi: <https://doi.org/10.1136/bmj-2024-083337>

Chapman, R., Keall, M., Howden-Chapman, P., et al. (2018). A Cost Benefit Analysis of an Active Travel Intervention with Health and Carbon Emission Reduction Benefits. *International Journal of Environmental Research and Public Health*, 15(5), p.962. doi: <https://doi.org/10.3390/ijerph15050962>

Climate Action Tracker. [online] Available at: <https://climateactiontracker.org/climate-target-update-tracker-2035/>

Cuevas, S., Nachtigall, D., Aguilar Jaber, A., et al. (2024). Health co-benefits and trade-offs of carbon pricing: a narrative synthesis. *Climate policy*, pp.1–19. doi: <https://doi.org/10.1080/14693062.2024.2356822>

Haines, A., Bonell, A., Green, R., et al. (2026). An urgent need to build climate and health intervention trial capacity. *Nature Medicine*, 32(3), pp.785–786. doi: <https://doi.org/10.1038/s41591-025-04192-7>

IMF (2022). *Fossil Fuel Subsidies*. [online] International Monetary Fund. Available at: <https://www.imf.org/en/Topics/climate-change/energy-subsidies>



Lelieveld, J., Haines, A., Burnett, R., et al. (2023). Air pollution deaths attributable to fossil fuels: observational and modelling study. *BMJ*, 383(8410), e077784.

<https://doi.org/10.1136/bmj-2023-077784>

MacClancy, C., Oyalo, P., Cubi Molla, P., et al. (2025). Methods for the Economic Evaluation of Health Impacts of Climate Action. A Scoping Review. doi:

<https://doi.org/10.2139/ssrn.5533798>

Markandya, A., Sampedro, J., Smith, S.J., et al. (2018). Health co-benefits from air pollution and mitigation costs of the Paris Agreement: a modelling study. *The Lancet Planetary Health*, 2(3), pp.e126–e133. doi: [https://doi.org/10.1016/s2542-5196\(18\)30029-9](https://doi.org/10.1016/s2542-5196(18)30029-9)

Millstein, D., Wiser, R., Bolinger, M. and Barbose, G. (2017). The climate and air-quality benefits of wind and solar power in the United States. *Nature Energy*, [online] 2(9), pp.1–10. doi: <https://doi.org/10.1038/nenergy.2017.134>

Millstein, D., O’Shaughnessy, E. and Wiser, R. (2024). Climate and air quality benefits of wind and solar generation in the United States from 2019 to 2022. *Cell reports sustainability*, 1(6), pp.100105–100105. doi: <https://doi.org/10.1016/j.crsus.2024.100105>

Moutet, L, Bernard, P., Green, R., et al. (2025). The public health co-benefits of strategies consistent with net-zero emissions: a systematic review. *The Lancet Planetary Health*, 9(2), pp.e145–e156. doi: [https://doi.org/10.1016/s2542-5196\(24\)00330-9](https://doi.org/10.1016/s2542-5196(24)00330-9)

Pathfinder Initiative (2023). Pathfinder Policy Brief COP28: Healthy and Just Transitions. Pathfinder Initiative Climate and Health Evidence Bank. [online] Available at:

<https://climatehealthevidence.org/updates/pathfinder-policy-brief-cop28-healthy-and-just-transitions>

Pathfinder Initiative (2025). *How health-centred climate action can accelerate a just transition*. Pathfinder Initiative Climate and Health Evidence Bank. [online] Available at:

<https://climatehealthevidence.org/updates/how-health-centred-climate-action-can-accelerate-just-transition>

Pathfinder Initiative. *Active travel cuts carbon and improves health in New Zealand*.

Pathfinder Initiative Climate and Health Evidence Bank. [online] Available at:

<https://climatehealthevidence.org/case-studies/active-travel-cuts-carbon-and-improves-health-new-zealand>

Pathfinder Initiative. Case studies. Pathfinder Initiative Climate and Health Evidence Bank.

<https://climatehealthevidence.org/case-studies>

Pathfinder Initiative. *From coal and natural gas to renewables in the US*. Pathfinder Initiative Climate and Health Evidence Bank. [online] Available at:

<https://climatehealthevidence.org/case-studies/coal-and-natural-gas-renewables-us>

Romanello, M., Walawender, M., Hsu, S.-C., et al. (2025). The 2025 report of the Lancet Countdown on health and climate change. *The Lancet*. [online] doi:

[https://doi.org/10.1016/s0140-6736\(25\)01919-1](https://doi.org/10.1016/s0140-6736(25)01919-1)

Šedová, B., & Haines, A. (2025). Tackling the complex links between climate change, conflict, and health. *BMJ*, 391, r1578. <https://doi.org/10.1136/bmj.r1578>

UN Environment Programme (2024). *Emissions Gap Report 2024*. [online] Available at:

<https://www.unep.org/resources/emissions-gap-report-2024>



UN Environment Programme (2025). *Emissions Gap Report 2025*. [online] Available at: <https://www.unep.org/resources/emissions-gap-report-2025>

Wellcome Trust (2025). How health can support ambitious implementation of Nationally Determined Contributions (NDCs). [online] Available at: <https://wellcome.org/insights/reports/health-centred-NDCs>

Whitmee, S., Green, R., Belesova, K., et al. (2023). Pathways to a healthy net-zero future: report of the Lancet Pathfinder Commission. *The Lancet*, 403(10421). doi: [https://doi.org/10.1016/s0140-6736\(23\)02466-2](https://doi.org/10.1016/s0140-6736(23)02466-2)

World Bank (2025). Accelerating Access to Clean Air for a Livable Planet. [online] Available at: <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099032625132535486>

World Health Organization (2023). *2023 WHO review of health in Nationally Determined Contributions and long-term strategies*. [online] Available at: <https://www.who.int/publications/i/item/9789240074729>

World Health Organization (2024). *Quality criteria for integrating health into Nationally Determined Contributions (NDCs)*. [online] Available at: <https://www.who.int/publications/i/item/9789240103740>

World Health Organization Regional Office for Europe (2025). *Co-benefits of climate mitigation action for health in the WHO European Region: policy brief*. [online] Available at: <https://www.who.int/europe/publications/i/item/WHO-EURO-2025-13052-52826-82194>

World Meteorological Organization (2026). *State of the Global Climate 2025*. [online] Available at: <https://wmo.int/publication-series/state-of-global-climate/state-of-global-climate-2025>

Xue, T., Wang, R., Wang, M., et al. (2023). Health benefits from the rapid reduction in ambient exposure to air pollutants after China's clean air actions: progress in efficacy and geographic equality. *National Science Review*, 11(2). doi: <https://doi.org/10.1093/nsr/nwad263>