

PS 1.3

TRANSFORMATION OF FOSSIL FUELS AND HEALTH (ENERGY AND HEALTH)

| BACKGROUND

The most recent Intergovernmental Panel on Climate Change (IPCC) report warns of a “code red for humanity” and estimates that on current trends our planet will hit the critical temperature increase of 1.5°C within the next 20 years, with irrevocable impacts. The next decade is crucial; we must cut global greenhouse gas emissions by half to avoid catastrophic impacts to human societies and the natural systems upon which we depend.

The primary source of greenhouse gas emissions that drive climate change, along with other forms of air pollution, is the burning of fossil fuels (coal, oil, and natural gas) mainly for electricity and transportation. The energy sector in itself is responsible for almost three-quarters of the emissions that pushed global average temperatures 1.1 °C higher since the pre-industrial age, with measurable impacts on weather and climate extremes.

The changing environmental conditions have also negatively impacted human health through contributing to the scale and/or the reproduction of many water-, air-, food-, and vector-borne pathogens. Climate change has also caused more frequent and extreme weather events, and pollution has negatively impacted water and security, contributing to human morbidity and mortality and to the disruption of health service delivery. Additionally, the areas of the world projected to be hit the hardest by the climate crisis are also home to many of the world’s poorest and most vulnerable communities, and to indigenous peoples with few options and resources to respond and adapt.

Furthermore, a recent study based on data from over 700 sites in 43 countries also shows that about one third of heat-related deaths in recent decades can be attributed to climate change and that increased mortality is evident on every continent.

There are several different assessments of the number of fossil fuel related air pollution deaths. According to the Lancet Commission on Pollution and Health, over 4 million people die prematurely each year from outdoor air pollution, two-thirds of which can be attributed to the burning of fossil fuels. It is estimated that 92% of Asia Pacific’s population – about 4 billion people – are exposed daily to levels of air pollution that pose a significant risk to their health. New research lead by Harvard university also suggests that death rates from fossil fuel pollution are significantly higher than previously thought. Coal combustion is responsible for over 50% of fossil fuel related deaths in the energy sector and it is clear that fossil fuel burning is causing millions of premature deaths annually, albeit exact estimates vary depending on the studies included and assumptions made.

The relationship between energy and health is complex. On one hand, it is indisputable that the harnessing of fossil fuels has greatly benefited humanity and has contributed to the rapid technological, cultural, and social changes in the past century. Access to clean, affordable, and reliable power is essential for human health, education, and economic prosperity. However, the way we currently use and produce energy also greatly contributes to a burden of disease through pollution of environments and is the main driver of climate change.

the negative impact of the energy sector on health, while Figure 2 demonstrates the death rates associated with the production of one unit of electricity.

In addition to health threats, geopolitical considerations remain critically important in fossil fuel dependent energy systems. The recent supply interruptions in the context of the ongoing conflict in Ukraine highlighted the precariousness of our energy systems. There is a long and tragic history of armed conflict related to fossil fuels, and it is likely that decarbonizing our energy systems will reduce some of these pressures.

It is evident that the energy system must be at the heart of the solution to climate change. Global **warming cannot be limited to well-below 2°C without rapid and substantial changes to the energy system, with deep reductions in carbon dioxide and other greenhouse gas emissions from fossil fuel consumption.**

Climate change mitigation based on phasing out fossil fuels will address the health effects of climate change with benefits in the middle to longer term, **and also address the** health effects of fossil fuel burning from air pollution with expected benefits in the near term **In the meantime, energy demands, and emissions continue to rise.** From 2015 to 2019, global energy use grew by 6.6%, CO2 emissions from the global energy system grew by 4.6%, with total greenhouse gas emissions rising by 2.7%. Despite the warnings of experts and the potential devastating and irreversible impact of climate change, the extraction of oil and gas has accelerated over the last decade, and according to a recent Guardian article is set to

increase. **The article reports on a set of projects, so-called ‘carbon bombs’, that are planned to start drilling before the end of this crucial decade. These projects, of which over 60% are already operating, set to produce**

646bn tonnes of carbon dioxide emissions, swallowing the world's entire carbon budget.

Concurrently the world has another global energy problem as 750 million people — 10% of the global population — still lack access to reliable electricity. Over 2 billion people still primarily depend on biomass fuels for their energy needs, and consequentially suffer adverse health effects from indoor air pollution. We live in an unequal world and climate change is expected to further exacerbate inequality. The poorest, most vulnerable communities are projected to be hit hardest by the impacts of climate change and already experience other damaging health impacts from a fossil fuel-based energy system, such as air pollution, to a greater extent.

The world's energy systems are in desperate need of modernization. We need to transition to clean energy, to safe, low-carbon, sustainable and cheap large-scale energy alternatives to fossil fuels. We must reconcile energy needs, especially for the poorest communities, with reducing the environmental effects of energy production and use. But when doing so we also need to address the current economic model and the political economy of energy production that promotes fossil fuels as a profitable and safe investment.

According to Sharon Y Eubanks, who led the US lawsuit against big tobacco for its harmful lies, the oil industry is the new tobacco industry. The tipping point for fossil fuel companies is approaching as the weight of scientific evidence is becoming too great to ignore and manage.

“Confronting the climate crisis requires action. People need to pressure governments and private firms to transition to a post-carbon economy.” Achieving net zero emission will require the transition to clean energy. The good news is that renewable sources of energy are available and solutions that benefit both the planet and human health lie within reach. There are opportunities for clean electrification; a renewed focus on realising the full potential of energy efficiency, and to clean energy innovation and an increasing urgency to tackle climate change.

Investments to renewable sources of energy such as wind and solar PV are at their highest in over two decades, and electric vehicle sales set new records. A new energy economy is coming into view and hopefully the benefits these will provide for health, prosperity, and well-being for all.

| OBJECTIVES

OBJECTIVES:

- To raise awareness of the energy sector's impact on health and its centrality to addressing climate change.
- To raise awareness of and discuss the two energy problems: lack of access on one hand and the use of polluting fossil fuels on the other.
- To discuss options to low carbon, affordable and large-scale energy alternatives to fossil fuels.

Session Structure

We propose to have an armchair conversation style session. Professor Renzo Guinto will be moderating the session and all panelists will be on stage or on screen for the whole duration of the session.

We will start with Professor Haines' keynote address, which will be about 20 minutes in length and will be delivered through video conferencing.

Following the keynote address, Prof. Renzo will introduce the panelists and the proceedings. Each panel member will be given the opportunity to reflect on the keynote address by providing a 5 minute speech, drawing on their area of expertise and work, and sharing key messages that they wish to stress.

This will be followed by a moderated and interactive discussion among the panelists and the audience focusing on policy oriented questions. Professor Renzo will moderate the discussion and will ask and guide the panelists to reflect on solutions, and the specific role of the government and the private sector in solving the issues brought up during the beginning of the session.

We have 120 minutes at our disposal, which should allow adequate time. However, we would like to kindly request everyone to respect the allocated time limits to ensure that everyone has the opportunity to express their views and allow time for a discussion.



Panelist

Yanadet Sripanich

Business Lead, CCS

PTT Exploration and Production PLC
Thailand

Yanadet Sripanich is a CCS Business Lead at PTT Exploration and Production Public Company Limited (PTTEP), where he is in charge of strategic planning and portfolio management for PTTEP's decarbonization initiatives on Carbon Capture & Storage (CCS). Prior to his current role, Yanadet was an Energy Transition Lead tasked with spearheading the company's transition into a lower-carbon future by means of pathways including Carbon Capture Utilization & Storage (CCUS) and Power-to-X (e.g., Hydrogen). As a geophysicist by training, Yanadet was also the Head of PTTEP's seismic imaging section, where he led the establishment of PTTEP Seismic Processing Center (PSPC) and strengthened internal seismic imaging practice. Yanadet received his Ph.D. in Geological Sciences (Geophysics & Seismology) and two B.S. degrees in Geophysics and Mathematics from the University of Texas at Austin, USA. He also conducted postdoctoral research on seismic imaging at Utrecht University, Netherlands.