



Contents lists available at ScienceDirect

Engineering

journal homepage: www.elsevier.com/locate/eng

News & Highlights

COP28 Makes It Official: Fossil Fuels Cause Climate Change

Katherine Bourzac

Senior Technology Writer

On November 30, 2023, amidst outrage over its leadership's ties to the oil and gas industry [1], COP28—shorthand for the 28th United Nations (UN) “Conference of the Parties” Climate Change meeting—began in Dubai, United Arab Emirates (UAE). However, by the end of the conference on December 12, its attendees had surprisingly reached agreement on a handful of steps to address the challenges posed by climate change.

The biggest surprise? Explicitly identifying fossil fuels as the root cause of climate change. For the first time in the summit's 28-year history, delegates representing nearly 200 countries acknowledged the role of fossil fuels in driving climate change. They agreed to work on “transitioning 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” [2]. Also during the conference, a large group of oil companies pledged to reduce their methane emissions [3], the conference parties initiated a previously proposed fund to compensate affected nations for losses and damages resulting from climate change [4], and attendees produced a first draft of a global agreement focused on identifying adaptations needed to mitigate the effects of climate change [5].

The call to transition from fossil fuels was part of COP28's “global stocktake” [2], the first official appraisal of the world's progress under 2015's Paris Agreement. In that landmark treaty adopted at COP21 in Paris, 196 countries pledged to hold global temperatures to 2 °C above preindustrial levels, and to pursue efforts to keep that increase as low as 1.5 °C [6]. The purpose of the COP28 stocktake is to help inform the next round of climate pledges countries will need to make to meet those climate goals [1].

Every word in the stocktake required approval by all parties, so the agreement to explicitly call out fossil fuels as a contributor to climate change is a major milestone, said Lisa Schipper, professor for development geography at the University of Bonn in Germany. Schipper said the language is particularly significant given the controversy surrounding the COP28 leadership in the lead-up to the conference.

At issue was the January 2023 appointment of COP28's president, Sultan Ahmed Al Jaber, whose day job is chief executive officer (CEO) of UAE's state-owned Abu Dhabi National Oil Company (ADNOC). Due to his deep connections to the fossil fuel industry, many activists, scientists, and politicians protested Al Jaber's appointment in the months before the conference. Then, on

November 26, 2023, the British Broadcasting Corporation reported that the UAE “planned to use the COP28 climate talks to make oil deals” [7]. The report described leaked documents detailing UAE plans to pursue oil and gas deals with 15 countries during COP28, including proposed talking points for establishing joint efforts between ADNOC and China on liquefied natural gas projects in Australia, Canada, and Mozambique [7]. Al Jaber denied the allegations [8] and officially assumed the COP28 presidency at the start of the conference.

With such a rocky lead-up to the conference, “expectations were incredibly low,” and the agreement to transition away from fossil fuels was “a pleasant surprise,” Schipper said. As previously reported [9], earlier COP conference agreements were not, as Schipper put it, “so explicit about calling out the most important source of emissions.”

Still, the wording of the agreement is not as strong as many parties had pushed for. At the conference's closing plenary, the spokesperson for the Alliance of Small Island States, Anne Rasmussen, assistant CEO of the Samoan Ministry of Natural Resources and Environment, received a standing ovation for her remarks. “It is not enough for us to reference the science and then make agreements that ignore what the science is telling us we need to do,” she said [10]. Some coalitions at COP28 had lobbied for a deadline for a complete phaseout of the use of fossil fuels; others, including the European Union, called for a phaseout of “unabated” use of these fuels by 2050 [11]. (In this context, unabated means fossil fuel use without mitigation measures such as carbon capture or storage to reduce emissions.) As it stands, the stocktake's final wording includes no schedule for transitioning away from fossil fuels and leaves each nation to make its own decisions about timing. The agreement calls on parties to approach the transition “in a nationally determined manner, taking into account the Paris Agreement and their different national circumstances, pathways, and approaches” [1].

Although the agreement did not include a transition timetable, 130 countries did pledge to work to triple global renewable power generation to at least 11 000 GW by 2030 [12]. This pledge matches an estimate by the Masdar City, UAE-headquartered International Renewable Energy Agency, an intergovernmental organization focused on supporting a worldwide transition to a sustainable energy future, that the world must triple renewable power by 2030 to meet the 1.5 °C goal in the Paris Agreement [13].

<https://doi.org/10.1016/j.eng.2024.05.001>

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While climate scientists and others welcome the acknowledgement that fossil fuel emissions drive climate change, many are dismayed that it has taken 28 years for the COP to state the connection. “We have finally spoken the words,” said Rob Jackson, professor of Earth system science at Stanford University in Palo Alto, CA, USA. “From the outside it is ludicrous it took so long. The COP is finally acknowledging what everyone has known for decades.”

The frustration stems from the urgency scientists feel as they witness how fast climate change now appears to be moving. Jackson noted that the world is already on the precipice of a 1.5 °C temperature increase and we are feeling the effects. In 2023, the global average temperature was 1.45 °C above preindustrial levels (Fig. 1), according to the World Meteorological Organization (WMO) [14], a UN agency responsible for promoting international cooperation in atmospheric science and meteorology. The WMO further predicts that 2024 will be even warmer due to advancing climate change and a potent El Niño, a warming weather pattern. An international group of scientists at the Global Carbon Budget (GCB), which tracks carbon emissions and processes that absorb greenhouse gases (“carbon sinks”), estimates a 50% chance that global temperatures will consistently exceed 1.5 °C in seven years [15]. Jackson chairs the Global Carbon Project, which organizes the GCB. He said the emissions data from 2023 show we are not on the right track. “We are going to sprint to 2 °C before we know it,” he said. But the global community should not give up, he added. “Every tenth of a degree matters and we should prevent and reverse these increases.”

To at least stall the warming, most climate scientists agree that the world must address the continuing growth of emissions. A report from the GCB estimates that global CO₂ emissions from fossil fuels and industry totaled 36.8 Gt in 2023, a 1.1% increase over 2022 [16]. The report further notes that, compared to 2022 levels, fossil fuel emissions in 2023 increased by 8.2% in India and 4% in China, while decreasing by 7.4% in the European Union and 3% in the United States [16].

In another welcomed development at COP28, a group of oil and gas companies agreed to address one important source of emissions. Fifty companies, responsible for nearly half of the world’s fossil fuel production, pledged to reach near-zero methane emissions associated with natural gas production by 2030 [3]. Curbing this source of methane releases is a powerful way to rapidly slow global temperature increases in the short term, Jackson said. Methane, the largest component of natural gas, is a more potent greenhouse gas than CO₂, but it is also shorter lived in the atmosphere. If we slash methane emissions, atmospheric concentrations

of the gas could return to normal within a decade or two, Jackson said.

But Jackson has doubts about the pledge. “I am grateful to see the focus turn to methane, and I hope we take advantage of it,” he said. “But the chance they will get to near-zero emissions by 2030 is near zero.” He noted that, to start with, oil and gas producers do not agree with scientists’ measurements of how much methane the companies emit [17]. And natural gas is currently the fastest growing fuel in the United States [18]. “It is mostly gas replacing coal—not renewables,” he said.

In a press release appearing on December 3 during COP28 [19], UN Secretary General António Guterres expressed similar skepticism about the fossil fuel companies’ methane pledge. He noted that anthropogenic methane emissions are currently on track to increase by 13% by 2030. (Natural gas is not the only culprit—agriculture, particularly the beef and dairy industry, are also major contributors.) “There must be no room for greenwashing,” Guterres said in the statement, referring to how companies frequently tout environmentally friendly products and practices without actually delivering on their claims [20].

Another big agenda item at COP28 concerned the establishment of a loss and damage fund for countries impacted by climate change, an action agreed to in principle at last year’s COP27. At COP28, countries pledged a total of 661.39 million USD to the fund [21]. Schipper noted, however, that there is quite a mismatch between the pledged money and estimates of the long-term costs of climate change. Estimates of the annual global cost of damage due to climate change vary but are usually in the range of hundreds of billions of dollars per year, she said. At COP28, the United Kingdom and the United States, two countries recognized to have historically received great benefit as major contributors to climate change, pledged only 50.6 million and 17.5 million USD, respectively, to the fund [21].

COP28 also saw the first establishment of Global Goals on Adaptation—a plan for how countries will respond to the effects of climate change. In a 2019 report, the Global Commission on Adaptation, a Netherlands-based, multi-national organization formed in 2018 to address a perceived need for greater awareness of climate change adaptation, argued that the world could not rely on cuts to carbon emissions alone to prevent the negative consequences of climate change, concluding that adaptation measures were needed as well [22]. At COP28, attendees drafted a document [5] titled the “UAE Framework for Global Climate Resilience” that stipulates that parties should meet various adaptation goals by 2030. These goals include assessing possible negative effects of climate change (“climate hazards”), adopting national plans to adapt to those effects, and developing systems to monitor nations’ progress. But Schipper notes that the document lacks much specific direction about how to achieve the goals. For example, the important question of how such adaptation plans will be financed remains unclear, addressed only with the statement, “Welcomes progress in the provision of climate finance” [5]. Schipper described the document as “vague and lacking in substance.”

Headed again by a president with deep ties to the oil and gas industry, Muktar Babayev, Azerbaijan’s Minister of Ecology and Natural Resources [23], COP29 will be held in November 2024 in Baku, Azerbaijan. And while climate scientists understand the need for the inclusive process of these conferences and politely applaud the slow, limited progress being made, they remain fearful that the world is not moving fast enough with more dramatic action on fossil fuel emissions. UN climate agreements are “negotiated documents that get watered down,” Schipper said. But this negotiation is a necessary part of the process, she said. “Everybody has to have a voice.” The real question, said Jackson, is when will oil companies stop looking for more oil and gas and, instead, leave them in the ground. “Everything else is just window dressing.”

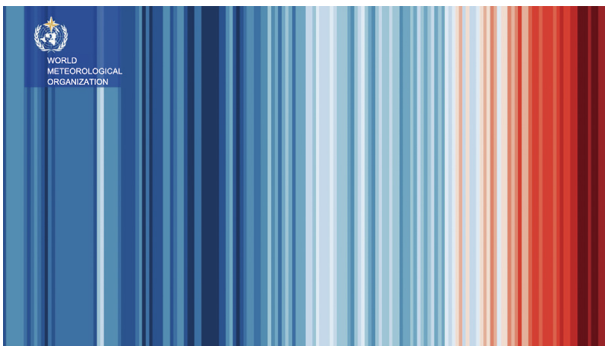


Fig. 1. Each vertical stripe in this figure represents the average global temperature for one year, from 1850 to 2023, with bluer colors indicating cooler temperatures and redder ones hotter. The year 2023 was nearly 1.5 °C hotter than the average annual temperature in 1850. This simplified visualization highlights how fast the planet has been warming in recent years. Credit: Ed Hawkins/WMO (public domain).

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