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**Title:Analysis: Record opposition to climate action by UK’s right-leaning newspapers in 2023**

**Description:**

Last year saw a record number of UK newspaper editorials opposing climate action – almost exclusively...
The post Analysis: Record opposition to climate action by UK’s right-leaning newspapers in 2023 appeared first on Carbon Brief.

**Content:**

Last year saw a record number of UK newspaper editorials opposing climate action – almost exclusively from right-leaning titles – new Carbon Brief analysis shows.
The analysis is based on hundreds of UK national newspaper editorials, which are the formal “voice” of the publications.
The 354 editorials published in 2023 relating to energy and climate change add to thousands more collected in a long-running project started by Carbon Brief.
Newspapers such as the Sun and the Daily Mail published 42 editorials in 2023 arguing against climate action – nearly three times more than they have printed before in a single year.
They called for delays to UK bans on the sale of fossil fuel-powered cars and boilers, as well as for more oil-and-gas production in the North Sea. In response to such demands, prime minister Rishi Sunak performed a “U-turn” in September on some of his government’s major net-zero policies.
Last year also saw a surge in hostility towards climate protesters, with editorial attacks doubling compared to recent years.
This analysis is part of a project assessing the attitudes of UK newspapers to climate change and energy since 2011. It shows that after a period of embracing climate action, right-leaning publications have largely returned to their historic stance of arguing against climate action.
Record opposition to action
Cost of net-zero
Labour criticism
Targeting climate activists
Methodology
Record opposition to action
Carbon Brief captured 354 articles in its database of climate- and energy-related newspaper editorials last year, touching on topics ranging from UK energy bills to flooding in Libya.
Roughly half of these – 174 in total – specifically called for either more or less climate action. The main focus of these editorials was the UK government’s net-zero target and the policies it is implementing, or failing to implement, in order to achieve this goal. 
As the chart below shows, the 42 editorials arguing for less action last year marked a new record for the past 13 years of climate coverage.
Number of UK newspaper editorials arguing for more (yellow) and less (red) climate action, 2011-2023. Source: Carbon Brief analysis.
There was a clear partisan divide in attitudes towards climate action.
Nearly every editorial published in left-leaning and centrist titles that offered an opinion on climate action advocated for more to be taken. These made up around three-quarters of the articles calling for “more action” overall.
The Guardian, for example, published editorials calling for an end to oil exploration in the UK and for the world to get rid of fossil fuels “entirely”.
By contrast, around half of the climate-related editorials published in right-leaning titles, such as the Sun and the Daily Mail, actively opposed climate action. Only one-third of these editorials supported climate action and the remainder expressed a mix of views.
As the chart below shows, the past two years have seen a dramatic fall in the share of right-leaning newspaper editorials supporting climate action – and a rise in the share opposing it. 
Prior to this downward trend, right-leaning titles with long histories of climate scepticism had been showing growing enthusiasm for climate action. The Daily Express and the Sun even launched special climate initiatives in 2021, as the UK prepared to host the COP26 summit.
The drop in support for climate action among right-leaning newspapers was followed by the government rolling back some of its climate policies in 2023. (See: Cost of net-zero.)
The share of right-leaning UK newspaper editorials arguing for more (yellow) and less (red) climate action, 2011-2023, %. Source: Carbon Brief analysis.
Carbon Brief also analysed a smaller set of 64 editorials from the 354 published in 2023 that discussed notable energy sources – specifically, renewables, nuclear power and fracking for shale gas. 
Within this group, there were 14 editorials that were explicitly anti-renewable energy. 
This is the highest number since 2013, when there was widespread opposition to wind energy within the right-leaning press. 
Some of the criticism last year was reminiscent of that era. The Sun, for example, said solar and wind generation “will never reliably power a country this size and with such variable weather”.
(While other low-carbon energy sources would be needed, the Climate Change Committee has concluded that the UK could achieve a reliable decarbonised power system by 2035 in which wind and solar meet 70% of demand.)
A Sunday Telegraph editorial said that “supposed progress” in renewables had “only been achieved thanks to lavish subsidies”. (In fact, wind and solar remain the cheapest way to generate electricity in the UK.)
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Cost of net-zero
By far the most common anti-climate action narrative in newspaper editorials last year was the economic impact of what the Sun on Sunday called “bonkers net-zero policies that will just push prices up”. (Energy prices remain elevated thanks to expensive gas.)
The cost of net-zero, especially the up-front cost of buying electric vehicles and heat pumps, was consistently framed by right-leaning newspapers as something British people, in the words of the Sun, “just cannot afford”. (These papers invariably fail to mention the costs of inaction.)
This has been a popular topic among some right-wing and climate-sceptic commentators since the net-zero target was first proposed. This is in spite of analysis indicating that a net-zero transition would, ultimately, save UK households money. 
As the chart below shows, costs emerged as an even bigger talking point in 2023, with one-third of all climate-related editorials referencing the issue. There were twice as many editorials in the past year mentioning the high costs of action than there has ever been. 
Annual number of climate-related editorials mentioning the economic costs of climate action (red), with remaining climate-related editorials published that year indicated in grey, 2011-2023. Source: Carbon Brief analysis.
Many, such as the Daily Mail, cited the wider economic situation in the UK as a reason not to act on climate change:
“When net-zero was made legally binding by 2050, Britain had not had Covid, the Ukraine war and rampant inflation. Now the country is skint and can’t afford it.” 
(It is worth mentioning that publications such as the Daily Mail have been making similar arguments since long before any of these issues emerged. In 2017, it stated that climate action had only come at a “crippling cost to Western economies”.)
In light of what they argued were “unaffordable” costs, these publications argued that the best course of action would be to abandon “unrealistic” net-zero policies. 
(The Office for Budget Responsibility has said that the costs of failing to act on climate change would be “much larger” than the costs of taking action.)
Right-leaning publications published numerous editorials calling for the government to delay or scrap plans to phase out gas boilers and internal combustion engine cars, introduced under former Conservative prime minister Boris Johnson. One Daily Telegraph editorial said:
“There would surely be huge political benefits to scrapping all these pointlessly punitive measures.”
On 20 September, Conservative prime minister Rishi Sunak gave a speech in which he announced a series of rollbacks of net-zero policies that he said would protect “hard-working British people” from “unacceptable costs”. These included delays to the phase-out of fossil fuel-powered vehicles and boilers, as well as efficiency rules.
(Far from reducing costs, the rollbacks are expected to cost renters £2bn per year and drivers £6bn cumulatively, by leaving homes more draughty and cars more expensive to run.)
As the chart below shows, the speech followed a flurry of editorials warning of the costs of net-zero. After Sunak’s announcement, these editorials almost stopped entirely. 
Monthly number of editorials mentioning the cost of climate action in UK newspapers in 2023. Source: Carbon Brief analysis.
Left-leaning and centrist publications rejected the notion that net-zero policies would inevitably place an economic burden on people in the UK. 
The Guardian noted that, while “reaching net-zero will be costly and disruptive”, this just made it vital to have a “well-thought-out plan to share the cost equitably”. The Financial Times made the case for “green growth”, stating:
“True leadership…would involve finding ways to carry voters with [Sunak] through the challenges ahead and seizing on the green transition to rekindle growth and spur innovation.”
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Labour criticism
Sunak’s net-zero rollback was widely perceived by the UK press as an attempt to put “clear blue water” between himself and Keir Starmer, the leader of the opposition Labour party.
Meanwhile, there was a concerted effort in the right-leaning press to discredit Labour’s two flagship climate announcements – namely, pledges to spend £28bn each year on “green” investment and to stop issuing new oil-and-gas licences.
This was particularly evident in the Sun and the Daily Mail, the UK’s two most widely read national newspapers. Of the 128 climate- or energy-related editorials from these newspapers captured in Carbon Brief’s database last year, 31 took aim at Labour’s climate proposals.
Number of climate- and energy-related editorials published in the Sun and the Daily Mail in 2023 that focused on criticising Labour’s plans to end new North Sea oil and gas licensing (dark red) and other Labour climate policies (light red). The grey area represents other climate- and energy-related editorials in those newspapers that did not focus on Labour. Source: Carbon Brief analysis.
The debate around North Sea oil and gas was a major talking point last year, with many right-leaning editorials stating that new drilling licences would be vital for the UK’s energy security. (After a surge of interest in 2022, fracking was virtually forgotten last year, with just two editorials mentioning it in 2023.)
Labour officially announced in May that it planned to stop all new oil-and-gas developments. 
Right-leaning newspapers responded by implying that environmental activist group Just Stop Oil and low-carbon energy tycoon Dale Vince were responsible for setting Labour’s policies. This claim was based on the fact that Vince, who had financially supported Just Stop Oil, had also given £1.5m to Labour. 
In total, there were 16 editorials in the Sun, the Sun on Sunday and the Daily Mail about Vince’s support for Just Stop Oil and Labour. They described Vince as “bankrolling” Labour and helping to “dictate its green agenda”, framing Labour as “allies” of Just Stop Oil and “in their pocket”. 
(Vince’s £1.5m in donations to Labour were spread over 10 years. The Labour Party has received donations totalling nearly £30m in the most recent 12 months for which official data is reported. The Conservatives have received £43m over the same period.)
These narratives were later picked up by then net-zero secretary Grant Shapps, who wrote a letter to Starmer in July concerning Vince’s support, and called Labour the “political wing of Just Stop Oil”.
(Responding to criticism, Starmer said in August that Labour would honour existing North Sea licences and maintain oil-and-gas fields “for decades to come”. He called Just Stop Oil’s more radical demands “contemptible”. Vince announced in October he would stop funding Just Stop Oil.)
More broadly, there was also an effort to frame Labour’s “green” policies as what the Sun called a “turn-off for much of the electorate”. This was particularly true following the Uxbridge by-election in July, where the Labour London mayor Sadiq Khan’s anti-air pollution policy, the ultra-low emissions zone (ULEZ), was viewed as significant in Labour narrowly missing out on winning the seat.
There were also many editorials throughout 2023 attacking shadow net-zero secretary Ed Miliband, with the Sun stating: 
“Labour wanted to gamble a monstrous £28bn a year in borrowed money on a ‘green industrial revolution’ dreamed up by Ed Miliband, a man voters rejected in 2015 as incompetent.”
The media continues to fuel speculation over Labour’s £28bn “green prosperity plan”, which Starmer recently defended.
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Targeting climate activists
Climate activists have been a major target for right-leaning newspapers in recent years, especially since Extinction Rebellion’s mass protests in 2019.
Yet their hostility towards climate activists reached new levels last year. There were 56 editorials taking aim at these groups, with 43 of these targeting Just Stop Oil. As the chart below shows, this is more than double the previous record of 25, set in 2022.
Editorials in the Sun and the Daily Mail described Just Stop Oil as a “criminal cult”, “eco-loons” and “deranged”. The Sun devoted entire editorials to targeting individual activists for taking flights or driving a car to the supermarket to buy fruit.
Number of editorials in right-leaning UK newspapers criticising climate activist groups between 2019 and 2023. Source: Carbon Brief analysis.
In a year that saw the government introduce strict and controversial new legislation to crack down on protests, UK newspapers were vocal in their support for tougher treatment of climate activists.
Prior to new penalties being introduced under the Public Order Act, a Times editorial about Just Stop Oil protests stated that “the law is as asinine as the tactics of those narcissists”.
The Sun, meanwhile, said the police were “too busy with fashionable woke causes and politely escorting Just Stop Oil protesters to bother with catching crooks”.
Methodology
This is a 2023 update of previous analysis conducted for the period 2011-2021 by Carbon Brief in association with Sylvia Hayes, a PhD researcher at the University of Exeter. The 2022 update can be found here.
The full methodology can be found in the original article, including the coding schema used to assess the language and themes used in editorials concerning climate change and energy technologies. 
The analysis is based on Carbon Brief’s editorial database, which is regularly updated with leading articles from the UK’s major newspapers.
DeBriefed 5 January 2024: US offshore wind; UK’s second warmest year; Carbon Brief’s top articles of 2023
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05.01.24
DeBriefed 21 December 2023: Major oil auction in US; EU missing targets; Climate change threatens nature’s ‘unique values’
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Guest post: Why ‘jet-streak’ winds will get faster as the climate warms
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Webinar: Carbon Brief journalists discuss COP28’s key outcomes 
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**Title:DeBriefed 5 January 2024: US offshore wind; UK’s second warmest year; Carbon Brief’s top articles of 2023**

**Description:**

Welcome to Carbon Brief’s DeBriefed. An essential guide to the week’s key developments relating to climate...
The post DeBriefed 5 January 2024: US offshore wind; UK’s second warmest year; Carbon Brief’s top articles of 2023 appeared first on Carbon Brief.

**Content:**

Welcome to Carbon Brief’s DeBriefed. An essential guide to the week’s key developments relating to climate change.
This is an online version of Carbon Brief’s weekly DeBriefed email newsletter. Subscribe for free here.
This week
Offshore wind off track
EMPIRE WIND 2: Energy majors BP and Equinor have terminated their power agreement with the state of New York to build a 1.26 gigawatt offshore wind farm, according to Bloomberg. The deal for the 147 turbine wind farm, 15 miles south of New York’s Long Island was signed in 2022, for a strike price of $107.50 per megawatt-hour, the Financial Times noted. 
WIND WOES: BP and Equinor pointed to the “unforeseeable economic forces” – including inflation stemming from the war in Ukraine and Covid-19, supply chain bottlenecks and interest rate increases, along with permitting delays – which affected the “financial attractiveness” of the project, the FT added. Offshore wind developers have cancelled contracts to sell power in Massachusetts, Connecticut and New Jersey, as well as threatening to cancel agreements in other states, as project costs rise, Reuters reported. 
VINEYARD WIND: Meanwhile, the first turbine in the Vineyard offshore wind development began generating power this week, delivering around 5 megawatts of power to the New England grid, the Guardian reported. Vineyard Wind is the first US large-scale offshore wind project, and is expected to have 62 turbines in total when complete. 
UK’s second-warmest year
SECOND WARMEST: Data from the Met Office shows that 2023 was the UK’s second-warmest year of record, and the warmest year on record for Wales and Northern Ireland, BBC News reported. The average absolute temperature for last year was 9.97C, only slightly lower than the 10.02C recorded in 2022 – the warmest year on record for the UK – according to the Guardian. 
TOP 10: The UK’s 10 warmest years have all occurred since 2003, the Guardian noted, with Met Office scientists emphasising that  “such a warm year would have occurred only once in 500 years without human-caused global heating”. The news comes as heavy flooding driven by Storm Henk has hit the UK, with more than 550 flood warnings and alerts in place in England and Wales and hundreds of homes flooded, the Guardian reported.
REPEAT RECORDS: While 2023 is expected to be announced as the warmest on record in the coming weeks, the contributing factors that made it so warm will likely “push the dial even further in 2024”, New Scientist reported. The El Niño climate pattern in the Pacific Ocean is expected to reach its full strength – on top of warming driven by greenhouse gases – next year, it noted.
Around the world
GERMAN EMISSIONS: Germany’s carbon dioxide emissions fell to their lowest level since the 1950s in 2023, due to less coal-fired power and a reduced output by energy-intensive industries, reported Reuters, but the decline is “unsustainable without climate policy changes”. 
OVERTAKING TESLA: Chinese firm BYD has knocked Elon Musk’s company “off the top spot” to become the world’s best-selling electric vehicle manufacturer for the first time, according to the Financial Times.
COP29 PRESIDENT: Azerbaijan has appointed environmental minister Mukhtar Babayez as president of the COP29 climate talks, reported Climate Home News. Babayez is the former head of the country’s state-owned oil and gas company Socar.
LOW-CARBON HYDROGEN: The US government has unveiled a new framework to support the production of low-carbon hydrogen, offering tax credits based on the life-cycle greenhouse gas emissions from the power source used in hydrogen production, according to Reuters.
‘POSTCODE LOTTERY’: Analysis of the 20 costliest climate disasters of 2023 has shown that “countries less able to rebuild or who have contributed least to climate crisis suffer worst”, reported the Guardian.
PIPELINE PRACTICES: French energy giant TotalEnergies has launched a review of its land acquisition practices for the controversial $10bn East African crude oil pipeline in Uganda and Tanzania, Agence France-Presse reported.   
324tn yuan
China will need to spend around 324tn yuan ($45.5tn), roughly 2.7 times its GDP in 2022, to realise its climate targets of peaking CO2 emissions before 2030 and going carbon neutral before 2060, reported China Daily.
Latest climate research
Diversifying agricultural production in sub-Saharan Africa towards more micronutrient-rich foods is “necessary” to provide an adequate nutrient supply under increasing climate risks and population growth, according to a new study published in Nature Food. 
Using a large-scale experiment on Facebook, a new paper in Climatic Change found “little to no support” for the fear that attention on solar radiation management or carbon dioxide removal “might crowd out the desire to cut emissions”.
The genes of an Antarctic octopus provide “empirical evidence” that the West Antarctic ice sheet previously “collapsed when the global mean temperature was similar to that of today”, warned a new study in Science, suggesting “the tipping point of future WAIS collapse is close”.  
(For more, see Carbon Brief’s in-depth daily summaries of the top climate news stories on Tuesday, Wednesday, Thursday and Friday.)
Captured
Last year, the UK’s electricity from fossil fuels dropped to its lowest level since 1957, new analysis from Carbon Brief reveals. The amount of electricity from fossil fuels fell 22% year-on-year in 2023, to 104 terawatt hours (TWh), its lowest level in 66 years. Back then,  Harold Macmillan was the UK prime minister and the Beatles’ John Lennon and Paul McCartney had just met for the first time. The chart above shows the fall of fossil fuels in the electricity mix, to meet just 33% of electricity needs in 2023, while renewable energy generation continues to surge.
Spotlight
Carbon Brief’s top five articles of 2023
Carbon Brief takes a look at its top five most-read stories published in 2023. 
Factcheck: 21 misleading myths about electric vehicles 
Carbon Brief’s most-read new article of 2023 was a factcheck by deputy editor Dr Simon Evans of 21 of the most common misleading myths about electric vehicles (EVs). The article explored claims often seen in the press, such as EVs having to travel more than 50,000 miles for their emissions to break even with a conventional car, EVs having little or no CO2 advantage over a car someone already drives, and sales of EVs appearing to be slowing. 
As Evans explained, the sales of EVs have continued to surge in the UK and globally, as the vehicles become cheaper, charging infrastructure more widespread and bans on combustion engines loom closer. Despite this growth, EVs are still subject to “relentless hostile reporting across mainstream media in many major economies, including the UK”, Evans noted.
COP28: Key outcomes agreed at the UN climate talks in Dubai 
At COP28 in Dubai, nearly every country in the world agreed to “transition away from fossil fuels” within the global stocktake – the first time fossil fuels have been explicitly mentioned in the 28 years of international climate negotiations.
Ten of Carbon Brief’s journalists attended the two-week event and pulled together this mammoth summary – covering everything from the significant loss-and-damage fund on the first day to the gritty negotiations around Article 6 and a just transition. 
Analysis: Which countries have sent the most delegates to COP28? 
More than 97,000 badges were issued for COP28 in Dubai, almost twice the number of participants that travelled to Sharm El Sheikh in Egypt in 2022. In Carbon Brief’s third most-read article of 2023, senior science editor Robert McSweeney detailed who registered for COP28, including 24,488 delegates representing parties, 14,338 observers from NGOs and 3,972 media delegates. 
Analysis: China’s emissions set to fall in 2024 after record growth in clean energy 
China’s carbon dioxide emissions are set to fall in 2024, according to analysis for Carbon Brief by Lauri Myllyvirta, lead analyst and co-founder of the Centre for Research on Energy and Clean Air (CREA). Myllyvirta explained how China’s emissions “could now be facing structural decline due to record growth in the installation of new low-carbon energy sources”. This came despite CO2 emissions rising 4.7% year-on-year in the third quarter of 2023 as they continued to rebound following China’s “zero-Covid” period.
Analysis: How low-sulphur shipping rules are affecting global warming
Rounding out the list of Carbon Brief’s top five most-read articles of 2023, is an analysis of how new international rules to reduce air pollution from shipping could affect the climate. The article – by Dr Zeke Hausfather, climate science contributor for Carbon Brief, and Prof Piers Forster, professor of climate physics at the University of Leeds – found that the new regulations, imposed in 2020, will likely add 0.05C to global temperatures by 2050. 
Watch, read, listen
DOCUMENTING DROUGHT: A Guardian article explored the images Maasai photographers Claire Metito and Irene Naneu have been using to chronicle the everyday experiences of two elderly women in Esiteti in southern Kenya, where a prolonged drought has made life more challenging for women in pastoralist communities. 
WITNESSING A WARMING WORLD: BBC’s Future Planet’s team of climate reporters have written from across five continents to share their thoughts on what they have witnessed as the world warmed in 2023.
PRESCIENT POSTERS: An article in the New York Times explored some of the most arresting images on display at a new exhibition at Poster House in Manhattan that highlights the differing approaches – “bright, witty, sombre, blunt, even sexy” – the environmental movement has taken in an effort to “save the world”. 
Coming up
4-5 January: Goldman Sachs Energy, CleanTech and Utilities Conference 2024, Miami, Florida
10 January: Winter school on “Dealing Professionally with Climate Change Issues”, online event
17 January: Climate change adaptation: evaluating Scottish Marine Protected Area resilience, webinar
Pick of the jobs
Grantham Research Institute on Climate Change and the Environment, research officer | Salary: £40,229-£48,456. Location: London, UK
European Geosciences Union, media and communications officer | Salary:  €53,000-€58,000. Location: Munich, Germany
Rewilding Britain, chair and trustees | Salary: unknown. Location: UK
ODI, communications collaborators | Salary: unknown. Location: unknown
DeBriefed is edited by Daisy Dunne. Please send any tips or feedback to debriefed@carbonbrief.org
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**Title:Analysis: UK electricity from fossil fuels drops to lowest level since 1957**

**Description:**

The amount of UK electricity generated from fossil fuels fell 22% year-on-year in 2023 to...
The post Analysis: UK electricity from fossil fuels drops to lowest level since 1957 appeared first on Carbon Brief.

**Content:**

The amount of UK electricity generated from fossil fuels fell 22% year-on-year in 2023 to the lowest level since 1957, Carbon Brief analysis reveals.
The 104 terawatt hours (TWh) generated from fossil fuels in 2023 is the lowest level in 66 years. Back then, Harold Macmillan was the UK prime minister and the Beatles’ John Lennon and Paul McCartney had just met for the first time.
Electricity from fossil fuels has now fallen by two-thirds (199TWh) since peaking in 2008. Within that total, coal has dropped by 115TWh (97%) and gas by 80TWh (45%).
These declines have been caused by the rapid expansion of renewable energy (up six-fold since 2008, some 113TWh) and by lower electricity demand (down 21% since 2008, some 83TWh).
As a result, fossil fuels made up just 33% of UK electricity supplies in 2023 – their lowest ever share – of which gas was 31%, coal just over 1% and oil just below 1%.
Low-carbon sources made up 56% of the total, of which renewables were 43% and nuclear 13%. The remainder is from imports (7%) and other sources (3%), such as waste incineration.
Overall, the electricity generated in the UK in 2023 had the lowest-ever carbon intensity, with an average of 162g of carbon dioxide per kilowatt hour (gCO2/kWh).
This remains a long way from the government’s ambition for 95% low-carbon electricity by 2030 – just seven years from now – and a fully decarbonised grid by 2035.
Fossil falls
Shifting shares
Renewable rise
Cleanest power
Methodology
Fossil falls
Historically, fossil-fuel generation rose steadily as the size of the UK’s economy expanded – and, relatedly, as demand for electricity grew.
The rise in demand for electricity paused during the late 1970s and 1980s, as the country’s economic situation and industrial relations worsened. Yet the upwards march soon resumed.
Electricity demand then started to “decouple” from economic growth in the early 2000s, leading to a peak in 2005. Since then, demand has dropped precipitously, falling from 396TWh in 2008 to 313TWh in 2023, as shown by the dark blue line in the figure below.
This reduction in demand of 83TWh (21%) is equivalent to more than three times the expected output of the Hinkley Point C nuclear power plant, which is currently being built in Somerset.
Demand reductions are the result of a poorly understood combination of more efficient appliances and lighting, high prices driven by expensive gas and changes in the structure of the UK as it shifts to an ever more service-led rather than manufacturing-heavy economy.
(In the medium- to long-term, electricity demand is expected to rise as transport and heating are increasingly electrified using electric vehicles and heat pumps.)
While electricity demand was falling, the UK was also starting to rapidly scale its renewable energy capacity, primarily from wind, but also from solar and bioenergy.
As a result, renewable electricity output climbed six-fold from 23TWh in 2008 to 135TWh in 2023, shown by the red line in the chart below.
The combined impact of falling demand (-83TWh) and rising renewables (+113TWh) has acted as a pincer on electricity generation from fossil fuels, squeezing it from two directions.
Having peaked at 303TWh in 2008, the UK got just 104TWh of electricity from fossil fuels in 2023 – as shown by the steep black line in the figure below – a two-thirds reduction in 15 years. This takes fossil-fuel generation to its lowest level since 1957.
Annual UK electricity generation from fossil fuels (black) and renewables (red), TWh, as well as overall demand (dark blue). Source: DESNZ, BM Reports and Carbon Brief analysis.
In 1957, the Conservative party’s Harold Macmillan was elected UK prime minister in January following Anthony Eden’s resignation due to ill health. 
That same year, the Central Electricity Generating Board was established ‘to keep the lights on’. It was responsible for electricity generation, transmission and bulk sales in England and Wales up until the electricity sector was privatised in the 1990s. 
The world’s first commercial nuclear power station, at Calder Hall in Cumbria, had just opened its second unit, yet fossil fuels still supplied 97% of the UK’s electricity.
Also that year, the Suez canal was reopened, “Sputnik 1” – the first artificial satellite to orbit Earth – was launched by the Soviet Union and the UK government unveiled plans to allow women to join the House of Lords for the first time. 
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Shifting shares
For most of the past century, fossil fuels generated almost all of the UK’s electricity, as shown by the black line in the figure below. Fossil fuels – predominantly coal – made up 97% of the total in 1957, a figure that had barely changed for decades.
The rise of nuclear power (dark blue line) from the late 1950s onwards – after Calder Hall opened in 1956 – pushed the fossil fuel share downwards.
Yet electricity demand continued to grow and the earliest nuclear reactors were starting to shut down by the early 2000s, with only Sizewell B in Suffolk, in 1995, having replaced them.
With renewables still in their infancy, this meant that, in 2008, the UK was still getting 76% of its electricity from fossil fuels. Of this, 45% was from gas and 30% from coal.
Since then, fossil fuels’ share has dropped to a record-low 33% in 2023, being overtaken by renewables in the process (red line).
Renewables’ share reached a record high of 43% in 2023, with nuclear (13%, light blue line), imports (7%) and other sources (3%) making up the remainder.
Share of electricity generation from fossil fuels (black), renewables (red) and nuclear (light blue), %. Source: DESNZ, BM Reports and Carbon Brief analysis.
The total share from low-carbon sources – renewables and nuclear – was 56% in 2023. This was down one point from the record 57% share in 2022, as a result of a drop in nuclear output.
The current government’s ambition is to get 95% of the country’s electricity from low-carbon sources by 2030, which would mean an increase of 39 percentage points in seven years.
To date, the fastest rate of increase has been 25 percentage points in seven years, achieved between 2010 (23% low-carbon) and 2017 (48%).
The aim is then to fully decarbonise the grid by 2035. The opposition Labour Party’s aim is even more ambitious, hoping to fully decarbonise the electricity grid already by 2030. This would be a 44 percentage point increase in seven years.
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Renewable rise
The rise of renewables since 2008 has been nearly as steep as the fall for fossil fuels, as shown by the red line in the figure below.
Notably, however, since reaching 134TWh in 2020, renewables have effectively stood still, with output of 135TWh in 2023, matching the record 135TWh set in 2022.
This reflects the balance between continued increases in wind and solar capacity, variations in average weather conditions and reduced output in the past two years from bioenergy.
The 135TWh of renewable electricity in 2023 was made up of:
82TWh from wind (up 2TWh year-on-year, a 2% increase);
35TWh from bioenergy (down 5TWh and 13% from 2021 levels);
14TWh from solar (up 2% year-on-year);
5TWh from hydro (down 1TWh year-on-year, a 9% drop).
At the same time, coal has nearly disappeared from the UK electricity system, falling from 119TWh in 2008 to 4TWh in 2023 (down 115TWh, 97%), shown by the black line below.
Gas, meanwhile, is now down to levels rarely seen since the mid-1990s (grey line), falling from 178TWh in 2008 to just 98TWh in 2023 (down 80TWh, 45%).
Nuclear also continues to decline, reaching 41TWh in 2023, a 7TWh reduction year-on-year (15%) from already low levels, after Hinkley Point B in Somerset closed down and the remaining five stations were temporarily offline for planned maintenance outages.
Top: Annual UK electricity generation by source, TWh. Bottom: Share of electricity generation by source, %. The jump in generation in 1951 reflects a change in the scope of the data, which only included “major” power producers prior to that date. The spikes in 1984 reflect the substitution of coal with oil as part of the government’s strategy against the miners’ strikes. Source: DESNZ, BM Reports and Carbon Brief analysis.
Capacity for both onshore and offshore wind projects rose in 2023, by 0.6GW and 1.1GW, respectively.
Average wind speeds in the first 11 months of 2023 were well below the long-term average however, according to government figures, whereas 2022 had only been marginally below average. This muted overall generation growth over the last year somewhat. 
A windy December helped boost overall generation figures for the year, with a new wind generation record provisionally set on 21 December according to National Grid ESO. Wind generation hit 21.8GW between 8:00 and 8:30 on 21 December, providing 56% of the generation mix.
Notably, only one offshore windfarm was completed in 2023 – the 1GW Seagreen development off the east coast of Scotland – whereas three projects totalling 3GW were commissioned in 2022.
In October 2023, Dogger Bank off the coast of Yorkshire sent power to the national grid for the first time. It will be the world’s largest offshore windfarm, at 3.6GW, when it is completed in 2026.
Nevertheless, the government’s ambition for 50GW of offshore wind by 2030 is in doubt after the latest auction for new renewable capacity failed to secure any additional projects.
For bioenergy, the 35TWh in 2023 was similar to the level delivered in 2022, but down from 40TWh in 2020 and 2021. Plant biomass – mainly woodchips – is around two-thirds of these annual totals.
The four wood-burning former coal units at the Drax plant in Yorkshire account for around one-third of power from bioenergy on their own. However, their output has been subdued in 2022 and 2023, with some reporting having raised questions about the incentives at play.
Meanwhile, electricity generation from solar power only increased by 2% in 2023, despite a surge in new capacity being connected to the grid.
The number of hours of sunshine during 2023 was roughly in line with the long-term average, government figures show, whereas 2022 had been unusually sunny.
According to figures from consultancy Rystad Energy cited by Drax Electric Insights, the UK’s solar capacity was expected to rise from 15GW at the start of 2023 to 18GW by the end of the year.
Recent growth in solar installations comes after an extended period of stagnation, with installed capacity having reached 13GW in 2018 and only climbing to 14GW in 2022.
Rystad Energy expects UK solar capacity to continue accelerating, topping 25GW in 2025.
The latest reduction in coal generation, down another 33% in 2023, came as three of the UK’s four remaining coal-fired power stations shut down.
Dr Simon Evans on X: Not sure if you noticed, but as of yesterday, the UK only had one coal-fired power station remaining
West Burton in Nottinghamshire closed in March, then Drax in Yorkshire closed in April, followed by Kilroot in Northern Ireland at the end of September.
Only Ratcliffe in Nottinghamshire, operated by utility firm Uniper, remains operational. It plans to close in September 2024, ahead of the government’s ambition to end coal power by October 2024.
While the UK saw a major coal-to-gas transition in the 1990s “dash for gas”, recent reductions in coal use have been driven by renewables and reduced demand. These same forces have also been driving gas out of the mix.
The large drop in gas generation in 2023 of 27TWh (21%) reflects a combination of this longer-term trend with a one-off flip in the UK’s electricity imports.
The dip in the dark blue line for “oil, imports and other” in 2022 is due to the UK becoming a net electricity exporter that year for the first time ever.
Every year since the opening of the first “interconnector” linking the grids of the UK and France in 1986, the UK has been a net electricity importer – apart from 2022.
The switch in 2022 was due to widespread outages in the French nuclear fleet, with neighbouring countries including the UK picking up the slack.
In 2023, the UK reverted to being a net importer, buying 23TWh of electricity from countries including France, the Netherlands, Belgium and Norway. This was similar to 2021 (25TWh).
The switch from being a net exporter of 5TWh in 2022 to net imports of 23TWh in 2023 combined with steady output from renewables and falling demand to push down the need for fossil fuels. 
The UK now has 8.4 gigawatts (GW) of interconnector capacity to link its electricity system with that of neighbouring countries. Some 4.4GW of this has been added in the past five years.
In addition, the 1.4GW Viking Link interconnector between the UK and Denmark was completed in late 2023, and started operating on 29 December.
Another 4.7GW has regulatory approval, with further projects totalling 5.6GW also planned.
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Cleanest power
With fossil fuels reaching a record-low 33% share and coal down to 1% of the total, the UK saw its lowest-carbon electricity mix ever in 2023.
The carbon intensity of electricity – in other words, the amount of CO2 associated with each unit of electricity – fell to a record-low 162gCO2/kWh in 2023, a reduction of 18% year-on-year.
This continues a longer-term trend, shown in the figure below. In the early years of the series, the reductions in carbon intensity reflect a shift towards more efficient power plants.
The expansion of nuclear power in the 1970s and 1980s was followed by the “dash for gas”, which is lower-carbon than coal. From around 2008, the decline is due to the rise of renewables.
Carbon intensity of UK electricity supplies, gCO/kWh. Source: DESNZ, BM Reports and Carbon Brief analysis.
The government had earlier set a goal of reducing the carbon intensity of electricity generation to below 100gCO2/kWh by 2030. Since then, the UK’s 2050 climate target has been strengthened from an 80% cut in emissions to a 100% cut – reaching net-zero by that date.
If the government reaches its aim of 95% low-carbon electricity by 2030 then the carbon intensity of generation would fall to well-below 100gCO2/kWh. Just how far below would depend on the contribution from bioenergy and whether CO2 associated with imported electricity is counted.
The figure above counts bioenergy lifecycle emissions and imports towards the total.
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Methodology
The figures in the article are from Carbon Brief analysis of data from DESNZ Energy Trends chapter 5 and chapter 6, as well as from BM Reports. The figures from BM Reports are for electricity supplied to the grid in Great Britain only and are adjusted to include Northern Ireland.
In Carbon Brief’s analysis, the BM Reports numbers are also adjusted to account for electricity used by power plants on site and for generation by plants not connected to the high-voltage national grid. This includes many onshore windfarms, as well as industrial gas combined heat and power plants and those burning landfill gas, waste or sewage gas.
The analysis of carbon intensity is based on the methodology published by National Grid ESO, but also takes account of fuel use efficiency for earlier years.
DESNZ historical electricity data, including years before 2009, is adjusted in line with other figures and combined with data on imports from a separate DESNZ dataset. Note that the data prior to 1951 only includes “major” power producers.
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The post Analysis: UK electricity from fossil fuels drops to lowest level since 1957 appeared first on Carbon Brief.

**Link:**

<https://www.carbonbrief.org/analysis-uk-electricity-from-fossil-fuels-drops-to-lowest-level-since-1957/>

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**Title:DeBriefed 21 December 2023: Major oil auction in US; EU missing targets; Climate change threatens nature’s ‘unique values’**

**Description:**

Welcome to Carbon Brief’s DeBriefed. An essential guide to the week’s key developments relating to climate...
The post DeBriefed 21 December 2023: Major oil auction in US; EU missing targets; Climate change threatens nature’s ‘unique values’ appeared first on Carbon Brief.

**Content:**

Welcome to Carbon Brief’s DeBriefed. An essential guide to the week’s key developments relating to climate change.
This is an online version of Carbon Brief’s weekly DeBriefed email newsletter. Subscribe for free here.
This week
Transitioning away?
BIG AUCTION: The US Biden administration raised $382m from the auction of drilling rights in the Gulf of Mexico – its largest oil-and-gas lease sale since 2015, according to Reuters. New auctions will not be open until 2025, but possibly under “tighter limits” and with “less territory up for grabs”, Bloomberg noted. It added that this came “just days” after the US pledged at COP28 to “transition away” from fossil fuels.
DISRUPTION: Oil prices surged 3% following attacks by Houthi rebels in Yemen on ships in the Red Sea, which prompted BP to pause all shipments, the Times explained. The attacks were part of an “escalating campaign against Israel” since the start of its war on Hamas, the newspaper said. Meanwhile, the Guardian reported that campaigners have launched two legal challenges against the North Sea Rosebank oil project – the UK’s largest untapped oilfield.
COAL DROP: The International Energy Agency (IEA) said that it expected global demand for coal to hit a record high this year, according to the Times. However, it predicted that coal demand will drop next year due to the expansion of renewables in China.
EU climate plans off-track
ROAD TO 2030: EU countries are off track to meet the bloc’s 2030 climate goals, Bloomberg reported, based on a European Commission assessment. It found that current national energy and climate plans would result in a 51% reduction in EU emissions by 2030, falling short of the existing 55% target. 
CO2-FREE POWER: Seven European countries have committed to “eliminat[ing]” carbon dioxide-emitting power plants from their electricity systems by 2035”, according to Reuters. The newswire added that the countries account for nearly half of EU power production, mostly due to the inclusion of Germany and France. 
Around the world
CONGO ELECTS: Elections are underway in the Democratic Republic of the Congo (DRC), home to one of the world’s largest carbon sinks and minerals that are key for the clean-energy transition, according to Bloomberg. Presidential candidates disagree over plans to hand out oil-and-gas permits in the nation’s vast rainforest, it added.
CLIMATE MIGRATION: More than 3 million Americans moved between 2000 and 2020 because of the rising risk of flooding due to climate change, according to a new study reported by CBS News. 
RECORD DENGUE: At least 4.2m cases of dengue have been reported across the Americas in 2023, breaking incidence records since 1980, the Spanish outlet Climática reported. The increase has been attributed to changes in the climate that make conditions more favourable for mosquitos that carry the disease, it added. 
AUSSIE EXTREMES: Firefighters tackled dozens of blazes across New South Wales in Australia, including a “giant out-of-control bushfire” in the Pilliga Forest, the Guardian reported. In the north of the country, “record rainfall and dangerous flash flooding” hit parts of Queensland, ABC News said. 
DEADLINE: Canada announced new rules to “effectively end sales” of new fossil fuel-powered passenger cars and trucks by 2035, according to a report in CBC News. 
NEW LEVY: The UK plans to introduce a “carbon border tax” by 2027 to try to protect British manufacturers in high-emitting sectors, such as steel and cement, and match similar efforts in the EU, the Financial Times explained.
$7tn
Annual public and private capital flows into activities that directly harm nature, in sectors including fossil fuels, agriculture and construction, according to the UN Environment Programme’s (UNEP) State of Finance for Nature 2023 report.
Latest climate research
The 120m square kilometres that countries have pledged for “land-based” CO2 removal, such as tree planting, could “potentially conflict” with the Global Biodiversity Framework’s target to protect 30% of the world’s land and seas by 2030, according to a Frontiers in Climate paper. 
A study published in Climatic Change outlined how the “climate contrarian” US conservative thinktank the Heartland Institute has adapted its messaging over the course of a decade.
A new study in Geophysical Research Letters identified an increase in large wildfires across much of the eastern US, including “some of the most populated regions” in the country.
(For more, see Carbon Brief’s in-depth daily summaries of the top climate news stories on Monday, Tuesday, Wednesday and Thursday.)
Captured
The most high-profile debate at COP28 concerned the language around fossil fuels in the final text, with parties ultimately settling on “transitioning away from fossil fuels in energy systems”. This was widely regarded as weaker than calls to “phase out” or “phase down” fossil fuels. However, as climate negotiations-watcher Dr Jen Allan pointed out, data from the most recent UNEP Production Gap report “speaks volumes” about this debate. The chart above shows how some of the global-north and Latin American nations that publicly issued calls to cut fossil fuels have domestic plans to increase their production of coal, oil and gas by 2030. (Note that the UK has announced more support for oil-and-gas licences since these figures were compiled and some nations, such as Brazil, expressed support for a phase-out at COP28, but only if it was led by developed countries.)
Spotlight
How climate change could reduce the ‘value’ of nature
Carbon Brief unpacks a new study, which investigated how climate-induced biome shifts could exacerbate global inequalities.
Is it possible to put a price on nature?
The natural world underpins the fundamental needs of life, such as food, clean air, water and the materials to build shelter. And each of these components has a measurable impact on the global economy.
Analysis from the World Economic Forum suggests that “$44tn of economic value generation – more than half the world’s total GDP – is moderately or highly dependent on nature and its services”.
So what does climate change mean for the global economy?
A new study, published this week in Nature, assessed how “climate change-induced shifts in terrestrial vegetation cover” could impact the economy over the coming century. The authors found that, as the planet warms, many biomes such as grasslands and forests are shifting northward. They also highlight a “partial replacement of grasslands with forests” in many regions.
Using data from the World Bank, the authors analysed the contribution of grassland and forest biomes on different countries’ GDP. Their analysis covered products such as timber, as well as less-tangible benefits including “forest-related recreational services” and the “inherent value of protected areas”.
The paper suggested that by the end of the century, under the SSP2-6.0 scenario (which projects warming of around 3.8C by 2100), ecosystem shifts will reduce the financial benefits provided by nature by more than 9%. However, this change is not spread uniformly across the planet.
The authors found that as developing countries are “more reliant on natural capital” than their wealthier counterparts, they will be hit the hardest by the changing ecosystems. The bottom 50% of the countries, in terms of GDP per capita, will bear around 90% of the damages, the paper noted. Meanwhile, the top 10% only face 2% of the losses.
Dr Bernardo Bastien-Olvera – a postdoctoral researcher at the University of California’s Scripps Institution of Oceanography – is the lead author of the study. He told Carbon Brief that some countries, including Australia, the US, Turkey, China, Estonia, Latvia and Lithuania, may see small benefits from shifting ecosystems. However, he added that these are “minimal”, amounting to only around 3% of the countries’ GDP.
“Our study challenges the common perception that forests are inherently more beneficial than grasslands,” said Bastien-Olvera. He told Carbon Brief that “each ecosystem type holds unique values, and the loss of one cannot be fully compensated by the introduction of another”.
Watch, read, listen
‘CARBON FOOTPRINT’: This week, NPR’s On Point podcast spoke to Prof Geoffrey Supran and climate journalist Amy Westervelt about the origins of the “carbon footprint” and Big Oil’s role in popularising a concept that “individualises the climate crisis”.
DECARBONISING DEVELOPMENT: With the dust finally settling on news from Dubai, Tim Sahay interviewed Navroz Dubash for Phenomenal World on COP28’s hits and misses and what the “developmentalist turn” of climate politics means for an unequal world.
TRANSITION TENSIONS: After reporting on farmers, miners, drivers and others in the EU and UK who shared “a burning sense they weren’t being heard” by policymakers, Politico’s Karl Mathiesen wrote that “the success of the green revolution will depend on… taking into consideration those who will bear its greatest costs”. 
Coming up
8-9 January: Sustainability Forum Middle East (SFME) 2024, Manama, Bahrain
15-19 January: World Economic Forum Annual Meeting 2024, Davos, Switzerland
18 January: US C3E Women in clean energy seminar series, virtual event
Pick of the jobs
BBC Scotland News, senior journalist – producer, in the environment, science and weather team | Salary: unknown. Location: Scotland
Carbon Tracker, events and communications officer | Salary: Up to £38,000. Location: London, UK, hybrid working
Gaia Talent, senior environmental scientist | Salary: £60,000. Location: Cork, Dublin, Carlow, Ireland
DeBriefed is edited by Daisy Dunne. Please send any tips or feedback to debriefed@carbonbrief.org
The post DeBriefed 21 December 2023: Major oil auction in US; EU missing targets; Climate change threatens nature’s ‘unique values’ appeared first on Carbon Brief.

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**Title:Cropped 20 December 2023: COP28 special edition**

**Description:**

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**Content:**

Welcome to Carbon Brief’s Cropped. We handpick and explain the most important stories at the intersection of climate, land, food and nature over the past fortnight.
This is an online version of Carbon Brief’s fortnightly Cropped email newsletter. Subscribe for free here.
Key developments
Nature at COP28
BIODIVERSITY LINKS: COP28 came to a close last week and the interconnections between climate change and biodiversity featured heavily in the two-week summit. As Carbon Brief noted in an in-depth summary of the event, the global stocktake – the periodic global review of progress towards the aims of the Paris Agreement – contained eight references to “nature” and five to “biodiversity”. It also noted “the urgent need” to address climate change and biodiversity together and meet targets for both “in line” with the Kunming-Montreal Global Biodiversity Framework, the landmark agreement of the 2022 COP15 biodiversity summit. COP28 president UAE and COP15 president China released a Joint Statement on Climate, Nature and People, where countries committed to aligning their national climate plans and their national nature plans ahead of COP30 and COP16, respectively.
FOCUS ON ECOSYSTEMS: The global stocktake also noted the importance of “ensuring the integrity of all ecosystems”, including oceans, mountains and the cryosphere. During the summit, the Guardian reported that, even if the world reaches a phase-out of fossil fuels, achieving the 1.5C target will be impossible if humanity fails to conserve nature, according to Prof Johan Rockström, a leading climate scientist. Speaking to Carbon Brief in Dubai, David Cooper, acting executive secretary of the UN Convention on Biological Diversity (CBD), said that while nature has featured in many pledges and voluntary announcements at climate COPs in recent years, COP28 saw “more recognition in the actual official texts”. This included a greater focus on ecosystems, he said, adding: “What I’d like to see more is greater recognition of the role of ecosystems beyond their role as carbon sinks.”
ROAD TO COLOMBIA: Shortly after COP28 ended, the CBD confirmed that the next UN biodiversity summit, COP16, will be held in a yet-to-be-announced city in Colombia from 21 October to 1 November 2024. Cooper told Carbon Brief that he was “very excited” for Colombia to host the event, as it is a “megadiverse country, it has very strong Indigenous peoples’ organisations [and] a very strong scientific base”. Colombia’s environment minister, Susana Muhamad, said in a statement: “This event sends a message from Latin America to the world about the importance of climate action and the protection of life.” At COP16, governments will review the implementation of nature goals and targets and also update their national biodiversity plans.
Food at COP28
ROADMAP: COP28 “confronted” the question of balancing the need to reduce emissions and to feed a growing population “like never before”, wrote New York Times international climate correspondent Somini Sengupta. She cited a number of “small, but significant steps” made at the summit, from the leaders’ declaration on food systems – covered in the previous issue of Cropped – to the UN Food and Agriculture Organization’s first-ever roadmap to 1.5C. That roadmap is “the most significant nudge” of the summit, the New York Times said, but added: “Roadmaps, of course, are only that until someone starts following the directions.” Action Aid’s climate justice lead Teresa Anderson told Carbon Brief that the roadmap’s “big problem is that it can’t bring itself to name the real issues at stake” and by “failing to name chemical fertilisers, factory farming or industrialised agriculture as the major sources of emissions and deforestation, its recommendations boil down to protecting the status quo”.
WASTE NOT: Among the recommendations in the roadmap is the need to reduce food loss and waste by 50% per capita by 2030, and to integrate all such waste “in a circular bioeconomy” by 2050. According to the not-for-profit Modern Farmer, the US Department of Agriculture released a draft of its new national strategy on food loss and waste at COP28. The announcement was accompanied by an initial investment of $30m and sets out goals for the federal government, including preventing food loss and waste, increasing the recycling of organic wastes and “to support policies that echo those aims”.
TAKING STOCK: Another major outcome for food at COP28 was the inclusion of “resilient food systems” in the global stocktake. Ag Insider noted that, although the stocktake “urges” countries to implement solutions towards resilience, it did so “without setting goals for the sector that produces one-third of global greenhouse gases”. A report published by WWF that assessed COP28’s action on food systems noted that a stocktake “that directly calls for food systems transformation to mitigate climate change would likely lead to higher prioritisation and increased amounts of climate finance for food”. The report said the summit “[fell] short of delivering robust outcomes [for food] in the negotiating rooms”. But, WWF added, “there are still grounds for optimism”, such as “the breadth of stakeholders determined to drive change” in the agrifood sector. 
CONTRADICTORY AGENDA: An editorial in Nature Food cast doubt on Brazil’s ability to drive a sustainable agenda on food and climate after the nation announced its intention to join the Organization of the Petroleum Exporting Countries (Opec+) at COP28. The piece noted that Brazilian president Luiz Inácio Lula da Silva (Lula) “has set the protection of the Amazon and Cerrado biomes as a priority” since regaining office. But the announcement that the country will join Opec+ in January, as well as its intention to auction several new blocks for oil drilling, “had a negative repercussion among environmentalists”. Nature Food noted that COP30 is set to be held in “the heart of the Amazon”, saying: “Domestically, this is an opportunity for Brazil to put itself on a different development pathway, fostering more sustainable food production and managing natural resources in a just and inclusive way.”
COP28 round-up 
GLASGOW RECEIPTS: COP26 in Glasgow saw several major political declarations around deforestation. While deforestation was lower on the agenda this year, it achieved one notable first: the global stocktake was the first time the need for “halting and reversing deforestation and forest degradation by 2030” was enshrined in a major negotiated text under UN climate change. But, despite this, “countries are still no nearer to closing the ‘finance gap’ necessary to stop the destruction of rainforests”, Mongabay reported. The outlet added that the Democratic Republic of the Congo “says it has not seen any of the $500m pledged to it two years ago [at COP26] to protect the Congo Basin rainforest”. As Cropped editor Dr Giuliana Viglione reported at COP28, a group of NGOs released a call to create a “Glasgow Declaration Accountability Framework” to hold countries accountable for their deforestation pledges from COP26.
RESTORATION RECOGNISED: The global stocktake underlines the “vital importance of protecting, conserving, restoring and sustainably using nature and ecosystems” and encourages the implementation of nature-based solutions and ecosystem-based approaches, Carbon Brief reported. COP28 saw the announcement of updates to both the Mangrove Breakthrough and the Freshwater Challenge, two global commitments to restoring mangroves and rivers and wetlands, respectively. Another big outcome of the summit was the global goal on adaptation, a framework meant to help countries build resilience to climate change. The text included topics such as water, health and ecosystems, the Spanish outlet Climática reported. But, it added, the global goal on adaptation will not guarantee that 30% of ecosystems will be “maintained, improved or restored”, relying instead on targets such as “reach resilience” or “reduce impacts”.
INDIGENOUS RIGHTS: Despite being the UN climate summit with the largest delegation of Indigenous peoples ever, they remained marginalised in the discussions regarding financing, the Brazilian outlet InfoAmazonia reported. The outlet added that concerns about oil and gas auctions in the Amazon and the arrival of agricultural projects on Indigenous lands overshadowed the result of the summit. Carbon Brief reported that the global stocktake included nine mentions of Indigenous peoples; however, language in the text was considered weaker than hoped by experts. For example, the texts lack recognition of Indigenous people’s rights to give or withhold free, prior and informed consent to approve projects within their territories. 
METHANE ROUNDUP: Several voluntary pledges and finance pushes at COP28 focused on cutting methane emissions – and while many centred on fossil-fuel production, some homed in on food systems and agriculture. On 5 December, six major food companies, including Danone, Nestlé and Kraft Heinz, committed to release information on methane emissions within their dairy supply chains and to put in place methane action plans by the end of 2024. There were also several announcements of funds aimed at cutting emissions of the potent greenhouse gas, including more than $200m in public and private finance for research into reducing methane from livestock. 
News and views
JUMBOS IN JEOPARDY: Drought has killed “at least 100 elephants” in Zimbabwe’s largest national park in recent ​weeks, the Associated Press reported. Conservation groups and wildlife authorities have attributed the deaths to “the impact of climate change and El Niño”, while authorities warn that “more could die as forecasts suggest a scarcity of rains and rising heat” in areas including the Hwange National Park. Separately, the Hindu Business Line reported that nearly 500 elephants in India have died from “unnatural causes” over the past five years, mainly due to electrocution and train collisions. India’s power ministry, while continuing to expand its infrastructure in elephant habitat, has issued an advisory to “mitigate the impact of power transmission lines and other power infrastructure on elephants and other wildlife”, the outlet said.
TRILLION APOLOGIES: At COP28, ecologist and former chief scientific adviser to the UN’s Trillion Trees Campaign Prof Thomas Crowther “begg[ed] environmental ministers to stop planting so many trees”, Wired reported. Crowther’s 2019 study that suggested “global tree restoration as our most effective climate change solution to date” sparked a global “tree-planting craze by companies and leaders…from Shell to Donald Trump” who were “keen to burnish their green credential”, but not cut actual emissions, the story said. Crowther told Wired his “message was misinterpreted”. He added that he brought results from a new paper on preserving existing forests to COP28 in an attempt to “kill greenwashing”. One scientist on Twitter commented that Crowther should “retract the [original trillion trees] paper instead of doing PR”. 
START YOUR ENGINES: Tractors took over the streets of Berlin as hundreds of farmers protested against German government plans to get rid of some agricultural subsidies and tax breaks, Reuters reported. The plans are part of wider federal government efforts to fill a €60bn hole in the country’s 2024 budget, the newswire said. The government said it will remove a partial tax refund on diesel for farm machinery and a tax exemption for agricultural vehicles, Reuters noted – adding that this is something “farmers said would threaten their livelihood”. The newswire said that the plans are aimed to reduce emissions from the agricultural sector, which amounted to “55.5m metric tonnes of greenhouse emissions last year, roughly 7.4% of the country’s total”. 
TO BEE OR NOT TO BEE: Indigenous peoples in south-east Mexico are calling for the recognition of bees as legal persons, with Mayan communities as their guardians, the Spanish-language version of Wired reported. This came after rainforests in the region experienced “devastation” due to soya agriculture and the excessive use of pesticides, leading to “more and more” bees dying. Indigenous communities criticised the state for not yet granted such recognition. The outlet said that protecting bees “for their intrinsic value” is an “idea [that] comes naturally” to Indigenous peoples. This would not be the first time that nature received legal recognition, as the constitutions of Ecuador and Bolivia both consider nature as a separate and living entity.
DIET IMPACTS: Halving meat and dairy consumption alongside reducing fertiliser use and food waste are some of the best ways to cut agricultural nitrogen pollution in Europe, a new report found. The report – produced for the UN by the UK Centre for Ecology & Hydrology and other researchers – said that significant amounts of the nitrogen used to boost crop growth ends up leaking into the air, water and soils. The researchers looked at 144 scenarios and outlined ways to reduce these losses, which included halving the amount of meat and dairy the average European eats.
Watch, read, listen
IMPROVING CONNECTIVITY: El Espectador looked at how the movement of 26 bird species helped scientists identify key sites for conserving ecological connectivity in Colombia’s protected areas.
BIODIVERSITY PATTERNS: What makes a place more biodiverse? Jaron Adkins, a scientist at Utah State University, explored this question for Utah Public Radio.
KEEPING PACE: In her newsletter, Sustainability by numbers, Dr Hannah Ritchie examined whether agricultural innovation can keep up with climate change.
ROAD REVAMP: Ben Goldfarb, writing for Yale Environment 360, looked at “green roads” – a way of redesigning roads to reduce floods and catch excess water for irrigation.
FORAGING THROUGH FEAR: Writing for Vittles, anthropologist Dolly Kikon and writer Joel Fernandes connected the dots between land rights, new climate laws, conflict and foraging in landscapes of loss in India’s north-eastern state of Nagaland.
New science
COP28 initiatives will only reduce emissions if followed through
Climate Action Tracker
A new analysis of COP28 pledges found the “plausible” impact of its food and agriculture declaration on global emissions to be around 500m tonnes of CO2-equivalent by 2030. Climate Action Tracker assessed the emissions-reduction potential of five non-binding pledges made at COP28 and the extent to which those pledges overlap with already-promised reductions. The lack of “quantifiable targets in the initiative text” and “targets directly targeting emissions reductions”, result in a commitment “so vague as to risk becoming another talking shop”, the authors wrote. On deforestation, the assessment found that funding declarations in the hundreds of millions of dollars, as opposed to the billions needed to end deforestation in this decade, “are not truly new” and represent a “repeat of the commitments already made at COP26 in Glasgow”. 
Towards equity and justice in ocean sciences
npj Ocean Sustainability
A new review article examined progress towards equity in the ocean sciences and presented a pathway to addressing the gaps that remain in the field. A group of ocean scientists examined dozens of scientific papers on ocean equity and justice. They found that while the community has begun to identify and tackle existing power imbalances in ocean sciences over the past few years, “many issues still need to be addressed”. The authors called for “honest and transparent dialogue”, accompanied by “a significant shift in institutional cultures and norms” from scientists, professional societies, funders and other groups.
Are climate neutrality claims in the livestock sector too good to be true?
Environmental Research Letters
A number of scientific studies have “distorted understanding of the climate impact of livestock production”, a new “perspective” paper suggested. The researchers focused on the use of global warming potential (GWP) metrics, which standardise different greenhouse gases into one CO2-equivalent (CO2e). The “policymakers who wrote the Paris Agreement text” based its goals on “emissions pathways aggregated using GWP100”, the authors explained, which accounts for the warming caused by GHGs over a 100-year period and “does not differentiate between long-lived climate pollutants (LLCPs) and short-lived climate pollutants (SLCPs)”. However, some recent studies “claiming that ruminant livestock sectors in developed economies are, or could readily be, climate neutral” have used the GWP\* metric, which “accounts for the effect of changes in the rate of SLCP emissions on warming over time”. While the GWP\* is a “useful complement” to other metrics, the claimed states of climate neutrality in specific sectors based on its use are “temporary and are not aligned to the wider outcomes of the Paris Agreement”, the paper concludes.
In the diary
20 December: Democratic Republic of the Congo general election
3-5 January 2024: Oxford Farming Conference | Oxford, England
15-19 January: World Economic Forum annual meeting | Davos, Switzerland
Cropped is researched and written by Dr Giuliana Viglione, Aruna Chandrasekhar, Daisy Dunne, Orla Dwyer and Yanine Quiroz. Please send tips and feedback to cropped@carbonbrief.org
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**Title:Guest post: Why ‘jet-streak’ winds will get faster as the climate warms**

**Description:**

The Earth’s jet streams play a fundamental role in the speed and direction of weather...
The post Guest post: Why ‘jet-streak’ winds will get faster as the climate warms appeared first on Carbon Brief.

**Content:**

The Earth’s jet streams play a fundamental role in the speed and direction of weather systems across the world.
This means that they are crucial for understanding extreme weather events and how they will change as the world warms.
Research suggests that upper-level jet-stream winds will accelerate on average as global temperatures rise, but little is known about how their fastest winds – known as “jet streaks” – will change.
In a first-ever study, published in Nature Climate Change, my co-author and I show that fast jet-stream winds will get faster and faster — by around 2% for every degree Celsius the world warms. This means that fast winds will speed up around 2.5 times more than average jet-stream winds. 
Furthermore, it means we should anticipate record-breaking jet-stream winds as warming continues.
Our research also reveals that this acceleration occurs because the difference between the density of the air in the tropics and the air at the poles will increase.
While further work will be needed to understand the full impact of our findings, we expect that they will include stronger severe storms and an increase in clear-air turbulence for aircraft passengers. 
Fast flowing
The Earth’s jet streams are fast-flowing narrow bands of wind high up in the atmosphere. The fastest jet-stream winds blow from west to east and occur in the upper troposphere, around 10-12 km above the surface. 
Jet streams are important because they shape Earth’s surface climate by steering weather systems, and so they can affect where severe weather occurs. For example, the regions around fast upper-level jet-stream winds – called “jet streaks” – have been linked to the occurrence of storms, tornadoes, hail and severe winds.
Jet streams are also key for air travel, providing an ideal tailwind for aircraft. Previous research has established that the average wind speed of the upper-level jet stream increases under climate change. This has the potential knock-on effect of causing more clear-air turbulence for aircraft passengers. 
Our research was inspired by reports in 2019 of transatlantic flights breaking speed records. As a result, we set out to find out how climate change will affect fast jet-stream winds.
Little is known about how fast upper-level jet-stream winds – classed as those above the 99th percentile – could change as the world warms. Furthermore, no mechanism has been proposed to explain why fast jet-stream winds would change.
Fast-get-faster response
We started by examining how physics-based climate models project fast jet-stream winds would change. We used models from the sixth Coupled Model Intercomparison Project (CMIP6), which were developed for the latest assessment by the Intergovernmental Panel on Climate Change (IPCC).
In these model projections, we compare daily jet-stream winds that exceed the 99th percentile at the end of the 20th (1980-2000) and 21st (2080-2100) centuries under a very high emissions scenario (SSP5-8.5). We also compare wind speeds for the near-term in an intermediate scenario (SSP2-4.5), which is broadly in line with the trajectory of global emissions today.
Our analysis finds that climate change makes the fastest upper-level jet-stream winds get faster and faster – by about 2% for every degree Celsius the world warms. This means that fast winds will speed up around 2.5 times more than average jet-stream winds. 
We refer to this as the “fast-get-faster” response and we find the effect in all seasons of the year.
You can see this in the chart below, which shows the percentage change in the fastest winds at around 12km altitude per degree of warming across different latitudes (from 80 degrees south on the left-hand side to 80 degrees north on the right). 
While the fast winds increase at all latitudes, those in the “extratropics” – that is, between around 20 to 60 degrees, where jet streams are found – are the fastest to begin with and thus get the largest boost under climate change.
Percentage changes in fast (>99th percentile) winds at 200 hectopascal (hPa), normalised by the global average change in surface air temperature for each climate model from 80 degrees south to 80 degrees north in latitude. Simulations use SSP5-8.5. The black line indicates the multi-model average and the shading indicates one standard deviation of the response across all the models. Source: Shaw & Miyawaki (2023)
Moist air
In addition to quantifying the “signal” of long-term change, we also provide a physical explanation for why it occurs. 
Bridging the gap between simulating the response to climate change using models and understanding the causes helps us justify that this is a signal to take seriously. 
The first step we take is to simplify the model to help isolate what physics underlies the signal. When the model is run without ocean currents and without land, we still find the signal. 
This suggests that the fast-get-faster signal emerges in a world formed entirely of water. The result implies that the physics of a moist atmosphere is key to explaining the fast-get-faster response.
The second step we take is to use our physical understanding of the jet stream to quantify the connection between moisture and the signal. 
The jet stream exists because of the contrast of density between air at the equator, which is warm and light, and air at the pole, which is cold and dense. We connect this contrast to the response of moisture under climate change. 
In particular, in today’s climate, tropical air holds more moisture than air at the poles because it is warmer. Climate change exacerbates this contrast because hotter air can hold much more moisture than colder air. 
While the air at the poles is warming more rapidly than in the tropics, hotter air can hold so much more moisture than cold air that the overall density difference still increases.
This effect increases the density contrast under climate change, accelerating the jet-stream winds. Importantly, the effect is multiplicative – namely, fast jet-stream winds today that involve a steep density contrast would be boosted much more in the future than slower jet-stream winds that involve a shallower density contrast.
Thus, our results project record-breaking jet-stream winds.  
Emerging signal
When we look at the recent past (1980–2022) using reanalysis data – which combines physical observations with model simulations – we do not find that the fast-get-faster signal has yet emerged from the noise of natural variability.
However, all the climate models in our study suggest that a statistically significant fast-get-faster signal will emerge for the extratropics in both the southern and northern hemispheres by the middle of this century.
Specifically, under SSP2-4.5, all climate models project the signal in the southern and northern hemispheres extratropics by 2038 and 2048, respectively. Under SSP5-8.5, this is slightly earlier – by 2035 and 2045, respectively.
This is shown in the figures below, which show the percentage change in fast jet-stream winds, relative to 1980-2000, from 1980 to 2050 in the southern (top) and northern (bottom) hemispheres, excluding the tropics. The lines indicate reanalysis data (black) and climate models projections under SSP2-4.5 (green) and SSP5-8.5 (orange). 
The charts on the right-hand side show the trend, per degree of warming, for each model (green and orange) and the reanalysis data (black). Closed and open circles indicate results that are and are not statistically significant, respectively.
Timeseries of percentage changes (relative to 1980-2000) in fast 200hPa jet-stream winds in reanalysis and climate models for different emission scenarios for the southern (top) and northern (bottom) hemisphere extratropics from 1980 to 2050. Data are presented as multi-model average (thick line) with one standard deviation of the response across the models (shading). Right-hand charts show the linear trends of these changes per degree of global warming, where statistically significant trends are indicated by closed circles. Source: Shaw & Miyawaki (2023)
We are now working to better understand the knock-on impacts of these changes in the jet stream for severe weather. 
New climate models are allowing scientists to look in greater detail at how extreme weather is – and will – change. Ultimately, unravelling the impacts of climate change on winds at regional scales will help society better prepare for the implications of a warming world.
Guest post: What would an ambitious ‘global goal on adaptation’ look like at COP28?
COP28 Dubai
|
11.12.23
Guest post: Why some ‘developing’ countries are already among largest climate-finance contributors
Guest posts
|
11.12.23
Guest post: Why resolving how land emissions are counted is critical for tracking climate progress
GHGs and aerosols
|
22.11.23
Q&A: Why deals at COP28 to ‘triple renewables’ and ‘double efficiency’ are crucial for 1.5C
Energy
|
21.11.23
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**Publication Date:2023-12-19 10:45:53**

**Title:Webinar: Carbon Brief journalists discuss COP28’s key outcomes**

**Description:**

Two days after the COP28 climate summit concluded on 13 December, Carbon Brief convened its...
The post Webinar: Carbon Brief journalists discuss COP28’s key outcomes  appeared first on Carbon Brief.

**Content:**

Two days after the COP28 climate summit concluded on 13 December, Carbon Brief convened its team of specialist journalists to discuss the key outcomes of the two-week event in Dubai. 
More than 1,300 people joined the webinar to hear about how issues such as the global stocktake, finance and adaptation featured at the talks, as well as how major nations such as China, India and the US approached the negotiations. 
Carbon Brief published its detailed summary of the key outcomes hours after COP28 ended, outlining everything that happened both inside and outside the negotiating rooms. 
A second in-depth piece zooming in on the outcomes for food, forests, land and nature at COP28 was published later in the week. 
Eight Carbon Brief journalists and editors were on the ground throughout the summit and they all featured in the webinar.
A recording of the webinar (below) is now available to watch on YouTube.
The webinar was moderated by Carbon Brief’s editor and director, Leo Hickman, and featured the following Carbon Brief journalists:  
Dr Simon Evans, senior policy editor and deputy editor
Daisy Dunne, special correspondent
Josh Gabbatiss, policy correspondent
Molly Lempriere, section editor for policy
Dr Giuliana Viglione, section editor for food, land and nature
Aruna Chandrasekhar, land, food systems and nature reporter
Orla Dwyer, land, food systems and nature reporter
Anika Patel, China analyst
Dr Simon Evans explained the “global stocktake” and, in particular, what it said about fossil fuels. 
Daisy Dunne discussed the controversies around COP28 being held in a petrostate and the presidency being held by Sultan Al Jaber, the CEO of the Abu Dhabi National Oil Company. 
Josh Gabbatiss spoke about the role of finance at this year’s COP – including the launch of the loss-and-damage fund. He also detailed the “global goal on adaptation”, which was given the green light in Dubai. 
Molly Lempriere discussed a pledge by 130 countries to triple renewables by 2030. She also delved into the mitigation work programme. 
Anika Patel followed China’s role in Dubai and analysed the country’s priorities at COP28 talks. 
Aruna Chandrasekhar detailed India’s approach at COP28, looking ahead to the role the country will play at COP29 in Azerbaijan next year. 
Orla Dwyer discussed the dynamics around civil society and activists in Dubai where protests are banned.
Dr Giuliana Viglione talked about how food was brought to the table in Dubai in a more significant way than at previous COPs.
Q&A
The Carbon Brief team also fielded questions from the audience and, where possible, answered them in writing within the webinar’s Q&A panel.
Below is an unedited copy of those questions and answers. The questioners’ names have been initialised, as have those of the Carbon Brief journalists:
PG: Isn’t what was agreed massively short of what is needed? The Saudi’s agreed to the wording because it allowed them to continue on a ‘business as usual’ basis, didn’t they?
SE: As we wrote in our summary, the wording on fossil fuels was probably as ambitious as it could have been – barring significant movement on new finance. More importantly, only countries themselves can implement action on the ground – the COP can’t do that. So the key test comes when countries submit their next climate pledges, by the end of 2025.
ML: Do the petrostates condemn all future COPs to achieving no more than incremental progress?
SE: I would say it’s important to note that there are 195 parties at the COP, each with their own priorities, red lines and compromises to make. So while individual countries or groups can veto decisions, there is rarely a single villain, due to the wide range of decisions being taken.
CBM: Could a COP ever be in a low lying island? Seychelles?
SE: The host rotates through five world regions. Fiji held the presidency in 2017 at COP23, but the summit was held in Bonn, Germany.
ME: With FT reporting ‘Big oil welcomes COP28 call to move away from fossil fuels in ‘orderly’ way’ – should cutting FF subsidies be the focus for the next COP?
SE: The stocktake does call on countries to phase out inefficient fossil fuel subsidies that do not support energy poverty “as soon as possible”, and this topic has come up repeatedly eg it was in the COP26 outcome, but I’m sure the focus on subsidies will continue – and for good reason.
EW: Like others, I am a bit surprised that people are pretending to be impressed by a statement of the obvious. With a different chair do you think we could have got something stronger.
SE: The presidency does play a big role at the COP but ultimately it’s a party-led process and if enough countries say they want something on the agenda, it’s hard for the presidency to stop that happening. (Last year at COP27 was a big different because attempts to address fossil fuels were in the “cover text”, which isn’t formally on the agenda and so the presidency has a bigger say on what’s in it)
MA: How close or how far will this deal land us in 1,5C?
SE: “IEA, ETC and CAT (sorry for acroynms) released analysis of COP28 pledges during the summit, see our summary. The tripling renewables and doubling efficiency one is the most significant, see this analysis we published before the COP to see why. 
I think the CAT analysis said COP28 pledges closed around 1/3 of the gap to 1.5C, but it’s hard to quantify the “transitioning away from FF” part until we see the next country pledges.
EG: Is it not much better to focus on national government action and largely ignore the COP process which has never created a binding agreement at the level needed to ensure survival. At every COP we slip backwards again. The annual COP jamboree also distracts attention from the desperately urgent action we need on a national basis immediately. Ed Gemmell, Leader, the Climate Party in UK
AC: The Paris Agreement is in fact ALL about national government action, which is why they’re called NDCs or nationally determined contributions. After 2020, countries were supposed to start implementing their national pledges and will have to set new ones for 2025. COPs are where countries come together to set targets, review pledges and any binding commitments (including on finance), reflect on collective progress or the lack of it, and share knowledge and support and experiences. If you separate “jamboreee” from the actual negotiations, it is the one space, where once-a-year, ALL countries have a seat at the table to discuss climate actions and decisions are arrived at multilaterally.
TY: Did the global stocktake reveal which countries are particularly behind and what progress has been made in Europe? The implementation of the Global Stocktake has been reported by a lot of news papers, but I don’t think much detail has been reported.
SE: The stocktake was not really focused on national-level progress (or lack thereof) because countries didn’t want to be put in the spotlight / have their homework marked.
TM: Did the UK make any useful or significant contribution to COP28?
SE: The UK’s lead negotiator Alison Campbell was the co-chair of the stocktake negotiations, so she played a big role in the outcome (though the presidency took over the task into week two)
BM: As the phrase on transitioning away from foossil fuels has an extension, saying “so as to achieve net zero by 2050 in keeping with the science;” doesn’t that make this statement more meaningful? Net zero CO2 is needed for limiting warming to 1,5 C, so the whole sentence actually says that the transition away of fossil fuel should be realised by 2050, which is exactly what is needed. I know the “call upon Parties” context makes this whole statement rather weak, but nevertheless
SE: Thanks for the question Bert, yes you are correct, but nevertheless the key test will come with next country pledges.
EW: One of the main reactions I am getting from lay-friends is that the jamboree of thousands of people using carbon to fly to the COP is a terrible look. Is there any prospect of the COP being reformed so that it still achieves its goals but with 10-100 times fewer participants?
SE: This is definitely a very live question about how the COP is run. However, it’s worth emphasising that the amount of carbon associated with flights to the summit is not even a rounding error compared with annual global emissions (I think I worked it out as thousandths of a percent). Given the role of Paris and COPs generally in helping bend the curve on emissions, even small impacts on future warming would easily make all those flights worth it.
SC: Having documentation on exactly which countries were initially willing to sign up for “fossil fuel phase out” would be politically useful. Is that information available somewhere?
SE: “Yes, check out these pieces…
COP28 DeBriefed 8 December: The fight over fossil fuels; Al Jaber defends ‘respect’ for science; Has COP ever finished on time?
Q&A: Why defining the ‘phaseout’ of ‘unabated’ fossil fuels is so important at COP28
ML: What is the US rationale for its low $ commitment to the L&D fund relative to rich peers? Are they committing more elsewhere as an alternative for example?
SE: Republicans control the House, which holds the purse strings…
IR: do you think the outcomes would have been different if the president had not been distracted by having to defend himself agnst allegations of side deals etc? it did look as if he was getting somewhere at first.
SE: I would say the initial progress early on opened out space for the fight on fossil fuels. There are always big ups and downs in terms of progress at the COP so I wouldn’t read too much into this specific presidency on that.
NG: Why are developing countries not content with the  L&D fund being held at the World Bank, and why would they prefer the UN?
SE: check out our Q&A here: Q&A: The fight over the ‘loss-and-damage fund’ for climate change
CP: John Kerry, the US climate envoy, is 80 and his Chinese counterpart, Xie Zhenhua, will be retiring next year. Who would take their place when these two people are no longer around and what could this mean for US-Chinese climate relations movng forward?
SE: I don’t think we know wrt Kerry but Liu Zhenmin is due to replace Xie Zhenhua, per our summary…COP28: Key outcomes agreed at the UN climate talks in Dubai
FM: Did (any) actions/speeches/etc. by the UK COP delegates give us any new insight as to the future approach of the UK to domestic climate action?
SE: I am not we gained any particular insights into the current government’s plans on climate, to be honest.
RE: If you have time, would you please talk about the issues blocking decisions related to the market mechanisms (A6.2 and 6.4)? Thank you.
SE: Thanks Ricardo, we addressed this briefly in our summary. For 6.2 it’s about whether to have process or control over how countries trade carbon with each other. The US was pushing for few rules while the EU, AILAC and others wanted the opposite. Some parties say attempting to put limits on the process goes against the mandate in this area. Big divides. Hard to see a way forward. On 6.4, the key stumbling block was on rules around carbon removals. I would expect those to be sorted out at COP29. Here’s a direct link to the relevant bit of our summary: COP28: Key outcomes agreed at the UN climate talks in Dubai – Article 6
AL: How will the doubling of energy efficiency be measured?
SE: The IEA already tracks the rate of improvement of efficiency, so I assume it’d be similar. I believe it’s an energy intensity measure. Q&A: Why deals at COP28 to ‘triple renewables’ and ‘double efficiency’ are crucial for 1.5C
CV: Do you actually feel we see a reduction in burning of fossil fuels as a direct outcome from this COP?
SE: It’s hard to judge until we see the next round of climate pledges, but narratives definitely matter because investors, markets, etc are people too and so they are influenced by what other people are saying.
CM: Whicvh are the ‘pressure points’ that climate justice action and campaign groups should be aiming at now post COP 28?
SE: The next round of NDCs (national climate pledges) due by end of 2025 are key. So – every natoinal govt is a pressure point.
VP: Is it so automatic that “triplicating renewables means move away from fossil fuels”? I am afraid that maybe fossil fuels will continue to be used as usual, while triplicating renewables (that today are not very important globally) will allow to continue being a highly energy consuming civilization worldwide. Can you comment on this?
SE: The IEA sees tripling renewables as a key lever. While you are correct that one does not automatically follow the other, we’d not be likely to see cuts in fossil fuel use unless alternative energy sources rapidly scale up. Q&A: Why deals at COP28 to ‘triple renewables’ and ‘double efficiency’ are crucial for 1.5C
JR: Doesn’t the tripling of world nuclear capacity fit in this section, not only RE
SE: We did cover this pledge, but it was explicitly aspirational and only signed up to by a small number of countries
JK: How important are the ‘side-deals’ at COP? Often multi-lateral deals are made on specific issues between groups of nations, like sustainable agricultural practices, water table monitoring frameworks, etc?
SE: The key issue with the side deals is the lack of accountability. Obv even national pledges lack binding accountability, but they are at least tied to some sort of process and monitoring. So – that’s why the next national pledges due in 2025 are key. They’re supposed to be informed by the stocktake and they have to explain how they are informed by it.
PN: How “visible” were the lobbyists from the oil companies at COP28? Was their presence/influence rather obvious or did they keep more in the back/quiet?
SE: I doubt they interacted directly with the negotiations/negotiators, which take place in their own specific bubble at the COP. But other attendees do influence the general vibes / what people are talking about.
SO: Good afternoon, thanks for organizing this webinar. Just hearing Leo in the introduction highlight that this was the first time that ‘fossil fuels’ were mentioned in a COP outcome, and we’ve heard others highlighting this too over the last 2 days. Actually looking through last year’s Sharm el-Sheikh COP27 cover decision (https://unfccc.int/sites/default/files/resource/cop27\_auv\_2\_cover%20decision.pdf) it looks like ‘fossil fuels’ were mentioned (section IV. Mitigation, para 13) “Calls upon Parties … to phase-out inefficient fossil fuel subsidies…” This year the Dubai’s COP28 Global Stocktake Outcome (https://unfccc.int/sites/default/files/resource/cma2023\_L17\_adv.pdf) mentions (para 28 (h)) “Further recognizes the need … phasing out inefficient fossil fuel subsidies…” So given this sounds quite similar just interested in your views in how far we can call the mentioning of fossil fuels new. Thanks!
SE: The difference / significance is about this year’s decision targeting fossil fuels themselves, as a group collectively, as being a problem, which has never happened before.
JC: what is the sense of the role of the market in climate action? Since quality is at stake and market results have failed to deliver integrity, what is the result in the absence of a meaningful decision on Article 6?
SE: Hi Jacobo, this is an interesting tension…Article 6.4 is supposed to drive high quality markets but the longer it takes to get started, the more other market initiaves continue to grow in prominence. So far, I think there is more heat than light around voluntary carbon markets and I would be surprised to see that change dramatically even once ARticle 6.4 starts working.
EG: Sorry they did not agree to ‘double energy efficiency’. In fact the exact words are “doubling the global average annual rate of energy efficiency improvements by 2030” – they only agreed to double the RATE of annual IMPROVEMENTS to energy efficiency. If the average annual rate of “improvement” is 1% currently then this should be 2% by 2030 – overall energy efficiency is not being doubled. Or have I missed something?
SE: Hi Ed, yes it’s the rate of improvement, hopefully that is clear in all our coverage – sorry if that wasn’t clear in our brief spoken summaries just now. See eg: Q&A: Why deals at COP28 to ‘triple renewables’ and ‘double efficiency’ are crucial for 1.5
BW: Is there any chance for the COPs to adopt a majority (say at least 75%) instead of unanimous vote rule? Right now, one country is enough to block progress for everybody else and it would be good if there’d be a way around that.
SE: Hopefully covered in my answer just now…short answer, seems unlikely!
DO: In what ways (if any) is the phrase “transitioning away” different from “phasing-down”?
SE: I mean ultlimately it’s all wordsmithing, the key point is does it take us in the direction we need to go – see the chart in this piece: Q&A: Why defining the ‘phaseout’ of ‘unabated’ fossil fuels is so important at COP28
SS: Folks, please keep in mind, that this all is a volunatary commitment. No independent monitoring, verification. No 2030 goal. No money for enhanded adaptation and mitigation for poorer countries, bread crumps for L&D. And last but not least, based on US, Japan and others pressure, the baseyear for tripling/doubling renewables capacity and energy efficiency got lost – so allowing for significant gaming. I couled go on. So, what is the hype on this “monumental” outcome?
SE: Hi Stephan, you’re not wrong. To be fair, I don’t think we called it monumental, but despite all the shortcomings, it’s hard not to see it as historic to finally name the elephant in the room (fossil fuels), no matter how mealy-mouthed the language was.
GS: A question to Anika: Anika, thanks! You mentioned that while China didn’t contribute to L&D this year, China is contributing to adaptation through other channels. Could you talk more about the nature of those channels (for example: private vs public?, how can we know the investments are adaptation-related, where can we find the data/evidence)
AP: Thanks for the question Georgia! The data is all quite disparate and it’s quite complicated for a chat box, but I’d point you to this article we published recently on this topic: Guest post: Why some ‘developing’ countries are already among largest climate-finance contributors
HBP: ‘@orla and others – How are you tracking the announcements/commitments made for food and agriculture? What can civil society and journalists do to better verify claims are new/have real climate impact and not greenwashing?
OD: Hi Hope, you can find a lot of these announcements and detail on whether they are new or updated in our key outcomes piece published this afternoon… COP28: Key outcomes for food, forests, land and nature at the UN climate talks in Dubai
KH: Were there any new commitments made on implementation of the Action for Climate Empowerment (ACE) framework?
OD: Hi Kate, we have a section on what happened with ACE at this year’s COP in our main key outcomes piece – COP28: Key outcomes agreed at the UN climate talks in Dubai
KM: Do we think that China will eventually pay into the L&D fund?
AP: It’s not impossible, but I think there are a lot of outstanding issues that would first need to be changed (e.g. the World Bank’s oversight, developed countries meeting their existing obligations, ramping down trade tensions with the West) before China would be comfortable joining. China has other platforms (like the south-south cooperation fund, the Africa Climate Summit, etc) that it would be happier using to achieve the same thing.
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**Title:COP28 DeBriefed 15 December: Carbon Brief’s key takeaways; Food, forests and nature; Free webinar today**

**Description:**

Welcome to the final COP28 special edition of DeBriefed, an essential guide to all the...
The post COP28 DeBriefed 15 December: Carbon Brief’s key takeaways; Food, forests and nature; Free webinar today appeared first on Carbon Brief.

**Content:**

Welcome to the final COP28 special edition of DeBriefed, an essential guide to all the key developments at the Dubai climate talks. Subscribe to DeBriefed here for free.
This week
Global stocktake
FOSSILS AWAY: Nearly 200 countries have agreed to help the world “transition away from fossil fuels”, as part of the “global stocktake” decided at COP28, according to Carbon Brief’s in-depth summary of the talks. The deal “call[ed] on” all countries to contribute, using the weakest-possible UN legal language to ask for action. Yet even this was hard-won, with an earlier draft deal having left action on fossil fuels entirely optional.
WHITHER FINANCE? The stocktake also called for the tripling of renewables, doubling of energy efficiency and “substantially reducing” methane emissions, all by 2030. These targets ticked four of the five “pillars” to keep 1.5C in reach, set out by the International Energy Agency (IEA) ahead of COP28. The crucial fifth pillar – finance for developing countries, which could have unlocked greater ambition elsewhere – was largely missing.
‘MOMENT OF TRUTH’: COP28 agreed new targets, but only countries can deliver action. The stocktake “encourages” them to submit ambitious new 2035 pledges aligned with 1.5C, with a deadline of 2025. This will be the “moment of truth”, one expert told Carbon Brief.
ACTION STATIONS: The stocktake also launched a four-year “dialogue” on implementing the deal, as well as “mission 1.5C”, designed to boost “ambition…action and implementation”. This mission will be run by COP30 hosts Brazil – who said it would work towards cutting fossil fuel dependence – along with the UAE COP28 presidency and COP29 host Azerbaijan. The role of the “mitigation work programme” – launched at COP26 to “urgently scale up mitigation ambition and implementation in this critical decade” – remains unclear.
FREE WEBINAR: Carbon Brief’s team of journalists will be available to answer questions on the global stocktake – and all of the other key outcomes of COP28 – during a free webinar taking place at 3pm UK time today. Register here.
Adaptation
MONEY TALKS: Negotiations over a “framework” to guide a “global goal” on climate adaptation faced significant tensions. African countries and others said they needed strong commitments that developed countries would financially support them. The US and the EU did not want to discuss money. Large, emerging economies were accused of blocking talks by insisting on references to the different responsibilities facing developed and developing countries.
NEW FOCUS: The final text did not contain any of the developing countries’ major priorities. Parties agreed to focus adaptation on several key themes and decided on a handful of ill-defined targets. However, it kick-starts a formalised global effort for countries to scale up their adaptation efforts, with a first round of planning and reporting given a deadline of 2030.
Loss and damage
FUND AGREED: Nations launched a new “loss-and-damage fund” on day one of COP28, in what one observer called a “diplomatic coup” for the UAE. This was welcomed as the first time a major outcome had emerged from a COP opening session. It marked the culmination of a decades-long effort by climate-vulnerable nations to secure funds for the unstoppable harm caused by climate disasters. 
MONEY NEEDED: With no obligation to pay into the fund, filling it will largely depend on the generosity of wealthy countries. Several parties, including the UAE, Germany and the EU, kick-started the fund with $770.6m of pledges, some of which were existing funds that had been re-pledged. Campaigners pointed out this amounted to less than 0.2% of developing countries’ annual needs. 
Emirati leadership
OVERSHADOWED PRESIDENCY: COP28 president and oil executive Dr Sultan Al Jaber hailed the “world-first” achievement of getting “fossil fuels” in a UN climate change agreement. However, his presidency was overshadowed by allegations the UAE intended to use COP28 to make oil-and-gas deals – and by resurfaced remarks he made questioning the science of a fossil-fuel phase-out at an online event on the need to include women in climate action.
‘LOW-CARBON’ OIL: Mere hours after the summit, Al Jaber told the Guardian that his company, the Abu Dhabi National Oil Company (ADNOC), will continue investing in oil. He claimed to the paper that his oil can be considered “low-carbon” because it is “extracted efficiently and with less leakage than other sources”.
Food, forests and nature
FOOD: Carbon Brief has just published a separate in-depth look at what COP28 delivered for food, land, forests and nature. “Food day” at COP28 saw the launch of the Alliance of Champions for Food Systems Transformation – a group of five countries committed to pushing the agenda of systemic change in food systems. But the Sharm el-Sheikh joint work on agriculture and food security failed to reach an agreement, leaving parties frustrated.
FORESTS: The global stocktake “emphasises” that halting and reversing deforestation and forest degradation by 2030 will be key to meet the goals of the Paris Agreement – the first time such a pledge has garnered formal recognition in a UN climate change legal text. Several countries put forward new ideas for protecting forests at COP28, but Brazil stole the show with its $250bn “tropical forests forever” fund proposal.
NATURE: COP28 hosted an unprecedented number of high-level events on the links between climate change and nature loss. In a first-of-its-kind initiative, COP28 president UAE and COP15 president China released a Joint Statement on Climate, Nature and People acknowledging the interconnected nature of climate change and biodiversity loss, signed by 20 countries. The world’s landmark nature deal agreed in 2022, the Global Biodiversity Framework, was also referenced in a UN climate change text for the first time.
Around the COP
FOSSIL FUELS: New fossil-fuel pledges dominated the start of COP28, with the US among nine new countries to sign up to the Powering Past Coal Alliance – and Kenya, Samoa and Spain signing up to the Beyond Oil and Gas Alliance.
RENEWABLES: Some 130 countries pledged to triple installed renewable capacity and double the rate of energy efficiency improvements by the end of COP28. Notable exceptions include China and India.
METHANE: Turkmenistan – a major methane emitter – and other countries joined a pledge to cut global methane emissions by 30% by 2030 at COP28. The US, China and UAE held a methane summit and more than $1bn was put forward to reduce emissions of the potent greenhouse gas. 
HEAVY INDUSTRY: Some 36 countries joined a new alliance led by Germany and Chile to cut emissions from heavy industry, such as steel and cement making.
GENDER BIAS: A COP28 presidency image celebrating the outcome of the summit featuring a large group of men raised eyebrows, including with Spain’s ecological transition minister Teresa Ribera and UN greenwashing tsar Catherine McKenna.
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The number of hours COP28 went into overtime, making it the 13th longest UN climate summit.
Latest climate research
In npj Ocean Sustainability, a group of ocean scientists examined the inequities in their field and proposed ways to address these gaps.
A new study, published in Communications Earth & Environment, found that seagrass meadows off the coast of the Bahamas store as much as 590m tonnes of organic carbon in the top metre of sediment.
By 2100, up to 18% of species in south-east Asia could become regionally extinct under a “business-as-usual” deforestation scenario, according to research published in the Proceedings of the National Academy of Sciences. 
(For more, see Carbon Brief’s in-depth daily summaries of the top climate news stories on Monday, Tuesday, Wednesday, Thursday and Friday.)
Captured
UN climate change texts can be difficult to interpret for countries, observers and journalists alike. One way to glean deeper meaning from the texts is to examine the type of verbs that they use. According to Carbon Brief analysis, the global stocktake text agreed at COP28 uses few “operative” verbs – words that demand action from countries (shown in red on the chart above). What’s more, the key passage on fossil fuels merely “calls on” countries to take action. As Carbon Brief’s editor Leo Hickman noted, this is the weakest of all of the terms that COP texts can use to invite countries to act.
Watch, read, listen
PIPE DREAMS: An Al Jazeera documentary released before COP28 looked at the East Africa Crude Oil Pipeline and what major oil projects mean for Uganda.
COLOMBIA LEADS: A Bloomberg feature examined how Colombia led from the front at COP28 and became the first major coal producer to join a group of nations calling for a fossil-fuel non-proliferation treaty.
LINE HELD: UK climate justice activist Asad Rehman wrote in the Guardian that the agreement on a fossil fuel phase-out had “more loopholes than a block of Swiss cheese”.
Coming up
15 December: International Energy Agency (IEA) Coal 2023 report launch
17 December: Serbian parliamentary elections
18 December: Green Alliance event on what COP28 means for UK politics
20 December: Democratic Republic of Congo presidential and national assembly elections
Pick of the jobs
The Wildlife Trust, digital content officer | Salary: £26,500 (pro-rata £15,900). Location: Remote
The Eden Project, chief marketing officer | Salary: £80,000. Location: Cornwall
BloombergNEF, European carbon analyst | Salary: Unknown. Location: London
Office of the High Commissioner of Human Rights (OHCHR), special rapporteur on human rights in the context of climate change | Salary: Unpaid, except for travel expenses and daily subsistence allowance on “mission”. Location: Flexible
DeBriefed is edited by Daisy Dunne. Please send any tips or feedback to debriefed@carbonbrief.org
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COP28: Key outcomes for food, forests, land and nature at the UN climate talks in Dubai
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**Title:COP28: Key outcomes for food, forests, land and nature at the UN climate talks in Dubai**

**Description:**

Agriculture and food were very much on the menu at COP28 in Dubai, with both...
The post COP28: Key outcomes for food, forests, land and nature at the UN climate talks in Dubai appeared first on Carbon Brief.

**Content:**

Agriculture and food were very much on the menu at COP28 in Dubai, with both voluntary pledges and negotiated texts beginning to reflect their central role in climate change.
The global stocktake – the “temperature check” of the Paris Agreement – was the primary focus for many at the summit.
But, in addition to the headline agreement to “transition away from fossil fuels”, the stocktake marked the first time that food was mentioned in a major UN climate change negotiated text. 
The links between climate change and biodiversity loss also featured throughout the two weeks of negotiations, with several of the major texts referencing the impacts that each has on the other. 
Deforestation garnered less attention at COP28 than it had in recent years, but the summit still saw Brazil’s proposal of a new “tropical forests forever” fund.
A pledge on food and agriculture signed by nearly 160 countries was a major feature in the early days of the summit attended by world leaders.
A range of other pledges covering everything from mangrove protection to methane reduction were spread across the two weeks of COP28.
But failure to agree on a text for the Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security was a blemish on the summit from a food-systems perspective, with observers and parties both lamenting the lack of progress a full year into the work’s four-year mandate. 
Here, Carbon Brief provides in-depth analysis of all the key outcomes for food, land use and nature in Dubai.
Food, land and nature in COP28 texts
Global stocktake
Global goal on adaptation
Sharm el-Sheikh joint work on agriculture and food security
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Nature-based solutions
Biofuels
Mountain ecosystems
Greenwashing and lobbying by ‘big ag’
Food, land and nature in COP28 texts
Global stocktake
Ahead of COP28, all eyes were on the first-ever global stocktake (GST). 
As part of the Paris Agreement, countries agreed to assess their progress towards climate goals every five years. The review also allows countries to identify gaps in the world’s collective climate action and take steps to correct the global trajectory. 
It is a key part of the Paris Agreement’s “ratchet mechanism” for increasing climate ambition.
The summit saw 8 iterations of texts relating to the GST.
The mention of food in the GST was a “landmark moment”, Clement Metivier, acting head of international advocacy at WWF-UK, told Carbon Brief. 
Not including food systems – which are responsible for nearly one-third of global emissions – would have been a “missed opportunity”, Metivier added. 
But the opportunity was nearly missed, with most mentions of food systems removed in the second set of GST “building blocks”, released on 5 December. Getting food back into the final text took a “true push” from both civil society and governments, Metivier said. 
The final text includes six mentions of “food” – two in the preamble and four in the section on adaptation.
Section 55 of the global stocktake addresses resilient food systems. Source: UNFCCC
However, food does not feature at all in the mitigation section of the GST. Patty Fong, programme manager at the Global Alliance for the Future of Food, told Carbon Brief:
“It’s a missed opportunity, given all the focus on fossil fuels, that we didn’t progress as much as we should have [on mitigation in food systems].
“When you look at the specific texts, the ‘transition away from fossil fuels’ refers specifically to energy systems. So this means they’re not addressing where the real expansion is – and where they actually see the growth market – the expansion of oil and gas in the petrochemical sector.”
In addition to the references to food, the global stocktake text references “nature” eight times and “biodiversity” five times. 
It “underlines the urgent need” to address the “interlinked global crises of climate change and biodiversity loss”. This mirrors language included in the COP27 Sharm el-Sheikh Implementation Plan.
The text also says that climate change and nature targets should be achieved “in line” with the Kunming-Montreal Global Biodiversity Framework, agreed at the COP15 nature summit in 2022. This is important, Fong said, because that framework contains stronger language around sustainable agriculture approaches than the GST. 
The global stocktake “emphasises” that halting and reversing deforestation and forest degradation by 2030 will be key to meet the goals of the Paris Agreement – the first time such a pledge has garnered formal recognition under the UN Framework Convention on Climate Change (UNFCCC). 
It also “notes” the need for “enhanced support and investment, including through financial resources, technology transfer and capacity-building” in order to meet the deforestation goal.
Beyond forests, the GST notes the importance of “ensuring the integrity of all ecosystems”, including the ocean, mountains and the cryosphere. It was crucial that the text included all of those ecosystems, according to Manuel Pulgar Vidal, WWF’s global climate and energy lead.
Pulgar Vidal, who formerly served as Peru’s environment minister and president of COP20, told Carbon Brief:
“There’s a good reference to ecological integrity in the preamble of the current text.”
Rhiannon Niven, a global climate change policy coordinator at BirdLife International, celebrated the inclusion of that term in the GST’s preamble, but said that it should have been included in the operational part of the text as well. She told Carbon Brief:
 “That’s really critical to make sure that [the functionality of ecosystems] happens.”
Niven praised the rights-based approach the text takes towards ecosystem conservation and restoration, as well as its call for a monitoring system to track and evaluate implementation of adaptation measures by 2030. However, the lack of specific finance for these efforts – only a recognition of the “urgent need” to scale up such finance – concerns her, she said.
The final GST text also underlines the “vital importance of protecting, conserving, restoring and sustainably using nature and ecosystems for effective and sustainable climate action”, she added.
On 4 December, while GST negotiations were ongoing, ministers from Colombia, Germany and Granada were among the signatories of an open letter calling for the GST to lead to more collaboration on implementing nature-based solutions and/or ecosystem-based approaches. 
Nature-based solutions and ecosystem-based approaches are specifically mentioned in section 55 of the GST, which “encourages” their implementation, alongside other “solutions” such as sustainable agriculture and land-use management. 
They also feature under section 63, which “urges” countries to increase ambition and speed-up action to achieve a number of targets by 2030, including accelerating the use of ecosystem-based adaptation and nature-based solutions. (See Nature-based solutions for more on how they featured at COP28.)
The text contains nine mentions of Indigenous peoples – “but it doesn’t address direct financing for them”, Diego Casaes, campaign director for Indigenous rights at Avaaz, said. 
Casaes told Carbon Brief that having such language in the GST was important, but called it “very shallow”, noting that it did not adopt some of the language recommended by the UN Declaration on the Rights of Indigenous Peoples. 
For example, free, prior and informed consent – when Indigenous peoples engage as negotiators in projects impacting their lands and provide their consent – is crucial when implementing infrastructure and energy projects, expanding protected areas or operating carbon markets in Indigenous territories, Casaes told Carbon Brief:
“That right is not included in the text because it creates an obligation that parties very much do not want to see in a climate decision. They prefer to use language that’s much softer and weaker.”
During a Climate Action Network press briefing, Eriel Deranger, executive director of Indigenous Climate Action and member of the Athabasca Chipewyan First Nation in northern Alberta, Canada, agreed that the GST should use “a robust language to hold states accountable to meet their goals”. (See Indigenous recognition and rights.)
Helen Biangalen-Magata, Kadaclan Indigenous rights advocate of the Mountain province in the Philippines, explained:
“If we get legal recognition within the GST, [Indigenous peoples] could make it into national reports and plans and see financing flowing to the local level.”
On non-carbon dioxide (CO2) greenhouse gases, the final text calls for “accelerating and substantially reducing” emissions, “in particular methane emissions by 2030”. 
A previous GST draft, released on 8 December, had included an option calling upon countries to “take further actions” to reduce non-CO2 emissions “in order to reduce methane emissions globally by at least 30% by 2030 and 40% by 2035”.
It also mentioned reducing nitrous oxide emissions by at least 13% by 2030 and 18% by 2035, and cutting fluorinated gases by at least 81% by 2035. 
However, these numerical targets were all removed from the GST by the time the gavel fell. The final stocktake does not specifically mention other non-CO2 gases, aside from methane. (See Methane and non-CO2 gases.)
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Global goal on adaptation
Another main component of the COP28 talks was the global goal on adaptation (GGA).
The GGA is a “framework” that is meant to help guide parties in building resilience to climate change – long a priority for the most climate-vulnerable nations.
Established by the Paris Agreement, the GGA received little notice at UNFCCC negotiations until COP26 in Glasgow. There, it was given a two-year mandate to “jump-start” the goal.
Food, ecosystems and nature featured several times within the GGA. 
Section nine of the text “urges” parties to “increase ambition and enhance adaptation action” towards a series of targets, including reducing water scarcity, reducing the impacts of climate change on ecosystems and “increasing sustainable and regenerative production and equitable access to adequate food and nutrition for all”.
The global goal on adaptation “urges” parties to increase their ambition on a series of targets. Source: UNFCCC
The language surrounding food in the adaptation section of the GST “basically mirrors” the language in the GGA, Fong pointed out. 
In the GGA, nature-based solutions appear twice in a broadly similar way to their inclusion in the global stocktake. 
Section nine calls for parties to accelerate the use of ecosystem-based adaptation and nature-based solutions. And section 14 emphasises that adaptation action should be continuous and guided by the “best available science”, alongside making use of ecosystem-based adaptation and nature-based solutions. 
Nature-based solutions appear in the global stocktake. Source: UNFCCC
Section 14 also recognises the contributions of traditional and Indigenous knowledge. The “worldviews and values” of Indigenous peoples are also referenced in section eight of the agreement. 
The GGA “does have good language” on Indigenous knowledge, equity and livelihoods, Fong said. Another section of the text “encourages the ethical and equitable engagement” with Indigenous peoples and “recognises” their roles as stewards of nature. 
The global goal on adaptation recognises the leadership of Indigenous peoples and encourages equity in engagement with them. Source: UNFCCC
The recognition of water and water-related ecosystems in the GST and the GGA was welcomed by Wetlands International, an international civil-society organisation dedicated to conserving and restoring wetlands. 
Francesca Antonelli, head of rivers and lakes at Wetlands International, told Carbon Brief:
“Historically, freshwater ecosystems have been quite neglected by these big conventions. This has been the very first [COP with a] focus also on water, which is something we very welcome.”
Overall, Antonelli said that the fact that water-related ecosystems are in the GST and the GGA “creates a favourable condition for these ecosystems to be embedded” into national climate and biodiversity plans.
Both the GST and the GGA also recognise the risks of transboundary climate impacts in nature, while the GGA suggests a “climate-informed transboundary management” to prevent “cascading risks”.
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Sharm el-Sheikh joint work on agriculture and food security
The Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security (SSJW), agreed at COP27 last year, is the only formal UNFCCC workstream to address agriculture and food systems. 
SSJW is the successor to the Koronivia joint work for agriculture, which was established at COP23 in Bonn, in 2017. 
The goal of the SSJW negotiations at COP28 was to establish a roadmap for the joint work. 
There were three main elements to this: to agree on a set of topics for the three mandated workshops to be held under the joint work; to establish the online portal for submissions under the workshops; and to determine how the work itself should be carried out and synthesised.
Under the SSJW, as with Koronivia before it, a series of workshops brings together a wide range of voices on a particular topic, with each workshop resulting in a synthesis report.Such reports are “a form of recommendation”, said Marie Cosquer, co-coordinator of the Climate Action Network’s agriculture working group and advocacy analyst at Action against Hunger. She added:
“Even if it’s sometimes very top line, it’s still a political signal for countries to orient and define their food-systems policies.”
On the first day of the negotiations, some developed countries suggested that it would be more constructive to start with a clean sheet, having failed to come to a consensus at the last session of the subsidiary bodies in Bonn. But developing countries supported using the informal note prepared in Bonn in June as the basis of negotiations. 
As a result, the negotiations began “very blocked”, Cosquer said. She told Carbon Brief:
“We were really disappointed to see that nothing has moved since Bonn.”
Parties reportedly “lamented” the lack of progress in the negotiating rooms over the course of the first several days, with some noting that the Emirates Declaration on Sustainable Agriculture (See: Food systems transformation) gave added weight and urgency to the work being done there. Both parties and observers said they lamented that one year of the SSJW mandate had already passed, with nothing to show for it. 
There were two elements “gluing up” the negotiations, said Teresa Anderson, global climate justice lead at ActionAid. She told Carbon Brief: 
“One is the process and the bureaucracy entailed in making outcomes. And one is the content – and, of course, we need the right bureaucracy, we need the right systems in place, in order to have the right conversations about the content.”
The G77 plus China negotiating bloc put forward a proposal for a “coordination group”, which would help facilitate implementation of the joint work. Developed countries expressed concerns over what that group would achieve and the costs it would incur to implement additional meetings. 
Anderson noted that it was clear that changes needed to be made in the process in order to begin to effectively implement the joint work, but “developing countries hadn’t proven to developed countries that this [coordination group] is really the right structure to solve the problem”.
As the negotiations progressed, the coordination group remained the major sticking point.
Million Belay, the general coordinator of Alliance for Food Sovereignty in Africa and a member of the International Panel of Experts on Sustainable Food Systems, told Carbon Brief:
“The G77 plus China are saying: ‘No. [We have] coordination or there is no negotiation.’”
As the negotiations neared a “critical moment”, US negotiators attempted to bridge the gap between the G77 plus China and the EU, Belay said. He added that the US taking this role was “surprising, because mostly they are a bridge breaker, not a bridge maker”.
Negotiators met several times in both informal and “informal-informal” consultations on 5 December without moving forward. At the final consultation that night, both global north and global south countries expressed their disappointment over the failure to come to an agreement.
Ultimately, the SSJW negotiations ended with a procedural text. This “essentially means, ‘we talked, we’ll talk again’”, Anderson told Carbon Brief. She continued:
“There’s a long, bloated, confusing text now, with everybody’s pet pieces and pet hates all in there. That’s now being recorded as an informal note, which means that it can be picked up to be discussed again next year.”
The draft decision on the Sharm el-Sheikh joint work on agriculture and food security. Source: UNFCCC
The informal note that will be forwarded to Bonn next year has no legal status and may or may not be used as the basis of the next round of negotiations. 
Annex I of the informal note contains a still-bracketed decision to establish a coordination group to “facilitate the Sharm el-Sheikh joint work…for the duration of the mandate established” at COP27. 
Annex II lays out the seven proposed topics for the three workshops, with two options for each of the first two workshops and three for the final one: 
Scaling up means of implementation, including finance, technology development and transfer and capacity-building.
Risk management, including early-warning systems for food security.
Approaches to sustainable agriculture and food security.
Holistic approaches to agriculture and food security.
Fisheries and aquaculture.
Understanding sustainable food systems through climate action.
Measuring, monitoring, reporting and verifying climate action for agriculture and food security.
Clement Metivier, acting head of international advocacy at WWF-UK, told Carbon Brief:
“Having a dedicated workstream on agriculture is great, to have some focused work on that specific topic. But now we need to build the connections between this workstream – that is obviously very different from all the others – and the rest of the climate process.
“The key word is implementation. And the big question is: how can the UNFCCC actually help with implementation at the national and even the local level? When we talk about agriculture and food security, this is very much about local issues and very concrete solutions. And, obviously, this [COP] process is very different from implementation on the ground.”
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Nature finance
Carbon markets and Article 6
Article 6 of the Paris Agreement covers carbon markets and other “cooperative approaches” that countries can use to meet their climate targets. 
“Voluntary” carbon markets – those that sit outside the UN climate regime – have long been viewed by some as a lawless “wild west”. This year, in particular, voluntary carbon markets and forest carbon offsets have been under intense scrutiny, courtesy of several high-profile investigations examining whether they deliver on their stated carbon-saving goals and their impacts on biodiversity and local communities.  
In the weeks leading up to COP28, for instance, a host of news outlets reported on a “new scramble for Africa”, in which a UAE sheikh with no previous nature conservation experience was striking carbon market deals across the continent. One of the deals reportedly covers one-fifth of Zimbabwe’s land mass.
Potential climate impacts on the ecosystems expected to remove this carbon have also brought to the fore fears that any carbon gains polluters are counting on could go up in smoke because of wildfire risks.
Some countries are opposed to the idea of carbon markets in principle, while offsetting is central to the climate policies of others. As a result, Article 6 negotiations are often contentious, reaching a head in Madrid at COP25, where countries failed to agree on rules that could “make or break” the entire Paris Agreement.
The following year, at COP26 in Glasgow, countries agreed on rules for bilateral carbon trading between countries under Article 6.2, on an international carbon market under Article 6.4 and on “non-market approaches” under Article 6.8.
With the rules written, the International Emissions Trading Agency (IETA) hoped that countries would put “politicised” bickering behind and operationalise the new market and 6.2 mechanism at COP28. 
In Dubai, however, countries failed to reach an agreement on Article 6.2 and Article 6.4. Both of those were subject to “rule 16”, meaning talks will resume next year. 
However, an agreement on Article 6.8 was reached and seen as a “victory” by some for ecosystem-based approaches that put local actors at their heart.
Many observers told Carbon Brief that “no deal was better than a bad deal” on Article 6.2 and 6.4. 
NGO Carbon Market Watch commented that, if the draft decisions at COP28 had passed, Article 6 would have “torpedo[ed]” the Paris Agreement.
However, not passing the deal or developing robust safeguard tools was also worrying to many. 
According to the IETA, 50 countries have already signed memoranda of understanding, implementation agreements or pilot projects related to Article 6. Over the last year, the first three deals to transfer emissions cuts under Article 6.2 have been authorised by Ghana, Thailand and Vanuatu to help Switzerland meet its climate targets.
Trishant Dev, climate change programme officer at the New Delhi-based Centre for Science and Environment, told Carbon Brief: 
“Countries have already begun drawing up activities and seeking out bilateral deals under Article 6.2 and will end up drawing guidelines from the voluntary carbon market, locking in bad decisions until UN-backed rules are in place.”
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Article 6.2
Article 6.2 discussions – which dealt with bilateral carbon-trading between countries – were deeply divisive at COP28, with countries disagreeing over whether – and how – to impose processes and controls on bilateral trading.
COP27 gave countries reporting on their use of Article 6.2 a free hand to mark information as confidential, with oversight limited to a review of reported information by a UN technical team. 
At COP28, some countries pushed to establish a clear process for “identifying, notifying and correcting inconsistencies” in data submitted by countries on the trades they make. Earlier draft texts at the summit included a lengthy section on this topic – but it was reduced to a single paragraph in the penultimate draft of the Article 6.2 text.
The same countries also wanted a more clearly defined sequence for the authorisation of carbon-cutting schemes and the subsequent issuing of carbon credits, as well as tightly limited rules on when the authorisation of carbon credits could be “revoked”.
Throughout the negotiations, observers warned that disclosure requirements and safeguards had become progressively weaker with each new iteration of text. On 10 December, two days before COP28 was slated to close, Isa Mulder at Carbon Market Watch told Carbon Brief:
“This text has lost all of the elements that added some bit of transparency and environmental integrity to Article 6.2. They’re all out now. It’s looking pretty bleak. States can basically do anything they want to.
“That was always the case, but it’s even more so now. They don’t have to follow reporting requirements; there’s no consequences. They can report whatever they want – or not report at all. They can decide whatever they want to be confidential. They don’t have to justify it.”
In the final draft of Article 6.2 produced at COP28, explicit references to human rights, Indigenous peoples and local communities and avoiding negative environmental impacts were removed. These lines were replaced with: “Other information relevant to the authorisation and cooperative approach.”
The US was the main proponent of looser rules, supported by many other countries, according to observers and news reports.
Reuters reported that the US and these countries argued that stricter rules “would be too onerous for many developing countries with limited means for overseeing and regulating projects”. 
On 9 December, Ecosystem Marketplace, a carbon and nature market news portal run by US NGO Forest Trends, reported that the US was arguing that Article 6.2 should be “a party-driven approach that should leave more rule-making to participating countries”. This was opposed by the EU, Mexico, Latin American countries and others, including the Alliance of Small Island States, who proposed more prescriptive language.  
Reflecting on the outcome, Mulder said that the Article 6.2 texts “outdid even our rock-bottom expectations” for standards for this market. She told Carbon Brief:
“Not that we dared to dream of actual climate ambition for this market, but it did not even deliver on many of the most elemental requests for transparency and clarity. While 6.2 deals can continue anyway, deal or no deal, no deal seems to at least avoid sending a message that this is the right way forward. We cannot compromise on climate and human rights.”
Meanwhile, the IETA said that “countries can and should implement international carbon markets under Article 6.2”.
In Sharm el-Sheikh last year, the final COP27 text on Article 6.2 deferred a decision on the use of “emissions avoidance” credits – which might include some REDD+ projects – until 2024.
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Article 6.4
At COP28, countries still had much business to agree before the international carbon market under Article 6.4 could be operationalised. 
Among the main points of contention, parties had to approve methodologies to define the “baselines” from which emission reductions or removals can be calculated to generate credits.  Ahead of COP28, the Article 6.4 supervisory body had developed a set of recommendations that garnered broad support at COP28. But negotiations ran aground on rules for carbon credits generated via “removals” – meaning engineered or natural processes that suck CO2 out of the atmosphere.
Guidance on removals published by the Article 6.4 supervisory body ahead of COP28. Source: UNFCCC (2023)
Many of these removal techniques – such as tree-planting – are non-permanent and risk gains being reversed from natural hazards, such as droughts and fires, as well as due to political instability, corruption and litigation.
The draft guidance on removals – finalised in an exceptional virtual session before COP28 –  set out to address these issues through measures such as creating “buffer pools” of credits that could be held back as insurance if, say, a forestry-based project burned in a wildfire. However, it still left a variety of matters unfinished.
The unresolved measures include a reversal risk assessment tool, a carbon “leakage” tool and a timeline to monitor projects to see if gains were “permanent”. 
Crucially, ahead of the summit, parties were yet to fully develop a mandatory “sustainable development tool”, which contained crucial environmental and human-rights safeguards. Many countries intervened in the session saying that the tool should be up and running before any projects are registered.
Also missing was a crucial grievance procedure for disputes. This could result in a repetition of the Clean Development Mechanism, where projects were implemented without a grievance mechanism for 15 years of its existence, offering no remedy to impacted Indigenous peoples and local communities.
Parties had also asked the Article 6.4 supervisory body to consider the controversial concept of “tonne-year accounting”, which elevates the benefits of short-term carbon storage. The ECO newsletter by Climate Action Network likened this to “breath[ing] extremely fast for one minute and then stop[ping] breathing completely for the remaining five minutes”.
In a statement, Indigenous groups under the Pathways Alliance for Change and Transformation (PACT) called for a moratorium “on all forest carbon trade”. This called for a pause on current carbon-market policies that do not “explicitly, proactively and comprehensively require respect for Indigenous peoples and local communities’ carbon rights, whether or not they are recognised in formal, national legal or regulatory frameworks”. 
PACT also said that an “equitable implementation of Article 6 was impossible” unless Indigenous peoples and local communities were represented in all discussions and supervisory bodies. 
Bolivia, meanwhile, had advocated for a moratorium on Article 6.2 and 6.4 carbon markets, until similar progress was achieved under non-market approaches under Article 6.8.
Bolivia proposed a moratorium on all carbon market mechanisms. Source: UNFCCC (2023)
The deferral of a decision on Article 6 based on “weak rules” was celebrated by many rights observers. Erika Lennon of the Center for International Environmental Law (CIEL) called the deferral “a surprising bright spot” at COP28. In a statement, Lennon said:
“Following a year of carbon-market scandals demonstrating accounting failures and human rights harms, parties finally recognised that they cannot move a carbon market forward without ensuring protections for human rights, the rights of Indigenous peoples and the environment.”
In a post-COP statement, Andrea Bonzanni, international policy director at IETA, blamed the delay of the mechanism on “politicisation” of carbon markets. He also said that the Article 6.4 supervisory body “should not be micromanaged” by the subsidiary body on scientific and technological advice. Bonzanni added:
“We missed an opportunity to expedite the operationalisation of a crediting mechanism that would have set a high bar on environmental integrity, safeguards and human rights. The delay of the Article 6.4 mechanism is not a victory for environmental integrity, it is a victory for the anti-market agenda.”
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CDM Transition
At COP28, Brazil led a push to let legacy afforestation and reforestation projects under the Clean Development Mechanism (CDM) transition to the new carbon market under Article 6.4. 
Afforestation and reforestation activities under the CDM were previously barred from transitioning because they generate temporary units, rather than Certified Emissions Reductions (CERs). (Temporary units are based on the amount of carbon stock sequestered in a standing forest at a given date and are valid for use as carbon offsets for five years.)
They are also tied to areas that are at higher risk of “reversal” from carbon sinks to sources because of natural hazards or human-caused intervention, which is a risk that the CDM did not consider in its original methodologies.
With the Article 6.4 guidance on removals proposing ways to deal with “reversals”, Brazil argued that afforestation and reforestation “removal” projects should be allowed to transition to the new market.
Previously, only cookstove projects that generated credits were allowed to transition to the new market from 1 January 2024, because they were not contingent on reversals.
However, experts have pointed out that cookstove projects are also connected to deforestation and, therefore, should have been subject to reversal risk assessment.
If the text had been approved in its final format, afforestation and reforestation projects under old CDM methodologies would have been among the first to transition into the new market. If allowed, the amount of afforestation and reforestation units that could come into the new market is small enough to be negligible – just 2.2m tonnes of CO2-equivalent emissions.  
But this decision, like many others, will have to wait until next year.
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Article 6.8
Article 6.8 is the third part of Article 6 and covers cooperation via “non-market approaches”. The idea has long been ill-defined, but has been pushed by countries that object to market-based mechanisms on principle. 
In the negotiations, Bolivia and the group of like-minded developing countries both drew attention to the fact that non-market approaches were being neglected in the negotiations over market mechanisms, according to Down to Earth.
The Article 6.8 text offers an insight into priorities of its key proponents, “not[ing] the importance of ensuring the integrity of all ecosystems…recognised by some cultures as Mother Earth…and climate justice”. Source: UNFCCC (2023)
Disagreement over the meaning of non-market approaches continued at COP28. Draft texts “invite[d] parties to consider non-market approaches, including domestic fiscal measures [such as carbon pricing]”, proposed by the EU and opposed by many developing countries. Other blocs suggested non-market approaches that “enhanced the contribution of nature-based solutions in line with ecosystem-based approaches”. 
The final version of the Article 6.8 text that countries agreed on eschews specific examples of such approaches and simply “encourages parties to continue identifying opportunities” to use them.
The text asks the UNFCCC secretariat to complete a web-based platform before the next climate talks are held in Bonn next June and “encourages” countries to use it to submit information on non-market approaches.
Souparna Lahiri of the Global Forest Coalition described Article 6.8 as a “real alternative” to Article 6 markets “stuck in their own failed architecture”. Lahiri called the Article 6.8 agreement a victory not just for the global south, but a “recognition of communities as real climate actors”.
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Biodiversity and voluntary carbon markets
COP28 began against the backdrop of multiple investigations this year that exposed deep cracks in the voluntary carbon market (VCM) and its impacts on land and communities. 
At the same time, negotiators in Dubai had their work cut out to develop strong rules on UN-backed market mechanisms under Article 6.
Far before any Article 6 texts emerged, the summit was awash with a huge range of VCM-related announcements and events, with the COP28 presidency saying ahead of the talks that it “aim[ed] to restore credibility and confidence in VCM by convening the highest-level governmental and institutional leaders to publicly recognise high-integrity VCMs as catalysts for climate action”.
On 4 December, the presidency convened a high-level roundtable on high-integrity carbon markets led by COP28 president Dr Sultan Al Jaber, featuring World Bank president Ajay Banga, as well as Mark Carney – who is co-chair of the Glasgow Financial Alliance for Net Zero and head of the taskforce on scaling up the VCM – and UNFCCC executive secretary Simon Stiell. 
At the event, US climate envoy John Kerry is reported as saying:
“I have become a firm believer in the power of carbon markets to drive increased climate ambition and action, and the VCM is a vital tool to keep 1.5C in reach. Let’s not waste any more time or let the perfect be the enemy of the good.”
Banga had earlier announced plans for 15 countries to earn revenue from the sale of World Bank carbon credits generated from forest conservation under its Forest Carbon Partnership Facility. 
At the same event, Stiell offered a contrasting perspective while recognising that “no developing country that wants to utilise this tool should be left behind“. He said:
“Voluntary markets cannot substitute for robust internal emission cuts by the private sector – this means it is ensured that emissions reductions are not substituted with offsets or carbon credits, in any scope of emissions.
“This will require action to reverse deforestation and to expand carbon stocks in nature.”
On the same day, the six major voluntary standards signed a document to say they were “joining forces to amplify the impact of carbon markets…and supporting countries in implementing Article 6” and their national climate pledges. 
Actors from the voluntary marketplace reacted to the failure of Article 6 negotiations as an opportunity for the VCM, pointing to the fact that countries were pushing ahead with Article 6.2 deals and that investors would not wait “indefinitely.”
On 10 December, the governments of the Netherlands, Germany, France, Spain, Finland, Belgium and Austria issued a joint statement proposing a framework to “prevent greenwashing and restore integrity” in voluntary carbon markets. The statement said that the guidelines in the framework “can be adopted immediately by the market”, adding: 
“In the long run, they serve as input for frameworks at the EU level.” 
Separately, the US Commodity Futures Trading Commission (CFTC) proposed guidance for listing carbon credit contacts, the first by a US regulator specifically targeting the VCM.
Large conservation organisations, including Conservation International, Birdlife International,  the Nature Conservancy and the Environmental Defense Fund, signed a statement on 4 December endorsing “high-integrity” carbon markets and stating that companies purchasing carbon credits “are nearly twice as likely to decarbonise”, but “are more likely to be criticised than commended”.
According to Frederic Hache at the EU Green Finance Observatory, “there is so much at stake in trying to rehabilitate VCM’s image”. Hache told Carbon Brief:
“The industry’s game plan is fairly transparent: image clean-up via ‘high integrity’ certification, claiming Indigenous peoples’ support without truly taking into account their concerns, then a push for compliance markets, whether carbon or biodiversity. 
“But as the former French president Jacques Chirac famously said, promises only bind those who believe in them.”
Meanwhile, the new UNEP State of Finance for Nature 2023 report, released on 9 December, estimates that roughly $11.7bn was invested in biodiversity offsets and credits in 2022 – a sharp increase from $6bn last year thanks to “mandatory biodiversity-offsetting schemes”. 
Biodiversity offsets and credit accounted for a third of all private investments in nature ($35bn), while private finance flows that directly, negatively impacted nature are $5tn per year – 140 times larger. 
The figure below compares sources of public (green) and private (pink) finance for nature-based solutions.
The State of Finance for Nature 2023 shows that public finance continues to account for the majority of spending for nature-based solutions, while biodiversity offsets and credits have become the largest portion of private investment. Source: UNEP (2023)
The report states that “while there are concerns that biodiversity offsets…can provide disincentives to reduce the footprint of economic activities on nature, [t]his analysis includes biodiversity offsets, with the rationale that, in their absence, there would be a greater loss of biodiversity”.
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Debt-for-nature swaps
Debt-for-nature swaps are a financing mechanism that emerged in the late 1980s. Under such swaps, sovereign debt is relieved by developed countries, financial institutions or private investors in exchange for a developing country implementing conservation measures. 
The final stocktake does address the need for “financial sector reforms and the importance of providing more grants due to developing nations’ indebtedness”, the Climate Finance Group for Latin America and the Caribbean noted in a COP28 press release. However, “there was no mention for debt cancellation and/or other innovative schemes such as swaps to expand fiscal space”. 
Several developing countries, including Colombia and Honduras, pushed for debt to be discussed in the negotiations and for debt relief itself.
Colombia was a particular leader in this call. Together with Kenya and France, it launched a global expert review on debt, climate and nature, which will gather an international group of experts to carry out an “exhaustive evaluation” on how external debt impacts efforts from developing countries to conserving, adapting and decarbonising economies.
The Colombian environment ministry said it expects that this initiative will help deliver recommendations to parties in order to address the relationship between debt, climate change and nature, as well as the obstacles that countries face to financing climate action. 
In another announcement at COP28, eight multilateral development banks, including the Green Climate Fund, the European Investment Bank and the Global Environment Facility, announced a task force to boost sustainability-linked sovereign financing for nature and climate, such as guarantees or debt-for-nature swaps. 
However, this financing mechanism raised several questions from civil society.
A recent report from the Latin American Network for Economic and Social Justice (Latindadd), a network of 24 institutions and NGOs from Latin America, cautioned that debt swaps have minimal positive impacts on countries transitioning into sustainable debt management systems. It also said that such swaps benefit creditors and corporations, are immersed in a lack of transparency and delay the split between debt and climate injustice.  
Carola Mejía, climate change advisor and consultant at Latindadd, told Carbon Brief:
“For us, debt swaps are a quick response to a problem that would need more systemic solutions.”
For debt-for-nature swaps to be functional, they require an equity- and principles-based framework where the debtor and creditor negotiate a more robust debt relief, Mejía underlined.
She stressed that a reform of financing systems and debt relief in the form of renegotiation, restructuring or cancellation of debt, and the issuing of financing without conditions or debt, would deliver better outcomes.
To Frédéric Hache at the Green Finance Observatory, debt-for-nature swaps remain “controversial instruments” that typically “free up little money for conservation while providing high fees for bankers, often involve a loss of sovereignty over conservation decisions for the host country, and replace potential debt cancellation negotiations”. 
He told Carbon Brief:
“The push for debt-for-nature swaps in the global south, as well as the massive carbon land deals in Africa that took place ahead of the COP also raise the question of whether green private finance is being increasingly used not only as a way to privatise environmental policies but also as a geopolitical tool to increase control over land and resources.”
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Biodiversity and the road to COP16
COP28 hosted an unprecedented number of high-level events on the links between climate change and nature loss.
This round of climate talks was the first to take place since countries agreed to a landmark new nature deal at the COP15 biodiversity summit, known as the Kunming-Montreal Global Biodiversity Framework (GBF), in December 2022.
Because of this, many of the new initiatives and pledges announced were focused on how countries can better integrate actions to meet the goals of both the GBF and the Paris Agreement.In a first-of-its-kind initiative, COP28 president UAE and COP15 president China released a Joint Statement on Climate, Nature and People.
It was initially signed by Belize, Brazil, Cape Verde, Canada, Colombia, Costa Rica, Egypt, France, Germany, Ghana, Indonesia, Norway, Palau, Rwanda, Samoa, Senegal, Seychelles, Spain, the UK and the US, according to a statement emailed to Carbon Brief.
The statement “recognised” that climate change poses a large threat to biodiversity and “noted” that the “continued loss and degradation of nature increases climate vulnerability”. (See Carbon Brief’s in-depth piece on the links between climate change and nature loss.)
The countries also pledged to ensure “comprehensiveness and coherence” between their next national climate pledges (“nationally determined contributions” or “NDCs”), due to be submitted before COP30 in 2025, and their next national nature plans (“national biodiversity strategies and action plans” or “NBSAPs”), due to be submitted before COP16 next year.
Rita El Zaghloul, a former biodiversity negotiator for Costa Rica who now directs the secretariat for the High Ambition Coalition for Nature and People (HACN&P), a group of 118 nations that have pledged to protect 30% of Earth by 2030 (“30 by 30”), told Carbon Brief that this commitment could lead to more countries including nature in their NDCs. She said:
“Some countries are already doing that. In the case of Costa Rica, they already include nature goals in their NDCs. The goal is that more and more NDCs and NBSAPs talk to each other.”
The joint statement was launched at a ministerial event attended by more than 15 country ministers. This was one of several high-level events on the summit’s “nature day” on 9 December, El Zaghloul noted:
“This was the first time we were engaging on 30 by 30 within a UNFCCC COP. Last year, there were conversations happening, but we didn’t have any ministerial or high-level events. Here we saw a lot of interest from ministers and they took time to be at the events. I think this is testament to the importance of nature – even if we are at a UNFCCC COP.” 
Elsewhere on nature day, China surprised delegates by announcing that it was joining the HACN&P. The announcement came from COP15 president and China environment minister Huang Runqiu via videolink at a high-level session on 30 by 30. 
El Zaghloul told Carbon Brief that the announcement came after more than two years of talks with China, who were initially reluctant to join the initiative while still maintaining the “neutral” role of COP15 president. She added:
“It’s extremely important. It’s one of the most megadiverse countries and the role of China in the adoption of the GBF was extremely important.”
Nature day also saw El Zaghloul launch a new “30 by 30 solutions toolkit” and a financial and technical “matchmaking” service, with the aim of giving all countries the help they need to protect 30% of their land and seas by 2030. El Zaghloul explained:
“Because it was HACN&P that started the 30 by 30 movement, it is also our responsibility to ensure that countries have the sufficient support and tools to meet the target. We know that it is an ambitious target, because we have to move from approximately 17% on land and 8% on oceans [that is currently protected] to 30% on both. Many of the megadiverse countries are developing countries and small island developing states, so we need to provide them with the tools.”
Near the end of the summit, Colombia surprised delegates by announcing it intends to host the next biodiversity summit, COP16, in 2024. (Previous host Turkey was forced to withdraw following the economic impact of earthquakes in the country.)
It came after Colombia sought to carve itself out as a high-ambition leader on both climate and biodiversity issues at the summit. For example, it became the first major oil producer to sign the fossil fuel non-proliferation treaty and co-launched a global review of how sovereign debt is stymying climate and nature progress.
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Food systems transformations
The World Climate Action Summit on 1 December kicked off with the release of the Emirates Declaration on Sustainable Agriculture, Resilient Food Systems and Climate Action, signed by 134 parties. (By 14 December, the declaration had garnered an additional 24 signatures and two further endorsements.)
At the release event, UAE climate and environment minister Mariam Almheiri noted that those signatories collectively represent more than three-quarters of the world’s total food systems emissions.
The headline of the declaration was a commitment to include agriculture and food systems into countries’ NDCs and other national plans “before the convening of COP30”. Many observers, NGOs and food-systems experts told Carbon Brief that the pledge to integrate food into national policy was a welcome one – as long as there was follow-through from governments. 
But some rued the lack of attention paid in the declaration to the links between fossil fuels and agriculture, plus the pressing need to phase out fossil fuels. Marie Cosquer, co-coordinator of the Climate Action Network’s agriculture working group and advocacy analyst at Action against Hunger, told Carbon Brief: 
“All the declarations, all this flurry of engagements, it’s diverting attention from the actual multilateral process and the fact that we need a strong GST [global stocktake] at the end of the next week, and a fossil-fuel phase-out.”
Million Belay, the general coordinator of Alliance for Food Sovereignty in Africa and a member of the International Panel of Experts on Sustainable Food Systems, told Carbon Brief: 
“There are some good elements there – it’s about transformation…But there’s heavy reliance on ‘technology will solve the problem’ kind of thinking…What kind of technology? Who owns the technology?”
At the same time, the lack of specific elements in the declaration was necessary for it to garner such wide support, said Ed Davey, partnerships director at the Food and Land Use Coalition. He told Carbon Brief:
“[These declarations] are not as important as the negotiated outcome and they never will be…[But] they are a way of signalling that something is important.”
Prof Tim Benton, research director at Chatham House, added that “to get 100-and-something countries to sign up, you can’t be too demanding of the hurdles that they have to go over”.
More than 200 non-state actors, such as research institutions, farmers’ groups and philanthropies, signed an accompanying Call to Action for Food-Systems Transformation, released on the same day. That document included a call for “transitioning away from fossil fuel use within food systems”.
Several financial pledges accompanied the food-systems announcements, including $890m to the research consortium CGIAR, $57m from the Bezos Earth Fund for food systems transformation and approximately $47m from Norway towards adaptation, largely for smallholder farmers. 
COP28’s thematic food day, 10 December, saw the launch of the Alliance of Champions for Food Systems Transformation, akin to the Beyond Oil and Gas Alliance. Co-chairs Brazil, Norway and Sierra Leone were joined by Cambodia and Rwanda as the founding members of the alliance.
The five governments that make up the alliance have committed to “reorienting policies, practices and investment priorities to deliver better food systems outcomes for people, nature and climate”, according to a press release. 
Benton described the Alliance of Champions as “raising the ceiling” on food systems transformation, whereas the Emirates Declaration “raise[d] the floor of ambition”. He told Carbon Brief: 
“It’s not just the countries developing their own plans for food-systems transition, but it is also the ability of a group of countries to change the political space and change the political dynamics at negotiations such as this.”
Also on food day, the UN Food and Agriculture Organization (FAO) released a “global roadmap” for achieving food security without crossing the 1.5C threshold. The roadmap is the first in a series of three, with one set to be released at each of the two subsequent COPs.
The creation of such a roadmap – akin to the International Energy Agency’s Net Zero Roadmap – was a “good step forward”, said Patty Fong, programme manager at the Global Alliance for the Future of Food. But, she added, the roadmap is “problematic for many reasons”, including promotion of bioenergy and a lack of attention to the links between fossil fuels and agriculture. She told Carbon Brief:
“[The roadmap is] basically promoting efficiency first, rather than wholesale transformation. And, if we’re trying to look at trying to get to the Paris Agreement, just a series of incremental steps that prioritises efficiency won’t get us to 1.5C.”
Fong said she hopes the FAO will “integrate an iterative process” and engage with a wide range of stakeholders in producing the next report, which is set to cover implementation pathways.
Overall, there was a lack of attention paid to the demand side of food systems due to the economic implications of reducing consumption, Benton said. He told Carbon Brief: 
“Ultimately, you get to the point where it’s bloody obvious that the [growth in consumption demand] can’t carry on forever in a world that’s becoming increasingly limiting in terms of climate impacts, as well as biodiversity loss, and so on. But there is still this internal ideological logic that the future is about economic growth.”
The final text of the global stocktake does reference the need to transition to sustainable patterns of consumption, which Fong described as an “inroad” into addressing diets and the consumption side of food systems. But, she added, “it doesn’t mention it specifically”. 
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Methane and non-CO2 gases
Methane – the short-lived but potent greenhouse gas – featured heavily in pledges and voluntary finance pushes at COP28.
However, most announcements focused on methane from fossil-fuel production, rather than food systems and agriculture.
Vox noted that few of the COP28 methane actions “include the largest driver of methane pollution: the food we eat”. (See: Food systems transformations for more details on how food featured at COP28.) 
The US, China and UAE held a summit on methane and other non-CO2 gases on 2 December in Dubai. At the event, the host nation called for countries to submit their next round of national climate plans (“nationally determined contributions”, or “NDCs”) and to ensure they are economy-wide and cover all greenhouse gases. 
Speaking to reporters at the UAE pavilion on 8 December, the US agriculture secretary, Tom Vilsack, told Carbon Brief that there are a lot of “economic reasons” for US agriculture to embrace methane reduction.
Investing in new technologies, tackling food waste and providing resources to help reduce agricultural methane are all important parts of wider methane-reduction efforts, he added. 
Agriculture accounts for more human-caused methane emissions than the energy sector, according to the International Energy Agency. 
On 5 December at COP28, six major food companies, including Danone, Nestlé and Kraft Heinz, alongside the US nonprofit the Environmental Defense Fund launched the Dairy Methane Action Alliance.
Under this, the companies committed to report on – and reduce – their methane emissions.
They pledged to release information on methane emissions within their dairy supply chains and to put in place a methane action plan by the end of 2024. 
On the funding side, governments and the private sector pledged more than $1bn in recent grant funding for methane reduction “in support” of a “methane finance sprint” launched by US president Joe Biden earlier this year, according to the US government. 
The US says that this more than triples the current level of yearly methane grant funding. It will be used to slash methane emissions around the world across all sectors, with a particular focus on lower-income countries. 
Philanthropies such as the Bezos Earth Fund will also invest $450m over the next three years to target methane emissions, Reuters reported. 
Further funding was announced through the Global Methane Hub, which said that more than $200m in public and private funds will be put towards research into reducing methane from livestock. The money came from public and private funders, including Danone. 
Turkmenistan, Kazakhstan and three other countries signed up to the Global Methane Pledge, which commits to reducing methane emissions worldwide by 30% by 2030. This has now been signed by 155 countries since it was first announced at COP26 in 2021.
Dozens of companies also signed up to the Oil and Gas Decarbonisation Charter, flagged months in advance, to speed up decarbonisation of the oil and gas industry, to end routine flaring and to “zero-out” methane emissions by 2030. 
Dr Stephen Cornelius, the deputy global climate and energy lead at WWF, told Carbon Brief that action to reduce flaring in particular is “the sort of thing [companies] should be doing anyway” for environmental and economic reasons. 
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Indigenous recognition and rights
Indigenous representatives from across the world raised their voices at COP28 to demand the protection of their rights within the climate negotiations and, in particular, the global stocktake.
At a Women’s Earth and Climate Action Network (WECAN) press briefing, Indigenous women called for urgent action to protect the Amazon rainforest. They said the rainforest is in a “dire crisis” due to the combination of deforestation, biodiversity loss, “devastating assaults” on their rights committed by government leaders and gender violence caused by extractive industries.
Célia Xakriabák, an Indigenous activist and member of the legislature in Minas Gerais, Brazil, denounced the burning alive of Indigenous people in Guaraní-Kaiowá territory weeks ago. In the Yanomami territory, young women suffer physical and sexual violence, she said. Xakriabák told the press:
“The Amazon is a woman, all of our biomes are women, and so the healing [of the planet] also takes place through us.”
At the briefing, the women urged global leaders to stop the assassinations of Indigenous environmental defenders and to halt mining and oil extraction in Indigenous territories.
Elsewhere at COP28, Indigenous representatives from North America noted that climate change has driven “exacerbated impacts” in their territories. They also took a stand against Article 6 and what they termed “false solutions” to climate change, such as carbon dioxide removal and carbon capture and storage. 
Eriel Deranger, executive director of Indigenous Climate Action and member of the Athabasca Chipewyan First Nation in northern Alberta, Canada, said species can no longer thrive in her Arctic community. She said: 
“We are part of those species. We cannot tolerate weak policies.”
At that press conference, Indigenous peoples organisations expressed “serious concerns” about Article 6, since carbon markets have “far-reaching negative effects”, such as double-counting and pollution. (See: Carbon markets and Article 6.)
They also questioned the use of non-market-based approaches, which could allow the private sector to finance environmental services, debt-for-nature swaps and technology transfers.
In an opening statement, the International Indigenous Peoples’ Forum on Climate Change – the caucus for Indigenous peoples in the UNFCCC – warned that carbon markets and offsets “do not cut emissions” and “instead create new forms of colonisation, militarisation, criminalisation and land loss”. The forum instead called for parties to commit to the 1.5C target and a phase-out of fossil fuels. 
Alongside nine Pacific Island nations, including Vanuatu, Tuvalu, Tonga and Fiji, Indigenous peoples called for a fossil fuel non-proliferation treaty to end coal, oil and gas expansion. 
For Indigenous peoples, it was important that the negotiations at COP28 took a human-rights approach, Deranger said during a Climate Action Network briefing. 
Only eight countries, including Canada, Costa Rica, El Salvador, Nepal and Panama, directly recognised Indigenous peoples’ rights within the second submission of their NDCs.
Moreover, reports have revealed the lack of climate finance flowing to these communities. Only 2.1% of the $1.7bn pledged to Indigenous peoples at COP26 in Glasgow reached them directly, according to the Global Alliance of Territorial Communities. Meanwhile, the UN Voluntary Fund for Indigenous Peoples could only finance the participation of 15 Indigenous leaders at COP28 – out of 700 applications. 
Helen Biangalen-Magata, Kadaclan Indigenous rights advocate of the Mountain Province in the Philippines, said that Indigenous peoples welcomed the new pledges to scale up climate finance, including the loss-and-damage fund and the adaptation fund, but she cautioned that those resources have not made it to Indigenous peoples and called on financial operating entities to be transparent about how the money is being invested.
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Deforestation pledges
Several new measures to tackle deforestation were announced by countries at COP28.
Brazil, which will host COP30 as the “tropical forests COP” in 2025, turned heads by announcing a new “tropical forests forever” fund proposal on 1 December.
Launched by environment minister Marina Silva and finance minister Fernando Haddad, the proposal aims to provide 80 tropical countries with finance to help maintain trees, with annual payments based on hectares conserved or restored, according to Reuters.
The newswire added that Brazil hopes to raise $250bn for the fund from sovereign wealth funds and other investors, including the oil industry. 
According to Deutsche Welle, Silva said when announcing the initiative:
“It’s a very creative proposal. We want to create conditions for developed countries to protect the forest without it being charity. They will get a return.”
Speaking to Carbon Brief, Fran Price, global forest lead at WWF, said the initiative, while lacking detail, is “the kind of thinking we need”. She added:
“We need new finance mechanisms. Existing [climate finance] mechanisms aren’t well-suited for protecting forests. And we need more mechanisms that are being designed in global-south governments.”
Elsewhere, French president Emmanuel Macron used his appearance at the summit on 1 and 2 December to confirm funding for three forest finance packages, including $100m for Papua New Guinea, $60m for the Democratic Republic of Congo and $50m for the Republic of Congo, according to the COP28 presidency.
At least some of this funding will come from “verifiable carbon credit transactions”. (Read Carbon Brief’s recent in-depth explainer on the current risks and pitfalls associated with carbon offsets.)
The UK pledged an additional $38m to Brazil’s Amazon fund on 2 December. According to the South Atlantic newswire MercoPress, this makes the UK one of the top three contributors to the fund.
Later on, UK environment secretary Steve Barclay arrived to tout the country’s pledge to ban the sale of products with illegal deforestation in their supply chains. At the summit, his department announced that the rules would apply to palm oil, cocoa, beef, leather and soya.
Reacting to the news, Clare Oxborrow, forests campaigner at Friends of the Earth, said:
“It’s certainly positive that some of the biggest drivers of deforestation, such as beef, soya, palm oil and cocoa, are covered by the new law. But products linked to illegal deforestation won’t be eradicated from UK supermarkets completely unless all high-risk commodities, including coffee, rubber and maize, are captured by the legislation.
“What’s more, the proposed law only accounts for illegal deforestation, which is notoriously difficult to determine and could see some countries weakening their own protections to reduce the number of products impacted by the ban.”
On Twitter, Prof Simon Lewis, a global change scientist from the University of Leeds and University College London, noted that there was a “striking contrast” between the ambition of Brazil’s tropical forests forever initiative and the smaller packages announced by individual countries.
On COP28’s “nature day”, the presidency held an event to showcase progress from the Forest and Climate Leaders’ Partnership, an alliance of 26 countries pledging to halt and reverse forest loss by 2030 that was launched at COP27.
(The initiative is designed to build on the Glasgow Leaders’ Declaration on Forests and Land Use, made the previous year at COP26. However, as Climate Home News noted during COP27, the initial agreement had the backing of 145 nations representing over 90% of the world’s forests – suggesting most nations declined to up their deforestation commitments by signing on to the new initiative.)
This event saw a number of new small announcements and updates.
This included a coalition of 17 countries committing to advancing policies to support “low-carbon construction and increase the use of wood from sustainably managed forests in the built environment”.
The coalition includes Australia, Canada, the Republic of Congo, Costa Rica, Fiji, Finland, France, Germany, Ghana, Japan, Kenya, South Korea, Norway, Pakistan, Sweden, the UK and US.
The event also saw 15 governments launch a “roadmap” for scaling investment in forest carbon offsets. 
Speaking at a press conference on 10 December, Tom Goldtooth, executive director of the Indigenous Environmental Network, said that “carbon markets have failed to deliver” for Indigenous people and local communities, adding:
“We do not have time for faulty expansions.” 
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Ecosystem restoration
Experts and civil-society groups at COP28 pushed for the global stocktake to recognise the role of ecosystems in addressing climate change. 
Conservation of around 30 to 50% of land, freshwater and ocean ecosystems will help protect biodiversity, reduce disaster risk and maintain ecosystem services, such as carbon sequestration, according to the sixth assessment report (AR6) of the Intergovernmental Panel on Climate Change (IPCC). (See: Biodiversity and the road to COP16.)
Although fossil fuel phase-out was central to the negotiations, protecting and restoring ecosystems is just as important in addressing climate change, Rhiannon Niven, global climate change policy coordinator at BirdLife International, told Carbon Brief. 
Several political pledges on ecosystem restoration were made at COP28. 
On nature day, 18 countries, including Belize, Costa Rica, Germany, the UK and US, issued a Joint Statement on Climate, Nature and People to support the use of ecosystem-based approaches and the implementation of land-restoration plans. 
COP28 also saw updates of two global commitments to restoring ecosystems: the Mangrove Breakthrough and the Freshwater Challenge, which focuses on rivers and wetlands. 
The Mangrove Breakthrough – a global pledge made at COP27 to restore and protect 15m hectares of mangroves by 2030 – released a financial roadmap towards fulfilling the pledge. It estimated that around $4bn is needed by 2030 to “secure the future” of mangroves.
The Freshwater Challenge announced that another 30 countries, including the UK, Canada, the US and UAE, had joined the initiative. The Freshwater Challenge is a call to restore 30% of Earth’s degraded freshwater ecosystems by 2030 and was launched by six countries, including Colombia, the Democratic Republic of Congo and Mexico, at the UN Water Conference earlier this year.
At a side event on high-carbon ecosystems, Femke Tonneijck, from Wetlands International, called for a “global peatland push” to similarly conserve and finance peatlands.
On 2 December, Siaosi ‘Ofakivahafolau Sovaleni, the prime minister of Tonga, announced the Unlocking Blue Pacific Prosperity initiative. The goal of the initiative is to protect 30% of the “Blue Pacific Continent” by 2030. 
The announcement was accompanied by up to $100m of finance from the Bezos Earth Fund for marine conservation in Pacific small island developing states. The Global Environment Facility also “offered” $125m towards implementing marine protected areas in the Pacific, Bloomberg reported.
That same day, several philanthropies announced $250m of new funding for the Ocean Climate Resilience Alliance, focused on protecting “vulnerable marine areas, ocean-based mitigation efforts and research on climate impacts”.
At a WWF press conference on 8 December, Dr Stephanie Roe, global climate and energy lead scientist at WWF International and a lead author on the IPCC AR6 report on mitigation, noted that there is a gap in finance for nature. She added that there needs to be funding mechanisms from different stakeholders for conservation, sustainable management and restoration. She also called for removing harmful subsidies to nature.
Francesca Antonelli, head of rivers and lakes at Wetlands International, told Carbon Brief that since the political pledges announced at COP28 are not legally binding, countries will require “a bit of time” to create plans for how they will implement their measures to restore and conserve ecosystems. 
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Nature-based solutions
At COP27 last year, for the first time, the COP “cover decision” mentioned nature-based solutions – referring to the use of nature and ecosystems to help mitigate climate change and adapt to its impacts. 
The controversial concept was also a dividing issue for many countries at the UN biodiversity summit COP15, held in Montreal last December. 
At COP28, Carbon Brief understands that while some countries preferred the term “ecosystem-based approaches” over “nature-based solutions”, or vice versa, few were staunchly against the concept in principle. 
Leila Yassine, a global advocacy manager for nature at the global nonprofit the Rainforest Alliance, said that while nature-based solutions are “good for mitigation [and] adaptation”, their value for biodiversity and people can often be overlooked at climate COPs. She told Carbon Brief: 
“It’s great to look at ecosystems and nature-based solutions from a climate perspective as well, but we shouldn’t forget that within there, there’s nature. And nature is also biodiversity and it’s also land.
“Nature-based solutions are always looked into as a tool, like nature is a tool for mitigation. But it’s not only this…We want to preserve ecosystems because they have multiple benefits [and] I think sometimes this doesn’t transpire enough in the global stocktake and the final text.” 
Nature-based solutions are often a key component in countries’ plans for climate adaptation and mitigation, featuring in 57 countries’ national climate pledges under the Paris Agreement, according to data from ClimateWatch. 
On 30 November, Honduras’ opening statement at COP, issued on behalf of the Coalition for Rainforest Nations, “reiterated the importance” of nature-based solutions and called for a consistent reporting methodology across industries, according to the Earth Negotiations Bulletin. 
As part of a raft of nature announcements at COP28, more than 150 companies and financial institutions said they would increase investments in nature-based solutions.
Speaking to a small group of reporters in Dubai, including Carbon Brief, Rhiannon Niven, global climate change policy coordinator at BirdLife International, said that it is a “massive win” to see these approaches included in the global stocktake. (See: Global stocktake.)
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Biofuels
While the COP28 presidency promised that food would be at the heart of negotiations, biofuels were expected to get considerable attention at COP28, driven partly by a Global Biofuels Alliance launched by India at the G20 summit in September and backed by the US, Brazil and the UAE.
India’s prime minister Narendra Modi referred to the alliance in his speech at the COP28 opening ceremony on 1 December, highlighting the country’s contributions to global climate action. The country’s climate minister, Bhupendra Yadav, also referenced the alliance in India’s national statement to COP28.
Yesterday, the spotlight on the Global Biofuels Alliance at COP28, culminated in a spectacular display on the Burj Khalifa at 8:40pm#GlobalBiofuelsAllianceAtCOP28 #GBAatCOP28 pic.twitter.com/y7gUSDp327— Ministry of Petroleum and Natural Gas (@PetroleumMin) December 4, 2023
Although low-carbon fuels, including biofuels, are cited in the mitigation section of the stocktake as part of the solution towards reducing emissions in “this critical decade”, many experts caution that emissions from biofuels underestimate their land-use footprint.
One recent study found that CO2 emissions from biofuels exceed those of fossil diesel, under current land-regulation policies. Heated debates on using food as fuel have also continued in the face of war and record levels of hunger around the world. 
Undaunted, the biofuel industry had a significant footprint at COP28. 
In an interview with the Financial Times at COP28, ExxonMobil chief executive Darren Woods said that UN climate talks “have focused on renewable energy for too long”, neglecting the role to be played by biofuels, hydrogen and carbon capture. COP28 marked the first known time an ExxonMobil chief executive attended a COP. 
Carbon Brief analysed the COP28 participant lists and found that Brazil, Libya, Slovakia and Madagascar all sent delegates involved in work on biofuels. 
Executives with the Brazilian Biofuels Producers Association and Acelen Renewables were registered as part of Brazil’s “party overflow”, NNPC Equity Biofuels Company with Nigeria’s, MHP with Ukraine’s and lobby group Ethanol Europe with Hungary’s.
At a special “Majlis” – an Arabic word for a sitting room – convened on 10 December to resolve the negotiating logjams between parties, COP president Al Jaber also spoke of the need to “increas[e] the availability of biofuels” in order to keep 1.5C within reach. 
In a press briefing that Carbon Brief attended on 10 December, US agriculture secretary Tom Vilsack said that the aviation industry wanted an “acceleration of the production of biofuels” derived from a variety of feedstocks. He added: 
“It’s not just the farmers who are asking for this, the airlines are asking for it. The reality is as great as electric vehicles are, we’re not likely to have battery-powered planes or hydrogen-powered planes flying long-distance in the foreseeable future.
“If the aviation industry in the US is going to be competitive and sustainable, they have to have low-carbon fuels and low-carbon feedstocks.”
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Mountain ecosystems
Small island states threatened by sea level rise and Least Developed Countries have long fought to have their special circumstances and unique vulnerability to climate impacts explicitly recognised in climate negotiations and, therefore, receive dedicated support for their adaptation efforts.
At COP28, mountain states argued that they should join them.
As early as March this year, the environment minister of Andorra, Silvia Armengol, wrote to UNFCCC executive secretary Simon Stiell asking for mountains to be included as an item on the COP28 agenda “to give mountains the importance they deserve under the process”. 
Armengol’s letter noted that Andorra is “entirely mountainous” and said that “people living in mountains are among the world’s most vulnerable”.
Letter from Andorra’s environment and sustainable development minister to the UNFCCC requesting mountains be included on the COP28 agenda. Source: UNFCCC (2023)
In the letter, Armengol drew attention to the IPCC’s sixth assessment report and its cross-chapter paper on mountains, as well as the IPCC’s special report on the oceans and cryosphere, to highlight “upcoming irreversible impacts and adaptation limits of mountain regions and their severe consequences for people, infrastructure and economy”.
In its September submission, Nepal asked that the global stocktake recognise the risks to  “rising temperatures affecting the cryosphere, considering the consequences of fast-rising temperatures in mountainous areas”.
Nepal’s submission to the global stocktake. UNFCCC (2023)
At the opening ceremony, the COP28 president read out parts of Andorra’s letter, but did not push mountains on to the official agenda.
Melis Turgunbaev, Minister of natural resources, ecology, and technical supervision, Kyrgyzstan who called for a dialogue on mountains and climate at COP28. Credit: Mike Muzurakis | IISD/ENB
Seconding Andorra, Kyrgyzstan, supported by Bhutan, called for an urgent dialogue on mountains and climate to commence at COP28.
UN secretary general António Guterres, fresh from a visit to Nepal, told world leaders on 2 December that “the mountains are issuing a distress call” and that “COP28 must respond with a rescue plan”. Guterres added:
“It is deeply shocking to learn how fast the Himalayan glaciers are melting. And deeply distressing to hear first-hand from local communities about the terrible impact on their lives. Nepal, and other vulnerable mountain countries, are being pounded by a crisis that is not of their making.”
At a High-Level Roundtable on Mountains and Climate Change moderated by Nepali prime minister Kamal Dahal, participants said that “mountain countries must collaborate to incorporate mountain-related issues into all UNFCCC’s negotiation processes” and ensure “the loss-and-damage fund is accessible for the most vulnerable mountain regions and least developed countries”, the Earth Negotiations Bulletin reported.
At the dialogue, Bhutan’s state secretary said that mountain states had made the call to include mountains and the cryosphere in the global stocktake, and “mountain ecosystems”, as a separate target under the global goal on adaptation.
Despite not being included on the COP28 agenda, mountains are mentioned in the preamble of the global stocktake. Additionally, the stocktake “requests” the chair of the subsidiary body on scientific and technological advice to hold an expert dialogue on mountains at its next session in June 2024. 
The final agreed draft of the global goal on adaptation, meanwhile, “urges states” to reduce their impacts on mountain ecosystems by 2030. 
The fourth target of the global goal on adaptation that was agreed at COP28. Source: UNFCCC (2023)
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Greenwashing and lobbying by ‘big ag’
Claims about greenwashing and over-exaggerated solutions to climate change always rear their heads during COPs – and Dubai was no exception. 
Many of this year’s complaints centred around fossil fuels (See: the ‘oil-and-gas influence and greenwashing’ section of Carbon Brief’s main COP28 key outcomes piece). But other aspects, such as lobbying by food and agriculture companies, were also reported at the Dubai summit. 
There were three times as many meat and dairy delegates at COP28 compared to last year’s summit in Sharm el-Sheikh, according to analysis by DeSmog and the Guardian. 
Before the summit began, the two outlets also reported that major meat companies and industry lobbyists planned a “large presence” in Dubai. 
Documents produced by the industry group the Global Meat Alliance showed the sector’s desire to promote “our scientific evidence” at the summit, the outlets said. 
In response, a Global Meat Alliance spokesperson said the organisation “works to simplify and distil public information around these events, which is largely complex, to ensure industry understand how and where to engage, having equal opportunity to be heard”. 
In Paraguay, agribusiness groups allegedly “modified” the guidance document for the country’s stance on talks at COP28, El Surtidor reported. 
Another El Surtidor piece said Paraguay agribusiness “deploys disinformation tactics and questionable lobbying” at COP28. 
An Lambrechts, a senior campaign strategist at Greenpeace International, told Carbon Brief that food, agriculture and carbon-offsetting greenwashing were all out in force at this year’s COP summit. 
She said she noticed a stronger focus on technologies such as carbon capture and storage (CCS) and marine geoengineering. She said: 
“We’ve seen a lot more proponents and promotion of that approach than we’ve seen previously.”
CCS – the process where CO2 is “captured” and held in a storage site, such as a deep rock reservoir beneath the sea – featured in the global stocktake text. 
US climate envoy John Kerry spoke out against overreliance on CCS at COP28, Politico reported, and EU climate commissioner Wopke Hoekstra said that sectors that are more difficult to decarbonise will not be able to “get away with CCS-ing themselves out of the problem”. 
The global stocktake text also invited countries to scale up “as appropriate, ocean-based mitigation action”. Mongabay reported that this could “include techniques that pump carbon dioxide into the ocean in an attempt to decrease carbon levels in the atmosphere” – a form of the controversial concept of marine geoengineering.
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Welcome to Carbon Brief’s China Briefing. Carbon Brief handpicks and explains the most important climate...
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**Content:**

Welcome to Carbon Brief’s China Briefing.
Carbon Brief handpicks and explains the most important climate and energy stories from China over the past fortnight. Subscribe for free here.
(China Briefing will return on 11 January.)
Key developments
China at COP28
BIG PRESENCE: China’s presence at COP28 this year loomed large, boasting the joint-third largest delegation with more than 1,400 badges issued, Carbon Brief analysis found.
WHO’S WHO: The delegation, headed by ministry of environment and ecology (MEE) vice-minister Zhao Yingmin, featured many high-ranking government officials, including MEE minister Huang Runqiu, special climate envoy and COP veteran Xie Zhenhua, as well as UN under-secretary-general for economic and social affairs Liu Zhenmin, who is expected to replace Xie as climate envoy after COP28. 
FULL CALENDAR: China also hosted a jam-packed schedule of side events at its country pavilion, which topics ranging from methane emissions and “green” banking through to overseas energy investments and UK-China cooperation on climate science. Many events were attended by Carbon Brief. “The pavilion is always an interesting place to see what [China] want[s] the world to see about them,” Prof Alex Wang, co-director of the Emmett Institute on Climate Change and the Environment at the University of California, Los Angeles, tells Carbon Brief. “There’s more information available, there’s more societal involvement than ever before…That may be strategic, but it does also reflect genuine changes on the ground [in China].”
China declines to participate in loss-and-damage fund
EARLY SUCCESS: The opening of COP28 was marked by an agreement to “operationalise” the loss-and-damage fund, which Dr Jennifer Allen at the Earth Negotiations Bulletin termed a “big, big win”. Despite a donation by the United Arab Emirates “put[ting] the spotlight on China”, according to Politico, China did not pledge, with Chinese media coverage of the fund being muted.
EVOLVING RESPONSIBILITIES: China Dialogue quoted Avinash Persaud, Barbados’ special envoy for finance, saying: “79% of the stock of greenhouse gases come from the countries that would be defined as developed in 1992. A big part of the other remaining part of the emissions comes from China. I’m happy for us to think about ‘common, but differentiated responsibilities’ as being a vital principle, but not stuck in some particular point of time in measurement. They should be evolving common, but differentiated responsibilities…That would mean that, at some point, China should be a contributor [to the fund]”.
OTHER MECHANISMS: Yuan Ying, chief China representative at Greenpeace East Asia, argues that criticism of China’s position was misguided. China on a per-capita basis is poorer than the UAE – the only developing country to contribute to the fund – she tells Carbon Brief: “China is pretty clear that [payments from] the loss-and-damage fund will prioritise vulnerable and least developed countries. Meanwhile, China is chipping into other channels and platforms to help other countries cope with climate change, like the south-south cooperation fund and Africa climate summit.” Xie echoed this argument at a press conference on 9 December, saying that China “has been carrying out south-south cooperation” over the past 10 years to help other countries build capacity. (Recent analysis for Carbon Brief also underscores this point.)
Pledge to update 2030 and 2035 targets in 2025
NEW NDC: Early on in the COP28 negotiations, Xie announced that China would release a new nationally determined contribution (NDC) that includes targets for both 2035 and 2030, the year before which China has pledged to peak its carbon emissions. “The Chinese government also attaches great importance to this matter,” Xie said. 
REASONING? Li Shuo, director of the China climate hub at the Asia Society Policy Institute, attributes two possible motivations to the announcement: “One is ‘don’t ask us again, there won’t be anything new, wait until 2025’. That’s my interpretation. The other is ‘2030 isn’t entirely fixed, we could still enhance the ambitiousness of the 2030 target’.”
PEAKING TIMELINE: Analysis in Carbon Brief shows that China carbon emissions may enter a “structural decline” as early as next year. An early peak could then affect the level of ambition for the 2030 and 2035 targets. Xie also said at the 9 December press conference that “China has moved from dual control of energy to dual control of carbon emissions, which is a strategic shift”. He added: “If this shift is realised by 2025, China will then determine what year we will reach peak carbon and what the absolute amount of peak carbon will be. But this will certainly not [be] 2030, it will be before 2030.”
Impact of Sunnylands
SETTING THE TONE: The Sunnylands statement – itself a positive signal of thawing US-China relations – set “necessary, but insufficient, conditions for success at COP28”, Li previously told Carbon Brief. The statement itself significantly influenced the final outcome. Key language from the document featured in the final global stocktake text, with US climate envoy John Kerry attributing the success of the methane summit (see below) to “the meeting we had in Sunnylands” in his remarks at the event.
RENEWABLES CENTRED: The Sunnylands statement included a call for the US and China to “pursue efforts to triple renewable energy capacity globally by 2030…so as to accelerate the substitution for coal, oil and gas generation”. Nevertheless, China did not sign up to an official pledge to triple renewable energy and double energy efficiency. Prof Zou Ji, president of the Energy Foundation China, attributes this to an issue of measurement. He says to Carbon Brief: “ [It has not been clarified which] year should be the base year – should it be 2020 [or] 2022? This might seem technical, but, in the past two years, development of renewables – both globally, but particularly in China – has been greatly boosted. So using different [base years] could be very significant.” Wang says he believes that China’s unwillingness to sign was “due to a line on acknowledging the need to phase out unabated fossil fuels”, which was not acceptable to the country. By contrast, Professor Pan Jiahua, vice-chair of the national expert committee on climate change, member of the Chinese Academy of Social Sciences and director of its Research Center for Sustainable Development plus director of Beijing University of Technology’s Institute of Eco-Civilization Studies, tells Carbon Brief that tripling renewable energy was “not enough” and that countries should be more ambitious.
GOOD VIBES: In the early days of COP28, Chinese state media published several articles highlighting the importance of cooperation with the US. The two countries were often reported to be having hour-long meetings and, in the final days of COP28, rumours circulated that a US-China joint statement was imminent.
WHAT NEXT? Kerry also said at the methane summit that the friendship between him and Xie “was the reason we could work together in Paris, in Glasgow and now in Dubai”. With Xie likely to now be replaced by Liu Zhenmin, there is an important open question about whether Liu will be able to maintain this positive dynamic. (Liu and veteran US negotiator Susan Biniaz were seen together on multiple occasions, while Jennifer Morgan, Germany’s special representative for international climate policy and former Greenpeace co-leader, told the audience that they had held discussions on Germany’s net-zero transition.) And, despite his and Kerry’s respective ages – Xie is 74 and Kerry just turned 80 – Xie said at the 9 December press conference: “We will not leave this field, we will still do our best to promote progress in this field.”
Global stocktake to boost China’s renewables drive 
PHASEDOWN NOT PHASEOUT: The final draft of the global stocktake did not refer to a “fossil fuel phase-out”, instead calling for “tripling renewable energy capacity”, “accelerating efforts towards the phase-down of unabated coal power”, using “abatement and removal technologies…particularly in hard-to-abate sectors”, while transitioning away from fossil fuels in a “just, orderly and equitable manner”. All of which aligns with China’s policy priorities. 
COMPROMISE: The document was a “compromise text”, Li explains, with the overall language on coal being “very modest”. Pan characterises it in comments to Carbon Brief as “based on a consensus that actions must be taken in line with the 1.5C target”. He argues that the outcome showed that a “negotiated accord…[is] not a solution” and, instead, the global stocktake should shift focus from “restricting” fossil fuels to “accelerating zero-carbon industries”. Meanwhile, Yuan says in a statement the text “will undoubtedly further boost China’s already booming renewable energy sector, accelerate the substitution of coal power and achieve the country’s target of peaking emissions”. However, she adds: “The final text lacks clear and effective implementation pathways.”
TRADE SPATS: China also suggested in its initial submission to the UNFCCC that language be included on “rising unilateralism, protectionism and anti-globalism”. However, the final text saw this watered down to “measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade”. Li points out that “this is actually stronger” than language in the Sunnylands statement, which the Chinese delegation “should be happy about”. The EU’s carbon border adjustment mechanism (CBAM) seems to have faded from the text. “I think the consensus is that CBAM is to be discussed at the World Trade Organisation, not at the UN,” Yan Qin, carbon analyst at the London Stock Exchange Group, tells Carbon Brief.
US and China trumpet methane cooperation
ON THE AGENDA: On 2 December, Carbon Brief attended the summit on methane and non-CO2 greenhouse gases, co-hosted by China, the US and UAE. The summit was intended as a strong political signal of US-China cooperation and the importance they both now place on reducing methane emissions. In his remarks at the event, Kerry emphasised the countries’ progress in driving the conversation, noting that methane “was not even talked about in Paris”. 
FIRST STEPS: Xie described the summit as an “important step”. However, he argued, China has a “poor foundation” for regulating methane, adding: “We need concrete measures, we need capital support and we also need a feasible technical pathway on how we can join hands to tackle climate change.”
LACK OF TARGETS: As with China’s domestic methane emissions action plan, however, the methane summit did not see any concrete targets for reducing methane. “I hope that we can maintain the momentum,” Li tells Carbon Brief, because, “of [all the] topics they could choose, they chose methane”. It would be frustrating if this level of momentum “still can’t move the ball”, he adds.
Quoted at COP28
FRAMING COP28 BACK HOME: Li Shuo: “We need to recognise the domestic politics…Try to imagine a fistfight at the beginning of COP28. If you’re a general Chinese reader and you see that on the news…Is that helpful for the Chinese leadership?…So I think it’s pretty smart that COP28 had a smooth start [with the operationalisation of the loss-and-damage fund].”
TRADE DISPUTES: Yuan Ying: “We need open, inclusive and collaborative supply chains for renewable energy, then we can work collectively to achieve the targets of tripling renewable energy.”
METHANE EMISSIONS: Prof Alex Wang: “China could target a certain subsection of local leaders, put a lot of pressure on them to get rid of methane and then in two years declare a big success on the international stage…I heard one person mention that [efforts] could be framed in terms of worker safety…[which is] a real black mark in Chinese governance.”
CLIMATE, NATURE AND PEOPLE: Lu Lunyan, WWF China CEO, tells Carbon Brief in a statement: “Protecting nature and modifying agro-food systems is an essential part of effective climate action, but it is unfortunate that countries have failed to adopt the IPCC’s recommendation to include the protection of 30-50% of all ecosystems in the text”.
Read Carbon Brief’s in-depth summary of COP28’s key outcomes of COP28. And Anika Patel, Carbon Brief’s China analyst, will be participating in Carbon Brief’s COP28 webinar tomorrow, 15 December, at 3pm (UK time). Sign up is free.
Watch, read, listen
CONSEQUENTIAL RELATIONSHIPS: With Chinese climate envoy Xie Zhenhua set to retire after COP28, Foreign Policy looked back on how he and US climate envoy John Kerry forged a bond “over decades of [climate] negotiations”.
DUBAI FIRESIDE: The Wall Street Journal interviewed John Kerry on China’s climate policy and his experience working with Xie Zhenhua.
DECIPHERING COP28: Carbon Brief’s China analyst (and author of this newsletter) Anika Patel spoke on the China-Global South Podcast to break down China’s positions at COP28.
TOP 10: In China Energy Net, Kevin Tu, managing director of Agora Energy Transition China, highlighted 10 issues he was watching out for at COP28.
New science 
Rapid attribution of the record-breaking heatwave event in north China in June 2023 and future risksEnvironmental Research Letters
The record-breaking heatwave that hit North China over 22-24 June 2023 – in which Beijing reached or exceeded temperatures of 40C for three consecutive days for the first time –  was made around 1C hotter due to human-caused climate change, according to a new study. The authors carried out a “rapid attribution study” to assess the role of climate change on the event. They find that by the end of the century, in an intermediate emissions scenario, 2023-like heatwave events in North China could be 5.5 times more likely and 2.9C hotter than those under a 2023 climate. They add that, “even if carbon neutrality is achieved”, 2023-like events could occur at least 1.6 times throughout the remainder of the century and be 0.5C hotter. 
Electrifying industrial heating in ChinaGlobal Efficiency Intelligence
“Plastic recycling, steel reheating processes, steel production and the ammonia industry are the top four industries in terms of CO2 emissions reduction potential from electrification,” according to a new report. The report “identifies specific processes that could be electrified in the near term with commercially available technologies and analyses the expected changes in energy use, CO2 emissions and energy costs”. The authors recommend “integrating electrification in industrial planning and decision-making establishing industry-specific electrification roadmaps”. 
Deploying green hydrogen to decarbonise China’s coal chemical sectorNature Communications
New research finds that China’s coal chemical production resulted in around 1.1 gigaton CO2 equivalent (GtCO2eq) in 2020 – equal to 9% of national emissions. The authors estimate that emissions from the sector could rise to 1.3 GtCO2eq by 2030, but add that around half of these emissions could be reduced using “solar or wind power-based electrolytic hydrogen and oxygen” to replace coal-based hydrogen and air separation-based oxygen. The paper suggests that the provinces of Inner Mongolia, Shaanxi, Ningxia and Xinjiang would be “well suited for pilot policies to advance demonstration projects”.
China Briefing is compiled by Anika Patel and edited by Wanyuan Song and Simon Evans. Please send tips and feedback to china@carbonbrief.org.
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