Trump’s move to exit Paris accord to hit harder than last time

This US withdrawal will take effect in one year, faster than the 3.5-year exit period when Trump first quit the accord.

A second US withdrawal from the world’s primary climate pact will have a bigger impact – in the US and globally – than the country’s first retreat in 2017, according to analysts and diplomats. One of President Donald Trump’s first acts on returning to office on Monday was to quit the Paris Agreement as part of his plans to halt US climate action.

The impact will be to increase the chance of global warming escalating, to slow US climate funding internationally, and leave investors struggling to navigate the divergence between European and US green rules.

This US withdrawal will take effect in one year, faster than the 3.5-year exit period when Trump first quit the Paris accord in 2017.

Since then, climate change has become more extreme. Last year

was the planet's hottest on record, and the first in which the average global temperature exceeded 1.5C (2.7F) of warming – the limit the Paris Agreement commits countries to trying to stay below.

"We are looking at overshooting 1.5C – that is becoming very, very likely," said law professor Christina Voigt at the University of Oslo.

"Which, of course, brings to the forefront that much more ambitious global action on climate change is needed," she said.

Today's climate, measured over decades, is 1.3C warmer than in pre-industrial times, and on track for at least 2.7C of warming this century. While perilous, that is less severe than the 4C projected before countries negotiated the 2015 Paris Agreement. Each country's pledge toward the Paris goal is voluntary. Nevertheless, Trump is expected to scrap the US national emissions-cutting plan and potentially also Biden-era tax credits for CO2-cutting projects.

All of this will "further jeopardise the achievement of the Paris Agreement's temperature goals," Michael Gerrard, a legal professor at Columbia Law School, said.

"That has obviously an impact on others. I mean, why should others continue to pick up the pieces if one of the key players once again leaves the room?" said Paul Watkinson, a former French climate negotiator who worked on the 2015 Paris Agreement.

Some US states have said they will continue climate action.

Regardless of politics, favourable economics drove a clean energy boom during Trump's first term – with Republican stronghold Texas leading record-high US solar and wind energy expansion in 2020, US government data show. But Trump has already taken steps to try to prevent a repeat of that, on Monday suspending offshore wind leases and revoking Biden's electric vehicle targets.

The US produces around 13% of global CO2 emissions today but is responsible for most of the CO2 released into the atmosphere since the Industrial Revolution.

As part of the Paris Agreement exit, Trump on Monday ordered an immediate cessation of all US funding pledged under UN climate talks.

That will cost poorer nations at least $11bn – the US government's record-high financial contribution delivered in 2024 to help them cope with climate change.

Together, all rich countries' governments combined contributed $116bn in climate funding for developing nations in 2022, the latest available OECD data show.

That does not include the huge climate-friendly government funding Biden rolled out domestically, whose future under Trump is uncertain.

Total US climate spending – counting domestic and international, from private and public sources – jumped to $175bn annually over 2021-2022, boosted massively by the 2022 Biden-era Inflation Reduction Act, according to non-profit research group the Climate Policy Initiative. The US is also responsible for funding around 21% of the core budget for the UN climate secretariat – the body that runs the world's climate change negotiations, which faces a funding shortfall.

The We Mean Business Coalition, which is backed by Amazon and Meta, said Trump's disruption of the US business environment could drive green investment elsewhere.

It could "open the door for other major economies to attract greater investment and talent," the non-profit group said.

Three investors told Reuters the transition to green energy, including in the US, will move forward regardless.

One impact of the Paris exit will be to prevent US businesses from selling carbon credits into a UN-backed carbon market that could be valued at more than $10bn by 2030, according to financial information provider MSCI.

While no longer able to make money from selling any surplus credits, US companies would be able to buy them on a voluntary basis. – Reuters

Shell dividend hike drives shares higher despite profit miss

By Arunima Kumar

(Reuters) -Shell reported a 16% drop in profit for 2024 on Thursday amid weakness in oil and gas prices and in demand, but shares rose after it raised its dividend by 4% and extended its share buyback programme.

The oil major also announced a $3.5 billion buyback for the current quarter, making this the 13th consecutive quarter of at least $3 billion of share repurchases.

Its shares gained over 2% even as the group reported that its

2024 adjusted earnings, its definition of net profit, fell to $23.72 billion from $28.25 billion in 2023, dented by narrower liquefied natural gas (LNG) trading margins, lower oil and gas prices, and weaker refining margins.

That fell short of a $24.64 billion consensus compiled by LSEG and $24.11 billion forecast by analysts polled by Vara Research.

Shell, the first major energy company to report results, said fourth-quarter earnings nearly halved from the previous year to $3.66 billion, also missing analysts' expectations.

"As expected, Shell reported 4Q results this morning which showed relatively soft earnings, but continued strong cash generation," RBC Capital Markets analyst Biraj Borkhataria said in a note, also highlighting the consistency with which the group has been returning cash to shareholders.

In his prepared remarks, CEO Wael Sawan said the share buybacks were "underpinned by the significant progress that we are making as an organisation."

Sawan has been focused on cutting costs and pivoting the company back to its most profitable sectors – oil, gas, and biofuels – while shifting away from renewable power.

"We achieved a (cost) reduction of $3.1 billion by the end of 2024, one year ahead of our end-2025 target date, and above the range of $2 to $3 billion that we set in 2023," he said.

Shell's fourth-quarter earnings included $2.2 billion in impairments, part of which was a $1 billion write-off for a U.S. offshore wind project.

CFO Sinead Gorman told reporters that the project did not align with company's capabilities or return goals, and Shell was looking to monetize it.

The world's leading oil and gas companies experienced a

decline in profits through 2024, following record earnings in the previous two years, as energy prices stabilised and oil demand weakened.

Shell also expects 2025 capital expenditure to fall below last year's $21 billion range, with more details to be shared at its capital markets day in March.

The group's refining operations reported an adjusted loss of $229 million in the chemicals and products unit, compared to a $29 million profit last year.

Refining margins weakened globally due to reduced economic activity and new refineries opening in Asia and Africa.

Executives said on a call with analysts that Shell had no plans to get out of refining altogether, but was not looking to expand there either.

The company is trying to sell its stake in a German refinery and intends to shut down a plant in Wesseling, Germany, following the sale of its Singapore refining and chemicals hub last year, one of the largest of its kind in the world.

In the fourth quarter, Shell ran its refineries at 76% capacity, and said it expected to increase that to 80-88% in the first quarter.

Shell also said it did not have a timeline for arbitration over LNG supply from Venture Global's Calcasieu Pass facility.

Venture Global, whose $58 billion market debut fell short of high expectations last week, began generating proceeds in 2022 with its Calcasieu Pass facility.

However, delays in commercial operations have caused contract disputes with customers, including BP, Shell and Italy's Edison, over missed cargoes.

(Reporting by Arunima Kumar in Bengaluru; editing by Savio

D’Souza, Jason Neely, Tomasz Janowski and Bernadette Baum)

Climate displacement is also a health crisis

By disrupting care services, climate displacement deprives affected communities of access to doctors, hospitals, and pharmacies.

Every year, 21.5mn people are forcibly displaced by floods, droughts, wildfires, and storms. This number is set to rise dramatically over the coming decades, with up to 1.2bn people expected to be driven from their homes by 2050. The unfolding climate crisis is not just a humanitarian disaster but also a global health emergency.

Climate displacement poses both direct and indirect threats to

public health. By disrupting care services, it deprives affected communities of access to doctors, hospitals, and pharmacies. Climate-induced migration also exacerbates poverty, overcrowding, and social instability. Food production is often severely affected, while unsanitary living conditions fuel the spread of infectious diseases.

As the climate crisis threatens to derail global efforts to achieve the UN Sustainable Development Goals, the health and well-being of hundreds of millions of people across the developing world are at risk. High-income countries are not immune: in the US, 3.2mn adults were displaced or evacuated due to natural disasters in 2022 alone.

Pharmaceutical companies must play a pivotal role in bolstering global health resilience. Their involvement is particularly critical in conflict zones at the forefront of the climate-displacement crisis, where life-saving medicines and vaccines are often in short supply.

While the pharmaceutical industry has made strides in reducing carbon dioxide emissions and adopting more sustainable practices, its efforts fall far short of mitigating climate-related disruptions to supply chains.

Some pharmaceutical companies, such as Novartis and Novo Nordisk, have launched targeted programmes to aid populations displaced by extreme weather events, while others have donated cash or supplies in response to natural disasters. The demand for these donations has risen with increasing climate and humanitarian needs. Hikma, a generic medicine manufacturer founded in Jordan, reported $4mn in donations in 2020, and $4.9mn in 2023, mostly serving the needs in the surrounding region.

No company has developed a comprehensive strategy to ensure that displaced communities have sustained access to health products. A more holistic approach is needed. Amid the ongoing climate-displacement crisis, pharmaceutical companies should adopt a four-pronged strategy to strengthen healthcare systems. For starters, they could help deliver medicines to vulnerable communities in remote areas by revamping their

supply-chains, from building redundancy into shipping networks to redesigning products to be more stable in hot climates where refrigeration may be unavailable.

Second, pharmaceutical companies must invest in research and development to create vaccines, diagnostics, and therapeutics targeting climate-sensitive diseases. Rising global temperatures are accelerating the spread of mosquito-borne illnesses such as dengue, malaria, and Zika, as well as waterborne diseases like cholera and shigella, putting displaced populations at even greater risk.

Third, pharmaceutical companies should forge long-term partnerships with humanitarian organisations focused on climate displacement. Public-private collaborations have also proven effective in strengthening health resilience. Since 2010, for example, leading vaccine manufacturers like GSK and Pfizer have supplied Gavi, the Vaccine Alliance, with billions of vaccine doses, protecting vulnerable populations in some of the world’s most resource-constrained countries.

Lastly, pharmaceutical companies must boost efforts to cut greenhouse-gas emissions across their value chains. While the climate impact of pharmaceuticals may get less attention than that of traditional manufacturing industries, the sector emits more CO2 per $1mn of revenue than the automotive industry.

The active support and engagement of shareholders, employees, and other stakeholders is crucial. Investors, in particular, must encourage companies to align their business practices with global health and climate goals.

Climate displacement is not a distant or hypothetical threat; it is a rapidly escalating health emergency. The pharmaceutical industry has a moral responsibility to act. To do so effectively, companies must get ahead of the curve and provide vital, life-saving treatments to those on the front lines of the climate crisis.

Ensuring Europe’s supply of critical minerals

The European Union’s plan to achieve net-zero emissions by 2050 has an Achilles’ heel: the EU relies on external sources – particularly Chinese companies – for 70-90% of the massive amount of critical raw materials needed to manufacture wind turbines, solar cells, batteries, and other green technologies. This dependency poses a serious risk: China’s recent ban on exports of gallium, germanium, antimony, and other dual-use materials to the US suggests that it could take similar action against Europe, especially in light of EU tariffs on Chinese electric vehicles.

The new European Commission has rightly put critical raw materials at the top of its agenda. Fortunately, it will not

be starting from scratch. Last year, the EU adopted the Critical Raw Materials Act, which calls for the bloc to extract 10%, process 40%, and recycle 25% of what it consumes annually by 2030, and limits the share of any external supplier to 65%. To meet the CRMA's targets, the Commission must focus on co-ordinating funding, engaging in resource diplomacy with Africa, and establishing secondary material partnerships.

Mining is a capital-intensive industry, and overseas upstream activities require public support in terms of both equity and debt. The CRMA anticipates mobilising finance from various sources, including the EU's Global Gateway initiative and the European Investment Bank. Some member states have also established their own national funds. Germany launched a €1bn ($1.04bn) raw-materials fund, while Italy introduced a €1bn "Made in Italy" fund for critical minerals, and France dedicated €500mn under its 2030 investment plan to enhance domestic industry's resilience to disruptions of the metal supply chain.

But while several public-finance streams are available, the funding landscape is scattered and not well aligned, creating confusion. Moreover, there are no explicit rules governing how the Critical Raw Materials Board, which was established to support the CRMA's implementation, designates projects as "strategic" and thus eligible to receive EU funds. The European Commission can address these issues by streamlining existing funding lines, which would ensure that national and EU finance work in tandem to achieve the best results and scale, and by establishing timelines for decision-making, which would provide clarity for corporate investment in upstream, midstream, and downstream assets.

The CRMA must also establish partnerships with resource-rich countries that deliver quick and tangible results. Bolstering ties with African countries, which hold some 30% of the world's mineral resources, will be especially important. But,

compared to other regions, investment in mineral exploration on the continent remains low, and China funds most of it. The EU's resource diplomacy should focus on lowering investment barriers while helping African partners move into higher-value-added activities, such as downstream processing, and invest in industrial upgrading.

AfricaMaVal, an EU-funded project promoting sustainable partnerships and responsible mining on the continent, should become a vehicle for linking European and African firms and addressing extraction needs. Building on comprehensive assessments of mining prospects across Africa, and taking into account the STEM (science, technology, engineering, and mathematics) skills of local workforces, AfricaMaVal can identify new business opportunities along the value chain. This could evolve into a joint investment platform for the sustainable production of critical raw materials. The European Commission would thus be doing what it does best: catalysing private investment toward its policy goals, which, in this case, is building the infrastructure and clean-energy systems required for future mining projects.
Lastly, the Commission should address the CRMA's major blind spot: the lack of domestic feedstock to meet its recycling targets. Global competition for secondary materials is already stiff, as evidenced by businesses' increasing efforts to secure enough steel scrap. Recycling input rates – the share of total demand – are just 3% for light rare-earth elements and zero for battery-grade lithium.

Establishing secondary-materials partnerships with emerging economies, which have rapidly growing markets for cell phones, laptops, and other appliances, would boost the EU's supply of recycled critical raw materials, particularly rare-earth elements. The focus should be on optimising the recycling value chain by providing financing and capacity-building assistance for waste-sorting and collection systems in partner countries, creating mutually beneficial economic and

environmental outcomes.

The EU is facing an uphill battle to source and produce the critical raw materials that will define its future. And while the CRMA hardly represents an easy fix for the bloc's import dependency, it can strengthen supply-chain resilience, contribute to EU sovereignty, and bolster Europe's economic security – in other words, boost the bloc's industrial competitiveness against a worsening geopolitical backdrop. But to realise the CRMA's full potential, the Commission must make it fit for purpose. – Project Syndicate

- *Rüya Perincek, a policy fellow at the Willy Brandt School of Public Policy at the University of Erfurt, is an adjunct senior fellow at the Global Centre for Mineral Security. Andreas Goldthau is Director of the Willy Brandt School of Public Policy at the University of Erfurt.*

Clean energy progress hinges on policy, science and action

It is tough to be optimistic about the climate these days. While the costs of extreme weather events like the Los Angeles wildfires pile up, the US federal policy pendulum is swinging away from facts, reason, and basic human decency. Nonetheless, even as the US government moves in the wrong direction, trends in science, economics, and increasingly local politics indicate that the pendulum will swing back in due course.

After all, no-one can argue with the physics of today's clean energy technologies. Heat pumps, induction stoves, and electric vehicles (EVs) – to name just three – are fundamentally better technologies than what came before. The best gas furnaces might reach 95% efficiency, meaning they are converting 95% of the energy they use into heat; but most heat pumps easily top 200%, with some reaching 400% or more. Similar comparisons can be made between induction and gas stoves, and between EVs and gasoline- or diesel-powered vehicles. By and large, we know what technologies we should be using to eliminate greenhouse-gas emissions; and in cases where we don't, we know what kinds of things to try.

This knowledge extends well beyond EVs and heat pumps to

entire industrial sectors like cement or iron and steel. Here, outgoing US President Joe Biden's administration has made an important contribution with the Department of Energy's Liftoff Reports, which chart pathways to commercialisation for a broad selection of low-carbon technologies.

Consider cement, which accounts for some 8% of annual global greenhouse-gas emissions. Ordinary Portland cement, patented 200 years ago, has dominated the sector for decades. While measures like clinker substitution and efficiency improvements can abate up to 40% of emissions, getting to zero will require additional steps. These generally fall into two categories: cutting emissions from producing Portland cement or switching away from it altogether. Promising US start-ups like Brimstone and Sublime Systems are racing to demonstrate that either path is commercially viable.

One key ingredient is public subsidies to help firms climb the learning curve and slide down the cost curve toward faster commercialisation. Both Brimstone and Sublime Systems received early research and development funding from the US Advanced Research Projects Agency-Energy (ARPA-E) and have now advanced to the deployment stage, receiving up to $190mn and $90mn, respectively, to build their first commercial plants. All told, the Bipartisan Infrastructure Law and the Inflation Reduction Act allocated around $100bn for such purposes, with public funding contingent on matching private investments.

Moreover, these sums are dwarfed by the Department of Energy's loan programme. With just $17bn in taxpayer funds, the IRA authorises the department's Loan Programs Office to lend $350bn for investments in clean energy and domestic EV manufacturing. And those public funds then catalyse multiples more in private investments. While some Republicans and members of Donald Trump's incoming administration want to cut this programme, doing so would only hurt US competitiveness.

Can we restore sanity to our national policies? It might be trite to say that change begins at home, but what is trite is often true. A good place to look is New York. While the city has many problems, its climate policies are not among them.

Around 70% of New York's direct emissions come from heating and cooling buildings, while the other 30% comes from cars and trucks. Fortunately, Local Law 97 is already addressing the former. The law is one of the most ambitious decarbonisation measures for buildings anywhere, requiring most to reduce their emissions by 40% this decade, and by 100% by 2050. And while New York can do only so much about vehicle emissions, its long-delayed congestion pricing programme is finally being implemented. That is a good start.

Given that New York used to be the world's most congested city, the quality-of-life improvement from less traffic can already be felt. The same goes for another measure that took an absurdly long time to address: the lack of trash bins. Over the past year, the city has finally issued official trash, recycling, and compost bins, with enforcement for residential buildings beginning this month. Cleaning up our own act – including with mandatory composting and other policies – will not save the planet. But effective government just might.

Physics alone will not push the pendulum all the way back to where it was before. That will require policies based on sound economics. As long as Trump does not break the fulcrum and bring the entire pendulum crashing down, policies pioneered by his predecessor and by local communities will continue to be a force applying pressure in the right direction. – Project Syndicate

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Germany's costly LNG terminals aren't paying off

as imports dip

Germany spent big on liquefied natural gas (LNG) terminals to ensure energy security, but the high cost of using them means they're bringing in a tiny fraction of its gas needs.

Only about 8% of Germany's total gas imports last year came via its shipping terminals in Wilhelmshaven, Brunsbüttel, Lubmin and Mukran, according to energy regulator Bundesnetzagentur.

"German terminals are more expensive to deliver to than the rest of northwest Europe," said Qasim Afghan, a commercial analyst at Spark Commodities Pte Ltd. On average, variable regasification costs in Germany for cargo delivery in February are 86% higher than other such facilities in the region, he said.

That's because it's more expensive to operate floating import terminals, especially in the winter. Also, fuel gas losses, associated with power consumption needed for the process of turning LNG back to gas, are higher in Germany than elsewhere, Afghan said.

As a result, Germany has the most regasification prompt slots available for purchase in Europe, "highlighting unused capacity that is likely not economically viable."

When the nation accelerated the construction of these floating facilities in 2022, to help wean off Russian gas, the ambition was to be able to keep energy costs in check. However, the expensive terminals are now adding to the already high gas prices and compounding the pain for Germany's energy-intensive economy. This has led some environmental groups to demand that the expansion of such infrastructure be halted.

Ship-tracking data compiled by Bloomberg show that Europe's biggest economy imported 4.8mn tons of the super-chilled

fossil fuel last year. That’s a marginal decline year-on-year and far less than what neighbouring nations are importing.

The Economy Ministry says it primarily views the terminals as a way to ensure a sufficient safety buffer.

“Of course, this can mean that there may be lower capacity utilization if demand is not so high, but this cannot be the benchmark for a federal government that has to guarantee security of supply,” a ministry spokesperson said.

The total cost estimate for the nation’s state-run LNG terminals — including those in the pipeline — is now likely to be around €5bn. That’s half of what it was initially pegged at, she added.

State operator Deutsche Energy Terminal said imports via its units in Wilhelmshaven and Brunsbüttel remained steady at 59 terawatt-hours. It also successfully marketed all three slots in December for the two units and aims for a new capacity auction at the end of the month, a spokesperson said.

Deutsche Regas, the operator of the Mukran terminal on the island of Rügen — also Germany’s only privately operated one — didn’t respond to a request for comment.

More facilities are set to open later this year, including Stade near Hamburg and Wilhelmshaven II.

Planning more units despite the low utilization is “absurd,” Sascha Müller-Kraenner, managing director of German Environment Action, said in a statement, calling for an end to the infrastructure expansion.

Supertanker Rates on China Routes Double Since Sanctions

The cost to hire an oil supertanker on key routes to China has doubled since the US imposed sanctions on Russia, showing the extent to which the move has upended the global shipping market.

The sanctions have jolted a freight market that was, until recently, dealing with softer demand due to supply curbs, a tepid Chinese economy, and an easing of Middle East tensions. The number of confirmed journeys hasn’t changed much, but the pool of available ships has shrunken rapidly, and there’s intense competition on certain routes.

Daily rates for very-large crude carriers on the Middle East-to-China route surged 112% to $57,589 in the week through Friday, according to Baltic Exchange data, after Washington sanctioned nearly 160 tankers hauling Russian crude on Jan.

10. Those on the US Gulf-to-China journey jumped 102%, while West Africa-to-China saw an increase of 90%.

Major Chinese refiners have been been rushing to buy crude from the Middle East, Africa and the Americas in recent days to make up for the loss of Russian oil. A VLCC from the US Gulf to China was hired for $9.5 million last week, compared to a low-$7 million range over the last couple of months, shipping fixtures show. Indian Oil Corp. is also snapping up up Middle Eastern barrels, adding to the pressure.

There’s concern that tanker rates could remain elevated if President-elect Donald Trump, set to be sworn in later on Monday, takes a tougher line against Tehran.

“Rates could hold at these levels if Trump dials up the pressure on Iranian oil shipments, which is more likely than not,” said Junjie Ting, a Singapore-based shipping analyst at Oil Brokerage Ltd.

The rising demand for VLCCs, which can carry around 2 million barrels of oil, is also feeding through to costs for smaller vessels, which tend to be viewed as less cost-efficient on longer routes. Rates for Suezmaxes, that hold about 1 million barrels, have climbed on increased demand and tight supply, shipbroker SSY said in a report.

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Climate change forged a new reality in 2024: 'This is life now'

Intolerable heat. Unsurvivable storms. Inescapable floods.

In 2024, billions of people across the world faced climatic conditions that broke record after record: logging ever more highs for heat, floods, storms, fire and drought.

As the year drew to a close, the conclusion was both blatant and bleak: 2024 was the hottest year since records began, according to European climate scientists.

But it may not hold this dubious honor for long.

“This is life now and it’s not going to get easier. It’s only going to get harder. That’s what climate change means,” said Andrew Pershing, chief programs officer at Climate Central, a US-based non-profit climate advocacy group.

“Because we continue to pollute the atmosphere, we’re going to get, year after year, warmer and warmer oceans, warmer and warmer lands, bigger and badder storms.”

Others use still bolder language.

“We are on the brink of an irreversible climate disaster,” said the 2024 State of the Climate report.

Here’s how that looked this year, what 2025 holds, and why there are still reasons to be hopeful.

SOS

This was the first year when the planet was more than 1.5 degrees Celsius hotter than it was in the 1850-1900 pre-industrial period, a time when humans did not burn fossil fuels on a mass scale, according to the European Union’s Copernicus Climate Change Service.

The sheer number of days of extreme heat endured by billions of people – from the desert town of Phoenix, Arizona to the desert town of Phalodi in India’s Rajasthan – was startling.

Sunday, July 21, was the hottest day ever.

Until Monday, July 22.

The day after dipped a smidgen cooler.

These consecutive records came during Earth's hottest season on record – June to August – according to Climate Central.

Those three months exposed billions of people to extreme heat, heavy rain, deadly floods, storms and wildfires.

Friederike Otto of World Weather Attribution, a global team that examines the role of climate change in extreme weather, said heatwaves were a "game changer."

The world has not caught up: many deaths go unrecorded while some African countries lack an official definition for a heatwave, meaning heat action plans don't kick in, she said.

"There is a huge amount of awareness that needs to be had to even adapt to today's heat extremes but, of course, we will see worse," Otto told the Thomson Reuters Foundation.

Between June 16-24, more than 60 percent of the world's population suffered from climate change-driven extreme heat.

This included 619 million in India, where more than 40,000 people suffered heatstroke and 100+ died over the summer.

Birds fell from the sky as temperatures neared 50 C (122 F).

Millions were affected: from China to Nigeria, Bangladesh to Brazil, Ethiopia to Egypt, Americans and Europeans, too.

Climate Central said one in four people had no break from exceptional heat from June to August, the highs made at least three times more likely by climate change.

During those months, 180 cities in the Northern Hemisphere had at least one dangerous extreme heatwave – a phenomenon made 21 times more likely by human action, Climate Central said.

TOO HOT TO WORK

“The number of days where you are starting to push the physiological limits of human survival (are rising),” said Pershing, citing Pakistan and the Arabian Gulf as two areas that neared breaking point this year.

Hundreds died during the Hajj pilgrimage to Makkah as Saudi Arabia topped 50 C (122 F).

In the US Midwest and Northeast, Americans broiled under a heat dome when high pressure trapped hot air overhead.

NASA’s Earth Observatory said extreme heat was often exacerbated by hot nights, a dearth of green space or air con, or a surfeit of concrete, which absorbs heat.

Heat and drought fueled wildfires this year, with blazes in the Mediterranean, United States and Latin America. Fires burned from the Siberian Arctic to Brazil’s Pantanal wetlands.

“(The Pantanal) is a wet area that is not supposed to burn for months on end so that is probably something I would look out for next year where we see wildfires in ecosystems that are not traditionally burning ecosystems,” said Otto.

THE MOST VULNERABLE

The “new normal” hits the vulnerable hardest.

“The people who are succumbing to heat-related deaths are not the millionaires and billionaires,” said Pershing.

“If you are a reasonably well-to-do person you can afford air conditioning, you have a vehicle that can get you where you need to go, you have ways to keep yourself cool. If you don’t have access to these things or you lose them because of a power outage or another storm, that creates these additional vulnerabilities.”

In Africa, nearly 93 percent of the workforce faces extreme heat.

On the Arabian Peninsula, it is more than 83 percent of workers.

European and Central Asian workers could be next in line.

For Otto, the answer to this fast-spreading risk lies in empathy, putting the poor and vulnerable – "the vast majority of the global population" – at the center of climate action.

"In Bangladesh, when you put the survival of the poorest in the center of the action, you actually have a society that is really well-equipped to deal with tropical cyclones," she said.

"People know what to do and there are drills and practices."

Silver linings, though, are rare.

"Empathy is in short supply," said Otto.

BOILING SEAS

Ocean temperatures also hit alarming levels in 2024, wreaking havoc on land and sea.

Hurricane Milton came barely two weeks after Hurricane Helene, with abnormally warm waters in the Gulf of Mexico turbo-charging the twin storms that lashed the US Southeast.

"In that some places in the Gulf of Mexico … temperatures were 400 times more likely because of climate change," Pershing said.

Climate Central found a similar link between October's floods in Spain and unusually warm waters in the Tropical Atlantic.

Human-driven climate change made these elevated sea surface temperatures up to 300 times more likely, Climate Central

said.

“WE NEED DRILLS”

Otto said this year’s extremes, notably Europe’s floods, illustrated a “failure of imagination” and a refusal to adapt.

“We don’t just need the weather forecast or warnings. We need drills. We have to practice survival wherever heavy floods can happen and they can happen everywhere,” she said.

Infrastructure also failed.

“The way that we have canalized rivers and sealed all the surfaces … will mean disastrous damages every time there is a flood … There is always this short-termism that it’s expensive to fix it now but of course it will save lots of money and livelihoods later,” she said.

For Pershing, adaptation is “an exercise in imagination because we haven’t seen these kinds of events before … That is the challenge of climate change: we’re going to be confronted year after year with conditions we’ve never experienced.”

SO WHAT NEXT?

Nobody expects a quick end to extreme weather but Otto is hopeful that humans may change their polluting ways.

“That is a reason for optimism …clinging to fossil fuels (is) increasing inequality and destroying livelihoods but it increasingly makes less sense …for national economies.”

In another upbeat note, Otto said better preparations in Europe meant fewer deaths in this year’s floods than previously.

But ocean temperatures are a key concern for 2025.

“The amount of heat stored in the ocean … really has my attention because we are not quite sure if there is something

different going on in the climate system," said Pershing.

Another risk – complacency.

"People do have a way of getting used to conditions and you can kinda get numb to it," Pershing said.

And complacency can breed paralysis.

"This was the hottest year, last year was the hottest year – probably next year will be the hottest year again," said Otto.

Brazil's Climate Push Must Start at Home

As the current G20 president and host of next year's United Nations Climate Change Conference, Brazil has sought to establish itself as a global climate leader. But to have the biggest impact, Luiz Inácio Lula da Silva's government must lead by example, which means committing to ambitious emissions targets and energy policies.

AMSTERDAM – Ever since Brazilian President Luiz Inácio Lula da Silva returned to office in 2023 and told the world that Brazil is "back on the world stage," the government has endeavored to establish itself as a global climate leader. As the current G20 president, Brazil is pushing for a sustainable bioeconomy and scaled-up climate finance – goals that it will surely continue to pursue as the host of next year's United Nations Climate Change Conference (COP30). Moreover, the country recently formed a troika with the hosts of COP28 (the United Arab Emirates) and COP29 (Azerbaijan) to preserve the Paris climate agreement's goal of limiting global warming to 1.5º Celsius.

The Brazilian government has not been afraid to challenge rich countries and individuals as part of its efforts to halt the rise in global temperatures. But to have the biggest impact, Brazil must lead by example. As the saying goes, charity begins at home. The timing could not be better: countries must submit more ambitious 2035 emissions-reduction targets, known as nationally determined contributions (NDCs), by February 2025.

The need to cut greenhouse-gas (GHG) emissions has never been more urgent for Brazil, which was recently hit by record flooding and has been fighting devastating forest fires for weeks. To be sure, investing in adaptation and resilience requires increased financial flows from the wealthy countries responsible for the bulk of historic pollution to vulnerable countries suffering the worst effects of global warming. But reducing fossil-fuel emissions and extraction, which has harmed traditional and indigenous communities' health, destroyed their land, and diminished their capacity to provide for their families, is also a matter of economic and social development. Brazil must devise an energy policy that works for these communities.

The share of electricity generated from wind and solar power is expanding rapidly, and these renewable-energy sources are

becoming cheaper by the day. Brazil has abundant sun and wind and the tools to operate these technologies successfully. But, equally important, local communities are already expanding clean-energy infrastructure and have created innovative and effective solutions to participate in the decarbonization decision-making process.

Various community-led and decentralized clean-energy projects, often developed in partnership with NGOs, are being launched across Brazil, from isolated villages in the Amazon to densely populated *favelas* (informal settlements) in Rio de Janeiro. At the same time, the country's indigenous peoples have developed robust consultation protocols for the design and implementation of public and private renewable-energy projects on their land.

Last year, COP28 closed with an agreement to "transition away from fossil fuels" – the first time such a call has been made at the climate summit – and to triple renewable energy and double energy efficiency by 2030. To honor that agreement, Lula's government must challenge the false notion that fossil fuels are necessary for development and can complement efforts to scale up and provide equitable access to community-centered renewable energy.

To show the world that Brazil can lead the global renewable-energy transition by example, its updated NDC must commit to bold action, such as stopping new fossil-fuel projects and shutting down existing ones, and deploying the resources required to meet the global goal of tripling renewable-energy generation. Moreover, to advance the goal of energy justice, the government should implement policies aimed at ensuring that solar and wind power reaches vulnerable communities.

If the Brazilian government creates a national platform that provides operational support to these clean-energy solutions, the country can show the world that it is possible to decarbonize while putting people first. In fact, this is not

only possible but essential.

A few years ago, the world came together to combat the COVID-19 pandemic. Governments quickly poured resources into vaccine development and production, successfully creating the tools to solve a novel problem in record time. In this case, the world has everything it needs to accelerate the energy transition and limit global warming; all that it is missing is the political will to commit to – and follow through on – ambitious targets and policies. Brazil can and should be one of the first countries to demonstrate it.