Zero Carbon Analytics

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Stage is set for accelerated global climate action despite Trump win

Key points:

- Clean energy deployment has been growing at twice the speed of fossil fuels, demand for which is expected to peak by 2030, according to the International Energy Agency (IEA). In the US, solar and onshore wind are already more cost competitive than fossil fuels.
- A global clean technology race is underway. China increased its investment in clean energy technology by 40% in 2023 compared to 2022. If the US falters, other countries are poised to erode its market share.
- Key US climate legislation, the Inflation Reduction Act (IRA), will be hard to undo. 85% of investments and 68% of jobs in announced projects under the IRA are in Republican congressional districts.
- The US has quit global climate deals twice before: in 2001 when the Kyoto Protocol failed to be ratified by the Senate during George W. Bush's first term and in 2017 when President Trump withdrew from the Paris Agreement. The world carried on. Clean energy growth has continued to accelerate.
- Americans face rising financial and health-related costs from extreme weather events such as floods and hurricanes. Trump will need to take action on climate in the face of these growing risks.

The re-election of Donald Trump directly before the start of COP29 in Baku, Azerbaijan has raised a number of questions about the future of multilateral climate action.

This briefing highlights evidence from the last decade giving strong indications that global progress and multilateral support for climate action will still be possible in Baku and beyond. Clean technology and energy will continue to grow globally, and the US will need to embrace climate-friendly products and production if it wants to continue competing on the global market. Climate action will also continue to be driven by other member states as well as on a city and state level in the US.

1. Deployment of green tech is rising fast

The acceleration in the deployment of clean energy[1] technologies and the increasing price parity of clean energy means shifting back towards polluting energy sources is unlikely to occur for purely economic reasons. Even if the Trump administration were to drill more oil following his campaign promise to "drill, baby, drill," it is unlikely that national and international demand will be there to absorb the production.

[1] Here we refer to the IEA's definition of clean energy, which includes renewable energy sources, nuclear power, fossil fuels fitted with CCUS, hydrogen and ammonia, battery storage and electricity grids.

Clean energy growth outpacing fossil fuels

Globally, growth in clean energy deployment has been double that of fossil fuels since 2019. Wind power capacity additions worldwide increased over 50% to 116 GW in 2023, and solar capacity is expected to increase significantly over the next decade, providing between 25% and 35% of global electricity generation by 2035, up from 5% currently. Electric vehicle (EV) sales are expected to make up 20% of new car sales globally in 2024, and the share of EV sales is expected to grow over 55% by 2035 under current government policies (the IEA's Stated Policies scenario – STEPS). Additionally, the share of heat pumps in the residential heating equipment market is set to almost double to over 25% worldwide.

In the US, renewable energy is increasingly replacing fossil fuel energy, despite generation falling behind the rest of the world. The US added 6 GW of wind capacity in 2023 – although the IEA expects deployment to ramp up significantly in coming years. Solar and wind generation in the US both increased from 2017 to 2023, by 200% and 68%, respectively, according to Zero Carbon Analytics analysis of BNEF data.[2] Clean energy investments are also growing. Even in Trump's first term from 2017 to 2021, renewable energy investments in the US increased by 57.11%, according to Zero Carbon Analytics analysis of BNEF data.[3]

Coal, fossil fuel demand is decreasing

In its 2024 World Energy Outlook, the IEA estimated that coal, gas and oil will all hit peak demand by 2030, indicating we are edging towards a not-so-far-off future decline. Depending on the scenario, global coal demand is projected to drop between 25% and 70% by 2035 compared to 2023, with US demand and production set to decrease as well. Under the IEA's STEPS scenario, global oil demand will peak before 2030 and then decline to 2023 levels by 2035, mainly driven by an increase in EVs. More ambitious policies could result in a drop in demand of 41% by 2035 compared to the STEPS scenario.

Projections for global gas demand have also declined since 2015 – the IEA decreased its gas demand forecast by 18% between its 2021 and 2023 forecasts and now expects gas demand to peak by around 2030. Asia's gas demand, which was supposed to make up 75% of demand for liquified natural gas in 2050, may actually be going the other way: Japanese and South Korean demand is falling, while speculative demand in emerging markets "may not materialise."

Renewables are becoming – or already are – cost competitive

While policies like the IRA have been supporting this shift away from fossil fuels in the US, the decreasing price of clean technologies has also shaped market dynamics. Globally, the levelized cost of electricity (LCOE)[4] for solar, onshore and offshore wind and hydropower decreased in 2023 and most renewable sources are now more cost competitive than fossil fuel sources. From 2010 to 2023, the cost of solar in the US fell 76%, while from 1984 to 2023 the cost of onshore wind in the US decreased by 89% – more than in any other country.

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[2] BNEF/Bloomberg (2024), Capacity and generation dataset, accessed 4/11/2024.

[3] BNEF/Bloomberg (2024), Global energy transition investment by geography/market, accessed 4/11/2024.

[4] The levelized cost of energy (LCOE) is the cost of generating electricity over the lifetime of a power plant. It is calculated by adding up the current value of the costs of building and operating the power plant, and then dividing that by the total amount of energy produced over the plant's lifetime. It is often used as a way of comparing the costs of different technologies.

Solar has been less expensive than fossil fuels since 2020 in the US, based on the weighted-average LCOE. Onshore wind is also more price competitive than fossil fuels in the US, and has been for over 10 years. In a study looking at 14 major US cities, researchers found that small and low-range EVs are less expensive to own than petrol or diesel cars.

2. China, EU to fill gap left by the United States

The US taking a backseat on climate action will create a leadership vacuum for other countries to fill. The EU has positioned itself as a climate leader, and experts have suggested that the bloc could engage more closely with India or China to take "entrepreneurial leadership," as was seen in 2017 when Canada, China and the EU held a separate ministerial summit without the US. Brazil, led by President Luiz Inácio Lula da Silva, is also seeking to position itself as a leader on climate change action.

A second US withdrawal from the Paris Agreement will likely isolate the US diplomatically and potentially reduce its power in other important international fora like the G7. The foreign policies of the first Trump administration led to the alienation of partners and "weakened the U.S. role in the world," according to a 2020 report for the US Senate's Committee on Foreign Relations.

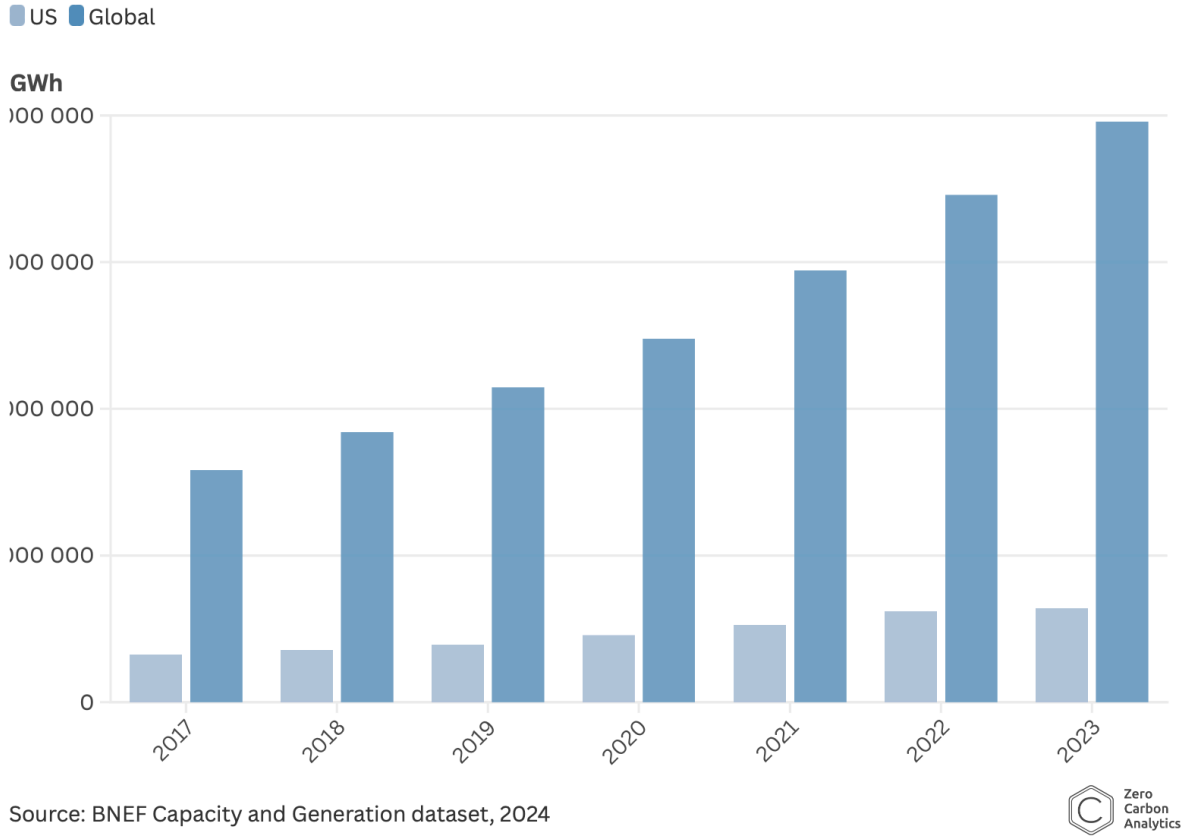
China gaining ground on green technology

Failing to take action on climate change will also harm US competitiveness and consumers, while also opening the door for other countries to gain an advantage. China has pledged to move towards peak carbon emissions by 2030 and carbon neutrality by 2060, and is already investing massively in green technology to do so. Clean energy investment in China grew 40% in 2023 compared to the previous year, totalling CNY 6.3 trillion (USD 885 billion). The government has rapidly scaled up the manufacturing and deployment of solar power, leading to the cost of solar panels declining by 50% since 2022.

Meanwhile, the US share of global solar and wind generation fell from 38% in 2017 to 31% in 2023, according to Zero Carbon Analytics analysis of BNEF data.[5] In 2023, China accounted for 58% of newly installed solar, far higher than the US which installed 8% of new capacity. China has also managed to reduce EV costs so that 60% of EVs are cheaper than their petrol or diesel counterparts, while EVs are more expensive in the US. However, the US is leading in the rollout of heat pumps, with sales outpacing those of fossil fuel-based heating technologies.

[5] BNEF/Bloomberg (2024), Capacity and generation dataset, accessed 4/11/2024.

Fig. 1: US vs global solar and wind generation 2017-2023



Source: BNEF Capacity and Generation dataset, 2024

US consumers face higher prices

Some renewables are more expensive in the US than in other geographies: while US solar LCOE decreased 3% in 2023 compared to the previous year, costs still remain 33% more expensive than the global average, although they remain low. As renewable energy sources are becoming cheaper worldwide, should the US use more expensive fossil fuel sources, American businesses would be at a disadvantage compared to countries using less expensive renewable energy sources. If President-elect Trump decides to carry out his threats of placing tariffs on products and green technologies from China, this would likely increase the costs of basic needs for households in the US.

3. US climate policies, action will persist

Analysis by Carbon Brief suggested that a second Trump term could add an additional 4 billion metric tonnes of carbon dioxide equivalent by 2030, or lower global emission reductions under the Paris Agreement by more than one third. However, evidence from 2017 suggests that a Trump term may not have such negative results. While US emissions are still off track to keep the world under 1.5°C of warming, Trump's original withdrawal from the Paris Agreement did not appear to decrease emission reductions. US emissions actually fell during his term in office, although this was largely due to the impacts of the covid pandemic on economic activity, and analysis by Climate Action Tracker suggests that Trump-era climate policy rollbacks will cause emissions to be only 3% higher in 2030 than with those policies in place. This backs up the hypothesis of researchers in 2017 who said

"Our central argument is that US non-cooperation does not present a major threat to US emissions, which might keep falling regardless of federal policy."

IRA: here to stay

While there will likely be rollbacks on environmental policy under a new Trump administration, as there was during his first term, some climate legislation will likely prove resilient. The IRA was a landmark climate law from the Biden administration which included tax credits for EVs and clean energy investments. Jason Bordoff, founding director of the Center on Global Energy Policy at Columbia University, said the whole IRA will be difficult to repeal due to the need for congressional support. Additionally, many Republican states are benefiting from the IRA: an analysis by E2 found that 85% of investments and 68% of jobs in announced projects under the IRA are in Republican congressional districts. Because of this, a number of Republican congresspeople have spoken up in a letter about the need to keep the IRA's energy tax credits.

State-level action to continue

Many cities and states in the US that are governed by more climate-friendly leaders have been taking steps to move forward on climate action. While their status under international law is still being developed, these subnational actors have an important role to play in advancing action on climate change. States can unilaterally set carbon prices or gas taxes, among other important climate measures. Cities and other non-state actors created a movement called "We are still in" following Trump's 2017 announcement – declaring their support for the Paris Agreement. Although 24% of Democratic mayors in the largest 100 US cities are up for reelection in 2024, major cities such as Boston, Miami and Chicago remain Democratic strongholds and will likely continue supporting climate action. The United States Climate Alliance was also formed in 2017 by states wanting to support ambitious climate action. An article published in *Nature* found that non-federal action in the US, if scaled up, could deliver emissions reductions of up to 37% by 2030 compared to 2005.

4. Past US backtracking didn't halt climate action

The results of the US election have raised questions about the future of multilateral action on climate change, with President-elect Trump making it clear that he plans to withdraw from the Paris Agreement and potentially the whole UNFCCC.

In 2017, then-president Trump announced that he would pull out of the Paris Agreement, which was complicated by the fact that the Paris Agreement prevented parties from withdrawing until November 2019 and then required a one-year waiting period. The US re-entered the agreement immediately after President Joe Biden took office - just a few days after its official withdrawal. Immediately after Trump's withdrawal announcement, the EU, China, African Union and several other countries vowed to move ahead with cooperation on climate change and keep ambitions high. Academics at the time noted that "The international resolution to actively respond to climate change is not going to change." Similarly, while the US signed the Kyoto Protocol during the Clinton administration, former President George W Bush opposed the Protocol and it never became binding. "Almost all world leaders" expressed disappointment at Bush's decision and vowed to keep the Protocol alive; even former Bush advisors said they regretted the decision.

Different dynamics for possible withdrawal

However, the dynamics around a possible withdrawal will be different this time. The US would be able to leave the Paris Agreement immediately after the one year waiting period,

and Trump could in theory submit an executive order to leave the agreement on his first day in office. Drafts of the executive order have reportedly already been prepared by lawyers, including draft orders to leave the whole UNFCCC – although there isn't a clear consensus on legal questions around the need for Senate approval for this, it would likely be difficult for the US to rejoin. The international impact may also be different this time. Although the US provides less than its fair share of climate finance, it supplied the highest amount of any country in 2022. COP29 has been called a "finance COP" as tricky questions around the future of climate finance are set to be discussed. Leaving the Paris Agreement would likely coincide with a drop in US funding for climate, and may make other countries hesitant to commit to a New Collective Quantified Goal on climate finance.

World leaders continue to prioritise climate action

The geopolitical situation has also since evolved, with conflicts in Ukraine and the Middle East increasing the pressure on an already-struggling multilateral system. Yet, world leaders have continued to speak up about the importance of tackling climate change even in the face of other challenges. In her political guidelines for 2024–2029, European Commission President Ursula von der Leyen said, "My view is that our era's greatest challenges – from security to climate change to competitiveness – can only be solved through joint action. Our threats are too great to tackle individually." Likewise, when opening the 79th UN General Assembly, Brazilian President Luiz Inácio Lula da Silva spoke at length on climate change, saying "Brazil is going to host COP30 in 2025, and is convinced that multilateralism is the only way to overcome the climate emergency." Furthermore, the 56 members of the Commonwealth, the G7 and the G20 have all committed to stepping up climate action.

5. US faces rising costs from extreme weather

No matter the political rhetoric around climate change, climate impacts are already here – and will only get worse. Since 1980, the US has been hit with 400 weather and climate disasters where damages reached or exceeded USD 1 billion. Extreme weather events cost the US close to USD 150 billion a year.[6] In the 1980s, there were an average of 3.3 "billion-dollar disasters" a year: in 2023 alone, there were 28. The devastation of these events has increased costs for residents in many areas: homeowners have been feeling the pinch as insurance premiums rose 11.3% in 2023 alone and consumers are facing higher prices for groceries. Companies in highly vulnerable sectors like energy industrials and utilities, are on average likely to lose the equivalent of 4.5% of their operating cash flow due to climate risks. Beyond economic costs, these 400 events led to the death of 16,768 people, and Americans' health is being negatively impacted by heat and vector- and food-borne diseases.

The economic losses from hurricane Milton, which recently devastated Florida and caused 17 deaths, are likely to be in the hundreds of billions of dollars. Scientists have attributed 45% of these economic damages to climate change. In the same month, severe flooding killed two people in New Mexico and in August a once-in-1,000 year storm in the Northeast dropped 10 inches of rain in a 12-hour period. These are just a few of many examples of the devastation of climate impacts.

Over the next few years, these impacts will only become clearer and more devastating. Heatwaves, wildfire activity and flooding are virtually certain to increase, and tropical cyclones will become more intense. If Trump decides to stop climate action, Americans will pay the price – both with their wallets and their lives. This may lead to increased

[6] This is a conservative estimate that does not account for loss of life, healthcare-related costs, or damages to ecosystem services.

domestic pressure on Trump to take action on climate. Polling shows that climate change became a more important voting issue for almost a third of people in areas affected by Hurricane Helene or Milton, and 93% of investors believe that climate change will impact their investments in the medium term.