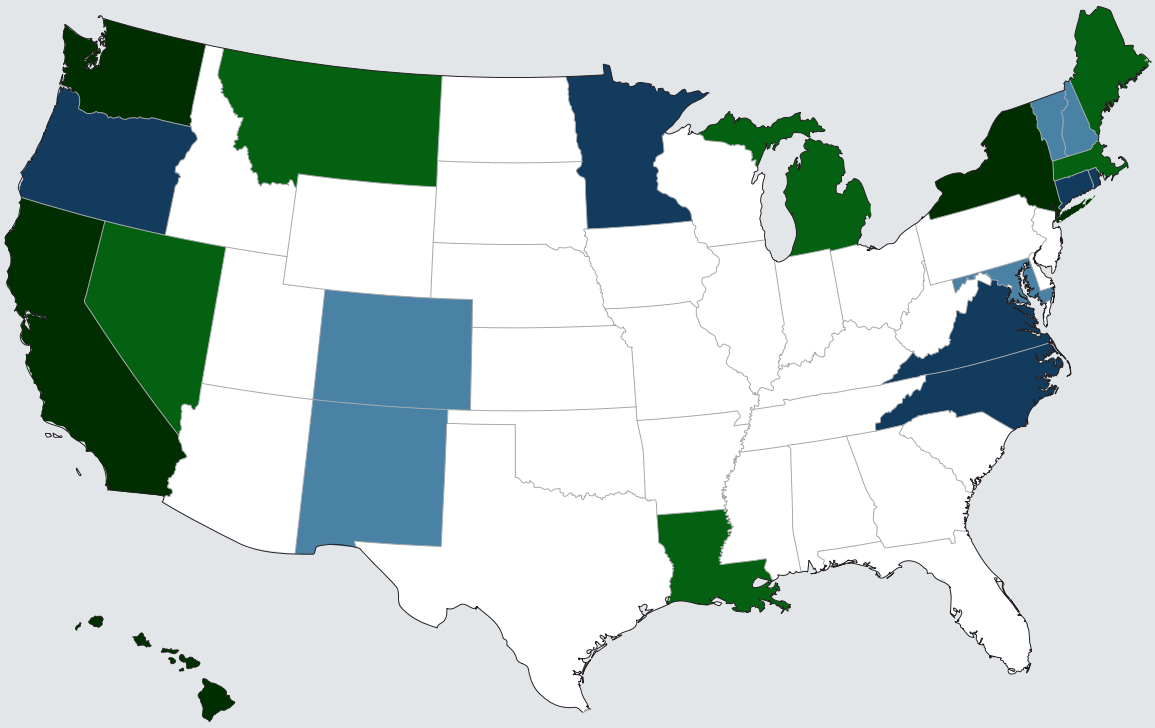
Energy&Climate
INTELLIGENCE UNIT

THE SUM OF ITS PARTS

US STATES ARE UNITING FOR CLIMATE ACTION, REGARDLESS OF WHAT HAPPENS NOVEMBER 3



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OCTOBER 2020

About

The Energy and Climate Intelligence Unit is a non-profit organisation supporting informed debate on energy and climate change issues in the UK. Britain faces important choices on energy and on responding to climate change, and we believe it is vital that debates on these issues are underpinned by evidence and set in their proper context.

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INTRODUCTION

In 2015 at the 21st UN climate summit (COP21) the Obama Administration signed the Paris Agreement and committed to cut US greenhouse gas emissions by at least 26% by 2025 compared with 2005 emission levels.

Just a year later, newly elected President Trump declared from the White House Rose Garden that the US would pull out of the Paris Agreement.[1] Regardless of the outcome of the US presidential election on 3 November, the world's second largest emitter of greenhouse gases will no longer be party to the Paris Agreement the very next day.[2]

If Trump is re-instated, the US federal administration will, at the international level, make its three-year isolation from the multilateral climate process official. At home, it will push to further dismantle Obama-era energy regulations and the environmental safeguards of prior US administrations.

On the other hand, if the Democratic nominee Joe Biden is elected, it is widely expected that one of his first presidential acts will be to re-join the Paris Agreement on behalf of the US, and move towards implementing his 'Plan for Clean Energy and Environmental Justice' to decarbonise the country over the next 30 years.[3]

One thing is for sure though. Irrespective of whether Trump is re-elected, the US' shift away from fossil fuels and towards low-carbon alternatives is progressing regardless. A second Trump administration would find itself at odds with the massive groundswell of state and non-state actor commitments, an energy market defined by renewables outpacing and outpricing fossil fuel alternatives, and the mounting effects of climate change itself.

1 https://www.whitehouse.gov/briefings-statements/statement-president-trump-paris-climate-accord/

2 https://www.theguardian.com/us-news/2019/nov/04/donald-trump-climate-crisis-exit-paris-agreement

3 https://joebiden.com/climate-plan/

'We are still in' and 'net zero by 2050'

In the immediate wake of Trump's decision to pull out of the Paris Agreement, a movement was born. In response to the federal decision to withdraw, US states, regions, cities, businesses, investors and community groups rallied together in a show of solidarity to advance the objectives of the Paris Agreement. Just four years later, the 'We Are Still In' movement has grown to represent almost 5,000 leaders across all 50 states.[4] Almost $10 trillion in GDP is now covered by the coalition. Remarkably, as many as 943 faith groups have signed up to the pledge, augmenting the 411 colleges and universities, 291 cities and thousands of other entities.

Meanwhile, another movement that few predicted has gained traction. Informed by the release of the IPCC's seminal 2018 Special Report on 1.5°C, many We Are Still In members are taking on 'net zero by 2050' (or sooner) commitments. These targets represent the first step in preparing state and city economies to end their contribution to climate change and align with the climate trajectory recommended by the Paris Agreement and climate science.

Who is 'Still In'? Some examples...

In recent years, Minneapolis's iconic celebration of winter, the 'City of Lakes Loppet', has suffered moving locations and cancellations due to warm weather and lack of snow. In response to it changing climate, **Minneapolis** has set goals of reducing emissions from citywide activities by 15% by 2015, 30%by 2025, and 80% or more by 2050.

In **Virginia** rising sea levels pose a clear and growing threat to the state's coastal communities – with 400,000 homes now facing the prospect of up to $92 million in property damage from increasing storm surges. Virginia's solar market is booming, growing from 18 megawatts of solar installed in 2014 to more than 2,600 megawatts of solar currently in service or under development. In the last year alone, the number of solar jobs in Virginia increased by 65%.

By 2030 **Microsoft** will be carbon negative, and by 2050 will remove from the environment all of the carbon it has emitted either directly or by electrical consumption since it was founded in 1975.

Loyola Chicago, a 16,000-student Jesuit Catholic university in the heart of Chicago and a signatory of the Climate Leadership Network at Second Nature, committed to addressing climate change in its educational curriculum, operations, and community engagement strategies.

4 https://www.wearestillin.com/

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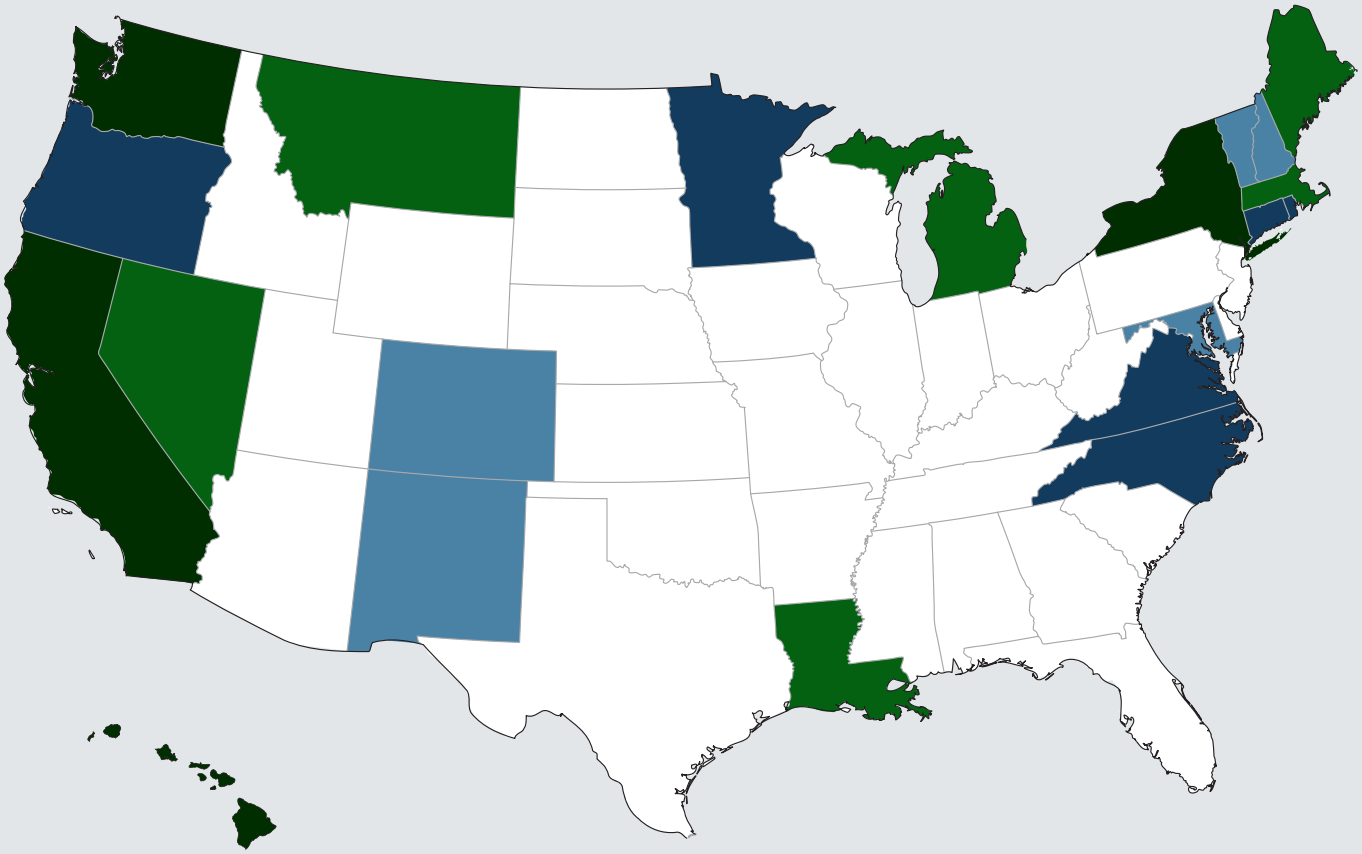
UNITING STATES

US STATES COMMITTED TO CLIMATE ACTION

WE ARE STILL IN *AND* NET ZERO BY 2050	WE ARE STILL IN	NET ZERO BY 2050	GHG REDUCTION TARGETS
California	Connecticut	Louisiana	Colorado
Hawaii	Minnesota	Maine	Maryland
New York State	North Carolina	Montana	New Hampshire
Washington State	Oregon	Michigan	New Mexico
	Rhode Island	Massachusetts	Vermont
	Virginia	Nevada	



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Additionally, Climate Action 100+ is an investor initiative – covering more than 500 investors with over $47 trillion in assets – working together to ensure the world's largest corporate greenhouse gas emitters take necessary action on climate change.[5] The Climate Mayors are a bipartisan network of city mayors across the US demonstrating leadership on climate change.[6] And the U.S. Climate Alliance includes 25 states committed to taking real, on the ground action that urgently addresses the climate challenge.[7]

A 2019 Bloomberg Philanthropies report says that 'American coalitions of states, cities, businesses, and others committed to climate action in support of the Paris Agreement are massive and globally significant'.[8] **They now represent 68% of US GDP, 65% of the US population, and 51% of US emissions.**

Public awareness and support for climate action is also on the rise.

The Yale Climate Opinion Map 2020, which breaks down US opinion on climate change by congressional district and county, shows that 72% of American people now 'think that global warming is happening', up from 67% in 2019.[9] Interestingly, there has been a 4% jump in those who 'think global warming will harm people in the US': up from 57% to 61%.

When it comes to policy, the Yale Map shows 75% of Americans think that CO2 should be regulated as a pollutant and 86% agree that funding should be made available for research into renewables. And 60% of Americans think the President and Congress should be doing more to address global warming.

Global Net Zero Tracker

The US action is part of a trend emerging around the world:

- Over half of the world's gross domestic product (GDP) is being generated in regions where authorities have set or intend to set a target of bringing carbon emissions to net zero by 2050
- **823 cities and 101 regions**, which represent more than **828 million people** across every continent and close to 11% of the global population
- Combined, these actors have an emissions footprint of more than 6.5 gigatonnes of GHG emissions, more than emissions from the US in 2018
- **1,541 companies** with a combined revenue of over **$11.4 trillion**, equivalent to more than half of the US GDP, and covering **3.5 gigatonnes in GHG emissions**.

5 http://www.climateaction100.org/
6 http://climatemayors.org/
7 http://www.usclimatealliance.org/about-us
8 https://assets.bbhub.io/dotorg/sites/28/2019/12/Accelerating-Americas-Pledge.pdf
9 https://climatecommunication.yale.edu/visualizations-data/ycom-us/

Energy market forces – green trends

By staying on the side-lines, the US risks losing economic and competitiveness benefits for first movers in the global clean energy and net zero economy race. It could cede its global leadership, with the EU, China, and others stepping up to the low-carbon challenge.

In fact, the EU and China are aligning on climate change, with the former poised to announce a net zero target this year and President Xi Jinping pledging in September that the country would 'have CO2 emissions peak before 2030 and achieve carbon neutrality before 2060' – a pledge that in part stemmed from EU diplomacy. China's pledge, if fulfilled, would have a significant direct impact on global emissions,[10] as well as representing an important diplomatic development and a decade-defining signal to markets and investors, including in the US.

Already, 2020 has been a tipping point for renewables and the clean energy revolution; and the trends in the US are already showing a low-carbon transition. The question for the coming four years is what pace this change will take, and whether the US risks being shut out – or at least late – to the low-carbon economy of the future.

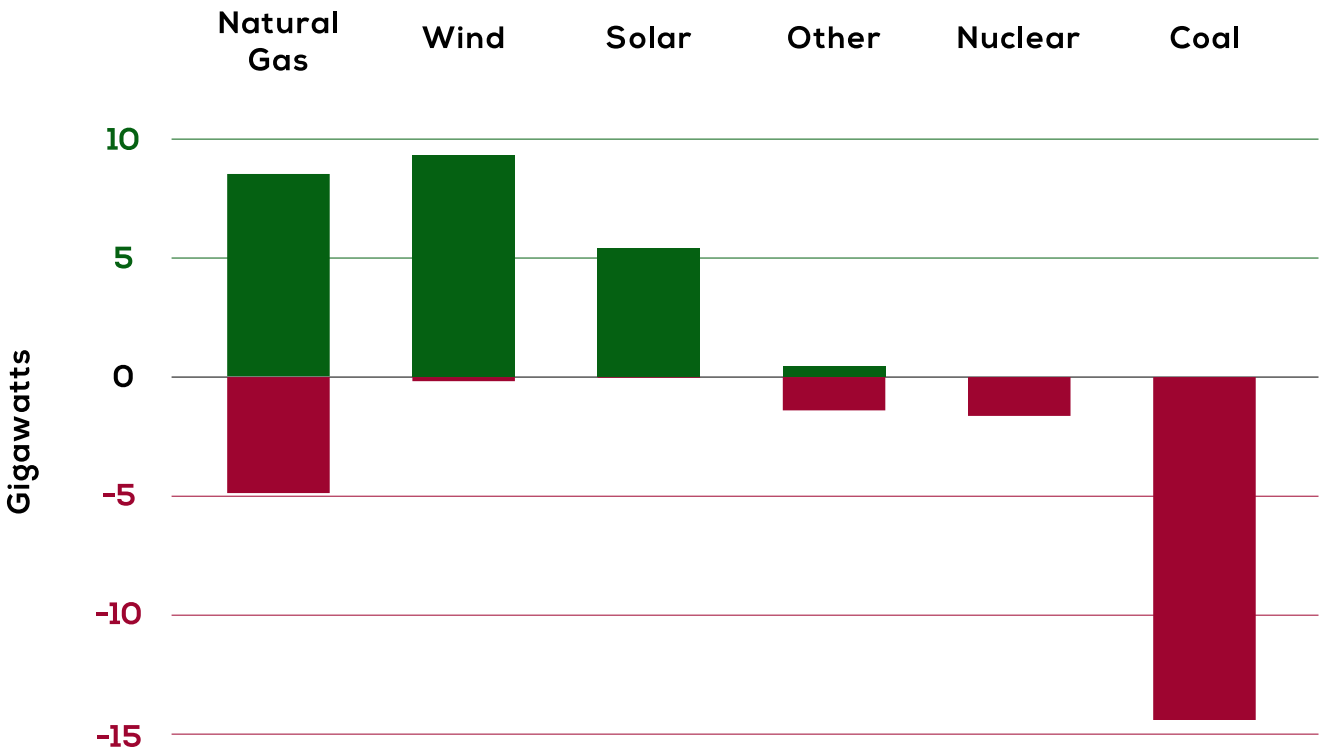
10 https://www.carbonbrief.org/analysis-going-carbon-neutral-by-2060-will-make-china-richer

Demise of coal

Despite promises made four years ago by Donald Trump, coal mining jobs in the US hit a new low at the end of 2019, and may go lower in 2020.[11]

Coal power plant retirements in the US continue at an increasingly rapid pace, with 2019 marking the second-highest level of annual coal capacity retirements. Already announced closures in 2020 are set to continue this trend.

US UTILITY-SCALE ELECTRIC GENERATING CAPACITY ADDITIONS AND RETIREMENTS (2019)



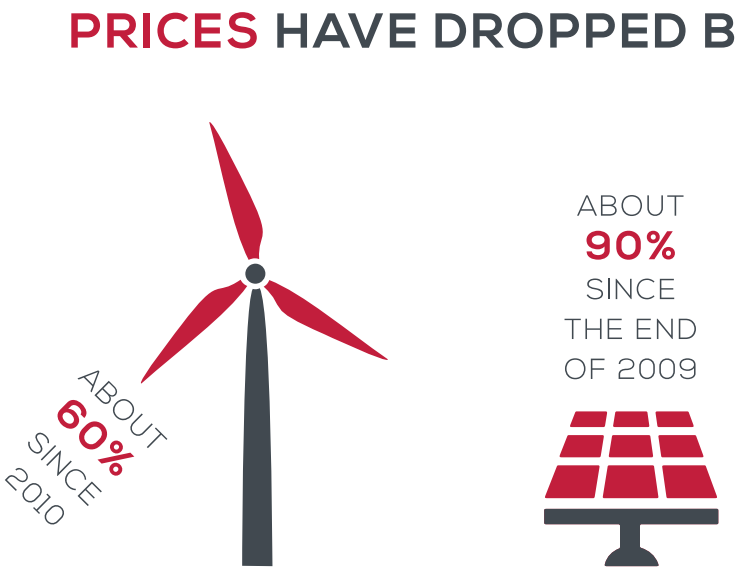
Source: US Energy Information Administration, https://www.eia.gov/electricity/data/eia860M/ (accessed 27.10.2020)

11 https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/us-coal-mining-employment-hits-new-low-at-the-end-of-2019-may-go-lower-in-2020-57173047

Rise of renewables

While the demise of coal has been partly fuelled by the rise of shale gas and falling demand for electricity, there are also unequivocal signs that renewable energy's time has come. In April 2019, for the first time ever, renewable energy outpaced coal by providing 23% of US power generation, compared with coal's 20% share.[12] This was largely due to declining costs and rising capacity factors of renewable energy sources, along with increased competitiveness of battery storage.

Globally, solar PV module prices have fallen by around 90% since the end of 2009, while wind turbine prices have fallen by 55-60% since 2010.[13] In the US solar project developers installed nearly three times as much capacity in the second quarter of 2020 compared with the same period a year previously.[14] Meanwhile, the US wind industry posted one of its strongest second quarters on record in 2020, adding 2,369 MW of capacity, and the 2020 development pipeline stands strong at 30,554 MW.



Up and coming technologies are emerging onto the market, with hydrogen and lithium-ion batteries touted as at the same stage of development as wind and solar a decade ago.[15] Like solar photovoltaic (PV) panels a decade earlier, battery electricity storage systems offer enormous deployment potential.[16] By 2030, total installed costs could fall between 50% and 60% (and battery cell costs by even more), driven by optimisation of manufacturing facilities.

12 https://www2.deloitte.com/us/en/pages/energy-and-resources/articles/renewable-energy-outlook.html
13 https://www.irena.org/costs/
14 https://www.spglobal.com/marketintelligence/en/news-insights/blog/q2-us-solar-and-wind-power-by-the-numbers
15 https://www.iea.org/articles/batteries-and-hydrogen-technology-keys-for-a-clean-energy-future
16 https://www.irena.org/publications/2017/Oct/Electricity-storage-and-renewables-costs-and-markets

Goldman Sachs estimates that investment in decarbonising the energy industry – renewables, carbon capture, hydrogen and the upgrading of power infrastructure – will reach $16tn over the next 10 years.[17]

A study from Berkeley shows the US can reach 90% clean electricity by 2035, dependably and without increasing consumer bills.[18] A recent report from Rewiring America goes further and calculates that an aggressive push towards 100% renewable energy would give American households on average a saving of between $1,050 and $2,585 per year on household energy bills.[19]

A future for oil and gas?

This year renewable company NextEra overtook ExxonMobil as the largest US energy company.[20] An investment in NextEra, a company that describes itself as the world's biggest producer of wind and solar power, a decade ago would have delivered a return of +600%, while an investment in ExxonMobil would have returned -25%.

While no oil and gas company can yet claim to be aligned with 'well below 2°C',[21] some European oil and gas producers are showing leadership and getting closer, with BP and Shell among others recognising the energy transition and diversification as a business strategy.[22] Meanwhile Exxon says it will continue to focus on its "core competencies" in petroleum.

There are clear signs that clean power has weathered the coronavirus crisis better than its peers in oil and gas.[23] In the US, a study of 19 clean power companies and 163 fossil fuel groups showed that 'clean power' stocks grew by 2.2% in the first four months of the year, while fossil fuel stocks fell 40.5%. The fossil fuel sector faced a double hit of oil price crash and drop in demand; in April the cost of crude dropped below zero.[24]

There are early signs of major gas plant investment being viewed as stranded,[25] soon-to-become-uneconomic assets, in comparison with renewable technologies, with some state regulators questioning the viability of gas versus the low-carbon alternatives. A combination of state low carbon regulation and the rapidly improving economic viability of renewables are together turning the trends.

17 https://www.ft.com/content/9360a26d-0337-4a65-b68d-29c46e04f7f6

18 https://gspp.berkeley.edu/news/news-center/the-us-can-reach-90-percent-clean-electricity-by-2035-dependably-and-without-increasing-consumer-bills

19 https://www.rewiringamerica.org/household-savings-report

20 https://www.forbes.com/sites/rrapier/2020/10/03/how-nextera-overtook-exxonmobil-as-the-largest-us-energy-company/#3389e2267349

21 https://www.transitionpathwayinitiative.org/publications/61.pdf

22 https://eciu.net/netzerotracker/map

23 https://www.ft.com/content/08675019-1386-49ac-a718-031d6ab85051

24 https://www.ft.com/content/9360a26d-0337-4a65-b68d-29c46e04f7f6

25 https://www.wri.org/blog/2019/07/natural-gas-beat-coal-us-will-renewables-and-storage-soon-beat-natural-gas

So while the US love affair with gas is far from over, the question remains: as fracking has changed the US energy scene on a pin over the past decade, are renewables set to do the same in the coming decade?

But there is still some cause for caution. Electric vehicle (EV) uptake has been much slower in the US than other markets.[26] Sales of EVs grew by 15% globally in 2019 compared with 2018, driven by the growth in Europe (+93%), China (+17%) and 'other' regions (+22%). In contrast, the United States market for EVs fell 2%. Progressive policies in certain states – new passenger cars and trucks sold in California must be emission-free by 2035[27] – have made some progress, but wider change across the US will require more pro-active policy and investment.

Climate impacts – the costs and the lives

In conclusion, it is worth noting that motivating all this change, beyond the market trends, are the very real and attributable impacts that global warming is having on the US.[28] These impacts have a cost to the US economy and the lives of American people. Wildfires, drought in the agriculture breadbasket states, coastal flooding and an ever intense hurricane season impacts the lives and livelihoods of the American people directly.

Even before the wildfires of 2020, extreme weather cost the US dearly.[29] Since 1980, the number of extreme weather events per year has increased fourfold, and the annual direct cost of the disasters has increased fivefold. During this period, the United States has had a total of 258 such weather and climate "billion-dollar" disasters, at a total direct cost of more than $1.75 trillion.

These impacts are why many people, cities, states, companies and faith groups across the US are still very much in the race to a climate safe world.

26 https://www2.deloitte.com/uk/en/insights/focus/future-of-mobility/electric-vehicle-trends-2030.html
27 https://edition.cnn.com/2020/10/03/cars/california-2035-zev-mandate/index.html
28 https://www.carbonbrief.org/mapped-how-climate-change-affects-extreme-weather-around-the-world
29 https://www.edf.org/sites/default/files/content/report-ClimateChange-FueledWeatherDisasters.pdf

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