A dozen things that helped and hurt climate progress in 2021

December 29 2021, by Renee Cho

90 kilometers of the Keystone XL Pipeline had been built before Biden blocked the permit. Credit: Govt. of Alberta

2021 may turn out to be the most critical year in our efforts to combat climate change. After four years of inaction and backpedaling by the Trump administration, the U.S. under President Biden is attempting to make up for lost time. A lot has happened here and around the world—some of it good, some of it not so good. As the year draws to a

close, let's take a look at where we stand.

What helped climate progress

1. COP26

Just hours after his inauguration, President Biden rejoined the 2015 Paris climate agreement from which former President Trump had withdrawn. In November, Biden attended the Glasgow climate talks, also known as COP26, to further the efforts of the Paris agreement. The meeting resulted in the Glasgow Climate Pact, an agreement endorsed by almost 200 countries. While the nations' commitments were not ambitious enough to meet the aspirational goal of the Paris accord—to keep global warming to 1.5°C—136 countries pledged to reach net zero in the next few decades. One hundred and fifty-three countries enhanced their nationally determined contributions—their nonbinding climate action plans—and they are expected to return next year, instead of waiting another five years, with even more ambitious action plans.

Over 100 world leaders pledged to end deforestation by 2030, including Canada, Russia, China, Indonesia, Brazil, and the U.S. Over 100 countries also signed the Global Methane Pledge, committing to cut methane emissions 30 percent from 2020 levels by 2030. For the first time, climate negotiators called for the phasing out of fossil fuels, and set forth rules to establish international carbon markets. And in a surprise announcement, the U.S. and China agreed to work together to try to limit global warming to 1.5°C by cooperating on regulations and environmental standards, policies to promote decarbonization, green design, and the implementation of new technologies.

Jason Bordoff, co-founding dean of the Columbia Climate School and founding director of the Center on Global Energy Policy, said, "This was a notable year for climate progress because the U.S. is back in a

leadership role, with President Biden reversing many of the actions taken by his predecessor, including rejoining the Paris Agreement. And there has been a notable shift in the way both policy makers and the public talk about climate change and the need to address it. I am heartened to see that the way we discuss climate action now matches the urgency of the challenge we face. Before the Paris Agreement, the world was on track for warming levels of 3.5 to 4 degrees Celsius. After Glasgow, we are on track for somewhere around 2.5 to 3 degrees. That's far short of where we need to be, but it shows progress is possible."

2. Biden's infrastructure and Build Back Better bills

President Biden's $1 trillion infrastructure bill, which he signed into law in November, provides billions of dollars to combat climate change. To enable more use of renewable energy, $73 billion will go towards upgrading the electrical grid. Forty-seven billion dollars will be directed to climate resiliency to help coastal communities deal with more hurricanes and flooding, and help other areas combat increasing wildfires.

To speed the decarbonization of transportation, 500,000 new charging stations will be built for electric vehicles.

Biden's Build Back Better bill, if it gets passed, would be the largest effort in American history to deal with climate change. It would offer rebates and tax credits to motivate consumers to transition to clean energy and electrification, and provide incentives to expand solar and wind power. It would also invest in natural climate solutions such as forest management and soil conservation, establish a Civilian Climate Corps to conserve public lands, and provide grants to environmental justice communities. Now stymied by Senator Joe Manchin, the Build Back Better bill will need to be renegotiated to have a chance of passage.

3. Keystone XL pipeline stopped

President Biden withdrew the permit his predecessor had given the controversial Keystone XL pipeline. Commissioned in 2010, the pipeline was designed to transport 900,000 barrels of dirty tar sands oil each day from Alberta to refineries in Illinois and along the Texas Gulf coast. Tar sands mining and production result in three to four times as much greenhouse gas pollution as conventional oil production. After 10 years of Indigenous-led protests, TC Energy finally canceled its plans for the huge crude oil pipeline.

4. NASA satellites

NASA announced plans for a new fleet of Earth-observing satellites. The Earth System Observatory will monitor clouds and aerosols, and give scientists new insights into the planet's temperatures and chemistry. The data the satellites gather should improve severe weather forecasts, assess water levels and droughts to enable better planning of water use and disaster response, and allow researchers to study how climate change affects food, agriculture, water, and energy use. The findings will be free to researchers around the world. After former President Trump's attempts to cancel NASA's earth science missions, with this new fleet of satellites, NASA is once again integral to shaping the country's climate policy.

5. Youth activism

According to a recent *Lancet* study, almost 60 percent of young people under 25 said that they were extremely concerned about climate change. This year, thousands of young people in over 1,500 locations around the world took to the streets before COP26 to compel leaders to forcefully tackle climate change. And in Glasgow, tens of thousands, many of them

young people inspired by Swedish climate activist Greta Thunberg, marched for systemic change.

In the end, Thunberg deemed COP26 a failure because leaders had not taken drastic enough action to end fossil fuel use, but her fight continues. She tweeted to her five million Twitter followers, "The real work continues outside these halls. And we will never give up, ever."

6. Launch of the Columbia Climate School

The Columbia Climate School welcomed its inaugural class in 2021. The first new school to be established at the university in 25 years, the Climate School's goal is to marshal Columbia University's academic resources to meet the challenges of climate change. The 12-month interdisciplinary Master of Arts in Climate and Society program it offers trains professionals and academics to understand and deal with the impacts of climate change on society and the planet.

A school like no other, the Columbia Climate School aims to ensure that the latest research in climate and sustainable development has a real-world and real-time impact on all lives, especially those that are affected most by the climate crisis.

What hurt climate progress

1. COP26 fell short

At COP26, countries were supposed to have reviewed their nationally determined contributions (NDCs) and ratcheted them up to be more ambitious as per the Paris agreement. While many countries did comply, some major countries resubmitted the same targets they had in 2015 (Australia, Indonesia, Russia, Singapore, Switzerland, Thailand,

Vietnam); some submitted even weaker targets (Brazil, Mexico); and Turkey and Kazakhstan didn't submit new NDCs at all.

Climate financing fell short as well. Because the developing countries of the world have contributed least to global warming yet stand to suffer the most from climate change impacts, in 2009, wealthy countries pledged to provide $100 billion a year by 2020 to help them transition to clean energy and build resilience to climate change impacts. According to the OECD, in 2019, almost $80 billion was raised, but the $100 billion goal will likely not be reached until 2023. Although countries promised millions in new pledges at COP26, many were skeptical because the original commitments haven't been met. Rich countries are resisting attempts to get them to pay for damage inflicted on more vulnerable countries by climate change. Biden promised to raise the U.S. contribution to $11.4 billion a year by 2024, but according to global think tank ODI, the U.S."s fair share should be more like $30 to 47 billion a year.

2. CO_2 in the atmosphere broke records

The Global Carbon Project found that emissions from coal and gas increased in 2021, with fossil fuel emissions rising between 1.4 to 5.7 percent globally after a 5.4 percent decrease during 2020 due to the pandemic. The amount of carbon dioxide in the atmosphere broke another record this year, peaking at 419ppm according to NOAA's Mauna Loa Observatory. This is the highest level recorded since precise measurements began 63 years ago. The level of CO_2 in the atmosphere today is about what it was between 4.1 and 4.5 million years ago when sea levels were 78 feet higher than they are today.

3. Climate impacts got worse
2021 was a year of devastating extreme weather. In the U.S., there were record-breaking heatwaves in the Pacific Northwest, flash floods in the

Northeast, damaging hurricanes in the Atlantic and Caribbean Oceans and the Gulf of Mexico, and historic drought and raging wildfires in the Southwest. Many other countries around the world were hit with heavy precipitation and flooding too.

Extreme heat waves hit Japan, Ireland, Turkey, and England, and many parts of the Mediterranean experienced record high temperatures and drought. Wildfires produced 1.76 billion metric tons of carbon emissions globally, with fires in Siberia, Turkey, and the U.S., wildfires breaking records for the amount of carbon they emitted. Global mean sea levels reached new highs in 2021: The latest measurement was approximately 100mm up from its previous record high in 2020 of 91.3mm above 1993 levels.

4. Amazon deforestation increased

Deforestation in Brazil's Amazon rainforest increased 22 percent, reaching its highest level since 2006. From August 2020 to July 2021, more than 5,100 square miles of forest were razed, an area almost 17 times the size of New York City. Although Brazil's President Bolsonaro has claimed his government is slowing deforestation, he has encouraged development of the Amazon for mining and large scale farming, and failed to enact laws to prevent deforestation.

5. Biden approved fossil fuel drilling on public lands

Despite President Biden's campaign pledge to end new fossil fuel drilling on public land, he has approved more permits to drill for oil or gas on public lands than Trump did in any of the first three years of his presidency. So far, the Bureau of Land Management has approved 333 drilling permits each month, with a peak of 652 in April. Moreover, it is planning to hold more leasing auctions in the first quarter of 2022. In

November, oil and gas companies won rights to drill offshore across over 1.7 million acres of the Gulf of Mexico in the largest offshore lease sale in U.S. history. That sale has the "potential to emit 723 million metric tons of CO_2 into the atmosphere over its lifetime, equivalent to operating more than 70 percent of the United States' coal-fired power plants for a year," according to the Center for American Progress.

After the Biden administration paused all new leasing last year, it claimed that the courts had required it to hold the auction, but later acknowledged that it actually had not been forced to. And even as Biden called on every nation to reduce emissions at COP26, he was urging energy-producing countries to ramp up production to expand the oil supply due to high energy prices.

6. Energy prices rose

The prices of oil, natural gas, diesel and coal surged more than 80 percent in 2021 because the demand for energy rebounded after the pandemic faster than production could handle. Natural gas and coal prices reached record highs and a global gas shortage led to more demand for coal.

As a result, global coal generation is expected to rise 9 percent this year. The Energy Information Administration predicted that U.S. home heating oil bills would be 39 percent higher than last year, natural gas would be 26 percent higher, and electricity 6 percent higher. Households could end up paying from 22 to 94 percent more to heat their homes this winter. While this would be a logical time to redouble efforts to transition to clean energy, soaring energy prices may in fact hinder the movement towards renewables.

"Public support for decarbonization is at an all-time high," Bordoff said. "But if forced to choose between emissions and expenses, many

consumers will prioritize the latter, and who can blame them? Moving to a clean energy system may actually reduce energy costs, but there is every possibility that the road will be bumpy and we should expect more energy price volatility in the future. It is my hope that we will be able to sustain support for climate action even amidst a turbulent transition."

What's the bottom line?

When asked whether he was ultimately more or less optimistic about climate change after what has occurred this year, Bordoff replied, "Overall, I'm trying to stay optimistic, but 2021 was a tough year. Devastating floods in the U.S., China, and Germany and other destructive weather events have shown us the deadly results of a warming planet. And after a brief reduction, emissions again are on the rise and will be even higher than pre-COVID levels. But it's the public's concern—especially among young people—over the climate crisis that gives me hope that we can finally make some of these difficult policy decisions that didn't garner a lot of support in the past. The big question is whether we can take action in time… because time is running out to act. We're not yet on the path to solve the problem, but we're heading in the right direction."

Provided by State of the Planet

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