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#### Climate tech innovation is high now and set to improve. That’s necessary to solve warming.

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Climate technology is *in* again.As world leaders gather in Glasgow this week for COP26, a common refrain is emerging: policy and pledges alone aren’t going to get us to [net zero by 2050](https://www.iea.org/reports/net-zero-by-2050). We need more innovation. And fast.

**Policy shmolicy:** This year’s UN climate conference has so far proven to be no different than the other 25 summits that have been held in the past: policymakers make voluntary pledges to cut carbon emissions to prevent rising global temperatures.

However, there’s no way to hold the pledge-makers accountable, so these summits tend to be mostly hot (*warm?*) air. Six years after the major Paris climate agreement, the world isn’t anywhere close to achieving the accord’s goal of limiting global warming to below 2° C this century. (To have a shot of reaching that goal, we’d need to hit [net zero by 2050](https://www.fastcompany.com/90243693/the-future-of-the-world-is-on-the-line-and-our-chance-to-fix-it-is-now)).

Climate change is complex so there’s not going to be one technology that solves it — we’ll need to develop and deploy a range of technologies.

But a [new report](https://www.unep.org/resources/emissions-gap-report-2021) shows that even if countries simply fulfilled their current climate pledges, we’ll still see at least a 2.7° C rise this century. This could [still cause](https://www.economist.com/briefing/2021/07/24/three-degrees-of-global-warming-is-quite-plausible-and-truly-disastrous) an increase in extreme and deadly weather events like rising sea levels and heatwaves.

**Many solutions:** Solving climate change is incredibly difficult: to decarbonize the world’s economy, we need to rethink how *every industry* generates energy. Agriculture, manufacturing, shipping, construction, fashion — all of these industries will need to modernize their equipment to use energy more sustainably. This takes time and billions of dollars. Meanwhile, the industries still need to make a profit.

Given the complexity of the problem, there’s likely not going to be one technology that solves climate change; instead, we’ll need to develop and deploy a range of technologies.

**Bring in the tech:** To achieve net zero by 2050, [it’s estimated](https://pitchbook.com/news/articles/cop26-2021-climate-change-finance-bubble) that 65% of emissions reductions can be achieved by existing technologies and policy changes. The other 35% will need to come from new technologies.

Varun Sivaram, a senior advisor to John Kerry, told *MIT Tech Review* that the most important role the U.S. can play in leading global emissions reduction is to develop cheaper, better low-carbon technologies.

“The number one tool the U.S. has to speed the energy transition around the world is innovation,” he [said](https://www.technologyreview.com/2021/10/28/1038845/cop26-glasgow-un-climate-change-conference-emissions-gap/). By funding R&D efforts, he notes, the U.S. could make it easier for other countries — especially emerging countries — to decarbonize.

**Rise of the green economy:** The good news is that [a green energy economy](https://www.iea.org/reports/world-energy-outlook-2021/a-new-energy-economy-is-emerging#abstract) is emerging — and VCs have noticed. According to the Morning Brew, in 2021 over $30 billion has already been poured into climate technology startups, up 30% from last year.

Svenja Telle, Pitchbook analyst, [told](https://www.morningbrew.com/emerging-tech/stories/2021/11/01/in-record-breaking-year-for-vc-funding-climate-tech-is-no-exception) the Morning Brew that clean-industry technology is the fastest-growing sector of climate tech. This sector includes alternative energy and manufacturing innovation.

There’s a [big boom](https://www.forbes.com/sites/mergermarket/2021/11/03/demand-for-metals-charges-up-lithium-ion-battery-recycling/?sh=1b433d106f43) in lithium battery recycling. As more things are electrified, especially vehicles, we’ll need a way to recycle those batteries.

[Redwood Materials](https://techcrunch.com/2021/07/28/redwood-materials-raises-700m-to-expand-its-battery-recycling-operation/) is among the startups leading the recycling charge. The company extracts materials that are usually mined — like cobalt, nickel, and lithium — from recycled consumer electronics and then sells those materials to its customers, like Panasonic.

Green hydrogen is also [on the rise](https://www.forbes.com/sites/arielcohen/2020/10/19/the-green-hydrogen-revolution-is-now-underway/?sh=6e78a4f5232c) — this is a hydrogen fuel that can be made from renewable energy sources. It’s only byproduct is water. Right now, it’s too expensive to produce, but it may become cost-competitive in the near future. There are already a few [massive hydrogen projects](https://www.freethink.com/environment/green-hydrogen) underway.

Another fast growing area is built-environment companies, [said](https://www.morningbrew.com/emerging-tech/stories/2021/11/01/in-record-breaking-year-for-vc-funding-climate-tech-is-no-exception?utm_campaign=etb&utm_medium=newsletter&utm_source=morning_brew) Telle. This includes building construction and operations, which are responsible for about 39% of global emissions.

The *New York Times* [reports](https://www.nytimes.com/2021/10/26/business/climate-change-sustainable-real-estate.html) that more investors are looking at *sustainable real estate*, now that new technology and stricter standards enable better tracking of a development’s carbon footprint.”

“Five to 10 years ago, there was a lot of debate about sustainability, that, ‘It’s nice, but I don’t want to pay for it,’” Stephen Tross, chief investment officer at a Dutch investment firm, told the NYT. “Today, you don’t sacrifice returns for sustainability, you create returns with sustainability.”

Turntide Technologies [recently raised $225 million](https://techcrunch.com/2021/06/30/sustainable-tech-developer-turntide-technologies-raises-225m/) to continue developing their [“smart motor](https://www.freethink.com/technology/turntide-technologies)” which makes motors much more efficient, reducing energy consumption by about 64%.

“Today, half of the world’s energy is used by electric motors and nearly half of that energy consumption is being wasted due to inefficiency and lack of intelligent controls,”  Ryan Morris, CEO, told TechCrunch.

Over $30 billion has already been poured into climate technology this year, up 30% from last year.

**Deja vu:** From 2006 to 2011, we also saw a  “clean tech” boom that ended up being a disastrous bust — more than 90% of the cleantech startups funded during this time [did not](https://energy.mit.edu/wp-content/uploads/2016/07/MITEI-WP-2016-06.pdf) return the money invested in them. (Hey, [Solyndra](https://fortune.com/2015/08/27/remember-solyndra-mistake/)!)

However, this time [appears to be different](https://www.forbes.com/sites/robtoews/2021/10/31/will-this-generation-of-climate-tech-be-different/?sh=78b53b094a62). One major reason is that renewable energy is now [price-competitive](https://www.irena.org/newsroom/pressreleases/2020/Jun/Renewables-Increasingly-Beat-Even-Cheapest-Coal-Competitors-on-Cost#:~:text=%E2%80%9CRenewable%20energy%20is%20increasingly%20the,benefits%20to%20the%20wider%20economy.) with fossil fuels. That wasn’t the case in 2009, when solar power was [*over four times*](https://ourworldindata.org/cheap-renewables-growth) more expensive than fossil fuels. The price has fallen fast and is [expected](https://about.bnef.com/new-energy-outlook/) to get even cheaper. This has made a global transition to clean energy systems possible.

Another reason is that most of today’s climate technology startups are powered by software and machine learning. That means today’s startups are more likely to scale, compared to yesterday’s technology which leaned heavily on hard assets.

“Investors were scared after what happened with Clean Tech 1.0, but it’s different this time. Back then everything was focused on really R&D-heavy technologies in clean energy. This time it’s about decarbonizing the entire economy,” Telle told Morning Brew.

“Something that is relevant for every single sector. And it’s the only way forward.”

**Violent strike efforts are increasing – they slow innovation, specifically in the tech sector.**

**Hanasoge 16** [Chaithra; Senior Research Analyst, Market Researcher, Consumer Insights, Strategy Consulting; “The Union Strikes: The Good, the Bad and the Ugly,” Supply Wisdom; April/June 2016 (Doesn’t specifically say but this is the most recent event is cites); https://www.supplywisdom.com/resources/the-union-strikes-the-good-the-bad-and-the-ugly/]//SJWen

The result: Verizon conceded to several of the workers’ demands including hiring union workers, protection against outsourcing of call-center jobs, and employee benefits such as salary hikes and higher pension contributions, among others and thus bringing an end to the strike in June.

The repercussion: The strike witnessed **several instances** of **social disorder**, **violence** and **clashes**, ultimately calling for third party intervention (Secretary of Labor – Thomas Perez) to initiate negotiations between the parties. Also, as a result of the strike, Verizon reported **lower** than **expected revenues** in the **second quarter of 2016**.

Trade unions/ labor unions aren’t just this millennia’s product and has been in vogue since times immemorial. **Unions**, to **ensure fairness** to the working class, have **gone on strike for better working conditions** and employee benefits since the **industrial revolution** and are as strong today as they were last century. With the **advent of technology and advancement in artificial intelligence**, machines are grabbing the jobs which were once the bastion of the humans. So, questions that arise here are, what relevance do unions have in today’s work scenario? And, are the strikes organized by them avoidable?

As long as the concept of labor exists and employees feel that they are not receiving their fair share of dues, unions will exist and thrive. Union protests in most cases cause work stoppages, and in certain cases, disruption of law and order. Like in March 2016, public servants at Federal Government **departments across Australia** went on a series of **strikes** over failed pay negotiations, **disrupting operations** of many **government departments** for a few days.  Besides such direct effects, there are many **indirect effects** as well such as **strained employee relations**, **slower work processes**, **lesser productivity** and **unnecessary legal hassles**.

Also, union strikes can **never be taken too lightly** as they have prompted major overturn of decisions, on a few occasions. Besides the **Verizon incident** that was a **crucial example** of this, nationwide strikes were witnessed in India in March and April this year when the national government introduced reforms related to the withdrawal regulations and interest rate of employee provident fund, terming it as ‘anti-working class’. This compelled the government to withhold the reform for further review. In France, strike against labor law reforms in May turned violent, resulting in riots and significant damage to property. The incident prompted the government to consider modifications to the proposed reforms.

However, aside from employee concerns, such incidents are also determined by a number of other factors such as the country’s political scenario, economy, size of the overall workforce and the unions, history of unionization, labor laws, and culture. For example, it is a popular saying that the French are always on strike as per tradition (although recent statistics indicate a decline in frequency). In a communist government like China, strikes have steadily risen in number. In 2015, China Labor Bulletin (CLB), a Hong Kong-based workers’ rights group recorded 2,700 incidents of strikes and protests, compared to 1,300 incidents in 2014. Most of them have stemmed out of failure by the government to respect the basic rights of employees and address labor concerns.

Interestingly, unions have **not been able to gain a strong foothold** in the **IT-BPO industry**. While many countries do have a separate union to represent workers from the sector, incidents of strikes like Verizon **have been relatively lo**w.  However, workplace regulations, in addition to other factors mentioned could be a trigger for such incidents, even if on a smaller scale. For example, a recent survey that **interviewed several BPO employees** in India revealed that while **forming a union** in the BPO sector was **difficult**, irksome workplace regulations such as constant surveillance, irregular timings and incentives have prompted employees to express their resentment in smaller ways such as corruption of internal servers and so on.  Such risks are further enhanced in a city like Kolkata, which carries a strong trade union culture.

#### Workers jumping ship in favor of strikes substantially limits tech innovation

Leprince-Ringuet 9/13 Daphne Leprince-Ringuet is a reporter based in London. September 13, 2021. “The shortage of tech workers is about to become an even bigger problem for everyone” <https://www.zdnet.com/article/the-shortage-of-tech-workers-is-about-to-become-an-even-bigger-problem-for-everyone/> Accessed 11/6 //gord0]

The shortage of tech talent that businesses are facing isn't only about developers and data scientists: companies are struggling to hire workers across the IT sector as a whole, ranging from computing infrastructure to security.

According to a new report from analyst Gartner, businesses think that [talent shortage is the biggest barrier to the adoption of 64% of new technologies](https://www.gartner.com/en/newsroom/press-releases/2021-09-13-gartner-survey-reveals-talent-shortages-as-biggest-barrier-to-emerging-technologies-adoption). This means that in the majority of cases, IT leaders who want to deploy a new tool to boost business outcomes anticipate that the lack of suitable workers to implement the technology will be problematic at some point.

The issue is particularly prevalent when it comes to adopting IT automation technologies: in 75% of cases, leaders cited talent availability as the main risk factor. But a similar picture comes out across compute infrastructure, platform services, network, security, digital workplace, and storage and database.

Although the shortage of talent in tech [often focuses on the lack of developers](https://www.zdnet.com/article/demand-for-developers-is-at-a-rocketing-and-employers-struggling-to-hire/), Yinuo Geng, a researcher at Gartner who led the survey, argues that this points to an even broader problem within the industry.

"We are looking at technologies that are more about IT infrastructure, networking, cloud or automation," Geng tells ZDNet. "This is technology that forms the foundation, the basis upon which developers then build. And even in those cases, there is a shortage of workers."

Part of the problem can be attributed to a sudden rise in the need for staff that can build and support digital infrastructure in the past 18 months.

[The COVID-19 pandemic](https://www.cnet.com/health/delta-plus-what-we-know-about-the-latest-coronavirus-variant/) has forced business leaders to radically re-think old ways of working, and in most cases has led to organizations kick-starting digital transformation programs. As countries introduced strict lockdown rules, for example, companies had to switch to remote working, which created a strong need for IT infrastructure that could support a fully virtual workforce.

Even as the pandemic eases, businesses are now carrying over their digital transformation plans. Gartner's survey shows that 58% of IT leaders reported either an increase or a plan to increase emerging technology investment through 2021.

Unsurprisingly, in the context of a global health crisis, much of the focus remains on improving resilience: 63% of respondents in the survey cited resilience as a primary investment driver.

But business leaders are also investing in multi-cloud and hybrid-cloud technologies to better support the movement of information between physical and virtual locations as their employees adopt new ways of working.

This in turn is creating a heightened need for infrastructure security, [since hybrid work environments are particularly prone to cyberattacks](https://www.zdnet.com/article/unsecured-servers-and-cloud-services-how-remote-work-has-increased-the-attack-surface-that-hackers-can-target/). Between 2020 and 2021, the number of security technologies in deployment rose from 15% to 84% of the technologies evaluated by Gartner; and even a year and a half after the start of the pandemic, the research firm found that 64% of IT leaders still report that they have either increased or are planning to increase investments in security technologies.

These business transformations require more qualified staff -- and it is dawning upon IT leaders that this staff is not available. "Talent availability is the primary risk factor," says Geng. "IT leaders are recognizing that the shift to remote work that started last years is exacerbating the availability of talent."

To make things worse, the huge rise in demand for tech employees has come at a time when there was already a shortage of skills in the workforce.

"The survey indicates the continuation of a trend we have been seeing for the past few years," says Geng. "There has been a shift of skills, with a focus on cloud skills or automation skills, and those are particular skills we are seeing scarcity in."

Reports abound that highlight the lack of basic skills that are required in the digital age. Research carried out by IDC and Salesforce found that [one in six UK workers have either low or no digital skills](https://www.techuk.org/resource/nine-in-10-u-k-workers-must-learn-new-digital-skills-by-2030-according-to-new-salesforce-and-idc-research.html), while Pluralsight reported that since 2020, [remote employees lacked skills](https://www.pluralsight.com/blog/2021-state-of-upskilling) involving cloud computing, cybersecurity and data storage in their daily routines.

"We've been tracking both trends in emerging technologies adoption and trends in skills for the last few years, so it's an interesting point this year where we see a confluence of the fact that the skills gap that we have been noticing has become exacerbated enough that it's really a concern for technology adoption itself," says Geng.

The consequence is that companies are failing to adopt new technologies, or are slower in doing so: Gartner found that of all the IT automation technologies profiled in the survey, only 20% have moved ahead in the adoption cycle since 2020, which Geng links directly to the issue of talent.

And the analyst argues that those who are unable to secure the appropriate talent will soon find themselves unable to compete against businesses that move faster and deploy new technologies that will improve their outcomes.

Geng recommends that IT leaders get better at formalizing the issue, in the form of strategic talent plans that anticipate changes in labor supply and demand to manage the skills gap.

"In many cases, what happens is you back-fill some roles," says Geng. "And we're seeing organizations that are more successful in that area doing forward-filling. They think about where they are going and, therefore, create a plan to see how to develop staff and hire the right people to get there."

Equally as important as hiring for new roles will be up-skilling the existing workforce, both with technical capabilities and competencies like learning agility or collaboration. This will equip IT teams with the ability to continuously develop and take up new capabilities, argues Geng, while also providing an opportunity for employees to hone their skills and prepare themselves for the future.

#### Technology is rapidly shifting towards climate change prevention – NASA proves

Smith 10/19 [Hayley Smith. October 19, 2021. “NASA turns technology back toward Earth to focus on climate change” [https://phys.org/news/2021-10-nasa-technology-earth-focus-climate.html Accessed 11/6](https://phys.org/news/2021-10-nasa-technology-earth-focus-climate.html%20Accessed%2011/6) //gord0]

After decades of gazing into space, NASA is turning its technology back toward Earth to study the effects of drought, fire and climate change on the Blue Planet.

At the Jet Propulsion Laboratory in La Cañada Flintridge last Thursday, scientists and [state officials](https://phys.org/tags/state+officials/) gathered to discuss how [satellite data](https://phys.org/tags/satellite+data/), 3D imaging and new radar and laser technologies can provide invaluable insights into Earth's rapidly changing systems.

Some said the meeting marked a sea change for previously siloed agencies, and underscored the need to work together to solve the climate crisis.

"I don't want to be overly dramatic, but in truth, this discussion is about saving our planet," NASA Administrator Bill Nelson told the group of attendees, which included Earth and space scientists from NASA and JPL, local congressional representatives and California environmental secretaries Wade Crowfoot and Jared Blumenfeld.

Upcoming Earth-centric missions will provide a more precise look at "everything that's happening" with the oceans, the land and the atmosphere than ever before, Nelson said. Among the big-ticket items were new tools to measure snowpack and groundwater, satellites to monitor methane emissions and remote sensing assets to assess the impact of hazards such as wildfires, earthquakes and mudslides.

"We're facing an existential crisis on this planet," said Crowfoot, the state's natural resources secretary. "These challenges are intense. ... But there's no better place than California to do this work, because we understand the gravity of the threat."

The meeting between California and [federal officials](https://phys.org/tags/federal+officials/) was a far cry from 2018, when—frustrated by the Trump administration's efforts to scuttle climate research—then-Gov. Jerry Brown insisted that California would launch "our own damn satellite, to figure out where the pollution is and how are we going to end it."

Now, three years later, Californians need only look out their windows to get a sense of what scientists can observe from above. Wildfires are burning record acreage across the West, while worsening drought is draining the region's water supplies to unseen levels. The state also recorded its hottest summer ever in 2021.

Many at the meeting hoped NASA and JPL's findings would help combat global warming by informing decision-makers as they determine the best paths forward.

"It's really a game changer to be able to have this data," NASA Deputy Administrator Pam Melroy said, noting that the U.S. can also lead the rest of the world in utilizing the same tools. "Because we'll never solve climate until everybody is a participant."

Many of the projects have been in development for years, but a recent memorandum of understanding between the state and JPL helped get additional projects off the ground, Crowfoot said—including critical items focused on water resiliency. The Western U.S. in recent months has seen such severe drought conditions that officials closed Lake Oroville's hydroelectric power plant for the first time and declared the first-ever water shortage on the Colorado River, among other actions.

One new web-based platform, OpenET, will provide satellite-based information on evapotranspiration, the process through which water leaves plants, soils and other surfaces, which could help state officials understand water usage in agricultural areas and assist farmers with precision irrigation.

"As states, we do our best to manage this resource of water, but we're never going to do it with the sophistication we need to without partners like NASA," Crowfoot said, adding that the agency could be the "tip of the spear" when it comes to combating climate change.

Other water-related items include surface water and ocean topography tools known as SWOT that will contribute to NASA's first-ever global survey of the Earth's surface water. Every 21 days, SWOT will survey almost 600,000 miles of global rivers at least twice, aiding drought forecasters and hazardous-flood preparations, officials said. It is set to launch in 2022.

JPL interim Director Larry James said the next generation of water-measuring spacecraft will also allow scientists to measure freshwater body heights and flows for the first time, while laser-imaging spectrometers will help study snowmelt and snow volume.

But scientists aren't just studying water. Methane was also a focus of discussion, with a new satellite due to launch in 2023 that will help monitor concentrations of the harmful emission, the second-largest contributor to greenhouse warming after carbon dioxide.

Blumenfeld, California's secretary for environmental protection, said the three largest producers of methane in the state are the oil and gas industry, landfills and agriculture (particularly, large animal operations and dairies). The new tool will enable anyone to see whether an oil refinery, for example, is leaking methane.

"It gives accountability, which is a critical element we need to get to in order to deal with the climate crisis, and it would not happen without NASA and JPL," Blumenfeld said. "Globally, and living in California, this is a really big deal."

But space missions have also come under scrutiny for their own environmental impact, as propellants required to launch rockets into space can expel carbon dioxide, liquid hydrogen, kerosene or other chemicals into the atmosphere.

The launch of a Falcon Heavy rocket from SpaceX, Elon Musk's privately owned space transportation company, burned about 400 metric tons of kerosene and emitted more [carbon dioxide](https://phys.org/tags/carbon+dioxide/) in a few minutes than an average car would in more than two centuries, reports found—and the number of commercial spaceflights is expected to increase tenfold in the coming years.

But NASA administrators say that the scale of their projects is getting "smaller and smarter," with one official noting that the methane satellite is "the size of a shoebox."

"It's an absolutely minuscule part, but it is a real concern," Melroy said of rocket emissions, noting that the agency is working on developing more sustainable fuels.

And while many of the [new tools](https://phys.org/tags/new+tools/) provide big-picture views of massive global challenges, some are much more local. Nelson said people don't have to be scientists to understand the impact of wildfires, drought, sinkholes or floods.

"There are places in the country, and represented in the halls of government, that are going to be very resistant, so we have to tell the story," he said. "We've got to educate the people, and unfortunately, increasingly, all of these disasters are helping us to do that."

Nearly 2.5 million acres have burned in California's wildfires so far this year—a number second only to 2020, the state's worst wildfire season on record. Entire towns have been leveled by flames.

Some of NASA's tools can help identify where wildfires are spotting, or shooting out embers that could potentially endanger firefighters and ignite new blazes, officials said. Others can employ sophisticated radar systems over disaster areas to assess damage and assist first responders.

JPL Earth science and technology director Jim Graf said they can also fly over the 1,100-mile levee system in the Sacramento-San Joaquin River Delta to quickly identify sinking or weaknesses. That information could help officials make decisions on critical infrastructure, such as roads, bridges and aqueducts.

Officials on Thursday also showed off their NASA-ISRO Synthetic Aperture Radar satellite, or NISAR, which is still under construction and will "provide an unprecedented view of Earth" when it launches in 2023, they said. The satellite will monitor the entire globe as it scans for disturbances in glaciers, volcanoes and other systems.

"Basically, it's going to use two radar instruments that will look at changes in the Earth's surface," said Susan Owen McCollum, deputy project scientist for NISAR. "That actually can tell you a lot: how fast the ice sheets are melting, how fast the ground is moving."

Another aspect of the radar will enable officials to monitor how forest biomass is changing through carbon containment or other processes, McCollum said, which could be essential for studying places like the Amazon.

"Radar is a very powerful imaging tool—it sees the Earth in way that's different," she said.

But NASA and JPL also haven't lost sight of the final frontier, and officials on Thursday offered a tour of the control room for the Mars Perseverance rover. The rover, which landed on Mars in February, is collecting rock samples that will be returned to Earth for closer study.

The Ingenuity helicopter that arrived with the rover has also completed more than a dozen flights, they said, demonstrating for the first time that powered, controlled flight on another planet is possible.

Yet while the challenges of space exploration may seem a world away from those here on Earth, Perseverance project scientist Ken Farley said much can be learned from the red planet. Some of the rocks his team is studying are 3.5 billion years old and come from a time when liquid water flowed on the surface of Mars.

There is no liquid water on the Martian surface today, he said, and there is essentially no atmosphere.

"It is an example of massive [climate change](https://phys.org/tags/climate+change/)—from a planet that we believe would have been inhabitable to a planet that, at least on the surface, is not," Farley said. "It is a clear example that climate changes, and it can change enormously."

Nelson, the NASA administrator, echoed those sentiments when he addressed the rover's control team.

"That's one of the profound things that I think happens to every person that's had the privilege of looking out the window of a spacecraft when you orbit the Earth," he said. "You see how beautiful it is, but how fragile."

#### Warming causes extinction — leads to severe weather conditions, ecosystem collapse and armed conflict.

Sprat and Dunlop 19 — Spratt is Research Director for Breakthrough National Centre for Climate Restoration, Melbourne, and co-author of Climate Code Red: The case for emergency action. Dunlop is a member of the Club of Rome. Formerly an international oil, gas and coal industry executive, chairman of the Australian Coal Association, chief executive of the Australian Institute of Company Directors, and chair of the Australian Greenhouse Office Experts Group on Emissions Trading 1998-2000. (David and Ian; Published: May 2019; “Existential climate-related security risk: A scenario approach”; Breakthrough Policy Paper; Accessed: April 9, 2021; http://mycoasts.org/commons/library/2019\_Spratt\_Dunlop.pdf)//CYang

2050: By 2050, there is broad scientific acceptance that system tipping-points for the West Antarctic Ice Sheet and a sea-ice-free Arctic summer were passed well before 1.5°C of warming, for the Greenland Ice Sheet well before 2°C, and for widespread permafrost loss and large-scale Amazon drought and dieback by 2.5°C. The “hothouse Earth” scenario has been realised, and Earth is headed for another degree or more of warming, especially since human greenhouse emissions are still significant. 20

While sea levels have risen 0.5 metres by 2050, the increase may be 2-3 metres by 2100, and it is understood from historical analogues that seas may eventually rise by more than 25 metres. Thirty-five percent of the global land area, and 55 percent of the global population, are subject to more than 20 days a year of lethal heat conditions, beyond the threshold of human survivability.

The destabilisation of the Jet Stream has very significantly affected the intensity and geographical distribution of the Asian and West African monsoons and, together with the further slowing of the Gulf Stream, is impinging on life support systems in Europe. North America suffers from devastating weather extremes including wildfires, heatwaves, drought and inundation. The summer monsoons in China have failed, and water flows into the great rivers of Asia are severely reduced by the loss of more than one-third of the Himalayan ice sheet. Glacial loss reaches 70 percent in the Andes, and rainfall in Mexico and central America falls by half. Semi-permanent El Nino conditions prevail. Aridification emerges over more than 30 percent of the world’s land surface. Desertification is severe in southern Africa, the southern Mediterranean, west Asia, the Middle East, inland Australia and across the south-western United States.

Impacts: A number of ecosystems collapse, including coral reef systems, the Amazon rainforest and in the Arctic.

Some poorer nations and regions, which lack capacity to provide artificially-cooled environments for their populations, become unviable. Deadly heat conditions persist for more than 100 days per year in West Africa, tropical South America, the Middle East and South-East Asia, contributing to more than a billion people being displaced from the tropical zone.

Water availability decreases sharply in the most affected regions at lower latitudes (dry tropics and subtropics), affecting about two billion people worldwide. Agriculture becomes nonviable in the dry subtropics.

Most regions in the world see a significant drop in food production and increasing numbers of extreme weather events, including heat waves, floods and storms. Food production is inadequate to feed the global population and food prices skyrocket, as a consequence of a one-fifth decline in crop yields, a decline in the nutrition content of food crops, a catastrophic decline in insect populations, desertification, monsoon failure and chronic water shortages, and conditions too hot for human habitation in significant food-growing regions.

The lower reaches of the agriculturally-important river deltas such as the Mekong, Ganges and Nile are inundated, and significant sectors of some of the world’s most populous cities — including Chennai, Mumbai, Jakarta, Guangzhou, Tianjin, Hong Kong, Ho Chi Minh City, Shanghai, Lagos, Bangkok and Manila — are abandoned. Some small islands become uninhabitable. Ten percent of Bangladesh is inundated, displacing 15 million people.

Even for 2°C of warming, more than a billion people may need to be relocated and In high-end scenarios, the scale of destruction is beyond our capacity to model, with a high likelihood of human civilisation coming to an end. National security consequences: For pragmatic reasons associated with providing only a sketch of this scenario, we take the conclusion of the Age of Consequences ‘Severe’ 3°C scenario developed by a group of senior US national-security figures in 2007 as appropriate for our scenario too:

Massive nonlinear events in the global environment give rise to massive nonlinear societal events. In this scenario, nations around the world will be overwhelmed by the scale of change and pernicious challenges, such as pandemic disease. The internal cohesion of nations will be under great stress, including in the United States, both as a result of a dramatic rise in migration and changes in agricultural patterns and water availability. The flooding of coastal communities around the world, especially in the Netherlands, the United States, South Asia, and China, has the potential to challenge regional and even national identities. Armed conflict between nations over resources, such as the Nile and its tributaries, is likely and nuclear war is possible. The social consequences range from increased religious fervor to outright chaos. In this scenario, climate change provokes a permanent shift in the relationship of humankind to nature’. (emphasis added)

## 2

**A just government ought to recognize the right of workers to strike except for police officers.**

**Police Strikes are used to combat racial progress and attempts to limit police power. Making them legal and easier only make progress much harder.**

Andrew **Grim 2020** What is the ‘blue flu’ and how has it increased police power? <https://www.washingtonpost.com/outlook/2020/07/01/what-is-blue-flu-how-has-it-increased-police-power/>

But the result of such protests matter deeply as we consider police reform today. Historically, **blue flu strikes have helped expand police power, ultimately limiting the ability of city governments to reform, constrain or conduct oversight over the police**. They **allow the police to leverage public fear of crime to extract concessions from municipalities.** This became clear in Detroit more than 50 years ago. In June 1967, tensions arose between Detroit Mayor Jerome Cavanagh and the Detroit Police Officers Association (DPOA), which represented the city’s 3,300 patrol officers. The two were at odds primarily over police demands for a pay increase. Cavanagh showed no signs of caving to the DPOA’s demands and had, in fact, proposed to cut the police department’s budget. On June 15, the DPOA escalated the dispute with a walkout: 323 officers called in sick. The number grew over the next several days as the blue flu spread, reaching a height of 800 absences on June 17. In tandem with the walkout, the DPOA launched a fearmongering media campaign to win over the public. They took out ads in local newspapers warning Detroit residents, “How does it feel to be held up? Stick around and find out!” This campaign took place at a time of rising urban crime rates and uprisings, and only a month before the 1967 Detroit riot, making it especially potent. The DPOA understood this climate and used it to its advantage. **With locals already afraid of crime and displeased at Cavanagh’s failure to rein it in, they would be more likely to demand the return of the police than to demand retribution against officer**s for an illegal strike. The DPOA’s strategy paid off. The walkout left Detroit Police Commissioner Ray Girardin feeling “practically helpless.” “I couldn’t force them to work,” he later told The Washington Post. Rather than risk public ire by allowing the blue flu to continue, Cavanagh relented. Ultimately, the DPOA got the raises it sought, making Detroit officers the highest paid in the nation. This was far from the end of the fight between Cavanagh and the DPOA. In the ensuing months and years, **they continued to tussle over wages, pensions, the budget, the integration of squad cars and the hiring of black officers.**The threat of another blue flu loomed over all these disputes, helping the union to win many of them. And Detroit was not an outlier. Throughout the 1960s, ’70s and ’80s, the blue flu was a [ubiquitous and highly effective](https://www.akpress.org/our-enemies-in-blue.html) tactic in Baltimore, Memphis, New Orleans, Chicago, Newark, New York and many other cities. In most cases, as author Kristian Williams writes, “When faced with a walkout or slowdown, the authorities usually decided that the pragmatic need to get the cops back to work trumped the city government’s long term interest in diminishing the rank and file’s power.” But each time a city relented to this pressure, they ceded more and more power to police unions, which would turn to the strategy repeatedly to defend officers’ interests — **particularly when it came to efforts to address systemic racism in police policies and practices.** In 1970, black residents of Pittsburgh’s North Side neighborhood raised an outcry over the “hostile sadistic treatment” they experienced at the hands of white police officers. They lobbied Mayor Peter F. Flaherty to assign more black officers to their neighborhood. The mayor agreed, transferring several white officers out of the North Side and replacing them with black officers. While residents cheered this decision, white officers and the Fraternal Order of Police (FOP), which represented them, were furious. They slammed the transfer as “discrimination” against whites. About 425 of the Pittsburgh Police Department’s 1,600 police officers called out sick in protest. Notably, black police officers broke with their white colleagues and refused to join the walkout. They praised the transfer as a “long overdue action” and viewed the walkout as a betrayal of officers’ oath to protect the public. Nonetheless, the tactic paid off. After several days, Flaherty caved to the “open revolt” of white officers, agreeing to halt the transfers and instead submit the dispute to binding arbitration between the city and the police union. Black officers, though, continued to speak out against their union’s support of racist practices, and many of them later resigned from the union in protest. Similar scenarios played out in Detroit, Chicago and other cities in the 1960s and ’70s, as **white officers continually staged walkouts to preserve the segregated status quo in their departments**. These blue flu **strikes amounted to an authoritarian power grab by police officers bent on avoiding oversight, rejecting reforms and shoring up their own authority**. In the aftermath of the 1967 Detroit walkout, a police commissioner’s aide strongly criticized the police union’s strong-arm tactics, saying “it smacks of a police state.” The clash left one newspaper editor wondering, “Who’s the Boss of the Detroit Police?” But in the “law and order” climate of the late 1960s, such criticism did not resonate enough to stir a groundswell of public opinion against the blue flu. And police unions dismissed critics by arguing that officers had “no alternative” but to engage in walkouts to get city officials to make concessions. Crucially, the very effectiveness of the blue flu may be premised on a myth**. While police unions use public fear of crime skyrocketing without police on duty**, in many cases,**the absence of police did not lead to a rise in crime**. In New York City in 1971, [for example](https://untappedcities.com/2020/06/12/the-week-without-police-what-we-can-learn-from-the-1971-police-strike/), 20,000 officers called out sick for five days over a pay dispute without any apparent increase in crime. The most striking aspect of the walkout, as one observer noted, “might be just how unimportant it seemed.” Today, municipalities are under immense pressure from activists who have taken to the streets to protest the police killings of black men and women. Some have already responded by enacting new policies and cutting police budgets. As it continues, **more** blue flus **are likely to follow as officers seek to wrest back control of the public debate on policing and reassert their independence.**

**Those strikes cement a police culture which leads to endless amounts of racist violence and the bolstering of the prison industrial complex.**

**Chaney and Ray 13**, Cassandra (Has a PhD and is a professor at LSU. Also has a strong focus in the structure of Black families) , and Ray V. Robertson (Also has a PhD and is a criminal justice professor at LSU). "Racism and police brutality in America." *Journal of African American Studies* 17.4 (2013): 480-505. SM//do I really need a card for this

Racism and Discrimination According to Marger (2012), “racism is an ideology, or belief system, designed to justify and rationalize racial and ethnic inequality” (p. 25) and “discrimination, most basically, is behavior aimed at denying members of particular ethnic groups’ equal access to societal rewards” (p. 57). Defining both of these concepts from the onset is important for they provide the lens through which our focus on the racist and discriminatory practices of law enforcement can occur. Since the time that Africans [African Americans] were forcibly brought to America, they have been the victims of racist and discriminatory practices that have been spurred and/or substantiated by those who create and enforce the law. For example, The Watts Riots of 1965, the widespread assaults against Blacks in Harlem during the 1920s (King 2011), law enforcement violence against Black women (i.e., Malaika Brooks, Jaisha Akins, Frankie Perkins, Dr. Mae Jemison, Linda Billups, Clementine Applewhite) and other ethnic women of color (Ritchie 2006), the beating of Rodney King, and the deaths of Amadou Diallo in the 1990s and Trayvon Martin more recently are just a few public examples of the historical and contemporaneous ways in which Blacks in America have been assaulted by members of the police system (King 2011; Loyd 2012; Murch 2012; Rafail et al. 2012). In Punishing Race (2011), law professor Michael Tonry’s research findings point to the fact that Whites tend to excuse police brutality against Blacks because of the racial animus that they hold against Blacks. Thus, to Whites, Blacks are viewed as deserving of harsh treatment in the criminal justice system (Peffley and Hurwitz 2013). At first glance, such an assertion may seem to be unfathomable, buy that there is an extensive body of literature which suggests that Black males are viewed as the “prototypical criminal,” and this notion is buttressed in the media, by the general public, and via disparate sentencing outcomes (Blair et al. 2004; Eberhardt et al. 2006; Gabiddon 2010; Maddox and Gray 2004; Oliver and Fonash 2002; Staples 2011). For instance, Blair et al. (2004) revealed that Black males with more Afrocentric features (e.g., dark skin, broad noses, full lips) may receive longer sentences than Blacks with less Afrocentric features, i.e., lighter skin and straighter hair (Eberhardt et al. 2006). Shaun Gabiddon in Criminological Theories on Race and Crime (2010) discussed the concept of “Negrophobia” which was more extensively examined by Armour (1997). Negrophobia can be surmised as an irrational of Blacks, which includes a fear of being victimized by Black, that can result in Whites shooting or harming an AfricanAmerican based on criminal/racial stereotypes (Armour 1997). The aforementioned racialized stereotypical assumptions can be deleterious because they can be used by Whites to justify shooting a Black person on the slightest of pretense (Gabiddon 2010). Finally, African-American males represent a group that has been much maligned in the larger society (Tonry 2011). Further, as victims of the burgeoning prison industrial complex, mass incarceration, and enduring racism, the barriers to truly independent Black male agency are ubiquitous and firmly entrenched (Alexander 2010; Chaney 2009; Baker 1996; Blackmon 2008; Dottolo and Stewart 2008; Karenga 2010; Martin et al. 2001; Smith and Hattery 2009). Thus, racism and discrimination heightens the psychological distress experienced by Blacks (Robertson 2011; Pieterse et al. 2012), as well as their decreased mortality in the USA (Muennig and Murphy 2011). Police Brutality Against Black Males According to Walker (2011), police brutality is defined as “the use of excessive physical force or verbal assault and psychological intimidation” (p. 579). Although one recent study suggests that the NYPD has become better behaved due to greater race and gender diversity (Kane and White 2009), Blacks are more likely to be the victims of police brutality. A growing body of scholarly research related to police brutality has revealed that Blacks are more likely than Whites to make complaints regarding police brutality (Smith and Holmes 2003), to be accosted while operating [driving] a motorized vehicle (“Driving While Black”), and to underreport how often they are stopped due to higher social desirability factors (TomaskovicDevey et al. 2006). Interestingly, data obtained from the General Social Survey (GSS), a representative sample conducted biennially by the National Opinion Research Center at the University of Chicago for the years 1994 through 2004, provide further proof regarding the acceptance of force against Blacks. In particular, the GSS found Whites to be significantly (29.5 %) more accepting of police use of force when a citizen was attempting to escape custody than Blacks when analyzed using the chi-squared statistical test (p The average Southern policeman is a promoted poor White with a legal sanction to use a weapon. His social heritage has taught him to despise the Negroes, and he has had little education which could have changed him….The result is that probably no group of Whites in America have a lower opinion of the Negro people and are more fixed in their views than Southern policeman. (Myrdal 1944, pp. 540–541) Myrdal (1944) was writing on results from a massive study that he undertook in the late 1930s. He was writing at a time that even the most conservative among us would have to admit was not a colorblind society (if one even believes in such things). But current research does corroborate his observations that less educated police officers tend to be the most aggressive and have the most formal complaints filed against them when compared to their more educated counterparts (Hassell and Archbold 2010; Jefferis et al. 2011). Tonry (2011) delineates some interesting findings from the 2001 Race, Crime, and Public Opinion Survey that can be applied to understanding why the larger society tolerates police misconduct when it comes to Black males. The survey, which involved approximately 978 non-Hispanic Whites and 1,010 Blacks, revealed a divergence in attitudes between Blacks and Whites concerning the criminal justice system (Tonry 2011). For instance, 38 % of Whites and 89 % of Blacks viewed the criminal justice system as biased against Blacks (Tonry 2011). Additionally, 8 % of Blacks and 56 % of Whites saw the criminal justice system as treating Blacks fairly (Tonry 2011). Perhaps most revealing when it comes to facilitating an environment ripe for police brutality against Black males, 68 % of Whites and only 18 % of Whites expressed confidence in law enforcement (Tonry 2011). Is a society wherein the dominant group overwhelming approves of police performance willing to do anything substantive to curtail police brutality against Black males? Police brutality is not a new phenomenon. The Department of Justice (DOJ) office of Civil Rights (OCR) has investigated more than a dozen police departments in major cities across the USA on allegations of either racial discrimination or police brutality (Gabbidon and Greene 2013). To make the aforementioned even more clear, according to Gabbidon and Greene (2013), “In 2010, the OCR was investigating 17 police departments across the country and monitoring five settlements regarding four police agencies” (pp. 119–120). Plant and Peruche (2005) provide some useful information into why police officers view Black males as potential perpetrators and could lead to acts of brutality. In their research, the authors suggest that since Black people in general, and Black males in particular, are caricatured as aggressive and criminal, police are more likely to view Black men as a threat which justifies the disproportionate use of deadly force. Therefore, it is not beyond the realm of possibility that police officers’ decisions to act aggressively may, to some extent, be influenced by race (Jefferis et al. 2011). The media’s portrayals of Black men are often less than sanguine. Bryson’s (1998) work in this area provides empirical evidence that the mass media that has been instrumental in portraying Black men as studs, super detectives, or imitation White men and has a general negative effect on how these men are regarded by others. Such characterizations can be so visceral in nature that “prototypes” of criminal suspects are more likely to be African-American (Oliver et al. 2004). Not surprisingly, the more Afrocentric the African-American’s facial features, the more prone he or she is expected to be deviant (Eberhardt et al. 2006). Interestingly, it is probable that less than flattering depictions of Black males on television and in news stories are activating pre-existing stereotypes possessed by Whites as opposed to facilitating their creation. According to Oliver et al. (2004), “it is important to keep in mind that media consumption is an active process, with viewers’ existing attitudes and beliefs playing a larger role in how images are attended to, interpreted, and remembered” (p. 89). Moreover, it is reductionist to presuppose that individual is powerless in constructing a palatable version of reality and is solely under the control of the media and exercises no agency. Lastly, Peffley and Hurwitz (2013) describe what can be perceived as one of the more deleterious results of negative media caricatures of Black males. More specifically, the authors posit that most Whites believe that Blacks are disproportionately inclined to engage in criminal behavior and are the deserving on harsh treatment by the criminal justice system. On the other hand, such an observation is curious because most urban areas are moderate to highly segregated residentially which would preclude the frequent and significant interaction needed to make such scathing indictments (Bonilla-Silva 2009). Consequently, the aforementioned racial animus has the effect of increased White support for capital punishment if questions regarding its legitimacy around if capital punishment is too frequently applied to Blacks (Peffley and Hurwitz 2013; Tonry 2011). Ultimately, erroneous (negative) portrayals of crime and community, community race and class identities, and concerns over neighborhood change all contribute to place-specific framing of “the crime problem.” These frames, in turn, shape both intergroup dynamics and support for criminal justice policy (Leverentz 2012).

# Advantage

#### Unions are vulnerable to right-wing populism – the plan creates divisions

Gruenberg 21 [Mark Gruenberg is head of the Washington, D.C., bureau of People's World. He is also the editor of Press Associates Inc. (PAI), a union news service in Washington, D.C. that he has headed since 1999. Previously, he worked as Washington correspondent for the Ottaway News Service, as Port Jervis bureau chief for the Middletown, NY Times Herald Record, and as a researcher and writer for Congressional Quarterly. Mark obtained his BA in public policy from the University of Chicago and worked as the University of Chicago correspondent for the Chicago Daily News. "Worldwide, union leaders grapple with members backing right-wing ‘populists’." https://peoplesworld.org/article/worldwide-union-leaders-grapple-with-members-backing-right-wing-populists/]

WASHINGTON—For years, union leaders on both sides of “The Pond”—also known as the Atlantic Ocean—have faced a problem: Right-wing ideologues’ “populist” rhetoric sways millions of their members to vote against their own interests.

And then once those putative plutocrats achieve public office, they show their true colors, by enacting and enforcing repressive pro-corporate anti-worker laws.

The problem is visible in the U.S., where 40% of union members and their families backed former GOP Oval Office occupant Donald Trump in 2020. But it’s not just Trump.

Over the years, millions supported other right-wing Republicans such as Sens. Mitch McConnell (Ky.), Ted Cruz (Texas), various U.S. representatives, Gov. Greg Abbott (Texas), and former Govs. Bruce Rauner (Ill.) and Scott Walker (Wis.).

All of them, especially Trump and Cruz, spout populist bombast and claim to represent workers—and then enact edicts benefiting the corporate class.

“Trump’s policies favored the rich and the well-connected. But four in ten union voters wanted to give him a second term” last November, said Knut Pankin, moderator of a late-March panel discussion on Right-Wing Populism As An Anti-Worker Agenda. “Why?”

The dilemma exists in other democracies, too. Some unionists heeded anti-immigrant screeds from Germany’s extreme right Alternative for Deutschland, Marine LePen’s French National Rally (formerly the National Front), Norbert Hofer’s Austrian Freedom Party, Hungarian Prime Minister/strongman Viktor Orban of Fidesz, and Poland’s Law and Justice Party, panelists said.

Once those blocs won power in Austria, Poland, and Hungary, or influenced elections in France, mainstream politicians followed their lead, cracking down on workers as well as targeting migrants. The pols feared they would otherwise lose more votes to the right.

The panel, sponsored by Georgetown University’s Kalmanovitz Initiative for Labor and the Working Poor, and the Friedrich Ebert Stiftung, a foundation set up to foster U.S.- German relations, tried to figure out why workers vote that way—and how to reorient them.

That’s not to say panelists Vonda McDaniel, president of the Nashville, Tenn., Central Labor Council, Prof. Federico Finchelstein, an expert on East European politics at New York’s New School for Social Research, and Prof. Thomas Greven of the Free University of Berlin reached a conclusion. They offered some reasons for the rightward shift and some solutions.

All those parties, including the GOP, “started as bourgeois, middle-class, shopkeeper-oriented” organizations, but have since pivoted to right-wing populism, Greven explained.

“Cruz at the Conservative Political Action Conference was trying to be the inheritor of the white working class who supported Trump,” he contended. The Texan proclaimed the GOP “the party of steelworkers, construction workers, police officers, firefighters, and waitresses.”

Nationalism, protectionism, and racism

“But one common denominator” is the GOP and the other right-wing parties, plus the workers they appeal to, “have a radicalized response” that “is nationalist, protectionist and nativist…to all facets of globalization,” he said. Those facets include corporate export of workers’ jobs to low-wage nations and resentment of refugees and migrants, often people of color whom white nativists in Europe and the U.S. view as a threat.

“’Us versus them’ is much easier to sell to working-class constituents. Union status doesn’t inoculate people versus right-wing populism,” Greven said. While populists’ pro-worker rhetoric is “a charade,” and progressives’ answer, “tax the rich,” is not enough, he added.

#### Strikes lead to backlash bills which weaken unions – empirically proven. Partelow ‘19

Lisette Partelow [Lisette Partelow is the director of K-12 Strategic Initiatives at American Progress. Her previous experience includes teaching first grade in Washington, D.C., working as a senior legislative assistant for Rep. Dave Loebsack (D-IA), and working as a legislative associate at the Alliance for Excellent Education. She has also worked at the U.S. House of Representatives Committee on Education and Labor and the American Institutes for Research. “Analysis: A Looming Legislative Backlash Against Teacher Strikes? Why Walkouts Could Become Illegal in Some States, With Strikers Facing Fines, Jail, or Loss of Their License”. 02-18-2019. The 74. https://www.the74million.org/article/analysis-a-looming-legislative-backlash-against-teacher-strikes-why-walkouts-could-become-illegal-in-some-states-with-strikers-facing-fines-jail-or-loss-of-their-license/. Accessed 11-3-2021; MJen]

In 2018 and 2019, after a decade of disinvestment in education that led to stagnant teacher salaries, policymakers have introduced [proposals in states](https://thehill.com/homenews/state-watch/426030-states-race-to-prevent-teacher-strikes-by-boosting-pay) across the country to begin reinvesting, spurred in part by teacher walkouts and activism nationwide. While it is wonderful to finally see broad support for raising teacher salaries and investing in public schools, a predictable backlash has also emerged. Legislators in some states that were hotbeds of teacher activism are [introducing bills](http://nymag.com/intelligencer/2019/01/teacher-walkouts-gop-lawmakers-push-retaliatory-bills.html) to explicitly prohibit walkouts or punish teachers who participate, often with a sprinkling of additional anti-union provisions. **Weakening unions and refusing to invest in education** are long-standing conservative tenets, and these bills are evidence that we should expect conservative policymakers to return to them as soon as they believe them to be politically viable. The consequences of a decade of education funding cuts came into sharp relief last spring, after teachers staged walkouts in [half a dozen states](https://www.nytimes.com/2018/05/16/us/teacher-walkout-north-carolina.html). The [decade of disinvestment](https://www.americanprogress.org/issues/education-k-12/reports/2018/09/20/457750/fixing-chronic-disinvestment-k-12-schools/) in education had its roots in the Great Recession, when many states were forced to drastically cut their K-12 education funding. But as the recovery got underway, many governors — particularly in red states — made intentional policy choices to cut taxes for wealthy residents and corporations rather than allow education funding to rebound to pre-recession levels as revenue increased. As a [result](https://www.americanprogress.org/issues/education-k-12/reports/2018/09/20/457750/fixing-chronic-disinvestment-k-12-schools/%5b), teacher wages stagnated, school budgets were strapped, and expenses such as building repairs and learning materials were deferred year after year. By 2018, reports of [crumbling schools](https://www.motherjones.com/politics/2018/01/its-not-just-freezing-classrooms-in-baltimore-americas-schools-are-physically-falling-apart/), students learning from [decades-old textbooks](https://www.cnn.com/2018/04/03/us/oklahoma-teachers-textbooks-trnd/index.html), high teacher turnover, and staff [shortages](https://tucson.com/news/local/we-continue-to-worsen-nearly-arizona-teaching-jobs-remain-vacant/article_1c8d665a-a422-5c7b-95b9-98afe0cb0c6f.html) in these states became common. Teachers had reached their [boiling point](https://morningconsult.com/opinions/americas-teachers-are-at-their-boiling-point/). The teacher walkouts have been very effective. Though they were a last resort, they finally got lawmakers’ attention in states that had seen the most chronic and severe cuts to education. In the states where teachers walked out, governors who hadn’t historically supported [education funding](https://www.americanprogressaction.org/issues/education/news/2018/10/09/171813/little-late-many-gubernatorial-candidates-education-funding/) agreed to enact significant [pay raises](https://www.latimes.com/nation/la-na-teacher-funding-20180306-story.html) and increases in education funding. For example, in Arizona, Republican Gov. Doug Ducey was forced to sign off on a teacher pay bill he had [previously opposed](https://tucson.com/news/local/gov-ducey-teachers-aren-t-going-to-get-percent-pay/article_75a9b7dc-930b-5374-be12-61fb840e4ced.html) that provided a [20 percent raise](https://www.reuters.com/article/us-usa-education-arizona/arizona-governor-signs-bill-to-boost-teachers-wages-amid-strike-idUSKBN1I40N8) to the state’s teachers — some of the lowest-paid in the nation — and invested an additional $100 million in schools in the state. And now, in several states with low teacher pay that have so far avoided major protests, some governors have proposed salary increases. Remarkably, much of this movement is happening in [deep-red states](https://thehill.com/homenews/state-watch/426030-states-race-to-prevent-teacher-strikes-by-boosting-pay) with historically low education spending. In South Carolina, Gov. Henry McMaster wants to give teachers a 5 percent pay raise; in Texas, Lt. Gov. Dan Patrick has proposed a $5,000 increase; and in Georgia, Gov. Brian Kemp has proposed a $3,000 increase. In all three of these states, teachers are [paid less](http://www.nea.org/assets/docs/180413-Rankings_And_Estimates_Report_2018.pdf) than the national average. It’s likely that last year’s walkouts nudged these governors to consider teacher pay in a way that they wouldn’t have otherwise. Though it goes against traditional conservative principles, supporting these raises is smart politics for these governors. There is widespread public [support for increasing teacher pay](https://www.apnews.com/883e9d387709112a11ee8901c223294e), particularly in the states where walkouts occurred. But even as some conservative policymakers agree to raise teacher salaries, as the 2019 legislative sessions have begun, others in Arizona, Oklahoma, and West Virginia have introduced bills that would [make walkouts illegal](http://nymag.com/intelligencer/2019/01/teacher-walkouts-gop-lawmakers-push-retaliatory-bills.html) and penalize teachers with fines, loss of their teaching licenses, or even [jail time](https://www.vox.com/policy-and-politics/2018/4/23/17270422/colorado-teachers-strike-jail-bill). Some of the bills also contain provisions designed specifically to weaken teachers unions, such as a requirement that teachers must [opt in to dues each year](https://www.nytimes.com/aponline/2019/01/28/us/ap-us-education-bill-west-virginia.html), which sponsors hope will reduce membership by adding an extra step to the process. Legislators in walkout states have also introduced stand-alone proposals designed to **make union membership more difficult** and, therefore, less likely, such as a prohibition on districts [withholding union dues](https://newsok.com/article/5593286/bill-is-revenge-for-teacher-walkout-unions-say) from teachers’ paychecks.