



Environmentalists rally outside the US Supreme Court in Washington DC.

# US COURT HOBBLER EPA'S AUTHORITY OVER CLIMATE EMISSIONS

Legal ruling limits the environmental agency's regulatory powers, gutting Biden's climate plan.

By Jeff Tollefson

**T**he US Supreme Court has limited the regulatory tools that the Environmental Protection Agency (EPA) can use to curb greenhouse-gas emissions, dealing a massive blow to US President Joe Biden's climate agenda. Academics and environmentalists lamented the loss of authority, as well as the precedent that it could set for the EPA – and potentially for other US agencies trying to tackle important societal issues in innovative ways.

"It's a very dangerous decision," says Lisa Heinzerling, a legal scholar at Georgetown University in Washington DC. "As an agency, if you are trying to tackle an important [new] question, and you're trying to do it in a creative way, then this case should give you pause."

The case the court ruled on, *West Virginia v. the US Environmental Protection Agency*, was the most consequential climate litigation in the United States in 15 years. It was also the first major opportunity for the court's new conservative majority to make its mark on US environmental law (former president Donald Trump appointed three justices to the bench, tipping the balance). On 24 June, the court overturned the 1973 decision *Roe v. Wade*,

removing federal protections on abortion. And its EPA ruling was similarly seismic, prohibiting the agency from crafting broad regulations to drive the US power industry away from coal and towards cleaner energy sources, such as wind and solar.

*West Virginia v. the US Environmental Protection Agency* centred on the technical details of how the EPA should regulate greenhouse-gas emissions. Anticipating how the Biden administration would try to curb the power industry, the coalition of Republican-governed states and coal companies that supported the lawsuit, led by West Virginia, sought a pre-emptive ban on broad regulations that would, in effect, overhaul the US power industry. They argued that the 1970 Clean Air Act limits the agency's regulatory power to the scale of individual power plants.

In a 6–3 ruling, all the conservative judges sided with the plaintiffs, and ruled that the agency had overstepped its authority in drafting earlier climate regulations. Regulating the power industry falls under the US Congress's jurisdiction, not the EPA's, says the decision.

Capping carbon dioxide emissions to force a national shift away from coal and towards cleaner energy sources might be a "sensible" climate solution, the justices wrote in the

majority decision – but it is "not plausible" that the US Congress meant to grant such authority to the EPA when it wrote the Clean Air Act. "A decision of such magnitude and consequence rests with Congress itself."

The court's ruling could make it much harder for the Biden administration – and its successors – to curb US greenhouse-gas emissions as promised under the 2015 Paris climate agreement. And that spells bad news for the planet, because the United States is both one of the largest emitters of greenhouse gases in the world and a central player among the countries tackling global warming, says Sabrina McCormick, a sociologist who studies public health at the George Washington University in Washington DC. "This decision creates a critical gap in the global landscape to address catastrophic climate change."

## The back story

The case has a long and unusually complicated history. In 2015, during former president Barack Obama's tenure, the EPA issued a rule meant to curb emissions from US electricity generation. It would have required power companies to shift away from polluting coal-fired power plants and towards cleaner-burning natural gas and renewable sources. After Trump entered the White House, in 2018, the EPA issued a narrower rule that focused on curbing emissions through energy-efficiency upgrades at individual power plants, rather than through industry-wide regulations.

Neither rule went into effect, owing to legal challenges, but the technical question about the legality of broad regulations targeting the electricity sector, as opposed to specific regulations targeting individual power plants, persisted as the cases moved through the courts. The Biden administration's EPA had yet to issue its own rule regulating power plants, but the plaintiffs filed a lawsuit anyway, requesting an advance ruling on the matter.

**"This decision creates a critical gap in the global landscape to address climate change."**

In its decision, the Supreme Court found that the government must be able to point to "clear congressional authorization" when crafting rules of such sweeping consequence. Legal experts are not surprised: over the past year, the court has used similar logic to knock down regulations from other US agencies. Among them was a moratorium issued by the Centers for Disease Control and Prevention on the eviction of tenants who could not pay their rent during the COVID-19 pandemic. Another regulation quashed by the court was a mask mandate issued by the Occupational Safety

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and Health Administration that applied to US companies with more than 100 employees.

It's a high bar that will limit the EPA's ability to act in the years to come, says Richard Lazarus, a legal scholar at Harvard University in Cambridge, Massachusetts. And the odds that Congress is going to step in and provide the agency with new climate authority any time soon are "essentially nil".

## Climate outlook

The last time that Democrats tried to push major climate legislation through Congress was more than a decade ago, under Obama. That legislation stalled in the Senate in 2010, however, and the Obama administration tried to sidestep Congress by relying on actions by US agencies, such as the EPA, to limit greenhouse-gas emissions.

The Supreme Court cited that history in its decision this week, pointing out that Congress had already "considered and rejected" the kind of sweeping climate regulations that the EPA had sought to push forwards in the power industry under Obama.

The Biden administration has so far been following Obama's lead in crafting new climate regulations, targeting everything from power plants and cars to methane emissions from the oil and gas industry. Broad power-plant regulations of the sort considered by the Supreme Court, at least, are now on indefinite hold, but Lazarus says that the EPA has other arrows in its quiver. When it comes to the electricity sector, for instance, the agency can strengthen regulations on the ash that is produced by coal-fired power plants, under laws governing water and hazardous waste, he says.

"Doing so would, as a practical matter, reduce operations of coal-fired power plants and, accordingly, their greenhouse-gas emissions."

Biden has also sought to broaden his administration's strategy, making innovation a centrepiece of his climate agenda. And he has fuelled it in part with government investments and incentives. A federal spending bill that would allocate more than half a trillion dollars to climate programmes over the next decade remains mired in Congress, but last year, lawmakers enacted a bipartisan infrastructure package that included more than US\$200 billion in clean-energy and climate investments. The president has also charged the full suite of US federal agencies, from the agriculture and transportation departments to the treasury, with tackling climate change in creative ways.

The problem, Heinzerling says, is that these agencies are probably considering precisely the kind of innovative policies that the Supreme Court has just questioned in its ruling. "Those agencies are going to have to look at their authority carefully," she says, "and I'm afraid this ruling will make them pull their punches."

# PIG-TO-HUMAN ORGAN-TRANSPLANT TRIALS INCH CLOSER

## US regulatory agency signals willingness to allow first xenotransplant trials.

By Max Kozlov

In the months since physicians showed that it is possible to transplant pig organs into humans, researchers have been calling for US regulators to allow clinical trials of the procedures in people. On 29–30 June, at a two-day meeting of an advisory committee to the US Food and Drug Administration (FDA), agency officials and physicians discussed what regulators would need to move forwards. Most attendees agreed that human trials are needed to help answer the most pressing research questions about inter-species transplants, known as xenotransplants.

The data support the initiation of "small, focused" clinical trials with "appropriately selected patients", says Allan Kirk, a transplant surgeon at Duke University School of Medicine in Durham, North Carolina, who presented at the meeting.

Researchers have repeatedly transplanted pig organs into non-human primates, such as baboons, with success. But these experiments don't simulate human trials perfectly. If the ultimate goal is to do transplants in people, human trials are needed, says Caroline Zeiss, a veterinary specialist at Yale School of Medicine in New Haven, Connecticut.

Such trials, she says, would help to answer a slew of questions, including what the best cocktail of immunosuppressive drugs to give humans to help their bodies accept a pig organ is, and how physicians can manage the risk that transplanted organs might harbour a pig virus. Researchers also want to know which pig breed is best suited for growing transplant organs, and how co-occurring health conditions, such as diabetes, could affect transplant success.

Physicians see an urgent need for the trials: more than 100,000 people are waiting for organ transplants in the United States alone. Researchers have long hoped that xenotransplantation could help to meet demand and, therefore, save lives. "We have people dying each day waiting for organs," says Jay Fishman, a specialist in transplant infectious disease at Massachusetts General Hospital in Boston who participated in the FDA meeting.

## A big question answered

Although there have so far been no formal human xenotransplant trials, physicians have performed a handful of the procedures in the past year, with the permission of institutional ethics boards. In late 2021, for instance, surgeons transferred genetically modified pig kidneys into two legally dead people who had no discernible brain function and were on ventilators. The kidneys functioned normally over the 54 hours of the test and seemed to produce urine (R. A. Montgomery *et al.* *N. Engl. J. Med.* **386**, 1889–1898; 2022).

In January this year, a severely ill man became the first to receive a pig heart, during an operation in Baltimore, Maryland. (The man otherwise faced certain death, so the FDA granted a compassionate-use authorization for the procedure.)

The heart recipient recovered from the surgery, and his body did not reject the genetically modified organ, but he died two months later. Physicians later found traces of porcine cytomegalovirus (PCMV) in the pig heart and now think that the pathogen might have contributed to the man's death. An investigation is under way.

Fishman says it's thought that the virus doesn't infect human cells, but PCMV has been linked to reduced survival times for



Surgeons transplanted pig kidneys into legally dead people late last year.