POLICY & ETHICS

A Year of Trump: Science Is a Major Casualty in the New Politics of Disruption

From a rollback of environmental protections to attempts to repeal the Affordable Care Act, here's a look at the president's impact on science-related issues

By Tanya Lewis on December 14, 2017

President Trump views the eclipse from the White House. *Credit: Mark Wilson Getty Images*

Editor's Note (1/19/18): This is an updated version of an article published December 14, 2017.

The last year has been a political whirlwind, to put it mildly. Donald Trump's presidency has triggered tectonic shifts in numerous areas of government, and science and health care have been no exceptions. Just after the election *Scientific American* predicted Trump's tenure would have widespread effects on environmental policy, climate and energy, health care, space, technology and education. A year into Trump's presidency, many of these forecasts have panned out—along with some things no one saw coming.

The Trump administration has taken what many see as a largely apathetic—and at times actively hostile—approach to science. The position of White House science adviser (director of the Office of Science and Technology Policy, or OSTP) has been empty longer than under any other modern president, and many other science-related agency positions remain unfilled. These posts play a crucial role in advising the chief executive and senior White House staff as well as in informing policies, legislation and budgets. Meanwhile Trump has moved to install pro-industry leaders on science advisory boards to delay or roll back environmental and technological regulations as well as undercut access to health care.

Not all of the news has been bad for science, however. In some areas Trump and his team have largely stayed the course, and research agency budgets have yet to be determined. But many feel the president's overall actions to date do not bode well for U.S. scientific leadership, both at home and abroad.

Here are some of the specific ways Trump and his administration have had an impact on science and science-related issues during their first year in office.

ENVIRONMENT AND ENERGY

It is no secret that Trump does not take the threat of human-caused climate change seriously. Over the past year he has sought to reverse much of former Pres. Barack Obama's environmental achievements. Trump hit the ground running with his nomination in December 2016 of Oklahoma Attorney General Scott Pruitt, a fierce opponent of Obama's climate policies and of regulation in general, to run the U.S. Environmental Protection Agency. The new president followed by installing former Texas Gov. Rick Perry as secretary of the Department of Energy (which Perry had once vowed to shut down). He also named Montana Rep. Ryan Zinke (R)—who would later help to preside over the largest land reduction of national monuments in U.S. history—as Interior Department secretary. Trump has taken an overtly friendly attitude toward the oil and gas industries:

In January 2017 he signed orders to move ahead with construction of the controversial Keystone XL and Dakota Access pipelines, in the face of strong opposition from Native Americans and climate activists.

But perhaps Trump's most controversial environmental decision to date was withdrawing the U.S. from the Paris climate accord, the pledge made in 2015 by more than 190 countries to limit average global temperature increases to 1.5 to 2 degrees Celsius above pre-industrial levels. The terms of the pact (which every country except the U.S. has now embraced) mean the actual withdrawal does not take effect until November 2020, however. And in the meantime many U.S. states and cities have pledged to help meet the climate accord targets, with some now organized under umbrella groups such as C40 and We Are Still In.

Trump and Zinke have also pushed to open more federal lands to drilling and mining. In December Congress passed a massive tax bill, the Tax Cuts and Jobs Act, which opened Alaska's Arctic National Wildlife Refuge to oil and gas exploration. Earlier this month the administration announced a massive expansion of offshore drilling. The president has also proposed deep environmental budget cuts and moved to deregulate pollution monitoring —including repealing Obama's Clean Power Plan, which regulates carbon dioxide emissions from power plants. Just this week, most of the National Park System Advisory Board resigned in protest of the administration's policies on climate change and the environment. Meanwhile thousands of government Web pages related to climate change have been taken down or buried, a recent report found.

Nevertheless, the Trump administration's efforts did not prevent government scientists last year from publishing their National Climate Assessment, a report many researchers feared would be muzzled. Pruitt, for his part, has not reversed the EPA's endangerment finding, which forms the basis for much of the agency's policy on regulating greenhouse gas emissions.

HEALTH

Perhaps no part of Obama's legacy has irked—and motivated—Trump (and his fellow Republicans) more than the Affordable Care Act (ACA), aka Obamacare. As soon as he entered office the president picked an outspoken ACA critic, Tom Price, as his Health and Human Services (HHS) secretary. (Price later resigned over criticism of his use of taxpayer-funded charter flights.) After Trump's inauguration Republicans in Congress immediately took up the challenge of repealing and replacing the ACA. But despite repeated efforts, they were unable to get enough legislative votes. A repeal would have deprived millions of Americans—especially those with lower incomes—of health insurance as well as undermine women's access to health and reproductive care.

Still determined to make the ACA fail, Trump announced in October he would stop paying federal subsidies that reduce the amount low-income people pay out-of-pocket for health

care. The recent tax bill removed the ACA's health insurance mandate. This could result in more uninsured people, and thus higher medical premiums. The tax bill is also predicted to increase the federal deficit by an estimated $1.5 trillion over the next decade—a situation that would trigger automatic cuts to Medicare.

Meanwhile the nation has been facing an opioid addiction and overdose crisis of epic proportions, and the administration has been slow to respond. A presidential panel issued an urgent recommendation in late summer that the White House declare the problem a national emergency—something the president had promised to do. He ultimately declared it a public health emergency, a designation that provides no additional funding on its own. Earlier this month the White House halted a program that evaluates "evidence-based" treatments for substance abuse and behavioral health problems. This comes on the heals of news reports the U.S. Centers for Disease Control and Prevention put out a list of seven terms (including "science-based" and "evidence-based") that it says should not be used in CDC budget requests.

Trump has also made lackluster progress on lowering drug prices, a task he had promised during his campaign to take on. His new nominee for HHS secretary, Alex Azar (who is awaiting Senate confirmation), is a former pharmaceutical executive who has been widely criticized for raising such prices.

TECHNOLOGY

The biggest impact Trump has had on the tech world is via his appointment of Ajit Pai as chairman of the Federal Communications Commission. As predicted, Pai pushed to reverse the 2015 Open Internet Order—an Obama-era regulation that ensures internet service providers cannot deliberately slow or block content from specific sources—the basis for net neutrality. The FCC voted in December to overturn the rule, a move which has been widely denounced by proponents of a free and open internet.

In terms of global technological threats North Korea has been flexing its growing nuclear muscle—and Trump's itchy Twitter finger has fueled the international tension. Pyongyang announced last August it possessed a miniaturized warhead, and threatened to fire it at the U.S. Pacific island territory of Guam. In November North Korea launched an intercontinental ballistic missile that flew higher than any of its previous launches to date—and which the North claimed could reach anywhere in the continental U.S. Last week a warning of an incoming missile—which later proved to be a false alarm—was text-messaged to residents of Hawaii, terrifying the island state and underscoring the country's nuclear jitters.

The U.S. Supreme Court—after it was joined by Trump appointee Justice Neil Gorsuch—in

November heard what some say could be its most important electronic privacy case to date. It hinges on whether the Fourth Amendment right to privacy extends to cell phone data, which the FBI in this case obtained with merely a court order instead of the usual warrant. The data was used to show a suspect had been near several crime scenes. The court will announce its decision by the end of its current term in June.

SPACE AND PHYSICS

The Trump administration has not veered far from existing space exploration policy. Perhaps the biggest news in this arena was the decision to refocus NASA's human exploration efforts on returning to the moon (which three former presidents have pledged and failed to achieve) as a stepping-stone to an eventual journey to Mars, turning away from the Obama administration's plan to capture and visit an asteroid. Trump also revived the National Space Council, a group that coordinates space policy among government agencies, and appointed Scott Pace to lead its day-to-day operations.

NASA itself still has no administrator, however. Last September Trump finally nominated Oklahoma Rep. James Bridenstine (R), a strong proponent of lunar exploration and commercial spaceflight. The full Senate has yet to confirm his appointment.

Trump's 2018 budget request proposed deep cuts to several research agencies including the Energy Department's Office of Science, which funds the largest percentage of physical sciences research in the U.S. If Congress approves these cuts, they would eliminate much of the DoE's climate research and also effectively withdraw the U.S. from the ITER international fusion experiment, *Science* reported last May.

EDUCATION AND RESEARCH

In a presidency that has often seemed to be an attack on scientific expertise and facts themselves, public and higher education have come under threat. Few of Trump's presidential appointments were as widely opposed as that of Department of Education Secretary Betsy DeVos, an ardent supporter of voucher programs that give money to private religious schools at the expense of public ones.

An early form of the GOP tax bill would have greatly increased the tax burden on graduate students by removing tuition income waivers, which could have made graduate school prohibitively expensive for many who are not independently wealthy. The final version of the tax bill did not remove the tuition waivers, however.

And then there is Trump's travel ban, the most recent version of which bars entry to the

U.S. for travelers from eight countries—six of them majority-Muslim. The ban could make it harder for scientists from the affected nations to attend U.S. conferences or perform research. In addition, the Deferred Action for Childhood Arrivals (DACA) program—which protects some 800,000 people who were brought to the U.S. illegally as children from being deported, is now in jeopardy. Some of those affected are now, or are training to be, scientists and doctors.

For many in the science community, these actions collectively paint a picture of a president and administration hostile toward scientific efforts that may not fit their agenda. Whether the next three or seven years confirm or overturn that reputation remains to be seen—if the nation and the world can wait that long.

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