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Burning the Data

Attacks on Climate and Energy Data and Research

By Luke H. Bassett, Kristina Costa, and Lia Cattaneo June 2018

Center for American Progress



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Introduction and summary

Since human-caused changes to the Earth's climate were first identified in the late 1800s, the scientific community has continually advanced its understanding of the processes underlying observed changes, the potential impacts, and solutions.¹ Scientists are confident that we are living through the warmest period in human history and that human activities are the main cause of climate change.² Climate science has developed due in great part to the persistent, skeptical nature of the scientific method; the dedication and mission of its practitioners; and a bounty of data and analysis. New observations and data spark scientists to hypothesize, analyze, and draw conclusions, as well as feed additional study. The U.S. Congress has long funded and defended this virtuous cycle of discovery and its solid foundation of climate and energy data and research on a bipartisan basis; nonpartisan federal career staff have managed the programs; and scientists in government and academia have advanced their findings in the United States and abroad, underpinning the international understanding of and response to the climate challenge. These champions understand the benefits of the scientific endeavor and the urgent need to combat climate change.³ To date, the abundance of climate and energy data and their increasingly diverse sources, levels of precision, and wide range of practical applications have increased Americans' understanding of the global climate system and benefitted users from a wide range of fields, including scientists, policymakers, business leaders, and farmers, among others.

Donald Trump's presidency has fundamentally changed this state of affairs. President Trump, his political appointees, and his congressional allies have repeatedly attacked federal programs that operate or fund climate and energy data and research. With access to budget, regulatory, and other decision-making authorities, the Trump administration and the industry interests supporting it have great power and discretion over not only language, staffing, and policy direction but also the more fundamental aspects of these programs, including funding and operating climate and energy data and research programs. The Trump administration's budget proposals and explicit attacks on science,

scientists, and scientific norms indicate their intent is to undermine not just individual programs, but the entire scientific process, and in so doing to cast doubt upon the severity of the climate challenge facing the United States and the world.

Trump and his allies are seizing on a moment when the federal budget and appropriations processes have become more rancorous than ever. This atmosphere has magnified fights over budget details and line items and led to multiple government shutdowns—hamstringing the federal government’s ability to function properly, putting long-term programs dependent on consistent funding at risk, and painting targets on activities that do not align with the political agenda of those in power. These issues currently affect funding for climate and energy data and research because—even where Congress took steps to maintain or increase funding for several such programs—political appointees still have broad discretion to reprogram funds away from climate change-related activities; to leave available funds unspent; to make policy changes that alter how science is used in federal decision-making; or to deny federal scientists’ requests to conduct professional travel, present their findings at conferences, or publicize taxpayer-supported climate studies. As this report details, these forces pose a grave threat to the public’s understanding of climate change, its science, impacts, and potential remedies, now and for years to come.

President Trump and his allies seek nothing less than to burn the data. By targeting climate and energy data and research, the persistent, well-funded, industry-connected fringe of commentators, policymakers, and researchers who deny the science and reality of climate change are augmenting their former tactic of sowing doubt about published and accepted research by additionally seeking to tear up the scientific apparatus, root and branch. By creating gaps in data, forcing out the federal science workforce, changing how science is used to make decisions, and undermining the performance of federal scientific endeavors and partnerships, Trump and his allies seek to erode public confidence in climate science and in facts themselves. Because climate change poses unprecedented threats to the lives, livelihoods, security, and safety of the American people, monitoring, publicizing, and defending against these attacks on science is not just a matter of transparency or advocacy—it is one of survival.

This report analyzes the climate and energy data and research programs the Trump administration has targeted, their history and major federal funding streams, and their status in the context of President Trump’s attacks on science.

Forming the foundation of climate and energy data and research

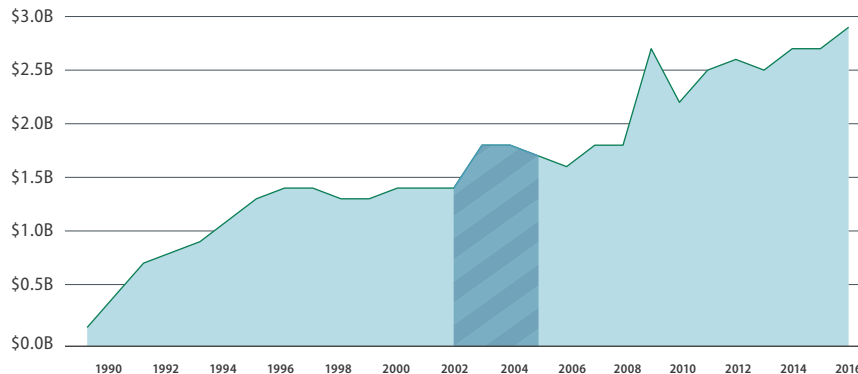
Climate and energy data date back millennia, but modern, consolidated weather and climate record-keeping and major energy analytical tools date to the mid-twentieth century.⁴ In the 20th century, the United States became a global scientific powerhouse, in part because of the federal government's decadeslong commitment to funding basic and applied research across the sciences. This commitment also made the United States an indispensable part of the global scientific community studying climate change.

Domestic climate and energy research arose from the massive scientific endeavor during and following World War II. In the 1950s, the U.S. government centralized its weather data collection efforts in what has since become the National Climatic Data Center.⁵ In the years that followed, scientists at the United States Department of Energy's (DOE) National Laboratories, several federal agencies, and universities developed climate models and energy systems analyses.⁶ In 1990, Congress created the U.S. Global Change Research Program (USGCRP) "to understand, assess, predict, and respond to human-induced and natural processes of global change,"⁷ and to coordinate activities among 13 federal agencies related to climate research.⁸ Authors from these agencies have produced three editions of the National Climate Assessment, which describes the most updated climate science and impacts, and the annual Our Changing Planet report, which describes the progress, accomplishments, and funding levels of USGCRP research activities.⁹ (see Figure 1)

Federal agencies participating in USGCRP annually identify and submit budget information to indicate their contributions to the coordinated research efforts. Agency discretion in this self-identified reporting process complicates tracking of funds over time. Additionally, the USGCRP budget totals have added or removed the participation of certain federal agencies over time, including the Department of Defense (DOD), Department of State, and U.S. Agency for International Development.¹⁰

FIGURE 1
Climate change research funding has risen over time

Sum of funding for fiscal years 1989–2016, in billions of 2009-adjusted dollars



Notes: Values were adjusted to 2009 dollars using the GDP Chain-type Price Index. Values for FYs 2002–2005 were not provided in “Our Changing Planet” reports. Topline numbers include the U.S. Department of State and the U.S. Agency for International Development (USAID). For other years, State Department and USAID are excluded because they are not reported consistently in the “Our Changing Planet” reports and are considered non-add agencies by the U.S. Global Change Research Program (USGCRP). The American Recovery and Reinvestment Act of 2009 included \$641 million in additional funds for USGCRP programs. Values for FY 2016 are estimated; all others are enacted.

Sources: A full list of sources is available at <https://cdn.americanprogress.org/content/uploads/2018/06/06084350/BassettBurningThe-DataFigure1Sources.pdf>.

Despite Congress’ intent in the Global Change Research Act to prevent political interference in climate science, public concern for political interference has surfaced. In August 2017, a leaked draft of the Climate Science Special Report, the first of two volumes in the Fourth National Climate Assessment, raised fears that politically motivated edits may be made between the draft and issuance of the final version.¹¹ Public awareness of the initial draft put pressure on the Trump administration, which subsequently released a final version without changes.¹²

However, the Climate Science Special Report appears to have only narrowly escaped efforts to interfere with its release, as a Freedom of Information Act request uncovered emails showing Environmental Protection Agency (EPA) Administrator Scott Pruitt editing a press release, according to *The Washington Post*. The press release, which was never sent, described Pruitt as “leading the effort” to assemble a team of experts that could “write a detailed criticism” of the report.”¹³

Importance of U.S. climate programs to the international system

Much like the USGCRP's coordination of climate research across the U.S. federal government, the Intergovernmental Panel on Climate Change (IPCC) was created in 1988, under the auspices of the United Nations, to "prepare, based on available scientific information, assessments on all aspects of climate change and its impacts, with a view of formulating realistic response strategies."¹⁴ Since its establishment, the IPCC has produced five comprehensive assessments of the scientific basis for understanding climate change and its observed and anticipated impacts on the planet, economy, and society. Work on the sixth assessment is underway, and it is expected to be fully completed in 2022. Like the National Climate Assessment, IPCC does not conduct new scientific research or monitor climate indicators; instead, the assessments synthesize the conclusions of thousands of peer reviewed studies and public and private data sets to present the best possible consensus view. Scientists from around the world participate on a volunteer basis to draft and peer review the multiple products that comprise each comprehensive IPCC assessment.

Beyond contributing directly to the funding of the World Meteorological Organization, the United States has some of the best climate data in the world, and they are essential to the production of the IPCC assessments and the studies upon which they are based. For instance, the historic global surface temperature data that helped the IPCC determine in its 2014 report that "[w]arming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia," derives primarily from three sources, two of which are U.S. federal data sets.¹⁵

Similarly, the National Oceanic and Atmospheric Administration's (NOAA) Global Historical Climatology Network data set is one of the key sources of information for the IPCC's conclusions about observed changes in precipitation patterns around the world.¹⁶ The DOE provides key data on annual carbon emissions from fossil fuels and cement production.¹⁷ In addition, climate models and supercomputing resources developed by the Lawrence Livermore

National Laboratory have contributed to every assessment conducted by the IPCC, and Livermore researchers were recognized when the IPCC was coawarded the 2007 Nobel Peace Prize.¹⁸

Beyond the IPCC, U.S. federal research assets have contributed enormously to the global understanding of climate change. Mauna Loa Observatory, part of NOAA's Earth System Research Laboratory network, is home to arguably the most famous climate change monitoring project in the world. The Keeling Curve, named for the scientist who first recorded the rapid increase in atmospheric carbon dioxide resulting from the burning of fossil fuels, is based on continuous measurements conducted at Mauna Loa and relies—in part—on federal funds to operate.¹⁹

These are only a few examples of how federal investments in the United States' climate data and science programs underpin the global understanding of climate change. While other countries, notably the United Kingdom and Japan, are also home to important data sets and research programs, future IPCC assessments would be harder to complete without continued U.S. commitment, and the quality of such assessments could suffer from a reduction in available data.

Damage to the international system as a result of the Trump administration's attacks on climate data and science go beyond the IPCC. A common trope among opponents of domestic measures to reduce greenhouse gas emissions is that America cannot trust other countries, and particularly emerging economies, to tell the truth about their efforts to reduce carbon pollution. When announcing his intent to withdraw the United States from the landmark Paris climate agreement, President Trump claimed that other countries such as China and India would be allowed to continue increasing their carbon emissions indefinitely, while the United States would be subject to sharp reductions.²⁰

While this claim doesn't accurately reflect the terms of the Paris agreement or the "nationally determined contributions" put forward by China and India as part of the Paris agreement process, it also makes the administration's recent decision to cancel NASA's Carbon Monitoring System seem particularly shortsighted.²¹ The Carbon Monitoring System enabled the remote monitoring of carbon emissions in the atmosphere, which can help verify whether countries are living up to their pledges to reduce deforestation and forest degradation (REDD+) in the tropics, for instance, as many are being funded to do under the United Nations' REDD+ program.²² These examples point to the critical importance of the federal budget process to building and maintaining the foundation of domestic and international climate and energy research.

The federal budget process and climate and energy research

Under normal circumstances, the White House, federal agency leadership, and Congress formulate a budget with funding levels that highlight—or demote—priorities, and each, in turn, responds to the agendas put forward by the others. The president outlines an initial agenda and funding levels in consultation with federal agency leadership; Congress responds and sets binding funding levels, or appropriations; and the president’s administration then provides specific direction to agency offices regarding spending levels based on each appropriation. The level to which each party heeds or dismisses the budget ideas of the others depends on their political relationships and the funding priorities of individual members of Congress.

At each step in the federal budget process, small decisions can reshape entire programs; the deference or discretion granted by Congress to agency leadership between dictating appropriation levels and actual program spending ultimately creates tremendous latitude for political interference. The entire budgeting process may also take several years, especially when considering long-term projects such as research and development, grant-making, facility construction and operation, or ongoing monitoring and data collection.²³

Circumstances have been abnormal since at least 1997, the last year in which Congress passed all required appropriations bills on time.²⁴ Funding federal programs has become an uncertain endeavor in terms of timeline, size, and policy direction. It has promoted political gamesmanship that has shut down the government on multiple occasions and risked continuity of funding and operation of long-term climate and energy research.²⁵

Proposed funding cuts to climate and energy data and research

The Trump administration’s fiscal year 2018 and 2019 budget requests met intense criticism for the enormous size of cuts proposed to scientific research, climate

science, and energy programs. Rep. Eddie Bernice Johnson (TX), the highest ranking Democrat on the House Science, Space and Technology Committee, described the administration's FY 2019 cuts as "so extreme ... that it will be summarily rejected on both sides of the aisle."²⁶ The Trump administration nonetheless touted its defense of scientific research and development spending, relying on DOD development proposals and ignoring massive cuts to basic or applied research in civilian agencies.²⁷

In January 2018, the nonpartisan nonprofit organization Novim published an encyclopedic assessment of the Trump administration's proposed cuts to climate and environmental programs across the U.S. government, including the USGCRP programs considered in this report and going beyond to the vast array of environmental protection and research programs at the EPA and other agencies.²⁸ Aptly titled "Warning Signs," the report details the effects of FY 2018 proposed cuts to long-term investment and capacity at research institutions within and outside the federal government; environmental and climate modeling and observation, from supercomputers to satellites; climate and environmental impact assessments; and the federal science workforce.²⁹ Novim's analysis found that the Trump administration had proposed a \$2.046 billion, or 21 percent, cut to federal climate and environment spending between FY 2017 and 2018 levels.³⁰ In May 2018, the Government Accountability Office (GAO) also published a report assessing federal funding for climate change-related activities, including a broader set of activities from science to research, development, and deployment of mitigation technologies and resilience planning and strategies. That report indicated total spending on climate change reached \$13.2 billion in FY 2017, across 19 federal agencies.³¹

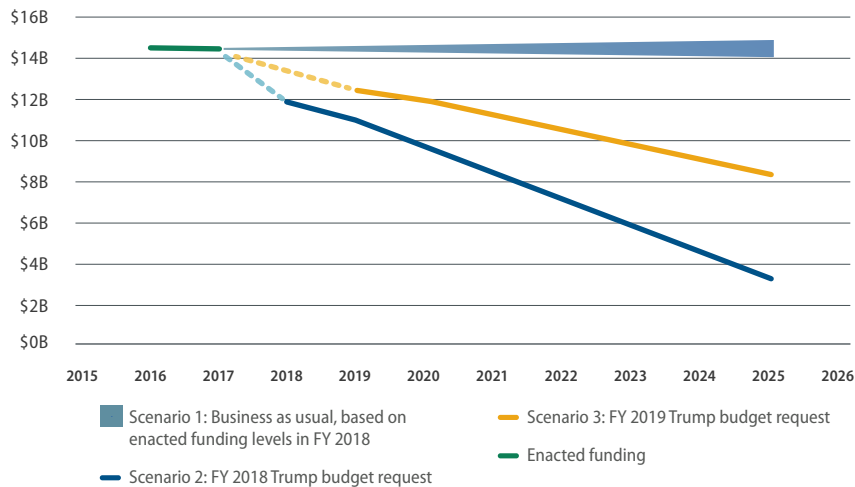
In the context of the Trump administration's budget proposals, including the more recent FY 2019 budget request, the Center for American Progress performed an extensive budget analysis to determine specific line items under threat from explicitly proposed cuts or potential political interference in the future. (see Figure 2) Given the interdependent nature of climate change and energy systems, CAP focused its analysis on climate and energy data and research programs, rather than the broader analysis Novim performed. This budget analysis included those agencies that cooperate within the USGCRP, but CAP expanded its scope to capture a broader definition of climate science, energy discovery, and non-USGCRP initiatives such as energy industry data collection activities. CAP also investigated relevant programs in the DOD and other agencies that participate in USGCRP, but do not publish budget data.

According to CAP's analysis of federal climate and energy data and research funding, President Trump's budget requests would have yielded a \$2.408 billion, or 16.8 percent, cut between FY 2017 and 2018 and \$1.893 billion, or 13.2 percent, cut between FY 2017 and 2019.³²

FIGURE 2

President Trump's budget requests signal an intent to dangerously cut climate and energy data and research

Enacted and projected potential pathways for federal climate and energy data and research funding



Source: Author's calculations based on publicly available federal budget documents on file with the authors and available upon request.

CAP's analysis of the 2018 omnibus confirmed in many cases that appropriators had either salvaged or increased funding levels for many key programs and agencies. The appropriations process reports such data at aggregate levels for several agencies, thus obscuring details needed to effectively track specific climate and energy data and research funding levels. The challenge for appropriators is to strike a balance between giving direction to agencies to ensure funds are used for the purposes Congress intends and wanting to avoid micromanaging agencies to the point where they struggle to respond to new and unanticipated demands on their programs and expertise in between funding bills. However, in places where appropriators have not provided specific direction, public observers may only have access to information provided by the political appointees making funding and programmatic decisions and may therefore remain unaware of efforts to defund, reprogram, or otherwise attack climate and energy data and research programs.

Nonetheless, examples of the Trump administration's proposed cuts reveal the potential for blunt trauma to climate and energy data and research programs. The White House has proposed restructuring the land and climate research units of the U.S. Geological Survey (USGS)—cutting funding for projects that model how the climate is changing and how that will interact with ecosystems and important land uses, such as agriculture.³³ Both budget requests have aimed to make it more difficult for agencies to account for climate change in the management of natural resources. The U.S. Fish and Wildlife Service—the agency responsible for protecting threatened species and running national wildlife refuges—has attempted to improve its management of wildlife by preparing for the effects of climate change on broader landscapes and investing in climate science to help managers make sound decisions.³⁴ Both of these programs have been zeroed out in White House budget proposals, but Congress has continued to fund the programs. Despite these programs' bipartisan roots, dating back to the era of former President George W. Bush, the Trump administration is persistent in asking Congress to eliminate them entirely.³⁵

Among the three agencies that make up the majority of federal climate and energy data and research funding—NASA, NOAA, and the DOE—the Trump administration has proposed eliminating key NASA Earth Sciences missions, reduced funding for NOAA's monitoring programs, and severe cuts to relevant programs under the DOE's Office of Science.³⁶

At NASA, the Trump administration's FY 2018 budget justification included about \$150 million in cuts to the Earth Sciences programs, and completely eliminated four major Earth Sciences missions: Plankton, Aerosols, Cloud, Ocean Ecosystem (PACE), Orbiting Carbon Observatory-3 (OCO-3), Deep Space Climate Observatory (DSCOVR), and Climate Absolute Radiance and Refractivity Observatory (CLARREO) Pathfinder.³⁷ These missions provide vital insights about the planet Earth; for instance, PACE intends to deepen our understanding of how the ocean and ocean plankton interact with carbon pollution in the atmosphere—an important area of research, particularly when one understands that oceans act as an enormous carbon sink.³⁸ OCO-3 is a planned satellite that intends to monitor “the distribution of carbon dioxide on Earth as it relates to growing urban populations and changing patterns of fossil fuel combustion,” according to NASA.³⁹ Understanding these trends informs policymakers' plans to cut carbon pollution from human activities, and it could help analyze whether other countries are meeting their pledges to reduce emissions under the Paris agreement. All four missions were restored in the omnibus appropriations bill passed in March 2018.⁴⁰

At NOAA, the Trump administration's FY 2018 and 2019 budget requests proposed to completely eliminate competitively funded climate research, which provides universities, NOAA labs, and NOAA research institutes with resources to study the climate system, to the tune of nearly \$40 million.⁴¹ In fact, the FY 2019 NOAA budget proposal frankly states it will “dismantle the Climate Program Office (CPO) as it currently exists,” and proposes cuts to every other item with the word “climate” in its title.⁴² NOAA's budget is blatant about its large-scale attacks on “climate” programs, but for programs that contribute to climate-related research, it presents death by a thousand cuts. Cuts of less than \$10 million are proposed to the Big Earth Data Initiative, the high-performance computing for water models, the Sustained Ocean Observations and Monitoring program, partnerships with universities for ocean and coastal mapping, and environmental satellite data analysis and improvement, among others.⁴³ The 2018 omnibus appropriations bill restored funding for the competitive research program, and increased funds for NOAA laboratories and cooperative institutes, National Weather Service observations and forecasts, and other key programs—not just above the Trump administration's budget requests but above FY 2017 actual expenditures.

U.S. Secretary of Energy Rick Perry has frequently championed the “crown jewels” of the National Laboratories and their computational abilities, but his rhetoric elides budget cuts large and small.⁴⁴ In FY 2018, the DOE budget justification proposed eliminating the relatively small (approximately \$24 million) Joint Center for Energy Storage Research, which performs basic research on atomic-level battery chemistry.⁴⁵ The same proposal included a 70 percent cut to all Earth and Environmental Systems Modeling, and the FY 2019 proposal still included a 63 percent cut from 2017 levels; this DOE program provides modeling capabilities that advance scientific understanding of the complex interactions of Earth systems such as the oceans, water cycle, land use, weather and climate patterns, and more.⁴⁶ Experts in the Energy Information Administration, Office of Energy Efficiency and Renewable Energy's Strategic Programs division, the former Office of Energy Policy and Systems Analysis (now simply the Office of Policy), and several other DOE offices perform energy systems analysis vital to policymakers and businesses alike—and several of these programs faced proposed cuts or closure.⁴⁷

The EPA has faced significant challenges to its role in understanding and addressing climate change and collecting data on pollution relevant to energy systems under the Trump administration. In addition to the administration's attacks on science and scientists, detailed later in this report, the funding levels proposed

for EPA's climate and energy programs indicate similar intentions to undermine the agency and its workforce, including by reducing its funding and size.⁴⁸ Like many other agencies, EPA's budget process enables considerable discretion for the programming of funds within appropriation codes. The U.S. Greenhouse Gas Reporting Program, a crucial tool for analyzing greenhouse gas emission trends by sector, gas, and over time, has been slated for major cuts in each of Trump's budget requests, despite being a statutorily mandated function.⁴⁹ Nearly every program that supports data collection and air monitoring for state, local, and tribal governments or major emitters saw major cuts in both FY 2018 and 2019 requests, but the budget justifications do not clearly distinguish between the data and research functions and other activities such as planning, mitigation, or other environmental management.⁵⁰ In the best of times, the high-level funding directives enable EPA scientists greater flexibility in designing effective programs, but when the agency's political leadership prioritizes dismantling climate-relevant activities, the opacity of the EPA budget disables effective oversight and tracking by outside observers.

Grants, such as those that make up a large part of the National Science Foundation (NSF) budget, often provide salary funds for faculty and students at universities. Threats or actual cuts to these resources—such as the 42 percent drop in NSF grants containing the words “climate change” between 2016 and 2017—can have ripple effects, not only on research, but also on researchers' professional opportunities.⁵¹ The University of California system's Academic Senate expressed concern that declines in research funding levels and political interference in grant awards could “negatively impacting their [faculty members'] ability to carry out and further their research” and “constrain ... their ability to recommend promotion and tenure to otherwise outstanding researchers who have been denied grants because of political considerations.”⁵² These changes also affect the more than 55,000 graduate students studying Earth, atmospheric and ocean sciences, and physical sciences.⁵³ The Trump administration has taken aim at funding for graduate students broadly, proposing, for example, to reduce the number of NSF Graduate Research Fellowships—the oldest and most prestigious graduate fellowship of its kind—by 1,000 fellows in FY 2018 and 500 in FY 2019.⁵⁴ In the short term, opportunities for faculty and students may be significantly curtailed, and in the long term, political meddling could dangerously threaten the viability of climate science as a career path.

In the context of international collaboration on climate change, the secretariats for the IPCC and the World Meteorological Organization's Global Climate Observation System report that the State Department eliminated direct U.S. contributions to

their programs in 2017.⁵⁵ Additionally, the United Nations Framework Convention on Climate Change (UNFCCC) reported that U.S. contributions fell from approximately \$4.5 million to \$165,000 between 2016 and 2017.⁵⁶ Agency budgets utilizing multiyear funding cycles, such as the DOD budget process, generally fared better and avoided proposed cuts to climate and energy data and research programs, but the longer timeframe used for these budget processes may yield long-term gaps in the later years of the Trump administration.⁵⁷

Appropriations

Congress rejected many of the Trump administration's proposals to cut or eliminate climate and energy data and research programs in the 2018 omnibus appropriations bill. Important climate and energy research agencies such as NASA, NOAA, the NSF, and the USGS saw overall increases above the previous fiscal year's levels, while even the politically embattled EPA, which the Trump administration had sought to cut by nearly one-third, saw its previous budget levels maintained.⁵⁸

However, below the top lines, some key climate data and science initiatives will still suffer. Most appropriations bills specify funding levels for an agency as a whole—for instance, NASA received \$20.7 billion overall—and for offices within that agency—NASA Science received \$6 billion.⁵⁹ Often, appropriators will further specify funding levels for programs within that agency office—within NASA Science, appropriators laid out funding levels for Earth Science, planetary science, astrophysics, heliophysics, and a few specific telescopes and major international research projects in the 2018 omnibus appropriations bill.

But “NASA – Science – Earth Science” is a \$1.9 billion bucket encompassing some 120 operational missions and projects, studying everything from clouds to the water cycle to global climate change.⁶⁰ Typically, appropriations tables specify funding only to the program level, and committees file what is colloquially known as “report language” in the Congressional Record to provide additional, more granular guidance to agencies on specific congressional priorities.

Unless Congress specifies a funding level or otherwise directs an agency to continue a named mission or project, the executive branch has broad authority to spend appropriated funds within the office as it sees fit. While Congress explicitly restored funds to four major NASA Earth Sciences missions and projects

that had been zeroed out in the Trump administration budget, lawmakers failed to reference the Carbon Monitoring System discussed previously in this report. Because Congress was silent on that \$10 million project, the Trump administration was free to—and did—cancel it.⁶¹

In addition, the White House has the power to submit rescissions requests to Congress detailing budgets for which Congress has appropriated funds that the administration does not want to spend. Once a rescissions request has been submitted, the affected budgets are subject to an automatic freeze for 45 days while Congress considers whether to affirm or deny the cuts.⁶² The Trump White House's first, \$15.4 billion set of rescissions requests included cutting \$10 million from EPA water quality research grants and \$50 million from Department of Agriculture (USDA) programs that survey and research land use changes in flood-prone areas.⁶³ The Trump administration could even submit additional rescission requests later in the fiscal year, meaning climate change and data programs could see automatic spending freezes, even if Congress does not revoke their appropriations.⁶⁴ As of the time of writing this report, Congress has not yet taken action on the first rescissions proposal.

Congress is currently considering appropriations bills for FY 2019. Because that debate is ongoing, this report does not consider additional congressional changes to funding levels for climate data and science programs, and instead only includes reference to the Trump administration's budget requests.

Attacks on scientific programs, processes, and people

Beyond the proposals to reduce support for or completely defund important climate data and science programs described elsewhere in this report, the Trump administration has time after time taken action to delete or revise public-facing resources on climate change, reassigned government scientists or otherwise limited their activities, and pursued or enacted damaging policy changes.

Taken as a whole, these measures illustrate a concerted effort to undermine the credibility of climate science and of scientists in general and to leave both the general public and decision-makers at other levels of government in the dark about the realities of climate change.

The Trump administration's attacks on climate science began even before the presidential inauguration. In December 2016, the Trump transition team sent a questionnaire to the DOE asking for the names of employees and contractors who had attended U.N. climate change proceedings and internal government meetings on the social cost of carbon, as well as the professional society affiliations of employees at the national labs. When the questionnaire became public, the transition was forced to disavow its contents.⁶⁵ Similarly, the transition team at the USDA reportedly wanted agency officials to provide the names of staff who had worked on climate change issues; the career staff running the agency side of the transition declined to provide that information.⁶⁶

Nonbudgetary attacks on climate science

This section summarizes publicly reported, nonbudgetary attacks directed at climate science by the Trump administration to date.

Removal or revision of public-facing resources

The outcome of the 2016 election sparked immediate concern among users of federal climate change data and research that those resources could disappear under the Trump administration. Efforts such as the University of Pennsylvania's Data Refuge Project sprang up to download climate and environmental data and reports onto nongovernmental servers and grew into grassroots campaigns to unite users of federal data and tell their stories.⁶⁷

To date, the Trump administration has stopped short of removing public data sets and other foundational climate science resources from federal websites, and most agencies have continued to release new findings. However, many federal agencies have moved or deleted climate change reports, edited language to remove references to climate change, or taken down informational websites.

Within days of the inauguration, the Trump State Department removed reports on climate change from its website, including those issued in compliance with the UNFCCC directive that countries publish projections of future greenhouse gas emissions based on current policy at least every four years.⁶⁸ Two of the reports are still available on the UNFCCC website, but visitors to the State Department page were greeted with an error saying the page could not be found.⁶⁹

In other cases, reports haven't disappeared entirely from federal websites but have been moved to different URLs, resulting in dead links. The Environmental Data and Governance Initiative (EDGI) has launched a federal website monitoring project looking for changes to climate change information and data. In their January report, "Changing the Digital Climate," the group concludes,

“Language about climate change has been systematically changed across multiple agency and program websites. In many cases, explicit mentions of ‘climate change’ and ‘greenhouse gases’ have been replaced by vaguer terms such as ‘sustainability’ and ‘emissions.’”⁷⁰ Affected agencies include EPA, the Department of Transportation, the State Department, Department of the Interior (DOI), and the National Institute of Environmental Health Science at the Department of Health and Human Services.⁷¹ At DOI, the Bureau of Land Management (BLM) deleted its entire climate change webpage, which had previously detailed how the agency was taking new approaches to managing public lands in the face of a changing climate.⁷² In December 2017, the National Park Service deleted 92 documents about climate change in the national park system from its website.⁷³

Some of the biggest changes have happened at the EPA. In April 2017, the Trump administration took down an informational page about climate change that had existed for more than 20 years and under both Democratic and Republican presidents.⁷⁴ The website served as a resource for the public, scientists, and policymakers alike, linking to multiple resources at the EPA and other federal agencies about climate change, including the EPA’s greenhouse gas inventory reports and information about regional climate impacts in the United States. More than a year later, the page is still down, and the URL directs visitors to the following notice: “We are currently updating our website to reflect EPA’s priorities under the leadership of President Trump and Administrator Pruitt.”⁷⁵

While an archived version of the EPA climate change website from before the inauguration is still available, much of the information it links to from other agencies, including NOAA and NASA, is now at least two years old.⁷⁶ EPA also removed more than 200 webpages for state, local, and tribal governments pertaining to climate change, according to EDGI.⁷⁷

Interfering with scientists’ activities

Trump administration political leadership at a number of agencies have taken steps to interfere with climate and environmental scientists’ professional activities, including by reassigning them to other duties, rendering them ineligible to continue serving on advisory boards by changing policies governing those boards, or simply by denying them permission to travel or present their findings at professional conferences.

In June 2017, at a time when he was the only Senate-confirmed appointee at the department, Interior Secretary Ryan Zinke reassigned dozens of senior civil servants, a sweeping move that was called “unprecedented” in scale by former Fish and Wildlife Service Director Dan Ashe.⁷⁸ One of the senior executive service officials, Joel Clement, had led the Office of Policy Analysis, but was reassigned to collect and process royalty checks from fossil fuel companies. A month later, Clement filed a formal complaint with the U.S. Office of Special Counsel, alleging he was retaliated against “for speaking out publicly about the dangers that climate change poses to Alaska Native communities,” including at a U.N. conference, and “was reassigned with the intent to coerce [him] into leaving the federal government.”⁷⁹

Elsewhere in the government, Trump administration appointees altered long-standing precedents in order to sideline impartial scientists and elevate industry voices. Historically, members of the EPA’s outside Board of Scientific Counselors served two terms; in May 2017, the Trump EPA unexpectedly notified half of the board’s 18 members that they would not be re-appointed.⁸⁰ Not only had the terminated members been previously told they would be re-appointed, but the move came just weeks after the board discussed the importance of EPA’s work on climate change at their April meeting, according to reports.⁸¹

A few months later, EPA Administrator Pruitt enacted a policy change to stack three of the agency’s outside advisory committees—the Board of Scientific Counselors, the Scientific Advisory Board, and the Clean Air Science Advisory Committee—by barring any researcher who received an EPA grant from serving, even though the boards already had strict conflict-of-interest procedures in place for each assignment.⁸² Scientists who work for private corporations, industry interest groups, or receive funds from industries regulated by EPA would not be prohibited from serving on the boards under the Pruitt policy.⁸³ The director of the Scientific Advisory Board under former President Ronald Reagan told *The Washington Post* the move “represent[s] a major purge of independent scientists” from the EPA.⁸⁴

Other outside advisory committees were eliminated entirely. In August 2017, the Trump Commerce Department disbanded the 15-member Advisory Committee for the Sustained National Climate Assessment after a political appointee at NOAA faulted the committee, writing in an email: “It only has one member from industry, and the process to gain more balance would take a couple of years to accomplish.” The email was released this year in response to

a Freedom of Information Act request.⁸⁵ The job of the Advisory Committee was to identify ways to make sure that the findings of the massive, scientifically complex National Climate Assessment were understandable and usable to state, local, and tribal decision-makers. Its role was so critical that New York state, Columbia University, and the American Meteorological Society banded together to recreate the committee—an important and laudable stopgap measure, but not a permanent substitute for honest and robust national leadership.⁸⁶ Also in August 2017, DOI did not renew the charter for the 25-member Advisory Committee on Climate Change and Natural Resource Science, having previously canceled an April meeting of the committee.⁸⁷

In other cases, federal scientists have been blocked from presenting their findings at conferences or other engagements. For example, in October 2017, EPA canceled talks on climate science by three of the agency’s scientists at a conference on the health of Rhode Island’s Narragansett Bay. The scientists had contributed to a report being released at the conference, and EPA helps fund the program that was hosting the event.⁸⁸

Even though 2017 was one of the worst wildfire seasons on record, the USDA denied travel approval for a U.S. Forest Service scientist and an expert on the relationship between climate change and wildfires who was slated to give a talk at the November 2017 meeting of the International Fire Congress.⁸⁹ Dozens of other Forest Service employees who were not planning to present on climate change were granted permission to travel.⁹⁰

A travel and budget cap imposed by DOI leadership led to a 60 percent drop in the number of U.S. Geological Survey scientists attending the biggest annual gathering of Earth scientists, geologists, and climate scientists in the world, including at least one scientist from the agency’s Climate and Land Use Change mission area, whose travel request was denied just 10 days before the conference. He told *The Washington Post* he was scheduled to participate in several conference sessions and had helped organize events at the conference, as well as that DOI had denied his travel request even though he had money in his budget to cover his attendance.⁹¹ Political appointees at DOI even intervened to remove the top climate scientist and the park superintendent at Montana’s Glacier National Park from the delegation of employees briefing Facebook CEO Mark Zuckerberg when he visited the park in 2017.⁹² In cases where political appointees prevent federal scientists from presenting their research, traveling, or otherwise accurately communicating their work, the funding levels approved by Congress for the functioning of those programs matters little because the data never sees the light of day.

This chilling atmosphere for scientists has helped contribute to an exodus of expertise among career federal staffers, particularly at the EPA. In 2017, more than 700 people left the EPA, including more than 200 scientists. For the most part, those who have left are not yet being replaced; of 129 EPA hires in 2017, just seven were scientists.⁹³ These departures represent decades—if not centuries—of cumulative experience, and it will take years and significant investment to begin to undo the damage.

Policy changes affecting science-based decision-making

The Trump administration has also pursued a number of administrative policy changes that undermine the past conclusions of climate science and seek to diminish the use of public health and environmental data in future agency decisions.

Two months after taking office, President Trump issued an executive order directing revisions to climate change policies across the federal government, including requiring agencies to scrap their recently completed plans for considering the impacts of climate change on national security.⁹⁴ This move was followed in December 2017, when the White House issued a new national security strategy which removed all mention of climate change from the list of threats facing the United States.⁹⁵ While this was widely reported as a repudiation of the Obama administration, intelligence and defense documents had referenced the national security threat from climate change going back to the Bush administration, and the argument has gained bipartisan traction on Capitol Hill, as the Center for Climate and Security noted in their analysis of Trump’s national security strategy.⁹⁶

A Pentagon report on physical threats to military installations around the world that was initially drafted during the Obama administration was revised prior to release to remove 22 references to climate change and make other substantive changes, including deleting a map showing the risk of sea level rise to specific sites.⁹⁷ Retired U.S. Navy Vice Adm. Dennis McGinn told *The Washington Post*, “The wordsmithing, not saying ‘climate,’ I could live with that. But taking out ... maps of critical areas of flooding, that’s pretty fundamental.” Failure to directly name the threats facing military installations and operations and removing data from public reports could make it that much harder for commanders at vulnerable bases to gain approval for infrastructure and other investments to protect their facilities and service members from the impacts of climate change.

At the EPA, a political appointee in the public affairs office was put in charge of approving agency grants before they were awarded and screening solicitations before they were issued. *The Washington Post* reported the official “told staff that he is on the lookout for ‘the double C-word’ — climate change — and repeatedly has instructed grant officers to eliminate references to the subject in solicitations.”⁹⁸ Similarly, an internal DOI memorandum issued in December 2017 instructed staff to submit grant solicitations to political staff for screening prior to publication, and warned that “circumventing the Secretarial priorities of the review process will cause greater scrutiny.”⁹⁹

Once again, two of the most significant attacks on climate science have been launched by the Trump EPA. The agency dramatically reduced two technical values used to calculate benefits from climate change-related rule-makings, cutting the social cost of carbon from \$42 per ton to between \$1 and \$6 per ton, and reducing the social cost of methane from \$1,400 per ton to \$55 per ton, despite the fact that many experts believe the social cost of carbon should have been pegged higher.¹⁰⁰ “This was not evidence-based policymaking, this was policy-based evidence-making,” former Council of Economic Advisers member Michael Greenstone told E&E News about the decision to dramatically reduce the social cost of carbon. The move means that the federal government will not be accurately considering the future economic costs of climate change, even as Trump administration appointees seek to roll back rules limiting greenhouse gas pollution.

In May 2018, EPA Administrator Pruitt also dramatically revised the agency’s guidelines for what kind of data and studies it will rely on when designing and issuing rules. Pruitt claimed the new policy would increase transparency, when in fact it will limit EPA’s ability to use many studies on linking air pollution and human health, which have historically formed the basis for landmark rule-makings. Many of the studies rely on confidential medical data that cannot be published or redacted effectively.¹⁰¹ Although some air pollutants, such as sulfur dioxide, do not contribute directly to climate change, the measures used to reduce them can simultaneously reduce greenhouse gas emissions, and reductions in both types of pollution can result in significant health co-benefits.¹⁰²

Conclusion

In a 1974 interview, the philosopher and public intellectual Hannah Arendt said, “What makes it possible for a totalitarian or any other dictatorship to rule is that people are not informed; how can you have an opinion if you are not informed? If everybody always lies to you, the consequence is not that you believe the lies, but rather that nobody believes anything any longer. ... And a people that no longer can believe anything cannot make up its mind.”¹⁰³

Since assuming power, President Trump, his administration, and his congressional allies have targeted the data and research that inform the public about the reality of climate change. The Trump White House’s budget proposals, detailing dramatic cuts to climate and energy data and science programs, set the tone for political appointees throughout the government to seek ways to circumvent the will of the congressional appropriators who rejected those cuts—whether it is by removing or editing public-facing resources, interfering with federal scientists’ professional activities, or tampering with or canceling programs in a manner that violates the spirit, if not the letter, of the law, as with the elimination of the NASA Carbon Monitoring System discussed earlier in this report.

Data may be lost, scientists may lose their funding or jobs, and the quiet destruction of the federal climate and energy data and research endeavor may go by without notice. The survival of climate and energy data and research should not—and cannot—depend on President Trump’s or his allies’ discretion. Policymakers, analysts, reporters, and the public need to be vigilant in monitoring how agencies spend the dollars Congress has appropriated, particularly in light of the significant policy changes to how agencies use scientific data detailed throughout this report. In addition, as noted previously, interruptions to individual program budgets at agencies with multiyear funding cycles—such as the DOD—could result in long-term delays in advancing climate science, and interference with grantmaking to academic institutions at the National Science Foundation, the EPA, and other agencies could cause lasting damage to the

United States’ research and science base. In future reports, CAP will continue to monitor and report on the relationship between congressional appropriations for climate and energy data and research programs and consequent agency funding, personnel management, and policy decisions.

Muzzling scientists, attempting to defund research programs, and subjecting grant solicitations to political screenings will not alter the reality of climate change, but it will lead to more Americans who, in Arendt’s formulation, “no longer can believe anything.” Climate change doesn’t care whether you believe in it or not. It is both a scientific fact and, increasingly, a lived reality for millions of Americans whose lives have been destroyed by devastating wildfires, floods, and storms. And the American government owes them—and all of us—the courtesy of telling the truth.

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