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The Budgetary Impact of Climate Change

The Outlook is Bleak, and the Current Administration is Making Things Worse

America's leadership role in the battle against climate change is under serious threat. Republicans in Congress and the Trump Administration are not only denying the problem exists, but are underfunding the agencies researching and responding to the crisis. They are rolling back regulatory efforts to curb greenhouse gas emissions and backpedaling on international agreements to combat climate change. Climate change is a multi-level danger; it creates more natural disasters, poses health and safety hazards, and represents a national security threat – but it also has serious budgetary consequences.

As recent devastating hurricanes, historic wildfires, destructive floods, and other weather events have shown, spending for disaster relief can quickly skyrocket. As the just-released Volume II of the Fourth National Climate Assessment points out, the economic consequences of climate change could be brutal, causing "substantial net damage to the U.S. economy throughout this century." The report also discusses how certain risks can be reduced through adaptation and mitigation, but it finds that current efforts are not sufficient to "avoid substantial damages to the economy, environment, and human health over the coming decades."

> *"With continued growth in emissions at historic rates, annual losses in some economic sectors are projected to reach hundreds of billions of dollars by the end of the century—more than the current gross domestic product (GDP) of many U.S. states."*
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> *- Fourth National Climate Assessment Report, Volume II*

It is not just this report that is sounding the alarm on our government's response to climate change. The October report by the Intergovernmental Panel on Climate Change delivered sobering news: if greenhouse gas emissions continue at the current rate, the atmosphere will warm by as much as 1.5 degrees Celsius between 2030 and 2052. This will cause persistent and long-term changes to the climate system, including sea level rise, which will inundate coastlines and threaten species; warmer oceans, increasing ocean acidity and decreasing ocean oxygen levels; and severe risks to health, livelihoods, food security, water supply, and economic growth.

In addition, since February 2013, the Government Accountability Office (GAO) has placed climate change on its "High-Risk" list, recommending that the federal government limit its fiscal exposure by better managing climate change risks. It is easy to see why. Climate change has already cost the federal government billions of dollars, and these costs will likely continue to skyrocket in the future. The federal government spent more than $350 billion responding to extreme weather and fire events from 2005 to 2014.[1] For 2018 alone, Congress appropriated more than $130 billion for disaster-related purposes.[2]

The Department of Defense has also recognized the security threats posed by climate change. In its 2014 Quadrennial Defense Review, the Pentagon stated: "The impacts of climate change may increase the frequency, scale, and complexity of future missions, including defense support to civil authorities, while at the same time undermining the capacity of our domestic installations to support training activities. Our actions to increase energy and water security, including investments in energy efficiency, new technologies, and renewable energy sources, will increase the resiliency of our installations and help mitigate these effects." (*See text box on page 4 for more on national security and climate change*.)

Given all of these findings, cutting funding for climate change-related research and mitigation activities is a classic penny-wise, pound-foolish approach. Measures to study and reduce climate change's risks to lives and property will pay dividends far into the future. Without action to reduce the threats posed by climate change, federal spending in response to its consequences will certainly rise.

What is climate change?

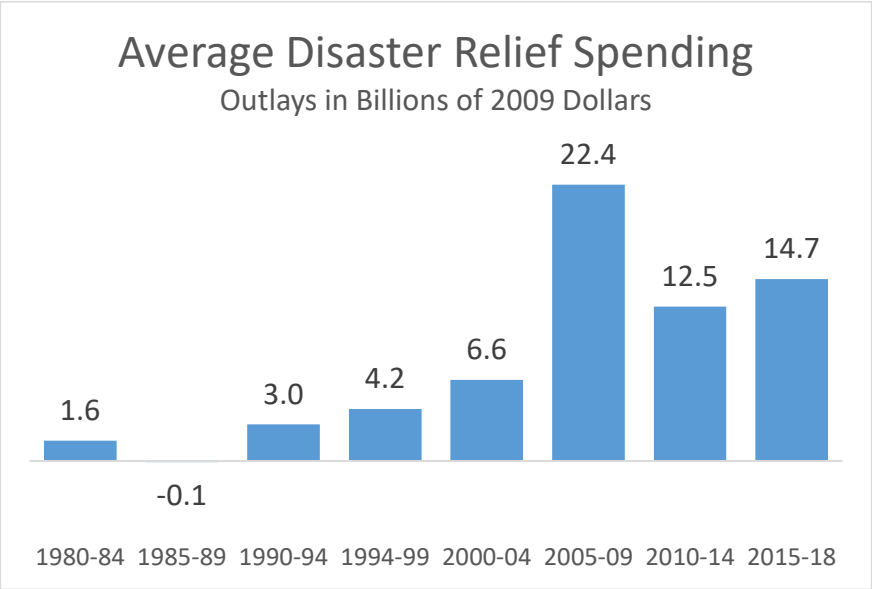
Climate change refers to the global rise in temperatures since the late 19th century, a change driven largely by increased carbon dioxide and other human-made emissions into the atmosphere. The term includes not just global warming, but also encompasses the warming oceans, melting glaciers, rising sea levels, and extreme weather events that result.

The science behind climate change is strong. According to the National Aeronautics and Space Administration (NASA), "the vast majority of actively publishing climate scientists – 97 percent – agree that humans are causing global warming and climate change. Most of the leading science organizations around the world have issued public statements expressing this, including international and U.S. science academies, the United Nations Intergovernmental Panel on Climate Change and a whole host of reputable scientific bodies around the world."

[1] Chapter 24: Federal Budget Exposure to Climate Risk, Analytical Perspectives, Budget of the United States Government, Fiscal Year 2017.

[2] This figure represents the amounts designated for disaster and emergency funding outside the regular spending caps.

How does climate change influence the budget?



Amounts are for disaster relief and insurance, but do not represent a comprehensive overview of all federal disaster related spending. 2018 is an estimate.

Since 1980, there have been 238 weather and climate disasters where overall damages have exceeded $1 billion. These severe events alone have resulted in losses of more than $1.5 trillion to governments, businesses, and individuals.[3] Federal spending for direct disaster assistance, including flood insurance, has increased dramatically in recent years. The average spending in this area for 2015 to 2018 is more than nine times higher than it was in the first half of the 1980s, even after adjustment for inflation.

In the North Atlantic, hurricane intensity, frequency, and duration have all increased since the early 1980s. The frequency of the strongest hurricanes (Category 4 and 5) has increased as well.[4] The rising sea levels and heavier, more frequent, and more damaging storms brought about by climate change will result in additional spending for disaster response and flood insurance in the future.

Climate change also increases the risk of wildfires, making the fire season longer, and creating drier conditions through rising temperatures and earlier snowmelt.[5]

The Congressional Budget Office (CBO) estimates that spending for the crop insurance program will total nearly $80 billion over the next ten years, with more than 300 million acres insured every year. But like flood insurance, the crop insurance program faces future additional losses

[3] Billion-Dollar Weather and Climate Disasters, National Oceanic and Atmospheric Administration, National Centers for Environmental Information
[4] Third U.S. National Climate Assessment Report, May 2014
[5] Union of Concerned Scientists' compiled data on wildfire risk.

from climate change through more frequent droughts, diminished crop yields, and eventual altered growing seasons.

Federal property and routine government activities are vulnerable to the impact of rising sea levels and a warming planet; the federal government owns more than 775,000 individual buildings and structures with a total estimated replacement cost of nearly $2 trillion[6]. The Department of Defense operates more than half a million facilities worldwide, valued at more than $1 trillion, on almost 28 million acres of land.[7]

Government spending to protect energy and water supplies, transportation and communications infrastructure, and human health will likely rise dramatically due to a warming planet. In additional to federal expenditures, climate change also poses risks to local economies and state budgets.

Measuring federal expenditures for climate change activities is complicated. This complexity can be compounded by the political climate. When an Administration recognizes the dangers posed by climate change and is willing to make investments to reduce greenhouse gases, agencies are much more likely to describe

Climate change is a security risk

Climate change poses a national security threat. In written testimony to the Senate Armed Services Committee, Secretary of Defense James Mattis stated that climate change "can be a driver of instability and the Department of Defense must pay attention to potential adverse impacts generated by this phenomenon," and that "climate change is a challenge that requires a whole-of-government response."

A July 2015 Department of Defense report found that "climate change is an urgent and growing threat to our national security, contributing to increased natural disasters, refugee flows, and conflicts over basic resources such as food and water."

The report went on to say that global climate change "will aggravate existing problems—such as poverty, social tensions, environmental degradation, ineffectual leadership, and weak political institutions—that threaten domestic stability in a number of countries."

A January 2018 DoD study found that nearly half of US military sites are threatened by wild weather linked to climate change – not just stronger and more frequent storms, but also drought, wind, and other flooding. This threat was evident when Tyndall Air Force Base was struck by Hurricane Michael, exposing 17 of their F-22 stealth fighter jets to the storm. The aircraft, which were grounded for maintenance and unable to be made airworthy before the hurricane hit, are valued at nearly $6 billion – more than it would cost to rebuild the entire base.

[6] "Climate Change: The Fiscal Risks Facing the Federal Government," Office of Management and Budget, November 2016.
[7] Department of Defense Real Property Portfolio, Fast Facts 2016

their activities as climate-change related. In an Administration led by climate-change deniers, organizations may downplay the aspects of their work related to climate change, even as the group's mission remains the same.

It is nearly impossible to compile a full estimate of federal climate change expenditures without cooperation from the Office of Management and Budget (OMB) and the executive branch agencies involved. In April, GAO recommended that OMB provide information on the federal fiscal exposure to climate change, including "costs to repair, replace, and improve the weather-related resilience of federally-funded property and resources; costs for federal flood and crop insurance programs; and costs for disaster assistance programs."[8]

But in a July letter to Congress, OMB refused to comply with GAO's recommendations, citing "significant uncertainty in climate projections" and the subjective nature of categorizing climate change-related spending. OMB deflected the request to consider federal fiscal exposure to the agencies, and claimed existing budgetary processes were sufficient to analyze climate spending. However, a November 2016 report from OMB issued during the prior Administration found that the costs of climate change would range "from tens of billions to hundreds of billions per year by late-century," but that was "only a narrow window into the full fiscal risks of climate change." The report focused on five specific program areas: crop insurance, health care, wildfire suppression, hurricane-related disaster relief, and flood risk for federal facilities.

In addition, last year CBO stated that climate change will affect the federal budget in several ways, from increased spending on crop insurance, flood insurance, and disaster relief; to changes to the nation's economic output, which affects federal spending and receipts.[9] CBO expects the costs of hurricane damage and related federal spending to rise, from an annual average of about 0.16 percent of GDP today (about $28 billion) to 0.22 percent by 2075 (roughly $39 billion in today's economy). CBO attributes nearly half of that increase to climate change and the rest to increased coastal development.[10]

How the Current Administration is Making Things Worse

The current Administration not only denies that climate change exists and refuses to assess fiscal exposure to this crisis, it actively pursues policies that will make the problem worse. The Administration has proposed again and again to cut funding for agencies responsible for studying climate change and researching renewable energy. The President's budget for 2019 cut or eliminated programs at the Environmental Protection Agency (EPA) that focus on climate

[8] GAO Report 18-223, "CLIMATE CHANGE: Analysis of Reported Federal Funding," April 2018
[9] Answers to Questions for the Record Following a Hearing on the Budget and Economic Outlook for 2017 to 2027 Conducted by the Senate Committee on the Budget, April 2017
[10] CBO Report, "Potential Increases in Hurricane Damage in the United States: Implications for the Federal Budget," June 2016

change research, environmental research, and emissions reduction. At NASA, the budget cut Earth science, ocean observation, and energy monitoring missions that provide key data for climate scientists. At the Department of Energy, the budget cut applied research and development programs – as well as research into energy efficiency and renewable energy – while increasing spending for fossil fuels.

The Administration's efforts are not confined to budget cuts, as it rolls back several Obama-era regulations that target greenhouse gas emissions. The EPA has announced plans to relax rules on energy companies that release methane into the atmosphere. It is also weakening fuel efficiency standards for cars and light-duty trucks, as well as scrapping the Clean Power Plan, which reduces carbon emissions from power plants.

Federal agencies are no longer required to consider climate change when reporting on the environmental impact of an action or project. The Administration has scrubbed mention of the issue from federal websites and agency strategic plans, and has made it much harder to access important data.

In addition, the President's budget eliminates funding for the Global Climate Change Initiative – a program to help other countries face climate change – it cut funding for the State Department by 30 percent below the 2017 level, hobbling a critical pillar of national security and international diplomacy.

As of February 2018, 195 countries have signed the Paris Agreement under the United Nations Framework Convention on Climate Change. But the President has backed away from this agreement, in a move that is both irresponsible and isolating. The Paris Agreement provides great flexibility for countries in setting and meeting goals, and U.S. participation in it was a strong symbol of our place in the international community. A global problem like climate change requires international cooperation. Diminishing our role with a myopic "America First" agenda undermines our status as a global leader.

Conclusion

As a leader in the fight against climate change, America should be spurring innovation, creating renewable resources, and spearheading efficiency research. We should be boosting mitigation efforts to reduce losses from future natural disasters. We should be working with the international community to find solutions to a warming planet. Instead this Administration backtracks on previous efforts to fight climate change, using denial, isolationism, and funding cuts to make the problem worse – and far more expensive.

> *"Climate change is a complex, interdisciplinary issue with the potential to affect nearly every sector and level of governmental operations."*
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> *-Federal Climate Change Expenditures Report to Congress, August 2013*

Climate change will influence the nation's economy, security, and budgetary bottom line. The longer we wait to act, the more money we will spend responding to natural disasters and other climate-related challenges. Failing to fund climate research and promote clean energy will result in lasting damage to the atmosphere and our fiscal outlook. Ignoring diplomacy and our global partners exposes us to climate change threats as well as military dangers. The Trump Administration could reduce the peril posed by climate change, but instead is making all the wrong choices.