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SCIENTIFIC INTEGRITY IN FEDERAL AGENCIES

JOINT HEARING

BEFORE THE

SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
HOUSE OF REPRESENTATIVES

ONE HUNDRED SIXTEENTH CONGRESS

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SCIENTIFIC INTEGRITY IN FEDERAL AGENCIES

WEDNESDAY, JULY 17, 2019

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY,
JOINT WITH THE SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT,
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY,
Washington, D.C.

The Subcommittees met, pursuant to notice, at 10:02 a.m., in room 2318 of the Rayburn House Office Building, Hon. Haley Stevens [Chairwoman of the Subcommittee on Research and Technology] presiding.

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT
U.S. HOUSE OF REPRESENTATIVES

HEARING CHARTER

Scientific Integrity in Federal Agencies
Wednesday, July 17, 2019
10:00 a.m.
2318 Rayburn House Office Building

PURPOSE

The purpose of the hearing is to discuss the importance of scientific integrity policies within federal agencies that fund, conduct, or oversee research and to examine the status of current such policies. The Subcommittees will also receive testimony on H.R. 1709, the *Scientific Integrity Act.*

WITNESSES

- **Mr. Michael Halpern**, Deputy Director; Center for Science and Democracy; Union of Concerned Scientists
- **Mr. Joel Clement**, Arctic Initiative Senior Fellow; Belfer Center for Science and International Affairs; John F. Kennedy School of Government at Harvard University
- **Dr. Roger Pielke Jr.**, Director, Sports Governance Center; Professor, Environmental Studies Program; University of Colorado Boulder
- **Mr. John Neumann**, Managing Director; Science, Technology Assessment, and Analytics; U.S. Government Accountability Office (GAO)

KEY QUESTIONS

- What is the current state of federal scientific integrity policies?
- How can agency Scientific Integrity Officials uphold and implement scientific integrity policies most effectively?
- Do existing scientific integrity policies offer sufficient safeguards for federal scientific programs and employees, and the open communication of science?
- How can legislation, including the *Scientific Integrity Act*, strengthen scientific integrity protections for the creation, use, and dissemination of federal scientific research?

BACKGROUND

In the context of the federal government, scientific integrity refers to the process by which federal science is conducted, used to inform the policymaking process, and disseminated to the broader public. Scientific integrity exists within the government when "independent science fully

and transparently informs policy decisions, free from inappropriate political, ideological, financial, or other undue influence," and it also includes "the open, reliable conduct, supervision, and communication of science as well as the appropriate use of science in policy creation."[1]

The current framework for federal agency scientific integrity arose during the 2000s, in part as a response to a series of high-profile episodes of political interference with federal science. In response, Section 1009 of the *America COMPETES Act of 2007* directed the White House Office of Science and Technology Policy (OSTP) to "develop and issue an overarching set of principles" to guide federal agencies in creating their own scientific integrity policies.[2]

OSTP Guidance for Federal Scientific Integrity Policies

On March 9, 2009, President Obama issued a Memorandum to federal agencies articulating six principles of scientific integrity and assigning oversight responsibilities to the OSTP Director.[3] In turn, OSTP issued implementing guidance in a four-page Memorandum to federal agencies on December 17, 2010. The 2010 Memo directed science agencies to create or update scientific integrity policies that meet certain criteria and to report back to OSTP on their efforts within 120 days.[4] The priorities OSTP directed agencies to consider in preparing their policies included:

- Shielding agency science from "inappropriate political influence;"
- Preventing political appointees from acting to "suppress or alter scientific or technological findings";
- Strengthening the "credibility of Government research" through the appropriate use of merit-based personnel decisions, independent peer review, conflict-of-interest rules and whistleblower protections;
- Facilitating "the free flow of scientific and technological information" among agencies and the public;
- Establishing "principles for conveying scientific and technological information to the public" in a clear and accurate manner;
- Promoting "openness and transparency with the media and the American people" by permitting federal scientists to speak publicly about their work without interference; and
- Promoting openness and transparency by offering knowledgeable spokespersons to explain the scientific facets of the agency's activities.

The 2010 Memo also addresses agency use of federal advisory committees (or FACA Committees) as a source of scientific advice. OSTP proposed that agencies adopt formalized standards for transparent member recruitment, merit-based member selections, and advisory

[1] Union of Concerned Scientists, "Preserving Scientific Integrity in Federal Policymaking," January 2017, https://www.ucsusa.org/sites/default/files/attach/2017/01/preserving-scientific-integrity-in-federal-policymaking-ucs-2017.pdf.
[2] *America COMPETES Act of 2007*, Public Law 11-69, August 9, 2007, https://www.congress.gov/110/plaws/publ69/PLAW-110publ69.pdf.
[3] Presidential Memorandum, "Scientific Integrity," March 9, 2009, https://obamawhitehouse.archives.gov/the-press-office/memorandum-heads-executive-departments-and-agencies-3-9-09.
[4] OSTP Memorandum, "Scientific Integrity," December 17, 2010, https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/scientific-integrity-memo-12172010.pdf.

committee autonomy in the completion of all reports and recommendations without being subject to agency revision. Finally, the OSTP guidance instructed agencies to support "the professional development of Government scientists and engineers" as an aspect of scientific integrity, including through the encouragement of federal scientists to publish their research in scholarly journals, serve in editorial capacities for scholarly journals, present their research at professional meetings, participate in professional societies, and receive professional honors and awards.[5]

While the OSTP memo established an important framework for agency scientific integrity policies, it did not direct agencies to designate Scientific Integrity Officials (SIOs) to oversee them or otherwise provide direction on how agency policies should be administered, defended and adjudicated. OSTP also did not direct agency SIOs to meet regularly with each other or with OSTP itself in order to share methods and best practices. OSTP omitted any guidance concerning the creation of agency procedures to investigate potential violations of scientific integrity policy and resolve any substantiated violations. Lastly, OSTP's guidance only applied to internal agency staff and not to contractors.

Federal Agency Scientific Integrity Policies: A Diversity of Strategies

Twenty-five federal agencies submitted scientific integrity policies to OSTP in response to *America COMPETES* and the 2010 OSTP Memo:

- Department of Agriculture (USDA)
- Department of Commerce
  - National Institute of Standards and Technology (NIST)
  - National Oceanic and Atmospheric Administration (NOAA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Environmental Protection Agency (EPA)
- Department of Health and Human Services (HHS)
  - Centers for Disease Control and Prevention (CDC)
  - Food and Drug Administration (FDA)
  - National Institutes of Health (NIH)
- Department of Homeland Security (DHS)
- Department of the Interior (DOI)
  - U.S. Geological Survey (USGS)
- Department of Justice (DOJ)
- Department of Labor
- Department of State
- Department of Transportation (DOT)
- Department of Veterans Affairs
- U.S. Agency for International Development (USAID)
- Environmental Protection Agency (EPA)
- Marine Mammal Commission

[5] OSTP Memorandum, "Scientific Integrity," December 17, 2010, https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/scientific-integrity-memo-12172010.pdf.

- National Aeronautics and Space Administration (NASA)
- National Science Foundation (NSF)
- Office of the Director of National Intelligence

These policies seek to implement the OSTP guidance and are broadly similar in their embrace of a common set of scientific integrity principles. Significant differences exist, however, in the leadership, structure and procedures established by the scientific integrity policies of different agencies. The shortest among them is 3 pages (NASA), while the longest is 31 pages (NIH). A few agencies have published elements of their policies in directives separate from the general policy, e.g. a media engagement policy. A few others have prepared a written handbook to accompany the policy directive (e.g. DOI).

GAO Review of Existing Scientific Integrity Policies

The Government Accountability Office (GAO) released a report in April 2019 evaluating scientific integrity policies and their applications across nine federal agencies and sub-agencies that employ federal scientists to conduct scientific research and have among "the greatest levels of funding for intramural research" in the executive branch.[6] According to GAO, all nine of the agencies possess scientific integrity policies "that are generally consistent with OSTP's guidance."[7] GAO found that the agencies addressed OSTP's principles of scientific integrity in a variety of ways, including their own scientific integrity policies as well as distinct but relevant policies and actions. In its review of agency support for these scientific integrity policies, as well as agency procedures for addressing potential violations, GAO found a broad commitment to the application of the policies but mixed results in their implementation:

- Seven of the nine agencies engage in at least some activities to communicate with their employees about scientific integrity policies;
- Four of the nine agencies actively evaluate the performance of their scientific integrity policies;
- Eight of the nine agencies possess a designated SIO to oversee the implementation of scientific integrity policies, but the nature of the position varies widely. The USGS and EPA have unique SIO positions, while NASA designates the Office of the Chief Scientist as the SIO-equivalent. The DOE has lacked an SIO since the implementation of its scientific integrity policy in January 2017;
- Two agencies – DOE and NASA – lack "specific, documented procedures for identifying and addressing alleged violations of their scientific integrity policies." Instead, DOE and NASA rely on general personnel protections such as whistleblower laws to ensure that employees report violations of scientific integrity policies.

GAO made ten recommendations to six agencies at the conclusion of its report, and all six agencies pledged to address GAO's recommendations.

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[6] GAO, "Scientific Integrity Policies: Additional Actions Could Strengthen Integrity of Federal Research," April 2019, https://www.gao.gov/assets/700/698231.pdf. The selected agencies were ARS, EPA, FAA, FE, NIH, NASA, NIST, NOAA and USGS.
[7] Id.

The Need for Stronger Federal Scientific Integrity Safeguards

The April 2019 GAO report indicates that federal agency policies are generally compliant with existing executive branch guidance. However, serious problems still exist concerning political interference in federal scientific activity. A number of high-profile episodes of interference and suppression in federal science by political officials have been reported in the press in recent months, with a particularly significant rate of occurrence around climate change science. A survey of federal scientists conducted by the Union of Concerned Scientists in 2018 found that political interference and censorship are widespread among federal scientific programs.[8] According to the survey, 50% of respondents across all agencies either agreed or strongly agreed that political considerations undermined science-based policymaking at their agency, including 81% of respondents from the EPA and 76% of respondents from the National Park Service. Another 20% of respondents went further to assert that political influence was a "top barrier" to science-based policymaking at their agency. 18% of respondents at agencies that engage on climate change issues reported censorship on climate change-related research. As a result of these violations of scientific integrity, the morale and effectiveness of federal scientific programs have declined, with 46% of respondents citing an overall decrease in personal job satisfaction over the previous year and 39% of respondents perceiving decreased effectiveness in their division or office.[9]

GAO found that the number of scientific integrity violations being alleged formally with the agency SIO varied by agency. Some agencies reported no alleged violations, while EPA reported 70 allegations between FY 2012 and FY 2017. NOAA had 11 alleged violations during the same period and USGS had 12 alleged violations between FY 2010 and FY 2017.[10] GAO noted that not all alleged violations were substantiated as violations of scientific integrity policies, and that strong scientific integrity policies could actually contribute to the number of complaints if federal scientists were educated about the process and possessed confidence in it. Nevertheless, a large number of alleged violations of an agency's scientific integrity policies raises questions about the agency's management of scientific research, data and personnel.

H.R. 1709 - *Scientific Integrity Act*

In March 2019, Representative Tonko introduced H.R. 1709, the *Scientific Integrity Act*.[11] He was joined by Chairwoman Johnson, Subcommittee Chairwoman Stevens, and Rep. Alan Lowenthal (D-CA) as original cosponsors. H.R. 1709 is 15 pages long and would elevate scientific integrity at federal agencies that fund, conduct, or oversee scientific research by codifying some general principles of scientific integrity and formalizing a structure within agencies to support those principles. H.R. 1709 amends the *America COMPETES* Act as follows:

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[8] Union of Concerned Scientists, "Science Under President Trump," August 2018, https://www.ucsusa.org/sites/default/files/attach/2018/08/science-under-trump-report.pdf.
[9] Id.
[10] GAO, "Scientific Integrity Policies: Additional Actions Could Strengthen Integrity of Federal Research," April 2019, https://www.gao.gov/assets/700/698231.pdf.
[11] https://www.congress.gov/bill/116th-congress/house-bill/1709?q=%7B%22search%22%3A%5B%22scientific+integrity+act%22%5D%7D&r=1&s=1.

- **Section 3(a):** Names prohibited conduct for federal employees or contractors engaged in science. Covered individuals shall not:
    - Engage in dishonesty and manipulation of agency science;
    - Suppress, alter or interfere with scientific or technical findings;
    - Intimidate or coerce individuals to alter or censor scientific findings;
    - Retaliate against individuals for failure to alter or censor scientific findings;
    - Implement institutional barriers to cooperation and timely communication of scientific or technical findings.

- **Section 3(b-e): Science Communications and Community Engagement.** Defines the rights and responsibilities of federal scientists in making public statements about their work to the media, the scientific community and the public. Provides that federal scientists may sit on scientific advisory boards and professional organizations, contribute to outside peer-review processes, and otherwise engage with the scientific community.

- **Section 3(f-h):** Directs federal agencies to develop, adopt and enforce updated scientific integrity policies that meet a number of specified criteria. Agencies must submit those policies to OSTP. Compliant policies will consider 10 tenets of scientific integrity named in the bill. E.g. "scientific conclusions are not made based on political considerations."

- **Section 3(j): The Science Integrity Official.** Directs agencies to appoint a dedicated Scientific Integrity Officer - a career employee with substantial technical knowledge in conducing science - to direct the activities and duties described in the bill.

- **Section 3(k): Training.** Directs agencies to implement a plan for training and sharing information with agency employees on their agency's scientific integrity policies and their consequent rights and responsibilities.

- **Section 3(l): Reporting.** Directs agency SIOs to issue a public annual report on their activities.

- **Section 3(n): OSTP responsibilities.** Directs OSTP to aggregate all agency scientific integrity information on its website and to convene the agency SIOs annually to discuss best practices.

- **Section 4: Existing policies clarification.**

The bill has been endorsed by over 60 outside groups, including the Union of Concerned Scientists, the Sunlight Foundation, the Project on Government Oversight, the National Partnership for Women and Families, the United Auto Workers, and the National Wildlife Federation.

Chairwoman STEVENS. This hearing will come to order. Without objection, the Chair is authorized to declare recess at any time.

Good morning, and thank you to our witnesses for being here to discuss policies and procedures governing scientific integrity at Federal agencies. Thank you to everyone who has joined us here this morning.

Let me be clear among friends and witnesses. This is not a Democratic or Republican issue. It's not about one Administration or another. It is about ensuring public trust in the conduct, dissemination, and use of scientific research in the Federal Government. An overview of recent history is essential.

In 2010, then-White House Office of Science and Technology Policy Director, Dr. John Holdren, issued a memorandum that laid out basic principles for the development and implementation of scientific integrity policies at all agencies. By the end of the Obama Administration, 24 Federal agencies had published scientific integrity policies consistent with the intent of the memo.

My friend Congressman Mr. Tonko took note of this positive executive action and decided it was worthwhile to codify the principles into law. Notably, he started drafting a bill several months prior to the 2016 election when there was every chance that there would be another similar Administration in January 2017.

The *Scientific Integrity Act* is straightforward. It outlines prohibited conduct for employees of Federal agencies that conduct scientific research. This includes suppressing scientific findings or coercing others to suppress scientific findings. It defines the rights and responsibilities of Federal scientists in making public statements about their work to the media, the scientific community, and the public. It directs Federal agencies to develop, adopt, and enforce scientific integrity policies that meet a number of specified criteria. And it directs agencies to appoint a dedicated career scientific integrity officer. How about that for a job?

H.R. 1709 does not make any instructions for any specific agency or call out any particular misdeed. It is an Administration-neutral and agency-neutral set of principles.

So why do this? First, it's not just good government. It ensures transparency and accountability in government, which is part of our Constitutional responsibility as the U.S. Congress, and it ensures we are relying on facts and increasing evidence around tested hypotheses regarding our most complex and nuanced policy changes. We have seen this play out through history.

Second, it protects Federal scientists, but it does not dictate science as law. There have been many publicized and an unknown number of unpublicized cases in which the basic principles of scientific integrity have been violated, and both Federal employees and the taxpaying public suffer the consequences. The people we represent here today in Congress rely on government agencies who are there to serve the public, to be able to do their job and establish trust, to keep people safe and healthy by using the best available data, most accurate data to inform their policies, regardless of politics.

Today, our government, Federal agencies must run as effective organizations positioned for the most successful outcomes possible, whereas our taxpayers receive that precious but essential return on

investment. Our biology, physics, and chemistry are governed by a set of natural laws. Our civil society is governed by a set of codified and recognized self-evident laws described by the legends of our democracy. Today, we strive for neutral territory to legislate within this very chamber without the weight of dogma and ideology exclusively dictating our work. We strive to embrace a peer review of discovery and determination for new laws to exercise and lay out our future.

As philosopher Baruch Spinoza, one of the early founders of the Enlightenment period, said, "There are those who are governed by reason and they desire nothing for themselves which they do not also desire for the rest of humankind."

We have a phenomenal panel here today with diverse expertise and research experience and perspectives on this issue. I look forward to our engaged and essential discussion and hearing your thoughts on scientific integrity.

[The prepared statement of Chairwoman Stevens follows:]

Good morning and thank you to the witnesses for being here this morning to discuss policies and procedures governing scientific integrity at Federal agencies.

Let me be clear among friends and witnesses. This is not a Democratic or Republican issue. It's not about one Administration or another. It is about ensuring public trust in the conduct, dissemination, and use of scientific research in the Federal government.

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The people we represent here today in Congress rely on government agencies who are there to serve the public to be able to do their job to keep people safe and healthy by using the best available data, most accurate data to inform their policies - REGARDLESS of politics.

Today, in our government, federal agencies must run as effective organizations positioned for the most successful outcomes possible, whereas our taxpayers receive that precious but essential return on investment. Our biology, physics, and chemistry are governed by a set of natural laws. Our civil society is governed by a set of codified and recognized - self-evident - laws scribed by the legends of our democracy. Today we strive for neutral territory to legislate within this very chamber without the weight of dogma and ideology exclusively dictating our work. We strive

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As Baruch Spinoza, one of the early philosophers of the Enlightenment, said, "Those who are governed by reason desire nothing for themselves which they do not also desire for the rest of humankind."

We have an excellent panel today with diverse expertise and perspectives on this issue. I look forward to a spirited discussion and to hearing your thoughts on the *Scientific Integrity Act*.

Chairwoman STEVENS. Before I recognize my friend, Dr. Jim Baird, for his opening statement, I would like to present for the record a statement from the UAW, the United Auto Workers Union, in support of the *Scientific Integrity Act*.

The Chair now recognizes Mr. Baird for his opening statement.

Mr. BAIRD. Thank you, Chairwoman Stevens and Chairwoman Sherrill, for holding today's hearing.

In science, carrying out our work with integrity is the bedrock principle. And to quote the National Academies' report on the responsible conduct of research, "The public will support science only if it can trust the scientists and the institutions that conduct the research."

We must have rigorous policies on scientific integrity, research misconduct, conflict of interest, and data transparency. This instills public trust and confidence in taxpayer-funded research. Furthermore, all of us in this room agree the fundamental right of scientists to be able to conduct, publish, and speak freely on the findings of their research. It goes to the heart of who we are as Americans and the rights enshrined in the Bill of Rights.

Federal agencies have policies and procedures in place to protect these rights. I look forward to hearing from the Government Accountability Office (GAO) about the results of their study on Federal science integrity policies and their recommendations for improvements.

But I think some conflate the findings of scientific research with public policy decisions. I've done research, and, as a scientist, I was trained to look for the raw data, analyze it, and leave out my biases. In fact, one of the things you do in research is you use random numbers to assign treatments to various parts of that research, and so that's a way of removing your biases.

Science is science, but politics, as all of us on this side of the aisle know, is more complicated. Two people may look at the same scientific data and relevant information and come up with two different policy conclusions. There's nothing inherently dishonest about that. In politics we have disagreements. We discuss, we debate, we negotiate, we vote, and in the end the voters decide what policies they want to support at the ballot box.

I hope today's hearing will be a constructive discussion. It would be a disservice to the scientists who work in our Federal agencies to play politics with the issue of scientific integrity. You may disagree with the politics of the current Administration, but let's stick to the facts of what is happening with science in our Federal agencies, not rumor, not exaggeration.

I'm very concerned about the process that led us to this hearing, which Mr. Norman will address further in his opening statement. The Research and Technology Subcommittee has had a good track

record of bipartisan work, promoting American leadership in science and innovation. I hope and believe that will continue.

Thank you for our witnesses for being here today, and I yield back.

[The prepared statement of Mr. Baird follows:]

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To quote a National Academies report on the responsible conduct of research, "The public will support science only if it can trust the scientists and institutions that conduct research."

We must have rigorous policies on scientific integrity, research misconduct, conflict of interest, and data transparency. This instills public trust and confidence in taxpayer-funded research.

Furthermore, all of us in this room agree in the fundamental right of scientists to be able to conduct, publish and speak freely on the findings of their research. It goes to the heart of who we are as Americans and the rights enshrined in the Bill of Rights.

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It would be a disservice to the scientists who work in our federal agencies to play politics with the issue of scientific integrity.

You may disagree with the politics of the current Administration, but let's stick with the facts of what is happening with science at our federal agencies, not rumor and exaggeration.

I am very concerned about the process that led up to this hearing, which Mr. Norman will address further in his opening statement.

The Research & Technology Subcommittee has had a good track record of bipartisan work promoting American leadership in science and innovation. I hope and believe that will continue.

Thank you to our witnesses for being here today. I yield back.

Chairwoman STEVENS. The Chair now recognizes the Chairwoman of the House Science Subcommittee on Investigations and Oversight, Ms. Sherrill, for an opening statement.

Chairwoman SHERRILL. Thank you so much, Chairwoman Stevens and Ranking Member Norman and Ranking Member Baird.

When we talk about scientific integrity, it's all about fostering a culture of respect for science throughout all levels of government. Federal agencies need to listen to scientists and allow them to do their work free of political considerations. Agencies also need to appreciate the value of science in policymaking, and the leadership of an agency should never be hostile to its scientists or treat scientific findings as a threat.

I will give an example that's important to this Committee. In March, I chaired a hearing about the IRIS (Integrated Risk Information System) program at the Environmental Protection Agency. We heard how EPA took steps last December to eliminate 10 chemical assessments from the IRIS workflow, thus preventing the pub-

lic from seeing the latest science on how these chemicals affect human health. We know that EPA's decision isn't about a lack of resources. In fact, the IRIS assessment of formaldehyde is already done.

So this is exactly why Federal agencies need robust scientific integrity policies, and that's why I'm proud to be a cosponsor of H.R. 1709, and I thank Congressman Tonko for his leadership on this. And I yield the balance of my time to him to introduce the bill.

[The prepared statement of Chairwoman Sherrill follows:]

Thank you Chairwoman Stevens. It's a great pleasure to be here today at this joint subcommittee hearing. I'm pleased as always to see my colleagues on both sides of the aisle as we consider the very important issue of scientific integrity in government.

When we talk about scientific integrity, we are talking to a large extent about rules and procedures. Federal agencies must have explicit rules in place to affirm that scientific research will be free of political interference and that academic honesty will not be punished by harassment or retaliation. They also need formal procedures in place for the fair, timely and transparent resolution of allegations when they are made. One of our tasks here today is to assess whether the scientific integrity policies currently used by executive branch agencies do enough to protect science and the public servants who conduct it.

Rules and procedures, however, are only one part of the answer. It is equally important to foster a culture of respect for science throughout the government. Federal agencies need to listen to scientists and allow them to do their work unhindered by political considerations. They also need to appreciate the value of science in policymaking and actively incorporate scientific findings into the deliberative process. The leadership of an agency should never be hostile to its scientists or treat scientific findings as a threat. Any leader who would do so is merely revealing that their beliefs are determined by ideology rather than the facts. That kind of thinking is pernicious and does not serve the public.

Let me talk about an example that's important to this Committee. In March, we held a hearing about the IRIS program at the Environmental Protection Agency. We heard how EPA took steps last December to eliminate important chemical assessments from the program's workflow - thus preventing the public from seeing the latest science on how exposures to these chemicals affect human health. We know that EPA's decision to sideline these studies is not about a lack of resources. In fact, we know that EPA's assessment of formaldehyde through the IRIS program is already done. The former EPA Administrator, Scott Pruitt, told a Senate Committee himself that the formaldehyde assessment was ready for "imminent" release way back in January 2018. This assessment is the culmination of countless hours of work from dedicated EPA scientists over more than a decade. Its findings would mean a lot for understanding the respiratory health and cancer risks of formaldehyde and help inform decision-making that will keep workers and children safe. But keeping the study out of the public eye apparently means a lot to special interests.

If this episode at IRIS isn't political interference in science, I don't know what is. This kind of activity is exactly why robust scientific integrity policies are needed.

And we should never lose sight of why scientific integrity is so important. America faces immense challenges today: Accelerating climate change, attacks on women's health, dangerous chemicals in our water and our workplaces, aging transportation networks, and so much more. We cannot adequately understand these threats - let alone address them - with anything less than the best possible science. We also need a government that communicates scientific information clearly and effectively to the American people. This nation has the best scientists in the world, and the ones that work with the federal government are working to help us overcome the greatest challenges of our time. When we allow federal scientists to do their jobs without interference, their efforts make the country stronger, safer and more prosperous.

I'm proud to be a cosponsor of the *Scientific Integrity Act*. This bill will codify scientific integrity policies at federal agencies and strengthen them in crucial ways. It will guarantee that federal scientists can conduct research freely, present findings honestly, communicate information openly, and engage with the scientific community. It will also ensure that when scientific integrity violations do occur, federal scientists know their rights and can report the violations to designated officials who are empowered to help. If H.R. 1709 becomes law, scientific integrity in the federal government will stand on a much firmer foundation. I want to thank Representative

Tonko, Chairwoman Johnson and Chairwoman Stevens for their leadership on this issue.

We have a distinguished panel for the hearing today, and I thank the witnesses sitting before us. The subject of this hearing impacts us all.

Thank you and I yield back.

Mr. TONKO. Thank you. I thank the gentlelady from New Jersey for yielding. And I thank Chairs Johnson and Stevens for today's hearing and for joining me as an original cosponsor introducing the *Scientific Integrity Act*. Thanks to Chairwoman Sherrill for your strong support of the bill and to the nearly 200 Members who have supported this commonsense, good government legislation.

I also want to thank my colleague and friend Dr. Baird for coming today with an open mind on the nonpartisan need for strong, consistent scientific integrity policies. Mr. Norman, I look forward to speaking with you more about this critical issue as well.

Every time government scientific reports are delayed, distorted, or hidden, the American people pay the price in the form of lost rights and freedoms, lost wages to medical bills, burned or flooded homes, lost years from our lives, and the irreplaceable loss of loved ones. As an engineer with a deep respect for science, Federal scientific integrity standards have been a concern of mine for many years.

Allowing political power or special interests to manipulate or suppress Federal science hurts and hurts all of us. It leads to dirtier air, unsafe water, toxic products on our shelves and chemicals in our homes and environment. And it has driven Federal inaction in response to the growing climate crisis.

Scientific integrity is a longstanding concern that transcends any one party or political administration. In fact, I began working on the *Scientific Integrity Act* in the summer of 2016 when we had a Democratic Administration. The abuses directed by this President and his top officials have brought a new urgency to the issue, but the fact remains, whether a Democrat or a Republican sits in the Speaker's Chair or the Oval Office, we need strong scientific integrity policies.

This bill, H.R. 1709, would do just that, insulating public scientific research and reports from the distorting influence of political and special interests by ensuring strong scientific integrity standards at America's science agencies.

More than 20 Federal agencies have some form of a scientific integrity policy, but those policies are uneven in their enforcement and scope. As a result, vital information and scientific analysis falls between the cracks, especially now in an Administration that prizes appearances often at the expense of the facts.

For that and other reasons, more than 60 organizations have sent a letter in support of Congress moving the *Scientific Integrity Act* forward. This letter, which includes signatures of scientists and government accountability groups such as Citizens for Responsibility and Ethics in Washington, environmental groups such as Defenders of Wildlife, women's health organizations such as the National Partnership for Women and Families, and unions such as SEIU (Service Employees International Union).

Madam Chair, I ask that this letter be entered for the record.

Science doesn't serve political power, it just tries to tell us the truth. And that is always worth protecting. I hope that, as a Com-

mittee, we can all work together to strengthen scientific integrity policies and ensure that we are upholding high scientific standards across all agencies, no matter who holds the reins of political power.

Madam Chair I also request to enter a letter for the record from the Public Employees for Environmental Responsibility, or PEER, in support of the *Scientific Integrity Act*. PEER is a nonprofit group that works nationwide with government scientists, land managers, law enforcement agents, field specialists, and other leading environmental professionals.

With that, I thank the Committee, Subcommittees for providing for this opportunity to discuss what I think is very key, critical legislation. I hope that we can move forward and show great respect and dignity toward our scientists who work within the Federal agencies conducting research paid for by Federal tax dollars.

With that, I yield back.

[The prepared statement of Mr. Tonko follows:]

Thank you Chairs Johnson and Stevens for today's hearing and for joining me as two of the four original cosponsors introducing the *Scientific Integrity Act*! Thanks to Chairwoman Sherrill for your strong support of the Scientific Integrity Act and to the 200 members who have supported this commonsense, good government legislation.

I also want to thank my colleague and friend Dr. Baird for coming today with an open mind on the nonpartisan need for strong, consistent scientific integrity policies. Mr. Norman, I look forward to speaking with you more about this critical issue as well.

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Scientific integrity is a longstanding concern that transcends any one party or political administration, but the abuses directed by this President and his top officials have brought a new urgency to the issue. Still, it must be said that, whether a Democrat or a Republican sits in the Speaker's chair or the Oval Office, we need strong scientific integrity policies.

I began working on the *Scientific Integrity Act* in the summer of 2016 when we had a Democratic administration. And at that time, I believed that the next Administration would likely be a Democratic Administration as well. More than 20 federal agencies have introduced some form of a scientific integrity policy to create a firewall between science and the political and special interests that seek to influence, suppress or distort it. But those policies are uneven in their enforcement and scope. As a result, vital information and scientific analysis falls between the cracks-especially now in an administration that prizes appearances often at the expense of the facts.

The Scientific Integrity Act, H.R. 1709, would protect public scientific research and reports from the distorting influence of political and special interests by ensuring strong scientific integrity standards at America's science agencies. The bill is supported by nearly 200 members. More than 60 organizations sent a letter in support of Congress moving the Scientific Integrity Act forward. The list of organizations not only includes scientists but also government accountability groups such as Citizens for Responsibility and Ethics in Washington, environmental groups such as Defenders of Wildlife, women's health organizations such as the National Partnership for Women & Families, and unions such as SEIU. Madame Chair, I ask that this letter be entered for the record.

Science doesn't serve political power, it just tries to tell us the truth. And that is always worth protecting. I hope that as a committee we can all work together to strengthen scientific integrity policies and ensure that we are upholding high sci-

entific standards across all agencies, no matter who holds the reins of political power.

Madame Chair I also request to enter for the record a letter from the Public Employees for Environmental Responsibility (PEER) in support of the *Scientific Integrity Act*. PEER is a nonprofit group that works nationwide with government scientists, land managers, law enforcement agents, field specialists and other leading environmental professionals.

Chairwoman STEVENS. Without objection, so ordered.

The Chair now recognizes the Ranking Member of the Subcommittee on Investigations and Oversight, Mr. Norman, for an opening statement.

Mr. NORMAN. Thank you, Chairwoman Stevens and Chairwoman Sherrill, for convening this meeting. And I want to thank each of our witnesses today. I appreciate the time that you've put in to come to Congress.

We're here today to discuss the importance of scientific integrity policies within Federal agencies. The value of integrity and transparency in Federal science enterprise cannot be understated. Scientific findings are often relied upon by policymakers to make important decisions that affect the lives of millions of Americans. But to maintain the public trust, there must be a high degree of integrity and transparency in the scientific process.

Under the direction of Congress and the White House Office of Science and Technology Policy, OSTP, in 2010 Federal science agencies were directed to develop policies that ensure a culture of scientific integrity, strengthen the credibility of government research, facilitate the flow of scientific and technological information, and to establish principles for conveying scientific and technological information to the public.

According to the GAO, 24 Federal departments and agencies have developed scientific integrity policies in response to the 2010 OSTP guidance. In April 2019, the GAO published a report evaluating these policies and their implementation across nine Federal agencies that conduct scientific research. I look forward to hearing more today about this report and GAO's report on this important topic. Thank you, Mr. Neumann, for being here.

During today's discussion, however, we cannot lose sight of the distinction between science and policy. Science is used to answer questions relevant to policy, but policy is a decision or a commitment to a specified course of action which is ultimately a political question. We must ensure integrity in both scientific and political processes. I believe this means we should refrain from weaponizing science to score political points.

Unfortunately, it seems that my Democratic colleagues are intent on politicizing scientific integrity, and the way this hearing was orchestrated is a perfect example of that. I'm disappointed in the way this entire process has been managed quite frankly. Committee staff were first notified about this hearing when they were copied on a witness invitation. There was no phone call, there was no email, there was zero conversation. There was no deliberation, at least no bipartisan deliberation.

This invitation was to an official from the EPA, an agency that received not one single recommendation for action in GAO's report. In fact, of the 10 recommendations made by GAO for or directed to the Department of Energy, two were directed to NIST (National

Institute of Standards and Technology), NSA (National Security Agency), and NOAA (National Oceanic and Atmospheric Administration) received one recommendation each. But none of these agencies were invited to testify about their scientific integrity policies.

Instead, the majority sought to invite the EPA, presumably to haul them in for a partisan pummeling. The EPA even agreed to provide a senior official to testify, a respected scientist who oversees scientific integrity policies. But the majority rejected that witness. And it doesn't stop there. Legislation we are here to discuss has 188 cosponsors, all of which are Democrats. Perhaps that's because my colleagues across the aisle had zero interest in gaining bipartisan support. Fortunately, there's ample room for improving communications and deliberation moving forward.

Since the majority failed to invite a single Ph.D. scientist, we invited a scientific expert to provide constructive feedback on the legislation. I look forward to hearing Dr. Pielke, your thoughtful recommendations.

I'm hopeful that the tone of the remainder of today's hearing will be civil and that we can have a constructive dialog on how we can reaffirm our commitment to integrity and transparency within the Federal science enterprise.

[The prepared statement of Mr. Norman follows:]

Thank you, Chairwoman Stevens and Chairwoman Sherrill, for convening today's hearing.

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Scientific findings are often relied upon by policymakers to make important decisions that affect the lives of millions of Americans.

But to maintain the public's trust, there must be a high degree of integrity and transparency in the scientific process.

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I look forward to hearing more today about this report and GAO's work on this important topic. Thank you, Mr. Neumann, for being here.

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But none of these agencies were invited to testify about their scientific integrity policies. Instead, the Majority sought to invite the EPA, presumably to haul them in for a partisan pummeling.

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I am hopeful that the tone of the remainder of today's hearing will be civil, and that we can have a constructive dialogue on how we can reaffirm our commitment to integrity and transparency within the federal science enterprise.

I yield back the balance of my time.

Mr. NORMAN. Madam Chair, at this time I would ask unanimous consent to enter into the record letters exchanged between the Science Committee and the Environmental Protection Agency regarding today's hearing.

Chairwoman STEVENS. So ordered.

Mr. NORMAN. I yield back.

Chairwoman STEVENS. If there are Members who wish to submit additional opening statements, your statements will be added to the record at this point.

[The prepared statement of Chairwoman Johnson follows:]

Good morning to our witnesses and welcome to the hearing.

I am proud to be an original cosponsor of the Scientific Integrity Act, and I commend Congressman Tonko for his hard work in preparing the bill.

As I see it, scientific integrity consists of two major elements. The first is respect for the truth. Science does not have a political agenda. When science is done well, when trained professionals can follow the data and subject their findings to rigorous peer review, the information speaks for itself. The meaning of science-based decision-making is being informed by the best possible science and deciding what to do.

The second is respect for scientists themselves. As I see it, a big part of scientific integrity is allowing the scientists who serve this country to conduct their work unimpeded by undue outside influence. It's about allowing them to speak freely in their capacity as experts with the American public and the media. It's about allowing them to serve on advisory boards, join scientific societies, and engage with the scientific community. Unfortunately, we know that federal agencies do not always make this possible for their scientists. Sometimes Congress throws up roadblocks for federal scientists, too, and we need to do better.

On a related note, I want to share my disappointment about who is missing from our panel of witnesses today. The Committee invited Dr. Francesca Grifo, the Scientific Integrity Official for EPA, to testify. Of all the Scientific Integrity Officials across the two dozen or so agencies that conduct or oversee science, Dr. Grifo is arguably the most experienced, and EPA's Scientific Integrity policy is among the most robust. We were eager to hear from her about EPA's process for implementing their policy and handling staff issues, as well as best practices to consider.

But EPA refused to make Dr. Grifo available and offered another official, the Principal Deputy Assistant Administrator for Science, in her place. While we appreciate this person's credentials and experience, she has never served as a scientific integrity official for a federal agency. She did not help draft the EPA Science Integrity Policy, and she has never personally adjudicated a formal complaint from a federal scientist. We wanted to hear from Dr. Grifo because she hears directly from EPA employees who have concerns, questions and disputes. A major purpose of this hearing is to understand the day-to-day experiences of a scientific integrity official. EPA did not explain to this Committee why it would not make Dr. Grifo available, but only stated in vague terms that they believed their alternate official would be "adequate" for today's meeting. As the Chairwoman of this Committee, I believe EPA's response to our invitation was not adequate, and I hope to hear from Dr. Grifo at a future date.

Nevertheless, I know the panelists who are before us today are capable of assisting the Committee with their insights and experiences and I look forward to their testimony.

I yield back to Chairwoman Stevens.

Chairwoman STEVENS. You know who didn't get a phone call? The people of Flint when their water was poisoned. You know who didn't get a phone call? The people of New Orleans when their city was flooding.

So I'm really proud of our witnesses who made the time to come here today. I'm proud of our Committee's leadership and our outreach to many agencies. And in fact, we had a great outreach to the Environmental Protection Agency which we asked Ms. Francesca Grifo to serve as a witness here today. Ms. Grifo is a widely respected government employee in the scientific community as a longtime advocate for scientific integrity. And in fact she serves as the Environmental Protection Agency's Scientific Integrity Officer. She's one of our proud civil servants. And so that means she's not a political appointee or appointed by the Administration. She carries throughout each Administration, carrying this charge of scientific integrity forward. And her perspective would have been invaluable here today.

Unfortunately, the EPA refused to allow Ms. Grifo to testify. Instead, the agency would only allow Dr.—or, excuse me, Ms. Jennifer Orme-Zavaleta to join us. And Ms. Zavaleta's role at the EPA is as a science advisor. So while we appreciate her talent, we know that her comments on scientific integrity would have fallen short, given that that is not her jurisdiction and her role.

Mr. TONKO. Madam Chair?

Chairwoman STEVENS. Yes.

Mr. TONKO. If I might add to your comment, I recently attended the public statement opportunity at the agency for this given reason, that they are usually highlighted as one of the best agencies if not the best with their scientific integrity panel. And so I wanted to make certain that we encouraged other agencies to follow that glowing example. So Ms. Grifo is very much respected, and she's held as an example of—and her team—as an example of what we would like to accomplish with this legislation.

And also, I have reached out across the aisle many times over still hoping to get Republican support. We've asked many Members. So, Dr. Baird, I just wanted to encourage you again to take a good look at the legislation. And I appreciated the conversation we had and the fact that you, by your very resume, show great respect for science.

So with that, I yield back.

Chairwoman STEVENS. Thank you.

At this time I'd like to introduce our witnesses. Our first witness is Mr. John Neumann. Mr. Neumann is Managing Director in the Government Accountability Office's (GAO's) new Science, Technology Assessment, and Analytics team. Since 2013, he has led audits in the management and oversight of Federal research and development programs, protection of intellectual property, and Federal efforts to support innovation. Mr. Neumann received his B.A. in political science from the State University of New York at Stony

Brook and holds an MBA from American University, as well as a J.D. from Georgetown University.

Our next witness is Mr. Michael Halpern. Mr. Halpern is Deputy Director of the Center for Democracy and Science at the Union of Concerned Scientists (UCS). In this role, he works to ensure government decisions are fully informed by scientific information and that the public understands the scientific basis for those decisions. He has co-authored several reports and articles that detail solutions that would improve scientific integrity and has advised Federal agencies and departments on policies to promote scientific independence in the context of policymaking. He holds a B.A. in sociology and communication studies from Macalester College.

After Mr. Halpern is Dr. Roger Pielke, Jr. Dr. Pielke is the Director of the Sports Governance Center and a Professor of Environmental Studies at the University of Colorado Boulder. We know you're all very active in Colorado, so, you know, a very healthy community out there. He has also served several terms as the Founding Director of Colorado's Center for Science and Technology Policy research. Dr. Pielke's research focuses on science, innovation, and politics in a number of areas. He holds degrees in mathematics, public policy, and political silence all from the University of Colorado.

Our final witness is Mr. Joel Clement. Mr. Clement is currently a Senior Fellow at the Harvard Kennedy School's Belfer Center for Science and International Affairs. In this role, he works with a number of partners to improve the knowledge and tools necessary to reduce risk and improve resilience in the Arctic region. Prior to joining the Harvard Belfer Center, Mr. Clement was an executive for 7 years at the U.S. Department of the Interior. Before serving in the Federal Government, Mr. Clement was a Conservation Science Program Officer for a private foundation where he focused on climate change, adaptation strategies, and landscape-scale conservation efforts. He has published peer-reviewed articles on forest ecology and science policy linkages, as well as multiple Federal Government reports.

As our witnesses should know, you will each have 5 minutes for your spoken testimony. Your written testimony will be included in the record for the hearing. When you have completed your spoken testimony, we will begin with questions. Each Member will have 5 minutes to question the panel.

We will start with you, Mr. Neumann. You have 5 minutes.

TESTIMONY OF JOHN NEUMANN, MANAGING DIRECTOR, SCIENCE, TECHNOLOGY ASSESSMENT, AND ANALYTICS, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Mr. NEUMANN. Chairwoman Stevens, Chairwoman Sherrill, Ranking Member Baird, Ranking Member Norman, and Members of the Subcommittees, thank you for the opportunity to be here today to discuss our report on Federal agencies' implementation of scientific integrity policies.

As you know, allegations about agency officials inappropriately influencing science have been reported in the Federal Government. To address this issue, Congress passed the *America COMPETES Act* (*Creating Opportunities to Meaningfully Promote Excellence in*

Technology, Education, and Science), which required the Office of Science and Technology Policy to develop a set of scientific integrity principles, which was issued to agencies in 2010. These principles are intended to ensure the open communication of data and results from research conducted by Federal scientists and prevent the suppression or distortion of such research findings.

My statement today summarizes the findings and recommendations from our April 2019 report on Federal scientific integrity policies. Specifically, I will highlight the key findings from two objectives of our report: The extent to which Federal agencies have taken actions to achieve the objectives of their scientific integrity policies, and the extent to which Federal agencies have procedures for identifying and addressing alleged violations of those policies.

Our review focused on nine Federal agencies that conduct scientific research, employ Federal scientists, and were among the agencies with the greatest levels of funding for intramural research, that is research conducted by Federal agencies in their own facilities. These included the Agricultural Research Service at USDA (U.S. Department of Agriculture), EPA, FAA (Federal Aviation Administration), the Office of Fossil Energy at the Department of Energy, NIH (National Institutes of Health), NASA (National Aeronautics and Space Administration), NIST, NOAA, and the USGS (U.S. Geological Survey) at the Department of Interior (DOI).

Our first finding was that the nine selected agencies had taken some actions to achieve the objectives of their scientific integrity policies, but several agencies had not taken actions in three areas we highlighted: Communicating scientific integrity policies to staff, providing oversight, and monitoring and evaluating performance of their policies.

Specifically, while most agencies had taken actions to educate or train their staff on their scientific integrity policies, two agencies, the Department of Energy and NIST, had not. Also, the Department of Energy had not designated a scientific integrity official to oversee its policies. In addition, five agencies, the Department of Energy, FAA, NIST, NOAA, and USGS, had not taken actions to evaluate their policies to ensure that they were achieving their objectives.

Our second finding was that two agencies, Department of Energy and NASA, did not have documented procedures for addressing alleged violations of their scientific integrity policies. Without such a process, these agencies have no assurance that staff know how to report allegations and that investigations will be conducted consistently.

Based on these findings, we made a total of 10 recommendations to six of the agencies in our review. These agencies were receptive to our recommendations, and we will continue to track the efforts to implement them.

In closing, it's important to note that the integrity of federally funded science depends in part on agencies having sound scientific integrity policies, ensuring that the objectives of their policies are achieved and addressing alleged violations.

This concludes my prepared statement. I'd be happy to respond to any questions you may have.

[The prepared statement of Mr. Neumann follows:]

United States Government Accountability Office

Testimony Before the Subcommittee on Research and Technology and the Subcommittee on Investigations and Oversight, Committee on Science, Space, and Technology, House of Representatives

For Release on Delivery
Expected at 10:00 a.m. ET
Wednesday, July 17, 2019

FEDERAL RESEARCH

Agency Actions Could Strengthen Scientific Integrity Policies

Statement of John Neumann, Managing Director,
Science, Technology Assessment, and Analytics

GAO-19-674T

Chairwoman Stevens and Chairwoman Sherrill, Ranking Member Baird and Ranking Member Norman, and Members of the Subcommittees:

I am pleased to be here today to discuss our report on federal agencies' establishment of scientific integrity policies.[1]

As you know, allegations of agency officials inappropriately influencing science have been reported in the federal government. For example, the Union of Concerned Scientists, in 2004 and 2008,[2] and the National Aeronautics and Space Administration's (NASA) Office of Inspector General (OIG), in 2008, reported instances in which political influences or other agency actions adversely affected the integrity of scientific information.[3] More recently, the Union of Concerned Scientists surveyed federal scientists in 2018, and many respondents reported censorship of their work, especially work related to climate change.[4]

In 2007, Congress passed the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act, which required the Office of Science and Technology Policy (OSTP) to develop an overarching set of scientific integrity principles.[5] According to the act, these principles should ensure the communication and open exchange of data and results from research conducted by federal scientists and prevent the intentional or

[1]GAO, *Scientific Integrity Policies: Additional Actions Could Strengthen Integrity of Federal Research*, GAO-19-265 (Washington, D.C.: Apr. 4, 2019).

[2]Union of Concerned Scientists, *Scientific Integrity in Policymaking: An Investigation into the Bush Administration's Misuse of Science* (Cambridge, MA: March 2004), and Union of Concerned Scientists, *Federal Science and the Public Good: Securing the Integrity of Science in Policy Making – Presidential Transition Update* (Cambridge, MA: December 2008).

[3]National Aeronautics and Space Administration, Office of Inspector General, *Investigative Summary Regarding Allegations that NASA Suppressed Climate Change Science and Denied Media Access to Dr. James E. Hansen, a NASA Scientist* (Washington, D.C.: June 2, 2008).

[4]Union of Concerned Scientists, *Science under President Trump: Voices of Scientists across 16 Federal Agencies* (Cambridge, MA: August 2018).

[5]Pub. L. No. 110-69, 121 Stat., 572 (2007). This requirement was to be carried out in consultation with the Director of the Office of Management and Budget and the heads of all federal civilian agencies that conduct scientific research.

unintentional suppression or distortion of such research findings.[6] OSTP issued guidance, most recently in 2010,[7] to the heads of executive departments and agencies on implementing scientific integrity policies. OSTP's guidance states that scientific integrity is important because, among other things, scientific and technological information is often a significant contributor to the development of sound public policy. In response to the 2010 guidance, 24 federal departments and agencies developed scientific integrity policies.

My testimony today summarizes the findings and recommendations from our April 2019 report.[8] Accordingly, this testimony addresses the extent to which selected agencies (1) have scientific integrity policies that are consistent with federal guidance, (2) have taken actions to achieve the objectives of their scientific integrity policies, and (3) have procedures for identifying and addressing alleged violations of their scientific integrity policies.

For all three objectives, we selected a nongeneralizable sample of nine agencies—seven agencies from cabinet-level departments and two independent agencies. We selected these nine agencies because they are civilian federal agencies that conduct scientific research, employ federal scientists, and were among the federal agencies with the greatest levels of funding for intramural research (i.e., research conducted by federal agencies in their own facilities). Our findings are not generalizable to all agencies but provide illustrative examples of these agencies' scientific integrity policies and their actions to implement those policies. The agencies we selected are the

- Agricultural Research Service (ARS) in the U.S. Department of Agriculture (USDA);
- Environmental Protection Agency (EPA), an independent agency;

[6]The primary function of the Director of OSTP is to provide advice, within the Executive Office of the President of the United States, on the scientific, engineering, and technological aspects of issues. OSTP serves as a source of scientific and technological analysis and judgment for the President of the United States with respect to major policies, plans, and programs of the federal government.

[7]Office of Science and Technology Policy, *Scientific Integrity*, Memorandum for the Heads of Executive Departments and Agencies (December 17, 2010), accessed October 26, 2018, https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/scientific-integrity-memo-12172010.pdf.

[8]GAO-19-265.

- Federal Aviation Administration (FAA) in the Department of Transportation (DOT);
- Office of Fossil Energy (FE) in the Department of Energy (DOE);
- National Institutes of Health (NIH) in the Department of Health and Human Services (HHS);
- NASA, an independent agency;
- National Institute of Standards and Technology (NIST) in the Department of Commerce (Commerce);
- National Oceanic and Atmospheric Administration (NOAA) in Commerce; and
- U.S. Geological Survey (USGS) in the Department of the Interior.

We reviewed the nine agencies' scientific integrity policies, procedures, and related documents. Some agencies we selected do not have agency-specific scientific integrity policies or procedures because they follow department-level policies or procedures. In those cases, we included the department's policy and procedures in our analyses. For our reporting purposes, we describe an agency as having a policy or procedure even in those cases where the agency is following a department-level policy or procedure.

To determine the extent to which the selected agencies have policies that are consistent with federal guidance on scientific integrity, we compared the selected agencies' scientific integrity policies and supporting documents to two of the four principles identified in OSTP's guidance:[9] (1) *foundations of scientific integrity in government* and (2) *professional development of government scientists and engineers*.[10] We focused on these two principles because they most closely align with scientific integrity issues related to political influence.[11] To determine the extent to which selected agencies have taken actions to achieve the objectives of their scientific integrity policies, we compared agencies' scientific integrity

[9]OSTP's guidance on scientific integrity has four main sections with guidance, which we refer to as principles, and the four principles have subsections, which we refer to as components.

[10]From this point forward, we will refer to scientists and engineers collectively as scientists.

[11]The two principles in OSTP's guidance that we did not include in our analyses are (1) *public communications* and (2) *use of federal advisory committees*.

policies and actions against *Standards for Internal Control in the Federal Government* related to communicating information to staff, providing oversight, and monitoring and evaluating performance.[12] To determine the extent to which the selected agencies have procedures for identifying and addressing alleged violations of their scientific integrity policies, we compared the agencies' procedures to guidance on scientific integrity policies and federal standards for internal control. Additional information on our scope and methodology is available in our report. The work on which this testimony is based was conducted from March 2018 to April 2019 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Selected Agencies Have Scientific Integrity Policies That Are Generally Consistent with Federal Guidance

In our April 2019 report, we found that all nine of the selected agencies have policies that are generally consistent with OSTP's guidance for the principles of scientific integrity that we reviewed: *foundations of scientific integrity in government* and *professional development of government scientists and engineers*. OSTP's guidance describes several components for each of these principles,[13] which the selected agencies addressed either (1) through their scientific integrity policies, (2) in related policies, or (3) through related actions. For example, when addressing the components of *foundations of scientific integrity in government*, NOAA's scientific integrity policy states that the agency will ensure the free flow of scientific information online and in other formats, consistent with privacy and classification standards, and in keeping with other Commerce and NOAA policies. In another example, NASA's scientific integrity policy states that NASA facilitates the free flow of scientific and technological

[12]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: September 2014).

[13]Under the principle *foundations of scientific integrity in government*, OSTP's guidance identifies the following components: (1) culture of scientific integrity, (2) selection of candidates for scientific positions, (3) peer review, (4) conflicts of interest, (5) whistleblower protections, (6) free flow of scientific and technological information, and (7) conveying scientific and technological information to the public. Under the principle *professional development of government scientists and engineers*, OSTP's guidance identifies the following components: (1) publication of research findings, (2) presentation of research findings, (3) professional society editors and board members, (4) participation in professional societies, and (5) awards.

information among scientists and engineers, between NASA staff and the scientific and technical community, and between NASA employees and the public. The policy goes on to cite additional NASA policies on dissemination of information and public access to data.

Similarly, we found that all nine selected agencies addressed all of the components of the principle *professional development of government scientists and engineers*. For example, EPA's policy states that the agency encourages publication and presentation of research findings in peer-reviewed, professional, or scholarly journals and at professional meetings. NIST's scientific integrity policy states that the agency supports scientists' full participation in professional or scholarly societies, committees, task forces, and other specialized bodies of professional societies, with proper legal review and approval. The policy goes on to cite separate NIST guidance for staff on how to seek approval for memberships and participation in professional organizations.

All of the Selected Agencies Took Some Action to Achieve Policy Objectives, but Opportunities Exist for Furthering Those Objectives

We found in our April 2019 report that the nine selected agencies have taken some actions to help achieve the objectives of their scientific integrity policies in the three areas we reviewed—communicating information to staff, providing oversight, and monitoring and evaluating performance.

First, according to our analysis, seven of the nine selected agencies have taken some actions to educate and communicate to staff about their scientific integrity policies, and two have not. Specifically, FE and NIST have not provided scientific integrity training for staff, according to officials, or taken other actions to promote their scientific integrity policies with staff. Under the 2007 America COMPETES Act, civilian agencies that conduct scientific research are, among other things, required to widely communicate and readily make accessible to all employees their scientific integrity policies and procedures.[14] According to FE and NIST officials, the agencies made their policies available to staff on their websites and believed no additional actions were needed. By taking action to educate and communicate their scientific integrity policies to staff through, for example, regular training, these agencies would have better assurance that employees have the information, skills, and competencies they need to help achieve agency scientific integrity

[14]42 U.S.C. § 6620(b)(4).

objectives. We recommended the Secretary of Energy and Director of NIST take action to educate and communicate the agencies' polices to staff through, for example, regular training. In DOE's written comments on a draft of our report, reproduced in our final report, the department explained that it will designate a scientific integrity official to be responsible for leading and coordinating with other offices across DOE to develop measures to educate and communicate to staff about scientific integrity policies. In Commerce's written comments, reproduced in in our final report, NIST identified ways it plans to provide training to its staff.

Second, we found that eight of the nine selected agencies have designated scientific integrity officials, or the equivalent, who are responsible for overseeing the agencies' implementation of their scientific integrity policies. FE, which follows DOE's policy, does not have a scientific integrity official or the equivalent. DOE's scientific integrity policy states that the Secretary of Energy will designate a scientific integrity official for the department.[15] DOE officials explained that the scientific integrity official has not been designated because the scientific integrity policy was implemented in January 2017, as the administration was changing, and that the current Secretary has not yet designated a scientific integrity official. We recommended the Secretary of Energy should establish steps and a time frame for designating a scientific integrity official to oversee the department's scientific integrity activities. In DOE's written comments on a draft of our report, reproduced in our final report, the department concurred with our recommendation and estimated that it would address the recommendation by the end of 2019.

Third, we found in our April 2019 report that four of the nine selected agencies—ARS, EPA, NASA, and NIH—monitor and evaluate the performance of their activities under their scientific integrity policies, or have plans to do so. The remaining five agencies—FAA, FE, NIST, NOAA, and USGS—have, for different reasons, not done so. *Standards for Internal Control in the Federal Government* states that management should design control activities to achieve objectives and respond to risks, which may include establishing activities to monitor performance measures and indicators.[16] By establishing mechanisms to effectively monitor the implementation of their scientific integrity policies, agencies

[15]U.S. Department of Energy, *Scientific Integrity*, DOE O 411.2 (Washington, D.C.: January 4, 2017).

[16]GAO-14-704G.

may be better positioned to evaluate and measure whether their scientific integrity policies are achieving their objectives and, where necessary, improve their implementation.

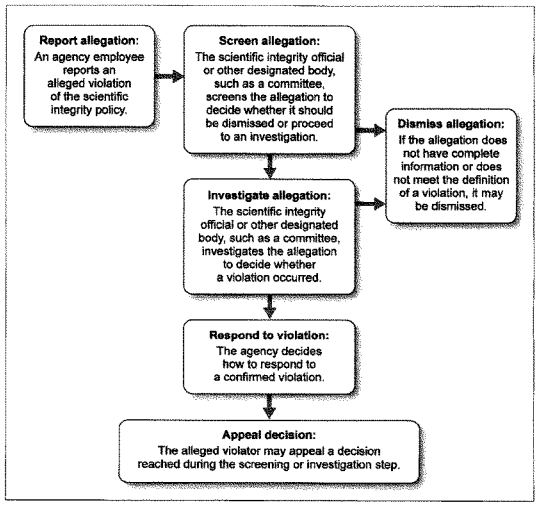
We recommended in our April 2019 report that the five agencies develop mechanisms to regularly monitor and evaluate implementation of their scientific integrity policies, including mechanisms to remediate identified deficiencies and make improvements where necessary. All five agencies agreed with our recommendation and responded as follows:

- In a May 2019 letter from DOT, the department identified several mechanisms it plans to implement by the end of March 2020.
- In DOE's written comments on a draft of our report, the department said that its scientific integrity official will have the responsibility to lead in developing procedures to monitor and evaluate implementation of DOE's policy.
- In Commerce's written comments, NIST stated that, beginning in fiscal year 2019, the agency will review implementation of its policy at least annually and make recommendations to the Director of NIST as to whether any improvements are needed.
- In Commerce's written comments, NOAA stated that it will identify additional metrics for monitoring and evaluating its policy.
- The Department of the Interior's written comments stated that the department plans to implement a biennial scientific integrity survey of USGS employees, beginning in 2020, to gauge scientific integrity policy awareness and effectiveness at USGS, among other things.

Most of the Selected Agencies Have Procedures for Addressing Alleged Violations of Scientific Integrity Policies, but Two Do Not, Raising Questions about the Consistency of Their Investigations

Seven of the nine selected agencies—ARS, EPA, FAA, NIH, NIST, NOAA, and USGS—have specific, documented procedures for identifying and addressing alleged violations of their scientific integrity policies. Although the details of agencies' procedures may vary, the procedures generally include five basic steps: (1) report allegation, (2) screen allegation, (3) investigate allegation, (4) respond to violation, and (5) appeal decision (see fig. 1).

Figure 1: General Procedure for Identifying and Addressing Alleged Violations of Selected Agencies' Scientific Integrity Policies



Source: GAO analysis of selected agencies' information. | GAO-19-674T

Note: The seven selected agencies that have procedures similar to this figure are the Agricultural Research Service, Environmental Protection Agency, Federal Aviation Administration, National Institutes of Health, National Institute of Standards and Technology, National Oceanic and Atmospheric Administration, and U.S. Geological Survey.

In contrast, two of the nine selected agencies—FE and NASA—do not have specific, documented procedures for identifying and addressing alleged violations of their scientific integrity policies. In March 2009, the President issued a memorandum on scientific integrity that states that each agency should have in place procedures to identify and address instances in which the scientific process or the integrity of scientific and technological information may be compromised.[17] FE, which follows DOE's scientific integrity policy, does not have specific procedures because DOE has not established any. DOE and FE officials said staff can report allegations to a supervisor, the whistleblower ombudsperson, or the U.S. Office of Special Counsel (OSC).[18] Similarly, NASA officials said employees can report allegations through their chain of command, such as to a supervisor, for investigation on a case-by-case basis. However, without documented procedures for identifying and addressing alleged violations of their scientific integrity policies, DOE and NASA do not have assurance that all staff have a clear understanding of how to report allegations and that investigations will be conducted consistently.

We recommended the Secretary of Energy and Administrator of NASA develop documented procedures for identifying and addressing alleged violations of their scientific integrity policies. In DOE's written comments on a draft of our report, the department stated that it will be the responsibility of the scientific integrity official to lead, and coordinate with other elements of the department, in developing procedures for identifying and addressing alleged violations of its scientific integrity policy and estimated completing actions in June 2020. In written comments from NASA, the agency stated that it will develop documented procedures for

[17]The White House, Memorandum for the Heads of Executive Departments and Agencies, *Scientific Integrity* (Washington D.C.: March 9, 2009).

[18]OSC is an independent federal investigative and prosecutorial agency whose primary mission is to safeguard the merit system in federal employment by protecting employees and applicants for federal employment from prohibited personnel practices, including reprisal for whistleblowing. OSC also reviews claims of wrongdoing within the federal government from current federal employees, former employees, and applicants for federal employment. When OSC receives allegations, OSC attorneys review the information to evaluate whether there is a substantial likelihood that the information discloses a violation of any law, rule, or regulation; or gross mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety. If OSC determines that the disclosed information meets the "substantial likelihood" standard, OSC refers information to an agency head for an investigation, and the agency must investigate the allegations and submit a written report to OSC on the agency's findings. See 5 U.S.C. § 1213.

identifying and addressing alleged violations of its policy and estimated completion by October 2020.

Chairwoman Stevens and Chairwoman Sherrill, Ranking Member Baird and Ranking Member Norman, and Members of the Subcommittees, this concludes my prepared statement. I would be pleased to respond to any questions that you may have at this time.

GAO Contact and Staff Acknowledgments

If you or your staff have any questions about this statement, please contact John Neumann, Managing Director, Science, Technology Assessment, and Analytics, at (202) 512-6888 or neumannj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. GAO staff who made key contributions to this testimony are Rob Marek (Assistant Director), Wyatt R. Hundrup (Analyst in Charge), Cheryl Harris, and Douglas G. Hunker. Also contributing to this testimony were Eric Charles and Ben Shouse. Additional staff who made contributions to our April 2019 report are identified in that report.

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Biography

John Neumann is a Managing Director in GAO's new Science, Technology Assessment and Analytics (STAA) team. Since 2013 he has led audits in the science and technology area, including the management and oversight of federal research and development programs, protection of intellectual property, and federal efforts to support innovation. Over the course of his career at GAO, Mr. Neumann has managed reviews on a broad range of topics, including recent work looking at agencies scientific integrity policies, federal support for transformational research, and the Manufacturing USA network. Mr. Neumann received his B.A. in Political Science cum laude from the State University of New York at Stony Brook, and holds an M.B.A from American University, as well as a J.D. from Georgetown University.

TESTIMONY OF MICHAEL HALPERN,
DEPUTY DIRECTOR, CENTER FOR SCIENCE AND DEMOCRACY,
UNION OF CONCERNED SCIENTISTS

Mr. HALPERN. Good morning, and thank you, Chairwoman Stevens, Chairwoman Sherrill, Ranking Member Baird, and Ranking Member Norman, for holding this hearing today.

I'm Michael Halpern. I'm the Deputy Director of the Center for Science and Democracy at the Union of Concerned Scientists. I have spent the last 15 years working at the intersection of science and policy and standing up for scientists and their work. And I'm really, really thrilled to be here today to talk about political interference in the work of Federal Government scientists and steps to prevent that type of misconduct. I hope that today will serve as an example to all that there can be a bipartisan commitment to promoting responsible conduct in Federal scientific agencies regarding the development and communication of scientific information.

Federal Government experts provide data and analysis that helps us stop the Zika virus. They help neighborhoods deal with public health risks posed by nearby chemical plants. They help journalists and policymakers understand bioterrorism threats. Now, there is not Democratic science, there is not Republican science. There's just science. Decision-makers and the public want to hear directly from the experts, and they deserve that access. But too often policymakers want to keep scientists on a leash or, worse, change scientific practices or outcomes to support predetermined policy positions.

Political appointees suppress scientific reports on chemical toxicity, order staff to soften conclusions on worker safety problems, unethically change testing protocols on lead exposure and other chemical exposure, and misrepresent scientists' work on reproductive health. In that kind of closed culture, scientists keep their heads down, and we are robbed of their expertise. This keeps valuable information from the public and makes it easier for politicians to avoid accountability for poor public health and environmental protection decisions.

The consequences are real. During the George W. Bush Administration, government experts were ordered to change their testing procedures to suggest that children's lunchboxes with lead in them were safe. The Obama EPA watered down and changed a scientific assessment about the impacts of fracking on drinking water in a way that misled the public. And in the Trump Administration, assessments of PFAS chemicals were held up, scientists have been muzzled on climate change, and experts report high levels of censorship and self-censorship across issues and surveys.

For the last 20 years, journalism associations complained consistently about access to Federal Government experts and asked for improvements. They were stonewalled then, and it's only getting worse. Recently, the U.S. Geological Survey began requiring scientists to ask for permission before speaking with a reporter. Now, USGS is not a regulatory agency. It doesn't do policy. Yet the desire to control the message on science is still present.

Now, most Federal agencies, as we know, have developed scientific integrity policies over the last decade, but agencies vary

widely in their ability and willingness to enforce and implement these policies. At a majority of agencies there's little training and few enforcement mechanisms. Without being in statute, the scientific integrity policies can improve agencies around the edges but lack authority and enforceability. Policies can be curtailed or eliminated at any moment.

Now, ultimately we cannot depend on agencies to police themselves without additional direction and support. It's time to codify these scientific integrity standards. The *Scientific Integrity Act* creates transparency and accountability through clarity. The legislation would give scientists who work for the government and work for government agencies the right to share their research with the public, ensure that government communication of science is accurate, and protect science and policy decisions from political interference, not dictating the policy decisions but protecting the science within them.

The bill empowers Federal employees also to share their expertise and opinions as informed experts in a personal capacity outside of their government jobs. And the bill prohibits any employee from censoring or manipulating scientific findings.

It's certainly time for this kind of legislation to be considered. It's certainly important for us to determine that we can separate the science from the policy and that we need to make fully informed decisions based on that science. But the American people lose when we end up with manipulated or suppressed or distorted information. Thank you.

[The prepared statement of Mr. Halpern follows:]

Testimony for Mr. Michael Halpern
Deputy Director, Center for Science and Democracy
Union of Concerned Scientists
House Committee on Science, Space, and Technology
Joint Subcommittee on Investigations & Oversight and Subcommittee on Research & Technology Hearing

"Scientific Integrity in Federal Agencies"

July 17, 2019

Thank you, Chairwoman Stevens and Chairwoman Sherrill, and also Ranking Member Baird and Ranking Member Norman, for holding this important hearing, and thank you for the opportunity to testify. My name is Michael Halpern, and I am the Deputy Director of the Center for Science and Democracy at the Union of Concerned Scientists. I have been working to protect science in decision making and scientific integrity since 2004 at a national and international level, and have authored numerous articles and reports about the problem of political interference in science and solutions to it.

The Environmental Protection Agency (EPA), Centers for Disease Control and Prevention (CDC), Department of Interior (DOI), and Food and Drug Administration (FDA) are supposed to use independent science to protect and improve public health and the environment. Much of the time, they do. But sometimes presidential administrations want to sideline, manipulate, misrepresent, or suppress information that comes out of federal agencies—especially if it doesn't support the policies they want to put forward. When that happens, valuable information is kept from the public, and it becomes easier for politicians to justify ill-advised public health and environmental protection decisions. This makes people sicker and degrades the environment.

A lack of protection for science makes it easier for the White House to try to get away with actions like censoring a study on chemical contamination of drinking water[1], or why employees can be reprimanded for tweeting about climate change[2]. Absent these protections, employees feel the need to self-censor, and avoid talking publicly about their research results. Such a climate of censorship harms the public trust in science-based policymaking, erodes the public understanding of the scientific record, and threatens to fundamentally alter the strength of our democracy.

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[1] Bipartisan Outrage as EPA, White House Try to Cover Up Chemical Health Assessment, Michael Halpern, May 16, 2018 - https://blog.ucsusa.org/michael-halpern/bipartisan-outrage-as-epa-white-house-try-to-cover-up-chemical-health-assessment

[2] Joshua Tree National Park Superintendent Reprimanded for Climate Change Science, UCS Staff, Jan 5, 2018 - https://www.ucsusa.org/center-science-and-democracy/attacks-on-science/joshua-tree-national-park-superintendent-reprimanded

Since 2004, the Union of Concerned Scientists has regularly monitored agencies for actions that compromise the use of science in policymaking. We have learned about such issues from scientists themselves, having conducted surveys of federal scientists for their views about political pressure on their scientific work during the last three presidential administrations. We have pushed for and participated in congressional oversight related to scientific integrity, and regularly work with reporters to bring abuses of science to light. We developed model good government policies for federal scientific agencies and analyzed and made recommendations about both the content and implementation of federal agency scientific integrity policies since they were developed nearly a decade ago.

I am thrilled to see that legislation to mandate the development of scientific integrity policies, H.R. 1709 the Scientific Integrity Act, is receiving a hearing today. We want to thank Congressman Tonko for leading the way on this legislation, as well as Chairwoman Johnson and Chairwoman Stevens on the Science Committee for their leadership as well. We hope that today will serve as an example to all that there can be a bipartisan commitment to promoting responsible conduct in federal scientific agencies with regard to the development and communication of scientific information.

This testimony can be summarized as follows:

1. Political interference in science happens under all presidential administrations, although the recent level of attacks on science is unprecedented.
2. Scientific integrity standards are essential for government accountability, but current scientific integrity policies are insufficiently written, inadequately implemented, and vulnerable to being ignored or repealed by any administration.
3. The Scientific Integrity Act has support from a wide variety of organizations. With a few improvements, the legislation should make a real bipartisan advance that will broadly impact policymaking for the better. It should be passed and signed into law.
4. There are other steps that must be taken to strengthen the role of science in policymaking that are outside of the scope of this legislation and hearing. The legislation does not address all issues related to science-based policy-making and it should not attempt to do so.
5. This legislation is not directed at the actions of the current or any other administration. It is a good government effort that should transcend partisan politics.

Strong Scientific Integrity Standards Are Essential for Government Accountability

The United States government has long worked to ensure the integrity of the science that is maintained within executive branch agencies. Originally, this meant ensuring that a scientist's research was conducted ethically and in accordance with high scientific standards. Policies were put in place to protect human research subjects, ensure that confidential data is protected against disclosure, promote effective peer review, address scientific misconduct, and more.

In recent years, the definition of scientific integrity has been focused on ensuring that science produced and considered by the federal government is not censored or politically influenced,

that this science fully informs public policy decisions, and that the public is more fully aware of the knowledge and data that are produced by federal scientists that pertains to policymaking.

The importance of safeguarding scientific integrity within our federal government cannot be overstated. Science-informed decisions made by executive agencies have direct impacts on all of our lives. Whether those decisions are determining how safe or clean our waters are to drink, or our air to breathe, or whether certain species are deserving greater protections under law, four fundamental principles should be embraced:

1. Decisions should be fully informed by (but not necessarily proscribed by) science;
2. Scientists working for and advising the government should be unobstructed in providing scientific evidence to inform the decision-making process;
3. The public should have reasonable access to scientific information to be able to understand the evidentiary basis of public policy decisions; and
4. The public and Congress should be able to evaluate whether the above principles are being adhered to.

Clearly, science is not the only factor that goes into many policy decisions. There are often many factors to consider. There are times, however, when determinations must be made *solely* on the best available scientific information. For example, current law requires the Food and Drug Administration to consider only the scientific evidence when determining whether drugs are safe and effective. It is not appropriate or legal to consider how profitable the drug will be. Similarly, when determining what level of air pollution is unsafe for human populations, the Clean Air Act requires the EPA to stick to the science. Economics and other factors can then be taken into account when standards are implemented and enforced.

The Scientific Integrity Act is Government Accountability Legislation that Prevents Political Interference in Science

The attacks on science described in this testimony—including censorship and self-censorship, misrepresentation of findings, improper interference in scientific methods, and delays in publishing research—all could have been prevented had scientific integrity protections been formalized in statue when the attacks took place. At a minimum, there would have been recourse for federal employees faced with such political interference.

The Scientific Integrity Act is good government legislation. It is agnostic on matters of policy; rather, it aims to ensure that policies are fully informed by science. The legislation contains many of the best practices that have been identified for the development and maintenance of a thriving federal scientific enterprise.

The legislation prohibits any employee from manipulating or misrepresenting scientific findings. On issues from endangered species to toxic chemical contamination to worker safety, political appointees have personally made changes to scientific documents (or ordered that changes be made) in order to justify action or lack of action on public health and environmental threats.

The legislation helps ensure that government communication of science is accurate by giving scientists the right of last review over materials that rely primarily on their research. It also gives scientists the right to correct official materials that misrepresent their work. This provision makes it less likely that federal agencies will put out inaccurate information, either intentionally or inadvertently.

The legislation ensures that scientists can carry out their research—and share it with the public—without fear of political pressure or retaliation. It enables scientists to talk about their research in public, with reporters, in scientific journals, and at scientific conferences. The bill empowers federal scientists to share their personal opinions as informed experts, but only in an individual capacity, not as government representatives. This is essential due to the amount of censorship and self-censorship that has been documented on issues from climate change to food safety.

The legislation requires agencies to devote resources to designate scientific integrity officers and provide federal employees with appropriate training to help prevent misconduct. Some agencies have developed policies that have no enforcement mechanisms, rendering them virtually meaningless.

The legislation would *not* empower scientists to speak for their agency on policy matters. It would not enable scientists to circumvent the agency leadership with regard to policy decisions. It would be clearly applied to expressing views with regard to their scientific expertise.

Scientists Should Be Free to Speak Publicly Without Asking Permission

Notably, the legislation extends appropriate free speech protections for agency experts by allowing them to speak about their scientific work without political filters. Many current and former agency leaders initially worry that by extending additional rights for scientists that scientists will confuse the public. Policies are already in place however at several agencies that assert this right and there have been no recorded problems.

The National Oceanic and Atmospheric Administration was the first agency to assert that scientists could speak publicly about their scientific work without prior approval when NOAA released its scientific integrity policy in December 2011. Several other agencies and departments have followed suit, including the Department of Commerce (NOAA's parent department), the Department of Energy, the Department of Interior, the Centers for Disease Control and Prevention, and the Environmental Protection Agency. As noted above, this does not mean that scientists feel free to exercise this right, which is one reason that codification should happen.

It is worth noting that this is one area where the 2010 White House memorandum falls significantly short. The memorandum requires "coordination" with supervisors and public affairs, which introduces significant opportunities for censorship. It also implicitly allows these individuals to instruct scientists to refuse interviews; offer alternative spokespeople who would be more likely to provide more "favorable" messages; or delay interviews until deadlines have

passed and the information is no longer relevant. The past decade has demonstrated that these guidelines are insufficient.

Problems with Scientific Integrity Happen Under All Presidents And Hurt People Directly
In the Journal of Science Policy and Governance last year[3], my colleagues Emily Berman and Jacob Carter explored cases of political interference in science dating back to the 1950s. They write:

> *Due to the widespread use of science in policymaking, stakeholders on all sides of scientific issues attempt to manipulate scientific information and/or scientists to achieve their own goals. Such practices introduce political and ideological bias into the science policy process and threaten to undermine protections for both public health and the environment. In recent years, scientists and science advocates have adapted the term "scientific integrity" to describe the proper process through which science informs policy.*
>
> ...
>
> *Overall, we find that the Trump administration's violations of scientific integrity are largely a continuation and escalation of patterns built up over the past seven decades as science and the growing federal science apparatus increasingly came into conflict with political, economic, and ideological interests. While many of the Trump administration's actions have origins in the work of prior administrations, others fit with the "unprecedented" narrative, including the uniquely open disregard for the conclusions of its own scientists.*

The paper chronicles several actions that resulted in a loss of scientific integrity in multiple presidential administrations. For example, President Eisenhower fired the head of the National Bureau of Standards after the agency head refused to certify that a battery additive preserved battery life. President Johnson imposed political litmus tests imposed for appointees to a presidential science advisory committee. President Nixon disbanded that same science advisory committee when members were critical of his proposed Supersonic Transport System. The Carter administration buried a report from a task force on natural gas supply and production costs when it disagreed with the task force's conclusions, eventually dismissing the task force's head.

However, while political interference in science happens under all administrations, it does not happen equally under all administrations. The Reagan administration brought a significant increase in scientific integrity violations. The next two presidents, George H.W. Bush and Bill Clinton, oversaw agencies where there were far fewer clashes between scientists and the political appointees leading federal agencies.

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[3] POLICY ANALYSIS: Scientific Integrity in Federal Policymaking Under Past and Present Administrations, Emily Berman, Jacob Carter, *Journal of Science Policy & Governance*, Vol. 13, Issue 1, September 2018 - http://www.sciencepolicyjournal.org/uploads/5/4/3/4/5434385/berman_emily__carter_jacob.pdf

The George W. Bush administration significantly escalated the tensions between science and policy. My research team and I documented scores of instances of political interference in science during the George W. Bush administration. Among the most egregious examples, taken directly from UCS's *Federal Science and the Public Good* report:[4]

- After the 9/11 terrorist attacks, the Environmental Protection Agency (EPA) informed rescue workers at ground zero that the air was safe without having actually tested the air.
- In 2006, the U.S. Election Assistance Commission reversed the findings of a report on voter fraud prepared by a bipartisan team of experts, replacing evidence that voter fraud is not widespread with language suggesting that it is pervasive.
- The Food and Drug Administration (FDA) cited a fabricated industry study in defense of its decision to approve the drug Ketek, despite widespread concerns among its own scientists that Ketek causes severe liver problems.
- Despite warnings from government scientists, the Federal Emergency Management Agency (FEMA) used faulty testing procedures and failed to correctly test for dangerous levels of formaldehyde in mobile homes provided to victims of Hurricane Katrina.
- The Consumer Product Safety Commission (CPSC) manipulated testing procedures to produce faulty results on the lead content of children's lunch boxes.
- The EPA allowed North Dakota to alter the way it measured air quality in 2004, to bring Theodore Roosevelt National Park into compliance with air quality standards without actually reducing pollution.
- Reports that Julie MacDonald, former deputy assistant secretary for fish, wildlife, and parks, "had bullied, insulted, and harassed the professional staff of the U.S. Fish and Wildlife ser- vice" led to an investigation by the inspector general of the Department of the Interior in 2007. The investigation found that MacDonald had circumvented the chain of command "to have reports reflect what she wanted" on numerous occasions, and had "demoralized the FWS program with her interference in endangered species studies."
- The Occupational Safety and Health Administration (OSHA) threatened to suspend a scientist who refused to cite industry- funded science downplaying the dangers of asbestos in a safety warning for auto mechanics.
- The Department of justice demoted the head of the Bureau of justice Statistics when he refused to downplay the findings of a study which found statistical evidence of racial profiling by police officers.
- Officials at the OMB heavily edited testimony given by Dr. Julie Gerberding, director of the Centers for Disease Control and Prevention (CDC), at a congressional hearing in October 2007 on the public health risks from climate change. The OMB cut the director's statement in half, deleting her discussion of the potential public health consequences of climate change, and the need to identify vulnerable populations.

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[4] Federal Science and the Public Good, Securing the Integrity of Science in Policy Making, Dec 2008 - https://www.ucsusa.org/sites/default/files/legacy/assets/documents/scientific_integrity/Federal-Science-and-the-Public-Good-12-08-Update.pdf

- Former Surgeon General Richard H. Carmona revealed that the White House extensively censored his public communications, forcing his statements to align with administration policy and pressuring him to participate in partisan political activity.
- For nine months, White House officials suppressed an EPA report detailing the harmful effects of mercury, a known neurotoxin emitted by coal-fired power plants, on children's health while the agency was considering new pollution control rules for power plants. The agency released the report only after it was leaked to the media.
- The Consumer Product Safety Commission's general counsel, who had represented the all-terrain vehicle (ATV) industry as a private-sector attorney, pressured CPSC statisticians to claim that the risks of riding ATVs were declining, even though their findings didn't support that conclusion. When the general counsel was unsuccessful in getting the statisticians to change the report, he delayed its release for three months.

Even while promulgating scientific integrity policies, the Obama administration was not immune to political interference in science. For example, the Secretary of Health and Human Services Kathleen Sebelius ordered the FDA Commissioner to reject an application to approve emergency contraception use for over-the-counter distribution despite the FDA's clear finding that the drug was safe and effective. It was the first time in history that the FDA had ever been overruled on a drug approval decision. Further, the president and Secretary Sebelius misrepresented science to justify their decision.[5]

According to reporting by *Marketplace*, President Obama's EPA misrepresented the conclusions of scientists who were investigating whether there are negative consequences for drinking water from hydraulic fracturing (fracking), leading the public to believe that the EPA was declaring that fracking was safe for drinking water, an unfounded assertion.[6]

Now, At Some Agencies, It Has Never Been Worse

The erosion of scientific integrity in government has hit a fever pitch in the last two years. Barely a week goes by without hearing of scientists who are prevented from sharing their expertise with the public, or analytic work that is censored, or experts who are prevented from communicating with Congress, or data is made less accessible through websites, or science that is misrepresented. Since January 2017, the Union of Concerned Scientists has documented more than one hundred attacks on science under the Trump administration,[7] a mark that George W. Bush did not meet in his two terms.[8] Other organizations, such as the Sabin Center for Climate Change Law, are also tracking attacks on science during the current administration.[9]

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[5] The morning after, *Nature,* 480,413, Dec 22, 2011 - https://www.nature.com/articles/480413a

[6] EPA's late changes to fracking study downplay risk of drinking water pollution, Scott Tong, Nov 30, 2016 - https://www.marketplace.org/2016/11/29/world/epa-s-late-changes-fracking-study-portray-lower-pollution-risk/

[7] Attacks on science - https://www.ucsusa.org/center-science-and-democracy/attacks-on-science

[8] Abuses of Science: Case Studies, UCS Staff, 2009 - https://www.ucsusa.org/our-work/center-science-and-democracy/promoting-scientific-integrity/abuses-science-case-studies

[9] Silencing Science Tracker - http://columbiaclimatelaw.com/resources/silencing-science-tracker/

In the last few months alone, we have learned of several cases of political interference in science, including the following:

1. Consumer Product Safety Commission scientists had evidence that a type of stroller had defects that led to injuries for more than two hundred children and could lead to "life-threatening injuries" for others. One CPSC commissioner hid this information from other commissioners until other commissioners more friendly to the company could be appointed.[10]
2. White House officials stopped a senior analyst at the State Department's Bureau of Intelligence and Research from submitting scientific information on climate change in a written testimony to the House Intelligence Committee. The official later resigned from his position.
3. EPA scientists were ordered to soften their analysis to bring several Wisconsin counties into compliance with the Clean Air Act. This would allow the company Foxconn to build a manufacturing plant with lax pollution controls. President Trump has been personally involved in the effort to bring a Foxconn plant to Wisconsin.
4. A proposal from the U.S. Fish and Wildlife Service to remove the gray wolf from the Endangered Species Act (ESA) was found to be full of errors regarding wolf conservation and taxonomy. One member of the scientific panel asked to review the proposal said it seemed as if the proposal was written by cherry-picking evidence that would support de-listing.[11]

Recently, several former EPA administrators expressed concern about political interference in science at the EPA at a hearing in the House Energy and Commerce Committee. Former New Jersey Governor Christine Todd Whitman Whitman, who served as EPA administrator under George W. Bush, the went on to write an op-ed[12] in The Hill with UCS President Ken Kimmell supporting the Scientific Integrity Act. Whitman and Kimmell wrote:

> *We all rely on federal scientists — and we need to be able to trust that we're getting the best available science.*
>
> *But there's a problem here: Federal scientists often face political pressure that undermines their research and their ability to share it with the public. Political leaders have buried critical reports, keeping the public in the dark about real threats. They have prevented scientists from publishing their research or attending scientific conferences. They have disciplined scientists for talking about their findings to journalists.*

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[10] After hundreds of crashes, this Britax jogging stroller faced recall. Then Trump appointees stepped in, Todd C. Frankel, Apr 2, 2019 - https://www.washingtonpost.com/business/economy/after-hundreds-of-crashes-this-britax-jogging-stroller-faced-recall-then-trump-appointees-stepped-in/2019/04/02/faf23c20-4c06-11e9-b79a-961983b7e0cd_story.html

[11] Scientists Find Serious Flaws in Proposal to Delist Endangered Gray Wolf, Jacob Carter, Jun 24, 2019 - https://blog.ucsusa.org/jacob-carter/flaws-in-proposal-to-delist-gray-wolf

[12] Scientific integrity is crumbling under Trump, Ken Kimmell, Christie Todd Whitman, Jul 9, 2019 - https://thehill.com/opinion/energy-environment/452222-scientific-integrity-is-crumbing-under-trump

> *Most insidiously, this political interference can push scientists to self-censor, hedging their evidence or declining to pursue research entirely if they fear becoming a political target...*
>
> *We need strong, serious checks in place to make sure scientists can do their jobs, and all of us can benefit from their work. The Scientific Integrity Act, introduced this March by Rep. Paul Tonko (D-N.Y.), would go a long way to advancing this goal.*

Scientific Integrity in Policymaking Became a Public Issue Fifteen Years Ago

During President George W. Bush's first term, scientists noticed an uptick in the politicization of science. In 2003, Former Congressman Henry Waxman, then ranking member on the House Oversight Committee, issued a report[13] detailing political interference in science on issues from breast cancer to drug abuse.

Subsequently, 62 prominent scientists signed a statement[14] calling on the George W. Bush administration to restore scientific integrity to federal policymaking. The signatories included many Nobel laureates and senior science advisors to every president dating back to the Eisenhower administration. The scientists wrote, in part:

> *Although scientific input to the government is rarely the only factor in public policy decisions, this input should always be weighed from an objective and impartial perspective to avoid perilous consequences...The administration of George W. Bush has, however, disregarded this principle. When scientific knowledge has been found to be in conflict with its political goals, the administration has often manipulated the process through which science enters into its decisions. This has been done by placing people who are professionally unqualified or who have clear conflicts of interest in official posts and on scientific advisory committees; by disbanding existing advisory committees; by censoring and suppressing reports by the government's own scientists; and by simply not seeking independent scientific advice. Other administrations have, on occasion, engaged in such practices, but not so systematically nor on so wide a front. Furthermore, in advocating policies that are not scientifically sound, the administration has sometimes misrepresented scientific knowledge and misled the public about the implications of its policies.*

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[13] Politics and Science in the Bush Administration, U.S. House of Representatives Committee on Government Reform – Minority Staff, Special Investigations Division, Nov 13, 2003 - https://web.archive.org/web/20031202184233/http:/www.house.gov/reform/min/politicsandscience/pdfs/pdf_politics_and_science_rep.pdf

[14] 2004 Scientist Statement on Restoring Scientific Integrity to Federal Policy Making, Feb 18, 2004 - https://www.ucsusa.org/our-work/center-science-and-democracy/promoting-scientific-integrity/scientists-sign-on-statement.html

The scientists quoted President George H.W. Bush in their letter, who said the following in an address to the National Academies of Science on April 23, 1990[15]:

> *Science, like any field of endeavor, relies on freedom of inquiry; and one of the hallmarks of that freedom is objectivity. Now, more than ever, on issues ranging from climate change to AIDS research to genetic engineering to food additives, government relies on the impartial perspective of science for guidance.*

It was initially believed that the George W. Bush administration could be successfully pressured to change course a belief that was eventually proved to be incorrect. The Union of Concerned Scientists documented 98 instances of political interference in science between 2001 and 2008[16], all of which were reported publicly; the number that were never exposed is undoubtedly far higher, as demonstrated by the survey results described below.

During the George W. Bush and Obama administrations, several congressional and Senate hearings in the past have examined political interference in science. This included:

- U.S. House of Representatives Science Space and Technology Committee, Subcommittee on Investigations and Oversight, The Role of Science in Listing Endangered Species, Oct 13, 2011.
- U.S. Senate Committee on Environment and Public Works Subcommittee on Oversight, Scientific Integrity and Transparency Reforms at the EPA. Jun 9, 2009.
- U.S. House of Representatives Committee on Energy and Commerce, Subcommittee on Oversight and Investigations, Science Under Siege: Scientific Integrity at the Environmental Protection Agency, Sep 18, 2008.
- U.S. House of Representatives Committee on Natural Resources, The Danger of Deception: Do Endangered Species Have a Chance? May 21, 2008.
- U.S. House of Representatives Committee on Oversight and Government Reform, EPA's New Ozone Standards. May 20, 2008.
- U.S. Senate Committee on Environment and Public Works, Subcommittee on Public Sector Solutions to Global Warming, Oversight, and Children's Health Protection, Oversight Hearing on Science and Environmental Regulatory Decisions. May 7, 2008.
- U.S. House of Representatives Committee on Science and Technology, Subcommittee on Investigations and Oversight, EPA Library Closures: Better Access for a Broader Audience? Mar 13, 2008.
- U.S. House of Representatives Committee on Natural Resources, Endangered Species Act Implementation: Politics or Science? May 9, 2007.

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[15] President George H.W. Bush addresses the NAS members - April 23, 1990, National Academy of Science YouTube, Sep 8, 2016 - https://www.youtube.com/watch?v=fqaPhCXZxm0

[16] Abuses of Science: Case Studies, UCS Staff, 2009 - https://www.ucsusa.org/our-work/center-science-and-democracy/promoting-scientific-integrity/abuses-science-case-studies

- U. S. House of Representatives Committee on Oversight and Government Reform, Allegations of Political Interference with the Work of Government Climate Change Scientists. Jan 30, 2007.

Scientific Integrity Reform Began a Decade Ago

The Union of Concerned Scientists published a set of solutions to create better scientific integrity standards in February 2008. The report Federal Science and the Public Good outlined five areas of improvement for federal agencies: protecting government scientists, making government more transparent, improving the regulatory process, improving science advice, and strengthening monitoring and enforcement of current laws.

During the 2008 presidential campaign, both major party presidential candidates committed to taking steps to address scientific integrity at federal agencies. The following question was included in a questionnaire from Science Debate, an organization that works to get candidates to address science and technology topics:

> *Many government scientists report political interference in their job. Is it acceptable for elected officials to hold back or alter scientific reports if they conflict with their own views, and how will you balance scientific information with politics and personal beliefs in your decision-making?*

Senator John McCain's answer included the following:

> *We have invested huge amounts of public funds in scientific research. The public deserves to have the results of that research. Our job as elected officials is to develop the policies in response to those research results. Many times our research results have identified critical problems for our country. Denial of the facts will not solve any of these problems. Solutions can only come about as a result of a complete understanding of the problem. I believe policy should be based upon sound science. Good policy development will make for good politics... Integrity is critical in scientific research. Scientific research cannot succeed without integrity and trust. My own record speaks for integrity and putting the country first, not political agendas.*

Then-Senator Barack Obama's answer included the following:

> *I will restore the basic principle that government decisions should be based on the best-available, scientifically-valid evidence and not on the ideological predispositions of agency officials or political appointees.... Policies must be determined using a process that builds on the long tradition of open debate that has characterized progress in science, including review by individuals who might bring new information or contrasting views. I will... [r]estore the science integrity of government and restore transparency of decision- making by issuing an Executive Order establishing clear guidelines for the review and release of government publications, guaranteeing that results are released in a timely manner and not distorted by the ideological biases of political appointees."*

The promised executive order never materialized. But in March 2009, President Obama issued a memorandum on scientific integrity that instructed his science advisor, Dr. John Holdren, to develop a strategy within 120 days to restore scientific integrity to federal policymaking. This was consistent with language in the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act of 2007, which required OSTP to create scientific integrity principles. When signing the memorandum, President Obama said:

> *Promoting science isn't just about providing resources -- it's also about protecting free and open inquiry. It's about letting scientists like those who are here today do their jobs, free from manipulation or coercion, and listening to what they tell us, even when it's inconvenient -- especially when it's inconvenient. It is about ensuring that scientific data is never distorted or concealed to serve a political agenda -- and that we make scientific decisions based on facts, not ideology.*

The White House Directive on Scientific Integrity and Agency Responses

The White House Office of Science and Technology Policy (OSTP), led by Dr. Holdren, issued a directive to federal agencies and departments on December 17, 2010. The memorandum[17] included a set of principles that agencies and departments should follow, and asked agency and department heads to develop and implement policies to meet those principles.

It took 21 months for the memorandum to come out, after extensive pressure from the scientific community, and the final memorandum was weaker than many had hoped. Nevertheless, building off the memorandum, twenty-three federal agencies and departments subsequently developed policies that included provisions such as dispute resolution processes and the right to review scientific publications for accuracy prior to release.

However, while the standards set forth in the memorandum represented a decent framework, they were, in practice, inadequate to fully protect scientific integrity in the executive branch. For example, relying on the memo, agency policies varied widely in terms of comprehensiveness. Further, a minority of organizations contributed significant resources toward developing implementation plans or enforcement mechanisms. As a result, at many agencies, implementation, to this day, remains incomplete.

When developing solutions to fully protect the integrity of the scientific process, the 2010 White House memorandum should be viewed not as an end point, but as a starting point.

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[17] Memorandum for the Heads of Executive Departments and Agencies, Subject: Scientific Integrity, John Holdren, Dec 17, 2010 - https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/scientific-integrity-memo-12172010.pdf

Continued Challenges with Press Access

UCS found that after 2008, many federal agencies made improvements to their media and social media policies that gave more freedoms to federal employees—at least on paper[18]. However, there continued to be inconsistency among these policies from agency to agency. And journalists still reported routinely facing significant obstacles in attempts to speak to federal scientists. Practices regarding media access and scientists' freedom to communicate continued to vary widely across agencies. In research conducted jointly with the Society of Professional Journalists, UCS found four major barriers to effective communication with reporters. From the report *Mediated Access:*[19]

- ***Preapproval for interviews is often required.*** *While it's valuable for scientists to keep their PIOs and supervisors informed about their media contacts, when they are forbidden to speak to reporters without prior approval of the interview or of the specific questions to be asked, this can amount to de facto censorship.*
- ***Interviews are closely monitored.*** *PIOs believe that their presence provides needed support for scientists and helps journalists and scientists understand each other. Some of the journalists surveyed agreed that this can be the case. But many reported that the PIO's presence can have a chilling effect; one respondent expressed uncertainty about the trust she could place in her sources, questioning if they would say something different if the PIOs weren't there.*
- ***Interviews are denied.*** *Sometimes, PIOs simply deny journalists' requests for interviews with scientist. Of course, scientists have no obligation to grant interviews, and it's also true that agencies are often understaffed and lack the resources to respond to every request. But many journalists report that access is denied frequently and often without a reason. They also reported concerns about favoritism, with PIOs tending to favor staff writers at well-known publications over freelancers. This is a growing problem as science desks at traditional news outlets shrink, and freelancers increasingly take their place.*
- ***Tough questions are avoided.*** *Some of the hurdles writers report facing—having to repeat requests multiple times, being routed to other agency employees, or being given a list of talking points instead of a specific answer—are perceived as an attempt to avoid tough questions. And reporters say this has a direct impact on the quality of their work and their ability to keep the public informed.*

Scientific integrity policies were supposed to alleviate these pressures. Our research shows that they did not fully do so.

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[18] Grading Government Transparency: Scientists' Freedom to Speak (and Tweet) at Federal Agencies, Goldman et. Al, March 2015 - https://www.ucsusa.org/sites/default/files/attach/2015/03/grading-government-transparency-ucs-2015.pdf

[19] https://www.ucsusa.org/sites/default/files/attach/2015/07/ucs-mediated-access-report-2015.pdf

Dozens of media organizations wrote to and met with White House staff in an attempt to gain more press access to federal government experts. Their efforts were of little consequence. They noted the following[20]:

- *Officials blocking reporters' requests to talk to specific staff people;*
- *Excessive delays in answering interview requests that stretch past reporters' deadlines;*
- *Officials conveying information "on background," refusing to give reporters what should be public information unless they agree not to say who is speaking;*
- *Federal agencies blackballing reporters who write critically of them.*

The problem has become far worse during the Trump administration, where some public affairs officials see journalists as enemies. At the EPA[21], public affairs officials have gone so far as to attack reporters who write stories that the officials deem are unfavorable to the administration. At the Department of Interior[22], a National Park Superintendent was reprimanded for allowing his staff to tweet about climate change. And at the CDC[23], scientists were discouraged from using words and phrases including "evidence-based" in official documents.

In 2018, according to the Los Angeles Times[24], the U.S. Geological Survey began requiring scientists to ask for permission before speaking to a reporter. USGS isn't a regulatory agency. It doesn't do policy. Yet the desire to control the message is still present. Republican Representative Ken Calvert expressed concern about the move. "We must ensure there's proper access to our federal scientists and the valuable work they do for our country," he said.

The GAO Report Evaluated Policies but Did Not Evaluate Effectiveness

This year, the Government Accountability Office issued a report[25] evaluating the policies of nine federal scientific agencies. It found that all of the nine agencies have some kind of policy in place, but that some failed to have procedures in place for processing allegations of violations of the policy. Further, a minority of the agencies had done any significant monitoring or

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[20] Letter to Mr. Josh Earnest, White House Press Secretary, Sep 12, 2016 - http://spj.org/pdf/news/earnest-letter-09122016-final.pdf

[21] The environment for reporters covering the EPA just got a lot more toxic, *Washington Post*, Paul Farhi, Jul 13, 2019 - https://www.washingtonpost.com/lifestyle/style/the-environment-for-reporters-covering-the-epa-just-got-a-lot-more-toxic/2019/07/12/2d905f2a-a429-11e9-bd56-eac6bb02d01d_story.html?noredirect=on&utm_term=.48ce95298b18

[22] Interior Secretary Zinke reportedly dressed down Joshua Tree superintendent over climate change tweets, *Los Angeles Times*, Scott Martelle, Dec 15, 2017 - https://www.latimes.com/opinion/opinion-la/la-ol-zinke-twitter-joshua-tree-climate-change-20171215-story.html

[23] CDC gets list of forbidden words: Fetus, transgender, diversity, *Washington Post*, Lena H. Sun, Juliet Eilperin, Dec 15, 2017 - https://www.washingtonpost.com/national/health-science/cdc-gets-list-of-forbidden-words-fetus-transgender-diversity/2017/12/15/f503837a-e1cf-11e7-89e8-edec16379010_story.html?utm_term=.66d407ac90e5

[24] Trump administration tightens rules for federal scientists talking to reporters, *Los Angeles Times,* Rong-Gong Lin II, Jun 22, 2018 - https://www.latimes.com/local/lanow/la-me-ln-trump-policy-usgs-scientists-20180621-story.html

[25] SCIENTIFIC INTEGRITY POLICIES: Additional Actions Could Strengthen Integrity of Federal Research, GAO-19-265, Apr 4, 2019 - https://www.gao.gov/products/GAO-19-265

evaluation of their policies. The report made several recommendations to specific agencies to improve their practices.

There are limitations to the GAO's approach to this study. By only measuring the content of scientific integrity policies against the 2010 OSTP guidance, the GAO was not able to determine whether that guidance is sufficient to create a culture of scientific integrity at the affected agencies. Because most agencies do not objectively measure the effectiveness of their policies—only one agency, the Environmental Protection Agency, not included in the GAO report, has surveyed its own workforce about whether the policies are working—the GAO was also unable to evaluate whether policy implementation is meaningful. Thus, the GAO is able to measure whether policies exist with certain content and have enforcement and evaluative mechanisms, but unable to determine whether the policies are actually effective and preventing political interference in science.

The challenge, of course, is that we see even with policies that are strong, political pressures on scientists persist. At some agencies with weak policies, such as NASA and the National Institutes of Health, political interference in science is fairly minimal. At other agencies with relatively strong policies and procedures such as the EPA and the Department of Interior, political interference in science is strong and sustained.

Unfortunately, this is the case because scientific integrity policies are inherently vulnerable. Scientific integrity officials at all agencies must keep politics in mind in all aspects of their jobs, including providing informal advice, investigating allegations of political interference in science, reporting on and evaluating policy effectiveness, advocating for improvements internally, and speaking publicly about their work. At any moment, these policies could be curtailed or eliminated, further demonstrating a need for codification.

Surveys of Scientists Demonstrate Sustained Challenges

Since 2005, the Union of Concerned Scientists has conducted surveys of federal government scientists to measure the level of political, corporate, and other pressures on the conduct and communication of their work. A survey in 2018[26] was conducted in partnership with the Center for Survey Statistics and Methodology at Iowa State University. Responses were received from 4,211 federal government scientists across 16 agencies and departments.

The results of the survey[27] provided evidence of political interference in the science policy process at many federal agencies. At some agencies, the situation for scientists is worse than it was during the Bush or Obama administrations.

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[26] 2018 Federal Scientists Survey FAQ - https://www.ucsusa.org/our-work/center-science-and-democracy/promoting-scientific-integrity/2018-federal-scientists-survey

[27] The Good, the Bad, and the Ugly: The Results of Our 2018 Federal Scientists Survey, Jacob Carter, Aug 14, 2018 - https://blog.ucsusa.org/jacob-carter/the-good-the-bad-and-the-ugly-the-results-of-our-2018-federal-scientists-survey?_ga=2.185252906.241573531.1563190776-1087000439.1563190776

Scientists reported high levels of censorship and self-censorship:

- 631 respondents (18 percent) at agencies that work on climate change agreed or strongly agreed that they had been asked to omit the phrase "climate change" from their work.
- 798 respondents (20 percent) reported that they had been asked or told to avoid work on specific scientific topics because they are politically contentious.
- 1040 respondents (26 percent) reported that they had avoided working on certain scientific topics or using certain scientific terms because they are politically contentious, though they were not told explicitly to avoid them.

(Note that percentages vary because not every respondent answered every question)

Essay responses reinforced these findings.

- From the U.S. Geological Survey: "Senior USGS management has censored scientists on multiple occasions. For example, video of a research talk on earthquake early warning was removed from the USGS website because there was concern that congressional staffers might see it (the research pointed out difficulties with earthquake early warning, which had yet to be funded fully by congress). Often politically contentious scientific results are watered down in the internal review process. If scientists do not accept edits that water down the language, they are not allowed to submit the manuscript to a journal."
- From the National Park Service: "Consistent removal of references to climate change have hindered our ability to have honest discussions about the potential threats associated with climate change to the National Park System."
- From the Centers for Disease Control and Prevention: "It is currently virtually impossible for a scientist to openly communicate their work with the media or the public."

Notably, in the 2018 survey, scientists perceived significantly less political pressure at the Food and Drug Administration and the National Oceanic and Atmospheric Administration, agencies where political leadership has been less likely to interfere with or sideline scientists' work. This reinforces the understanding that because scientific integrity policies lack the force of law, they are too vulnerable to influence from high-ranking officials. Leadership certainly matters for scientific integrity, but codification of scientific integrity standards would reduce the ability of political appointees to set expectations that enable secrecy and manipulation of science.

What Scientific Integrity Polices Have Accomplished

The implementation of scientific integrity policies has changed agency culture so that more staff have higher expectations regarding their rights and responsibilities. It has enabled scientists to question political interference, consult with supervisors, and in some cases bring forward important information to decision makers and the public. These policies have also enabled many scientists and agencies to head off problems before they occur, through consultation and discussion.

Through the surveys of government scientists, we know that at agencies where scientific integrity policies and allegation resolution procedures are in place, scientists are more likely to possess an understanding of their rights and responsibilities related to scientific integrity. We know that investigations conducted under scientific integrity policies have led to the release of information that should have been public and the clarification of materials that were unethically manipulated.

It is important to look beyond the formal allegation and resolution process to see the most important value of the scientific integrity policies. I have spoken with many individuals who have served in the scientific integrity officer role over the past several years. Notably, they report that one of the most important aspects of their role is to provide informal consultations to employees who are dealing with situations where there may be a loss of scientific integrity. These informal consultations help resolve problems before they become formal allegations, and constitute the majority of interactions that employees have with scientific integrity officers.

As a result, I do not recommend that scientific integrity standards be enforced by an inspector general or other similarly punitive office. Very few federal employees who have felt comfortable consulting with the scientific integrity office would feel comfortable going to an inspector general.

Further, inspectors general investigate specific types of waste, fraud, and abuse, and many scientific integrity violations fall outside of those categories. Inspectors general tend to look for wrongdoing, while scientific integrity policies are designed to set standards by which people *should* behave.

The Scientific Integrity Act Does Not Address All Problems with Science and Politics – Nor Should It

If this bill becomes law, science can still be sidelined in policymaking. The bill does not address attempts to limit the types of science that can be considered in making policy. It does not address attempts to compromise the independence of federal advisory committees, or to eliminate these committees altogether. It does not address problems with workforce reduction and retention. It does not provide funding for professional development.

There is no requirement in the legislation about the weight that science should be given in any given policy decision. We aren't talking about being policy prescriptive. The legislation is designed to ensure that science fully informs the decisions that we make. And that is a very good start.

The Scientific Integrity Act Should be Further Strengthened
The Scientific Integrity Act as written is excellent legislation. But it should be amended by this committee to give it the teeth it needs to fully protect scientific integrity at the agency. There are three major areas that legislators should consider strengthening the bill:

1. **Develop Enforcement Processes**. While the legislation requires procedures for addressing allegations of loss of scientific integrity, there is no language that ensures that these procedures are consistent with current whistleblower and other worker protection laws. The bill author should work with whistleblower protection experts to ensure that staff who file allegations are fully protected.
2. **Improve Reporting and Policy Assessment.** Reporting numbers of misconduct cases filed, appealed, and pending is insufficient for the public to understand whether policies are being well implemented. The bill author should improve language to increase the substance of public reporting. This could include ensuring that there are career staff in OSTP who are empowered to develop evaluative metrics and set public reporting standards.
3. **Remove or Revise Existing Policy Certification.** The legislation currently allows agency heads to self-certify that existing policies already meet the standards of the legislation. As no agency policy currently meets all standards of the legislation, this could provide a way for agencies to effectively exempt themselves from the law, or at least slow down compliance.
4. **Restrict the Ability of the White House Office of Management and Budget to Misrepresent Agency Science.** Currently, the interagency review process coordinated by the Office of Regulatory Affairs in OMB allows agencies to challenge science conducted by other agencies that has already been through peer review. This allowed, for example, EPA analysis on the toxicity of perchlorate to be challenged and undermined by the Department of Defense (which would be on the hook for clean-up costs associated with the chemical). Agencies should have the option of publishing analysis that has been through internal peer-review before it goes to OMB.

The Scientific Integrity Act Has Broad Support
It's not just scientists that are behind the Scientific Integrity Act. More than 60 organizations have signed a letter urging members of Congress to co-sponsor the Scientific Integrity Act, representing government accountability, environmental, public health, and science organizations. Signatories include the American Public Health Association, the National Center for Women and Families, Defenders of Wildlife, the Project on Government Oversight, and SEIU. The letter reads, in part:

> *S. 775/H.R. 1709, the Scientific Integrity Act of 2019 contains provisions that would address many of these attacks on science. It would prohibit political appointees from altering or suppressing scientific findings and give scientists final review over how agencies portray their research. It also would ensure that federal agencies designate scientific integrity officers and provide federal employees with ethics training to help prevent misconduct.*

Another important component of the Scientific Integrity Act is its codification of scientists' right to disseminate their work without interference. It would enable scientists to talk about their research - with reporters, in scientific journals, and at scientific conferences as well as directly with members of the public. Such communication is essential both for public understanding and for federal scientists' ability to share their insights for better oversight and accountability of agency decisions.

Our nation relies on scientific integrity to maintain the role of best available science in policymaking. This research is critical to improving air and water quality, protecting workers, safeguarding public health and safety, advancing reproductive health, defending civil rights, preserving biodiversity, and responding to threats posed by diseases and extreme weather events.

Several organizational leaders have explained why they believe that the Scientific Integrity Act is essential for good government:

"The Scientific Integrity Act is an important step forward for safeguarding scientific integrity at federal agencies, and it improves the legal options available for federal scientists who are facing increasing levels of censorship, research hindrances, and misrepresentation of established facts. As the Scientific Integrity Act recognizes, it is imperative to have legally-protected pathways to challenge and correct scientific integrity violations."

-Lauren Kurtz, Executive Director, Climate Science Legal Defense Fund

"We have long recognized the critical importance of good, unmanipulated science to inform wildlife conservation, as is so clearly articulated in the Endangered Species Act. The Scientific Integrity Act is a much-needed law to close the gap that has allowed special interests to unduly shape the outcomes of fundamental and applied research that affects the lives of people and wildlife every single day. The sooner this bill is passed and signed into law, the sooner we can stop the Trump administration and future administrations from undermining science."

-Jamie Rappaport Clark, President and CEO, Defenders of Wildlife

"This legislation would put teeth in the rights of scientific whistleblowers that have been gaining symbolic traction since the Whistleblower Protection Act of 1989. That year Congress created the beach head by protecting those who refuse to violate the law, which occurs when censorship means false statements by government employees. In the 2012 Whistleblower Protection Enhancement Act Congress made it protected speech to challenge obstruction or censorship of scientific research. This legislation is a breakthrough adding accountability and expanding the scope to those principles everywhere they apply. Instead of merely having the right to act legally, the law would make research misconduct or censorship illegal. It would make the free flow of non-political scientific research a protected activity. It even allows government scientists when speaking as individuals to present their official credentials. In the past, agencies have threatened to fire scientists for so-called ethics violations when they disclosed their

credentials. The goal of this bill is to counter the growing threat of substituting political science for the scientific method. Our nation already is regularly suffering the consequences of political science that contaminates the laboratory. It is serious legislation that deserves prompt action."

-Tom Devine, Legal Director, Government Accountability Project

"Over the past two years, we've seen federal agencies disregard evidence and take apparently politically motivated actions that harm women's health, such as canceling Teen Pregnancy Prevention grants and rolling back the employer contraceptive mandate. Given recent instances where ideology has seemingly supplanted science around women's health, we applaud this bill for promoting the role of science to guide policy decisions on public health."

-Susan Wood, Executive Director, Jacobs Institute of Women's Health

"From environmental protection to women's health and economic security, we rely on scientific integrity in policymaking to protect public health and well-being. Our government should be using science and evidence-based information to protect public health — but frighteningly, they're doing the opposite. Nowhere is this more apparent than in the administration's relentless, anti-science approach to undermining reproductive health care. The Scientific Integrity Act would enact strong scientific integrity policies that protect both research and researchers and would restore public trust in our federal agencies."

-Sarah Lipton-Lubet, Vice President for Reproductive Health and Rights, National Partnership for Women & Families

"This bill strives to ensure that agency policies reflect the unadulterated work and opinions of professionally trained scientists. American taxpayers deserve to know that the scientific work they fund is actually informing U.S. policy. Hopefully this law will hold accountable those who try to bury scientific evidence and will prevent such attacks on scientific integrity in the future."

-Rebecca Jones, Policy Counsel, Project on Government Oversight

"SACNAS supports the Scientific Integrity Act of 2019 and stresses that the integrity of scientific research, the objective use of scientific evidence in policy-making and the unbiased sharing of scientific information with the public, should be upheld. Only when scientists from all backgrounds are represented, and science is included when public policy decisions are being made, will we be able to mitigate the risk of vulnerable communities being overlooked, their problems ignored, and their unique needs disregarded. These two conditions are particularly salient for ensuring science for the common good and improving public trust in science."

-Dr. Sonia Zárate, President, Society for Advancement of Chicanos/Hispanics & Native Americans in Science

"As a former agency scientist and then senior executive (NOAA), I believe it is vital for scientific evidence to come through to both policy-makers and the public directly from scientists themselves. That doesn't require that decisions are only based on science. Of course other factors come in to play. But it does mean that the justification for decisions can't falsely lean on science, hiding other considerations. Let the science speak."

-Dr. Andrew Rosenberg, Director, Center for Science & Democracy, Union of Concerned Scientists

Improve and Pass the Scientific Integrity Act
I am very appreciative of the leadership that Congressman Tonko showed by introducing the Scientific Integrity Act, and I want to thank the members of the committee for giving it their serious consideration.

Ultimately, the Scientific Integrity Act is required for federal agencies to be able to meet their missions and address the complex public health, environmental, and national security challenges we face as a nation. This is true in the day-to-day functioning of an agency, but also for its long-term health. Federal agencies will be unable to attract top scientific talent without protections in place that guarantee scientists' ability to do policy-relevant research, follow the evidence where it leads, and communicate out the results of that work.

The Scientific Integrity Act is essential good government legislation that is more important now than ever before. Every day that goes by without adequate protections for scientists and scientific information in policymaking leaves the public uninformed and enables policymakers to make arbitrary decisions with inadequate accountability. I encourage the committee to hold additional hearings into these matters and to improve and pass the Scientific Integrity Act.

Biography

Michael Halpern is deputy director of the Center for Science and Democracy at the Union of Concerned Scientists. For more than 15 years at UCS, Michael has worked to promote solutions that ensure government decisions are fully informed by scientific information, and that the public understands the scientific basis for those decisions. He also oversees efforts to enable scientists to more effectively engage the public.

Michael has extensive expertise in defending scientists from harassment and creating conditions that make science and scientists more resilient to political, industry, and ideological influence. He speaks and writes regularly on the use and misuse of science in decision making, and the forces that drive attacks on science. He has co-authored several reports and articles that detail solutions that would improve scientific integrity and accountability and has advised federal agencies and departments on development of policies to promote scientific independence in the context of policymaking in the United States and Canada.

He has published articles in Science, the American Journal of Public Health, the Environmental Law and Policy Annual Review, and PLOS Biology. He has appeared in scores of national and international media outlets, including the Associated Press, The Boston Globe, CNN, National Public Radio, NBC, The New York Times, and The Washington Post. Prior to joining UCS, Michael worked as a public awareness director for the Brain Injury Association of Minnesota, and as a community organizer in St. Paul, Minnesota. Michael holds a B.A. in sociology and communication studies from Macalester College.

Chairwoman STEVENS. Dr. Pielke.

TESTIMONY OF DR. ROGER PIELKE, JR., DIRECTOR, SPORTS GOVERNANCE CENTER, AND PROFESSOR, ENVIRONMENTAL STUDIES PROGRAM, UNIVERSITY OF COLORADO

Dr. PIELKE. Thank you. And thanks to the two Subcommittees for the opportunity today.

A long time ago, I worked for this Committee, for the Science Committee under George Brown in the red sweater, which led me to deeply appreciate the work that everyone does here, Members and staff.

Scientific integrity policies are essentially the ground rules for evidence in the political process that the government agrees to follow. This includes elected and appointed officials and civil servants. Scientific integrity legislation is important and necessary. Careful attention is needed to ensure that such legislation integrates well with existing related policies.

Under the George H.W. Bush Administration, controversies involving Federal science and scientists prompted the inclusion of a very short section in the 2007 *America COMPETES Act*. Under the Obama Administration, OSTP further developed guidelines for the implementation of scientific integrity policies.

These worthwhile efforts to develop and implement such policies for Federal agencies have not been continued under OSTP under the Trump Administration. Such policies are important because science and matters of scientific integrity have become increasingly popular arenas for partisan battles. If there is one topic where bipartisanship should thrive, it is scientific integrity.

However, these policies remain a work in progress. A December 2016 review of scientific integrity policies in 24 Federal agencies conducted for OSTP found that the concept of scientific integrity was undefined by OSTP and in most agencies scientific integrity policies.

As we've heard, a GAO review recently of nine Federal agencies found considerable variability in the implementation of scientific integrity policies. Thus, congressional legislation is presently needed to complete the task of developing scientific integrity policies for Federal agencies to place them explicitly under congressional oversight and to standardized definitions, policies, and procedures across Federal agencies, while recognizing also the need for flexibility in certain agency contexts.

H.R. 1709 offers a good start, but it's not quite there yet. My written statement contains detailed comments on the bill.

Now, the focus of scientific integrity policies has typically been on individual researchers and studies. But science best guides and informs policy when it's been assessed by expert advisory bodies that characterize the current state of knowledge on a particular topic or to present potential policy options, including perspectives on uncertainties, disagreements, and areas of ignorance.

The volume of scientific production requires assessments to inform policy. Consider that, according to the National Science Foundation, the U.S. Federal Government scientists published almost 20,000 science and engineering articles in 2016, the most recent

year data is available. And the vast majority of academic research is supported by Federal Government agencies. In 2016, this totaled more than 307,000 additional publications or about 840 per day. To communicate all Federal and federally supported research by agency press releases will require a press release every 90 seconds, 24 hours a day, 365 days a year. Federal agencies and universities thus face constant choices about which scientific articles to highlight for the media and the public. Of course, such choices are influenced by politics, including which studies support the agency's or Administration's policy goals, and so on.

The political nature of the communication of research is further enhanced by today's partisan media landscape and political advocates looking to advance their causes by promoting favorable research results and often attacking those results perceived to be unfavorable. Scientific integrity process—policies can help to ensure that the research underlying a communication process retains its integrity, but they cannot remove the role of political considerations from the overall process of communication.

Communicating science to the public, as important as it is, can never substitute for rigorous assessments. Thus, I strongly encourage Members of this Committee to consider directing legislative attention in support of enhancing scientific integrity in assessment and advisory bodies, including but not limited to those that fall under *FACA* (*Federal Advisory Committee Act*).

Finally, good science and policy advice from experts also results from the upholding of scientific integrity by elected and appointed officials. Often, and rightly so, our attention is focused on the advice given by experts. However, in policy settings, what is just as important is relationship of policymakers to those experts. Elected officials or political appointees should not use their positions to go after individual scientists or studies. Such actions subtract from scientific integrity.

The bottom line is that advisors advise, decisionmakers decide. Scientific integrity legislation can help create conditions where advisors can best fulfill their part of this important and essential relationship. Thank you.

[The prepared statement of Dr. Pielke follows:]

STATEMENT OF
DR. ROGER PIELKE, JR.
to the SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY & SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT
of the COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
of the UNITED STATES HOUSE OF REPRESENTATIVES

HEARING on
Scientific Integrity in Federal Agencies
2318 Rayburn House Office Building
17 July 2019

My testimony focuses on the importance of scientific integrity policies within federal agencies that fund, conduct, or oversee research and the current status of these policies. In an appendix I offer specific comments on H.R. 1709, the Scientific Integrity Act.[1] My biography is included at the end of this statement. This testimony is dedicated to the memory of Radford Byerly, Jr., 1936-2016, who was a staff member of the House Committee on Science, Space and Technology from 1978-1987 and from 1991-1993 served as the committee's staff director.

Four Take-Home Points

1. Scientific integrity legislation is important and necessary. Careful attention is needed to ensure that such legislation integrates well with existing, related policies;
2. It is essential to distinguish science advice from policy advice, and both types of advice should fall under scientific integrity policies;
3. Individual researchers and studies are essential to the process of science, but science best guides and informs policy when it has been assessed by scientific advisory bodies to characterize the current state of knowledge on a particular topic or to present possible policy options – including perspectives on uncertainties, disagreements, areas of ignorance;
4. Good science and policy advice from experts also results from the upholding of scientific integrity by elected and appointed officials.

Elaboration of the Four Take-Home Points

1. Scientific integrity legislation is important and necessary. Careful attention is needed to ensure that such legislation integrates well with existing, related policies.

Under the administration of president George H. Bush, controversies involving federal science and scientists prompted broad discussion of scientific integrity in federal agencies, culminating in a short section included in the 2007 America COMPETES Act, Section 1009. Under the Obama Administration, the Office of Science and Technology Policy (OSTP) further developed guidelines

[1] H.R. 1709 seeks to amend the America COMPETES Act to establish certain scientific integrity policies for Federal agencies that fund, conduct, or oversee scientific research, and for other purposes. My comments herein are with respect to the version of the bill introduced 13 March 2019. The America COMPETES Act (P.L 110-69), can be found at: https://www.govinfo.gov/content/pkg/PLAW-110publ69/pdf/PLAW-110publ69.pdf. H.R 1709 seeks to amend section 1009 of P.L. 110-69.

for the implementation of science integrity policies. These worthwhile efforts to develop and implement scientific integrity polices for federal agencies have not been continued under the Trump Administration. Given the critical importance of scientific and technological analyses to matters of public policy, it is important that Congress continue the development and formalization of scientific integrity policies.

Such policies are all the more important because science – and matters of scientific integrity – have become increasingly popular arenas for partisan battles. If there is one topic where bipartisanship should thrive, it is scientific integrity. However, scientific integrity policies remain a work in progress.

In December, 2016 a review of scientific integrity policies in 24 federal agencies conducted for OSTP[2] found inconsistencies in definitions, procedures and implementation across the government. The review found that the concept of "scientific integrity" was undefined by OSTP and in most agency scientific integrity policies. Under agency scientific integrity policies, the review also found inconsistencies in or a lack of direction for:

- the definition of covered individuals;
- what research and communication activities are included under the policies;
- assignment of responsibility for oversight and implementation of scientific integrity policies within the agency;
- the relationship of scientific integrity policies and other relevant policies, "such as data quality, research misconduct, disputes over authorship, protection of human subjects, conflict of interest, or fraud, waste, and abuse";
- the relationship of scientific integrity policies and issues of whistleblower protection;
- implementation of scientific integrity policies in the context of inter-agency research;
- responses to alleged violations of conflict of interest policies.

An April, 2019 GAO review of 9 federal agencies under the Trump Administration similarly found considerable variability in the implementation of scientific integrity policies implemented under the Section 1009 of the America COMPETES act and policy directives of 2010 by the Obama Administrations OSTP. Of note, the directives on scientific integrity promulgated by the Obama Administration no longer appear on the OSTP website and are available only through the archive of the Obama Administration's website.

Specifically, GAO found in its review:

- 7 of the 9 agencies educate staff on matters of scientific integrity;
- 8 of the 9 agencies have a designated official to oversee implementation scientific integrity policies;
- 4 of the 9 agencies monitor and evaluate implementation of their scientific integrity policies;

[2] Institute for Defense Analyses' Science and Technology Policy Institute, Review of Federal Agency Policies on Scientific Integrity (Washington, D.C.: December 2016). https://www.ida.org/-/media/feature/publications/r/re/review-of-federal-agency-policies-on-scientific-integrity/d-8305.ashx

- 7 of the 9 agencies have specific procedures for identifying and addressing alleged violations of their scientific integrity policies;
- In 6 of the 9 agencies employees have reported alleged violations of scientific integrity policies (ranging from 1 at ARS to 70 at EPA, of which 18 were upheld as violations).

GAO offered 10 recommendations to the 9 agencies, all of which were accepted. The GAO review clearly indicates that a high degree of variability exists in the implementation of scientific integrity policies of the federal government and that there exists considerable room for improvement in policy and implementation.

Congressional scientific integrity legislation is presently needed to:

(a) complete the task of developing scientific integrity policies for federal agencies that was initiated more than a decade ago;
(b) to formalize scientific integrity policies in law and place them explicitly under Congressional oversight; and
(c) to standardize definitions, policies and procedures across federal agencies (while recognizing also the need for flexibility in certain agency contexts).

H.R. 1709 offers a good start toward addressing these needs. An appendix to this testimony offers section-by-section comments and recommendations on the proposed bill with a focus on harmonizing the bill's language and directives with existing policies related to scientific integrity.

2. *It is essential to distinguish science advice from policy advice, and both types of advice should fall under scientific integrity policies.*

Science, broadly conceived, refers to the systematic pursuit of knowledge. Such knowledge of direct relevance to policy is typically related to trends (what has happened?), conditions (what is happening now?) and projections (what might happen in the future?). To assess trends, conditions, projections requires use of the tools and techniques of science, including in particular empirical observation and theoretical development, often focused on understanding mechanisms of causality, various sources of uncertainty and areas of ignorance. Science advice is the application of the tools and techniques of science to answer questions relevant to (or perceived to be relevant to) policy.

A policy is simply a decision, a commitment to a course of action. Policy advice seeks to answer the question: What might or should we do? Because decision making is focused on attaining goals, policy is inevitably political because people involved in and affected by decisions often disagree about what goals we should collectively seek to achieve and/or the means through which to employ in seeking to reach goals. Policy advice can take the form of guidance that seeks to limit the scope of options available to decision makers or to clarify or expand that scope of options.[3]

[3] In the jargon of my book, **The Honest Broker: Making Sense of Science in Policy and Politics** (2007, Cambridge), these positions are called "issue advocacy" (which seeks to reduce options, typically to a single preferred course of action) and "honest brokering" which seeks to clarify or to expand the scope of options available to policy makers. In practice, these characterizations are best thought of as end points on a spectrum of policy advice.

Procuring science advice and policy advice requires different processes and different types of expertise (and public engagement), but as both rely on expertise and are legitimized by public trust. Thus both types of advisory processes should be conducted with scientific integrity.

Implementation of scientific integrity policies will be facilitated by explicitly distinguishing science advice from policy advice, and the different processes and expectations for each.[4]

3. *Individual researchers and studies are essential to the process of science, but science best guides and informs policy when it has been assessed by scientific advisory bodies to characterize the current state of knowledge on a particular topic or to present possible policy options – including perspectives on uncertainties, disagreements, areas of ignorance.*

Scientific integrity policies, such as proposed in H.R. 1709 and currently contained in America COMPETES Act are only small parts of a healthy political ecosystem for securing expert advice to inform policy. Research conducted and communicated with integrity is a necessary element of this ecosystem, but it is far from sufficient.

The volume of scientific production requires assessments to inform policy. Consider that according to the National Science Foundation, U.S. federal government scientists across all agencies published almost 20,000 science and engineering articles in 2016.[5] If each publication were to be accompanied by a press release, that implies about 55 releases per day. Consider also that the vast majority of academic research is funded by federal government agencies. In 2016, academic research resulted in more than 307,000 additional publications, or about 840 per day. To communicate all federal and federally-supported research via agency press releases would require a press release every 90 seconds, 24 hours a day, 365 days per year.

Given the wonderful bounty of published research, federal agencies and universities face constant choices about which articles to highlight for the media and public. Of course such choices are influenced by politics, including considerations of what studies are perceived to be timely in the context of daily news, which studies may cast the agency in a favorable light, which studies support the agency's or administration's policy goals, which studies originate in states or districts of influential members of Congress and of course which studies are relevant to the hot politics of the day. The political nature of the communication of research studies is further enhanced by today's partisan media landscape and political advocates looking to advance their causes by promoting favorable research results, and often, attacking those perceived to be unfavorable.

Communication is inherently a political process. Scientific integrity politics can help to ensure that the research underlying a communication process retains its integrity, but they cannot remove the role of political considerations from the overall process of communications.[6]

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[4] This is discussed in Improving the Use of Science in Regulatory Policy, Bipartisan Policy Center (2009) https://bipartisanpolicy.org/wp-content/uploads/2019/03/BPC-Science-Report-fnl.pdf

[5] This is the most recent year that data is available. See Table 5-24 in the 2018 NSF Science and Engineering Indicators: https://nsf.gov/statistics/2018/nsb20181/report/sections/academic-research-and-development/outputs-of-s-e-research-publications#publication-output-by-u-s-sector

[6] Indeed, such politics are essential to effective democratic governance.

The massive volume of scientific publication underscores the essential importance of scientific assessments produced by committees of experts to integrate knowledge such that policy making might be grounded in robust evidence. Such committees are typically of the federal government (under the Federal Advisory Committee Act, 41 CFR 101-6 and 102-3), empaneled by the National Academy of Sciences or established by international multilateral organizations, such as the United Nations. Neither policy makers nor the public can obtain an accurate understanding of scientific or policy issues through press releases filtered through the media.

Consequently, it is absolutely essential to uphold the integrity of assessments and advisory bodies, whether focused on science or policy advice. Public trust will be enhanced through attention to the legitimacy, relevance and credibility of advisory bodies. For instance, to foster trust in such bodies, in 2011 GSA published guidelines for ensuring that FACA committees are "balanced" across a number of dimensions. It is not clear that any such guidance is in place or being followed today.[7]

Thus, while the attention being paid to scientific integrity in this hearing and in the legislation proposed to amend the America Competes Act, I strongly encourage members on this committee from both parties to consider directing similar attention to the need to formalize similar policies in support of enhancing scientific integrity in assessment and advisory bodies, including but not limited to those under FACA.

4. *Good science and policy advice from experts also results from the upholding of scientific integrity by elected and appointed officials.*

Often, and rightly so, our attention is focused on the advice given by experts. H.R. 1709 observes, "science and the scientific process should inform and guide public policy decisions." However, in policy settings what often comes first and is just as important is the relationship of policy makers to those experts who are informing the policy process. Through establishing the context within which expert advice is provided, policy makers also have an important role to play in securing scientific integrity

Here I offer five suggestions for how elected and appointed officials can contribute to scientific integrity.

- In cases where science advice is desired, ask clear questions that are answerable using the tools of science. Policy makers (and their staff) and experts should work together to understand what questions may be most relevant and useful to pose;
- In cases where policy advice is desired, clarify requests to experts for support for proposed policies from requests for a discussion of alternative options that might be used to achieve a policy objective;
- For both science advice and policy advice, utilize and defend established, authoritative mechanisms for securing expert advice, such as through FACA committees, the National Academy of Sciences or legislatively mandated assessments;

[7] https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/b_flaak_balance_plan.pdf

- Hold those formal, authoritative advisory bodies to the highest standards of scientific integrity (e.g., in committee balance, management of conflicts of interest, focus on well-defined questions, acknowledgement of diversity of views, etc.);
- Recognize that science does not speak with one voice, differences of opinion are normal and to be expected. Uncertainty, ignorance, and changes in understandings are to be expected. Advisors advise, decision makers decide.

We have considerable experience in science advisory processes that effectively secure expert advice while upholding scientific integrity. However, particularly in recent years, there have been notable deviations from effective practices.

Crucially, elected officials and political appointees should not use their authority and stature to seek to delegitimize individual scientists or academic papers. This has been a problem among Republicans and Democrats, for instance:

- In from 2013-2018 former Chair of this committee Rep. Lamar Smith (R-TX) sought to investigate several peer-reviewed papers and federal government scientists at HHS,[8] EPA[9] and NOAA[10] based on (unsupported) allegations that the research was somehow improperly conducted;
- In 2015, Rep. Raul Grijalva (D-AZ) opened an investigation of seven researchers who had testified before Congress on climate issues, accusing them (falsely) of receiving financial support from fossil fuel companies.[11]

Such behavior, which can politicize research and researchers in destructive ways, also has potential to harm public trust in the integrity of science that informs government policies.

Securing scientific integrity requires a focus not just on those who oversee, produce and communicate research, but also attention to the responsibilities of those who receive and utilize expert advice.

[8] https://www.sciencemag.org/news/2018/01/republicans-house-science-panel-suggest-top-environmental-health-scientist-broke
[9] https://www.sciencemag.org/news/2013/08/house-panel-subpoenas-epa-air-pollution-data
[10] https://www.sciencemag.org/news/2016/02/house-science-committee-demands-noaa-widen-its-internal-search-climate-change-emails
[11] https://www.nature.com/news/gone-fishing-1.17028 (Note: I was one of the subjects of this investigation.)

Appendix - Specific Comments and Recommendations on H.R 1709

- Section 2 lacks a clear definition of "scientific integrity."

  COMMENT: While the concept is complex and nuanced, a definition is needed. Any definition will be broad and general, but is nonetheless important to include in any legislation seeking to address the topic.

  RECOMMENDATION: I propose that scientific integrity be defined as "proper reasoning processes and handling of evidence essential to doing science and a respect for the underlying empirical basis of science."[12]

  Thus, Section 2(3) would instead state: "scientific integrity refers to proper reasoning processes and handling of evidence essential to doing science and a respect for the underlying empirical basis of science."

- Section 3(a)(1) recommends that "no covered individual shall engage in dishonesty, fraud, deceit, misrepresentation, coercive manipulation, or other scientific or research misconduct."

  COMMENT: This language is too ill-defined to be of much use in implementation, and this imprecision is compounded by a non-standard use of the concept "research misconduct." The National Academy of Sciences offers well-defined language that has been long-used in federal science policies that would be more appropriate here.[13]

  > "The integrity of research is based on adherence to core values—objectivity, honesty, openness, fairness, accountability, and stewardship. These core values help to ensure that the research enterprise advances knowledge. Integrity in science means planning, proposing, performing, reporting, and reviewing research in accordance with these values. Participants in the research enterprise stray from the norms and appropriate practices of science when they commit research misconduct or other misconduct or engage in detrimental research practices." (p. 63)
>
> "Research misconduct" has long been a feature of federal policy and is defined as "fabrication, falsification or plagiarism in proposing, performing, or reviewing research, or in reporting research results."

  RECOMMENDATION: I recommend using this language because it already has operational meaning in federal agencies. Thus, Section 3(a)(1) would be revised to read: "no covered individual shall engage in fabrication, falsification or plagiarism in proposing, performing, or reviewing research, or in reporting research results."

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[12] This language is paraphrased from Douglas, H.E. and Bour, E., 2014. Scientific integrity in a politicized world. Logic, methodology, and philosophy of science: proceedings of the fourteenth international congress, 253–268. London: College Publications.

[13] National Academies of Sciences, Engineering, and Medicine 2017. Fostering Integrity in Research. Washington, DC: The National Academies Press. https://doi.org/10.17226/21896.

- Section 3(a)(2) states that "no covered individual shall suppress, alter, interfere with, or otherwise impede the timely release and communication of, scientific or technical findings."

  COMMENT: This too is far too imprecise to guide effective implementation. Rather than seeking to proscribe what covered individuals *should not* be doing in an agency communication process, the proposed legislation will be far more meaningful and effective by outlining what covered individuals *should* be doing.

  RECOMMENDATION: I recommend adopting the language proposed by John Holdren as director of OSTP in a 17 December 2010 memo on public communications by federal agencies,[14] recognizing the caveats and exclusions already included in the America COMPETES legislation.

  Specifically:

  > "Agencies should develop public communications policies that promote and maximize, to the extent practicable, openness and transparency with the media and the American people while ensuring full compliance with limits on disclosure of classified information. Such policies should ensure that:
  >
  > 1. In response to media interview requests about the scientific and technological dimensions of their work, agencies will offer articulate and knowledgeable spokespersons. who can, in an objective and nonpartisan fashion, describe and explain these dimensions to the media and the American people.
  > 2. Federal scientists may speak to the media and the public about scientific and technological matters based on their official work, with appropriate coordination with their immediate supervisor and their public affairs office. In no circumstance may public affairs officers ask or direct Federal scientists to alter scientific findings.
  > 3. Mechanisms are in place to resolve disputes that arise from decisions to proceed or not to proceed with proposed interviews or other public information-related activities."

- Sections 3(a)(3) and (4)

  COMMENT: These sections are similarly imprecise and would likely create challenges to effective implementation of the (worthwhile) intent that lays behind the words. A further problem is that the sections cover only a small part of what the NAS has called "detrimental research practices" which are distinct from research misconduct but involve far more shades of grey and understanding of relevant context. For instance, failure to implement or adhere to conflict of interest policies is a "detrimental research practice" that is discussed in the proposed legislation only in the context of media interviews. It also belongs in this subsection as well. The broad diversity of potential "detrimental research practices" means that this topic will be

[14] https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/scientific-integrity-memo-12172010.pdf

better covered by an agency plan focused on avoiding "detrimental research practices" rather than a Congressional directive.

RECOMMENDATION: It would be more effective to require each federal agency to develop a plan for dealing with "detrimental research practices" that threaten the scientific integrity. Such practices would include, but not be limited to, intimidation or coercion by individuals or the implementation of institutional barriers with the intent to hamper effective communications.

- Section 3(b)(2)(A) and (B)

  COMMENT: This section outlines a required review process for scientific or technical agency publications. However, the legislation is silent on how this process should take place or be developed.

  RECOMMENDATION: The legislation should require each federal agency to put forward publicly its internal peer review process, to include process and criteria for the selection of peer reviewers and timeline for completion of the internal review (the legislation proposes 30 days, which may or may not be appropriate for certain types of research). Different agencies will no doubt have different requirements and processes for review.

- Section 3(e)(4)

  COMMENT: All covered individuals should be required to disclose conflicts of interest independent of this provision.

  RECOMMENDATION: The 2009 Bipartisan Policy Council report recommended: "Federal agencies need to consider promulgating rules that would sanction scientists who run afoul of federal, university or journal requirements concerning disclosure, conflict of interest or ultimate sponsor control."[15] At present, agencies are uneven in their treatment of actual or perceived conflicts of interest. Upholding scientific integrity necessitates effective policies to manage conflicts of interest.

- Section 3(e)(5)

  COMMENT: This is unclear.

- Section 3(h)(1) states that scientific integrity policies "ensure that scientific conclusions are not made based on political considerations."

  COMMENT: While the intent here is clear, as a policy this is unenforceable and imprecise. For instance, what is a "political consideration"?

[15] Improving the Use of Science in Regulatory Policy, Bipartisan Policy Center (2009) https://bipartisanpolicy.org/wp-content/uploads/2019/03/BPC-Science-Report-fnl.pdf

RECOMMENDATION: Instead, this section should be framed in the positive, specifically, that scientific integrity policies should ensure "that research and communication under covered agencies is conducted in accordance with the guidelines of the agencies scientific integrity policies."

- Section 3(m)(2) requires that agencies produce and post inline an annual scientific integrity report.

  COMMENT: Good.

  RECOMMENDATION: Add a date to the requirement, such as March 31 of the year following the year covered by the report.

- Section 3(o)(2) and (3) defines covered agency and covered individual extremely broadly.

  COMMENT: More attention is needed to these definitions. Certain agencies engage in scientific research and communication for which this policy would not apply, including defense and national security agencies, agencies that produce statistics and indicators which are embargoed and released on a fixed schedule and agencies and scientists who work on proprietary research with commercial implications.

  RECOMMENDATION: This section would benefit by simply listing the covered agencies explicitly.

- Section 3(o)(4) defines public statements.

  COMMENT: Not included here is congressional testimony. Given occasional conflict between agency researchers and OMB (for instance) this legislation may wish to address this topic.

  RECOMMENDATION: As with the internal peer review process for agency research discussed above, it may make sense to ask each agency to formally describe and share its process for review and approval of congressional testimony by agency employees.

Biography of Roger Pielke Jr.

Roger Pielke, Jr. has been on the faculty of the University of Colorado since 2001. Currently, he is a professor of environmental studies and faculty affiliate of the Center for Science and Technology Policy Research. From 2001-2016 he was a Fellow of the Cooperative Institute for Research in Environmental Sciences. Roger served several terms as the founding director of the university's Center for Science and Technology Policy Research and served as the founding director of the university's Sports Governance Center. Roger's research focuses on science, innovation and politics, which he has explored in many topical areas over recent decades, including: space policy, natural disasters, energy policy, climate policy and more recently, in sports governance.

Roger holds degrees in mathematics, public policy and political science, all from the University of Colorado. In 2012 Roger was awarded an honorary doctorate from Linköping University in Sweden and he was also awarded the Public Service Award of the Geological Society of America. Roger also received the Eduard Brückner Prize in Munich, Germany in 2006 for outstanding achievement in interdisciplinary climate research. Before joining the faculty of the University of Colorado, from 1993-2001 Roger was a Scientist at the National Center for Atmospheric Research. Roger is a Senior Fellow of the Breakthrough Institute, and has held academic appointments at Macquarie University in Sydney, Australia, Oxford University and the London School of Economics.

Roger has hundreds of peer-reviewed publications and, for those who consider such things, he has an H-Index of 58 (Google). He is also author, co-author or co-editor of eight books, including **The Honest Broker: Making Sense of Science in Policy and Politics** published by Cambridge University Press (2007), **The Climate Fix: What Scientists and Politicians Won't Tell you About Global Warming** (2011, Basic Books), and **The Edge: The War Against Cheating and Corruption in the Cutthroat World of Elite Sports** (Roaring Forties Press, 2016), and **The Rightful Place of Science: Disasters and Climate Change** (CSPO: ASU, 2018 – first edition 2014).

Chairwoman STEVENS. Mr. Clement.

TESTIMONY OF JOEL CLEMENT,
ARCTIC INITIATIVE SENIOR FELLOW, BELFER CENTER FOR SCIENCE AND INTERNATIONAL AFFAIRS, HARVARD KENNEDY SCHOOL

Mr. CLEMENT. Thank you, Chairwoman Stevens, Ranking Member Baird, Chairwoman Sherrill, Ranking Member Norman, and Full Committee Chairman Johnson, for providing me the opportunity to testify in support of scientific integrity here today.

And I'm here presumably because of my tenure and role as a senior executive at the Interior Department for 7 years. As Director of the Office of Policy Analysis, it was my job to understand the most recent scientific and analytical information regarding matters that affected the mission of the agency and to communicate that information to agency leadership. In that role, I never imagined the possibility that agency leadership would not want to have the best information, that they would actively suppress scientific evidence. And unfortunately, that's exactly what we've seen happen during the Trump Administration.

Right now, there are dozens of Alaska Native villages imperiled by the impacts of human-caused climate change, frontline American communities addressing dramatic impacts as we speak. These are not model projections. These are impacts happening before our eyes. Human-caused global warming is accelerating permafrost thaw and the loss of sea ice with dire implications for the rest of the planet. Most notably, parents and children and uncles are falling through unreliable ice and perishing. Villages are struggling to sustain a subsistence way of life while facing the existential stress of living in a village that could be—they're one storm away from being wiped off the face of the map.

So this is the scientific and social reality that I was speaking about very publicly when then-Secretary of the Interior Ryan Zinke abruptly reassigned me to a position unrelated to my background and experience. I was one of dozens of senior executives who were reassigned that night in what the media described as a purge that sent a message to other career civil servants to keep their heads down on issues that run counter to the Trump Administration's anti-science and pro-fossil-fuel rhetoric.

So I became a public whistleblower and a few months later resigned. It was an agonizing decision to leave public service, but to this day, I still continue to receive emails and phone calls from former colleagues, Federal scientists and experts, many of whom I don't even know, thanking me for being their voice while their agency leadership silences them and ignores their expertise and undermines the mission of their agency.

Federal scientists aren't asking for much. They know their work won't always influence policy. But what they do expect is the ability to conduct and communicate their research and findings without interference from politicians, to advance their careers with publications and presentations, to engage with peers both within and outside the Federal science enterprise, and to ensure that their findings are available to the American public that paid for that re-

search. And, unfortunately, some agencies have had some difficulty assuring even these fundamental workplace conditions.

The GAO audit that Mr. Neumann described, constrained as it was by the methodology, barely scratched the surface of the dysfunction. For example, that report indicated that all nine of the audited agencies had addressed the need to ensure a culture of scientific integrity. At Interior, agency scientists are self-censoring their reports and deleting the term climate change to avoid being targeted by political appointees. They're barred from speaking to reporters without advanced permission from the agency. They face new barriers to attending the professional conferences that are part of the job. And their work is being incompletely communicated to the public, if at all.

At the EPA, which wasn't part of the GAO audit and the Agriculture Department, political staff have been withholding important scientific reports and findings from the public. These conditions do not reflect a culture of scientific integrity but a culture of fear, censorship, and suppression that is keeping incredibly capable Federal scientists from sharing important information with the public or participating as professionals in their field. Americans are not getting their money's worth as long as these conditions persist.

So H.R. 1709 provides a number of measures that would begin to address this problem. It is a necessary but not sufficient step for establishing a culture of scientific integrity. The success of these measures depends on an agency's willingness to address integrity and ethics issues more generally. As we've seen, this has been a challenge for the Trump Administration, so to gain traction, these scientific integrity measures must be buttressed by broader ethics integrity and anticorruption measures, some of which the House included in the—in H.R. 1, the *For the People Act of 2019*.

So, in conclusion, we face a global climate crisis, and it's putting Americans and the American economy at risk. Instead of sidelining science, now is the time to invest more heavily in research and scientists, restore public trust in the scientific enterprise that has made America such a great country, and ensure that our political leaders respect the links between science, good policy, and well-being.

H.R. 1709 is a great first step and could lead to a snowball effect of smart, informed policy measures to protect and enhance the Federal science enterprise, but it will require commensurate measures regarding general ethics and integrity across Federal agencies. Thanks again for the opportunity to testify.

[The prepared statement of Mr. Clement follows:]

TESTIMONY OF JOEL CLEMENT BEFORE THE HOUSE COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY AND SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT

JOINT HEARING ON SCIENTIFIC INTEGRITY IN FEDERAL AGENCIES

JULY 17, 2019

Thank you Chairwoman Stevens, Ranking Member Baird, Chairwoman Sherrill, Ranking Member Norman, Full Committee Chairwoman Johnson, and Ranking Member Lucas for the opportunity to testify. This is my first time submitting testimony for a Congressional hearing and as someone who considers public service an honor, I'm very pleased to offer my oral and written testimony, particularly in support of scientific integrity at Federal agencies.

I'm here because of my tenure and role as a Senior Executive at the Interior Department for seven years. As Director of the Office of Policy Analysis, it was my job to understand the most recent scientific and analytical information regarding matters that affected the mission of the agency, and to advise agency leadership on those matters. While I have a science background, I was not employed as a scientist. It was my job, however, to know the scientists at the agency, understand their research and results, and communicate this information and its implications for policies and procedures at the agency.

I suffered no illusion that the science would win out every single time, but believed that if you provide leaders with the most accurate and reliable information, they will make better decisions; if you provide them with evidence that is based on rigorous inquiry, they will at very least know the consequences of their decisions.

I never considered the possibility that they would not want to have the best information, or that they would actively suppress scientific evidence. This runs counter to the notion of public service, and is an abdication of leadership regarding public health and safety. Unfortunately, that's exactly what I've seen happen during the Trump Administration, and the inhumanity of it sends chills down my spine.

Right now there are dozens of Alaska Native villages imperiled by the impacts of climate change[1], frontline American communities addressing dramatic impacts as we speak. These are not model projections, these are impacts happening before our eyes. Each week we read studies and media reports about the shockingly warm conditions in the Arctic, how the warming trend is accelerating permafrost thaw and the loss of sea ice[2], how those changes have dire implications

[1] https://www.gao.gov/products/GAO-09-551

[2] Researchers warn Congress of 'unprecedented' ice loss: https://www-eenews-net.ezp-prod1.hul.harvard.edu/eedaily/2019/07/12/stories/1060727323

for the rest of the planet[3], and how the changes are outstripping even the model predictions.[4] Each summer it becomes less shocking to hear about wildfires in the Arctic[5] that are burning forest and tundra now as we speak.[6] What we rarely hear about are the parents and children and uncles who are falling through unreliable ice and perishing, or the difficulty of maintaining a subsistence way of life in a transforming environment, or the existential stress of living in a village that is one big storm away from being wiped off the face of the map.[7]

Living in the Arctic means adapting to crisis on a daily basis as the world is transforming around you – and that transformation is accelerating beyond expectations. These conditions – caused by humanity's greenhouse-gas emissions – are increasing risk for Americans and businesses in the region and have dire implications for the rest of the planet.[8]

This is the scientific and social reality that I was speaking about publicly when I was abruptly reassigned, along with dozens of other Senior Executives, by then-Secretary of the Interior Ryan Zinke. The week before my reassignment I was speaking at the United Nations about the need to build resilience in the face of climate change, and the following week I was moved to the auditing office that collects and disperses royalty income from oil, gas, and mining companies. I was one of dozens of senior executives who were reassigned that night in what media described as a "purge" that sent a message for other career civil servants to keep their heads down on issues that run counter to the Trump Administration's anti-science and pro-fossil-fuel rhetoric.

I became a public whistleblower[9] and resigned a few months later.[10] I quit because Secretary Zinke clearly had no intention of addressing the urgent climate issues impacting the Agency's mission and was betraying taxpayers while neglecting his role as a leader. It was heartbreaking to leave public service, but I'd already lost the job I was qualified for and didn't want to lose my voice on the most pressing issue we face today.

I've had abundant opportunities to use that voice because nearly every week political appointees at Interior or the EPA have ignored the science, increased risk to Americans and American businesses, and provided new favors for fossil fuel or other industry interests, acting against the best interests of taxpayers. Since my reassignment two years ago, not a week has passed that I

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[3] AMAP, 2017. Snow, Water, Ice and Permafrost in the Arctic (SWIPA) 2017,https://www.amap.no/documents/doc/snow-water-ice-and-permafrost-in-the-arctic-swipa-2017/1610

[4] Canada's Changing Climate Report https://changingclimate.ca/CCCR2019/

[5] Unprecedented Wildfires Burned Across the Arctic Circle in June https://www.vice.com/en_us/article/qv79b5/unprecedented-wildfires-are-burning-across-the-arctic-circle

[6] Unprecedented Wildfires in the Arctic https://public.wmo.int/en/media/news/unprecedented-wildfires-arctic

[7] In Alaska, Climate Change Is Showing Increasing Signs of Disrupting Everyday Life https://www.washingtonpost.com/weather/2019/05/08/alaska-climate-change-is-showing-increasing-signs-disrupting-everyday-life/?utm_term=.8469b357eeba

[8] From Crisis to Resilience in the Arctic https://www.arctictoday.com/from-crisis-to-resilience-in-the-arctic/

[9] I'm a Scientist. I'm Blowing the Whistle on the Trump Administration https://www.washingtonpost.com/opinions/im-a-scientist-the-trump-administration-reassigned-me-for-speaking-up-about-climate-change/2017/07/19/389b8dce-6b12-11e7-9c15-177740635e83_story.html?utm_term=.0cadc863b781

[10] Read Joel Clement's Resignation Letter https://apps.washingtonpost.com/g/documents/national/read-joel-clements-resignation-letter/2566/

have not been contacted for comment regarding this Administration's shameful denial of science and our current climate emergency.

I also continue to receive emails and phone calls from federal scientists and experts, many of whom I've never met, thanking me for being their voice while their agency leadership silences them, ignores their expertise, and undermines their agency's mission.

While every federal scientist hopes to influence policy with their work, it is never guaranteed. What they do expect, however, is the ability to conduct and communicate their research and findings without interference from politicians, to advance their careers with publications and presentations, to engage with peers both within and outside of the federal science enterprise, and to ensure that their findings are available to the American public that paid for the research.

Unfortunately, some agencies have had difficulty assuring even these fundamental workplace conditions and establishing a culture of scientific integrity. The Government Accountability Office, which conducted an audit that was published in April, 2019,[11] found some agencies lacking in their implementation of scientific integrity policies and procedures. From my personal experience, however, and that of my former colleagues, the problem runs far deeper than indicated in the GAO report.

For example, the GAO audit indicated that all nine of the audited agencies had addressed the need to ensure a "culture of scientific integrity." At Interior, agency scientists are self-censoring their reports and deleting the term climate change to avoid being targeted by political appointees, they are barred from speaking to reporters without advance permission from the agency, they face new barriers for attending the professional conferences that constitute their professional development, and their work is being incompletely communicated to the public, if shared at all.[12] At the Agriculture Department, there are instances of political staff withholding important scientific reports from the public.[13] At the US Geological Survey, the Director is requiring scientists to only use climate models that predict changes for 40 years – a virtually meaningless time frame in the policy context.[14]

These conditions do not in any way reflect a culture of scientific integrity. They are just a few of the red flags that are suggesting an accelerating erosion and politicization not only of scientific integrity, but the federal science enterprise itself. This culture of fear, censorship, and suppression is keeping incredibly capable federal scientists from sharing important information with the public or participating as professionals in their field. Americans are not getting their money's worth as long as these conditions persist.[15]

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[11] https://www.gao.gov/products/GAO-19-265

[12] Officials Removed Climate References from Press Releases https://www-eenews-net.ezp-prod1.hul.harvard.edu/climatewire/stories/1060709857/most_read

[13] Agriculture Department Buries Studies Showing Dangers of Climate Change https://www.politico.com/story/2019/06/23/agriculture-department-climate-change-1376413

[14] Trump Administration Hardens Its Attack on Climate Science https://www.nytimes.com/2019/05/27/us/politics/trump-climate-science.html

[15] The State of Science in the Trump Era. Union of Concerned Scientists, 2019 https://www.ucsusa.org/sites/default/files/attach/2019/01/ucs-trump-2yrs-report.pdf

H.R. 1709, the Scientific Integrity Act, provides a number of measures that would begin to address this problem; it would establish important statutory requirements for implementing and enforcing scientific integrity policies and elevate the role of those who manage the policies. It is difficult to address these issues with the nuance and flexibility required to achieve the desired outcomes, but H.R. 1709, with some refinements, is a necessary step for putting the foundational pieces in place to build a culture of scientific integrity.

The role of the public servant is to make decisions and establish policies that improve the health, safety, and well-being of Americans and the ecosystems they depend upon. Doing so requires a solid understanding of the world we live in and the consequences of our actions. Ignoring or suppressing science leaves our best player on the bench at a time when we are facing a global crisis. This is not just a wonky policy matter, there are important consequences of this neglect – and first among them is an increased risk to the health and safety of the people – such as the Alaska Natives in the Arctic or other frontline communities and businesses at risk – that look to the federal government for help.

Instead of sidelining science, now is the time to invest more heavily in research and scientists, restore public trust in the scientific enterprise that has made America such a great country, and ensure that our political leaders respect the links between science, good policy, and well-being. H.R. 1709 is a great first step, and could lead to a snowball effect of smart, informed policy measures to protect and enhance the federal science enterprise.

BIOGRAPHY FOR JOEL CLEMENT

Joel Clement is a Senior Fellow at the Harvard Kennedy School's Belfer Center for Science and International Affairs. With a background in resilience, climate change adaptation, and Arctic social-ecological systems, he is working with partners to improve the knowledge and tools necessary to reduce risk and increase resilience in frontline areas such as the Arctic region. Prior to joining the Harvard Belfer Center, Mr. Clement served as an executive for seven years at the US Department of the Interior.

In July 2017, he became the first public whistleblower of the Trump Administration, accusing Interior Secretary Ryan Zinke of stifling science, ignoring climate change, wasting taxpayer dollars, and risking the health and safety of Americans in the Arctic. He received the Joe A. Callaway Award for Civic Courage and resigned from public service in October of that year. Since then he has received multiple awards for ethics, courage, and his dedication to the role of science in public policy.

Before serving in the federal Government, Joel was the Conservation Science Program Officer for a private foundation where he focused on climate change adaptation strategies and landscape-scale conservation efforts from Alaska to New Mexico. Prior to his career in philanthropy, Joel spent a decade as a forest canopy ecologist, developing and contributing to research and conservation science programs in temperate and tropical forest ecosystems around the world. In addition to his role at Harvard, he is an Associate with the Stockholm Environment Institute and

a Senior Fellow with the Union of Concerned Scientists. He has published peer review articles on forest ecology and science-policy linkages, multiple federal government reports, and numerous articles in the popular media, including Washington Post, Denver Post, CNN, Scientific American, Huffington Post, the Washington Monthly, and Arctic Today, in which he addressed science, policy, Arctic transformation, and the urgency of the climate crisis.

BIOGRAPHY FOR JOEL CLEMENT

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Chairwoman STEVENS. Thank you. At this point, we will begin our first round of questions. And the Chair will recognize herself for 5 minutes.

Mr. Neumann, what role do Federal agencies have in crafting law?

Mr. NEUMANN. Well, agencies are to implement the law that's set through policies.

Chairwoman STEVENS. So they implement the laws as they've been created. What role do agencies have in using data to interpret scientific findings? There was a *Science* magazine article in May of this year that talked about scientific integrity and the role that data plays in determining scientific findings and outcomes. Based on your studies, what have you seen with the role that data is playing in our Federal agencies?

Mr. NEUMANN. Well, I think that's a really hard question to answer specific to scientific integrity. You know, it's—the work that we did was focused on how agencies' policies were being implemented. Generally, an agency is responsible for collecting data and ensuring that data is reliable, and GAO has a whole body of work looking at how data is often unreliable in the Federal agencies and making recommendations to improve the data.

Chairwoman STEVENS. Yes. And opening it up to the panel, are there ways in which we are ignoring data that might be before us in various agencies that could be unearthed or utilized for scientific findings or things that might be of utility for the public? Mr. Clement?

Mr. CLEMENT. Well, certainly, there are lots of examples of those. I have actually a whole list here that I can submit for the record if you'd like.

Chairwoman STEVENS. That would be great.

Mr. CLEMENT. I'm happy to do that. There are many studies out of DOI. In particular, you know, this Administration has canceled them, but there was a study into the rules that would be necessary to protect the health and safety of offshore oil rig workers, for example. That study was canceled right before canceling those measures and regulations that would protect the health and safety of oil rig workers. There was also a study underway at the National Academy to look into the health impacts of mountaintop removal coal mining on people who live in that region. That study was canceled right before the Trump Administration canceled the moratorium on leasing for coal on public lands. So there are lots of studies like that. I can provide a list. But there have been many instances where other studies have been withheld.

Chairwoman STEVENS. Well, we think of Flint, Michigan, and the responsibility of our Federal agencies. The *Scientific Integrity Act* applies to Federal agencies and not State agencies. And we look at the role that the Environmental Protection Agency played in not identifying or unearthing the data that would have shown that there was something wrong with the water in Flint.

And so the question and the reason why it's complicated, Mr. Neumann, is because these are complex topics. And the role that our Federal agencies have to inform and to provide information remains paramount.

How did we pass smoking ban acts in the 20th century? We found the data. We found the data. But it wasn't the Federal agencies that implemented the law. It was public sentiment that determined their outcomes.

I don't know if Mr. Halpern has anything more to add here in terms of the data conversation, but we right now, in the 21st century, have access to more bits and pieces of information than ever before. What are we missing?

Mr. HALPERN. So, certainly, I mean, we need access to that data, and we need access to the people that can interpret that data. And we see a lot of environmental problems that are breaking where communities are desperate for information about what kinds of threats they face either—whether it's with PFAS chemicals where scientists at the EPA are supposed to provide guidance to——

Chairwoman STEVENS. And is there opportunity for peer review?

Mr. HALPERN. Can you clarify the——

Chairwoman STEVENS. When our scientists at the EPA identify something like PFAS, which thank you for bringing that up. That's a big issue for all of us in Michigan. We have the most identified PFAS sites. But do we just take that as exclusive information? Does it get peer-reviewed? Does it get reviewed by other experts? Is there a chance for us to, you know, get a second opinion?

Mr. HALPERN. Yes, so, you know, that kind of peer review happens within agencies——

Chairwoman STEVENS. Fabulous.

Mr. HALPERN [continuing]. And one challenge is that a lot of the time that information then gets submitted to the Office of Management and Budget (OMB), at which point OMB can challenge those findings shielded from public view. And so one of the—one of the challenges that we have seen with regard to peer-reviewed science that comes out of agencies, whether it's ATSDR (Agency for Toxic Substances and Disease Registry) or EPA or elsewhere is that the White House can hold up studies indefinitely if they don't like the results and want to keep it down. And that's just over the long—you know, the problems that we have to address over the long term.

I remember a few years ago in West Virginia, there was a chemical spill that contaminated the water of 300,000 people, and the people were desperate for information about whether the water was safe to drink, whether the water was safe to bathe in. And there wasn't necessarily any specific suppression that was going on, but because scientists who worked for EPA didn't know the line to go to, they didn't know what they were able to talk about, even with the scientific integrity in place—the policies in place, they did not feel comfortable sharing what—both what was known and what was not known about the chemical to keep people safe that it took days for information to come out. And then the EPA ended up saying, well, maybe, as a precautionary member—thing, pregnant women should not drink this water when they had been drinking it for days. And so you want access to information. You want transparency.

Chairwoman STEVENS. Thank you. I now recognize Mr. Baird for 5 minutes of questions.

Mr. BAIRD. Thank you, Madam Chair.

You know, as a scientist, I recognize that if you're even trying to replicate a study exactly, you could, because of factors being slightly different, come to a different conclusion. And so I just want to make us recognize that that is a factor in doing research.

But, Dr. Pielke, in 2017, the National Academies' report on "Fostering Integrity in Research" recommended that the science community should put more focus on detrimental research practices, including failure to share the data and misleading use of the statistics and abusive supervision. How should the Federal agencies address the broad range of detrimental research practices as part of the scientific community?

Dr. PIELKE. Yes, the National Academies' study, "Fostering Integrity in Research" focused on research misconduct, which is very well-understood. There's clear policies put in place across the Federal agencies. But detrimental research practices, failure to provide data, p-hacking, other examples of dodgy research practices often fly under the radar. I think it's essential to recognize that not only are the highline fabrication, fraud, plagiarism issues in science but practices that lead to inconsistent or unreliable scientific results.

It would be important for the Federal agencies to come up with policies and procedures to deal with detrimental research practices. And as we just heard, most significant there is a failure to release data that accompanies peer-reviewed or Federal studies such that other independent researchers can replicate or attempt to replicate those results. That's important. It's down in the weeds a little bit more wonky, but I would argue just as important as the high-level issues of scientific integrity.

Mr. BAIRD. Thank you. Mr. Neumann, do you have any thoughts in that regard?

Mr. NEUMANN. Well, the—some of the agencies we looked at included research misconduct as part of their scientific integrity policies. Others treated that separately. But there is clear guidance from OSTP I think back in 2000 that lays out the process for dealing with research misconduct. So it's a subset related to scientific integrity, but it's not what we focused on in our report. We're looking more at the suppression of science or the—how researchers were being influenced or censored.

Mr. BAIRD. Thank you. And, Dr. Pielke, back to you again. The EPA Science Integrity Office recently held a stakeholder meeting. According to the press reports at that meeting the EPA Chief Science Officer said that many inquiries and complaints were instances of employees confusing science and policy. She is quoted as describing the complaints as "my science says this and the policy ended up over there." How should we implement science integrity procedures that help scientists understand this difference?

Dr. PIELKE. Well, as someone who's run a program at the University of Colorado training Ph.D. scientists and engineers to understand the policy process, it is absolutely essential to provide training and understanding that science does not dictate policy results. Science informs, it can help to shape understanding of policy options, but it is a—I think in my field in academia a professional minefield to think that your expertise leads to knowledge that then compels a particular course of action.

As you have said in the opening statement, there's different interpretations about the significance of science, what it means for different courses of action, and I think this is part of becoming an expert—a government expert as a scientist, understanding the clear differentiation between what decisionmakers do and how they use evidence, scientific integrity, and then the role played by those people who produce that evidence and science to inform the political process.

Mr. BAIRD. Thank you. In your observation of other science agencies did you notice any of the others who do a particularly good job with educating employees on scientific integrity? And did you identify any rules of thumb that might want to see agencies follow in educating their staff and maintaining open lines of communication? Thirty-three seconds.

Mr. NEUMANN. Yes, seven of the nine agencies we looked at it have—did take steps to educate their staff, including having required training, mandatory training or handbooks, and so those are a variety of practices. But there were two agencies that did not have any sort of process or activities to educate staff, just had their policies on their website. So that's why we believe there should be some educating either through training or other means of the staff so that everyone is clear on what the policies are, which is—I think it goes to the other point you're making that it's really important that if there is a disagreement on a scientific integrity issue, it should be able to be investigated, you know, through a process that's known to staff and that can be adjudicated fairly. And I think if that's transparent, then we can be more certain that the process is working.

Mr. BAIRD. Thank you, and I'm out of time. I yield back.

Chairwoman STEVENS. At this time the Chair would like to recognize our Chairwoman of the Science Committee, Ms. Johnson, for 5 minutes of questions.

Chairwoman JOHNSON. Thank you very much, Madam Chair. And let me say I'm delighted to have the witnesses here. And I'm also proud to be an original cosponsor of the *Scientific Integrity Act*. And I really commend Congressman Tonko for his hard work in preparing the bill.

As I said, scientific integrity consists of two major elements. The first is respect for the truth. Science does not have a political agenda. When science is well done, when trained professionals can follow the data and subject their findings to rigorous peer review, the information speaks for itself.

The second aspect for scientists themselves, as I said, a big part of the scientific integrity is allowing scientists who serve this country to conduct their work and unimpeded by undue outside influence. It's about allowing them to speak freely in their capacity as experts and with the American public and the media. It's about allowing them to serve on advisory boards, join scientific societies, and engage in the scientific community.

Unfortunately, we know that Federal agencies do not always make this possible for their scientists. Sometimes, Congress throws up roadblocks for Federal scientists as well. We really need to do better.

So on a related note, I want to share my disappointment about who is missing from our panel of witnesses today. The Committee invited Dr. Francesca Grifo at the Scientific Integrity Office of EPA to testify. Of all the scientific integrity officials across the 2 dozen or so agencies that conduct oversight of science, Dr. Grifo is arguably the most experienced and EPA's scientific integrity policies among the most robust. We were eager to hear from her about EPA's process for implementing their policy and handling staff issues, as well as best practices to consider. But EPA refused to make her available today, and hopefully, we can have her come later.

The EPA did not explain to this Committee why it would not make her available but only stated in vague terms that they believe the alternative official would be adequate for today's meeting.

As the Chairwoman of this Committee, I believe EPA's response to our invitation was not adequate, and I hope to hear from her soon.

Nevertheless, I know the panelists who are here before us today are capable of assisting the Committee in their insights and experiences, and I look forward to having some questions answered.

My first question is, how would codifying scientific integrity protections in the *Scientific Integrity Act* strengthen the rights of Federal scientists and enable greater transparency and accountability for Federal agencies?

And then second, we have a current scientific integrity group of policies even as they remain in effect proven unable to counter the Trump Administration's manipulation and oppression of science.

So I'm asking Mr. Halpern, Mr. Clement, would you two comment on that?

Mr. HALPERN. Yes, thank you, Chair Johnson, for your question and for being here today.

It's essential to codify these policies precisely because they are vulnerable to repeal, they are vulnerable to being cut back at any moment. Any agency at any point, as we've seen with the U.S. Geological Survey and others, can introduce policies that compromise the scientific integrity policies themselves. And so the scientific integrity officers at various agencies who I speak to regularly have to know how far they can push before there's going to be backlash from the agency. So codifying this in law, making sure that we have guaranteed protections for scientists to be able to share their research, and for policies to be in place to adjudicate when there is political interference in the scientific process is essential.

Chairwoman JOHNSON. Thank you.

Mr. CLEMENT. Thanks for your question. And you're spot on. This is a big concern. And during my deliberations after my reassignment, I didn't look to the scientific integrity policy at Interior to help me out. And that's because it was in the face of hostile leadership at the agency. And so I think it is absolutely essential to codify this stuff and give it some statutory heft. That would have allowed me to use some language in my whistleblower complaint, for example, that reflected scientific integrity and hopefully to provide some enforcement mechanisms that would be effective and useful in the face of that type of hostile leadership approach to science.

So certainly this would have made a big difference for me but also for all those many, many Federal scientists who are holding back because, right now, I think it's safe to say there probably haven't been a whole lot of scientific integrity complaints at Interior in the last couple years because no one dares raise their head above the parapet at the moment because of the hostile leadership situation.

Chairwoman JOHNSON. Thank you very much.

Mr. HALPERN. Yes, and we've found that a minority of scientists were—in surveys that we did of scientists at Federal agencies were—felt confident in bringing concerns forward at the Department of Interior and other agencies.

Chairwoman JOHNSON. Thank you very much. My time is expired.

Chairwoman STEVENS. Thank you, Madam Chair. And at this time I'd like to recognize Mr. Norman for 5 minutes of questioning.

Mr. NORMAN. Thank you, Chairwoman Stevens.

Mr. Neumann, we've heard a lot in the statements this week about scientific integrity at EPA. The EPA was part of your review, is that right?

Mr. NEUMANN. Yes, that's correct.

Mr. NORMAN. You made 10 recommendations for 6 agencies and yet no recommendations for the EPA. What did you find when you did your review?

Mr. NEUMANN. Sure. So the way we approached this is we're looking at what activities agencies took to implement their scientific integrity policies. We didn't assess how effective they were. We put that back on the agencies. Are they—do they have things in place to monitor and evaluate those policies? Are they educating their staff? Do they have a process for addressing alleged violations? So EPA met all of those criteria in the policy, so that our focus is—was pointed or our methodology was focused on how agencies were taking action to implement that. That doesn't mean that an agency like EPA won't have violations of those policies. In fact, we did note in our report that there were several violations. But it's important that the staff feel comfortable reporting alleged violations so they can be thoroughly vetted and determine what the—you know, whether or not the violation occurred.

Mr. NORMAN. OK. And also, Mr. Neumann, this Committee has also conducted oversight on research misconduct. Do agencies define scientific integrity to include research misconduct?

Mr. NEUMANN. Some did, some didn't. Some included those in the policy. There's clear guidance from OSTP from back in 2000 on research misconduct, and so some agencies treated that separately. Others incorporated it into their overall scientific integrity policies. It's related, but every agency approached that a little differently.

Mr. NORMAN. OK. Dr. Pielke, how would you define scientific integrity?

Dr. PIELKE. Yes, scientific integrity necessarily is going to require a broad definition, and it basically refers to respect for the processes of science, the underlying data, and the ability to communicate that research freely. The devil is always going to be in the details of how you turn a very broad definition, which I think is understood, it's characterized in the National Academy of Sciences,

understood in the scientific community. But going from a broad definition to something, as we have just heard, that can be implemented consistently across agencies is where the challenge is.

Mr. NORMAN. So it would include research misconduct?

Dr. PIELKE. Yes, any definition of scientific integrity is going to have to be, at a minimum, harmonized with existing policies and procedures on research misconduct. Obviously, conducting research with integrity would necessarily mean not engaging in research misconduct, so this is one of the critiques I have of the existing bill is it's not quite in harmony yet with existing policies and procedures across the Federal Government for research misconduct.

Mr. NORMAN. All right. And so in your written testimony, you stated that obtaining science advice and policy advice require different processes and different types of expertise and public engagement. You pointed out that both rely on expertise and legitimized by public trust and concluded that both advisory processes should be conducted with scientific integrity. Why do you think it's important that both science advice and policy advice be conducted with scientific integrity?

Dr. PIELKE. So, typically, scientific advice deals with questions that can be answered empirically with the tools of science. How how many prairie dogs are in Colorado, for example. Policy advice involves questions of what do you do? How do we manage prairie dogs? What are our options? Both sets require relying on empirical information collected with integrity, but in the former what you're doing is answering a direct question posed by a policymaker with the tools of science. The second one you're going to want to involve stakeholders, you're going to want to involve members of the public, and you want to talk about—if you do option A, here's what you get. If you do option B, here's what you get. They're different processes. Both are advisory processes, and both depend on science conducted with integrity beneath them.

Mr. NORMAN. So what recommendations would you have for how science integrity principles, how you would incorporate those into your policy advice processes?

Dr. PIELKE. Yes, so I think the—one key distinction is to recognize that the charge that's given to scientific advisors is just as important as the advice that they produce. So, as policymakers, appointed officials, you guys have an obligation to be very clear in what it is you want from your advisors. A lot of times what happens is a scientist is brought, perhaps, before a congressional Committee and Members already know the answer, they know the policy they want, and they want support for it. That's fine. That's how politics works.

But in a situation where you want scientific advice, it's very important to go to *FACA* committees, National Academy of Sciences, impanel a special committee to provide that advice that you want if it is indeed scientific advice. And if you want options, what can we do, how do we deal with the problem, how do we make the water cleaner in Flint, Michigan, then explicitly say we want options. Then we can do a much better job serving what you need and then produce that information with integrity.

Mr. NORMAN. Thank you so much. I yield back.

Chairwoman STEVENS. Thank you, Mr. Norman. And I'll say certainly not having any process recommendations for the EPA's scientific integrity would have really made for a great witness testimony. And certainly with the number of complaints that are—that were coming in.

But at this time, you know, we're going to recognize the man of the hour, Mr. Tonko, for 5 minutes of questioning. Thank you.

Mr. TONKO. Thank you, Chairwoman Stevens. And again, thank you for the hearing. And thank you to all of our witnesses. Mr. Halpern, Mr. Clement, and Dr. Pielke, thank you for addressing the need for scientific integrity legislation. And, Mr. Neumann, thank you for detailing the need to strengthen scientific integrity policies.

Mr. Clement, what drove you to apply your science policy experience to serving in government? Was it your desire for personal wealth and glory?

Mr. CLEMENT. America loves their Federal bureaucrats.

Mr. TONKO. Yes, they do.

Mr. CLEMENT. I always say that you can throw your ideas over the castle wall all day long, but there is no—and you just don't know whether they're being picked up. And when you're inside the castle having an opportunity to influence policy and management, it's an incredible honor and extremely gratifying professionally. Public service far exceeded my expectations both in terms of impact and access and my role in policymaking. So it has been a—it was a great honor.

Mr. TONKO. Thank you. And what are the tangible changes inside our Federal agencies when politics gets put before science?

Mr. CLEMENT. Well, unfortunately, politics comes before science quite a lot. But when science is suppressed or dismissed, then you're leaving your best player on the sidelines. You know, I would love it if every policymaker thought of science as their north star the way that I do, but my hope is that it's at least part of the constellation of information that they use when they're making their decisions. But when that's not the case, when it's dismissed or suppressed, then the American people suffer.

Mr. TONKO. And how might this impact the everyday American experience?

Mr. CLEMENT. Dirtier air and dirtier water. You know, right now, we're suffering through a global climate crisis that is not just putting Americans but also the American economy in peril right now, so there are lots of ways, more toxic environments and so on, where health and safety is being impacted.

Mr. TONKO. Thank you. And, Mr. Halpern, do breaches of scientific integrity expose the American people to danger, whether undermining public health or allowing toxic chemicals in our air and water? And, if so, can you give some specific examples?

Mr. HALPERN. Yes. In all kinds of ways we see that happening. And it's—you know, we hear a lot about kind of environmental-related abuses of science, but I think that you see this across different agencies.

So one example, the Department of Labor proposed allowing restaurant employers to control how employees' tips are distributed. And an analysis of that proposal by the Department of Labor

economists found that this would cause a loss of billions of dollars and essentially wage theft from the employees. And in putting forward a proposal, the Department of—to do this, the Department of Labor suppressed that analysis. And so when people were making comments on that particular rule, they were deprived of that information in order to be able to make informed comments.

The—under the Obama Administration, the White House Office of Management and Budget removed language from a proposal by the FDA (Food and Drug Administration) to control tobacco by, quote, "describing how the rules would keep thousands of people from taking up cigar smoking" and removing that language from the FDA's proposal.

And so we see lots of examples where people directly benefit from good science-based policymaking where information is stripped from the public view in order to justify a scientific—or a policy decision. I don't think any of us think that science should be policy prescriptive, and that's why the *Scientific Integrity Act* is agnostic on those topics. We just want to be able to have access to the best available scientific information.

Mr. TONKO. So it's apparent that no matter what Administration, there's a benefit that comes by tightening up and statutorily imposing the integrity overviews that these agencies.

Exposure to the chemicals we call PFAS, including PFOA, is linked to adverse reproductive health outcomes, including decreased fertility, pregnancy-induced hypertension, and preeclampsia. Last year, the Trump Administration intervened to block publication of a toxicological profile for PFAS. The report was eventually released following significant public and bipartisan congressional pressure, but the incident raises alarming questions.

Mr. Halpern, would the *Scientific Integrity Act* help prevent suppression of this kind of life-changing, public health information?

Mr. HALPERN. Absolutely. And it was heartening to me to see a bipartisan group of Congress step forward and demand that this kind of information be released. But the *Scientific Integrity Act* does mandate specific policies for clearance of publications. I'll note that, at the EPA, we're still waiting for the formaldehyde assessment to come out many months later. An agency where there were no problems, as GAO said, with regard to what the policy says, but in terms of its actual impact on the ability of agency to get out scientific documents on time we find it to be pretty lacking.

Mr. TONKO. Thank you very much. And, Madam Chair, I yield back.

Chairwoman STEVENS. Thank you. And now the Chair recognizes Dr. Marshall for 5 minutes of questioning. Thank you.

Mr. MARSHALL. Yes, thank you, Madam Chair. I'll start with Mr. Neumann. Mr. Neumann, how long have you been in this current role then? Did you perform similar reviews of these agencies with the prior Administration?

Mr. NEUMANN. We didn't look specifically at this issue, but I've been leading science and technology performance audits for the last 6 years.

Mr. MARSHALL. OK. You made a recommendation about NASA to develop documented procedures for identifying and addressing alleged violations of its scientific integrity policy. Can you describe

what you found at NASA and how they responded to your recommendation, please?

Mr. NEUMANN. Certainly. When we looked at these agencies, we asked, you know, what procedures they had in place for addressing violations, and NASA did not have anything specifically laid out for scientific integrity policy violations. They did point to other mechanisms that officials could—or rather staff could use to report alleged violations such as going to the IG (inspector general) or reporting things to their supervisor. But that would not allow for a transparent and consistent process in accordance with the scientific integrity policies, and that's why we recommended that they establish that.

Mr. MARSHALL. OK. Thank you. Dr. Pielke, you're the only practicing scientist on the panel, which surprised me. Your work was targeted by Members of Congress who did not like the results of your research. What impact did that have on your work, and how did Members of Congress getting involved in criticizing science harm the science and policy divide?

Dr. PIELKE. Yes, thank you. I think anytime you do high-profile work that's influential and, you know, Members of Congress pay attention to it, you become a target of interest groups and so on. I was surprised that in 2014 first John Holdren, who was then-President Obama's Science Advisor, put a 6-page screed about me on the White House website. That'll get people's attention. And then a year later a Member of Congress opened an investigation of me and my research accusing me of taking money under the table from fossil fuel companies.

I don't think my career will ever recover from those events. It is extremely punitive. In this world of social media where people know you only from what they read, they don't read your research or see your views, it can be incredibly damaging. And so I have come out as a strong advocate for academic researchers, Federal Government researchers to be left to call it like they see it. And if someone in a powerful political appointment or a Member of Congress doesn't like it, call them here and ask them questions. Any question you want about my research, people can ask. But the minute that it becomes character assassination, I think the entire base of our ability to rely on science is at threat.

Mr. MARSHALL. Wow.

Mr. HALPERN. May I support that?

Mr. MARSHALL. Sure.

Mr. HALPERN. Because, you know, I do think that it's—this is—when scientists see things happen to other scientists, they notice, and they see when their peers are called before—when their peers are attacked or when their peers are unjustly vilified publicly. And so I think it is important for us to look in the aggregate and look at what opportunities we're missing in terms of what scientists are willing to say publicly.

And we know that a lot of people within Federal agencies across Administrations see it when their peers are called out for speaking truth to power and sharing information, and they keep their heads down as well. And that's—that robs us all of access to that kind of expertise.

Mr. MARSHALL. Yes, thank you. I'll go back to Mr. Neumann. You examined the USGS, part of the Department of Interior, as part of your review, and made one recommendation. Can you discuss how the Department of Interior was to work with on that study, your findings, and how the agency is responding, please?

Mr. NEUMANN. Yes. We certainly had cooperation from the agency, and they shared, you know, their processes and policies and activities they were undertaking. And we did find that they could do a better job of monitoring and evaluating the policies to ensure that the scientific integrity policies are effective, so that's something that other agencies are doing periodically to kind of assess is this really helping, you know, ensure a culture of scientific integrity. And so we made that recommendation.

Mr. MARSHALL. OK. Thank you. Last question back to Dr. Pielke. You've written that the idea of the scientific consensus is often misunderstood. And certainly as a practicing physician, trying to sort through the thousands of studies and figure out, well, when we build consensus is a big deal, it usually takes years and decades. What do you need to understand about consensus in science, and what are the implications for scientific integrity policies?

Dr. PIELKE. Yes, the single most important thing I think for people to understand about the notion of scientific consensus, it's not an agreement of everyone on one thing. A scientific consensus reflects a perspective on the distribution of views in a community. This is why I recommend the importance of scientific assessment processes. Academics, scientists are strong-willed people, they have strong views——

Mr. MARSHALL. Of course.

Dr. PIELKE [continuing]. And you will find outliers on either side and you—sometimes, if we're lucky, we'll find a central tendency. But the role of assessments is to characterize the full distribution of those views. And that full distribution is the consensus. And if it has a central tendency, great, and if it doesn't, we want to know that, too. It's just not one single answer.

Mr. MARSHALL. Very well said. Thank you, Chairwoman, and I yield back.

Chairwoman STEVENS. In 1881, President Garfield from the OKest State of Ohio passed away. And he passed away because of a gunshot that he could have recovered from, but he died of sepsis because those who were caring for him and trying to remove the bullet weren't washing his hands, 1881.

Now, in the late 1860s Dr. Lister beseeched his colleagues to apply some of these discoveries to antisepsis in their operating rooms. It just didn't make it through Pasteur and Robert Koch, who were scientifically demonstrating the germ theory.

In 1887, the National Institute of Health was created. Imagine if we had access to that information. Imagine if our Congress had access to that information. We could have saved a President's life.

I'm going to yield to Mr. Beyer, recognize Mr. Beyer for 5 minutes of questioning now from the great State of Virginia.

Mr. BEYER. Thank you. Madam Chair, thank you very much. And thank you for bringing up President James Garfield. He was Williams College's only President and only lived about 90 days. And I highly recommend Destiny of the Republic, which argues

that he was probably the most intelligent President we ever had so——

Chairwoman STEVENS. By Candice Millard, who's coming to see us——

Mr. BEYER. Oh, good.

Chairwoman STEVENS [continuing]. In September.

Mr. BEYER. Excellent. And I really want to thank my good friend Paul Tonko for years of leadership putting this together. It's 3-1/2, 4 years, so that's really good work. I'm glad you have so many cosponsors.

And to my friends on the other side, to Mr. Baird who said at the beginning let's not play politics with the issue of scientific integrity. I think that's exactly what we're here for, that politics intervening with scientific integrity is bad whether it comes from the right or from the left, and that's why this bill makes so much sense is to—you know, we pointed out I think in one of the UCS about how Kathy Sibelius when she was head of HHS (Department of Health & Human Services) ordered the FDA Commissioner to reject an application on emergency contraception and many other issues on both sides. So this is not partisan.

And I would really encourage and ask again my Republican friends including Mr. Norman from South Carolina and Dr. Marshall and others to consider signing onto the Tonko legislation, and let's invite every Republican on the Committee to do that. And if you can't, please tell us why you can't, and what the specific objection is to it because I think this is something that should unite us as we move forward.

I am concerned, too, about the Union of Concerned Scientists' survey that had 50 percent across all agencies either agreed or strongly agreed that political considerations undermine science-based policymaking, 81 percent at the EPA, 76 percent at the National Park Service.

I'm in business, and when data is really good for me, when it tells me we're going to sell more cars, I always cut it in half and then see whether I'd make the same decision. Even if you cut these numbers that half, 40 percent for the EPA, 38 percent for the National Park Service, that's a real, real concern.

So, Mr. Clement, I'm so thrilled to see a forest canopy ecologist. You're the first one ever. And since I've always wanted to live in a treehouse, it would be fun to talk to you more about it. But you've left government after 7 years. Do you feel the scientific integrity concerns and the fear of harassment and retaliation are driving Federal scientists out?

Mr. CLEMENT. You know, it's hard——

Mr. BEYER. Or discouraging people from coming in?

Mr. CLEMENT. I think we're going to—we're seeing a lot of scientists leave. There's a bit of a brain drain I think because of disappointment about how science is being treated in the Federal science enterprise. More worrisome I think is how are we going to repopulate this science enterprise? How are we going to attract good scientists into Federal science if it's seen as a place where politics can interfere not just with the use and policy of science but in—with—but they can be suppressed and actually their careers

can be impacted by not being able to go to conferences and not being able to present or publish their research.

Mr. BEYER. OK. Thank you. Mr. Halpern, we've seen lots of reports of brain drain at agencies. I've got more Federal employees than any congressional district. Do you see the brain drain as a scientific integrity issue?

Mr. HALPERN. I see it as a scientific integrity issue for sure. We need to be able to attract the best and brightest minds to Federal service, not to—you know, as Mr. Tonko suggested earlier, get rich doing Federal work but to contribute mightily to public understanding of various environmental and public health threats.

The work that Federal Government science agencies do is work that no other State agency or company is equipped to do, that's evaluating public health threats, environmental threats, helping us understand where to make investments, how to protect workers, and all kinds of other opportunities to improve everyone's quality of life. And so the importance of having the best scientists in these positions cannot be overstated.

Mr. BEYER. Dr. Pielke, I only have 40 seconds left, but how have you recovered, attempted to recover? Is there a path back after, you know, your scientific credibility was questioned, your scientific integrity?

Dr. PIELKE. I have become outrageously public in the sense that I put all of my data, all my research, all my opinions, who I vote for, everything out in public on Twitter, on blogs to try to let people who I—know who I am so there's no ambiguity, my funding. Even so, it's enormously punitive to have the White House Science Advisor single you out as someone who's a quote/unquote bad guy.

So this is something that we need to pay more attention to on both sides. And I have colleagues who have been attacked from the other side. And if you want to remove someone from public discussions, there are some people who have that power. But I'm here today, so obviously I haven't gone away completely.

Mr. BEYER. Welcome back.

Dr. PIELKE. Yes, thank you.

Mr. BEYER. Madam Chair, I yield back.

Chairwoman STEVENS. We're certainly all about those in the Executive Office upholding and recognizing truth and calling out untruths when they see it, so thank you for that great and important point.

It's also we, in the Science Committee and Subcommittee for Research and Tech, had a hearing on election security and around this point about social media and negative infiltrations because we have had those. We had foreign intervention of adversaries into our election and in other ways. So truth indicators remain important.

At this time I'm going to recognize Dr. Foster for 5 minutes of questioning.

Mr. FOSTER. Thank you, Madam Chair. And thank you to our witnesses. Actually, I'd like to start by thanking specifically Mr. Neumann and the GAO for the quality report you made on this subject. In a moment—or an hour of insomnia I actually read it. And I was just so happy to find voices we can trust. That is absolutely crucial. And it comes up again and again.

I was discussing actually this morning with Ernie Moniz about how much he—during the Iran nuclear negotiations how much he depended on the scientific advice from the national laboratories on what the Iranians could do, how long it would take them, what we could detect, what we couldn't. You know, and these are detailed scientific questions.

And then, as a Member of Congress, when I was, you know, trying to understand if I would vote for the Iran nuclear negotiation deal or not, you know, I had to go to those same sources and ask them the same detailed scientific question. And if I suspected that I was going to get a political spin on this, it would have been a lot tougher. And so we just depend.

Earlier this week I was actually discussing with Francis Collins, the head of the NIH, he is not subject to this advisory committee directive that prohibits people from getting grants from the agency from being on advisory boards. And he is very grateful for it. He says they acknowledge conflicts of interest—it's a real problem—and they manage them. And I think that, you know, we're never going to escape conflicts of interest in those—I mean, you know, very often scientific fields have very small number of experts. And if you start booting off everyone with any expertise off your advisory panels, you know, it's just not going to work. And I think you just have to acknowledge and manage those conflicts of interest. And there are ways of doing it.

And I think that on both sides of the aisle we view the NIH, for example, as a fully functional scientific bureaucracy if you will. And we have to make sure that same confidence occurs in all Federal agencies. And it comes up also locally, you know, and with the population.

And in my district, there's a big issue with ethylene oxide, which is an identified carcinogen. And the question is what is a safe level there. And the Environmental Protection Agency, you know, came in, you know, shortly after the announcement that there were some anomalous emissions, and the difficulty is they brought in a political appointee with a background in home construction to talk about the scientific issues of what a safe level of exposure of ethylene oxide is, which is not satisfactory to anyone, including the people that are really looking for strong and valid scientific advice. And so this is just crucial.

And, you know, when you see, you know, the USDA, for example, apparently suppressing, you know, scientific advice on—indicating climate change, you know, for what are apparently political reasons, then it causes you to distrust everything the agency does. And so you don't need many bad actions to just contaminate the whole operation.

And so, let's see, I guess maybe, Mr. Halpern, one of the things that I struggle with is, you know, there is always in science statistical uncertainty in any conclusion or just other, you know, systematic uncertainties. And so I struggle with, you know, people wanted politics always to say this is the answer, period, full stop, whereas the scientist always says, well, it appears the probability is very high that this or that may be the case. How do you deal with that? Do you have any advice on how to do that and not make it basi-

cally, you know, contaminating the public's view of science in general?

Mr. HALPERN. Well, first of all, we don't want to make it a game of telephone where the uncertainty is communicated by scientists to political appointees and then to the American people. And ethylene oxide is certainly a very complex topic where you do want to hear—you do want the lines of communication to be clear, and you do want to hear directly from the experts. And so I think a lot of the time policymakers exploit scientific uncertainty as a justification either to take action or not to take action, that we don't know anything. Therefore, we can't do anything. And certainly a non-decision is a decision either to move forward with a public protection or not with a public protection. And so I think the *Scientific Integrity Act* is here to ensure that that communication is clear, that scientists are able to share that publicly.

And I think, you know, one of the things we have seen with the GAO report is—and I do want to underscore is the fact that they did not measure whether or not the policies were effective. They said that these—that they've implemented these particular words in their policy, and that they've taken steps to train scientists on it. But is it actually effective? Does it actually make a difference? Does it actually allow and empower scientists to come and talk about what the—what they know and what they don't know? And we find in a lot of different cases but that's not the case.

Mr. FOSTER. Well, thank you. And it looks like I'm out of time here. I just wanted to thank, you know, everyone one of our witnesses here for engaging on this subject. There's really nothing more important to the health of our democracy, so thank you. I yield back.

Chairwoman STEVENS. At this time the Chair would like to recognize Mr. Norman from South Carolina for 1 minute. And just a reminder, I do have the gavel, sir.

Mr. NORMAN. OK. I wanted to respond to Congressman Beyer. I think that's the way you get things done is to look at the bills and come to an agreement. And I think that's the best advice I've heard particularly in light of the charade that went on in the House yesterday. It's a welcome relief to actually get down to facts. And each of the panelists, I like what I've heard as far as, you know, let the facts lead you to the results, not vice versa.

I'm from the private sector. If I'm going to build you a house, I'll tell you what I can do and what I can't do and let the facts rule everything on it as long as I reveal it. So thank you for coming. Chairwoman Stevens, if you would relay that to Congressman Beyer, and I appreciate him doing that. I yield back.

Chairwoman STEVENS. And at this time I'd like to recognize Ms. Wexton from the great State of Virginia for 5 minutes of questioning.

Ms. WEXTON. Thank you, Madam Chair. And it's actually the great Commonwealth of Virginia, but——

Chairwoman STEVENS. Thank you. So noted.

Ms. WEXTON. Thank you for yielding, Madam Chair, and thank you to the witnesses for appearing today.

I also want to thank Mr. Tonko for his leadership on this issue and for introducing this fantastic bill, which I strongly support.

One area that continues to be harmed by disregard for science in the current Administration is reproductive health, especially when it comes to women. And women are left to deal with the consequences of this every day, which includes often the inability to make our own healthcare decisions.

Madam Chair, I have a letter here from the Jacobs Institute of Women's Health at George Washington University that highlights just a few examples of actions taken by this Administration to use misleading or junk science—and I'll use quotes around science—when it comes to policy decisions relating to women's health. And, Madam Chair, I ask for unanimous consent to enter this letter into the record.

Chairwoman STEVENS. Without objection, so ordered.

Ms. WEXTON. Thank you. Now, one of the examples that this letter discusses is HHS' 2018 rule that allowed more employers and universities to exclude coverage of contraceptives in their health plans. In justification of this rule, HHS misrepresented decades of research on the efficacy of contraceptives, claimed greater health risks than actually exist, and cited cherry-picked studies of poor scientific quality. To make a direct quote, HHS argued that the body of evidence shows that, quote, "There is complexity and uncertainty in the relationship between contraceptive use and unintended pregnancy."

So HHS is suggesting that the relationship between birth control and pregnancy is uncertain, and that is astonishing to me. Of course, there's always more that science can tell about the exact margins of error and around the rate of effectiveness of various contraceptive methods and user error and things like that, but I hope we can all agree that it's ridiculous for HHS to be saying that there's an uncertain link between contraceptive use and unintended pregnancy.

Mr. Halpern, I understand that the Union of Concerned Scientists submitted a comment opposing this rollback of contraceptive coverage on the basis that it undermines science and public trust in the agency. Can you talk about the negative impacts of HHS misrepresenting science in decisionmaking like this?

Mr. HALPERN. Yes. So there—thank you for that question. I think, you know, there's really nothing that's more important to people than to be able to make informed healthcare and personal health choices.

You're right that the impact of political interference in science is real and that it does tend to impact women and communities of color more than—and low-income communities more than other communities just because people being exposed to more environmental contaminants.

We all rely on the Federal Government to help us evaluate what types of drugs are effective, what types of information allows us to make informed reproductive health choices as well, and it's important for public trust for agencies like Health and Human Services to represent science fairly and accurately.

The *Scientific Integrity Act* under consideration today isn't going to determine what decision that the Health and Human Services Department makes on these kinds of topics, but it would require them to show their work. It would require them to—or provide

more impetus for people who do research, if their work is misrepresented, to file complaints, to correct the record, and to ensure that the public actually understands the justification for a specific policy decision.

Science is a political football. Everybody wants science to be on their side, and there's a tendency by all kinds of political actors to manipulate or suppress it or misrepresent it if it doesn't fit the predetermined policies that they want to put forward, and that's what we need to guard against.

Ms. WEXTON. Thank you. And science is something that depends on peer-reviewed and clear—you know, clear studies. And I like that you say that it would require that they have to show their work because then people can see what is being depended upon. Thank you very much. And I will yield back at this time.

Chairwoman STEVENS. Thank you to the gentlelady from the phenomenal Commonwealth of Virginia.

We found ourselves a juicer, so we're doing a second round of questions. And I'm going to recognize my colleague Mr. Tonko for another 5 minutes of questioning to our incredible panel.

Mr. TONKO. Thank you, Chairwoman.

And in these partisan times it can be easy to dismiss any call for accountability or transparency as a political attack, in this case, on the Trump Administration currently is serving. So, Mr. Halpern, why do you see this legislation as something that transcends political Administrations?

Mr. HALPERN. Well, certainly, we've seen and been able to document examples of political interference in science dating back to President Eisenhower. Now, not all Administrations are created equal. We certainly have more problems in some years than others. With George H.W. Bush we saw relatively few challenges to science-based policymaking. With his son, it ramped up quite a bit.

So I could spend until Friday giving examples of different ways in which science has been sidelined over the past, you know, several years dating back to 9/11 when the EPA told emergency responders that the air was safe and told the public that the air around Ground Zero was safe when it was not, when the Department of—when the Department of Interior had political appointees rewrite scientific documents to preclude the listing of endangered species under the *Endangered Species Act*, when the Obama Administration softened the conclusions of scientists related to the impact of fracking on groundwater and drinking water.

We face enormous public health and environmental challenges. We need access to good science to make informed decisions, and it is important to recognize that because science—everyone wants science to be supportive of the policies that they want to put forward, there's a tendency to try to fit the science into the box that supports the policy.

Mr. TONKO. OK. Thank you. Does anyone else on the panel want to respond to that?

If not, let me just indicate we learned from GAO's report that all 24 agencies have SI (scientific integrity) policies in response to the 2010 OSTP memo. A handful of them have—as agencies have a dedicated full-time scientific integrity officer, too, and a fairly ro-

bust written policy. Mr. Halpern, what would the value of the policy changes in H.R. 1709 be for these top-performing agencies?

Mr. HALPERN. So these agencies are top-performing on paper, but when it comes to actually protecting the rights and responsibilities of Federal scientists and Federal employees, they end up falling short. We even saw yesterday in this very Committee when Deborah Swackhamer said—was talking about how she had been asked to change her testimony by a high-ranking EPA—or White House official, that she refused to do so. And it was asked whether or not the Inspector General had looked into this problem, and the Inspector General said they hadn't or that said later to the press that they hadn't because it wasn't a criminal offense. And so there really are few mechanisms that are actually effective to deal with these kinds of abuses of science.

We've had 10 years for these scientific integrity policies to be implemented. We see uneven implementation at agencies. And even at those places like the EPA, which have put in significant resources into training employees, into making the scientific integrity officer available to people, we still have problems.

I think that it's also important to note that the one place in which we have seen a really critical role for scientific integrity officers is in dealing with informal complaints and stopping complaints before they become crises.

Mr. TONKO. So if there's some sort of disagreement or whatever within agencies, can agencies actually eliminate the SI office——

Mr. HALPERN. That could happen at any time.

Mr. TONKO. So what you're saying is that if the EPA, for instance, decided to rescind the SI policy or water it so as to make it impotent and fire the SIO tomorrow, there's nothing preventing them from doing that?

Mr. HALPERN. There's nothing presenting them from rescinding the policy and likely reassigning the scientific integrity officer to other duties, which is why it makes it more difficult for them to be fully independent and to take these investigations to their full——

Mr. TONKO. And, Mr. Clement, do you have any comments regarding that?

Mr. CLEMENT. Yes, that's one of the reasons why I think a lot of us did not rely upon the current policies in—once the transition to the Trump Administration took place. It's not a place you want to put your trust and raise your flag if you think you'll have hostile treatment from agency leadership. So extremely important to add heft, I think, statutory heft to the scientific integrity.

Mr. TONKO. Well, I think any such bold steps would not go unnoticed by the press or this Committee, but that, in and of itself, remains very troubling. And with that, I yield back, Madam Chair.

Chairwoman STEVENS. The Chair would now like to recognize Mr. Cohen for 5 minutes of questioning.

Mr. COHEN. Thank you, Madam Chair.

Before I begin my questions, I want to submit a document for the record from the Society of Professional Journalists. The society supports the need for scientific experts within the government to communicate more freely with reporters, which is something the *Scientific Integrity Act* upholds. So, without objection?

Chairwoman STEVENS. Without objection, so ordered.

Mr. COHEN. Thank you.

Mr. Clement, thank you for your work over the years and your belief and respect for science. What did your work at the Department of Interior entail prior to Mr. Trump's regime?

Mr. CLEMENT. Well, my office covered those issues that cut across the many bureau missions at the agency, so issues like climate change, invasive species, Arctic issues, and economic analysis. Mostly my time was focused on the impacts of climate change upon the missions of the bureaus.

Mr. COHEN. And you worked with scientists and understood their reports and relayed those to folks at the Department of the Interior, is that correct?

Mr. CLEMENT. That's correct.

Mr. COHEN. From your research and what you learned while you were there, what are the dangers to Native Alaskans due to climate change?

Mr. CLEMENT. Well, they already face right now risks with unstable and unpredictable ice for transportation and hunting, but I think most striking is that there are—as indicated by the GAO of 10 years ago, there are more than 30 villages that face—that are imminently threatened by the impacts of climate change, and they need to be relocated.

Mr. COHEN. Because what will happen to those villages?

Mr. CLEMENT. Well, with the lack of sea ice setting up in the fall and the thawing permafrost beneath their feet, one storm can erode meters and meters of land at a time. But these villages are on strips, either peninsulas or islands like the barrier islands of North Carolina, only they're no longer frozen in place. So one storm can over top these islands and put a lot of people in danger.

Mr. COHEN. The 90 degrees the other day in—was it in Anchorage?

Mr. CLEMENT. Yes, it's uncanny and bizarre what—how warm it is in Alaska right now.

Mr. COHEN. Do you suspect that was caused by man, climate change caused by man or was that just an act of God?

Mr. CLEMENT. Well, the temperature on any given day is weather, right, but we certainly have seen trends that would support the likelihood of those kinds of heatwaves taking place in Alaska. Yes.

Mr. COHEN. What happened to you and your colleagues following Ryan Zinke's horse ride to the Interior Department and taking over as the chief cowboy?

Mr. CLEMENT. Well, you know, when the Secretary is sworn in, he has to wait 120 days before he can make any personnel decisions about senior executives. When—as soon as it was legally permissible, he—we received notices late on a Thursday night reassigning us and explaining why. Mine—to give a sense of the depth of the charade, mine was explained as where—you have economists on your staff. Therefore, you must know about accounting, and therefore, we're going to move you to the accounting office that collects royalty checks from the fossil fuel industry. That's why we're going to do this.

Mr. COHEN. And was that right after the 120 days had lapsed or right after you testified to the U.N.?

Mr. CLEMENT. It was a week after I had testified at the U.N. It was actually 110 days after his swearing-in, but they just said this is going to happen in 10 days, yes. It was about a week after I testified at the U.N.

Mr. COHEN. So it was a confluence of two reasons to act. Yes. And you were reassigned why do you think?

Mr. CLEMENT. Well, I was reassigned in order to get me to quit. You know, it was——

Mr. COHEN. And basically hush you up?

Mr. CLEMENT. Exactly. I mean, Zinke—Secretary Zinke the very next week testified to Congress that he intended to use reassignments as a way to trim the DOI workforce by 4,000 people. And reassignments don't trim the workforce unless you do so as a way to coerce a resignation, which is unlawful, so that was pretty clear to us why.

Mr. COHEN. Did Mr. Zinke ever make any statements that you can recall about science and climate change?

Mr. CLEMENT. You know, and I—he made some statements during his confirmation hearing that seemed to support the notion of climate change. He didn't really put his—all his cards on the table, however.

Mr. COHEN. Since your departure, have you seen any other efforts at the Department to interfere with scientific conclusions?

Mr. CLEMENT. Oh, many of them. I have a list here actually that I can submit for the record. But there have been many instances——

Mr. COHEN. Can we have that submitted for the record? Without objection, so done. Done. Thank you.

Chairwoman STEVENS. So ordered.

Mr. CLEMENT. I will add the one instance was Secretary Zinke created a political review process for all the scientific grants over $50,000. He had this led by an old football buddy of his, and it's pretty clear that this very nontransparent approach not only bottlenecked all the grantmaking and research had to be canceled, but it was obvious that you could certainly pick and choose those studies that you might like to fund and those you would not.

Mr. COHEN. Have international relationships been affected by the Administration's attack on science?

Mr. CLEMENT. Well, I work in the Arctic context. The Arctic Council, those are the eight Arctic countries that are very alarmed by climate change in the Arctic. It's a major driver up there. And the U.S. has gone from first to worst in terms of these issues. And I think this came to a head in May when Secretary Pompeo, Secretary of State Pompeo, met with the other seven ministers, foreign ministers from the other countries of the Arctic. Every 2 years they sign a ministerial declaration saying here are our priorities and agenda for the coming 2 years. For the first time ever, the Arctic Council ministers did not sign a ministerial declaration because Secretary Pompeo would not allow language about climate change to be included in that declaration. So it was a very embarrassing diplomatic incident.

Mr. COHEN. Thank you for your service and for your courage. I yield back the balance.

Mr. CLEMENT. Thank you, sir.

Chairwoman STEVENS. Thank you indeed. And the Chair at this point would like to recognize Ms. Bonamici for 5 minutes of questioning.

Ms. BONAMICI. Thank you very much. Thanks to the Chairs and the Ranking Members, thank you to all the witnesses. I've been on the Science Committee my entire time in Congress, and we know that peer-reviewed, evidence-based science can and should support and inform public policies, but unfortunately, we've seen suppression, censorship, manipulation of science in this Administration, and there are countless examples of undermining scientific integrity

I think about the—in 2017 when the Department of Health and Human Services terminated an evidence-based teen pregnancy prevention program and instead redirected funding to abstinence-only education, which is jeopardizing the health of young people over ideology.

I've been working on asbestos issues, and I've been extremely concerned that the EPA issued a rule that merely restricted the use of asbestos when about 60 other countries completely ban it, so they were—actually disregarded the advice of their own scientists and lawyers who advocated for a complete ban of the deadly carcinogenic substance in two internal memos. The EPA has no excuse for disregarding that science and the health of the American people.

And as Mr. Clement was just talking about, despite the findings from the Fourth National Climate Assessment produced by scientists at 13 Federal agencies, the Administration continues to censor and suppress the term climate change, which is incredibly baffling but also dangerous. The climate crisis is an existential threat and of course a national emergency.

Mr. Clement, thank you for your tireless work as a public servant. In your testimony, you discuss how providing policymakers with accurate and reliable science helps inform better decisions and that scientists should have a realistic expectation to be able to conduct and communicate their research without political interference. With these new realities, we have to prepare how to shape scientific integrity policies that can remain effective when we're confronted by an Administration that's hostile to science.

So how has this censoring of science from the public at the Department of Interior affected the quality of regulatory action? And what protections can we put in place for Federal employees who want to inform the public about scientific information but are suppressed by political officials?

Mr. CLEMENT. Well, you know, even at the USGS, which is a nonregulatory body, we're seeing a lot of this censorship take place, so it doesn't even seem to be necessarily decisions that are linked to what we call these industry handouts at Interior. But there's a lot that can be done to support the scientists as they do their work, whether—as I mentioned earlier, you can't assume that your science is going to become policy. It's not that simple.

Ms. BONAMICI. Right.

Mr. CLEMENT. But you certainly can make—you can assume that you're going to be allowed to do your work, that you're going to be able to communicate that work to the public and to your peers.

You're going to be able to participate with other scientists publicly in conferences, speak to the media. These are all things that you would expect to do as a scientist anywhere, and it's no different in the Federal science enterprise.

So the H.R. 1709 goes a long way toward formalizing that, but also I think there's—it's important that there be measures taken to ensure ethics and integrity more broadly across the agency because scientific—a culture of scientific integrity is not likely to take hold if a notion of integrity is not taking hold in an agency. And right now, we're seeing certainly at Interior—where I'm most familiar—that's a real challenge.

Ms. BONAMICI. Thank you. I appreciate that. Mr. Halpern, in your testimony you mentioned that the April 2019 GAO report did not evaluate the effectiveness of the scientific integrity policies at nine Federal agencies, and GAO identify the Office of Science and Technology Policy's December 2010 scientific integrity memo as the guidance framework for Federal scientific integrity policies.

So should the OSTP memo be considered the gold standard for integrity policies? And as this Committee considers Representative Tonko's *Scientific Integrity Act*, what opportunities exist to strengthen enforcement and effectiveness of those policies?

Mr. HALPERN. Yes, thank you. So I see the memorandum from December 2010 as a starting point. That was what came out when we didn't know what was going to work in Federal agencies. And so they put together a set of principles basically and asked the agencies to come up with scientific integrity policies. Some of them did. Some of them restated those principles and put it on a shelf and called it a day. We know from the GAO's reporting that the Department of Energy pretty much forgot that they had scientific integrity policy and didn't even assign a scientific integrity officer to be the point of contact for understanding what it was.

And so I think we need to think of the language in the Holdren memo from December 2010 as a philosophical starting point but not necessarily think of it as the letter of the law.

Ms. BONAMICI. Thank you. I see my time is expired. I yield back.

Chairwoman STEVENS. Thank you so much. At this time I'm going to recognize myself for 5 minutes of questioning. And I'd also like to enter into the record the Climate Science Legal Defense Fund on behalf of Congresswoman Sherrill. And without objection, so ordered.Mr. Halpern, could you shine a little bit more light for us on the process and maybe give us some advice on weighing scientific fact versus policy at our Federal agencies?

Mr. HALPERN. The process of evaluating scientific integrity violations or——

Chairwoman STEVENS. The process of evaluating violations and/or the way in which we can take scientific recommendations from our Federal agencies to influence and impact policy and improve outcomes, particularly when there are violations.

Mr. HALPERN. Right. I think a lot of people are surprised that there were 24 agencies that developed policies. It was everything from the Consumer Product Safety Commission to the U.S. Fish and Wildlife Service to the Centers for Disease Control and Prevention. And so you see science on so many different issues and topics

where science needs to inform policymaking, and we need to be able to make good decisions.

Again, we're not talking about science being policy prescriptive. The bill in question is agnostic on the weight that science should be given to a specific policy decision. But it is important to protect the process that allows scientists to share their research with the public.

Chairwoman STEVENS. What does it mean when Federal employees are banned from using certain words as they try and do their work?

Mr. HALPERN. So we saw at CDC (Centers for Disease Control and Prevention) that scientists were prohibited from using phrases like evidence-based in describing their work in budget proposals. We've seen climate change as a word that scientists have either been told to avoid or have decided to keep their heads down and not talk about publicly. The surveys that we have done at Federal agencies found hundreds and hundreds of scientists reporting either being told not to talk about climate change or self-censoring and deciding that they are not going to step into that space to begin with. And so this robs the American people of being able to understand the threats that we face and it makes it easier for elected—for elected officials and other policymakers to make decisions without any type of accountability, to cherry-pick the information that they want to put forward to justify their decisions without a check—without a check on that. If the science isn't there, if scientists aren't able to share publicly their research results, that void is going to be filled by all kinds of misinformation and spin.

Chairwoman STEVENS. Can career Federal civil servants be fired for kind of not taking that advice from—or recommendations or enforcement from not using that language?

Mr. HALPERN. So, right now, when scientific integrity violations are brought forward in agencies that have adjudication methods, scientists—the scientists—the scientific integrity officer and usually a committee that's associated with that will evaluate whether there has been a loss of scientific integrity, whether someone's been censored, whether there has been manipulation or suppression of research methods and the like.

And at that point there's a—it's not clear about what the recourse is. It's not clear about what public reporting there has to be related to the details of abuses of science. It's kind of up to the agency to say trust us, and it's become pretty clear that we can't trust them, that Congress needs to do both oversight but also put in place protections that are mandated through law that not only evaluate—that allow and empower these agency scientific integrity officers to do their jobs and to adjudicate these things but have consequences for those who transgress.

Chairwoman STEVENS. Did anyone else on the panel want to weigh in on the importance of having an independent scientific integrity official? Go ahead. We'll go to Mr. Clement and then Dr. Pielke.

Mr. CLEMENT. OK. I do. I—you know, this is something that would serve the agency and serve the career staff a lot, and it certainly would have served me as well. There—for every type of complaint, you have somewhere you can go. If it's a civil rights com-

plaint, you have a civil rights office. If it's sexual harassment, you have the Merit System Protection Board. If it's a whistleblower complaint about public health and safety, you have the Office of Special Counsel. But in the case of scientific integrity, right now, you really have an unreliable process that—it's great that it exists, but there's nowhere that you can go you can count on having that kind of arbitration take place, so it's an absolutely essential——

Chairwoman STEVENS. Yes. Go ahead.

Dr. PIELKE. Yes, I just want to make one point about the politics of this proposed legislation. It clarifies and expands congressional oversight of the executive branch. And one reason why we're talking about the John Holdren memo of 2010 and not 2013, 2014, 2015 is that—my hypothesis is that the Obama Administration slowed down scientific integrity issues because what they were doing was handing over to the Congress a new tool with which to have oversight over the executive branch.

So this is very difficult legislation, I would think, because at some point it's going to hit one party or the other. So if the Republicans were still here—they're not—I would say this is an investment in your future. For Democrats, it's an investment in today to oversee the Republican Administration. But this is where I think the interests of Congress have to outweigh the party affiliation, which makes it so difficult.

Mr. HALPERN. Administrations——

Chairwoman STEVENS. Yes.

Mr. HALPERN [continuing]. Always say we're the good guys, trust us, we can govern ourselves and oversee the right information, and the opposite proves to be true.

Chairwoman STEVENS. Mr. Neumann.

Mr. NEUMANN. Yes, I would just like to add that, you know, policies are just one part of scientific integrity. And certainly, we heard about that today. I mean, staff need to feel comfortable reporting alleged violations, and there needs to be a consistent and transparent process for investigating those violations and addressing—taking action in accordance with the results.

Chairwoman STEVENS. Yes, and it could actually be a positive reinforcement as well, you know, for the work that people are doing or a safe space to have conversations and to adjudicate or litigate, you know, maybe a tertiary way to do peer review in some respects.

I think one thing is clear, that we are so grateful to all of our career Federal civil servants, who I think in these heightened and polarized times, no matter what segment of government you're working in or what topic, your work can sometimes feel difficult. And there's a lot of gratitude that we here on the Science Committee in particular have for our career Federal civil servants, those who make the National Institute of Standards and Technology's office hum with their great expertise, our VA officials and our medical professionals who help to run our Veterans Affairs Department.

And taking office in the 116th Congress, being sworn in for the first time as a newly elected Member of Congress during a government shutdown, that set a real ricocheting effect I think for our entire freshman class being that we saw our government not func-

tioning. And we're here to make sure that we do have a trusted and important voice and certainly the strong checks and balances.

So I'm going to yield back the remainder of my time and want to, you know, bring the hearing to a close and thank our witnesses for testifying before the Committee.

It's not necessarily that this ends on a failed crescendo by any stretch of the means. In fact, this is part of the important and essential dialog that we're having. This is a national news story around scientific integrity. There are changes happening to Administrations. We didn't even talk—get to ask questions because they weren't necessarily relevant to our expert witnesses here, but the changes taking place over at the USDA. And our Ranking Member Mr. Baird is now at a USDA hearing on I don't know what topic, but he does serve on the Agriculture Committee. And we do know that the USDA has moved their researchers out of D.C. and into Kansas for cost-saving measures.

And we've got to have frank and open and honest and trustworthy conversations. I don't think we should be afraid of language. I don't think we should be afraid of inconvenient truths and things that we do not want to hear. And in fact, we're uniquely positioned in America to embrace challenges, to solve the impossible, to run after each other when we have an idea just like the people who hit the lands that ended up discovering America, challenged their notions of truth by saying, aha, the world is not flat, aha, I will sail across that great ocean, aha, I think we can go to the moon, as we were discussing and hearing yesterday, that we can push the boundaries to achieve greatness as couched within our great innovative capabilities as a Nation.

And in fact, we really in America don't need to be afraid. We have courage, we have determination, and we have the eye on the prize, which is the truth.

So thank you all for joining today. The record will remain open for 2 weeks for additional statements from Members and for any additional questions from the Committee that may be asked of the witnesses.

The witnesses are now excused, and the hearing is adjourned. Thank you.

[Whereupon, at 12:08 p.m., the Subcommittees were adjourned.]

Appendix I

Answers to Post-Hearing Questions

Answers to Post-Hearing Questions

Responses by Mr. John Neumann

The enclosure provides your question and our response for the record and supplements information provided to your committee in our testimony, *Federal Research: Agency Actions Could Strengthen Scientific Integrity Policies* (GAO-19-674T, Washington, D.C.: July 17, 2019).

Question for the Record

The Honorable Haley M. Stevens
Chairwoman
Subcommittee on Research and Technology
Committee on Science, Space, and Technology
United States House of Representatives

The Honorable Mikie Sherrill
Chairwoman
Subcommittee on Investigations and Oversight
Committee on Science, Space, and Technology
United States House of Representatives

1. **I strongly believe that taxpayer-funded research should be properly communicated to the public. However, I understand that many of the agencies' Scientific Integrity policies have a process for clearing scientists' communications, and these processes are sometimes lengthy and arduous. Mr. Neumann, do you have any thoughts about how to improve the internal agency review and clearance process?**

As you know, the Office of Science and Technology Policy's (OSTP) 2010 memorandum on scientific integrity included guidance for agencies to establish principles for conveying scientific and technological information to the public. The OSTP memorandum addresses the importance that public communications plays in the preservation and promotion of openness and transparency within the federal government, while ensuring full compliance in the disclosure of classified information. As we reported, all of the agencies in our review have addressed OSTP's component of conveying scientific and technological information to the public; however, we did not assess the effectiveness of the agencies' implementation of this component and therefore do not have specific suggestions for improvement at this time. As stated in our report, assuring the public of the integrity of federally funded science that informs public policy decisions depends, in part, on agencies having sound scientific integrity policies, ensuring that the objectives of their policies are achieved, and addressing alleged violations.

Responses by Mr. Michael Halpern

HOUSE COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT

Questions for the Record to:
Mr. Michael Halpern
Deputy Director, Center for Science & Democracy
Union of Concerned Scientists
Submitted by Chairwoman Haley Stevens

1. Mr. Halpern, please describe the difference between scientific integrity violations and research misconduct that might occur among agency scientists.
    a. What mechanisms are in place to address research misconduct? Are such mechanisms sufficient?

Response:

Research misconduct refers to actions taken by the researcher that compromise that quality of scientific work. The National Academies has a useful definition of research misconduct in its 2017 report *Fostering Integrity in Research.*[1]

Research misconduct has been studied extensively, and a variety of meaningful protections are in place to discourage research misconduct and investigate allegations of research misconduct. Research published in reputable journals goes through an extensive and rigorous peer review process. On the occasion when a fabricated or faulty study survives peer review, subsequent research often uncovers irregularities. Because of self-policing and robust investigation procedures, research misconduct is generally uncommon, and those who engage in the practice are usually and eventually discovered. In the report referenced above, the National Academies makes recommendations for further strengthening the integrity of the research process.

Scientific integrity violations refer to the manipulation, suppression, or distortion of science, or pressure on the scientist by external forces to manipulate, suppress, or distort information. This may include (but is not limited to) censorship of scientists, orders to change research methods, restrictions on appropriate sharing of information among researchers, or misrepresentation of results by others not involved in the research.

Notably, the National Academies report referenced above explored research misconduct extensively but did not address scientific integrity violations.

    b. Is it necessary to have separate policies that address scientific integrity violations and research misconduct?

Response:

[1] https://www.nap.edu/catalog/21896/fostering-integrity-in-research

Yes, the policies that address these two problems should be separate because they address different types of actions with different motivations. First, research misconduct relates to the behavior of the researcher, while scientific integrity violations relate to how others interact with the researcher or represent the research. While scientific integrity violations can sometimes cause scientific misconduct, the two practices have different solutions sets.

Second, the motivations behind research misconduct generally relate to the advancement or preservation of a scientist's career or reputation. In contract, the motivations behind scientific integrity violations generally relate to influencing public or policymaker understanding of a given subject, influencing individual or policy decisions, or reducing accountability for decision-makers by making it more difficult to understand what factors influenced a particular decision.

Third, research misconduct policies are much more expansive, addressing not only the research process within federal agencies but also federally-funded research conducted at universities and other private and public institutions. In contrast, scientific integrity policies are limited to work done directly by federal agencies and contractors.

This reality requires two distinct sets of solutions for research misconduct and scientific integrity violations. Federal agencies already recognize that the two challenges are distinct. Currently, federal scientific integrity officials are asked to investigate potential scientific integrity violations, while research misconduct allegations are addressed by other programs.

c. Should scientific conduct policies be included in scientific integrity legislation?

Because of the reasons described above, it would be ill-advised to develop legislation that addresses both research misconduct and scientific integrity violations. The investigatory methods and responsibilities as well as enforcement mechanisms are fundamentally different.

Scientific integrity officials work to reduce political or other pressure on researchers and to ensure that scientific data and analysis can be communicated accurately and publicly. Officials who investigate scientific misconduct work to ensure high standards for federally-funded research. The two roles require different types of knowledge and employ different types of solutions.

2. Mr. Halpern, during the hearing there was a discussion about the different roles of policymakers and scientists, and how science should be incorporated into making policy decisions.
    a. Is it possible for scientists to present scientific knowledge publicly without being policy prescriptive?

Response:

Yes, it is both possible and necessary for scientists to present scientific information publicly without being policy prescriptive. Science by its very nature is not policy prescriptive. Policy decisions should be *fully informed* by the best available evidence. But science does not dictate what policies should be in place.

Anyone representing scientific information should be clear about when they are sharing data; when they are sharing their analysis of the data; and when they are sharing what they believe should be done based on that interpretation.

The Scientific Integrity Act adds clarity to these representations by protecting the ability of scientists to publicly share their data and analysis in an official capacity while also clarifying that any *opinions and policy preferences* that are informed by their understanding of the science can only be given *as private individuals.*

There are some situations where the law requires that decisions be made solely on the best available science. The best example is with regard to prescription drug and medical devices, where approvals must be made based on whether the evidence suggests that the drug or medical device is safe and effective. For example, it is not appropriate for an approval decision to take into consideration how well a drug will sell, or whether the drug is made in a state where a vulnerable senator is up for reelection.

b. How should we educate scientists to clearly distinguish between science advice and policy advice?

Response:

The Scientific Integrity Act requires covered agencies to provide training to agency staff about their rights and responsibilities under scientific integrity policies. These trainings should be mandatory for all covered staff and contractors in covered agencies, with regular refreshers.

Fortunately, agency staff are largely already able to make that distinction. At NOAA, the Department of Energy, and other federal agencies already have policies in place that allow scientists to share policy opinions in a private capacity and science advice in an official capacity. The are few if any examples of scientific staff misusing their rights under the policies. In general, scientists tend to be conservative in sharing knowledge and opinion, taking great pains not to go beyond what they know.

c. How can we ensure that policy makers have access to all of the relevant science and that scientists are able to communicate all relevant science to policymakers?

Response:

Allow Scientists to Publish
First, this requires appropriate transparency and consistency with regard to the publishing and communication of science and science advice. All federal scientific agencies should have policies in place that delineate (with a presumption of openness) standard publishing practices for different types of scientific documents. The amount of time required will depend on the type of document in question, but all documents of a similar type should be treated similarly

regardless of the political contentiousness of the topic. All too often, scientific information and analysis is withheld because it is politically inconvenient.

Allow Scientists to Publicly Communicate
Second, covered individuals should be able to share their expertise publicly without political filters. This means ensuring that scientists can speak openly with members of the public and the press without seeking permission, so long as they keep their agency informed about on-the-record conversations that take place.

Refrain from Editing Scientific Components of Testimony
Third, agencies and departments should not edit or censor scientific or technical components of congressional testimony. Coordination with agency political appointees on policy is appropriate, but coordination on scientific and technical matters is not.

Give Scientists the Right to Review and Correct Content
Fourth, give technical experts the explicit ability to review publicly-facing materials that rely on their work for accuracy, and the ability to correct the record when erroneous information is put out.

Regularly Communicate the Value of Scientific Integrity
Agency political leaders should regularly affirm, via all staff communications and meetings, the importance of high standards of scientific integrity and independence. Through oversight, members of Congress should make clear that Congress expects agencies to live up to these standards.

Don't Restrict the Types of Science that Can Be Used in Policymaking
Recent misguided congressional proposals such as the HONEST Act would have excluded large amounts of robust public health research from consideration in agency decision-making. Congress rightly rejected this legislation. The Department of Interior has already put restrictions on the use of science in policymaking that are consistent with the HONEST Act, and the Environmental Protection Agency is promulgating a rule called Strengthening Transparency in Regulatory Science that would (as proposed) remove thousands of major public health studies from consideration by policymakers. Both should be rescinded.

3. Mr. Halpern, how has the interagency review process been used to manipulate or suppress or otherwise compromise federal agency scientific analysis?

Response:

At times, there are conflicts of interest among agencies that incentivize political interference in science to more easily justify policy decisions. For example, during the George W. Bush administration, EPA analysis on the toxicity of perchlorate was challenged and undermined by the Department of Defense (which would be on the hook for clean-up costs associated with the chemical). Agencies should have the option of publishing analysis that has been through internal peer-review as it goes to OMB, and OMB should be fully transparent with regard to how it conducts interagency review and what changes it makes during the process.

Also, through its Office of Information and Regulatory Affairs, OMB also regularly delays the release of analysis and science-based rules, and the opaque nature of its operations allows for little accountability. Writing for the Yale Journal on Regulation, Georgetown University Law Professor and former senior Obama EPA official Lisa Heinzerling wrote:

> *In concrete terms, this leaves us unable to know whom to blame when the OMB delays the EPA's list of "chemicals of concern" for almost three years, holds the Occupational Safety and Health Administration's rule on crystalline silica for over two years, does not accept delivery of a notice of new data on EPA's proposal to regulate coal ash impoundments, or insists on extensive, substantive changes to the Food and Drug Administration's new rules on food safety. Perhaps it is the OMB itself, or another office in the White House, or the White House Chief of Staff, or the head of the Department of Agriculture, or a GS-12 at the Small Business Administration. We just don't know.*

We know that OIRA altered EPA scientific findings on ozone pollution and U.S. Fish and Wildlife Service findings about endangered North Atlantic right whales under George W. Bush. We know that OIRA manipulated scientific findings related to a rule around coal ash under Barack Obama. We know that senior OMB officials successfully pressured the Department of Labor to alter economic analysis on a rule related to pooling tips. There are likely far more examples that we do not know about because OMB operates with so much secrecy.

UCS has previously made the following recommendations:

> *The OMB should respect the scientific and technical expertise of the regulatory agencies and refrain from participating in purely scientific determinations beyond transparent interagency coordination. Specifically, the president should make the OMB more transparent and accountable by making interagency review comments public during the notice and comment period of federal rulemaking.*
>
> *The president should guide OIRA to limit its regulatory review to 90 days and allow for a one-time 30-day extension from the rulemaking agency, in accordance with Executive Order 12866. If OIRA cannot complete the review within 90 or 120 days, it should waive review or return the rule to the agency along with a letter explaining its concerns.*
>
> *OIRA review should be triggered only for economically significant rules so that the agency focuses its attention on the most costly rules and therefore reduces regulatory delay. This change would prohibit OIRA review of smaller, politically charged rules, as well as guidance documents, scientific determinations, and regulatory proposals that have not yet entered the public input process. Additionally, OIRA review should not interfere with the expert agency's scientific analyses and risk assessments and should instead focus solely on matters of economic methodology and overlap with other agencies' rules.*
>
> *The president should direct OIRA to improve transparency of its review process. For example, OIRA should make available online a statement on OIRA's suggested changes*

for each rule, a list of changes made by the agency with justifications, and whether and why the issue has been elevated to the White House. Ultimately, OIRA should also make available online a list of substantive changes to rules after OIRA review. Return letters sent by OIRA for rejected rules should also be publicly available.

4. Mr. Halpern, is language in the December 2010 memorandum from White House OSTP Director Dr. John Holdren sufficient to protect scientific integrity? Are there specific areas where the language is not sufficient?

Response:

No, Dr. Holdren's memorandum is not sufficient to protect scientific integrity. The memorandum was designed as a set of principles to guide agencies in developing policies to protect science from political influence and allow for the free flow of scientific information out of federal agencies.

The most effective scientific integrity policies go far beyond the principles articulated in the memorandum. There are several areas where the memorandum lacks either specificity or thoroughness, including:

II. Public Communications

Section 2: Here, the memorandum allows scientists to publicly share scientific information only "with appropriate coordination with their immediate supervisor and their public affairs office." This is a gaping hole that allows for political control of sharing of information around sensitive topics. First, UCS surveys of scientists at federal agencies show that hundreds of experts experienced pressure from supervisors not to speak publicly, not to use certain words, and not to publish research that might be politically contentious. Civil service supervisors are often responsible for self-censorship or censorship in order to save their own heads. Second, there are repeated examples where public affairs officers have refused or delayed interviews; required "minders" to be present at interviews, making frank conversations less likely; selectively re-routing interview requests; or requiring questions to be submitted and approved in advance.

Section 3: Here the memorandum suggests that agencies develop a dispute resolution process, but has far too few details to be useful.

IV. Professional Development of Government Scientists and Engineers

This section is good in removing barriers to scientists serving in leadership position in professional associations. Unfortunately, bullet (2) addressing conference attendance is too vague. Over the past two administrations, conference participation has been greatly curtailed by setting arbitrary participation limits, refusing to approve attendance in a timely manner. This has led to less government research being presented at major conferences and lack of professional development and research collaboration opportunities for government scientists. Should this continue, it will be more and more difficult for the government to attract top talent.

V. Implementation

This section simply states that implementation will need to happen but provides no guidance for what kinds of processes should be followed. There are no reporting requirements or enforcement mechanisms. Congress should be more prescriptive to agencies with regard to policy implementation and public reporting.

The section also makes reference to forthcoming guidance on OMB clearance of scientific testimony before Congress. To my knowledge, no guidance was ever issued, and in the years since we have seen attempts to influence or censor the scientific content of congressional testimony by administration officials.

HOUSE COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT

Questions for the Record to:
Mr. Michael Halpern
Deputy Director, Center for Science & Democracy
Union of Concerned Scientists
Submitted by Congressman Daniel Lipinski

1. I strongly believe that taxpayer-funded research should be properly communicated to the public. However, I understand that many of the agencies' Scientific Integrity policies have a process for clearing scientists' communications, and these processes are sometimes lengthy and arduous. Mr. Halpern, do you have any thoughts about how to improve the internal agency review and clearance process?

Response:

Overall, scientists need more clarity about their rights and responsibilities, and more transparency should be baked into the process so there is consistency for different types of communications regardless of how politically contentious the subject matter may be.

The clearance process for scientists' communications is inconsistent across agencies and has too many opportunities for political interference. Every scientific integrity policy is different, both as written and as enforced. Some agencies have good polices but poor practices, while others have inadequate policies but where scientists are generally free to communicate about their research.

Some agencies do not fully address communications in scientific integrity policies and have supplemental policies that encompass different types of communications, including publications policies, social media policies, and traditional media policies. UCS evaluated the quality of social and traditional media policies four years ago, and many of those policies are still in place: https://www.ucsusa.org/center-science-and-democracy/promoting-public-access-science/grading-government-transparency-2015

The control of scientists' communications has increased over the past 20 years under both Republican and Democratic presidents. From the 2015 report:

> *[C]concerns remain regarding the implementation of policies that are already on the books. At a September 2012 Science and Democracy Forum convened by the Union of Concerned Scientists, journalists and government watchdog groups alike noted barriers to accessing government scientific information in recent years. According to Katherine McFate, president and CEO of the Center for Effective Government, "This administration is particularly schizophrenic about [making its] staff accessible to journalists." Curtis Brainard, science writer and then-editor at the Columbia Journalism Review, concurred with her concerns, particularly regarding access to government scientists: "To this day I continue to hear about these problems from journalists coast to*

coast. This [applies] from the highest levels of [federal] government all the way down to state and municipal governments."

In July 2014, 39 journalism and related organizations stated in a letter to President Obama that a lack of transparency is "getting worse throughout the nation, particularly at the federal level." The letter cited lack of access to agency employees, interference by public affairs officials, difficulty getting people to speak on the record, and long delays in receiving a response.

UCS also worked with the Society of Professional Journalists to survey and interview journalists and public affairs officers about barriers to effective communication of scientific work. A majority of science writers told us that they were not getting the information they needed to inform the public, and federal public affairs offices reported that resource constraints and political scrutiny were getting in the way. The investigation found four problems that should be addressed: required preapproval of interviews, close monitoring of interviews, denied interviews, and the avoidance of tough questions.
https://www.ucsusa.org/center-science-and-democracy/promoting-public-access-science/mediated-access-transparency

All federal agency media policies should include:

1. Scientists' right to last review of materials that significantly rely on their work;
2. The right for covered individuals to express personal views, provided they make clear that they are not speaking for their agency in an official capacity;
3. The right for covered individuals to publicly share scientific information and analysis.

These rights and responsibilities should be in effect not only in department and agency offices, but also in federal laboratories, including those run by contractors.

The publications process also needs to be improved and standardized. Too many products are delayed for political reasons, and there is little recourse for scientists whose work is being held up. Agencies should be required to develop transparent rules for clearing different types of publications, with specific timelines and deadlines. Once those deadlines pass with no action, it should be presumed that the material may be published.

Also worth noting are the 22 public access plans developed by federal agencies under the Obama administration, which are supposed to require that agencies make scientific data and peer-reviewed research publicly available. What is unclear is whether there is any oversight or enforcement mechanism to ensure the public access plans are followed.
https://cendi.gov/projects/Public_Access_Plans_US_Fed_Agencies.html

Responses by Mr. Joel Clement

HOUSE COMMITTEE ON SCIENCE, SP ACE, AND TECHNOLOGY SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT

Questions for the Record to:

Mr. Joel Clement
Arctic Initiative Senior Fellow
Belfer Center for Science and International Affairs
Harvard Kennedy School
Submitted by Chairwoman Haley Stevens

1. Mr. Clement, during the hearing there was a discussion about the different roles of policymakers and scientists, and how science should be incorporated into making policy decisions.

a. Is it possible for scientists to present scientific knowledge publicly without being policy prescriptive?

Yes, it is not only possible, but common practice. Federal scientists, and scientists in general, have built their career on gaining new knowledge that they have arrived at through experimentation and analysis. They generally stay in their lane, speak only of that which they know well, and avoid policy discussions. In some instances, however, such as when an administration is not acting in the best interests of American health and safety or ignoring important scientific information, scientists – like all public servants – are obligated to speak up.

b. How should we educate scientists to clearly distinguish between science advice and policy advice?

Frankly I don't think there is any need to educate scientists on this matter, they rarely if ever provide policy advice unless asked. It is always helpful, however, to provide scientists with media training to ensure that their key scientific findings can be communicated clearly in a form that non-scientists can understand.

c. How can we ensure that policy makers have access to all of the relevant science and that scientists are able to communicate all relevant science to policymakers?

Strong scientific integrity policies at each of the agencies will help ensure that science is not suppressed or altered by political appointees and that an agency does not constrain the ability of a scientist to communicate his or her results to the public. Each agency should also dedicate resources to disseminating its research practices and findings to the broader agency staff in the form of a continually updated science dashboard or inventory. This would provide an at-a-glance science resource for agency personnel and help policy officials to identify the most relevant science and evidence for their work.

2. Mr. Clement, in your experience, why do scientists at federal agencies need to have the right to speak freely about their scientific work (assuming it is unclassified), and what impact

does censoring scientists have on the work of the agency, the work of the scientists, and the public at large?

There are two primary reasons to ensure scientists can speak freely about their work. First, communicating and comparing results is how the science enterprise functions. Sequestering or isolating the science and scientists undercuts not only the process for disputing or validating the results, but it also is career death for scientists for whom that interplay is essential. Second, taxpayers have a right not know what their taxpayer dollars are paying for, assuming it is unclassified. This is a fundamental truth of democracy. Censoring that information leads to an uninformed public, compromises health and safety, and advances the nation toward an undemocratic state.

3. Mr. Clement, during the hearing you mentioned a list of scientific integrity incidents and offered to submit that list for the record. Could you provide us with that list?

The list grows longer each month, but in preparation for the hearing I had compiled the following examples:

- ***Former Interior Secretary Ryan Zinke instituted a political review process in which an old football buddy was hired to decide which science grants over 50k get funded. It quickly became a huge bottleneck to research and led to post-docs not being re-hired and research being canceled. It was so non-transparent that one can imagine it was pretty easy to put a hold on climate change related research, for example.***
- ***DOI officials failed to consider 18 memos from staff scientists who had raised scientific and environmental concerns about proposed oil and gas operations in the Arctic National Wildlife Refuge in Alaska. These documents were excluded from public view, were excluded from the DOI's draft environmental assessment, and were not released during Freedom of Information Act (FOIA) requests filed by advocacy groups.***
- ***DOI officials suppressed a report showing two pesticides, chlorpyrifos and malathion, jeopardize the continued existence of more than 1,200 endangered birds, fish, and other animals and plants.***
- ***DOI officials also halted a National Academy study on the safety of offshore oil rig workers before then rolling back safety regulations for offshore oil rig workers.***
- ***DOI officials also halted a National Academy study of health impacts of mountaintop coal mining right before lifting the moratorium on coal leasing on public lands.***
- ***In October 2017, the US Fish and Wildlife Service (FWS) reversed their long-standing requirement that a proposed city-sized development in southeastern Arizona needed a comprehensive biological assessment to evaluate the potential impacts to endangered species in the area. The FWS official in charge of this process recently said that the only reason he reversed his decision was because he was pressured by a high-level political appointee at the Department of the Interior (DOI).***
- ***The New York Times reported that the Director of the US Geological Survey (USGS), James Reilly, has ordered that scientific assessments produced by USGS can only use climate models that project the impact of climate change through 2040, rather than through the end of the century as has been done previously. As a result, the***

administration is planning on omitting the worst-case climate change scenarios from the National Climate Assessment thereby putting more Americans at risk and preventing the use of important data for a meaningful time frame.

- ***Deputy Secretary David Bernhardt of the Department of Interior (DOI) issued an order, effective immediately, that claims to practice an "open science" policy that will boost transparency, accountability and public access to scientific research. The order requires that scientific data used in DOI policy decisions be reproducible and made publicly available. The requirement to make raw data from scientific studies publicly available can restrict the use of scientific evidence in policy decisions as some data cannot legally be released to the public. This has the ultimate effect of removing important science from the public record.***

Appendix II

Additional Material for the Record

LETTER SUBMITTED BY REPRESENTATIVE HALEY STEVENS

Solidarity House
8000 EAST JEFFERSON AVE.
DETROIT, MICHIGAN 48214
PHONE (313) 926-5000

INTERNATIONAL UNION, UNITED AUTOMOBILE, AEROSPACE & AGRICULTURAL IMPLEMENT WORKERS OF AMERICA – UAW

GARY R. JONES, *PRESIDENT* RAY CURRY, *SECRETARY-TREASURER*
VICE-PRESIDENTS: TERRY DITTES • CINDY ESTRADA • RORY L. GAMBLE

July 16, 2019

Dear Representative,

On behalf of the more than one million active and retired members of the International Union, United Automobile, Aerospace & Agricultural Implement Workers of America (UAW), we strongly favor passage of the Scientific Integrity Act (H.R.1709) in the face of recent abuses of scientific integrity.

If passed into law, H.R. 1709 would prohibit misrepresentation, suppression, or otherwise impeding the timely release and communication of scientific or technical findings. The legislation would protect federal scientists from intimidation and/or coercion and protect their rights to disseminate their findings in scientific journals and conferences. It would also give federal scientists the ability to ensure public statements made by government agencies about their work are accurate and protect their right to speak to the press about their findings.

H.R. 1709 would require federal agencies to institute strong policies and procedures to protect scientists and their work. All too often powerful special interests can undermine public servants' ability to protect the interests of working families. One example of an abuse of science that could have been prevented by this act is the burial of a Department of Labor (DOL) study showing that a proposed rule giving employers control over their employees' tips would lead to income losses possibly as high as $5.8 billion annually. Research should not be shelved simply because it runs counter to the interests of powerful corporations.

In fact, scientific research is crucially important to worker safety and health. Agencies such as the National Institute for Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), and the Environmental Protection Agency (EPA) rely on objective research to carry out their mission. Unfortunately, biased assertions often supersede object research. For example, The EPA has claimed workers do not face unreasonable risk from toxic substances due to the existence of safety data sheets and personal protective equipment despite evidence to the contrary. The Scientific Integrity Act (H.R. 1709) would provide more protection to scientists who disagree with this inaccurate claim.

Please co-sponsor H.R. 1709 and vote for it when given an opportunity.

Sincerely,

Josh Nassar
UAW Legislative Director

rkm
opeiu494/afl-cio

LETTERS SUBMITTED BY REPRESENTATIVE PAUL TONKO

July 15, 2019

Dear U.S. Senators and Representatives,

As organizations working to promote and protect science for the public good, we urge you to co-sponsor and champion the Scientific Integrity Act, which would safeguard the rights of scientists working at federal agencies and ensure the public can benefit from their work. We support requiring agencies that fund, conduct, or oversee scientific research to develop strong scientific integrity policies that include enforcement mechanisms.

Our various organizations work to advance science, public health, the environment, civil rights, reproductive health, worker safety, government oversight, and whistleblower protections. All of us depend on high quality federal scientific research and the hard work of federal scientists to protect our health, safety, economy and environment. Unfortunately, as the report *Protecting Science at Federal Agencies: How Congress Can Help* describes, over the past two years, we have seen the impact of federal policies and political appointees that suppress, mischaracterize, and ignore evidence on topics from contraception to climate change.

S. 775/H.R. 1709, the Scientific Integrity Act of 2019 contains provisions that would address many of these attacks on science. It would prohibit political appointees from altering or suppressing scientific findings and give scientists final review over how agencies portray their research. It also would ensure that federal agencies designate scientific integrity officers and provide federal employees with ethics training to help prevent misconduct.

Another important component of the Scientific Integrity Act is its codification of scientists' right to disseminate their work without interference. It would enable scientists to talk about their research - with reporters, in scientific journals, and at scientific conferences as well as directly with members of the public. Such communication is essential both for public understanding and for federal scientists' ability to share their insights for better oversight and accountability of agency decisions.

Our nation relies on scientific integrity to maintain the role of best available science in policymaking. This research is critical to improving air and water quality, protecting workers, safeguarding public health and safety, advancing reproductive health, defending civil rights, preserving biodiversity, and responding to threats posed by diseases and extreme weather events. We urge you to sign on as co-sponsors of S. 775 or H.R. 1709 to take this important step toward ensuring that our government uses science and evidence to best protect our public health and well-being.

Sincerely,

A Better Balance: The Work & Family Legal Center
Advocates for Science at Indiana University
American Bird Conservancy
American Public Health Association
Center for Biological Diversity
Center for Inquiry
Center for Progressive Reform
Center for Reproductive Rights
Citizens for Responsibility and Ethics in Washington
Climate Science Legal Defense Fund

Common Cause
Cumberland Countians for EcoJustice
Defenders of Wildlife
Earthjustice
Empire State Consumer Project
Endangered Species Coalition
Equity Forward
Food Chain Workers Alliance
Government Accountability Project
Government Information Watch
Green Faith
Green Latinos
Greenpeace USA
International Union, United Automobile Aerospace and Agricultural Implement Workers of America
Jacobs Institute of Women's Health
March for Science
National Center for Health Research
National Employment Law Project
National Federation of Federal Employees
National Institute for Reproductive Health
National LGBTQ Task Force Action Fund
National Parks Conservation Association
National Partnership for Women & Families
National Wildlife Federation
National Women's Health Network
Native Plant Society of the United States
Network for Environmental & Economic Responsibility of United Church of Christ
New Jersey Association for Floodplain Management
New Jersey Education Association
New Solutions: A Journal of Environmental and Occupational Health Policy
Ocean Conservancy
Open the Government
oSTEM
People for the American Way
Project on Government Oversight
Public Citizen
Public Employees for Environmental Responsibility
Rutgers AAUP-AFT
Save the Manatee Club
Sciencecorps
Service Employees International Union
Society for Conservation Biology
Society for the Advance of Chicanos/Hispanics & Native Americans in Science
Sunlight Foundation
The Wilderness Society
Union of Concerned Scientists
Unitarian Universalist Humanist Association
WildEarth Guardians
Wildlands Network
Wisconsin Alliance for Women's Health

Public Employees for
Environmental Responsibility
962 Wayne Avenue, Suite 610 • Silver Spring, MD 20910
Phone: (202) 265-PEER • **Fax:** (202) 265-4192
Email: info@peer.org • **Web:** http://www.peer.org

July 12, 2019

Rep. Paul D. Tonko
Washington D.C. Office
2369 Rayburn HOB
Washington, DC 20515

RE: PEER endorsement of Scientific Integrity Act, HR 1709

Dear Rep. Tonko:

Public Employees for Environmental Responsibility (PEER) is a non-profit group that works nationwide with government scientists, land managers, law enforcement agents, field specialists and other leading environmental professionals. We have represented a large number of Federal scientists over the years and are very concerned about their wellbeing and careers, as well as with the proper functioning of their agencies and with the public interest in the research that they do. Because of those concerns PEER endorses the **Scientific Integrity Act, HR 1709.**

Here are just three examples of attacks in this Administration on scientific experts who tackle tough environmental issues; in several of these cases your proposed bill could have helped.

- The Centers for Disease Control has sidelined a global expert on the effects of climate change on human health and destroyed his program, which Congress had funded to examine such effects.
- U.S. Fish and Wildife Service scientists warned of devastating losses to Alaskan polar bear populations due to oil and gas activities in the Arctic National Wildlife Refuge, which the Department of the Interior managers are ignoring.
- The Department of Agriculture has refused to publicize dozens of government-funded studies that carry warnings about the effects of climate change, defying a longstanding practice of touting such findings by the Department's in-house scientists.

Thank you for your efforts on behalf of our nation's scientists. Please feel free to contact me if you would like more information.

Sincerely,

Timothy Whitehouse
Executive Director

CORRESPONDENCE SUBMITTED BY REPRESENTATIVE RALPH NORMAN

EDDIE BERNICE JOHNSON, Texas
CHAIRWOMAN

FRANK D. LUCAS, Oklahoma
RANKING MEMBER

Congress of the United States
House of Representatives
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
2321 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–6301
(202) 225–6375
www.science.house.gov

July 1, 2019

Dr. Francesca Grifo
Scientific Integrity Official
U.S. Environmental Protection Agency
1301 Constitution Avenue NW
Washington, DC 20460

Dear Dr. Grifo:

The Subcommittee on Research & Technology of the House Committee on Science, Space, and Technology will hold a hearing entitled "*Scientific Integrity in Federal Agencies*" on July 17, 2019 at 10:00 a.m. in room 2318 of the Rayburn House Office Building. I am writing to invite you to testify at this hearing.

The purpose of the hearing is to discuss the importance of scientific integrity policies within federal agencies that fund, conduct, or oversee research and to examine the current status of these policies. The Subcommittee will also receive testimony on H.R. 1709, the *Scientific Integrity Act.*

In your testimony, please share an overview of your role and responsibilities as the Scientific Integrity Official (SIO) for the Environmental Protection Agency, describe the main features of EPA's scientific integrity policy, and explain how agency SIOs work to adjudicate complaints and requests for advice. Please also outline what you consider to be core principles of an effective scientific integrity policy for Federal agencies.

In order to allow sufficient time for questions at the hearing, you should highlight the most significant points of your testimony in an oral presentation of no more than five minutes. Your written statement may be as extensive as you wish and will be included in the hearing record in its entirety. Oral statements and answers to questions will be printed as part of the record of the hearing; only technical, grammatical, and typographical errors will be corrected.

Witnesses testifying before the Committee on Science, Space, and Technology must observe the procedures governing witness testimony. These procedures are described in the following enclosures:

- The first enclosure outlines the rules governing appearance before the Committee.
- The second enclosure explains the Committee's Hearing Room Capabilities.
- The third enclosure includes the Truth-In-Testimony Instructions and the Truth-In-Testimony Disclosure Form. This includes the disclosure of financial interests relevant to the subject matter of the witness testimony.

Please email your testimony, biography, and disclosure form to Ben Berger at [redacted] as soon as it is available, but not less than 48 hours before the hearing. Fifty-five copies of your testimony must also be hand delivered to the Committee's main office, room 2321 Rayburn, 48 hours before the hearing. Due to increased security measures in place at House office buildings, you will need to contact Ben Berger to arrange for the delivery of your testimony. We recommend that you attach your biography to the testimony and make double-sided copies of the document to conserve paper.

If you have any questions concerning your appearance, please contact Ben Berger of the Committee on Science, Space, and Technology at [redacted] I look forward to your participation in the hearing.

Sincerely,

Chairwoman Haley M. Stevens
Subcommittee on Research & Technology
Committee on Science, Space, and Technology

Attachments

Enclosure 1

MEMORANDUM

TO: **WITNESSES APPEARING BEFORE THE COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY DURING THE 116TH CONGRESS**

FROM: **COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY**

RE: **RULES GOVERNING TESTIMONY**

The following procedures govern witnesses testifying before the Committee on Science and Technology for the 116th Congress:

1. The Rules of the Committee require all witnesses appearing before the Committee to complete the attached Truth-In-Testimony Form. Should you need extra space, please provide additional information on a separate sheet of paper.

2. Witnesses testifying before the Committee must submit to the Committee the following materials **no less than 48 hours before** they are to testify, excluding weekends and Federal holidays:

   - An electronic copy of your final written testimony, preferably in searchable PDF format, including any supporting graphs, charts, or slideshows. This electronic version will be posted on the Committee website, and will be accessible by the public;
   - Fifty-five (55) **collated, stapled** hard copies of a short narrative biography **and** final written testimony, including any supporting graphs, charts, or materials, **in that order**;
   - An electronic copy of a short narrative biography;
   - Two (2) hard copies of your Curriculum Vitae; and,
   - Two (2) hard copies, including one signed original, of your completed Truth-In-Testimony Form.

3. Witnesses testifying before the Committee must contact the Committee **no less than 48 hours in advance** should they decide to use any multimedia capabilities available in our hearing room (this includes video-conferences, overhead presentations, etc.). Additionally, all material presented in this fashion must be provided in hard copy format to the Committee. Please see enclosure #2 for further explanation of hearing room capabilities.

4. Witnesses testifying before the Committee, or their designee, who are using any of the room's multimedia capabilities need to arrive no less than 30 minutes before the designated start time of the hearing to allow for set-up. Failure to do so could result in the multimedia portion of the presentation being canceled.

5. Transcripts of hearings conducted by the Committee shall be published in substantially verbatim form, subject only to technical, grammatical, and typographical corrections.

Section 210 of the Congressional Accountability Act of 1995, applies the rights and protections covered under the Americans with Disabilities Act of 1990 to the United States Congress. Accordingly, the Committee on Science strives to accommodate/meet the needs of those requiring special assistance. If you need special accommodation, please contact the Committee on Science in advance of the scheduled event (3 days requested) at (202) 225-6375 or FAX (202) 225-3895 or TTY (202) 226-4410. Should you need Committee materials in alternative formats, please contact the Committee as noted above.

Enclosure 2

2318 Rayburn Building
Committee on Science, Space, and Technology Hearing Room

I. Equipment Capabilities

A) PROJECTION—The hearing room is equipped with multiple monitors capable of displaying computer graphics and video feeds. The Committee recommends that material to be displayed be created on a computer set for a video resolution of 1024 x 768 pixels in order to best match the resolution of the screens.

B) REAR VIDEO MONITOR—The rear of the hearing room is equipped with a large screen viewable from the dais and side seats.

C) WALL-MOUNTED MONITORS—The hearing room is equipped with two monitors, one on each side of the room, for audience viewing.

D) WITNESS MONITOR—A monitor will also be in place in front of the witness table so witnesses can see the screen as well.

II. Computer- Based Presentation

Please bring your presentation on a memory stick or on your personal laptop to the hearing room at least a half-hour before the hearing so that we may help you set it up at the witness table. Your laptop should be equipped with a functioning graphics port with either a VGA or MAC external connector. Because there are many makes and models of laptops, please be prepared to operate the external graphics port for your own laptop.

III. Audiovisual/Multimedia Capabilities

A) The room supports the following transmission methods to broadcast committee activities to remote sites:

1. Telephone Conferencing (Audio Only).
2. Live Audio-Video Streaming (Webcasting).
3. Video Teleconferencing.
4. Video and Audio overflow transmission to room 2325.

B) The room receives House Cable TV feeds for display.

C) The hearing room equipment can playback and display compact disks, dvd discs, and overhead slides.

IV. Equipment Support

Questions should be directed to Larry Whittaker, Systems Manager at
[redacted]

Enclosure 3

INSTRUCTIONS FOR COMPLETING THE TRUTH-IN-TESTIMONY DISCLOSURE FORM

In General The accompanying form is intended to assist witnesses appearing before the Committee on Science, Space, and Technology in complying with Rule XI, clause 2(g)(5) of the Rules of the House of Representatives, and Rule III, clause (b)(5) of the Rules of the Committee, requiring that:

In the case of a witness appearing in a nongovernmental capacity, a written statement of proposed testimony shall include a curriculum vitae and a disclosure of any Federal grants, cooperative agreements, or contracts or payments originating with a foreign government, received during the current calendar year or either of the two previous calendar years by the witness or by an entity represented by the witness and related to the subject matter of the hearing. The disclosure shall include the amount and source of each Federal grant (or subgrant thereof), cooperative agreement, or contract (or subcontract thereof) related to the subject matter of the hearing; and the amount and country of origin of any payment or contract related to the subject matter of the hearing originating with a foreign government. Such statements, with appropriate redactions to protect the privacy or security of the witness, shall be made publicly available in electronic form not later than one day after the witness appears.

Please complete and return the following form. If you have additional questions please contact the Committee at (202) 225-6375.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 08 2019

OFFICE OF
CONGRESSIONAL AND
INTERGOVERNMENTAL
RELATIONS

The Honorable Haley M. Stevens
Chairwoman
Subcommittee on Research & Technology
Committee on Science, Space & Technology
U.S. House of Representatives
Washington, DC 20515

Dear Chairwoman Stevens:

On behalf of the U.S. Environmental Protection Agency, I am writing to respond to your letter of July 1, 2019, inviting Dr. Francesca Grifo to testify at a July 17, 2019 hearing before the Subcommittee on Research and Technology entitled "*Scientific Integrity in Federal Agencies.*"

I am writing to inform you that as a representative of the Agency, Jennifer Orme-Zavaleta, Principal Deputy Assistant Administrator for Science for the Office of Research and Development, and Science Advisor, will be available to testify before the Subcommittee on July 17th on our Agency's scientific integrity program. In her role as Principal Deputy Assistant Administrator and the Agency's Science Advisor, Dr. Orme-Zavaleta has supervisory authority of the Office of the Science Advisor. We believe she will be able to adequately inform the Subcommittee and answer any questions regarding the Agency's scientific integrity program.

We appreciate the opportunity to appear before the Subcommittee to testify on the Agency's scientific integrity program. If you have any additional questions, please contact me, or your staff may contact Christian Rodrick in the EPA's Office of Congressional and Intergovernmental Relations at [redacted] or [redacted].

Sincerely,

Joseph A. Brazauskas
Acting Associate Administrator

cc: The Honorable Jim Baird, Ranking Member

EDDIE BERNICE JOHNSON, Texas
CHAIRWOMAN

FRANK D. LUCAS, Oklahoma
RANKING MEMBER

Congress of the United States
House of Representatives
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
2321 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–6301
(202) 225–6375
www.science.house.gov

July 9, 2019

The Honorable Andrew Wheeler
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue N.W.
Washington, DC 20460

Dear Administrator Wheeler:

The Subcommittee on Research & Technology and the Subcommittee on Investigations & Oversight of the House Committee on Science, Space, and Technology will hold a hearing on "*Scientific Integrity in Federal Agencies*" on July 17, 2019. I wrote last week to invite Dr. Francesca Grifo to testify before the Committee to discuss her role as the Scientific Integrity Official (SIO) for the Environmental Protection Agency and how agency SIOs work to adjudicate complaints and requests for advice. Dr. Grifo has served as the SIO for EPA since 2013.

On July 8, the Committee received a response from EPA's Acting Associate Administrator for Congressional Affairs which proposes to empanel EPA's Principal Deputy Assistant Administrator for Science for the Office of Research and Development instead of Dr. Grifo. While I appreciate that Dr. Orme-Zavaleta holds a supervisory position on scientific integrity matters, I believe Dr. Grifo would better provide the perspective needed by the Committee for the purposes of this hearing. I insist that you allow the Committee and the public to hear the perspective of the Scientific Integrity Officer herself, as the express purpose of this hearing is to examine responsibilities of Scientific Integrity Officers within federal agencies in order to inform legislation.

If you have any questions, please contact Janie Thompson of the Committee on Science, Space, and Technology at (202) 225-6375. I look forward to your prompt attention to this matter.

Sincerely,

Haley M. Stevens

Chairwoman Haley M. Stevens
Subcommittee on Research & Technology
Committee on Science, Space, and Technology

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 1 1 2019

OFFICE OF
CONGRESSIONAL AND
INTERGOVERNMENTAL
RELATIONS

The Honorable Haley M. Stevens
Chairwoman
Subcommittee on Research & Technology
Committee on Science, Space & Technology
U.S. House of Representatives
Washington, DC 20515

Dear Chairwoman Stevens,

I appreciate your invitation for the U.S. Environmental Protection Agency to testify before the Subcommittee on Research and Technology at an upcoming hearing on July 17, 2019, concerning scientific integrity in federal agencies.

Because scientific integrity is integral to ensuring that the EPA accomplishes its mission of protecting human health and the environment, I believe the EPA can substantially contribute to this topic.

The Agency has identified and offered the Committee an appropriate senior-level witness that would be available to testify. In her roles as Principal Deputy Assistant Administrator and the EPA's Science Advisor, Dr. Jennifer Orme-Zavaleta is the most senior science official in the Agency and is capable of adequately informing the Subcommittee and answering any questions regarding the Agency's scientific integrity program. We are disappointed that the Committee is not interested in hearing from Dr. Orme-Zavaleta on this important topic.

The format of the hearing has significantly deviated from the original description in your July 1, 2019 letter inviting the Agency to testify. Committee staff committed to providing the Agency an updated hearing invitation to accurately reflect the format of the hearing since it had changed between receiving the initial invitation. However, we have yet to receive any formal clarification. With the hearing only one week away, and due to the Committee's disinterest in hearing from Dr. Orme-Zavaleta and inability to move forward, the EPA will be unable to participate in the hearing on July 17, 2019.

I hope that a representative from the EPA will have the opportunity to contribute at the next available hearing on this topic. However, it is important that the format for the hearing be clearly understood by all witnesses when invited, including whether it is a legislative hearing, oversight hearing, or joint hearing with another Committee or Subcommittee. Although as Chairwoman,

you have the opportunity to invite the EPA to participate at a hearing, it is at the Agency's discretion to select who represents the Agency at every hearing.

Scientific integrity is an extremely important element of the work at federal agencies, and we are pleased that you invited the EPA among all the federal agencies within the jurisdiction of the Committee. We look forward to working with you in the future on this issue.

Sincerely,

Joseph A. Brazauskas
Acting Associate Administrator

cc: The Honorable Jim Baird, Ranking Member

LETTER SUBMITTED BY REPRESENTATIVE JENNIFER WEXTON

Jacobs Institute
of Women's Health
THE GEORGE WASHINGTON UNIVERSITY

July 15, 2019

The Honorable Mikie Sherrill
Chairwoman
Subcommittee on Investigations and Oversight
1208 Longworth HOB
Washington, DC 20515

The Honorable Ralph Norman
Ranking Member
Subcommittee on Investigations and Oversight
319 Cannon HOB
Washington, DC 20515

The Honorable Haley Stevens
Chairwoman
Subcommittee on Research and Technology
227 Cannon HOB
Washington, DC 20515

The Honorable Jim Baird
Ranking Member
Subcommittee on Research and Technology
532 Cannon HOB
Washington, DC 20515

Dear Chairwoman Sherrill, Chairwoman Stevens, Ranking Member Norman, and Ranking Member Baird,

The Jacobs Institute of Women's Health supports the Scientific Integrity Act, which states that "the public must be able to trust the science and scientific process informing public policy decisions" and creates infrastructure for strengthening scientific integrity at federal agencies.

The Jacobs Institute of Women's Health's mission is to identify and study aspects of healthcare and public health, including legal and policy issues, that affect women's health at different life stages; to foster awareness of and facilitate dialogue around issues that affect women's health; and to promote interdisciplinary research, coordination, and information dissemination, including publishing the peer-reviewed journal *Women's Health Issues*.

In recent years, we have seen federal agencies take actions that suggest a disturbing disregard for science.[i] In the area of reproductive health, we have seen misrepresentations and suppression of evidence and damage to research of public health importance, all of which disproportionately imperils the ability of women of color and those with low incomes to have healthy families if, when, and how they desire. Strengthening the scientific integrity infrastructure is essential to ensuring reproductive justice—the human right to maintain personal bodily autonomy, have children, not have children, and parent the children we have in safe and sustainable communities.[ii]

One recent example of disregarding science is the interim final rule expanding exemptions for employers and universities not wishing to cover some or all forms of contraception as the Affordable Care Act (ACA) requires, issued by three federal agencies, including the Department of Health and Human Services (HHS).[iii] In it these federal agencies misrepresented an extensive body of research on contraception and health.[iv] The agencies claimed that there is "complexity and uncertainty in the relationship between

Milken Institute School of Public Health, 950 New Hampshire Ave. NW, 6th Floor, Washington, DC 20052
202-994-0034 whieditor@gwu.edu

contraceptive access, contraceptive use, and unintended pregnancy," despite the substantial body of evidence demonstrating that access to and use of contraception is associated with reductions in unintended pregnancies. They also cited poor-quality and out-of-date studies and overemphasized the health risks associated with contraception, while failing to reference relevant high-quality studies—or to note that risks associated with carrying pregnancies to term are much greater than those of using contraception. Issuing a rule that misrepresents the science on an important public health topic threatens to erode public trust in federal agencies, and weakening the ACA's contraceptive mandate reduces access to contraception for those who cannot afford to pay out of pocket for the methods they prefer.

A second example within HHS is the actions taken related to the Teen Pregnancy Prevention (TPP) Program. The Bipartisan Commission on Evidence-Based Policymaking and Bipartisan Policy Center have praised the TPP Program, funded and administered by the Office of Adolescent Health (OAH) in HHS, as an example of evidence-based policymaking.[v,vi] The program devotes 25% of funding to the development, implementation, and rigorous evaluation of approaches to preventing teen pregnancy, and 75% to replicating evidence-based program models that rigorous evaluations find to change behavior. In the summer of 2017, OAH notified more than 80 TPP Program grantees that their five-year projects would end two years early.[vii] This abrupt termination not only represented the removal of services from young people at sites across the country, but demonstrates a fundamental disregard for the research process. Halting a study before data collection or analysis can be completed essentially wastes the money already expended, and denies the agency and the public the knowledge that a completed project would have yielded. In addition, OAH has issued a new funding announcement that represents a troubling departure from the rigorous scientific standards of evidence and evaluation that the TPP Program has used in the past. Multiple federal courts have found these terminations and redirection of funding unlawful,[viii] but this cannot undo the disruptions OAH's actions have already caused to this program's important work.

Other examples of scientific integrity problems with significant impacts on women's health come from the Environmental Protection Agency (EPA). Last year, the White House and the EPA sought to block publication of a draft toxicological profile of per- and polyfluoroalkyl substances (PFAS), a class of synthetic chemicals that contaminate water supplies near military bases, chemical plants, and other sites.[ix] Following disclosure of this suppression and a bipartisan Congressional response, the draft profile is now public, and it reports that studies have found PFAS to be associated with adverse reproductive health outcomes, including decreased fertility, pregnancy-induced hypertension, and pre-eclampsia.[x] People considering expanding their families should have access to this information, but it might still be unpublished if the Union of Concerned Scientists had not found evidence of its suppression via a Freedom of Information Act request.

In addition to allowing timely release of scientific and technical findings, agencies must represent findings accurately when using them to inform policy decisions. EPA scientists spent many years reviewing the evidence on the neurotoxic pesticide chlorpyrifos, including high-quality research that found prenatal chlorpyrifos exposure to be associated with lower IQs and working memory. The agency was poised to effectively ban the pesticide's use in agriculture, but then in early 2017 EPA abruptly reversed course,[xi] inaccurately claiming "the science addressing neurodevelopmental effects remains unresolved."[xii]

Farming communities—which are predominantly low-income and Hispanic—are the population most exposed to chlorpyrifos, and these families will suffer the harshest consequences from continued use of this pesticide.[xiii] EPA's action is not only harmful to public health; it also demonstrates an alarming willingness to misrepresent a substantial body of high-quality evidence.

In order to achieve reproductive justice and advance women's health, federal agencies must disseminate and accurately represent scientific evidence on public health topics, and must respect the process for generating and using high-quality data in evidence-based programs. The Jacobs Institute of Women's Health strongly supports the Scientific Integrity Act because it will strengthen the infrastructure and culture of scientific integrity and, in doing so, support these key public health goals. If you have any questions, please contact Jacobs Institute of Women's Health Managing Director Liz Borkowski at borkowsk@gwu.edu.

Sincerely,

Susan F. Wood, PhD
Executive Director
Jacobs Institute of Women's Health

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[xiii] Rauh, V. 2018. Polluting Developing Brains — EPA Failure on Chlorpyrifos. *New England Journal of Medicine*, 378:1171-1174, https://www.nejm.org/doi/full/10.1056/NEJMp1716809.

DOCUMENT SUBMITTED BY REPRESENTATIVE STEVE COHEN

In 2017 the Society of Professional Journalists called for the elimination of the rules that force reporters to always go through public information offices. The society called the restrictions "a grave risk to public welfare."

Submitted by: FOI Committee member Kathryn Foxhall

Resolution No. 2: Calling on Journalists to Oppose the Mandated Clearance Culture

Submitted by: FOI Committee member Kathryn Foxhall

Committee recommendation: Favorable

Delegate Action: Approved

WHEREAS the Society of Professional Journalists has **decried** the harmful cultural norm of prohibiting public employees and private experts from communicating with reporters;

WHEREAS SPJ recognizes that public information officers play an important role and often provide critical assistance to journalists;

WHEREAS the Society recognizes the legitimate need for organizations to withhold certain information for legal or proprietary reasons;

WHEREAS, nevertheless, SPJ has clearly stated in **previous resolutions**its concerns regarding the harm done by restrictions on access, including mandates that reporters always go through PIOs;

WHEREAS SPJ has demonstrated its leadership on this form of censorship in letters to President Barack Obama and President Donald Trump signed by scores of journalism organizations and other groups, by meeting with White House Press Secretary Josh Earnest in 2015 and in a letter to the New York Times in 2016;

WHEREAS former SPJ president and Kennesaw State University professor Carolyn Carlson has conducted, with SPJ's sponsorship, seven surveys over five years that show "Censorship by PIO" has become pervasive;

WHEREAS these surveys reveal both a lack of concern about the consequences of enforced silence and a chilling assumption by officials that this is appropriate;

WHEREAS these controls on public access threaten the free flow of information essential to a democratic society;

WHEREAS these restrictions on access pose a grave risk to the public welfare;

THEREFORE BE IT RESOLVED the Society of Professional Journalists, meeting in convention in Anaheim, California, on September 9, 2017, calls on journalists to put the public's need to know above the professional desire not to anger official sources.

BE IT FURTHER RESOLVED that journalists should resist official efforts to make reporters nothing more than stenographers and openly oppose restrictions on access.

BE IT FURTHER RESOLVED that SPJ calls on all journalists, journalism groups, publishers, editors, journalism schools and freedom of information groups to start and continue discussions on eliminating these restrictions and to explain to the public the hazards to society posed by these restrictions.

https://www.spj.org/res2017.asp#2

LETTER SUBMITTED BY REPRESENTATIVE MIKIE SHERRILL

The Honorable Mikie Sherrill
Chairwoman
Subcommittee on Investigations and Oversight
1208 Longworth HOB
Washington, DC 20515

The Honorable Ralph Norman
Ranking Member
Subcommittee on Investigations and Oversight
319 Cannon HOB
Washington, DC 20515

The Honorable Haley Stevens
Chairwoman
Subcommittee on Research and Technology
227 Cannon HOB
Washington, DC 20515

The Honorable Jim Baird
Ranking Member
Subcommittee on Research and Technology
532 Cannon HOB
Washington, DC 20515

Dear Chairwoman Sherrill, Chairwoman Stevens, Ranking Member Norman, and Ranking Member Baird,

I am the Executive Director of the Climate Science Legal Defense Fund (CSLDF), and I write in support of the Scientific Integrity Act.

CSLDF is a non-profit organization whose mission is to support the scientific endeavor. We work with climate scientists as well as scientists from a variety of scientific disciplines and, as an organization, deeply understand that protecting science is an essential element of producing sound public policies.

To this end, many federal agencies have instituted scientific integrity policies. These policies are intended to help ensure that science relied on by agencies is free from issues such as fraud, fabrication, or plagiarism. They also help to ensure that the work of agency scientists is communicated in a transparent and timely manner to the public as well as to decision-makers. Finally, they help to protect federal scientists from censorship or intimidation, and from having their work altered or ignored for political reasons.

Unfortunately, scientific integrity policies are not always well enforced, and claims of violations are not always rigorously investigated. The Scientific Integrity Act codifies requirements that federal scientific agencies have such policies in place, and that those policies contain certain basic criteria; this would help to ensure that agency scientific integrity policies meet necessary minimum requirements regardless of changes in administration. It would also help to ensure that scientists have clear recourse if an agency is failing to enforce some aspect of its scientific integrity policy, or is not taking complaints seriously.

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csldf.org

This is not a partisan issue. Nor is this only an issue for environmentalists. Transparent and timely communication of sound science is essential for agencies and regulators who create policy that affects a huge range of issues, everything from workplace safety rules to acceptable levels of human exposure to pesticides and other toxins. The subject matter of the Scientific Integrity Act is therefore of deep concern for anyone who cares about human health, workers' safety, or transparent government. We urge you to support the Scientific Integrity Act.

Sincerely,

Lauren Kurtz

Lauren Kurtz

Executive Director
Climate Science Legal Defense Fund

475 Riverside Drive, Suite 244
New York, NY 10115
[redacted]

CC:

The Honorable Eddie Bernice Johnson
Chairwoman
House Committee on Science, Space and Technology
2306 Rayburn HOB
Washington, DC 20515

The Honorable Paul Tonko
2369 Rayburn HOB
Washington, DC 20515

The Honorable Frank Lucas
Ranking Member
House Committee on Science, Space and Technology
2405 Rayburn HOB
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