

Science for Policy and Policy for Science in the Federal Government

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Coverage of these remarks

- The Federal government's roles in relation to science
- The need for science advice in the White House and Executive Branch agencies
- History of science advice in the Executive Branch 1941-2008
- Science advice & policy in the Executive Branch in the last two administrations
 - What Obama did
 - What Trump is doing
- What's next?

Why science matters to the Federal agenda

Progress in science is essential for advancing...

- economic development & sustainable growth
- biomedicine & health-care delivery
- clean, safe, reliable, & affordable energy and water
- climate-change mitigation & adaptation
- preservation of biodiversity
- protection of the health & productivity of the oceans
- national & homeland security

and for lifting the human spirit through discovery, invention, & expanded understanding.

These are all wholly or partly public goods that will not be adequately secured without Federal government's engagement.

Who makes Federal science policy?

- Science policy is a shared responsibility of the Congress and the Executive Branch.
- Overarching Congressional science authority is in House Science, Space, & Technology; Senate Commerce, Science & Transportation; and relevant appropriations committees & subcommittees.
- But many other committees also have roles...
 - HOUSE: Agriculture; Armed Services; Energy & Commerce; Natural Resources; Transportation & Infrastructure
 - SENATE: Agriculture, Nutrition, & Forestry; Armed Services; Energy & Natural Resources; Environment & Public Works; Health, Education, Labor, & Pensions

Key executive branch science actors

- Dept of Defense
- Dept of Health & Human Services
- Dept of Energy
- Dept of Agriculture
- Dept of Commerce
- Dept of Interior
- Dept of Homeland Security
- Dept of State
- National Science Foundation
- NASA
- Environmental Protection Agency

The need for science advice in the White House

Given the wide range of science competencies in gov't agencies and the ability of the President to call on cabinet secretaries & other agency heads for any S&T information he wants, why does the President need a separate S&T advisor and supporting office inside the White House?

- Absent a capable scientist/technologist on the President's senior staff, he & his other senior advisors in the White House might not recognize the relevance of science to the choices before the President, thus might not know when he needs to ask a science question of an agency...or what question to ask.
- Specialized knowledge of the science missions & competencies in the agencies is needed to know whom he should ask: what expertise from what agencies to consult on which policy issue.
- It's often helpful for the President to have a trusted source of science info independent of the agendas of particular agencies.

History of science advice in the White House

- Office of Scientific R&D (OSRD, 1941-47)

Headed by Vannevar Bush, reporting directly to FDR and now considered the first official “Science Advisor to the President”.

- Ad hoc advisory boards based in DoD (1947-57)

Army & Navy R&D Board; then Science Advisory Committee (SAC) to the Office of Defense Mobilization; the directors were closest thing to science advisors to Truman & Eisenhower in these years.

- President’s Science Advisory Committee (PSAC, 1957-73)

Eisenhower converted SAC to PSAC, moved it to the White House, and in 1959 created a new White House Office of S&T (OST) to support it. The OST Director served as PSAC Chair & was known as “the President’s Science Advisor”.

This model was kept by Kennedy, Johnson, & Nixon (until 1973).

History of White House science advice (continued)

- OST & PSAC dissolved (1973-76)

Nixon fired his science advisor & dissolved both OST & PSAC in 1973, transferring functions to NSF & the Nat'l Security Council.

- Office of Science & Technology Policy (OSTP, 1976--)

Ford got Congress to create OSTP by statute, gaining stability but entailing Senate confirmation of the Director & Assoc Directors.

- No equivalent to PSAC until 1990

Neither Ford nor Carter appointed a PSAC, relying just on their science advisor, OSTP, and ad hoc panels.

Reagan's 1st science advisor created a Science Advisory Council reporting to him, not the President, in 1981.

The equivalent of PSAC was not restored until George H. W. Bush created the President's Council of Advisors on S&T (PCAST) in 1990 by Executive Order.

History of White House science advice (continued)

- Strong OSTP & PCAST (1990-2000)

George H. W. Bush (Bush 41) was interested in S&T, appointed a strong science advisor (Alan Bromley) supported by a well staffed OSTP and a strong PCAST, and consulted them regularly.

Bill Clinton likewise appointed strong science advisors (John H. Gibbons 1992-1998, Neal Lane 1998-2000) and a strong PCAST, consulted them extensively, and built up OSTP staff.

- Minimizing S&T in the White House (2001-2008)

George W. Bush (Bush 43) was uninterested in S&T advice, and his OSTP Director (John Marburger) was not confirmed until Oct 2001. He was not made Ass't to the President for S&T, thus lacked direct access. Two Assoc Dir positions were eliminated. Political types, not scientists, played dominant roles in messaging about science and its policy implications.

Science advice & policy in the Obama White House

**“We will restore science to
its rightful place...”**

Barack Obama, January 20, 2009



Putting science “in its rightful place” in the White House entailed Obama’s...

- appointing the 1st-ever CTO (also with the Ass’t to the President title), the 1st CIO, and the 1st Chief Data Scientist
- restoring the full complement of 4 OSTP Assoc Directors and building up the OSTP staff from 45 to 135
- re-energizing the interagency National Science & Technology Council (NSTC)
- quickly launching & empowering a new PCAST (with 3 science Nobel Laureates, 2 university presidents, the VPs of the NAS & NAE, the Chairman of Google, a former OSTP Assoc Director for Science & Undersecretary of Energy...)
- directing that his S&T officials be “at the table” for policy discussions where insights about S&T might be germane

The 3 responsibilities of the Science Advisor and OSTP historically and under Obama

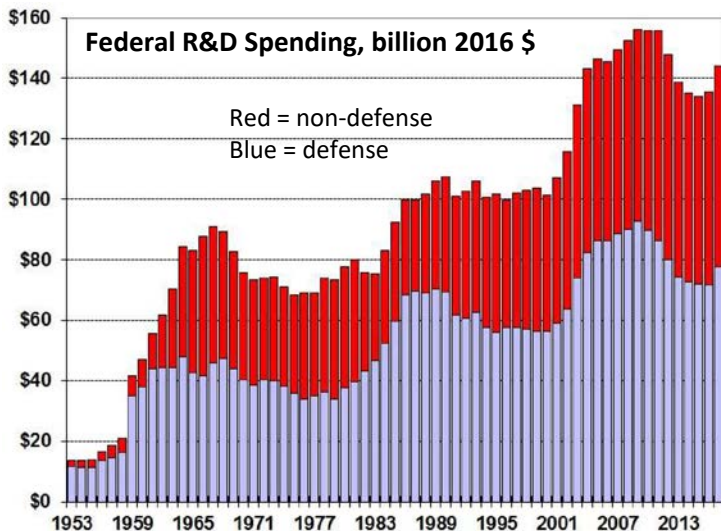


1. Science and technology for policy

Independent advice for the President & heads of other White House offices, providing whatever facts/insights from natural & social science may be germane to the policy issues with which they are concerned.

2. Policy for science and technology

Analysis, recommendations, and coordination with OMB and other White House offices on: R&D budgets & related policies; S&T education and workforce issues: scientific integrity & transparency; S&T to improve gov't operations.



Three responsibilities (continued)

3. Serving as the President's S&T emissary to...

- Exec Branch agencies with S&T roles
- Congress
- the nongovernmental S&T community nationally & internationally
- foreign govt officials



With the Chair of the House Science Committee



At the National Academy of Sciences

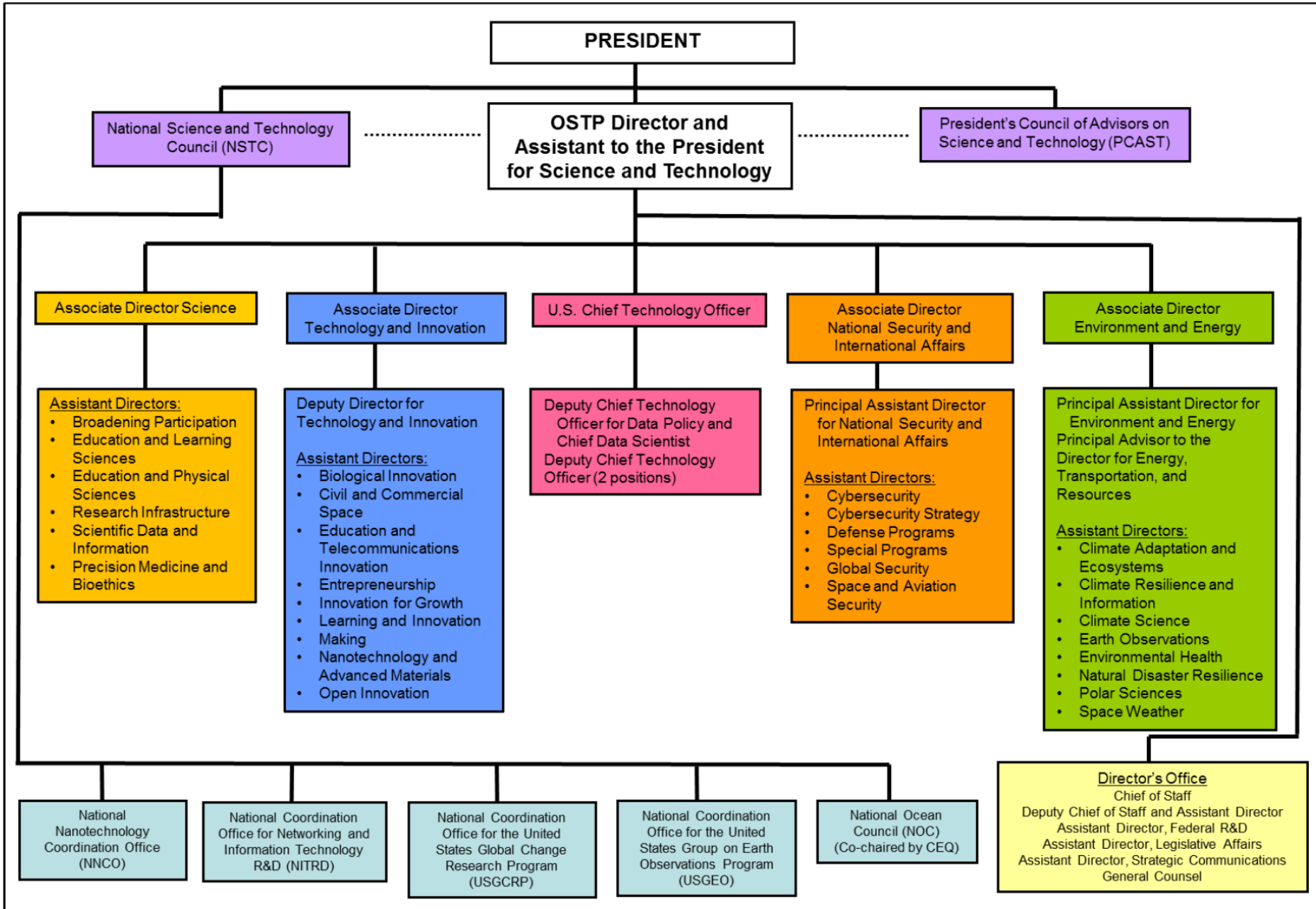


With U.S. & South Korean S&T agency officials

OSTP's specific responsibilities also included...

- providing White House oversight for NSF and NASA;
- carrying out a range of functions in support of National Security and Emergency Preparedness Communications;
- developing interagency & multi-sector S&T initiatives in support of the President's agenda;
- chairing and managing the NSTC and co-chairing its five standing committees;
- providing administrative & analytical support for PCAST;
- overseeing U.S. S&T cooperation with other countries (in partnership with the State Department).

OSTP Organization Under President Obama



OSTP-managed entities

- National Science & Technology Council (NSTC)
 - Deputy secretaries & undersecretaries of cabinet departments with S&T missions, plus heads of NSF, NIH, NASA, NOAA, NIST, EPA, USGS, CDC
 - Nominally chaired by the President; chaired in practice by the OSTP Director / Science Advisor; administered by OSTP
 - Five standing committees: Science; Technology; Environment, Natural Resources, and Sustainability; National and Homeland Security; and STEM education
 - Coordinates S&T activities that cross agency boundaries, including such major initiatives as the US Global Change Research Program, the National Climate Assessment, the National Nanotechnology Initiative, and the Networking and Information Technology R&D program

NSTC activities, 2009-2017

- Published ~90 reports and strategic plans coordinating interagency S&T programs
 - Topics included STEM education, National Nanotechnology Initiative implementation, global change research, Materials Genome Initiative, National Plan on Civil Earth Observations, neuroscience research, biosurveillance, coastal mapping, ocean hypoxia and harmful algal blooms....
- Convened interagency task-force activities to support Ebola response, space weather, and federal S&T-workforce capacity building and produced recommendations for policy development and implementation on these topics.

NSTC reports for this period are archived at

<https://obamawhitehouse.archives.gov/administration/eop/ostp/nstc/docsreports>

OSTP-managed entities (continued)

- President's Council of Advisors on Science and Technology (PCAST)
 - A PCAST or its equivalent has existed under every U.S. President since Eisenhower.
 - The Obama PCAST had ~20 members, all but one of whom were part-time, uncompensated Special Government Employees, appointed by the President. One co-chair comes from this “outside” group.
 - The other Co-Chair is the Assistant to the President for S&T / OSTP Director.
 - PCAST's function is to provide an additional high-caliber source of S&T advice for the President, linking the President and OSTP to the outside S&T community.
 - Administrative support for PCAST is provided by an Executive Director and two deputies housed in OSTP.



President Obama meeting with his PCAST in the East Wing, November 2010

Over President Obama's two terms, his PCAST produced 38 studies of S&T topics on which he wanted the advice of the Nation's S&T community

- 13 were about applications of infotech, big data, nanotech, robotics, 3-D printing, etc., to strengthen the U.S. economy;
- 8 were on how to advance biomedicine & public health;
- 7 were on energy & environment, including climate change;
- 4 were on improving science and math education;
- 3 were on S&T issues in national & homeland security; and
- 3 were on other roles of S&T in society (e.g., forensic science in the courtroom)

Many of the recommendations were embraced by President Obama and became the basis of robustly funded initiatives in his administration. See

<https://obamawhitehouse.archives.gov/administration/eop/ostp/pcast/docsreports>

What else Obama did to keep his pledge

- Placed early priority on...
 - scientific integrity
 - open data & public access
 - STEM education & inclusion
 - clean energy & climate change
 - advancing biomedicine & public health
 - strengthening international cooperation in S&T
 - tech innovation for economic recovery & growth
 - rebalancing NASA to boost science, advanced tech
 - exploiting modern IT & private-sector innovation talent to improve the responsiveness & effectiveness of gov't

Keeping the pledge (continued)

- Used bully pulpit & WH venue to promote S&T
 - Talked about S&T in both inaugural addresses & every State of the Union, two addresses to NAS annual meetings; multiple S&T-focused major speeches around the country (on space exploration, energy, advanced manufacturing, biomedicine...)
 - Hosted 6 White House Science Fairs; 2 WH Astronomy Nights for Kids; East Wing ceremonies & Oval Office welcomes for Medalists of Science and Technology & Innovation, US Nobelists & Kavli Prize winners, Intel finalists, middle-school mathletes, outstanding teachers...

POTUS events around STEM-ed and S&T



1st WH Astronomy Night for Kids



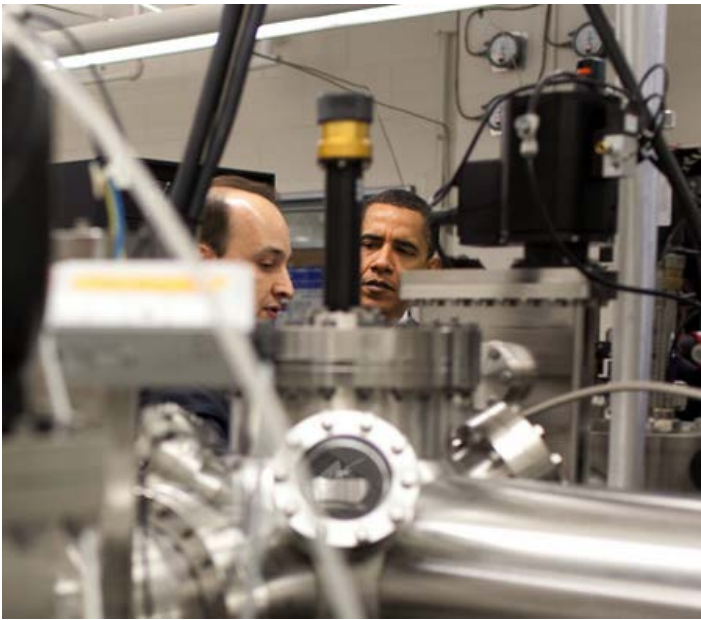
Mathletes in the Oval Office



1st WH Science Fair



Honoring outstanding K-12 science teachers



Visiting MIT's Energy Lab

Keeping the pledge (continued)

- Launched unprecedented number of initiatives using public-private-academic partnerships to make progress on national & global challenges, including:
 - S&T for economic recovery & sustainable growth;
 - STEM education & inclusion;
 - info technology, connectivity, advanced computing;
 - biomedicine & public health;
 - national & homeland security;
 - international S&T cooperation;
 - energy & environment.

A partial list of Obama Administration S&T initiatives

INNOVATION FOR THE ECONOMY

- American Innovation Strategy
- Startup America
- Materials Genome Initiative
- Data.gov
- Challenge.gov
- Advanced Mfg Partnership / Nat'l Network for Mfg Innovation

STEM EDUCATION

- Educate to Innovate
- STEM Master Teacher Corps
- 100kin10
- STEM Inclusion Initiative
- Computer Science for All

INFOTECH / COMPUTING

- ConnectED
- Big Data Initiative
- Nat'l Strategic Computing Initiative

BIOMEDICINE & HEALTH

- Neuroscience / BRAIN Initiative
- Combating Antimicrobial Resistance
- Precision Medicine Initiative (PMI)
- Cancer Moonshot

NAT'L SECURITY / INTERNAT'L S&T

- Cybersecurity Initiative
- Space Weather Strategy
- Science Envoys
- Mission Innovation

ENERGY & ENVIRONMENT

- New fuel-economy/CO₂ standards
- ARPA-E, Energy Innovation Hubs
- Climate Action Plan & COP21
- Social Cost of Carbon
- National Ocean Policy
- Arctic Initiative / AESC
- Pollinator Initiative

For details and more initiatives see <https://obamawhitehouse.archives.gov/the-press-office/2016/06/21/impact-report-100-examples-president-obamas-leadership-science>

Keeping the pledge (continued)

- In addition, the robust White House S&T operation plus
 - close collaboration across OSTP, OMB, the Domestic Policy Council, and the National Security Council and
 - excellent cross-agency cooperationenabled effective *ad hoc* responses to unexpected emergencies:
 - H1N1 influenza epidemic
 - BP/Macondo oil-rig disaster in the Caribbean
 - Fukushima nuclear-reactor accident
 - Ebola

Obama's focus on environment: 1st-term

- \$80 billion for clean & efficient energy in the Recovery Act
- \$100s of millions for Advanced Research Projects Agency-Energy (ARPA-E) and six new Energy Innovation Hubs
- first-ever fuel-economy/CO₂ tailpipe standards for light-duty vehicles, plus fuel-economy standards for trucks
- multiple building & appliance energy-efficiency stds
- interagency task force led by OSTP, CEQ, NOAA to coordinate govt's climate-adaptation activities
- re-invigoration of USGCRP; launch of new National Climate Assessment
- 1st govt calculation & use of Social Cost of Carbon
- 1st National Oceans Policy & National Oceans Council

President Obama signing the National Oceans Policy Executive Order (19 July 2010)

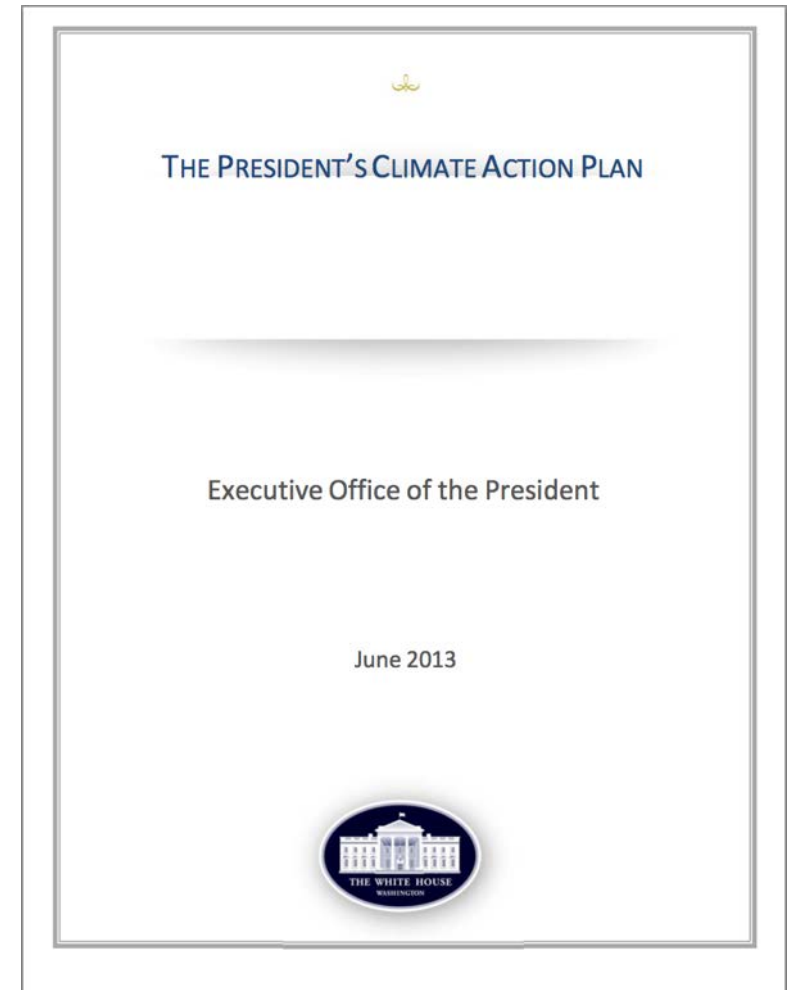


The 2nd term: Obama's Climate Action Plan



Georgetown University, June 2013

- Cutting carbon pollution in America (mitigation)
- Preparing the United States for the impacts of climate change (adaptation)
- Leading international efforts to address climate change

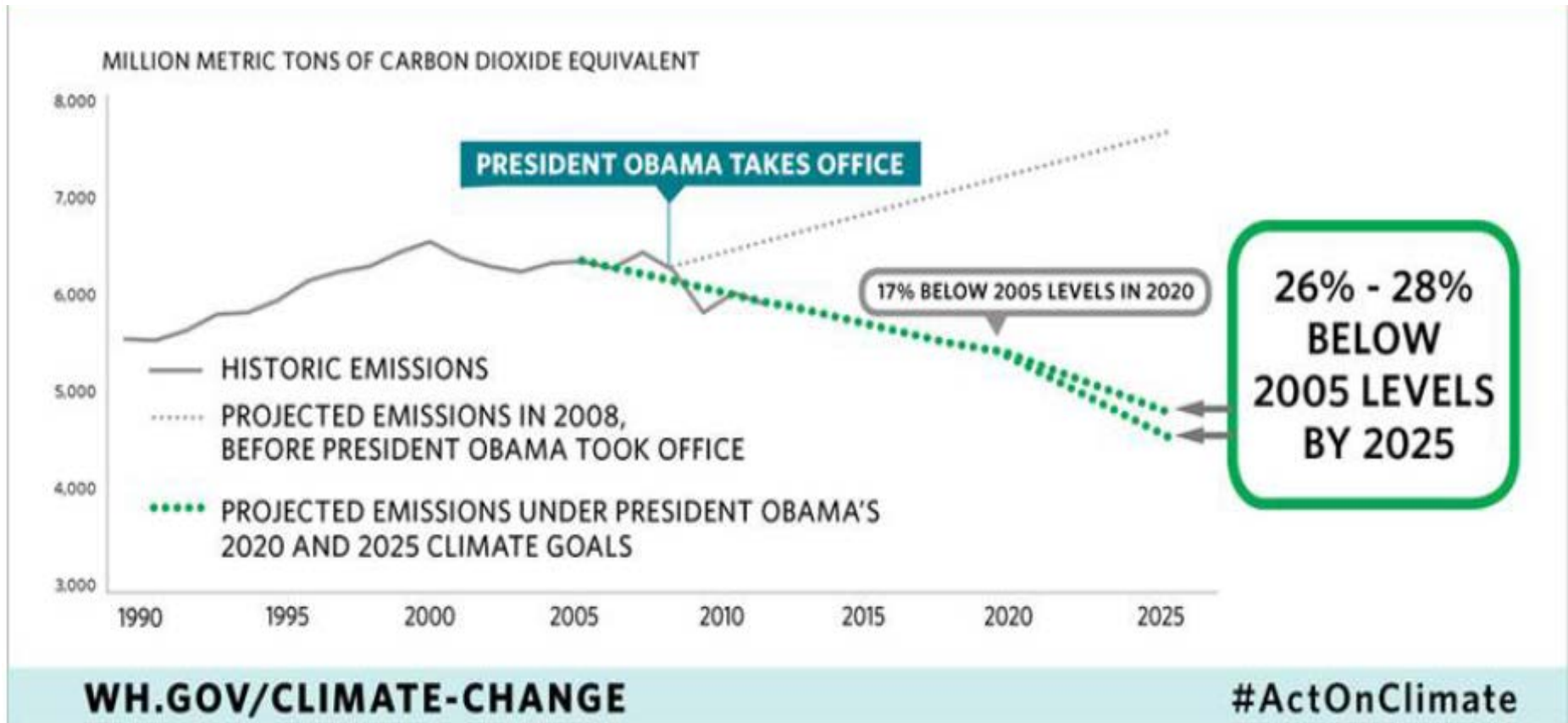


<http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf>

The U.S. energy-climate record under Obama

	<u>2008</u>	<u>2016</u>	<u>change</u>
Fossil E (quads)	83.2	78.6	-5.5%
Renewable E (quads)	7.2	10.2	+41.7%
Total E (quads)	98.9	97.4	-1.5%
Coal electricity (kWh)	1986	1240	-37.6%
Gas electricity (kWh)	883	1380	+56.3%
Wind electricity (kWh)	55.4	226.5	+4.1-fold
Solar electricity (kWh)	0.9	36.8	+42.5-fold
Total electricity (kWh)	4119	4079	-1.0%
CO ₂ from energy (Gt)	5809	5170	-11.0%

The U.S. emission target for 2025 announced by President Obama in Beijing in Nov 2014



The Paris agreement (December 2015)

- 195 nations embraced Intended Nationally Determined Contributions for emissions reductions out to 2025 or 2030.
- Accounting and reporting provisions were made legally binding (but achieving the voluntary target is not).
- All countries will revisit commitments at 5-year intervals with a view to increased ambition.
- Mitigation & adaptation assistance to countries in need pledged to reach \$100B/year by 2020 and remain at that level or more until at least 2025.
- Under a side agreement called “Mission Innovation”, 20 developed countries agreed to double gov’t clean-energy R&D over 5 years.

2nd term (continued): Progress on ocean issues

- Detailed Ocean Policy Implementation Plan approved by 20-agency National Ocean Council.
- Draft Marine Regional Plans for Northeast and Middle Atlantic approved by gov't (Federal, state, local) – business - civil society consortia to coordinate economic development & marine conservation.
- 3 international “Our Oceans” conferences launched by State Dept generated major commitments addressing illegal fishing, marine pollution, ocean acidification, and marine protected areas.
- Offshore drilling banned in much of U.S. Atlantic coastal waters as well as much of U.S. Arctic waters.
- U.S. marine protected areas (MPAs) hugely expanded in both Atlantic and Pacific.

2nd Term (continued): Initiative on the Arctic

The White House

Office of the Press Secretary

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For Immediate Release

January 21, 2015

Executive Order --- Enhancing Coordination of National Efforts in the Arctic

EXECUTIVE ORDER

ENHANCING COORDINATION OF NATIONAL EFFORTS IN THE ARCTIC

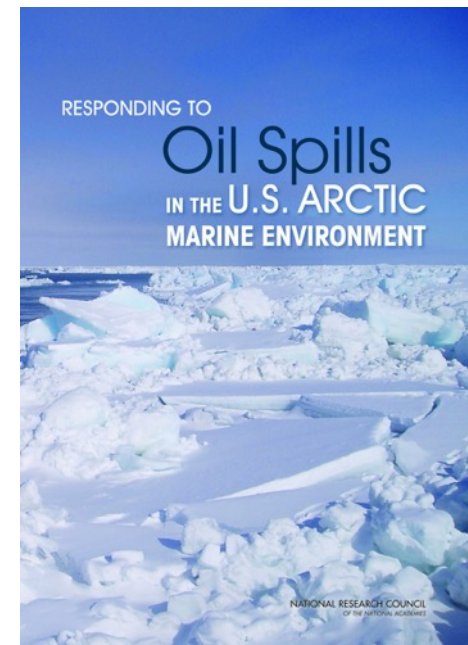
By the authority vested in me as President by the Constitution and the laws of the United States of America, and to prepare the Nation for a changing Arctic and enhance coordination of national efforts in the Arctic, it is hereby ordered as follows:

Section 1. Policy. The Arctic has critical long-term strategic, ecological, cultural, and economic value, and it is imperative that we continue to protect our national interests in the region, which include: national defense; sovereign rights and responsibilities; maritime safety; energy and economic benefits; environmental stewardship; promotion of science and research; and preservation of the rights, freedoms, and uses of the sea as reflected in international law.

The E.O. created the Arctic Executive Steering Committee (AESC) to coordinate the Arctic activities of 25 Federal departments, agencies, and offices.

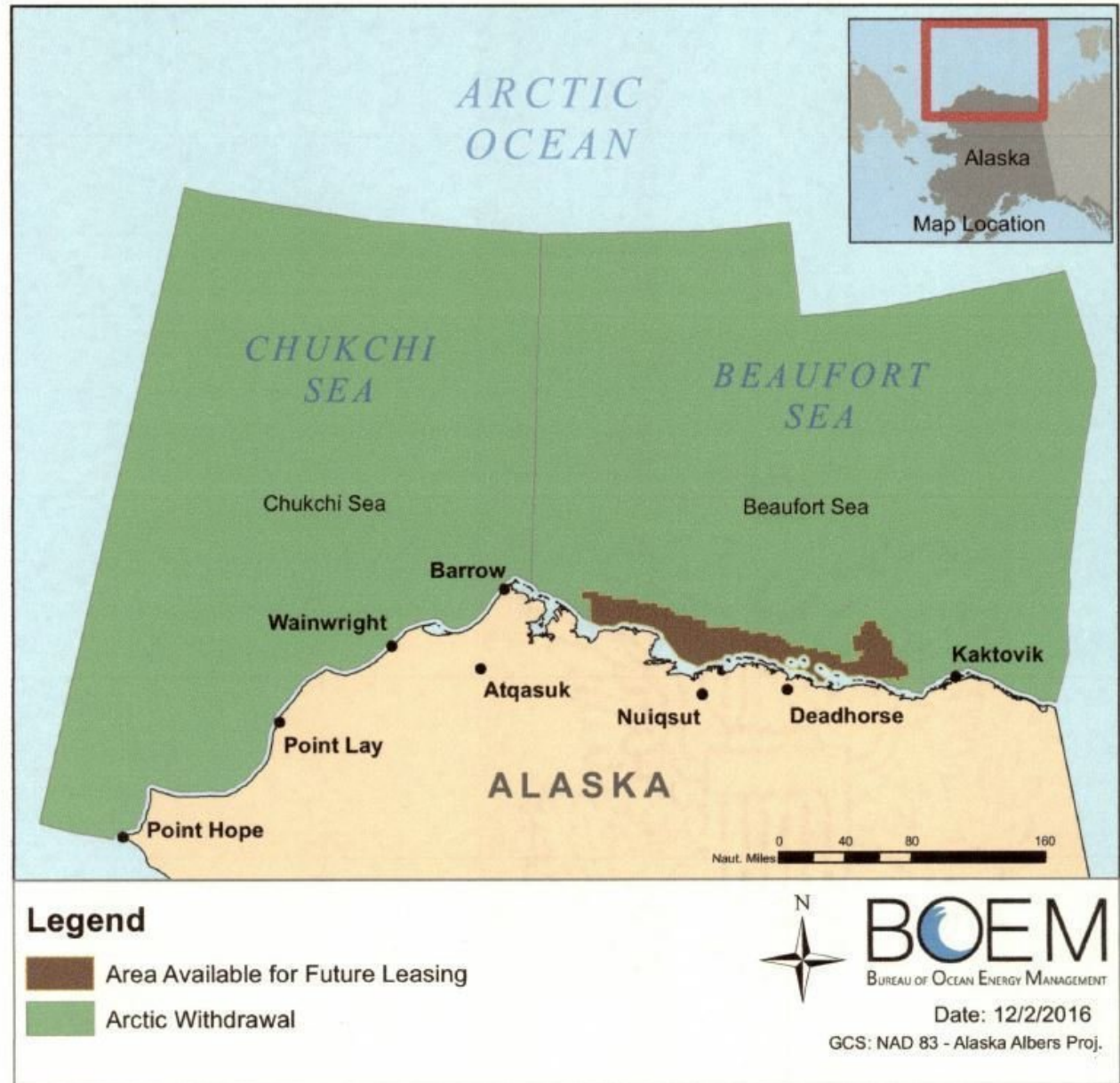
What did the AESC accomplish?

- Helped shape & reconcile U.S. priorities in the region
- Promoted coordinated policy development, implementation, & evaluation
- Strengthened engagement with the State of Alaska and Alaska Native communities
- Advanced internatl coop'n on Arctic climate change via two 22-nation conferences
- Led to Obama prohibiting drilling in most U.S. Arctic waters



Arctic Withdrawal

The area of the Chukchi and Beaufort Seas that President Obama with-drew from oil drilling on Dec 20, 2016, totals 180,000 mi². By agreement, Canada extended the withdrawal into Canadian waters at the same time.



2nd term (continued): Preserving more public lands

- The President augmented 1st-term additions to reach a total of 34 new or expanded National Monuments.

Additions exceed 550 million acres.

Most of the area is in the new or expanded ocean monuments, but about 6 million acres were added in California, Oregon, Nevada, Utah, and New Mexico.



Gold Butte, NV, 300,000 acres



Mojave Trails, CA, 700,000 acres

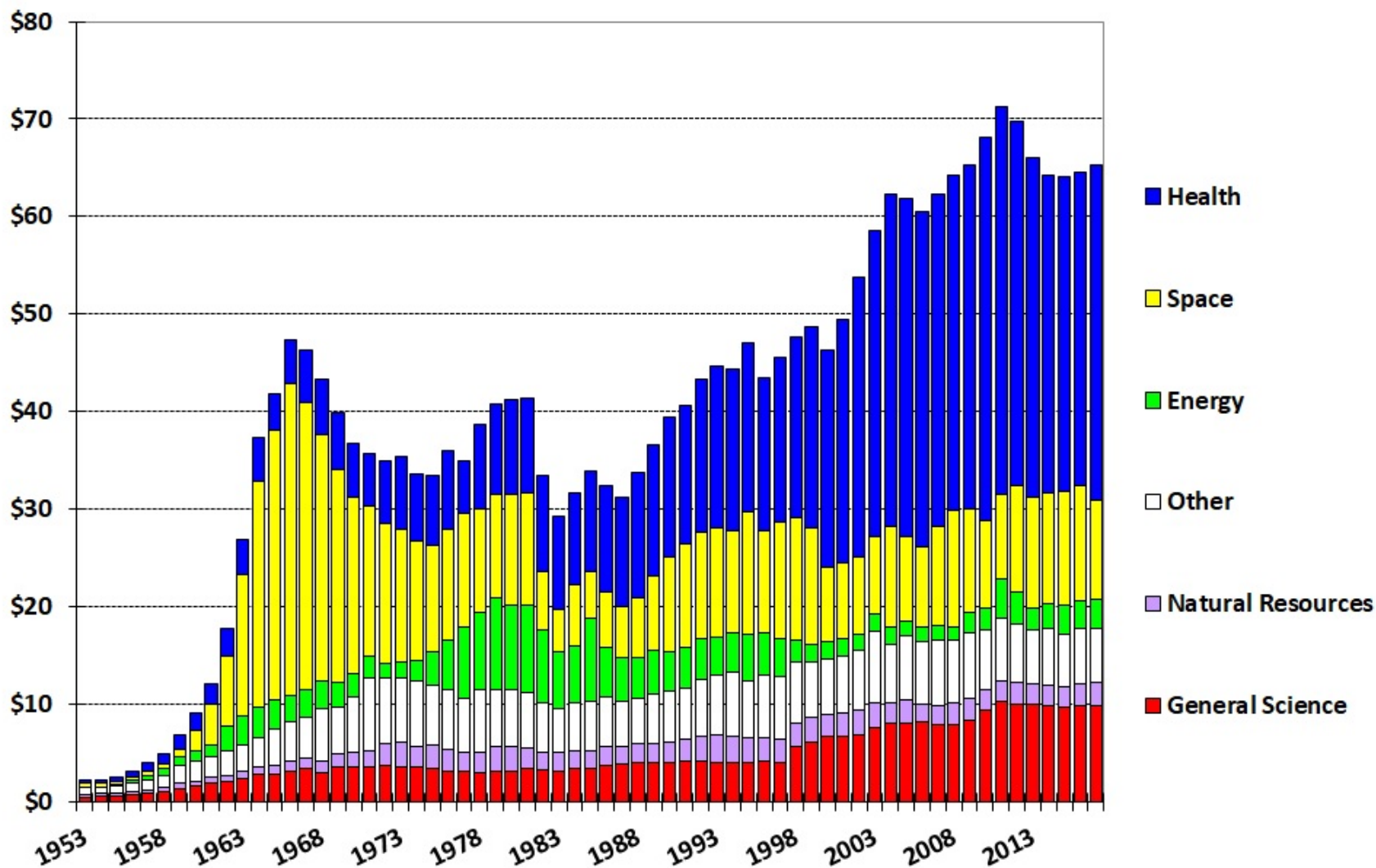
What did not get done under Obama

- Goal to raise sum of public + private R&D to 3% of GDP was not met.
 - In round numbers, this would have entailed raising gov't R&D to 1% of GDP and incentivizing industry to reach 2%.
 - After big boost in Federal R&D in American Recovery & Reinvestment Act (early 2009) and more modest increase in 2010, budget caps prevented further growth.
 - It took almost 7 years of trying to get Congress to make the Research & Experimentation Tax Credit for the private sector larger, simpler, and permanent.
 - At the end of the Administration, we were at 0.75% of GDP for Federal R&D and 2.05% of GDP for non-Federal R&D.

Long-term evolution of Federal nondefense R&D

Trends in Nondefense R&D by Function

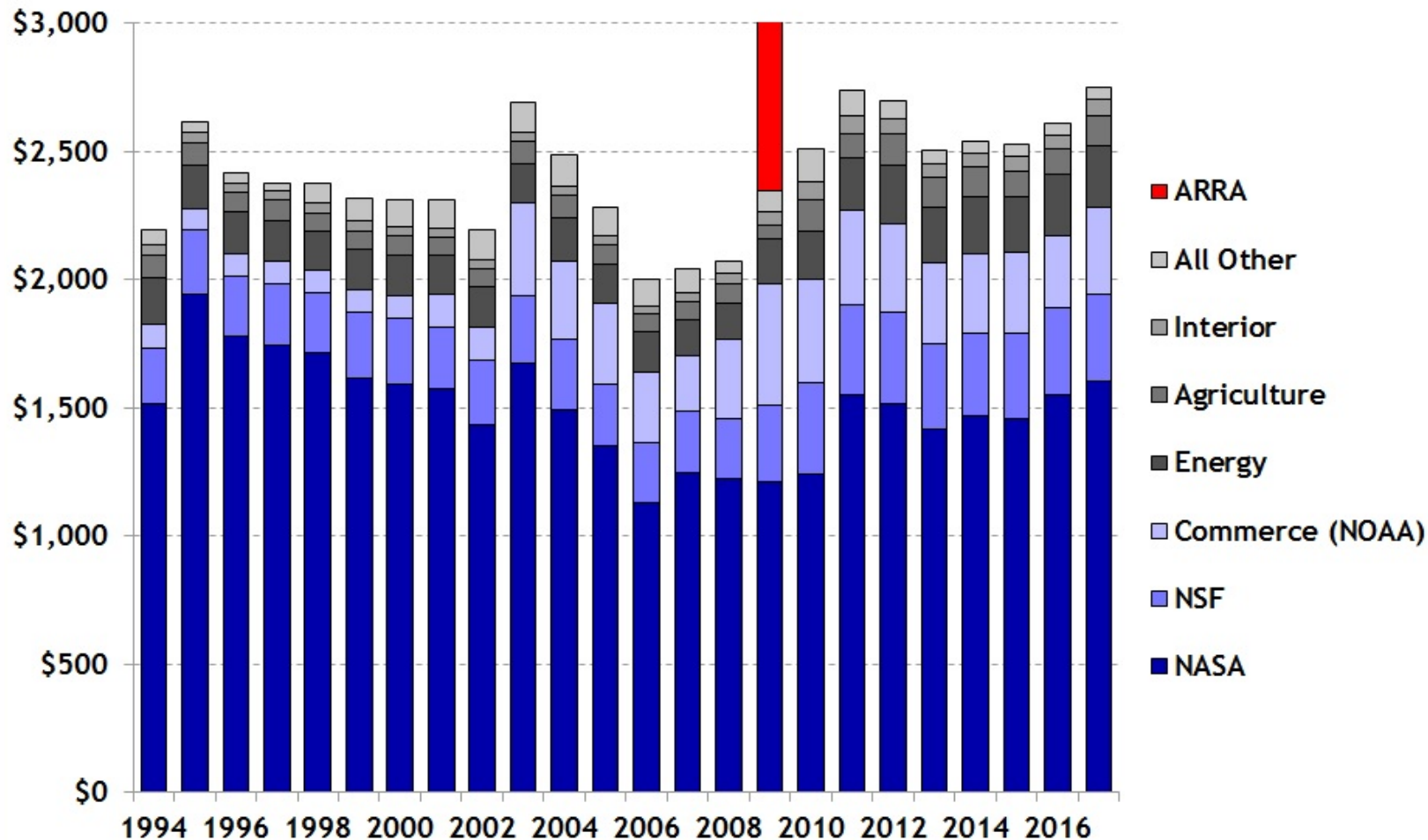
outlays for the conduct of R&D, billions of constant FY 2018 dollars



We did protect some key S&T budgets

U.S. Global Change Research Program

(budget authority in millions of constant FY 2016 dollars)



Source: U.S. Global Change Research Program budget supplements. © 2016 AAAS

What did not get done under Obama (continued)

- A nationwide price on carbon emissions was not achieved.
 - A “cap-and-trade” bill passed the house in 2010 but never got a vote in the Senate.
 - Republican control of Congress after the 2010 midterms made any form of carbon price a dead letter.
 - Modeling showed Obama’s target of 26-28% reductions below 2005 emissions by 2025 could have been 32-33% with the help of a moderate carbon tax.
- High-skills immigration policy did not get fixed.
 - Obama’s immigration plan (2011) called for “stapling a Green Card” to every STEM graduate degree earned at a U.S. university by a foreign student.
 - Doing so required legislation, but Congress couldn’t break deadlock on immigration policy overall and wouldn’t separate out the STEM component.

What is Trump doing so far?

What Trump has done so far

- Appointed fact-averse ideologues to many key Executive Branch S&T-related posts, e.g.
 - Mick Mulvaney at OMB; Scott Pruitt at EPA; Ryan Zinke at Interior; James Bridenstine at NASA
- Failed to fill many other key S&T posts
 - OSTP Director & Associate Directors; US CTO; PCAST Members; many key Under & Assistant Secretaries with S&T jobs
- Proposed eliminating much Earth observation/analysis
 - Zeroing Earth-observation functions of DISCOVER (NASA), OCO-3, PACE, and CLARREO missions (NASA), and the national Carbon Monitoring System (NASA)
 - Cutting ocean grants & programs by \$250M (NOAA)
- Proposed big cuts in non-defense R&D (20% for FY18)
 - \$6 billion (20%) at NIH; \$1.6B (11%) at DOE Energy R&D; \$800M (11%) at NSF; \$200M (47%) at EPA S&T

To Your Health

Trump budget seeks huge cuts to science and medical research, disease prevention

By Joel Achenbach and Lena H. Sun May 23

Volume 95 Issue 22 | p. 5 | News of The Week
Issue Date: May 29, 2017 | Web Date: May 24, 2017

Trump's proposed 2018 budget would gut science agencies

Average cuts of 16% would hit agencies that fund chemistry research and environmental regulations

By Andrea Widener

nature

POLICY & ETHICS

Trump Budget Would Slash Science Programs across Government

Cuts include 18 percent at the National Institutes of Health and 30 percent at the Environmental Protection Agency

By Sara Reardon, Alexandra Witze, Jeff Tollefson, Erin Ross, Nature on May 23, 2017

LONGFORM VIDEO MORE



SCIENCE US & WORLD ENERGY

Here's Trump's plan to destroy the US science budget

The president requested billions of dollars in cuts from programs that pay for scientific research

By Rachel Becker | @RA_Becks | May 23, 2017, 4:17pm EDT

ADAM ROGERS SCIENCE 05.25.17 07:00 AM

TRUMP'S BUDGET FORGETS THAT SCIENCE IS INSURANCE FOR AMERICA

All the Ways Trump's Budget Cuts Science Funding

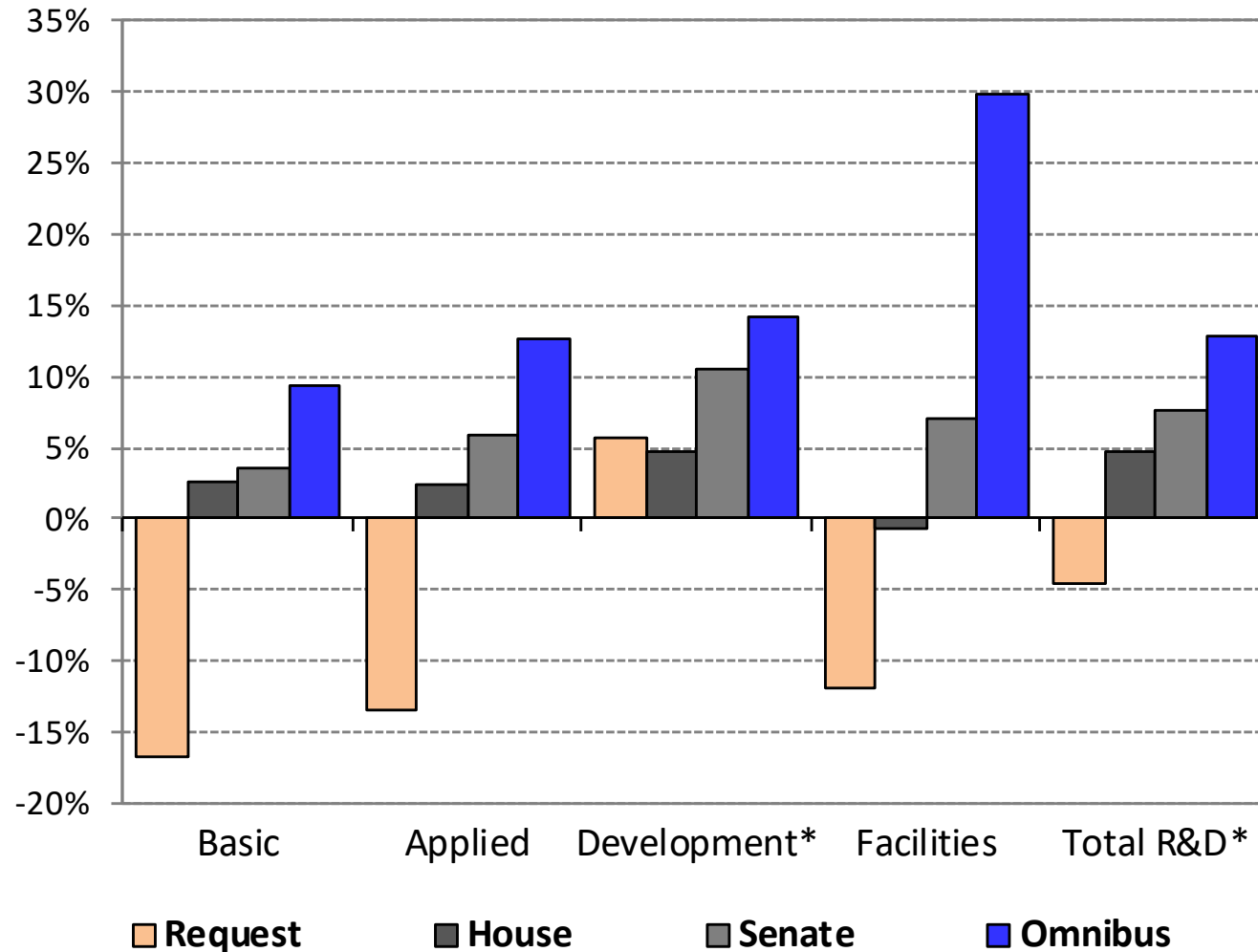
From the EPA, to the NIH, and NASA, research is not a priority in the administration's fiscal blueprint.

SARAH ZHANG | MAR 16, 2017 | SCIENCE

Congress reversed Trump proposals overall

Estimated R&D by Type in FY 2018 Appropriations

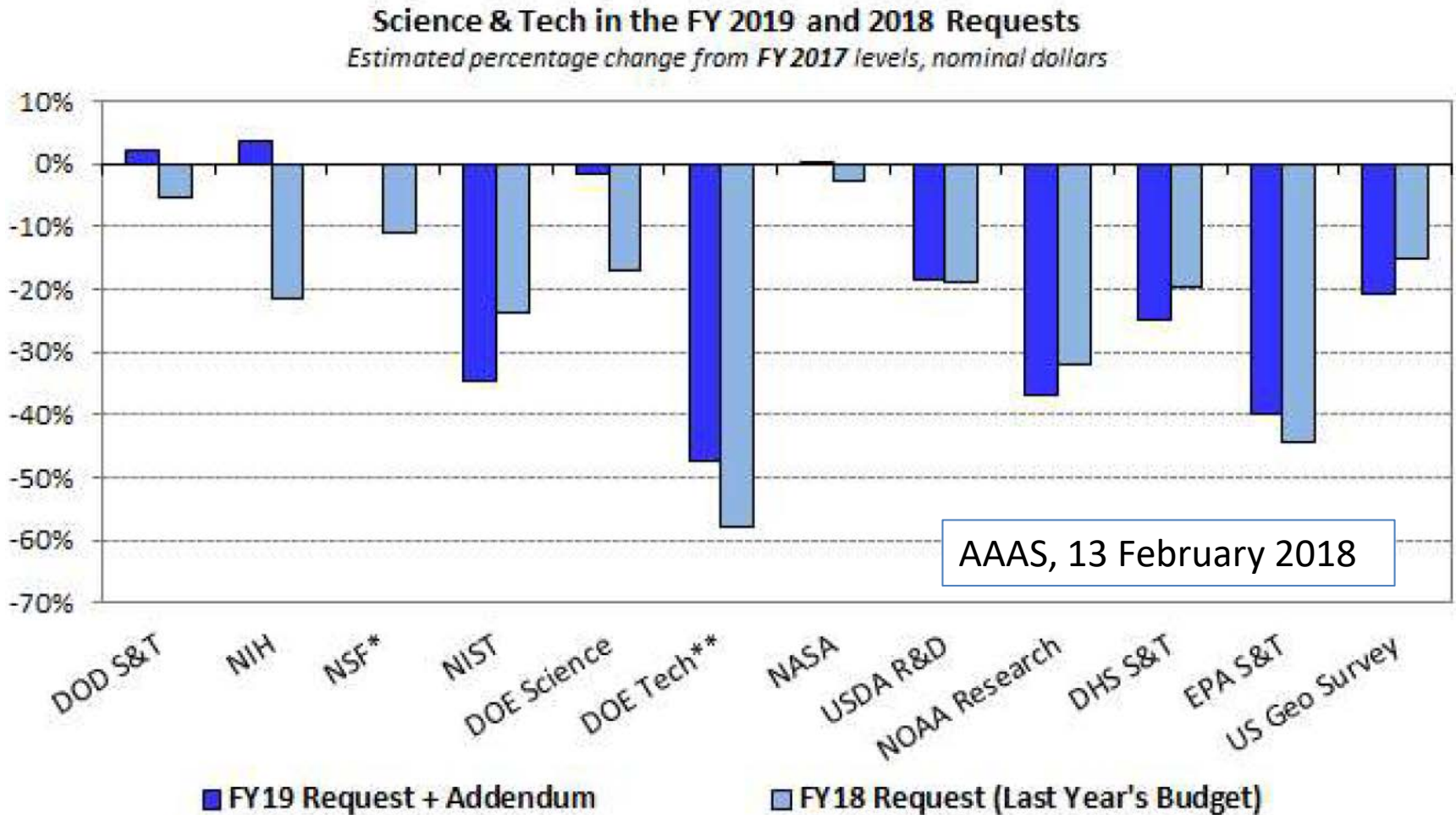
percent change from FY 2017 estimates, nominal dollars



*Using old definition, including DOD 6.7 account as R&D. The new official definition excludes this account from R&D. Based on OMB and agency data, and AAAS estimates from FY 2017 and FY 2018 appropriations. © 2018

Trump proposes deep cuts again for FY2019

Budgets: Trump FY18 & FY19 versus FY17 (% change in nominal dollars)



*Flat from FY17 in FY19 request. **Includes renewables, efficiency, nuclear, fossil, grid research, cybersecurity, ARPA-E. | AAAS

Only good news is FY18's proposed cuts for DoD S&T, NIH, NSF, NASA S&T are now gone.

Trump so far (continued)

- Allowed drain of S&T and diplomatic talent from the Department of State without replacement; but replaced a Secretary of State who supported Paris accord & Iran nuclear deal with one who doesn't
- Driven out many pro-environment public servants from EPA, Dept of Interior, Dept of Energy
- Rescinded Obama environmental Executive Orders
 - Expansion of Federally protected lands & waters
 - Clean Power Plan: coal-plant NSPS, methane strategy
 - Climate-change preparedness EOs: USA and international
 - Social Cost of Carbon, consideration of climate change in NEPA
- Dropped or altered many gov't websites on climate change

Trump so far (continued)

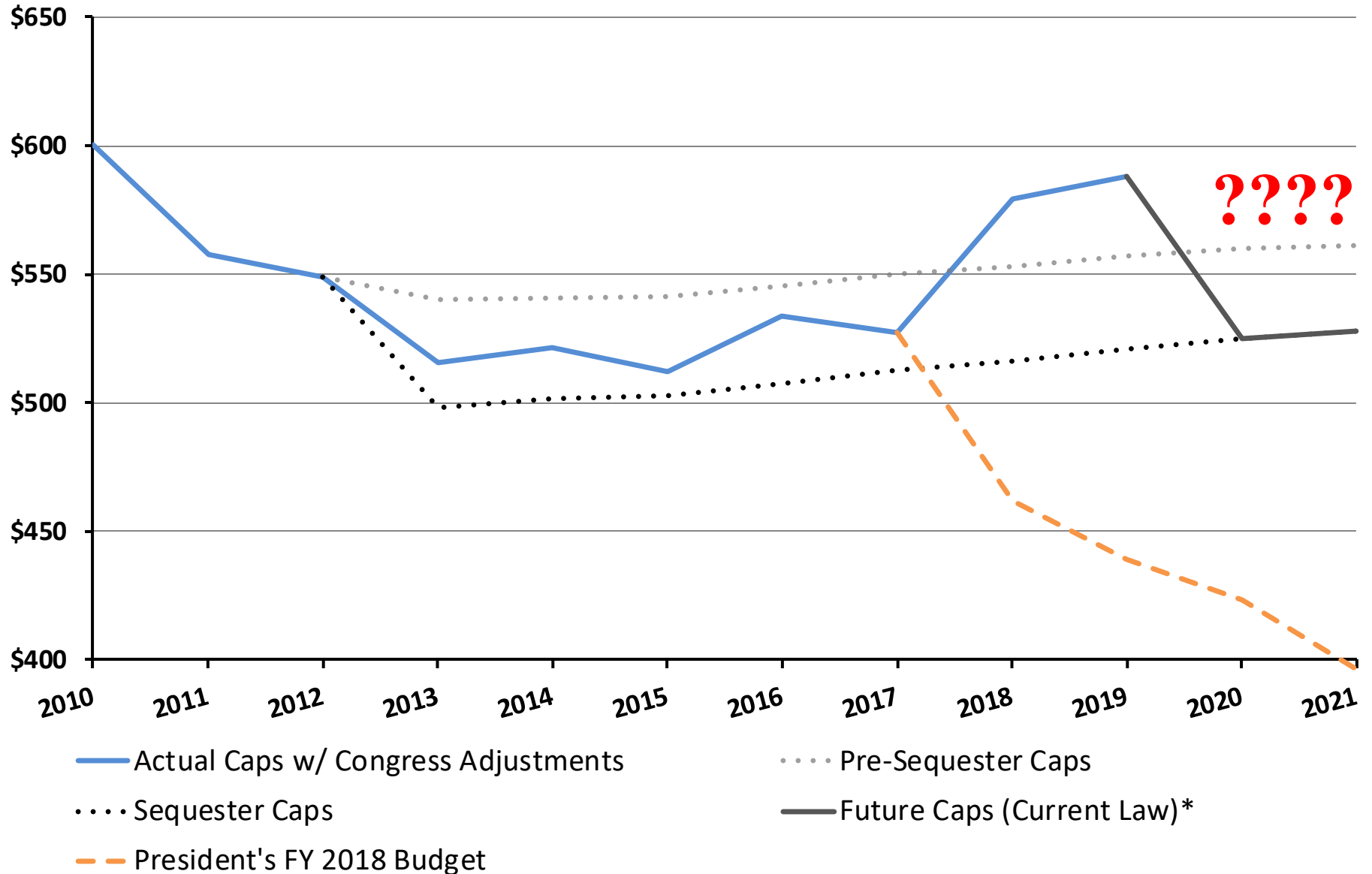
- Reversed many other environmental decisions from the Obama administration, notably by
 - Approving the Keystone pipeline
 - Rejecting ban on chlorpyrifos pesticide
 - Dropping bans on offshore drilling in Atlantic, Alaska
 - Lifting ban on dumping coal-mine waste into streams
 - Removing Yellowstone grizzly bear from endangered list
 - Announcing U.S. withdrawal from Paris accords & halting U.S. climate assistance to developing countries
 - Abandoning Mission Innovation goals

The New York Times of 5 October 2017 counted 48 Trump environmental rollbacks up to that point.

What's next?

Limits on NONDEFENSE Spending

Billions of constant 2018 dollars



?????

*Current caps last through 2021. Based on past and current budget resolutions, the Budget Control Act and subsequent legislation, and the FY 2019 OMB summary tables. © AAAS 2018

What should scientists do? A personal view

- Scientific leaders in Federal agencies should...
 - Work as closely as you can with technical staff in OSTP and OMB to defend your agency S&T budgets.
 - Take any and every opportunity to explain to relevant Congressional committees (members and staffs) the value to the Nation of what your operation does.

There is more leverage in Congress than in this White House.

- Other scientists & engineers in those agencies should...
 - Keep doing your good work as long as budget and permission from above permit; keep seeking to attend professional meetings.
 - Publish & present your findings, but let analysts outside the government link them to policy.

But, if your work environment gets too awful, quit (and go public).

What should scientists do? (continued)

- Scientists & engineers in the wider community should...
 - Work on getting better at talking to laypeople about how S&T bear on issues of concern to them (and not only what we know but how we know it).
 - Tithe 10% of your time to public & policy-maker education and policy/political activism
 - Protest the Trump administration's offenses against science, technology, STEM education, and reason.
 - Provide citizens & legislators with the knowledge they need to defend respect for science in policy-making
 - Work to elect candidates to elective office who understand the roles of S&T in society and the roles of government in supporting S&T and using S&T to inform decisions & advance societal goals

And think about running for elective office yourself!

Thank You!