

The Federal R&D Budget Process 101

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November 21, 2019

For the CRA/CCC Leadership in Science Policy Institute

AAAS R&D Budget and Policy Program

<http://www.aaas.org/rd>

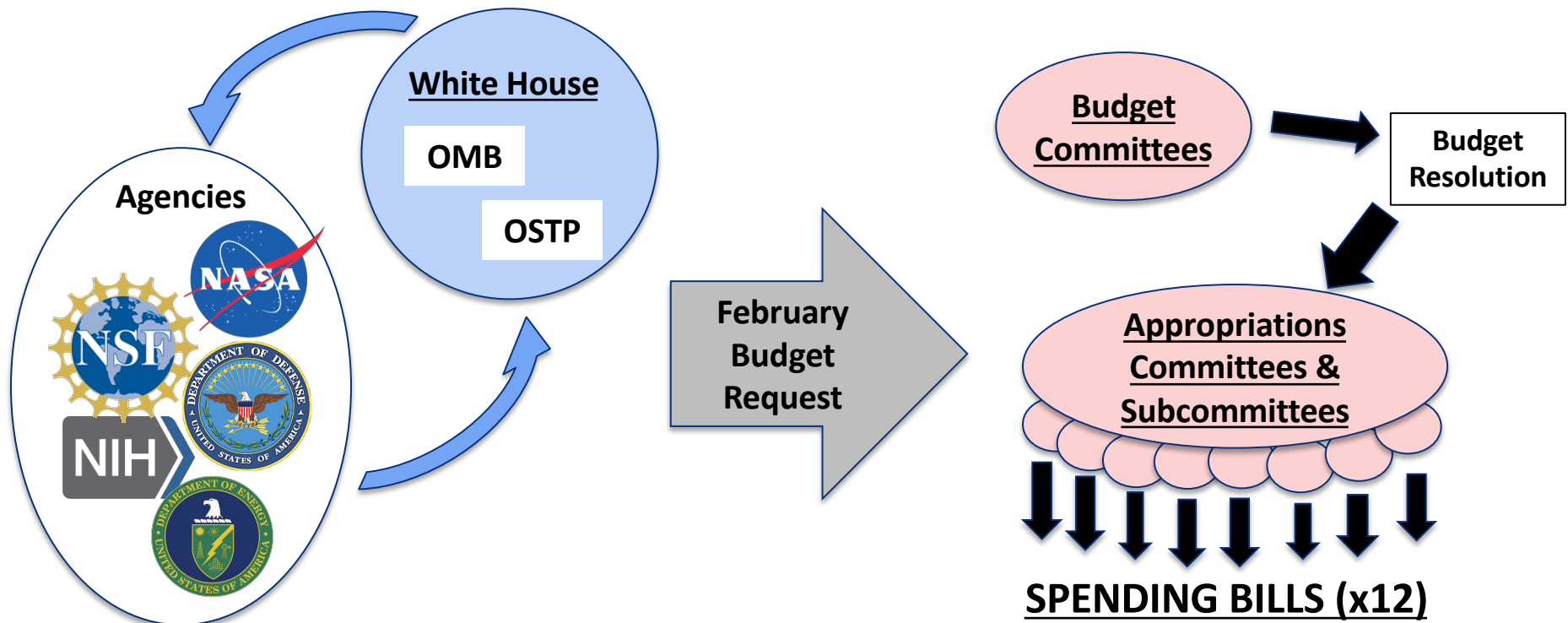


The Budget Process at a Glance



Executive Branch

Legislative Branch

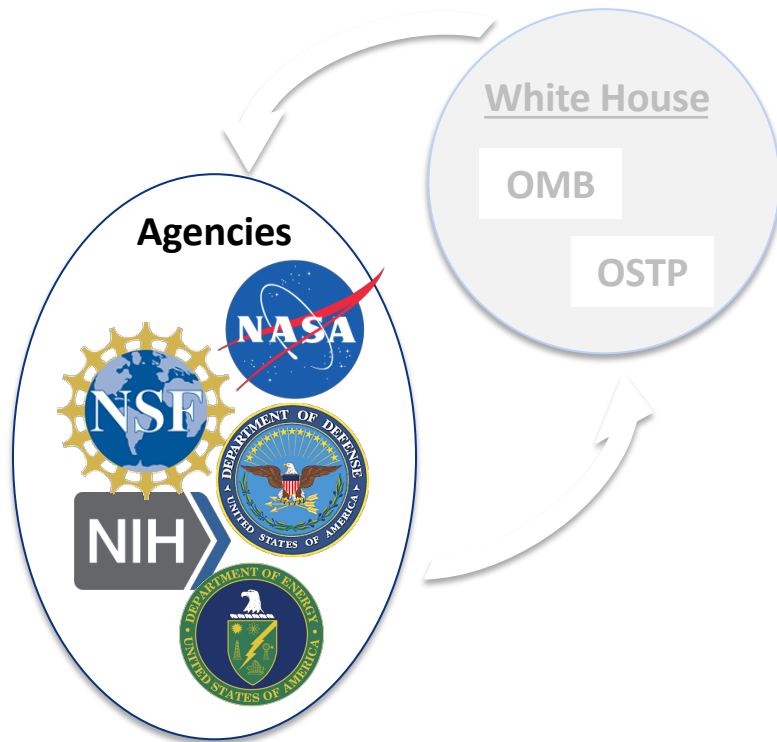


- Timeline is 18 months or more from the start of agency planning to completion of appropriations and start of the fiscal year on October 1, *however...*
- Congress hasn't gotten appropriations finished on time since 1996

Agencies in the Budget Process



Executive Branch



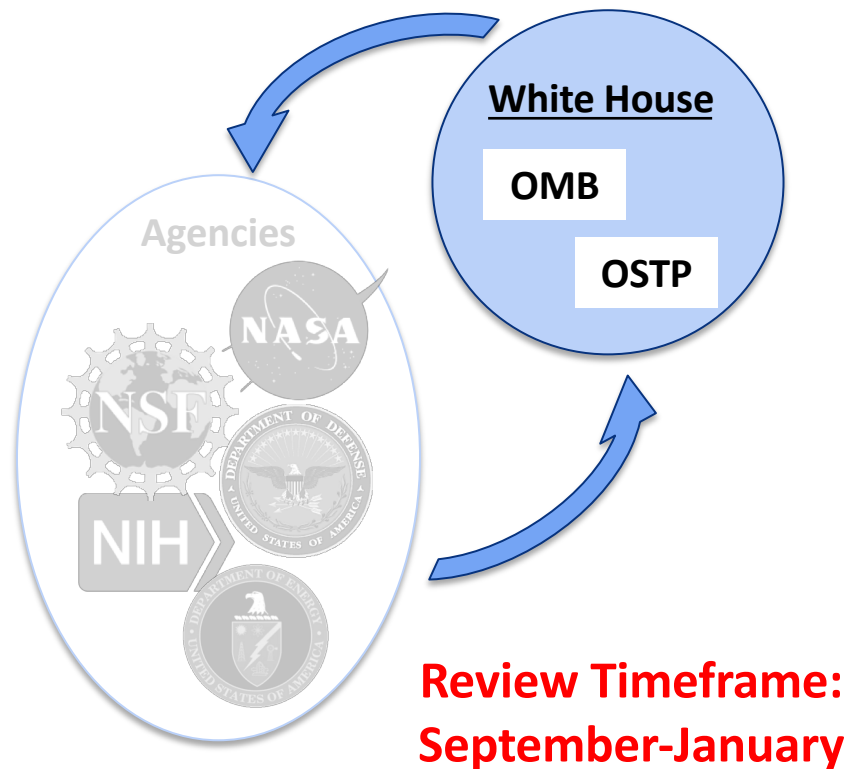
Rough Timeframe:
February-August

- Agency planning generally kicks off 18+ months in advance
 - Strategic goals? New initiatives? Program changes? Resource needs?
- Ingredients include:
 - Agency head and staff **judgment**
 - **External input** from advisory or review committees, workshops, stakeholder RFIs, National Academies decadal surveys, Congress, etc.
 - **Incrementalism**: last year's budget influences next year's

The White House in the Budget Process



Executive Branch

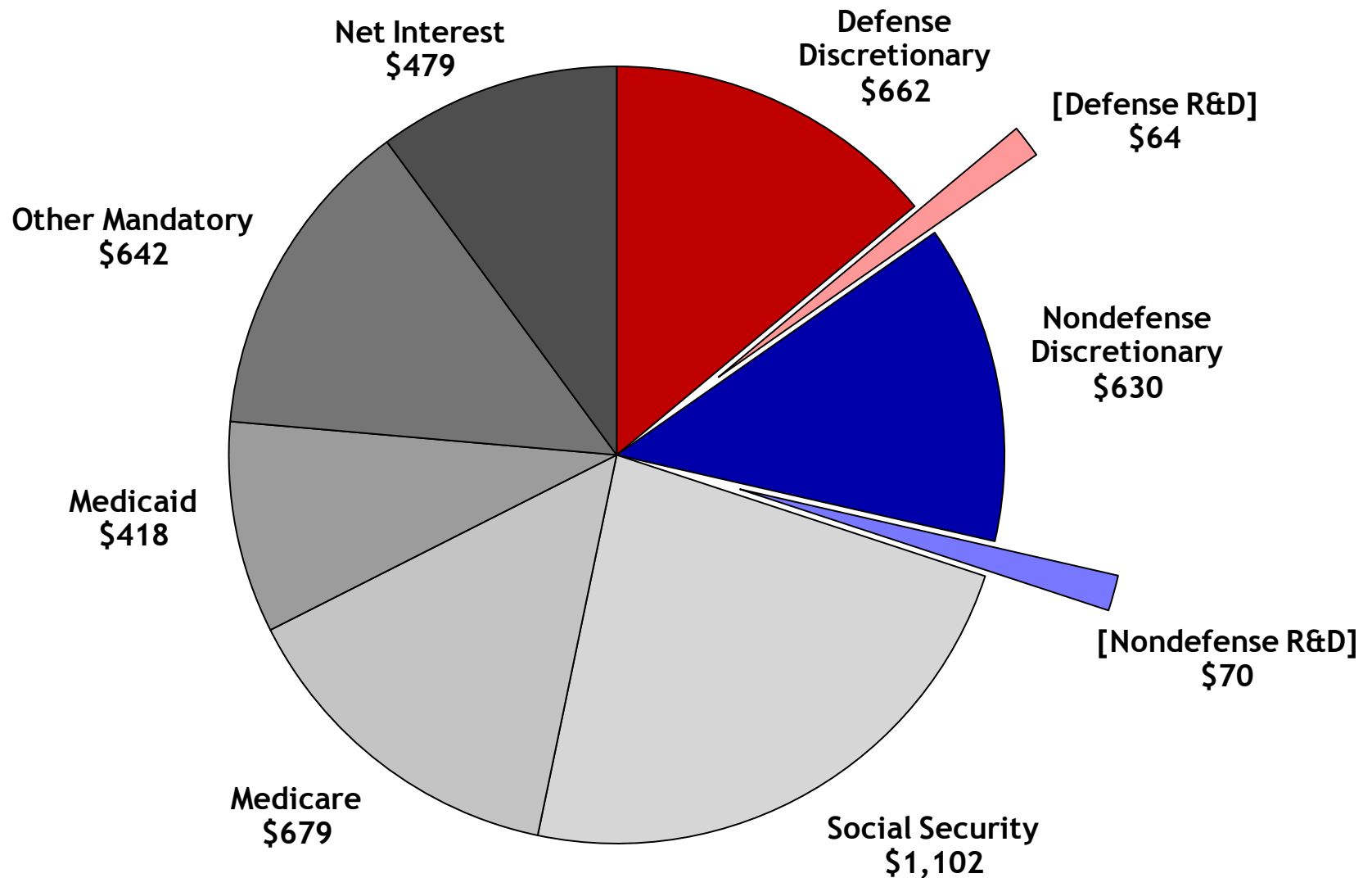


- **OMB = Office of Management and Budget**
 - Spring: Guidance memo to agencies
 - Fall: Review of agency budget submissions, followed by “passbacks” and appeals
 - OMB’s job is to **constrain spending**
 - Translates high-level priorities into concrete activities
- **OSTP = Office of Science and Technology Policy**
 - Summer: joint memo with OMB outlining broad S&T priority areas for investment
 - Advice (PCAST)
 - Coordination (NSTC)
- Things must wrap in January

Composition of the Proposed FY 2020 Budget

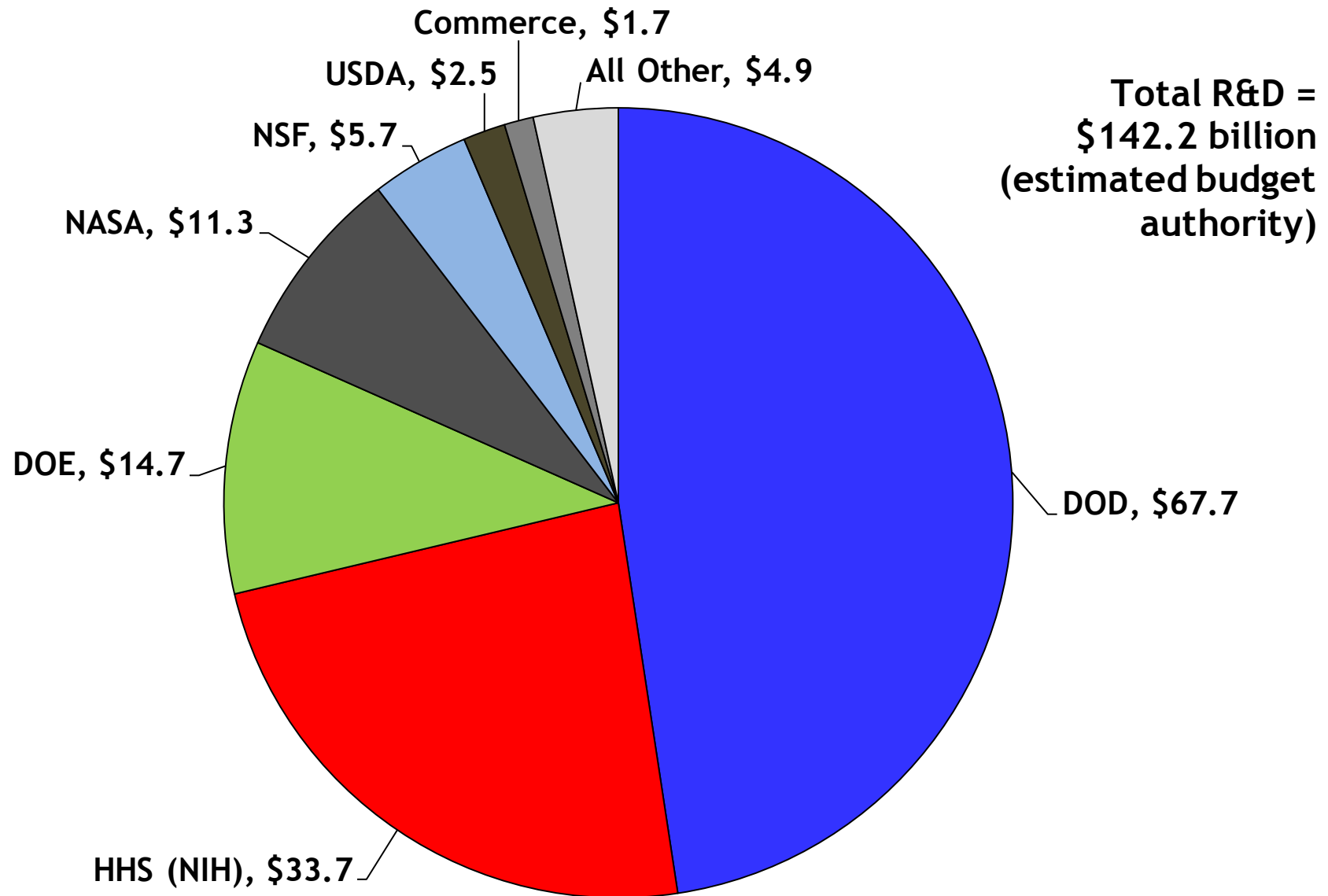
Total Outlays = \$4.7 trillion

outlays in billions of dollars



Total Requested R&D by Agency, FY 2020

budget authority in billions of dollars

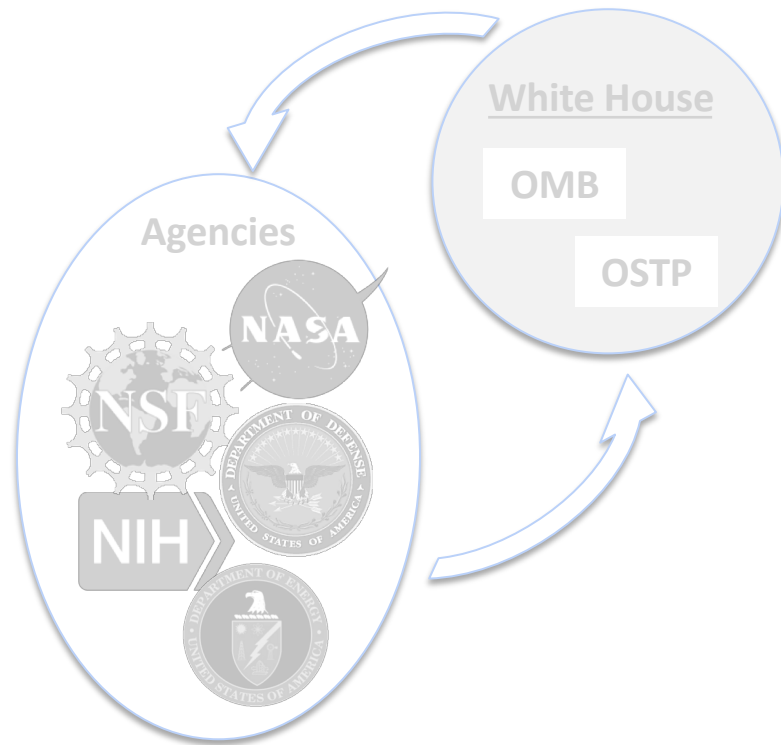


Source: OMB R&D data and supplements, agency budget justifications, and other agency documents and data. R&D includes conduct of R&D and R&D facilities. © 2019 AAAS

The Budget Process at a Glance

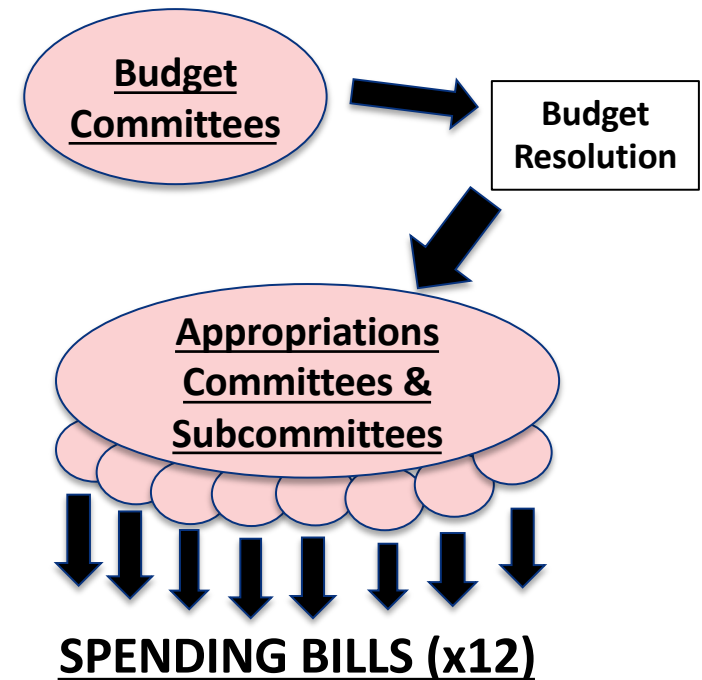


Executive Branch



February
Budget
Request

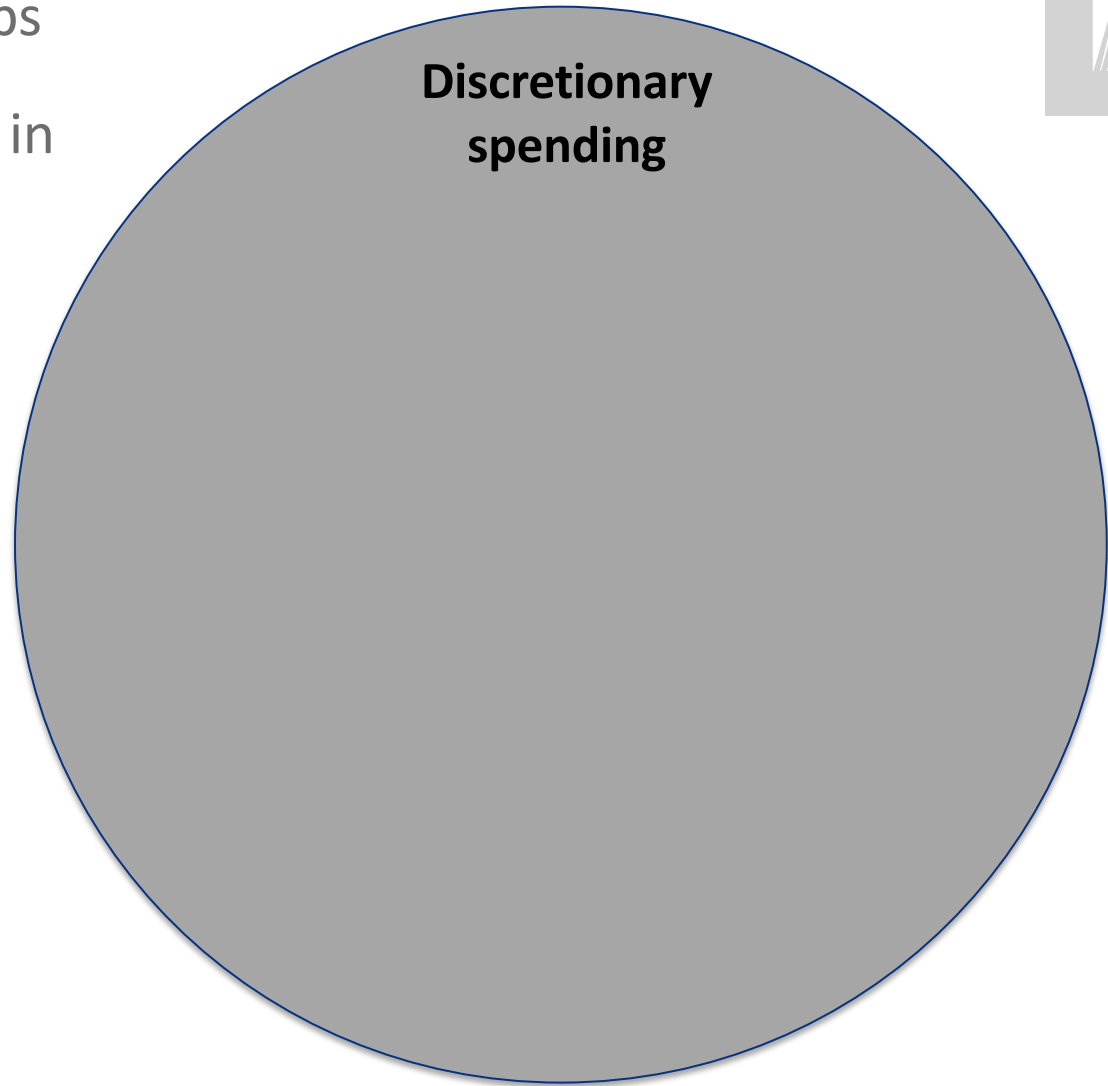
Legislative Branch



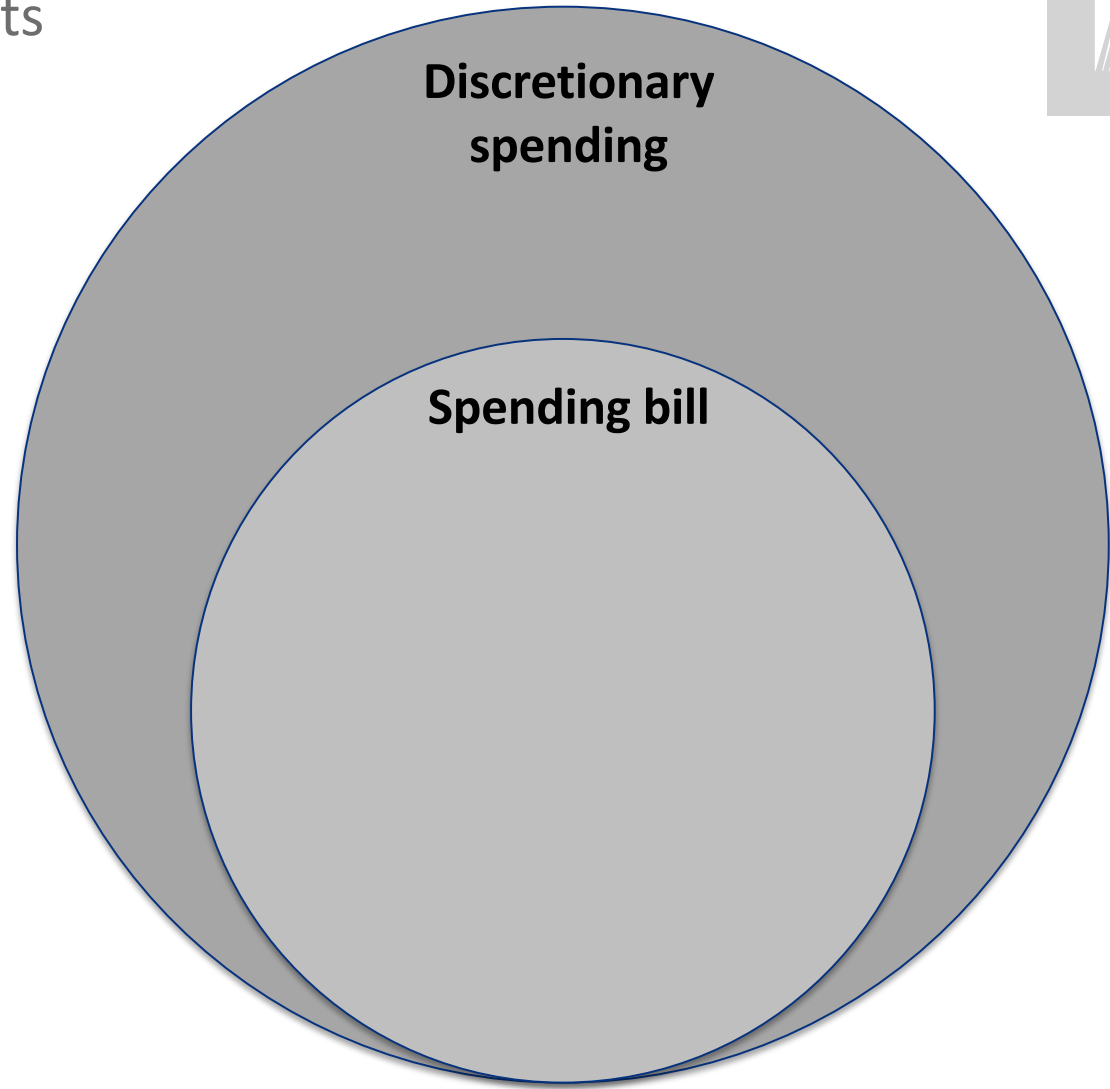
**Rough Appropriations
Timeframe: May-Sept.**

- Congress has the **Power of the Purse**
- Does the President's Budget even matter? Yes and no...

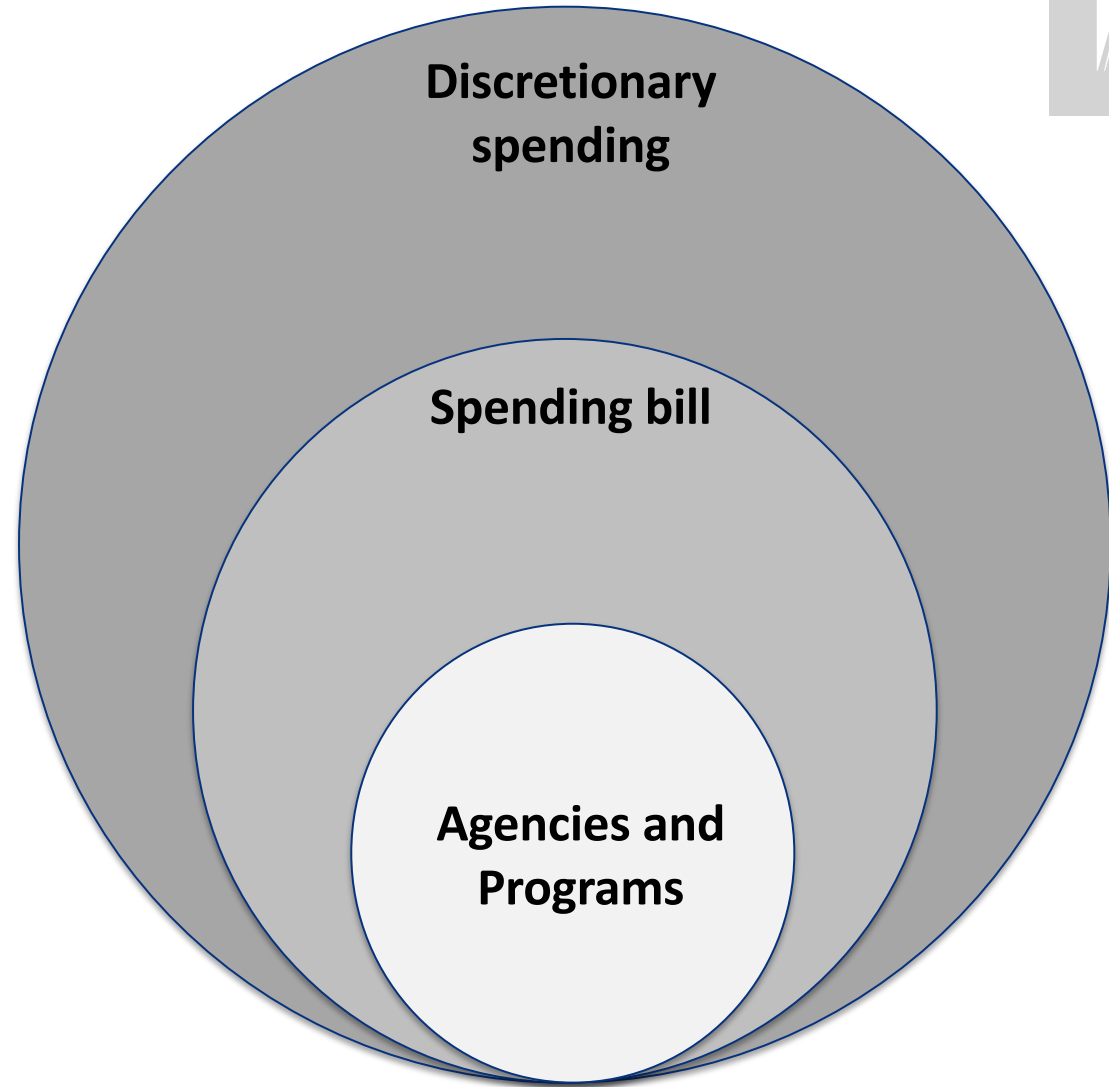
- **Budget Resolution** caps overall discretionary spending (\$1.3 trillion in FY20)



- This spending cap limits the size of **individual bills** (ranging from \$5 billion to \$700 billion)

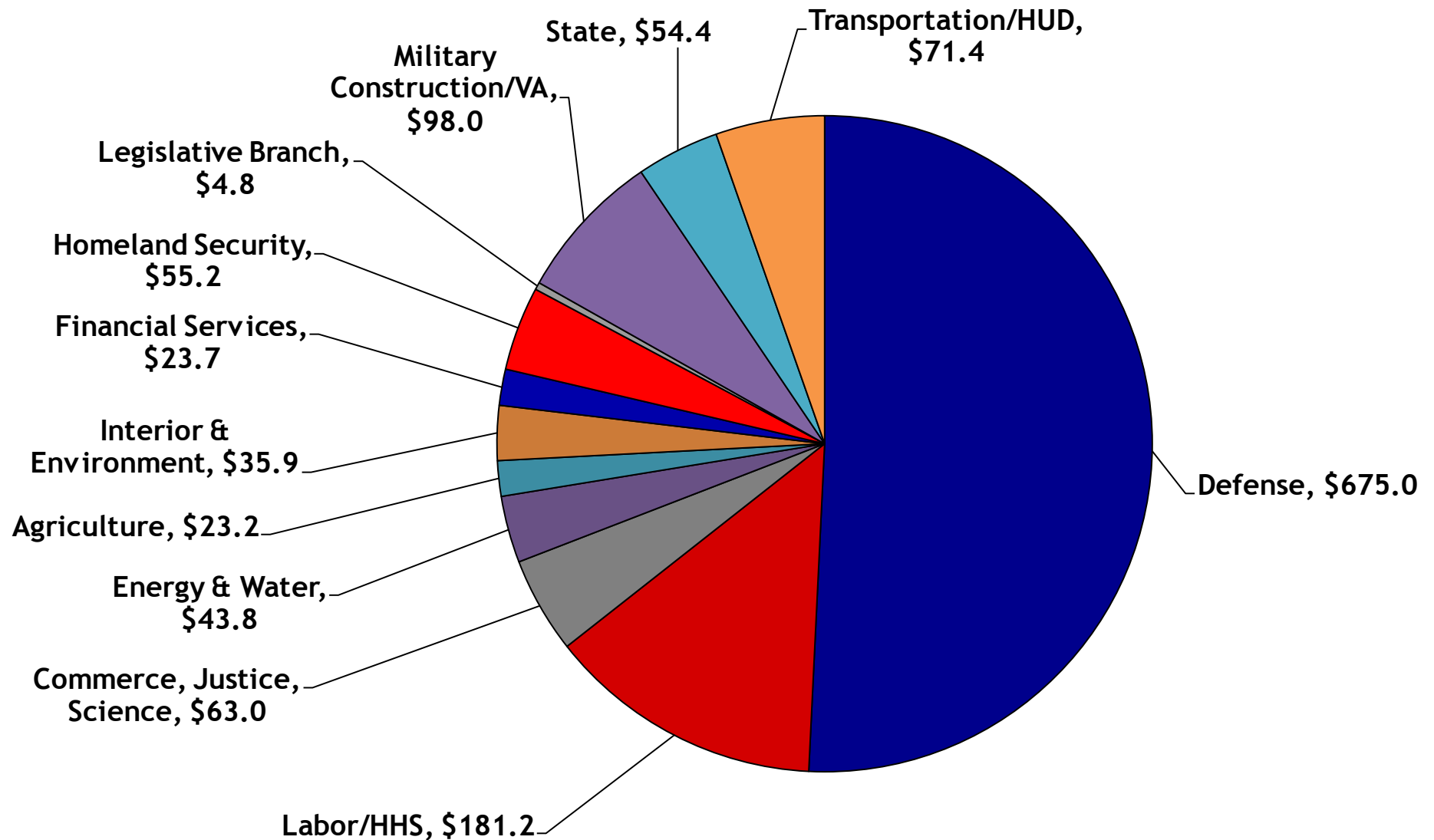


- The size of individual bills limits changes to **individual agencies, offices, programs**



Discretionary Appropriations by Senate Subcommittee, FY 2019

budget authority in billions of dollars



Committees and Cardinals

The Basic Process

- Subcommittee → Committee → Floor → Conference committee → President's desk
 - Bills **AND** reports
- Subcommittee chairs (a.k.a. the “Cardinals”) are responsible for producing “Chair’s mark”: initial bill for each subcommittee
- Key: Getting a bill that can PASS (well duh)
 - Incrementalism; universalism
 - Hearings, “Dear Colleagues,” Member Days, etc

Congress

Appropriators attempt to revive talks Monday as Friday shutdown deadline looms

A meeting between 4 top appropriations leaders from the House and Senate is expected at 3:30 p.m.



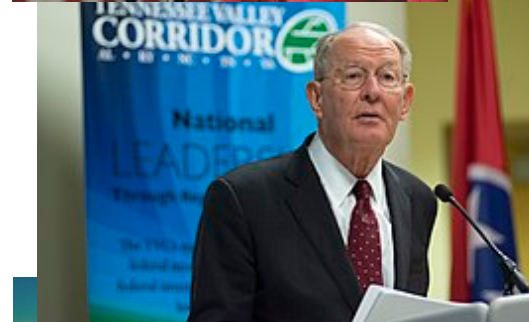
From left, Senate Appropriations chairman Richard Shelby, R-Ala., House Appropriations chairwoman Nita Lowey, D-N.Y., House Appropriations ranking member Kay Granger, R-Texas, and Senate Appropriations ranking member Patrick Leahy, D-Vt., talk before the start of the Homeland Security Appropriations Conference Committee on Wednesday, Jan. 30, 2019. (Bill Clark/CQ Roll Call file photo)

Republican and Democratic appropriators from both chambers plan to meet Monday afternoon in an effort to revive spending talks as the government heads toward its second shutdown in three months.

(Image source: Roll Call)

What factors influence science appropriations?

- “All politics is local.”
- Personal legislator interest
- Public interest
 - “We don’t earmark NSF because no one else earmarks NSF.” – Anonymous staffer quoted by Savage, LSQ 1991
- Ideology and party preferences
 - But: “There is no such thing as a fiscal conservative when it comes to his district or subcommittee” – David Stockman (Reagan’s OMB chief)

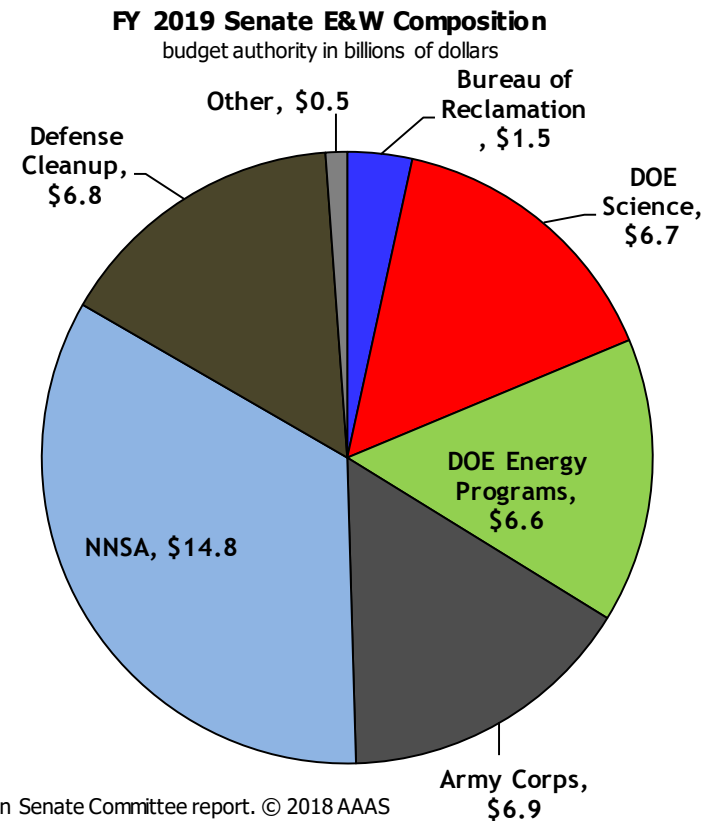


Energy & Water Subcommittee



	House	Senate
Chair	Marcy Kaptur (D-OH)	Lamar Alexander (R-TN)
Ranking Member	Mike Simpson (R-ID)	Dianne Feinstein (D-CA)

- Tradeoffs: Balancing basic research and facilities, labs, tech portfolio, NNSA; also Army Corps, Bureau of Reclamation
- NNSA funding has been priority of late
- Office of Science: as basic science arm, generally supported in more bipartisan fashion
 - National labs help
- Technology programs: Congress tends to fund when funding is available, but can also be first on the chopping block
 - Some value innovation programs more than others
 - Regional energy politics and economics



Based on Senate Committee report. © 2018 AAAS

Commerce, Justice, Science Subcommittee

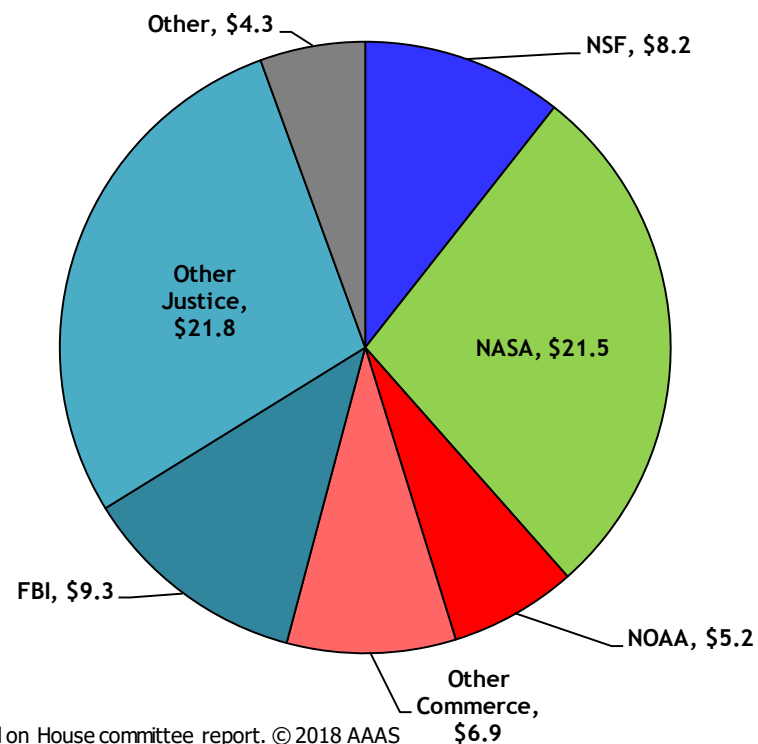


	House	Senate
Chair	Jose Serrano (D-NY)	Jerry Moran (R-KS)
Ranking Member	Robert Aderholt (R-AL)	Jeanne Shaheen (D-NH)

- How to balance many different missions and public interest goals?
- NSF: many continue to value basic research
 - Universities, industry advocacy
 - Disciplinary fights?
- NASA: science and exploration missions
 - Again: labs and research centers help
 - Balancing the science portfolio?
- NOAA and NIST: some program elements more controversial than others
 - NOAA: climate research funding source of dispute; but legislators often support locally-relevant research funding, including Sea Grant
 - NIST: lab programs have been supported for competitiveness; industrial innovation and manufacturing programs a target

FY 2019 House CJS Composition

budget authority in billions of dollars



Based on House committee report. © 2018 AAAS

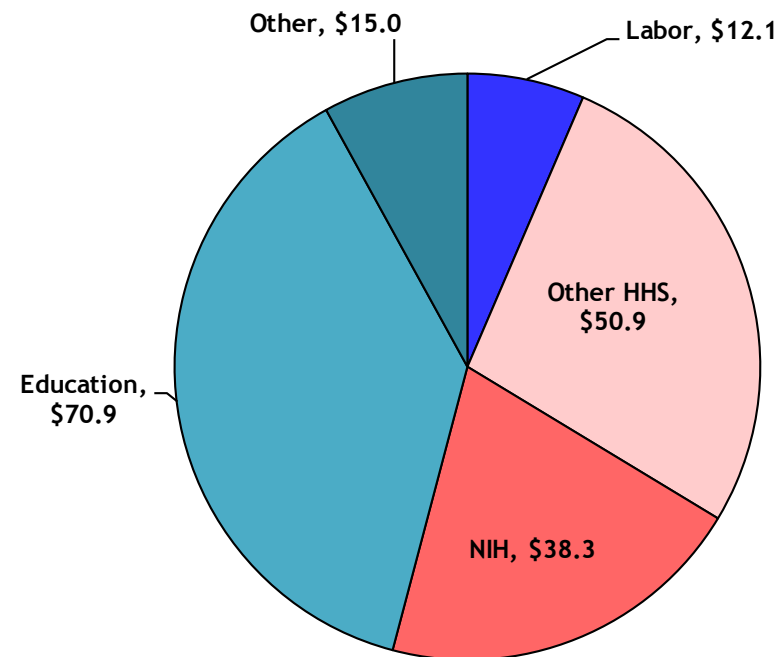
Labor, HHS, Education Subcommittee



	House	Senate
Chair	Rosa DeLauro (D-CT)	Roy Blunt (R-MO)
Ranking Member	Tom Cole (R-OK)	Patty Murray (D-WA)

- In this bill: deep divisions over public health programs, education, labor...
- But everybody loves NIH!
 - We have now had 4 years (and counting) of multibillion dollar increases
 - Alzheimer's, cancer, neuroscience, opioids among recent priorities
 - Congress has protected NIH awardees from indirect cost changes, salary cap changes
- Other programs also have their supporters: public health and preparedness matter to lots of people (BioShield, BARDA, CDC, etc)
 - Gun violence research?

FY 2019 House Labor-HHS Bill Composition
budget authority in billions of dollars



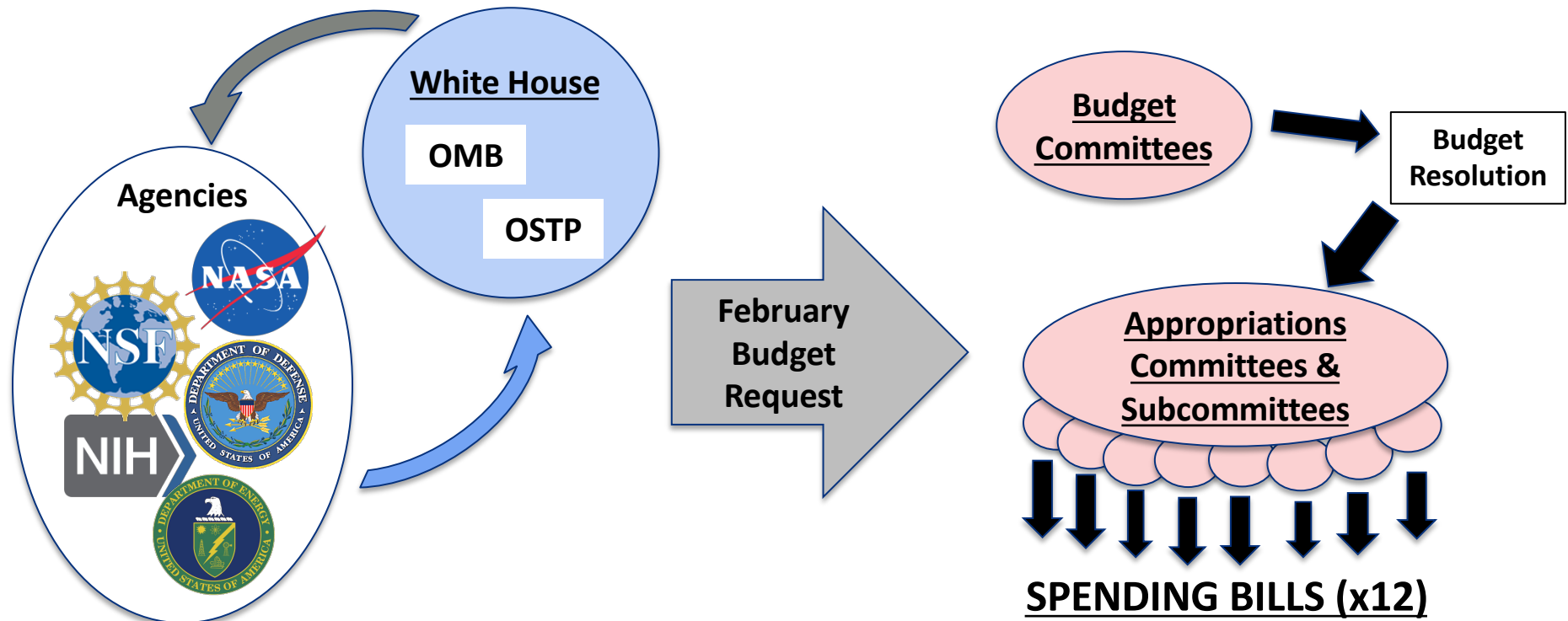
Based on House committee report. © 2018 AAAS

The Budget Process at a Glance



Executive Branch

Legislative Branch

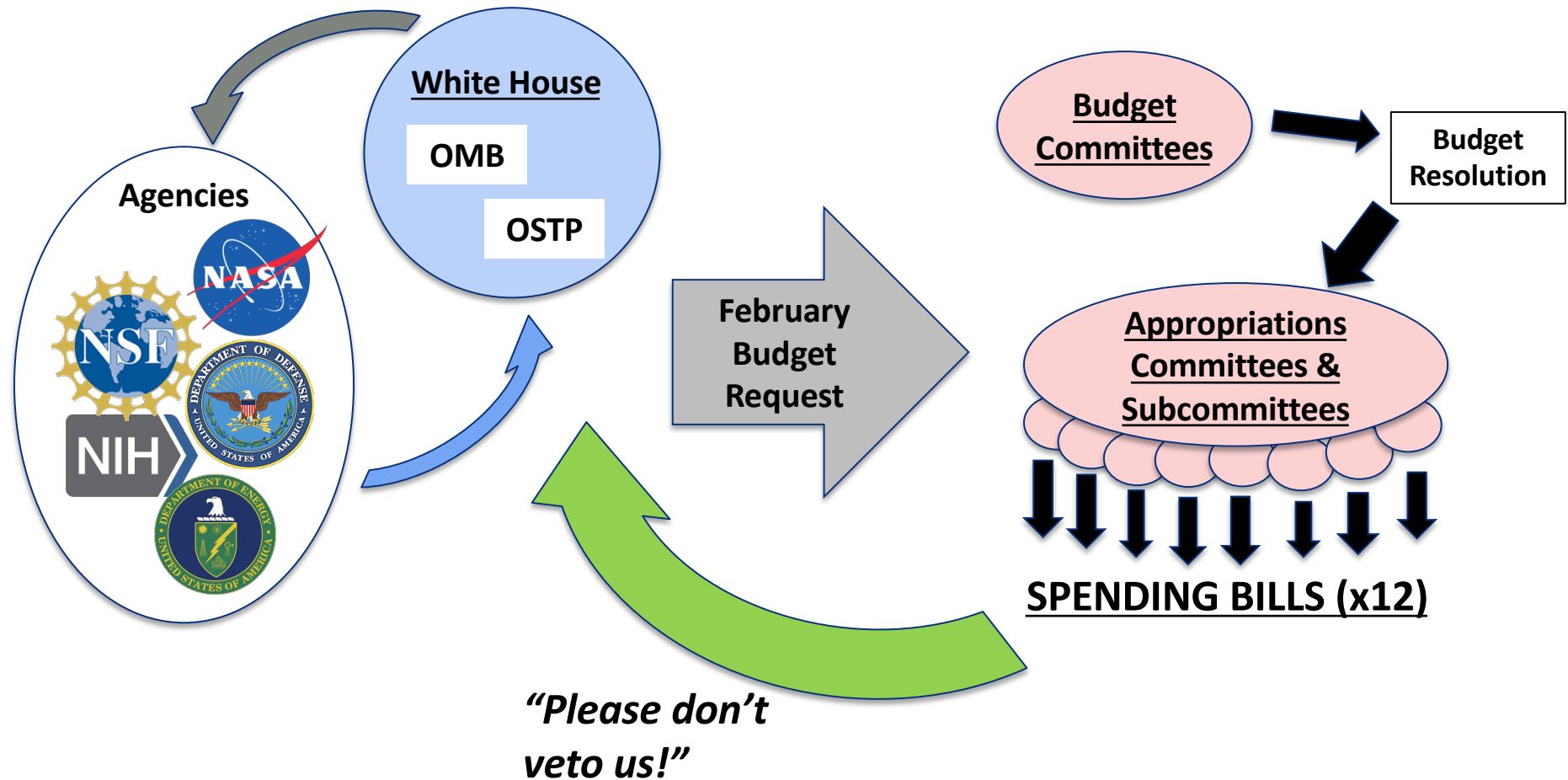


The Budget Process at a Glance



Executive Branch

Legislative Branch



Other Legislative Appropriations Tools

- Continuing Resolutions: often necessary to avoid a shutdown October 1
 - ...with depressing regularity
 - Length can vary, from a day to a year
 - Uncertainty? New starts? Spending slowdowns?
- Omnibus (multi-bill package)
 - Or minibus, or megabus, or cromnibus, or...
- Supplementals
 - i.e. Zika, Ebola, Hurricanes
 - Also war funding
 - Not subject to spending caps



The Current Appropriations Cycle Goes Ever On...

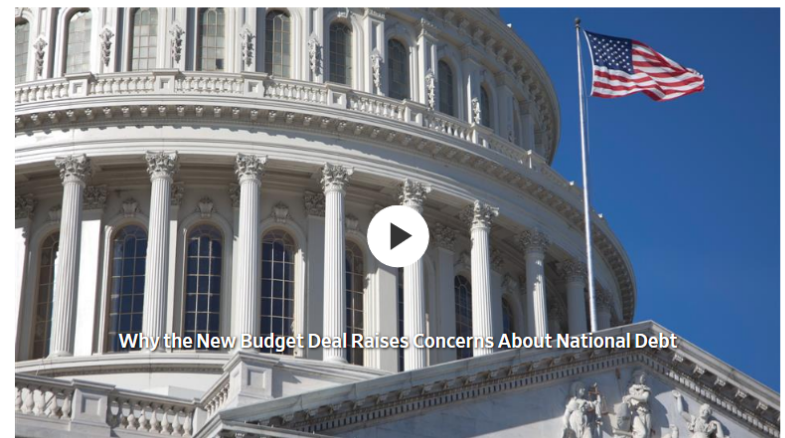


- House: 10 of 12 through floor
- Senate: 4 of 12 through floor
- House and Senate still need to:
 - Agree on size of each bill
 - Conference to resolve differences
- **Continuing Resolution** signed into law, keeps the lights on until November 21
- Another CR is likely...but for how long?
 - Mid-December?
- Major issues:
 - Border wall
 - Impeachment?
 - Abortion funding

POLITICS

Spending Bills Divide Congress as Funding Deadline Nears

Border wall remains sticking point in talks ahead of Nov. 21 deadline to avoid government shutdown



Why the New Budget Deal Raises Concerns About National Debt

President Trump and Congress reached a spending deal this summer that adds significantly to the federal budget deficit. In this video from July 2019, WSJ's Gerald F. Seib explains why the new agreement may focus attention on runaway government spending. Photo: Associated Press

By [Andrew Duehren](#) and [Lindsay Wise](#)

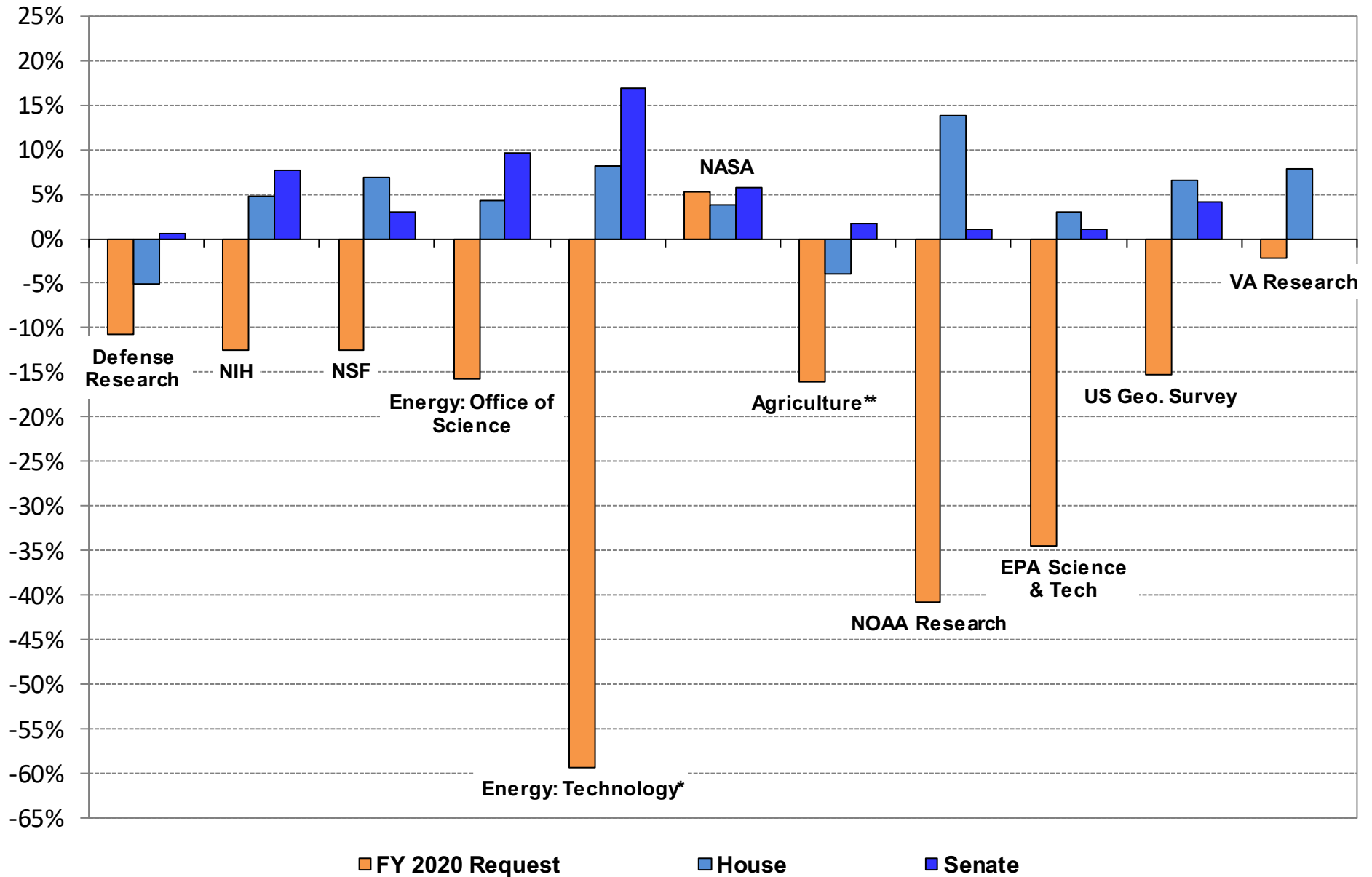
Nov. 4, 2019 5:06 pm ET

WASHINGTON—With less than three weeks before the federal government runs out of money, lawmakers and Trump administration officials are accelerating efforts to solve politically difficult spending questions, including border-wall funding.

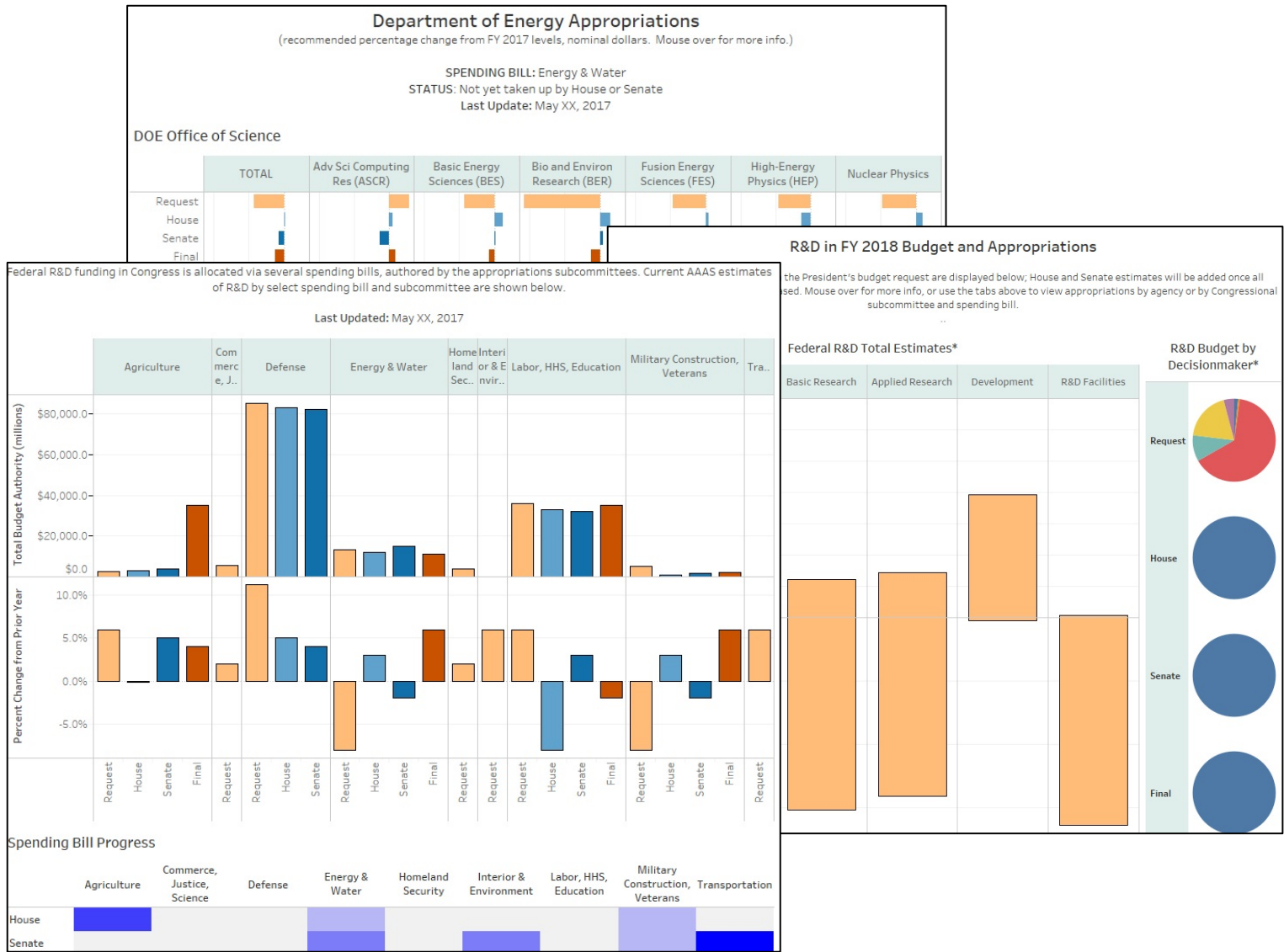
(Image source: *Wall Street Journal*)

Select Science & Tech Programs in FY 2020 Appropriations So Far

Estimated percentage change from FY 2019, nominal dollars



*Includes renewables and efficiency, nuclear, fossil, grid research, cybersecurity, ARPA-E. **Includes ARS, NIFA, ERS, NASS. Senate figures (except NIH) refer to mix of committee- and floor-approved funding. Most House figures have been approved on floor. | AAAS 11.5.19



For more info...



mhouriha@aaas.org

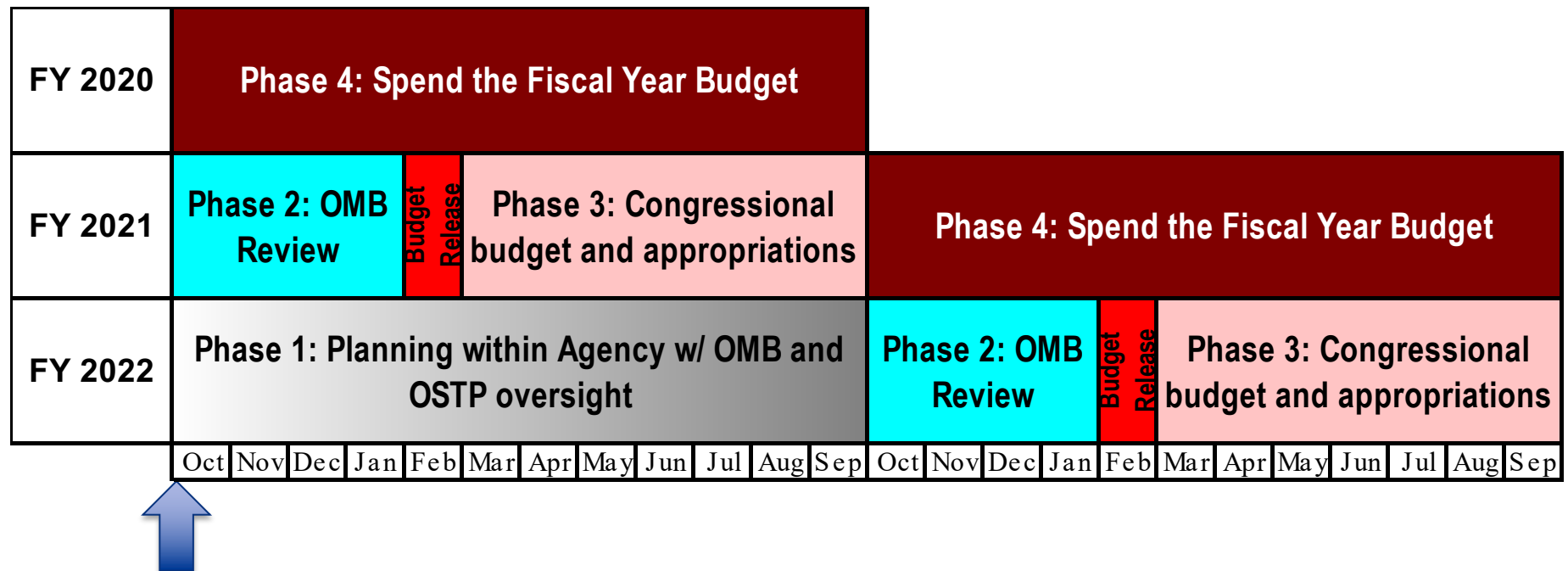
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(extras follow)



The Federal Budget Cycle



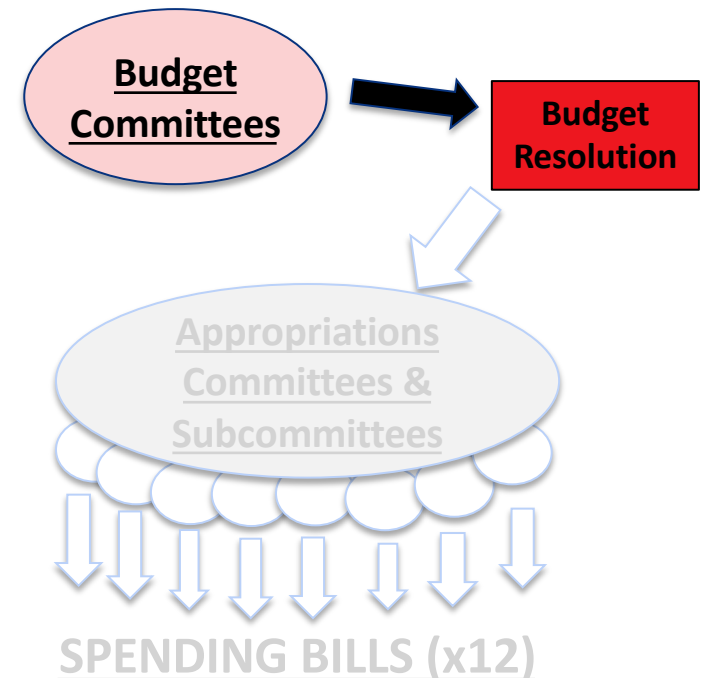
- Gov't is usually working on 3 budgets at a time (though presidential transitions complicate things)

The Budget Resolution



- Established by the 1974 Congressional Budget and Impoundment Control Act
 - Intended to reassert, and broaden, legislative control over the budget
 - Also created the House and Senate budget committees, which write the Resolution
- Overall framework:
 - Revenue, deficit, and total spending targets
 - Typically includes programmatic recommendations
 - Key for science spending:** discretionary spending limit to govern appropriations
- Isn't law and can't change law, but can set up reconciliation process (i.e. tax reform)
- Best seen as a **political document** as much as a governing document
 - Partly because it isn't always adopted...

Legislative Branch



Rough Timeframe:
March-April (LOL)

Beyond This Fall



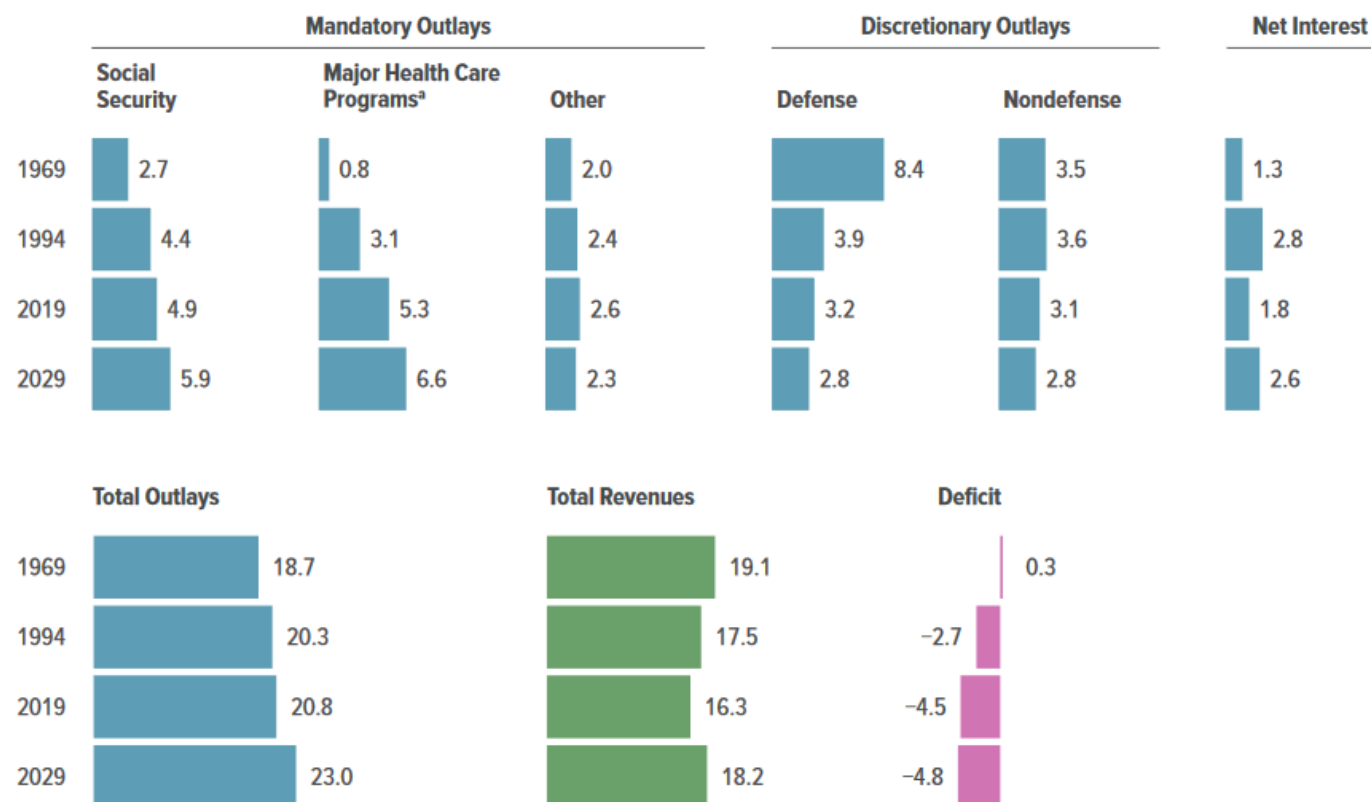
- Next year, much more limited cap space: less than 1% increase for defense and nondefense
 - Also, an election year...
- 2021: No more caps
 - Though “how much to spend” doesn’t stop being a major political question!
 - Budget resolution and debt ceiling return
- Fiscal future: aging population, rising healthcare costs, and insufficient revenues mean...growing deficits, rising interest payments, and declining discretionary spending
 - And THAT could all mean stagnating science funding for some years to come
 - Or fiscal blowback (again)?



Figure 1-6.

CBO's Baseline Projections of Outlays and Revenues, Compared With Actual Values 25 and 50 Years Ago

Percentage of Gross Domestic Product



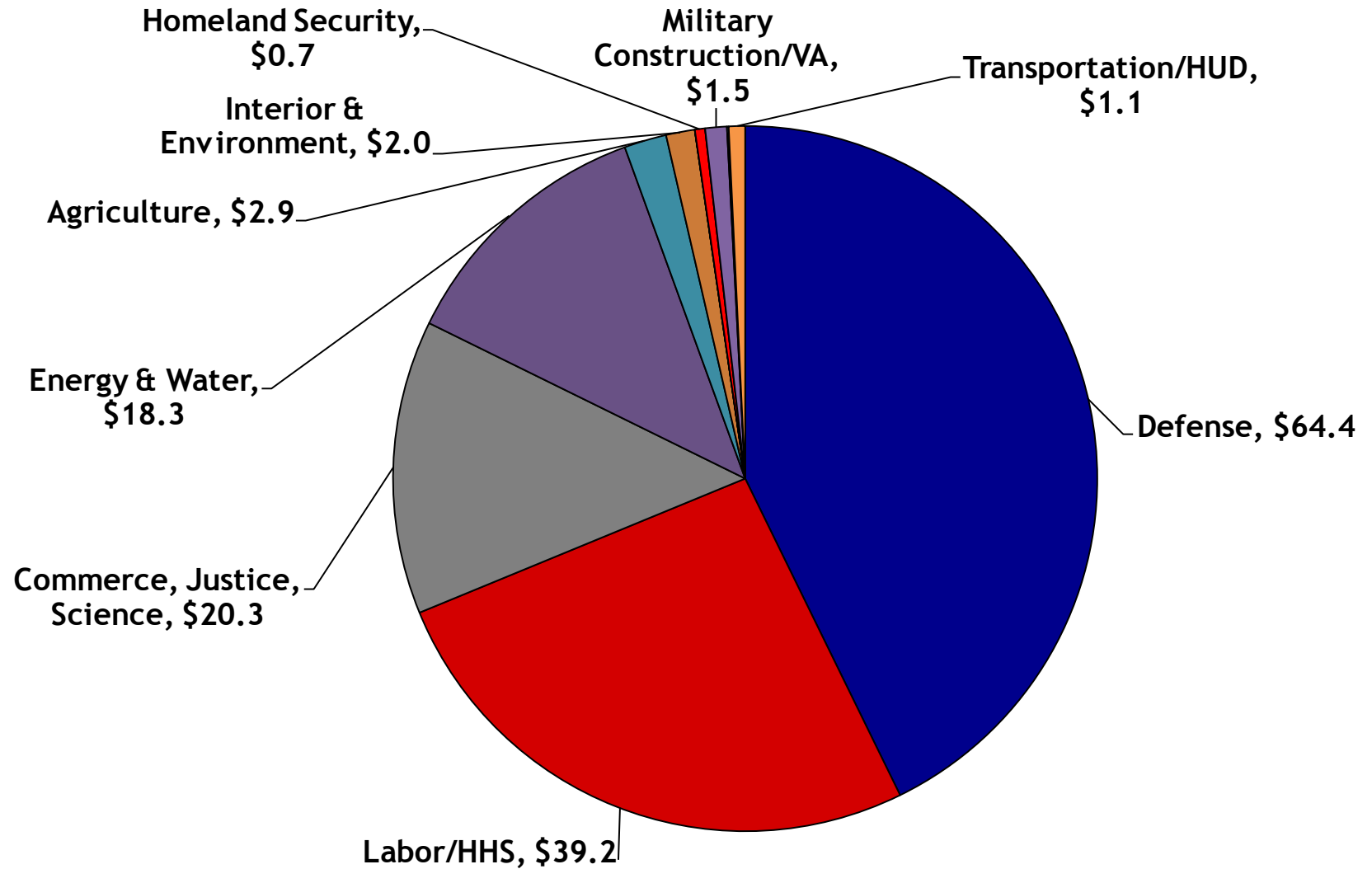
Source: Congressional Budget Office.

In 2028, October 1 (the first day of fiscal year 2029) falls on a weekend, so certain payments that are due on that date will instead be made in September, thus boosting outlays in fiscal year 2028 and reducing them in 2029. Such shifts affect projections of outlays for the major health care programs, other mandatory outlays, defense discretionary outlays, total outlays, and the deficit. A similar shift boosted outlays in those categories in 1994. The data presented here have been adjusted to exclude the effects of those timing shifts.

a. Consists of outlays for Medicare (net of premiums and other offsetting receipts), Medicaid, and the Children's Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

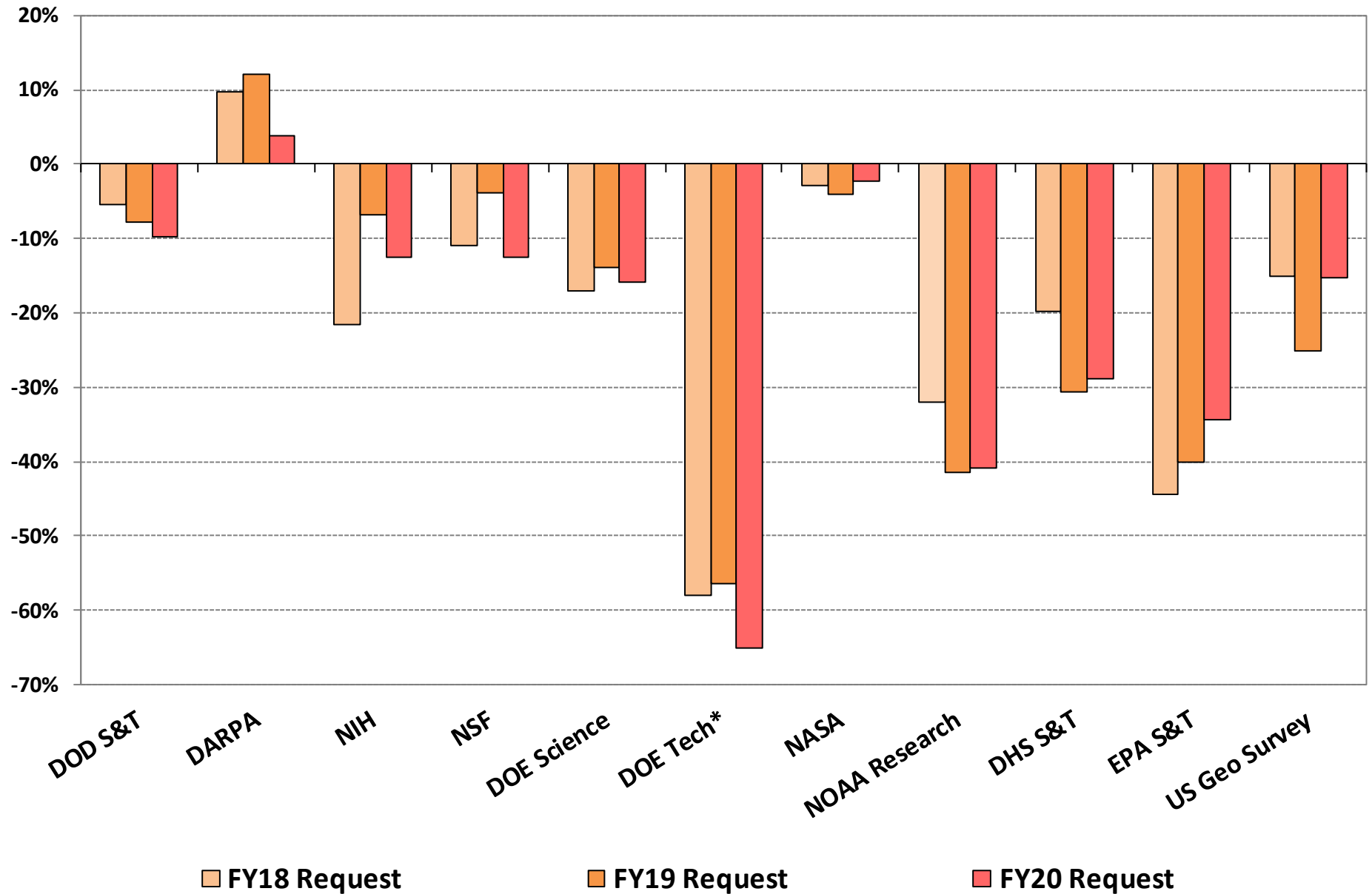
Estimated R&D Appropriations by Senate Subcommittee, FY 2019

budget authority in billions of dollars



Science & Tech Agencies in the Trump Administration's Budgets

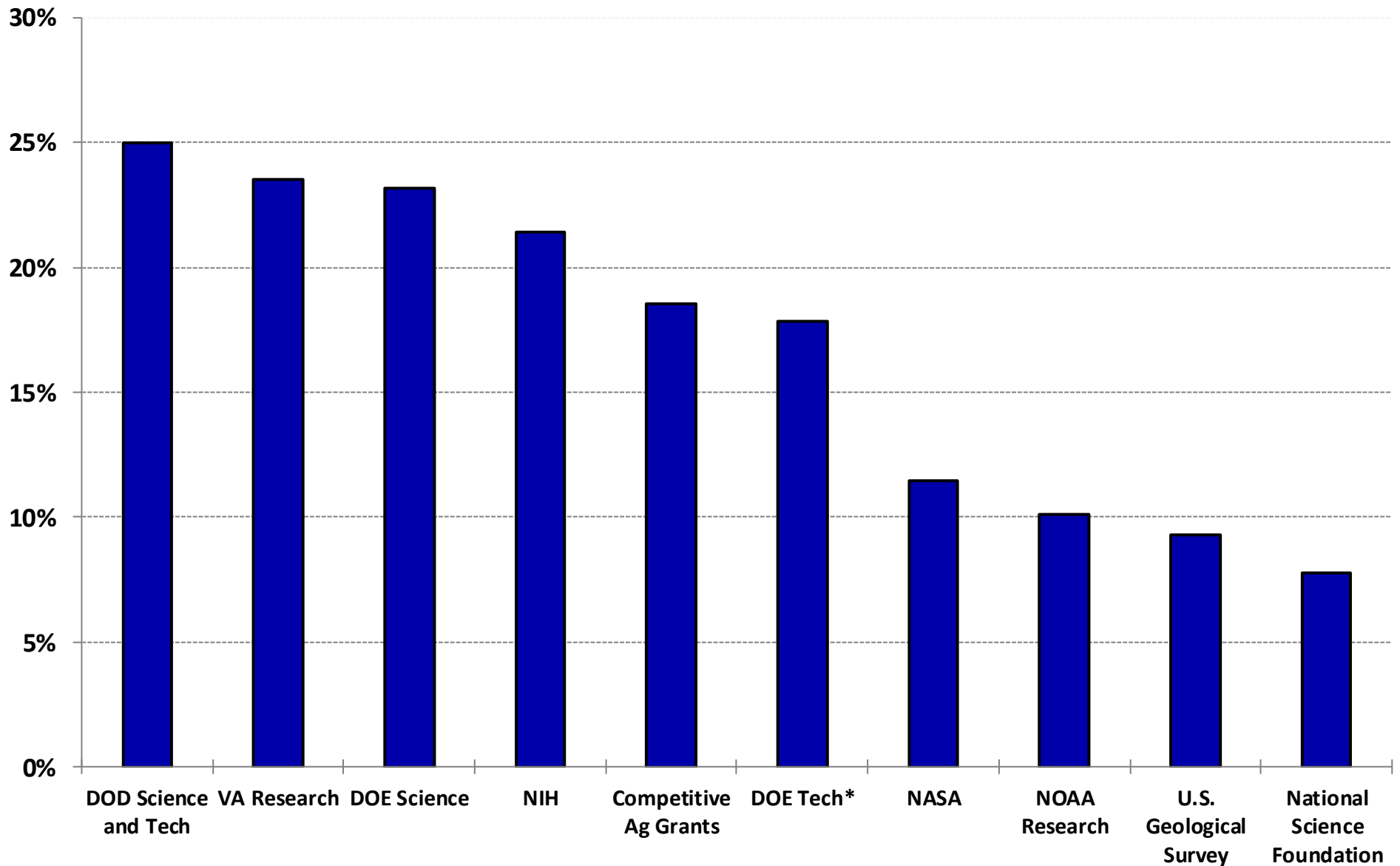
Proposed year-over-year changes, nominal dollars



*Includes renewables, efficiency, nuclear, fossil, grid research, cybersecurity, ARPA-E. | AAAS

Science Agency Budget Increases Since January 2017

Percent change from FY 2016 - FY 2019, nominal dollars

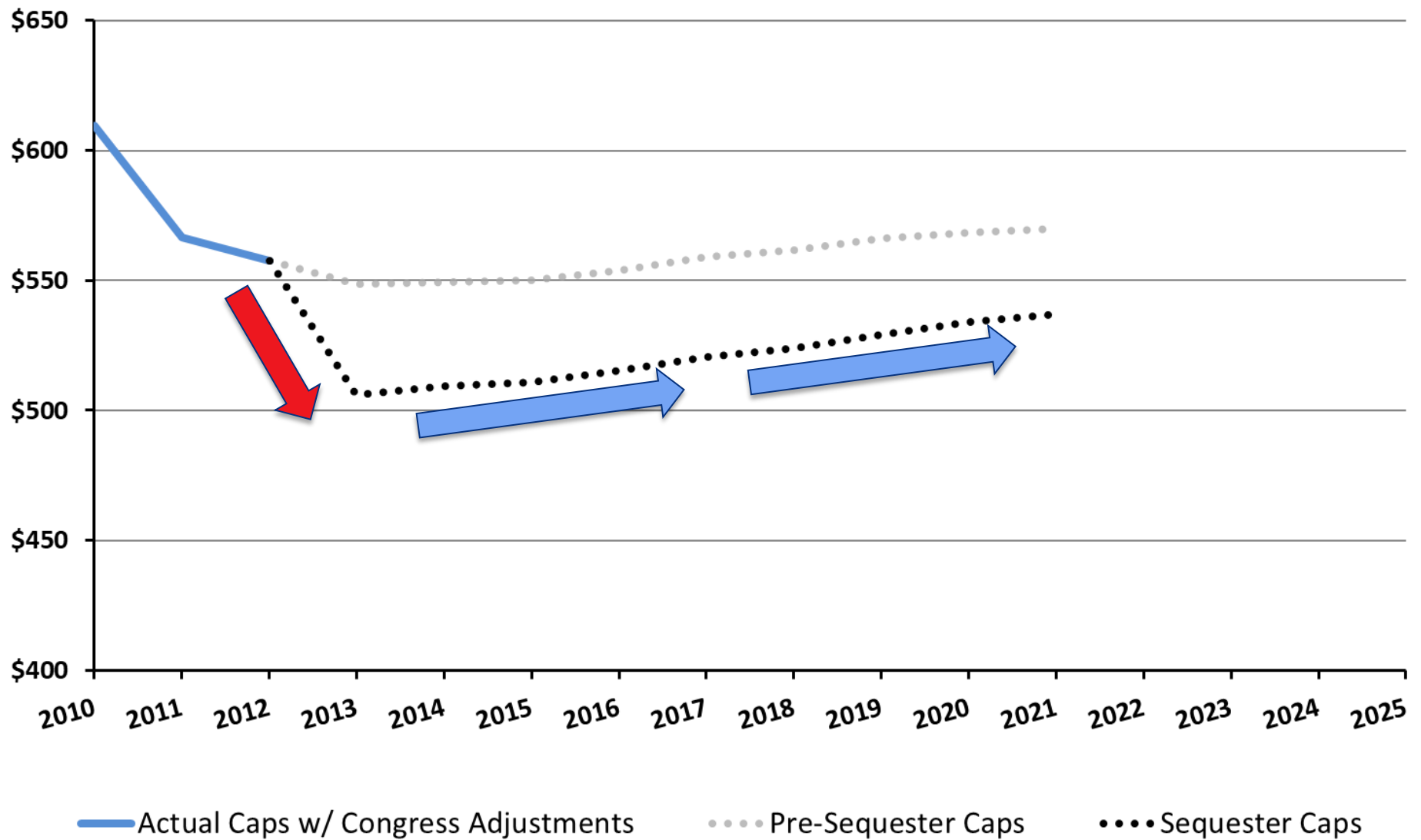


*Nuclear, fossil, renewables, efficiency, grid, ARPA-E.

Source: agency budget documents and appropriations. Note: inflation is 3.3% over this time. | AAAS 2018

Limits on Nondefense Spending

Billions of constant 2019 dollars

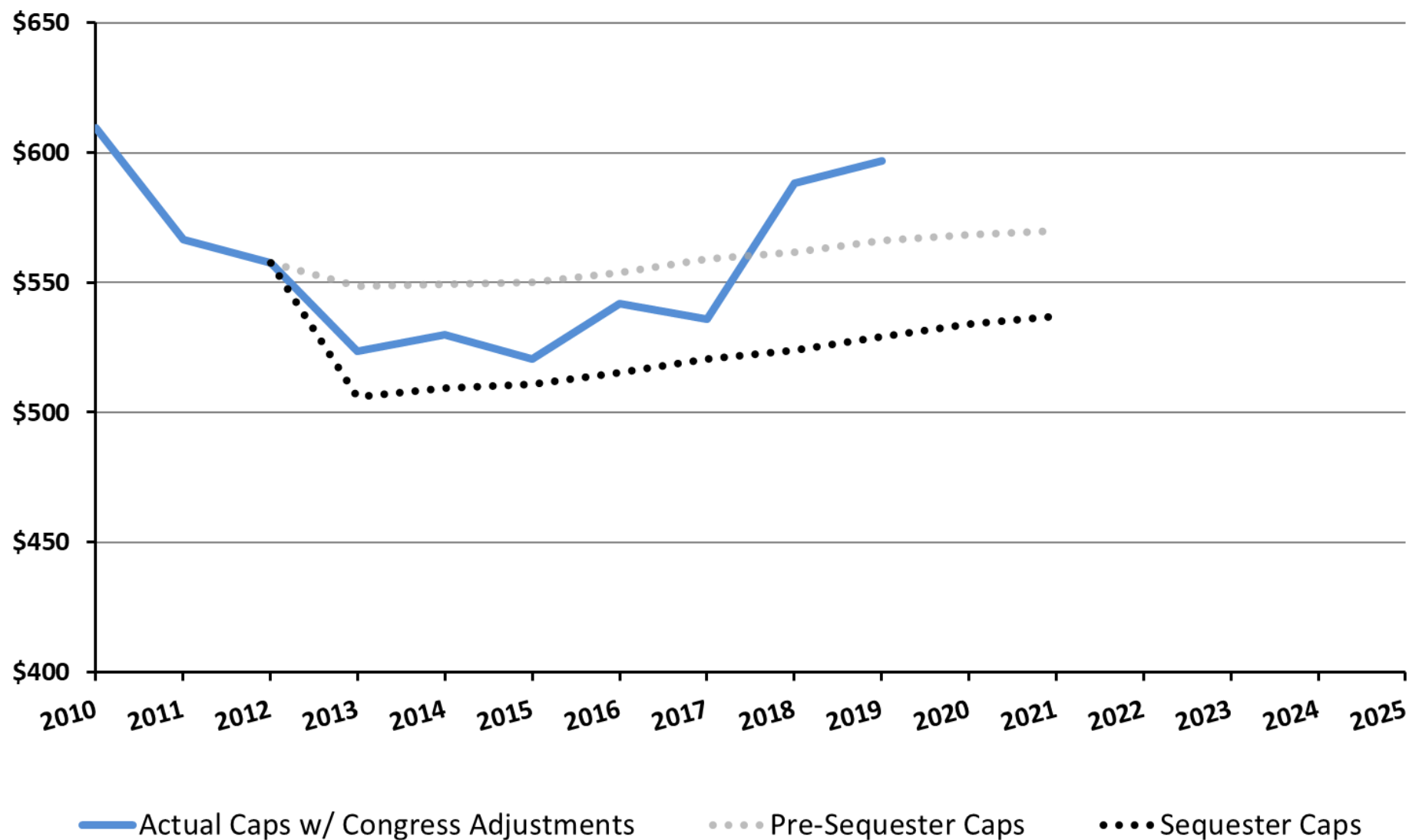


*Current caps last through 2021. Based on past and current budget resolutions, the Budget Control Act and subsequent legislation, and the FY20 request.

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Limits on Nondefense Spending

Billions of constant 2019 dollars

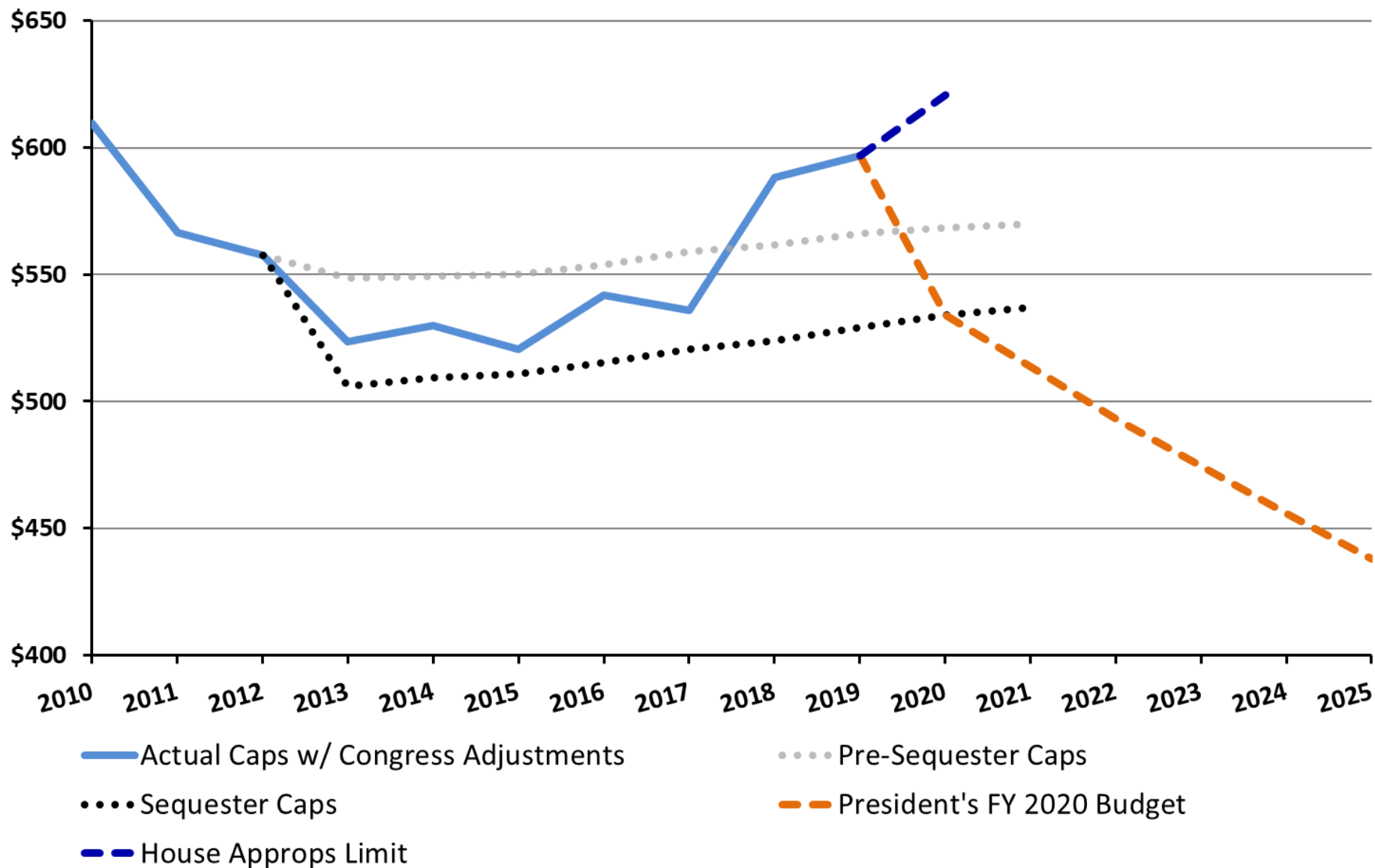


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Limits on Nondefense Spending

Billions of constant 2019 dollars

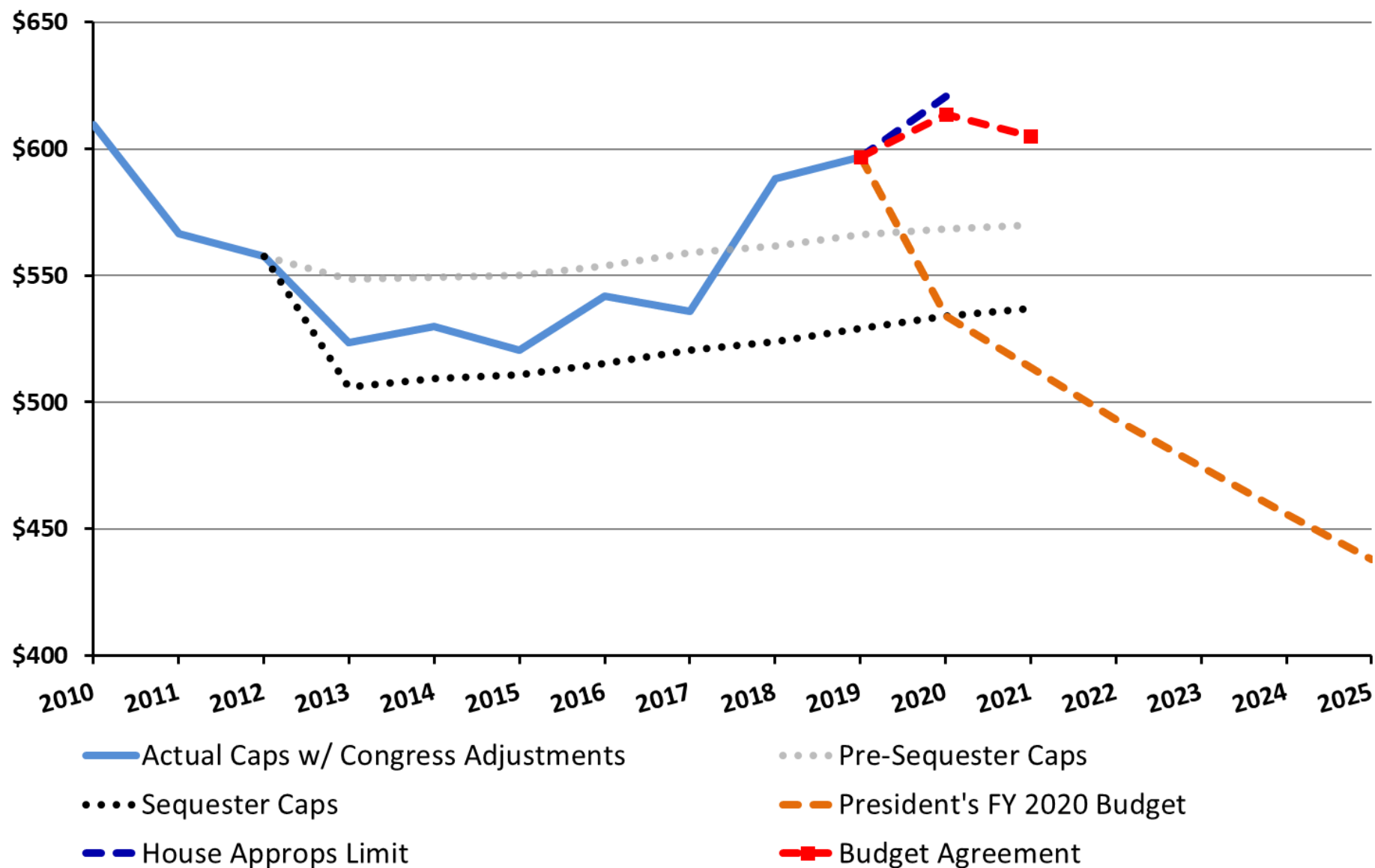


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Limits on Nondefense Spending

Billions of constant 2019 dollars

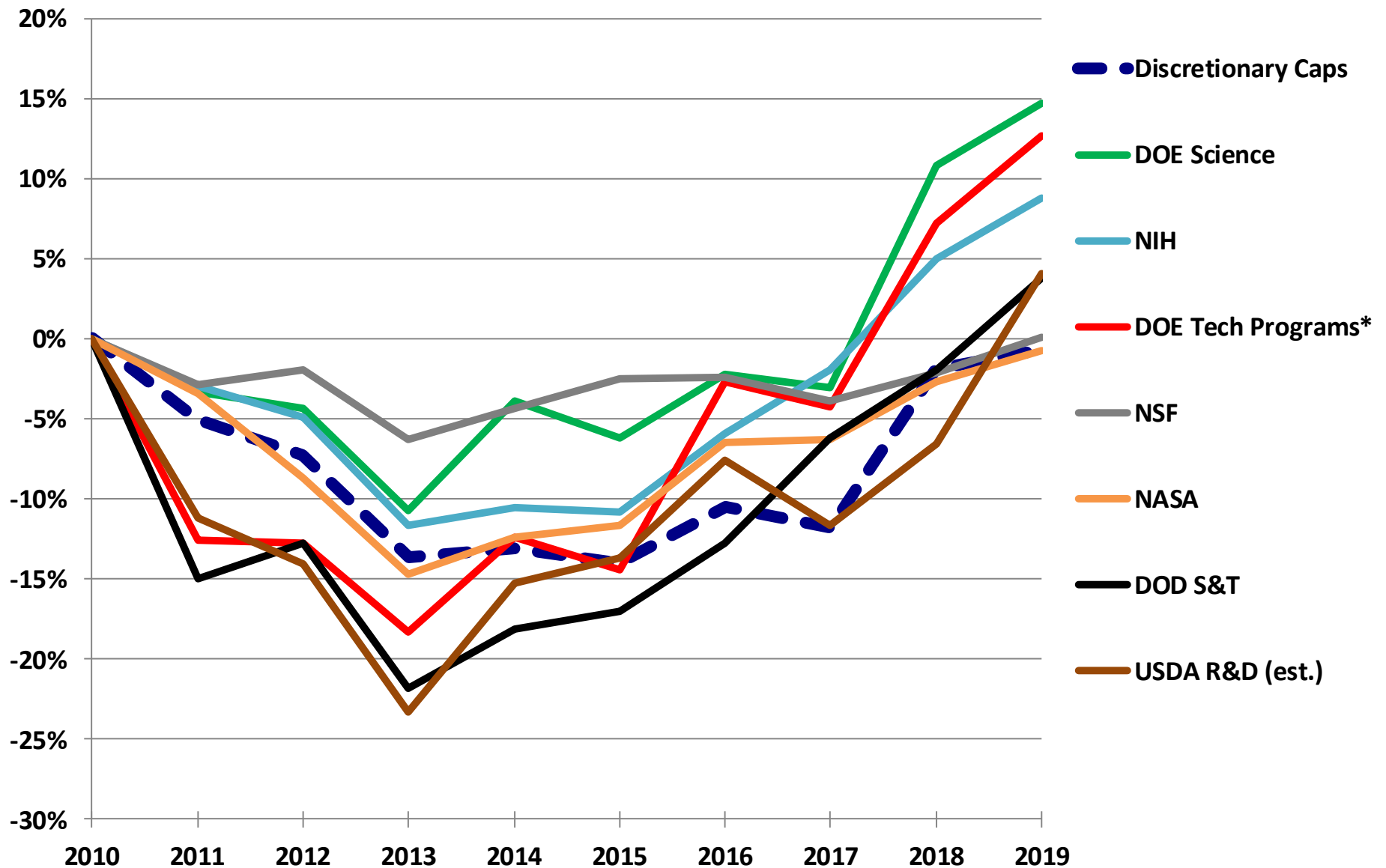


*Current caps last through 2021. Based on past and current budget resolutions, the Budget Control Act and subsequent legislation, and the FY20 request.

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Federal S&T Spending Since FY 2010

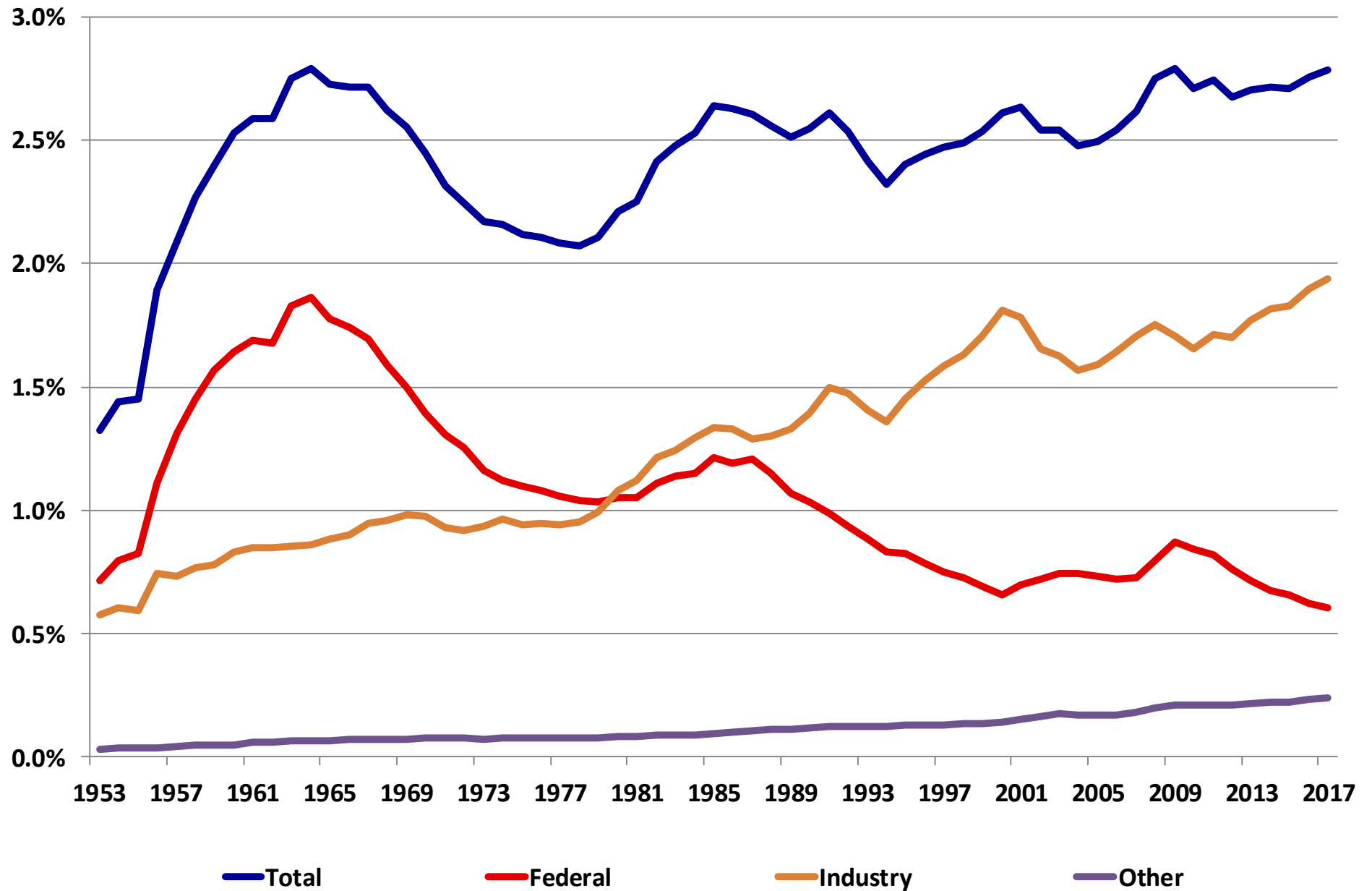
Percent change from FY10 levels, constant dollars



*Includes OE, EERE, Fossil, Nuclear, Cybersecurity, ARPA-E.

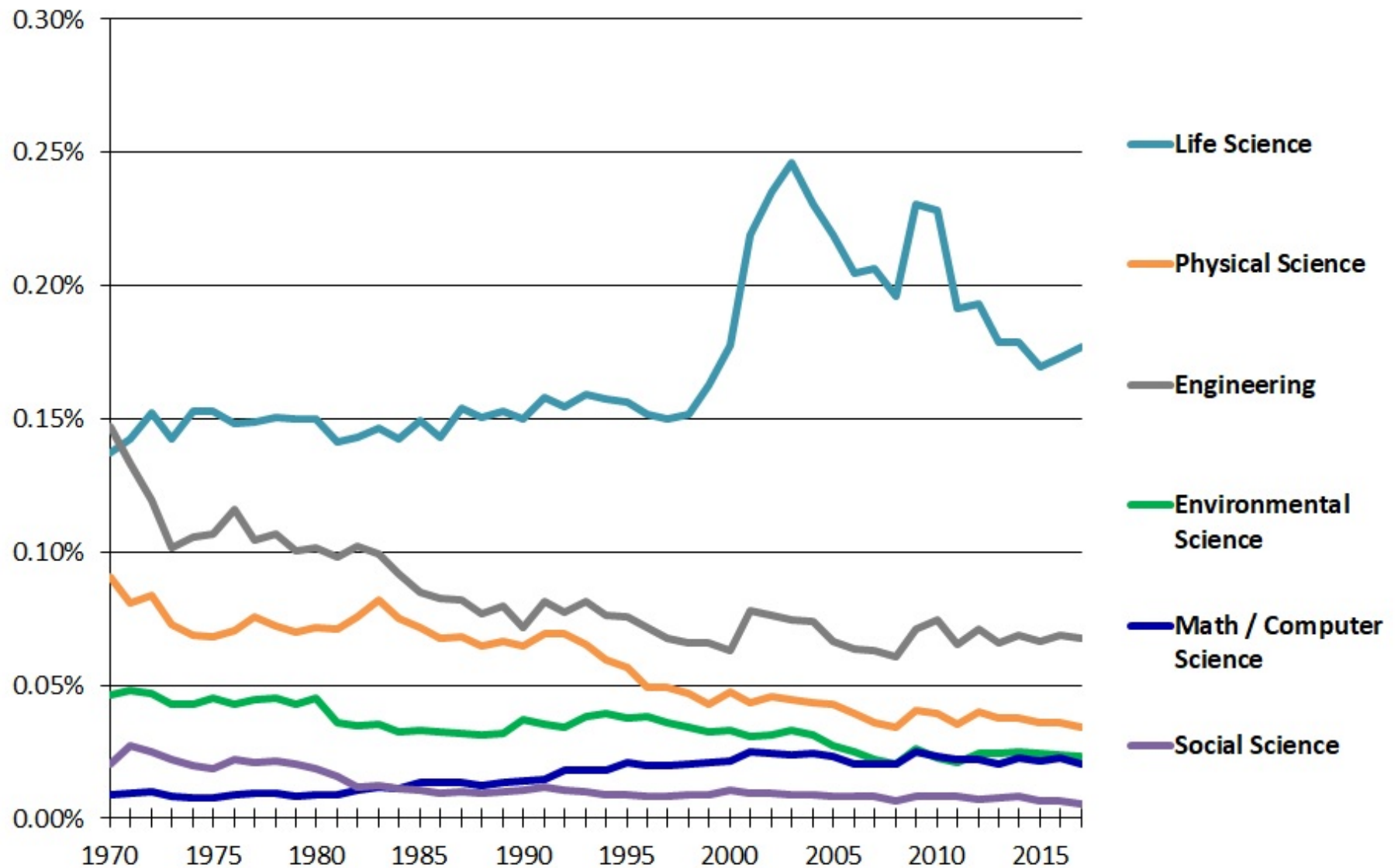
Based on AAAS analyses of historical OMB, agency, and appropriations data. © 2018 AAAS

R&D as a Share of GDP by Funder



Source: National Science Foundation, *National Patterns of R&D Resources* series. © 2019 AAAS

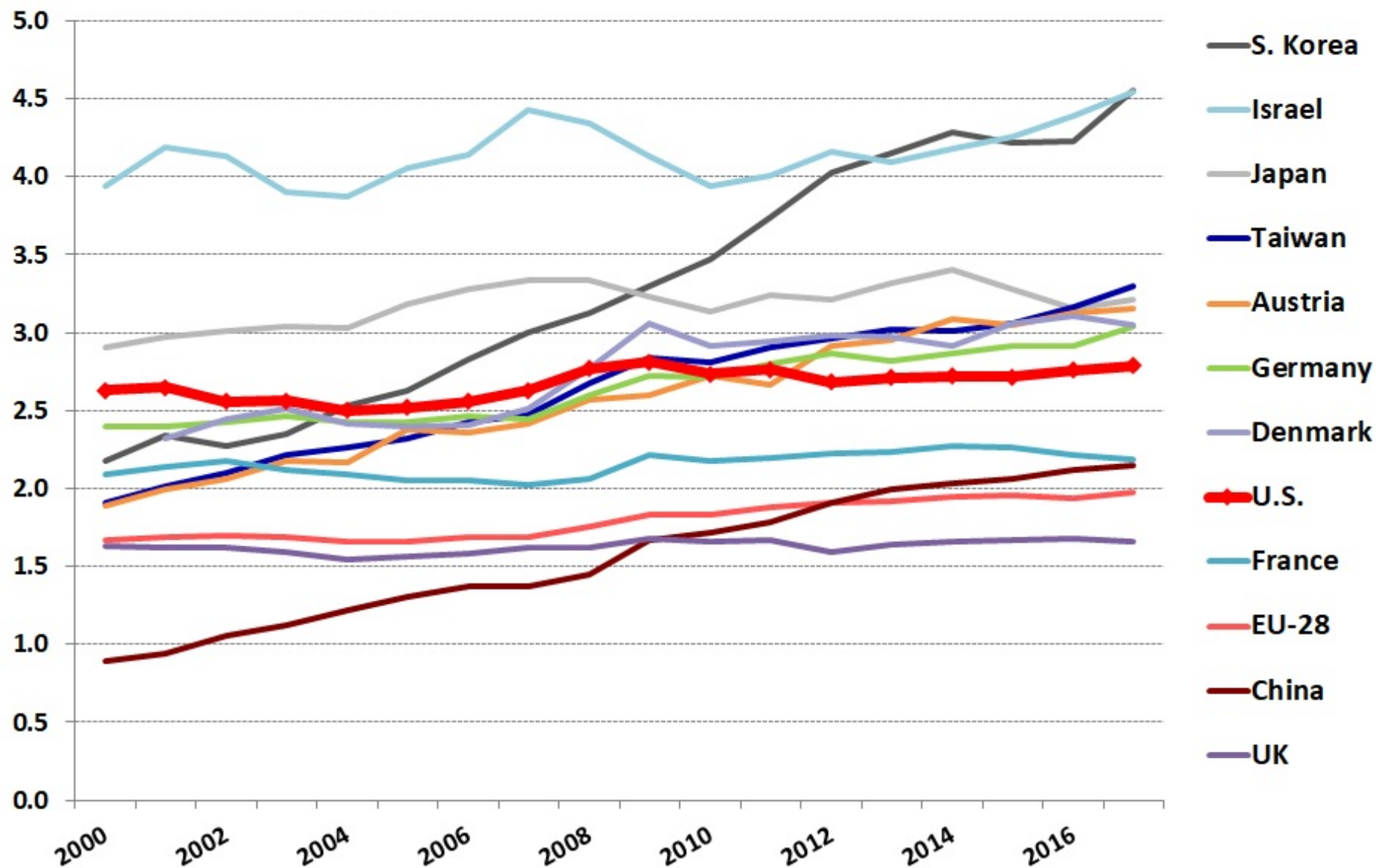
Federal Research Funding by Discipline as a Share of GDP, 1970-2017



Source: National Science Foundation, *Federal Funds for Research and Development* series. GDP figures are from OMB. © 2019 AAAS

National R&D Intensity

Gross R&D investment as a percent of GDP



Source: OECD, Main Science and Technology Indicators, August 2019. © 2019 AAAS