



HEDGEYE  POTOMAC RESEARCH

2018 US DEFENSE \$ ENVIRONMENT

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GOOD START BUT JUST A START

1

LONG TERM DEFENSE CHALLENGES ARE REAL

Catalog of simmering crises driving budget against background of recap/readiness crisis. North Korea, Russia, China, Iran, Syria and AFG, highlight urgent need to restore conventional and nuclear readiness while improving counterterrorism performance.

2

SKYHIGH EXPECTATIONS FOR \$ MET IN 2018 AND 2019

FY17: Final appropriation was +\$26B (+4.5%) y/y; procurement up \$5B y/y; outlays increasing
FY18: +10.9 % (+\$66B) in budget authority y/y; details not final until 3/23; will look like NDAA
FY19: +2.2% (+\$15B) small increase over huge FY18 bump; most boats float but especially R&D

3

2020 ANOTHER INFLECTION YEAR: TOPLINE, PROGRAMS

The old problem with BCA caps vs topline returns in just *18 months*: this time with a different looking Congress and economy. FY19 as high water mark?

NATIONAL DEFENSE STRATEGY

- **Compete, Deter, and Win to Preserve Peace through Strength**
 - Expand the competitive space leveraging all elements of national power
- **Competition with China and Russia is central challenge**
 - Continue efforts to deter and counter North Korea, Iran, and terrorists
- **Sustain U.S. influence and ensure favorable regional balances of power**
 - Build a more lethal, resilient, agile, and ready Joint Force
 - Strengthen alliances and attract new partners
 - Reform the Department's business practices for greater performance and affordability

DOD PROGRAMMING PRIORITIES

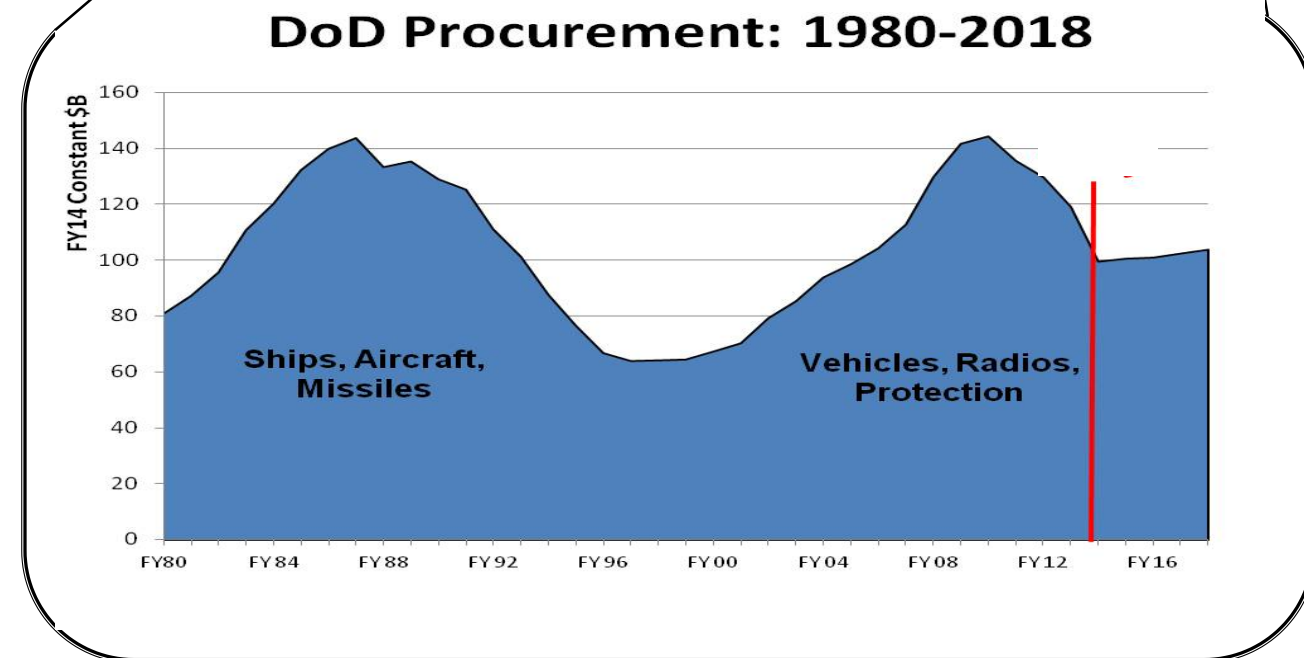
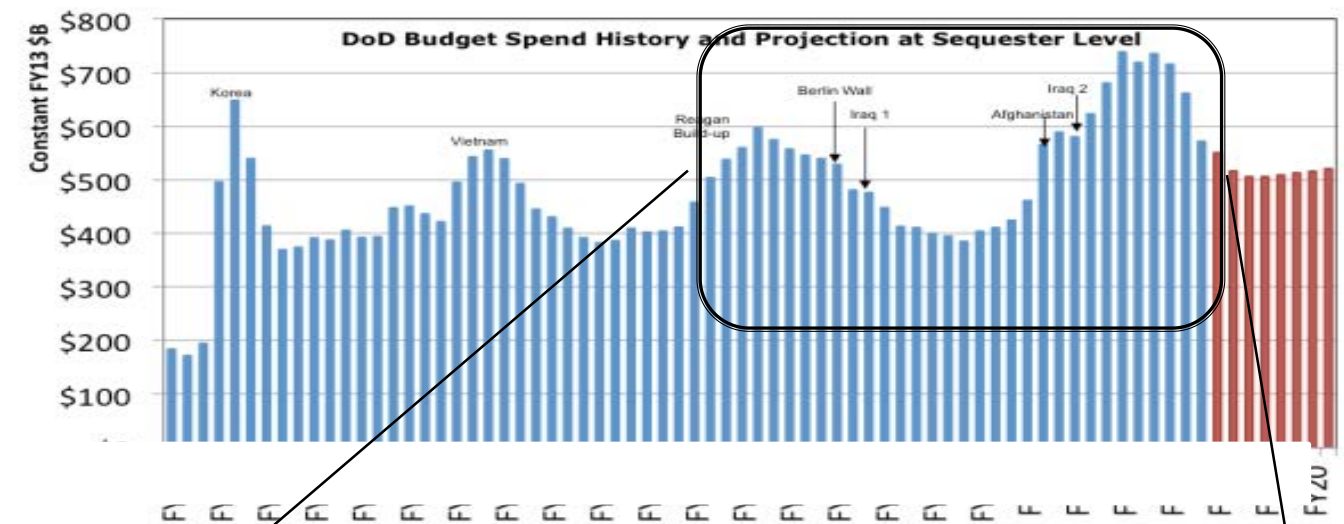
- Prioritize preparedness for war
- Modernize key capabilities
 - Nuclear forces
 - Space and cyberspace
 - C4ISR
 - Missile defense
 - Joint lethality in contested environments
 - Forward force maneuver and posture resilience (agility, take a punch)
 - Advanced autonomous systems
 - Resilient and agile logistics
- Evolve innovative operational concepts
- Cultivate workforce talent

ROOTS OF DOD'S RECAP CRISIS

Procurement within the Reagan spending surge of 80's went to major capital items: ships, aircraft, strategic assets – focus on Air Force and Navy

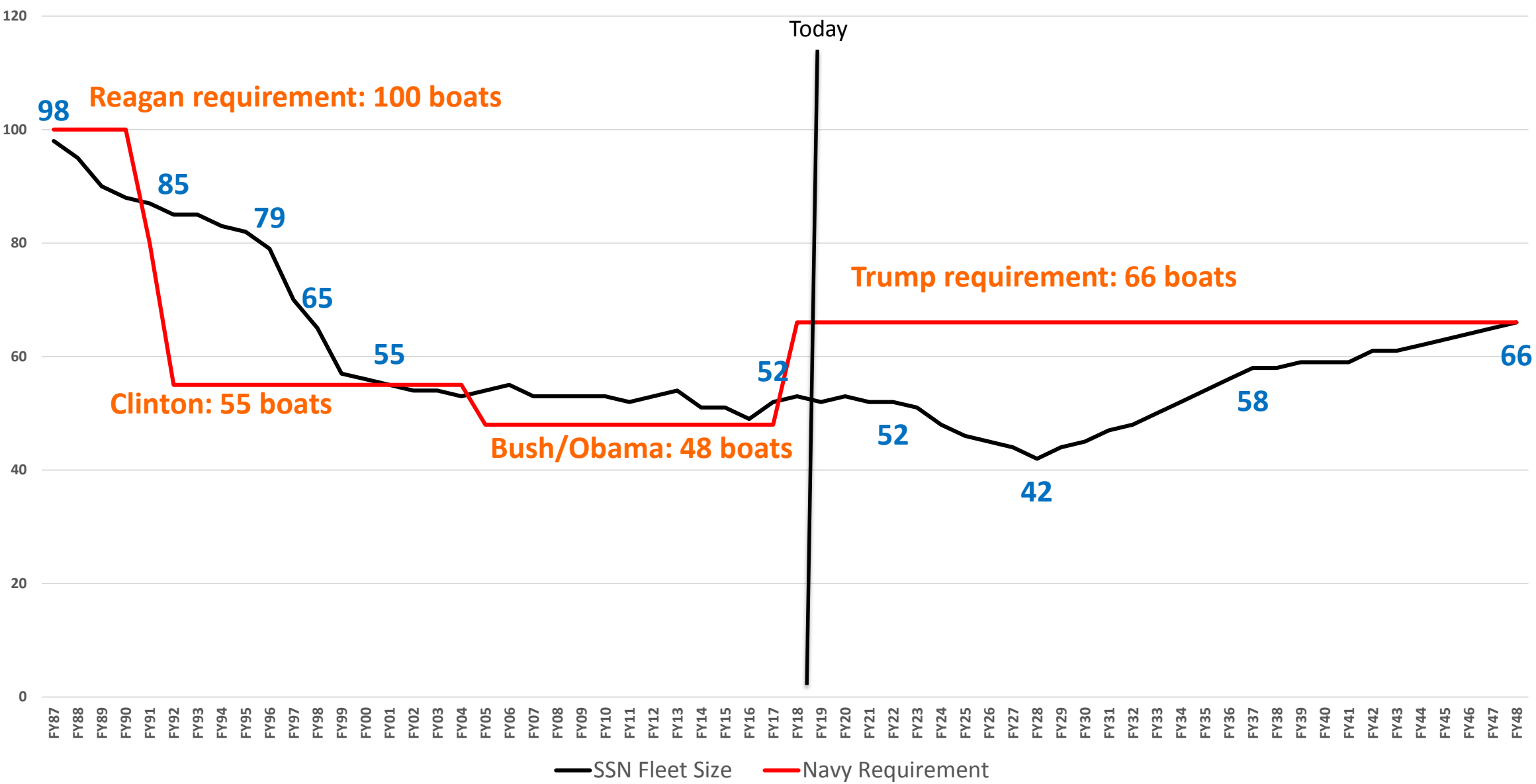
The spending surge of 2004-12 was different than previous surges: it focused on radios, vehicles and force protection - *it did not recap the prior surge's investment.*

DoD now facing block obsolescence in ships, aircraft and triad.



SHRINKING FORCES - MORE REQUIREMENTS

ATTACK SUB (SSN) FLEET VS REQUIREMENT



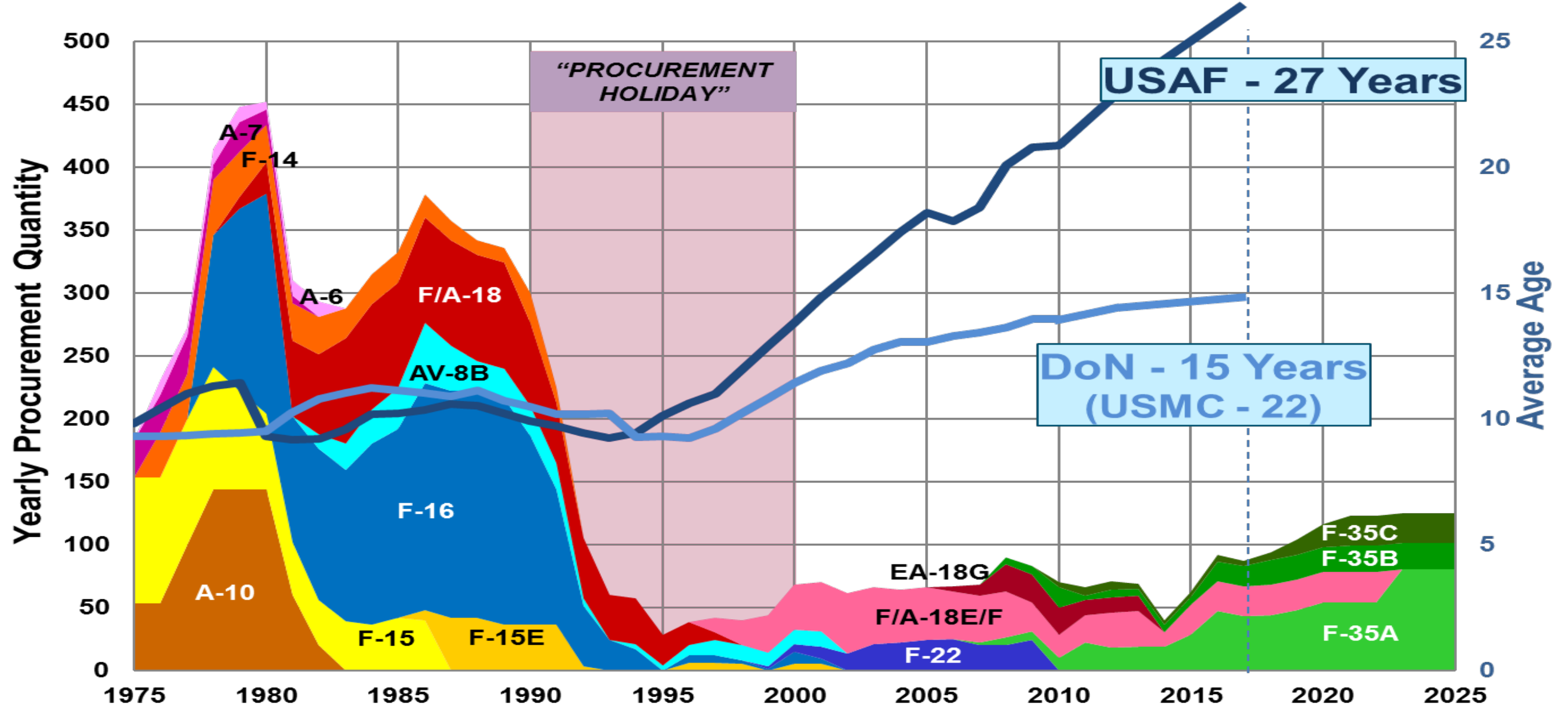
Attack sub fleet shows depth of Navy recap problem: fleet size is on unstoppable 10 year decline that will not be fully corrected for 30 years

Navy looking at 36% shortfall when PRC threat assessed to be highest: 2028: 42 boats vs. 66 reqmt

Navy retiring more boats/year (4) than it is currently building (2)

Reflects need for time and long term \$ to recover readiness in long-cycle capital areas (sub takes 7 years to build/deploy)

U.S. FIGHTER PROCUREMENT / AGE



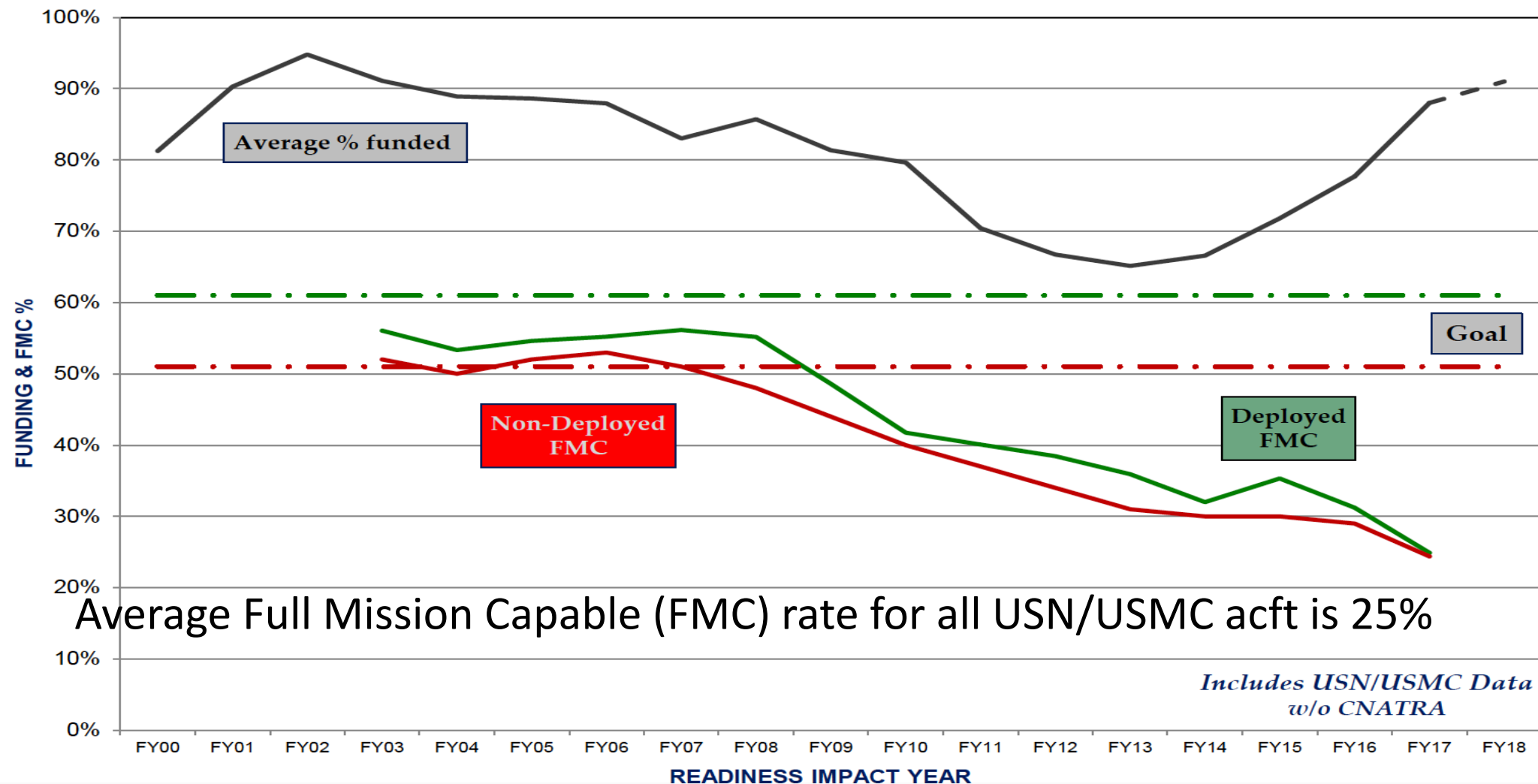
Recapitalization Needed for Aging Fighter Inventory

IMPROVED READINESS REQUIRES \$ AND *TIME*

DEPT OF NAVY PB18 5/22/17 BRIEF ON READINESS

Aviation Spares

Impact of reductions to enabling accounts

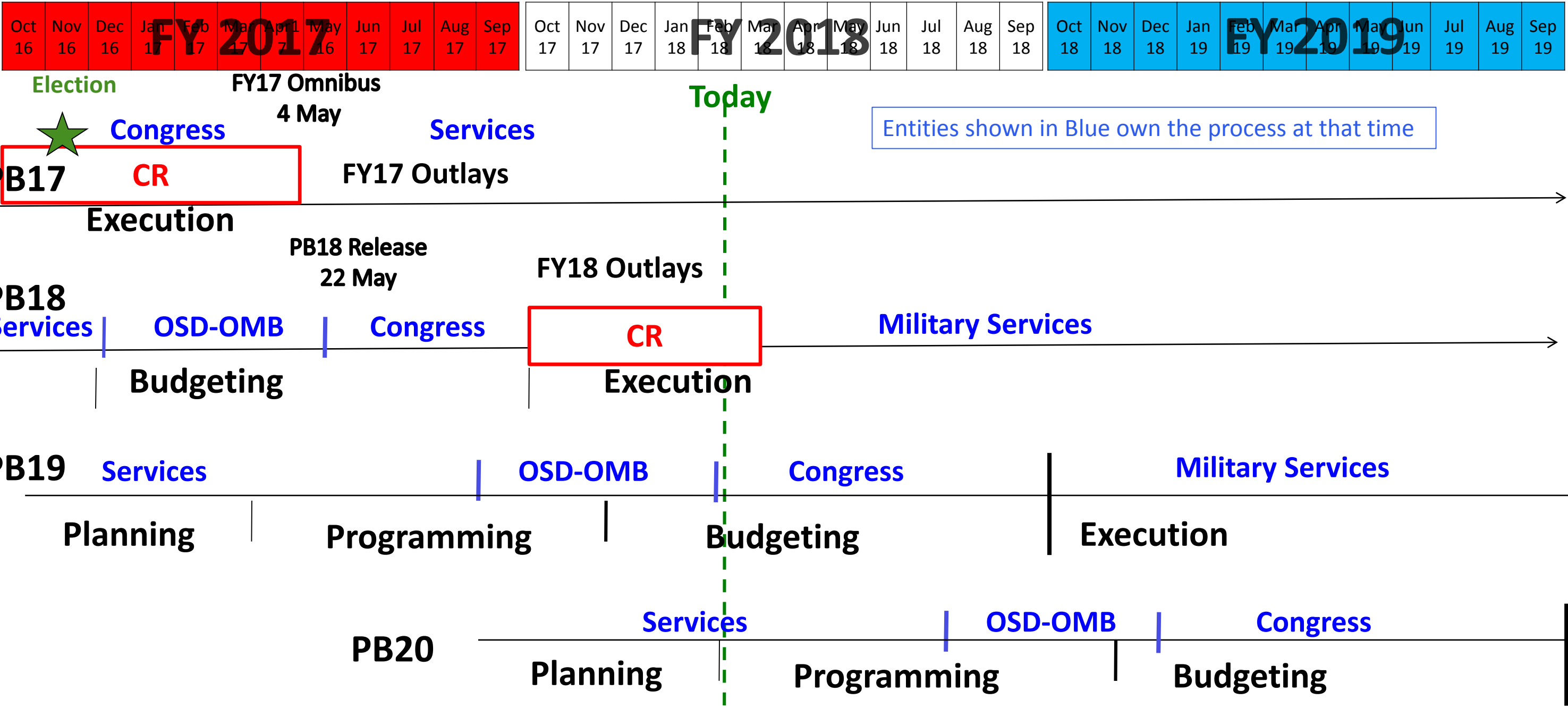


FUNDING DATA SOURCE: HISTORICAL ACTUALS FROM FY00-FY16; PB17 (FY17); BES-18 (FY18-23)

- High deployment optempo plus underfunding of enablers like spares, training, contract maintenance, etc have resulted in shockingly poor readiness.
- It will take 3-5 years of robust effort and funding to recover. Meanwhile Navy trying to buy.

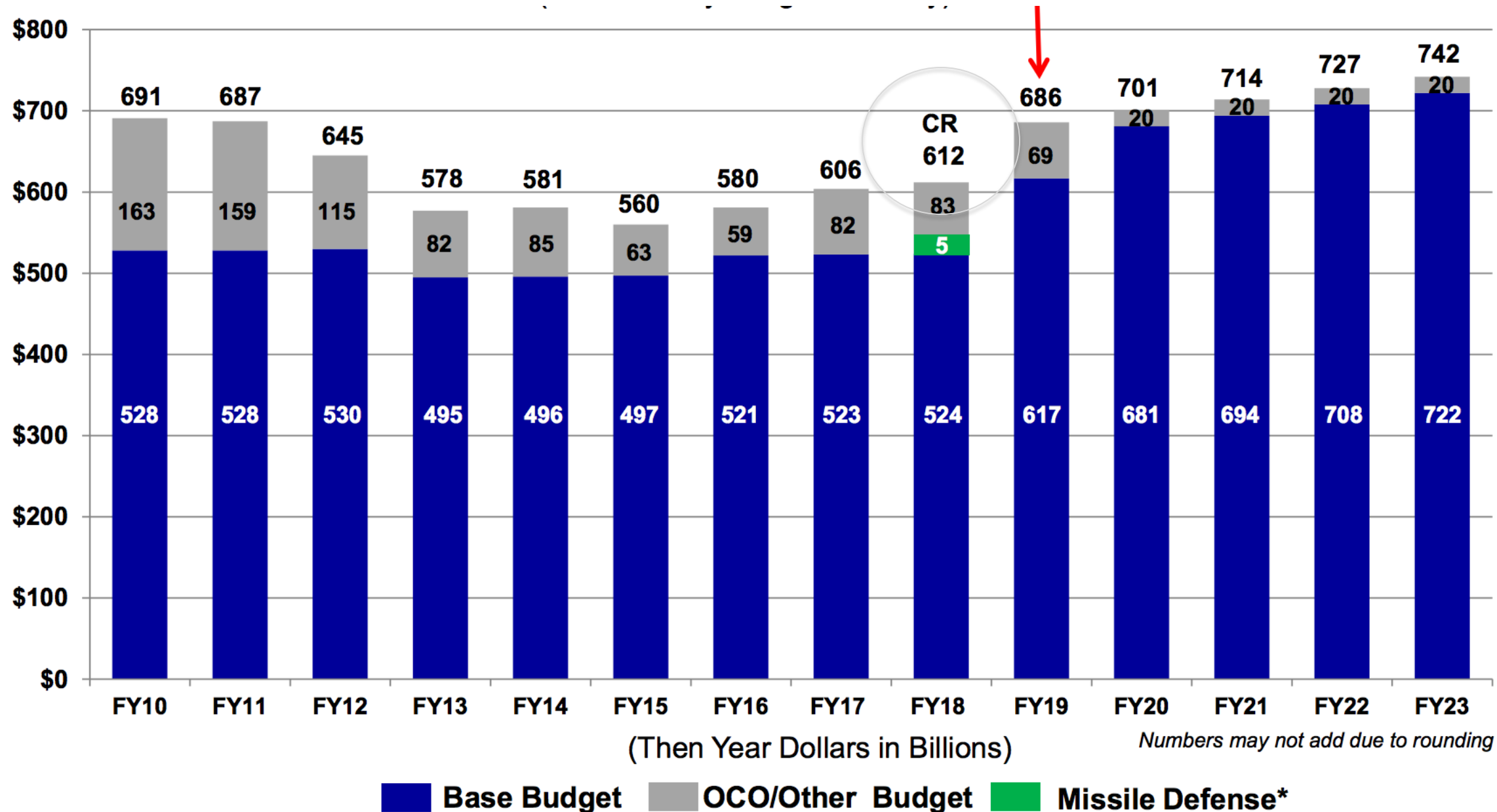
DEFENSE BUDGET DEVELOPMENT

Planning, Programming, Budgeting Execution System (PPBES)



PRESBUD 19 IN HISTORICAL CONTEXT

DOD FUNDING 2010 -2023 \$B



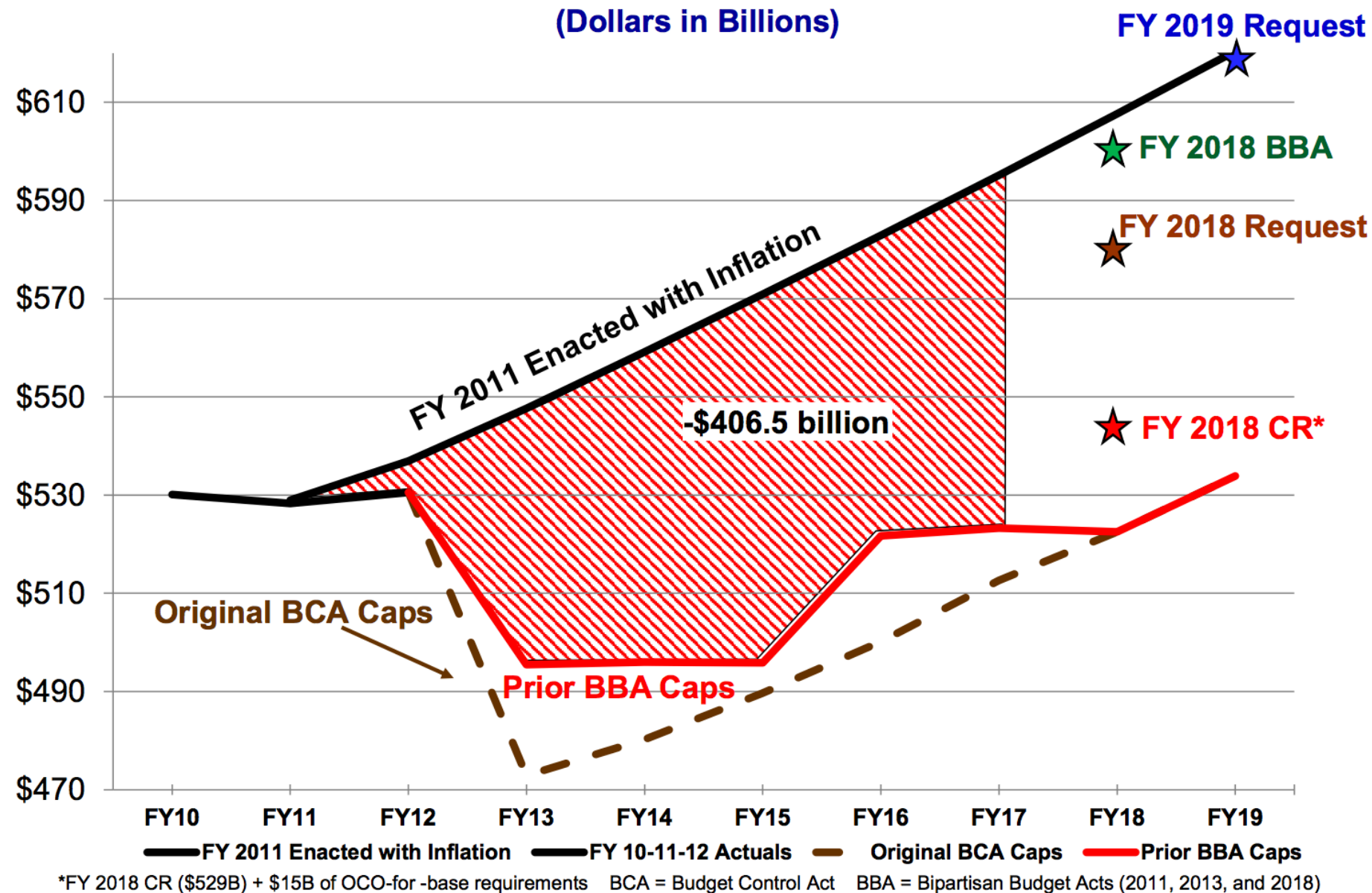
FY18 data:

- DoD's PresBud 19 data uses Continuing Resolution (CR) level of funding for FY 18.
- This does *not* correspond to the recent BCA amendment.
- FY18 topline will be \$671B = +\$59B higher than the CR = NDAA 18.
- Congress must pass an appropriations bill by March 23 allocating the new \$.

OCO: Beginning in FY20, DoD wants to move away from dependence on OCO and fully funding the baseline.

DOD: PB19 FINALLY ARRESTS DECLINE

DEFENSE BASE BUDGET \$B



Begins Recovery from over \$400 Billion of Lost Capability

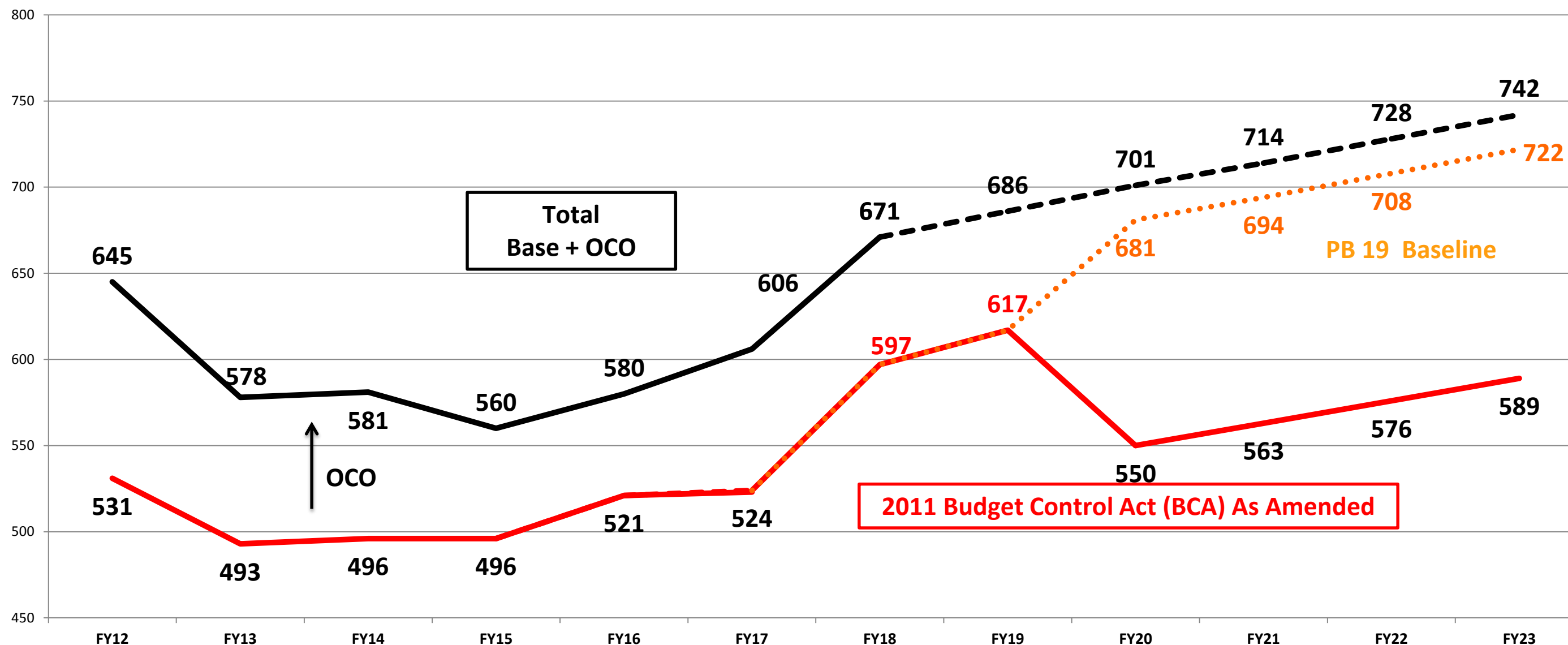
DoD thesis:

The BCA has created a huge debt in capability that will require consistent investment over time *just to catch up*. More capability will cost even more.

SecDef Mattis: "... no enemy in the field has done as much to harm the readiness of U.S. military than the combined impact of the BCA's defense spending caps, worsened by operating for 10 of last 11 years under continuing resolutions of varied and unpredictable duration."

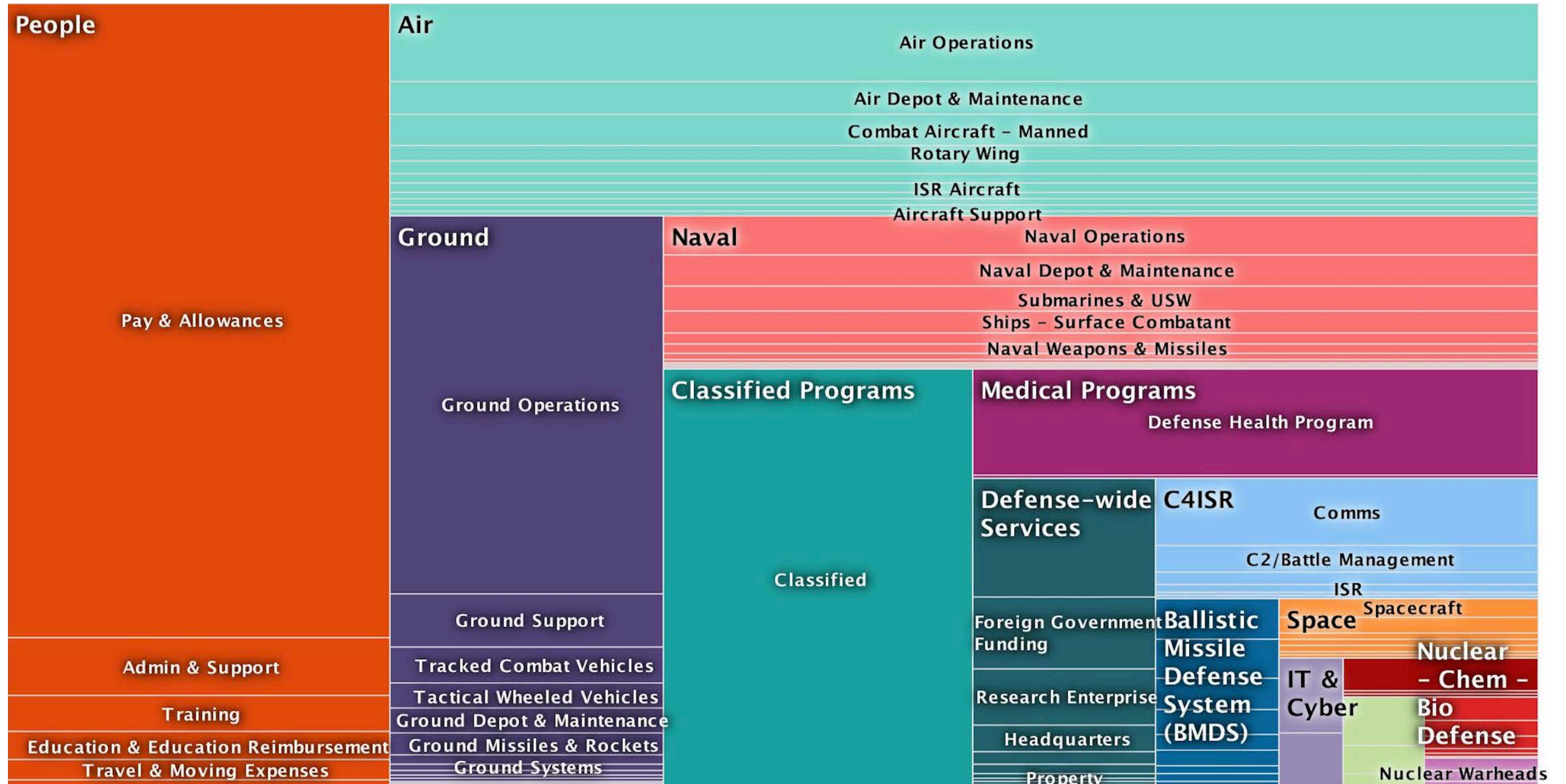
LONG TERM DOD TOPLINE REMAINS AN ISSUE

Budget Control Act and PresBud Toplines Compared (DoD only, no DoE)



- Solid lines indicate enacted amounts. Dotted lines are proposed in PresBud 19 submission.
- Figures shown are DoD discretionary spending (051) only. Figures include Military Construction (often appropriated separately).

PRESBUD 19 SEGMENTATION



ARMY FY19 BUDGET REQUEST

U.S.ARMY

(Base Funding Program)

\$B	FY17 Actuals	FY18 Request	FY19 Request
Military Personnel	55.3	58.0	60.6
Operation and Maintenance¹	46.8	49.5	52.5
Procurement/RDTE	26.4	28.0	32.0
Military Construction/Family Housing/BRAC	1.6	2.3	2.0
Other Base (CAMD/AWCF/ANC)	0.9	1.2	1.2
Totals	131.1²	138.9³	148.4⁴

Numbers may not add due to rounding

Other Base: Chemical Agent and Munitions Destruction, Army Working Capital Fund, and Arlington National Cemetery

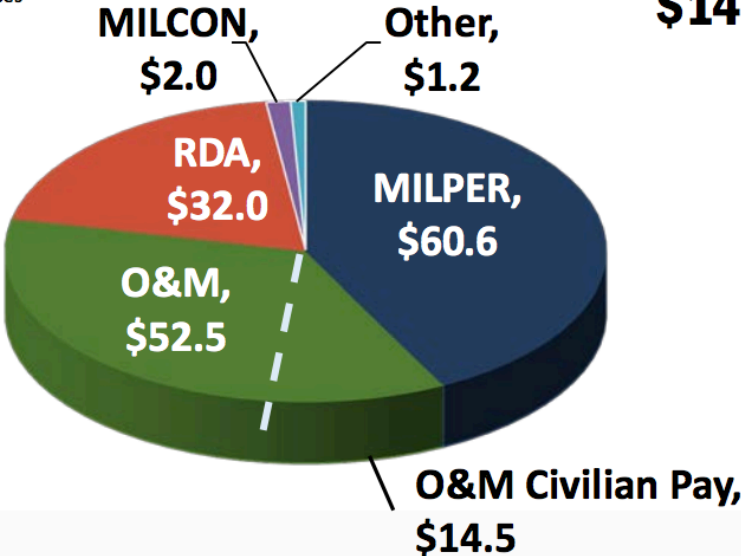
1: Includes Environmental Restoration Account (ERA) funding

2: Includes \$6.0B in OCO for Base purposes

3: Includes \$0.9B Missile Defeat and Defense Enhancement, \$0.6B Hurricane Supplemental and \$0.2B OCO for Base purposes

4: Includes \$5.0B in OCO for Base purposes

► **Base Request** ◀
\$148.4B



- ❖ **The Army's topline base funding grew by 7% from the total FY18 budget request**
- ❖ **The FY19 base budget funds the Army's readiness requirements and the higher end strength:**
 - ❖ **Military Personnel 4.5% ▲**
 - ❖ **Operations & Maintenance 6.1% ▲**
 - ❖ **Procurement/RDTE (RDA) 14.3% ▲**

- Not shown is \$34B in FY19 OCO funding that goes primarily for O&M.

PB19 vs FY17:

- Massive (~2X) increase in vehicle procurement (\$4.5B vs \$2.4B).
- 22% reduction in acft procurement (\$3.8B vs. \$4.9B)

DEPT OF NAVY FY19 BUDGET REQUEST

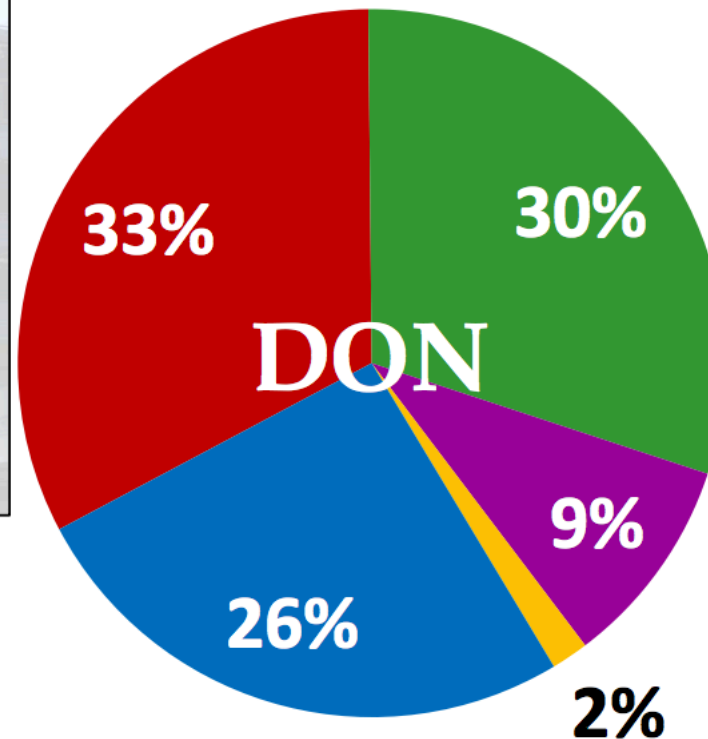
O&M: \$63.4B (\$49.9B Base/ \$13.5B OCO)

Ship Ops & Maint	\$18.3
Aviation Ops & Maint	\$11.4
Base Ops & Support	\$7.7
Marine Corps O&M	\$8.2
Combat/Weapons Support	\$8.7
Service Wide Support	\$4.2
Training and Education	\$2.0
Reserve O&M	\$1.1
Environmental Restoration	\$0.3
Mobilization	\$1.3

● Navy: 33% ● Marine Corps: 28%

FY19: \$194.1B

(\$179.1B Base/ \$15.0B OCO)



Infrastructure: \$3.4B (\$3.2B Base/ \$0.2B OCO)

MILCON	\$2.8
BRAC	\$0.2
Family Housing	\$0.4

● Navy: 1% ● Marine Corps: 3%

Procurement: \$58.5B (\$57.9B Base/ \$0.6B OCO)

Ships	\$21.9
Aircraft	\$19.1
Weapons	\$3.7
Marine Corps	\$2.9
Ammunition	\$1.3
Other Navy Procurement	\$9.6

● Navy: 34% ● Marine Corps: 11%

R&D: \$18.6B (\$18.4B Base/ \$0.2B OCO)

Basic Research	\$0.6
Applied Research	\$0.9
Advance Tech Dev	\$0.8
Adv Component Dev	\$4.3
System Dev & Demo	\$6.0
Management Support	\$1.0
Ops Systems Dev	\$5.0

● Navy: 11% ● Marine Corps: 3%

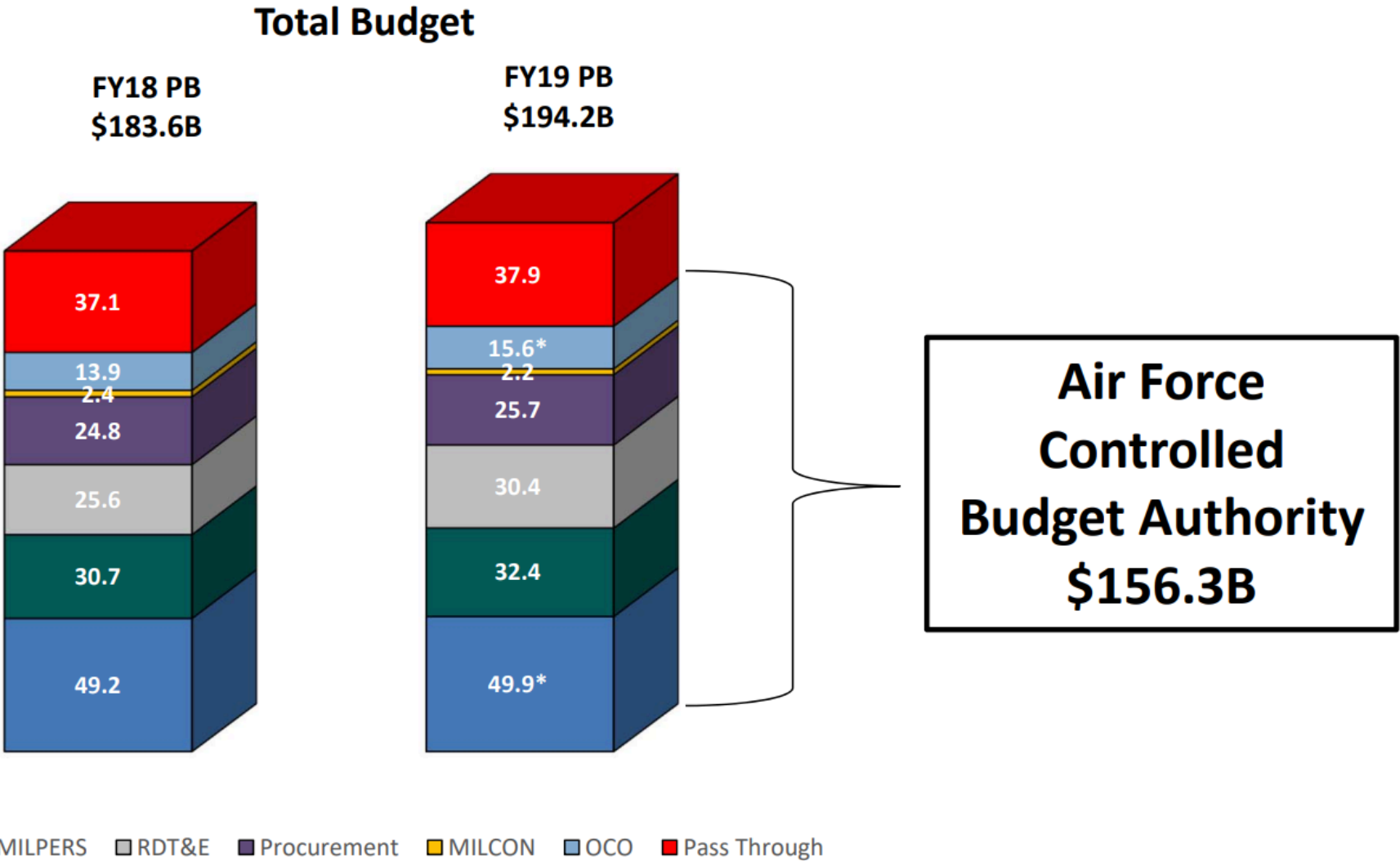
MilPers: \$50.2B (\$49.7B Base/ \$0.5B OCO)

Basic Pays	\$20.9
Housing Allowance	\$8.2
Retired Pay Accrual	\$6.3
Health Accrual	\$2.5
Reserve Personnel	\$2.8
Subsistence	\$2.3
Allowances	\$1.1
Special Pays	\$1.6
Other	\$3.7

● Navy: 21% ● Marine Corps: 54%

Record level shipbuilding account (\$22B) is only the beginning of the bow wave coming.

AIR FORCE FY19 BUDGET REQUEST



* \$4.8B of OCO included for Base WSS requirements; not included in the \$15.6B OCO
Numbers may not add due to rounding

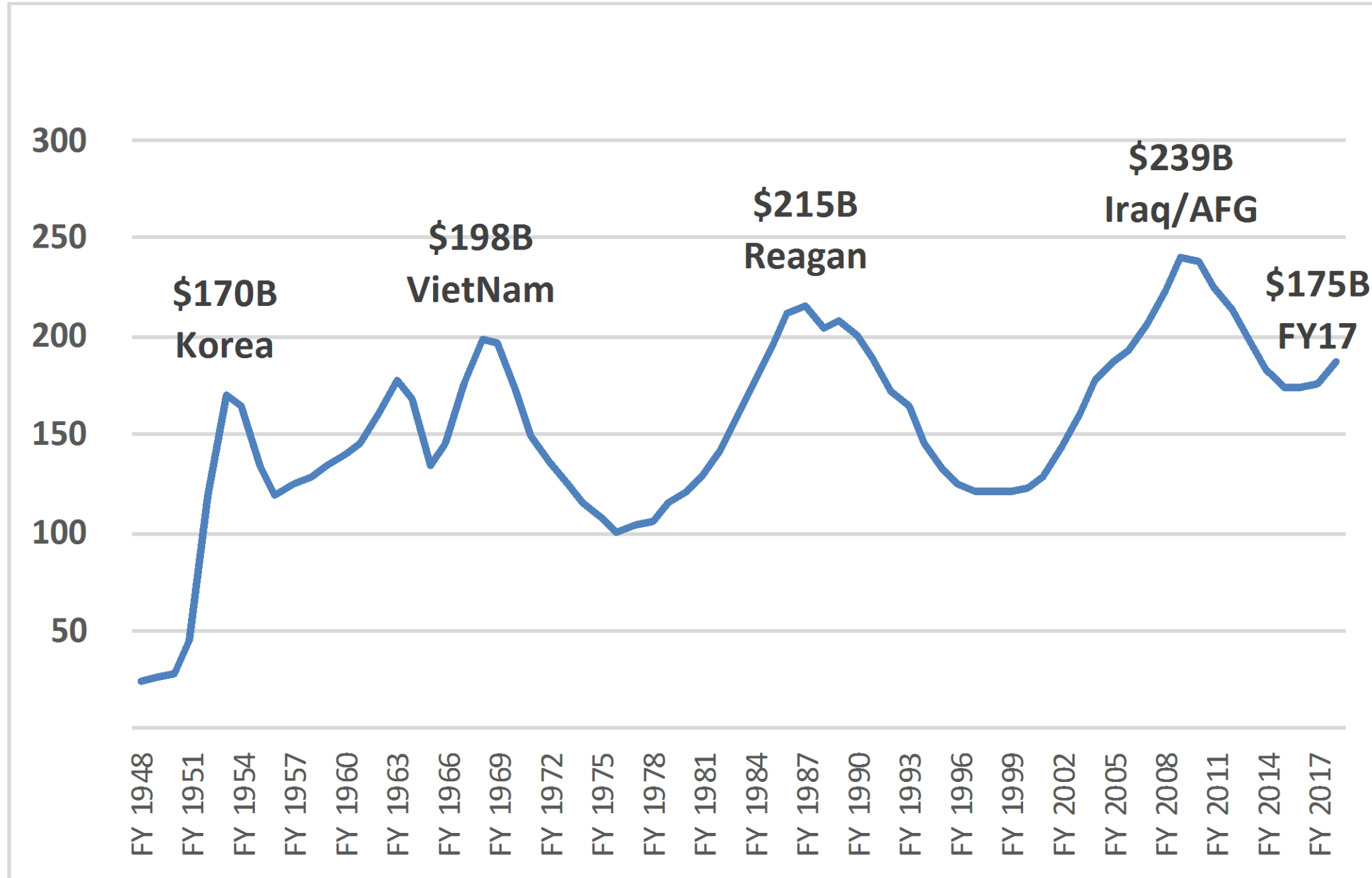
- Air Force is “pass through” agency for classified budgets which distorts resource picture.
- AF spending more on R&D than on Procurement.
- Aircraft procurement is flat but weapons quantities procurement are up by 33% compared to FY17, mostly using OCO \$.

Future Wars will be Won by those Who Observe, Orient, Decide and Act Faster

7

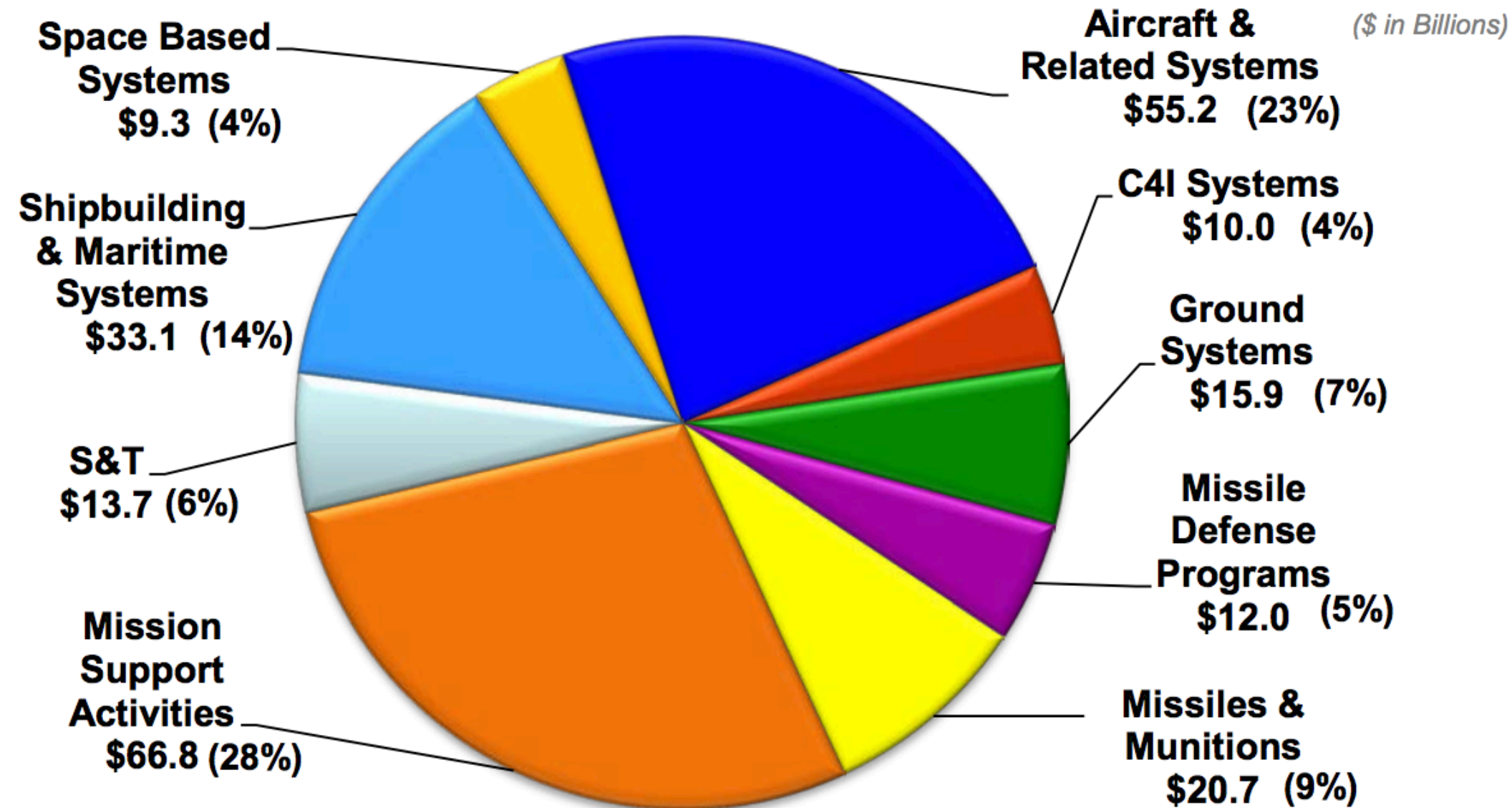
INVESTMENT OUTLAYS ACCELERATING

DOD INVESTMENT (PROC + RDT&E) OUTLAYS 1948 -2018 CONSTANT FY18 \$



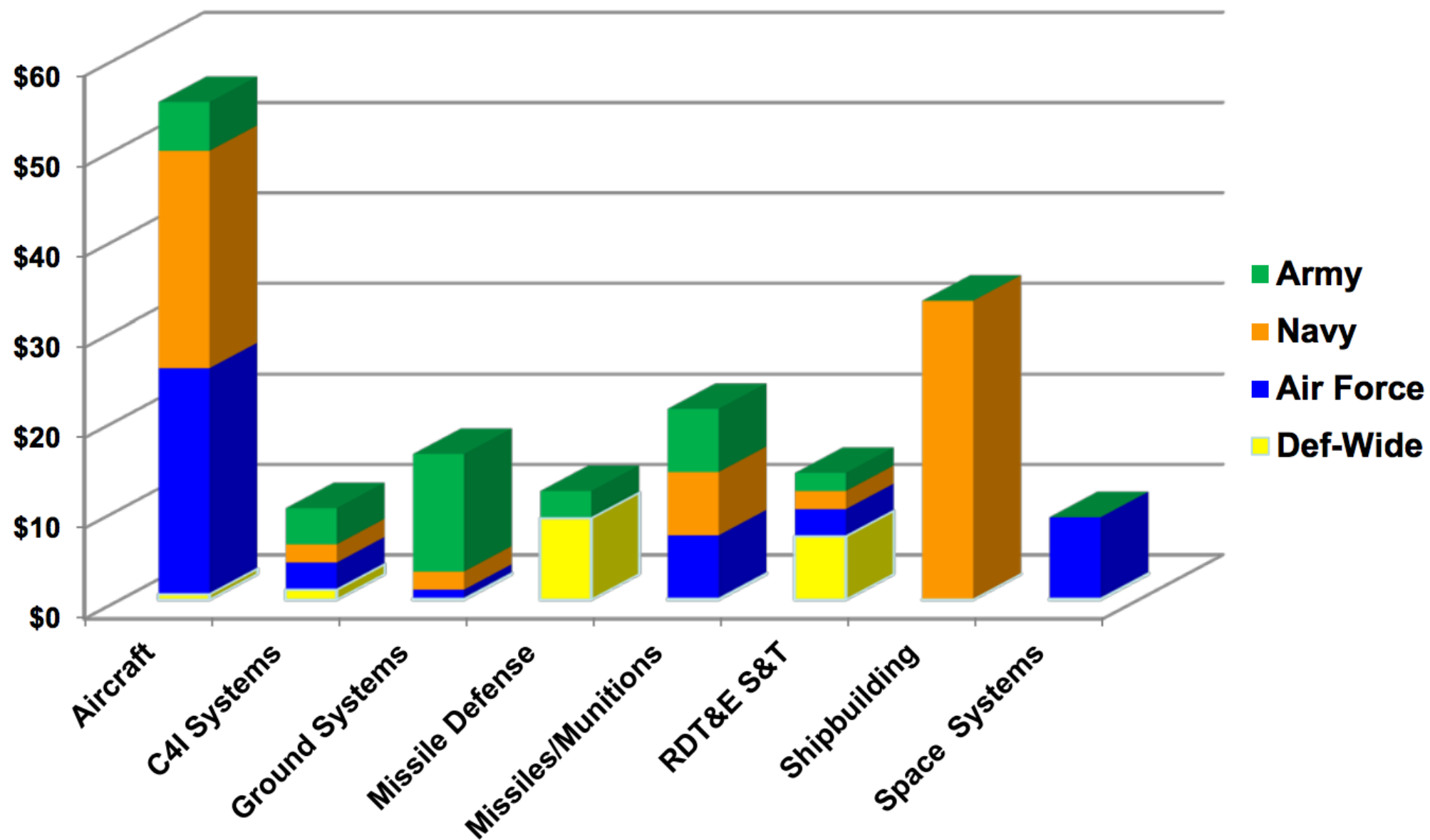
- Budget outlays are best indicator of defense company earnings.
- Budget outlays lag budget authority by 1-3 years.
- Tide has finally turned and the *rate* of increase is accelerating.
- FY20 outlays should *surpass* Reagan year peaks.

DOD FY19 MODERNIZATION = \$236.7B



Mission support activities include other classified programs, test ranges, chem demil, etc.

DOD FY19 INVESTMENT BY CATEGORY

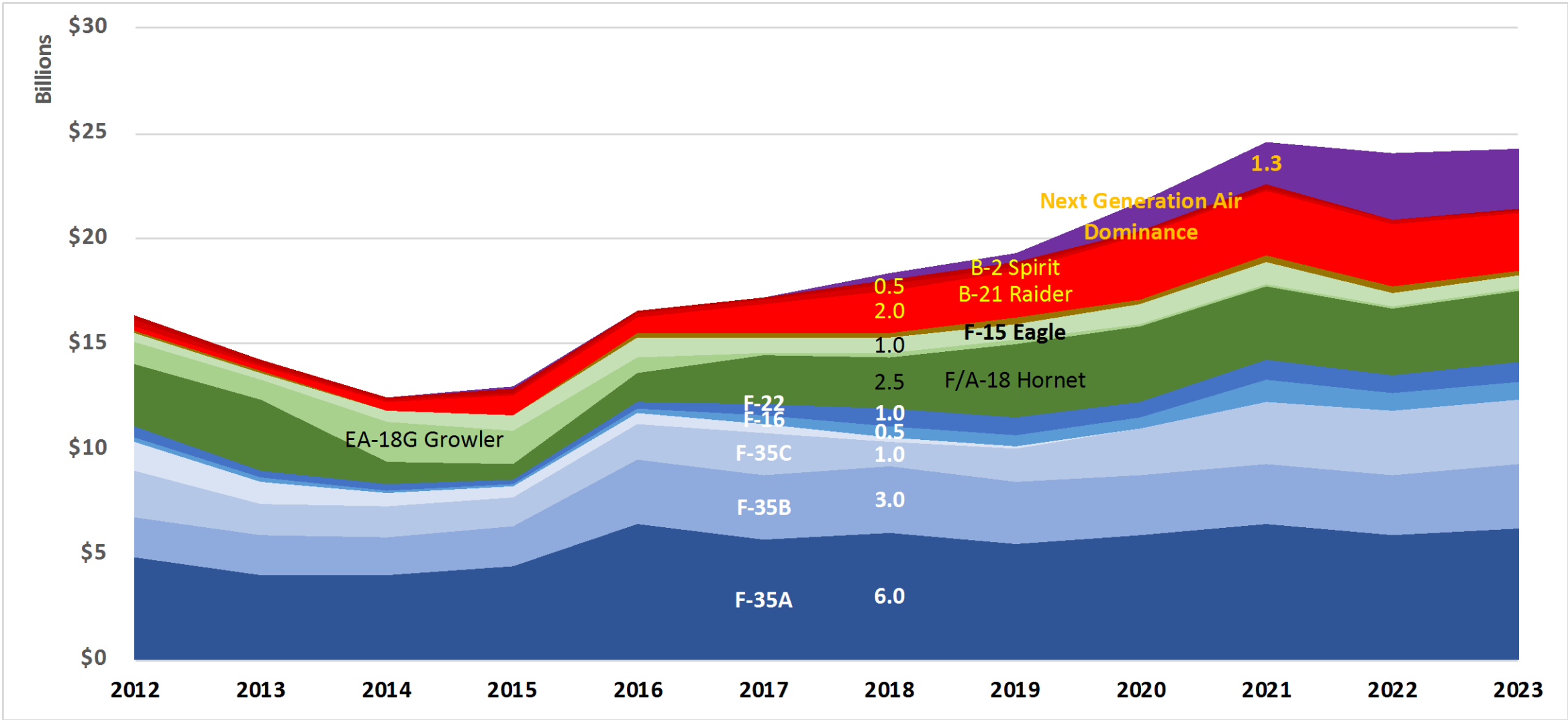


* Does not include Mission Support costs

- Despite focus on missile defense and space in the press, aircraft and ship procurement dominate investment budget.
- Aircraft procurement is most volatile account given fungibility (easy to add/subtract onesies/twosies).

COMBAT ACFT MARKET GROWING, DIVERSIFYING

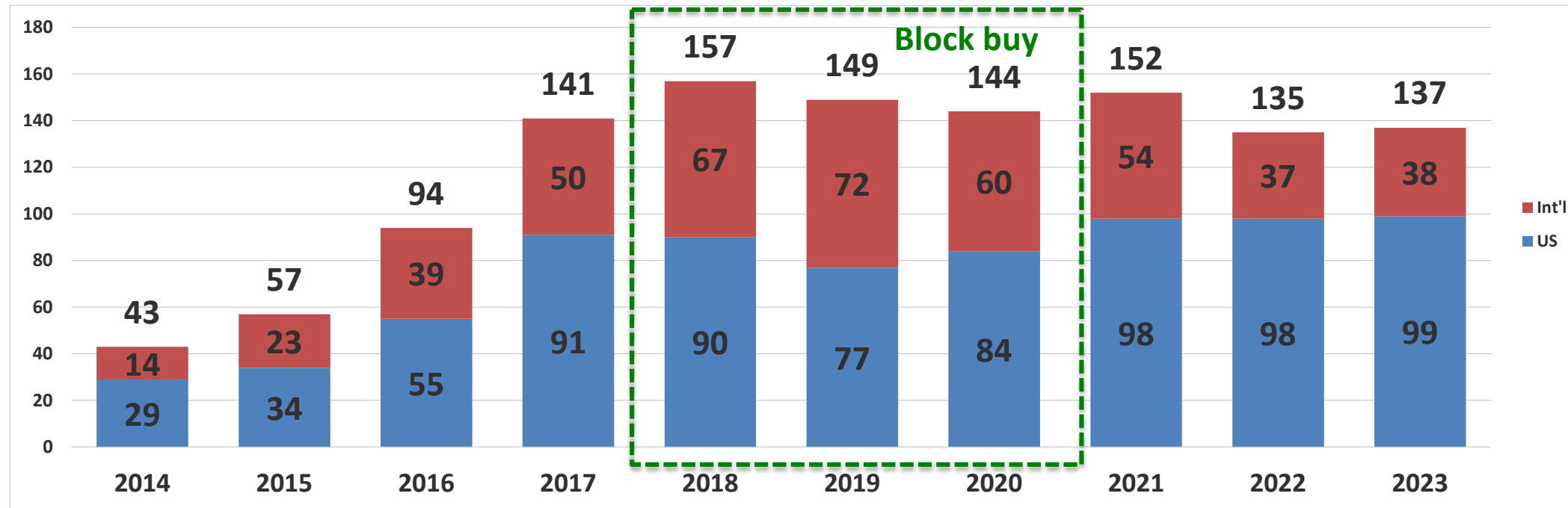
PB19 COMBAT ACFT INVESTMENT (\$B)



Blue = LMT Green = BA Red = NOC Purple = Not yet specified

- Acft investment budget to increase by \$7B (42%) by 2021.
- F35 growth flattens; AF buy cut to 54/yr from 80.
- New buys and upgrades of legacy programs are filling capacity gap: F/A-18s, F15s, and even F16s. Services prefer new to rework.
- B-21 Long Range Strike Bomber R&D ramps up; cost estimates seem too conservative
- USAF Next Gen Air Dominance growing to \$3B in annual R&D by 2022; first flight in 2024?

F35: HAVE ORDERS PEAKED?



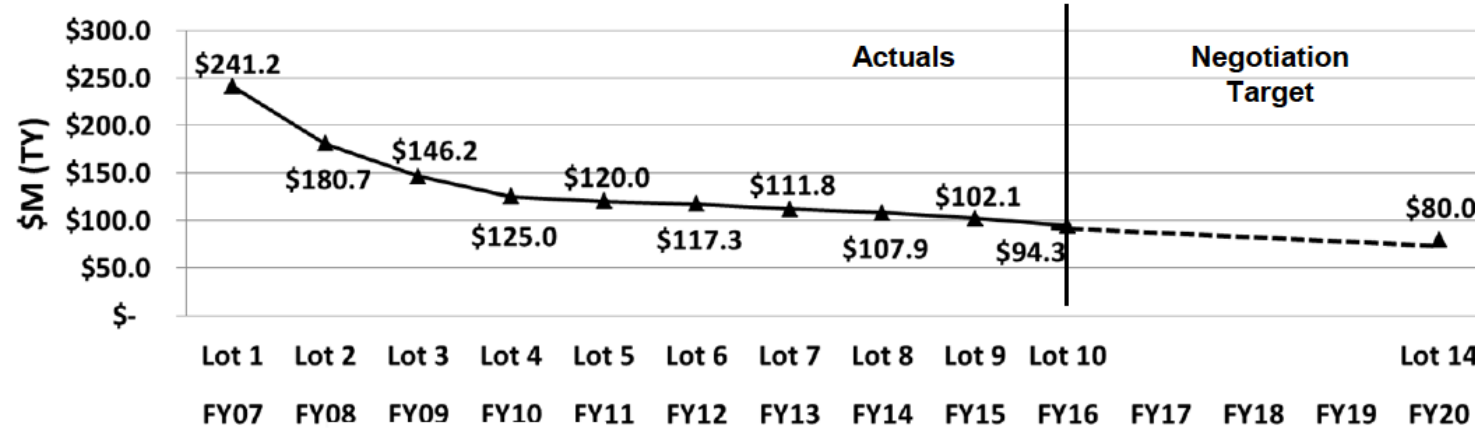
PresBud 19 = \$10.7B

- USAF rethinking fleet mix. F35 goal is now only 54/year by 2021 vice 80.
- USMC/ USN on track to achieve full rate of 21 and 24 per yr by FY21.

Congressional support remains strong: 20-24 aircraft (=90/94) added to DoD request + EOQ \$ for block buy in FY18.

Production Costs – Coming Down the Price Curve

US F-35A



Affordability Initiatives

- Block Buy / Multi-year purchases
- Industry investment
- Government direct purchasing (e.g. engine)
- Blueprint for Affordability
- War on Cost

	Lot 10	Lot 14
F-35A	\$94.3	\$80
F-35B	\$122.4	\$104
F-35C	\$121.2	\$98

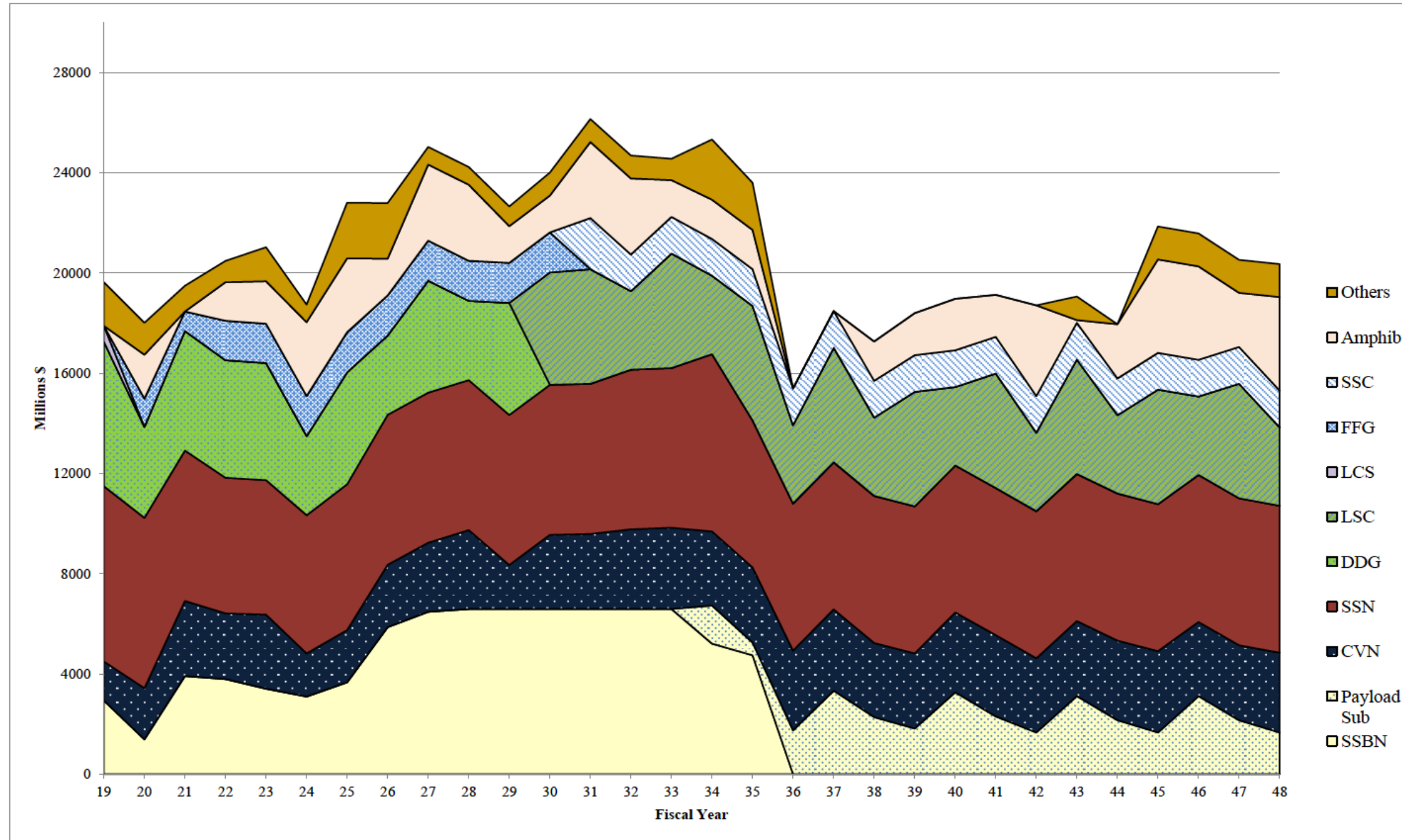
Production costs coming down *as planned*.

Sustainment costs are now primary concern. AF considering buying F-15s.

Continued difficulties b/w LMT and Gov't getting on contract. FY17 still not agreed.

NAVY SHIPBUILDING HITS THE BOW WAVE

Annual Shipbuilding Funding Required for Long Range Program in Constant FY18\$



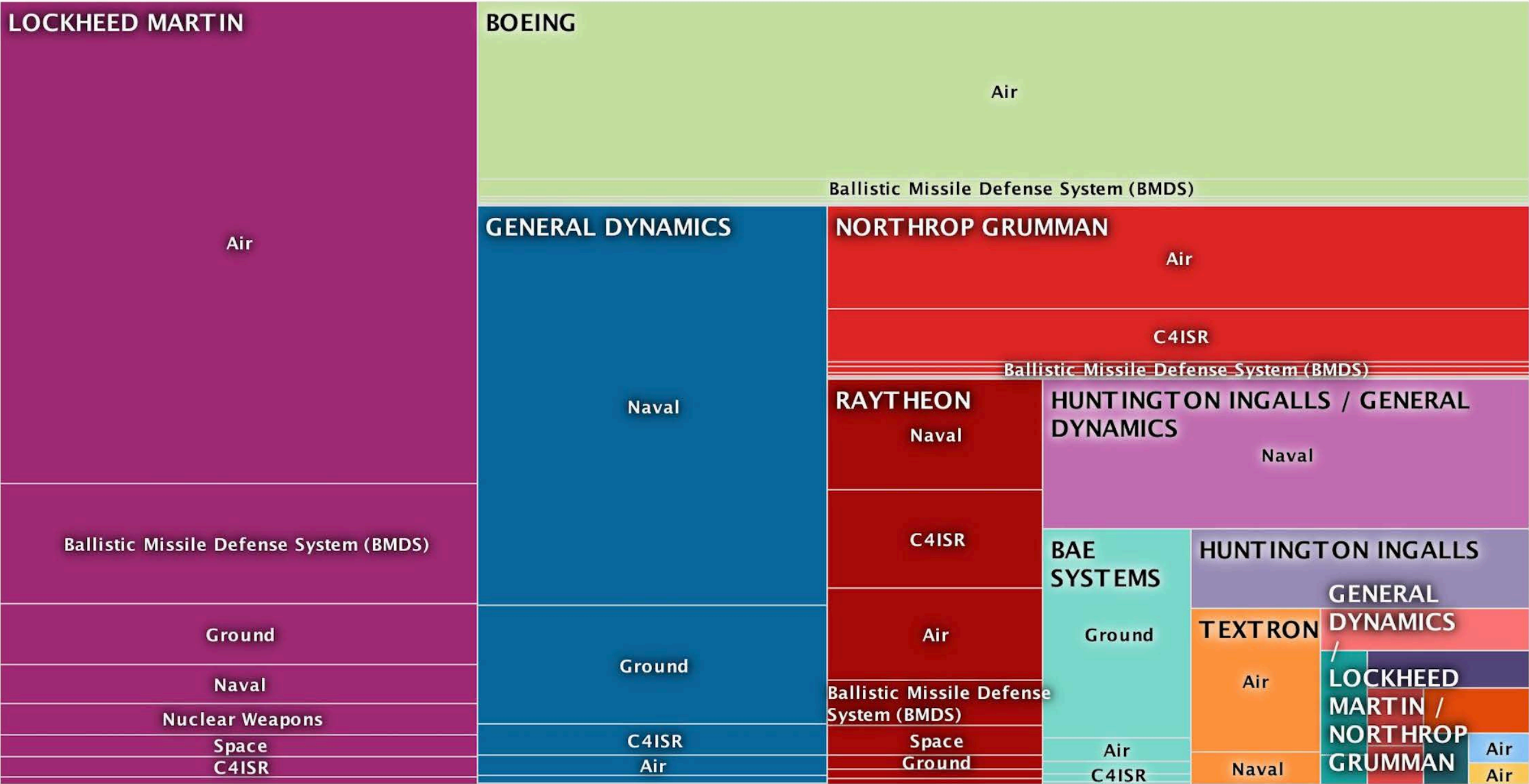
Navy has requested \$19.8B to build 10 ships in FY19.

Navy plan calls for 20.8% increase to \$24B to build 13 ships in 2023.

Plan achieves goal of 355 ship fleet by 2050s

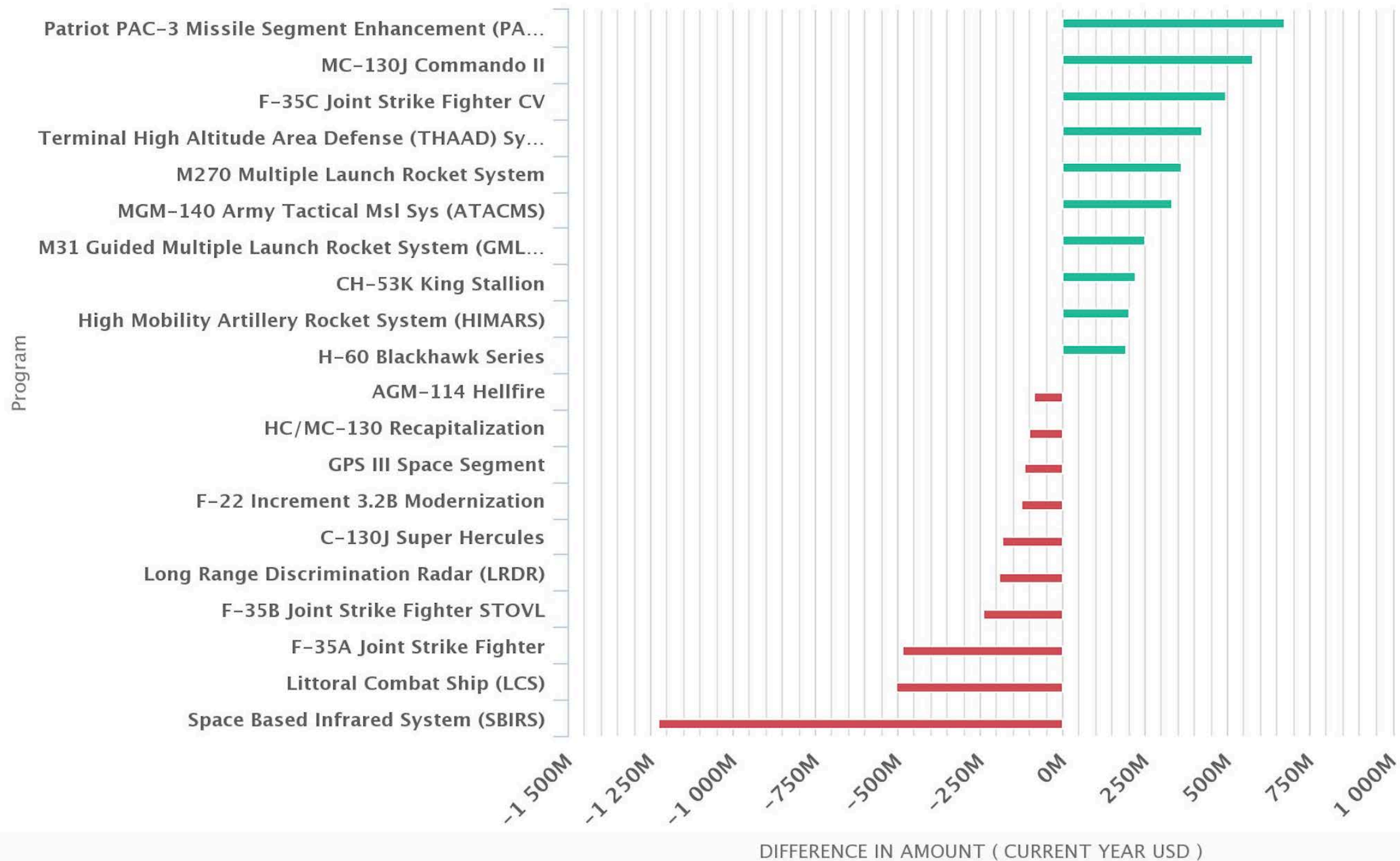
Navy seeks steady funding to increase shipyard capacity and rate of annual buy

COMPARING THE PRIMES ON PB19 INVESTMENT



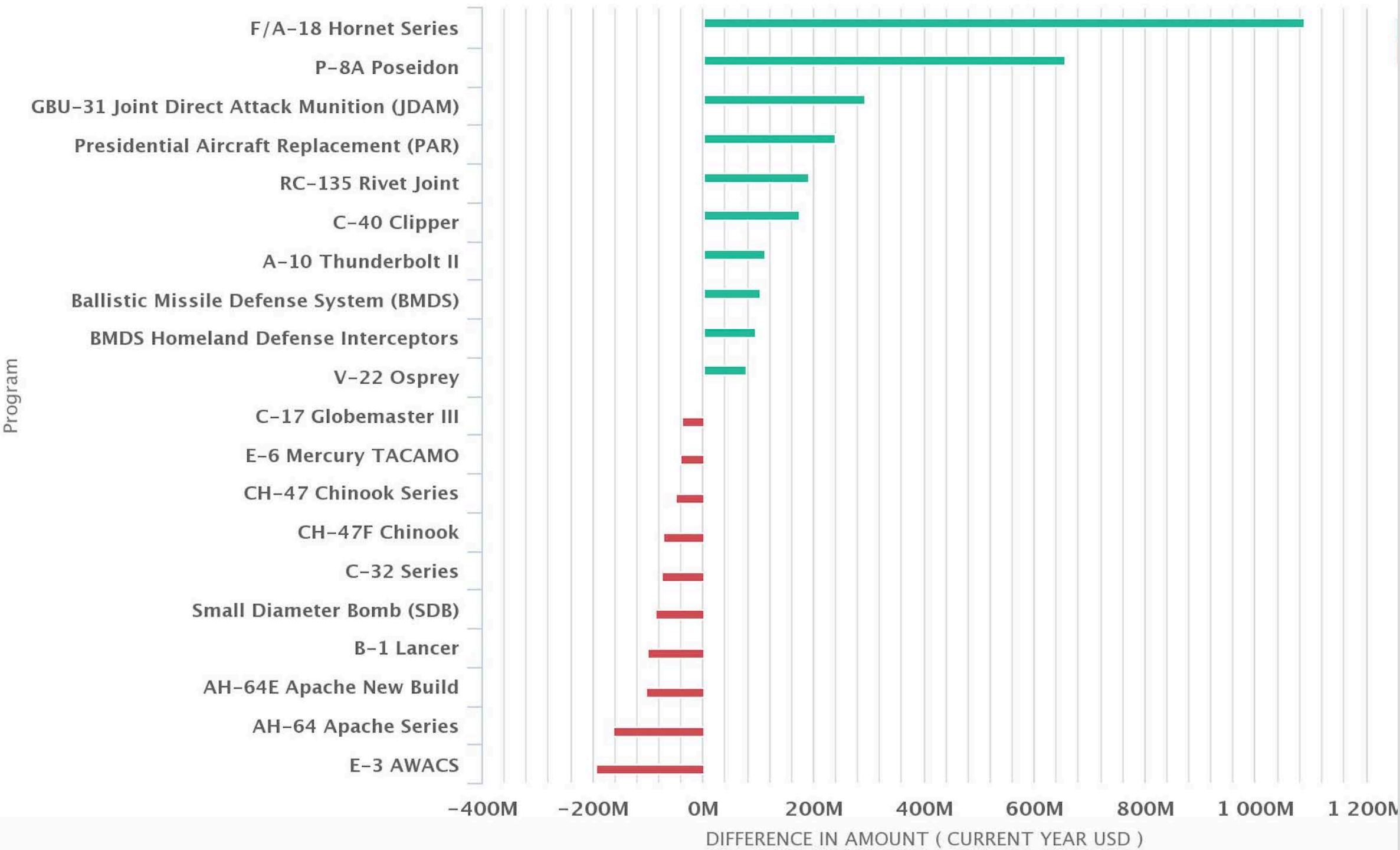
Total market size: 101.8B (Current Year USD)

LMT: PB 19 INVESTMENT CHANGES FROM PB18



- Observations:
- LMT benefits from emphasis on missile defense.
 - Air Force is *not* rapidly ramping up F35.
 - SBIRS reaching maturity.
 - LCS winding down.
 - When FY18 approp is complete, LMT will - \$3B F35 comp to PB19.

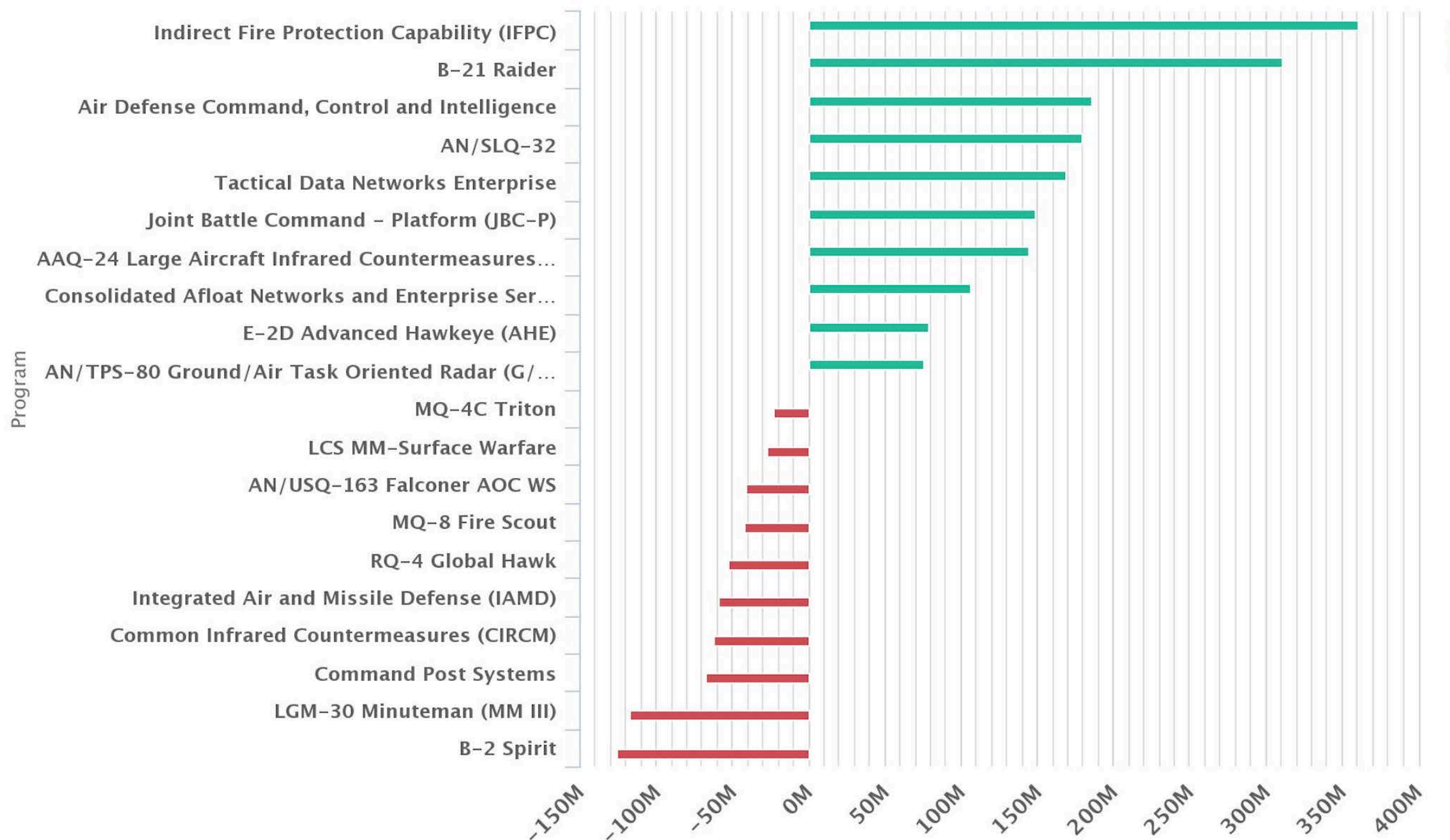
BA: PB 19 INVESTMENT CHANGES FROM PB18



Observations:

- Navy is all in on F/A-18, no longer counting on Congressional adds. 24/yr programmed in FYDP.
- FY20 budget could see AF follow Navy's suit on buying new BA legacy acft vs. rework, i.e., F-15.

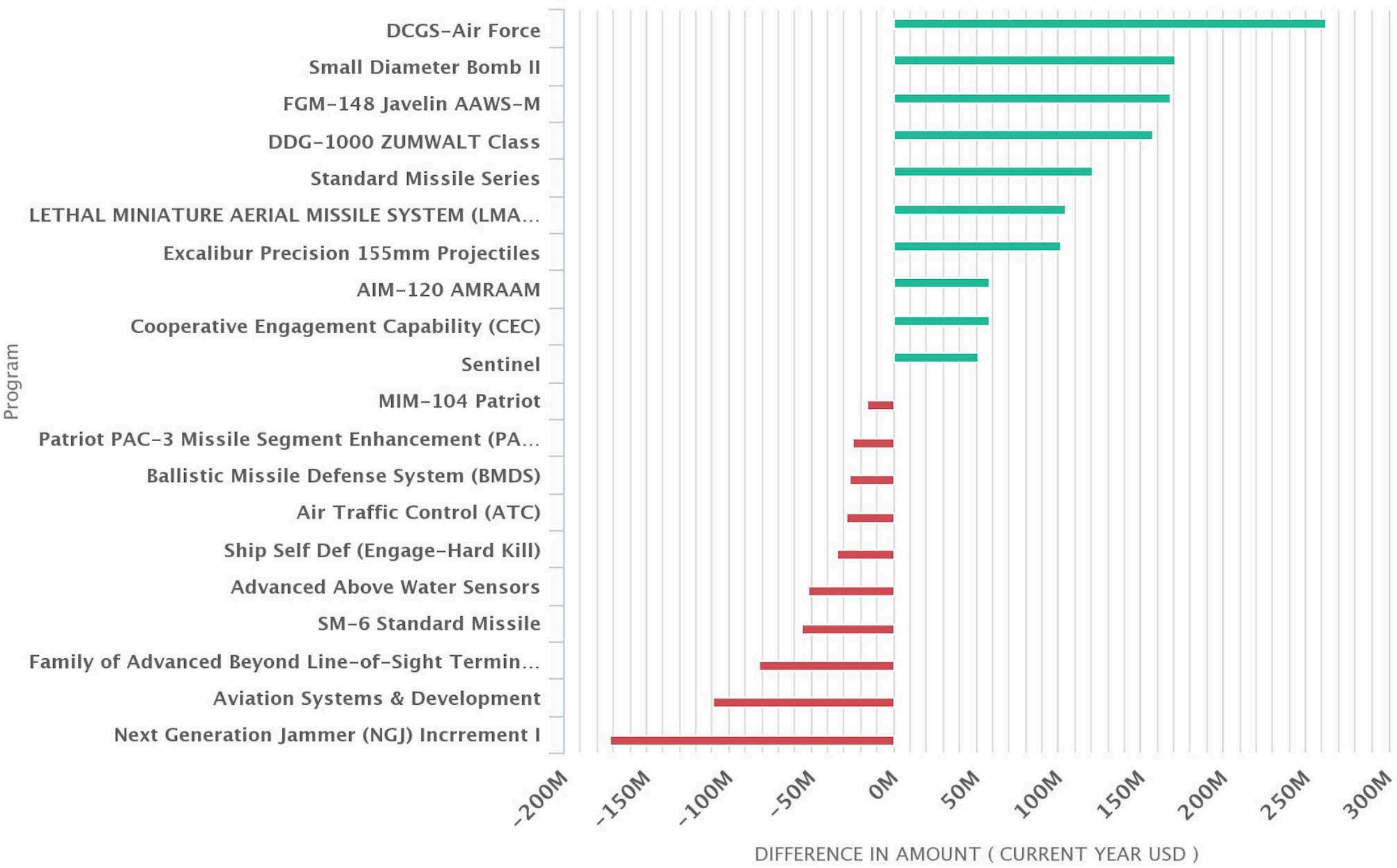
NOC: PB 19 INVESTMENT CHANGES FROM PB18



Observations:

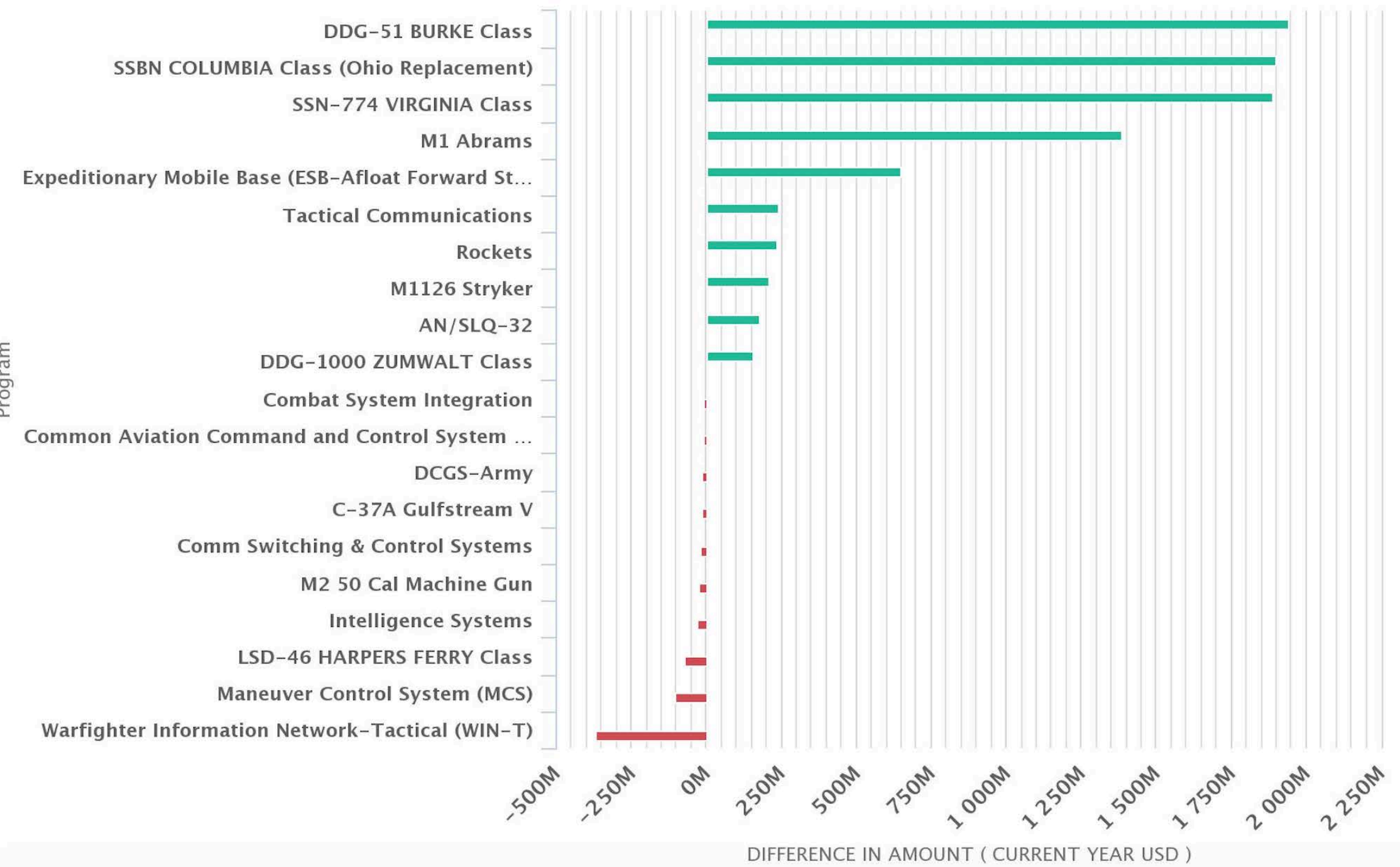
- NOC programs up 21% compared to FY17.
- B-21 program on normal ramp. Continuing concerns about development cost increases but no doubt about AF commitment.

RTN: PB 19 INVESTMENT CHANGES FROM PB18



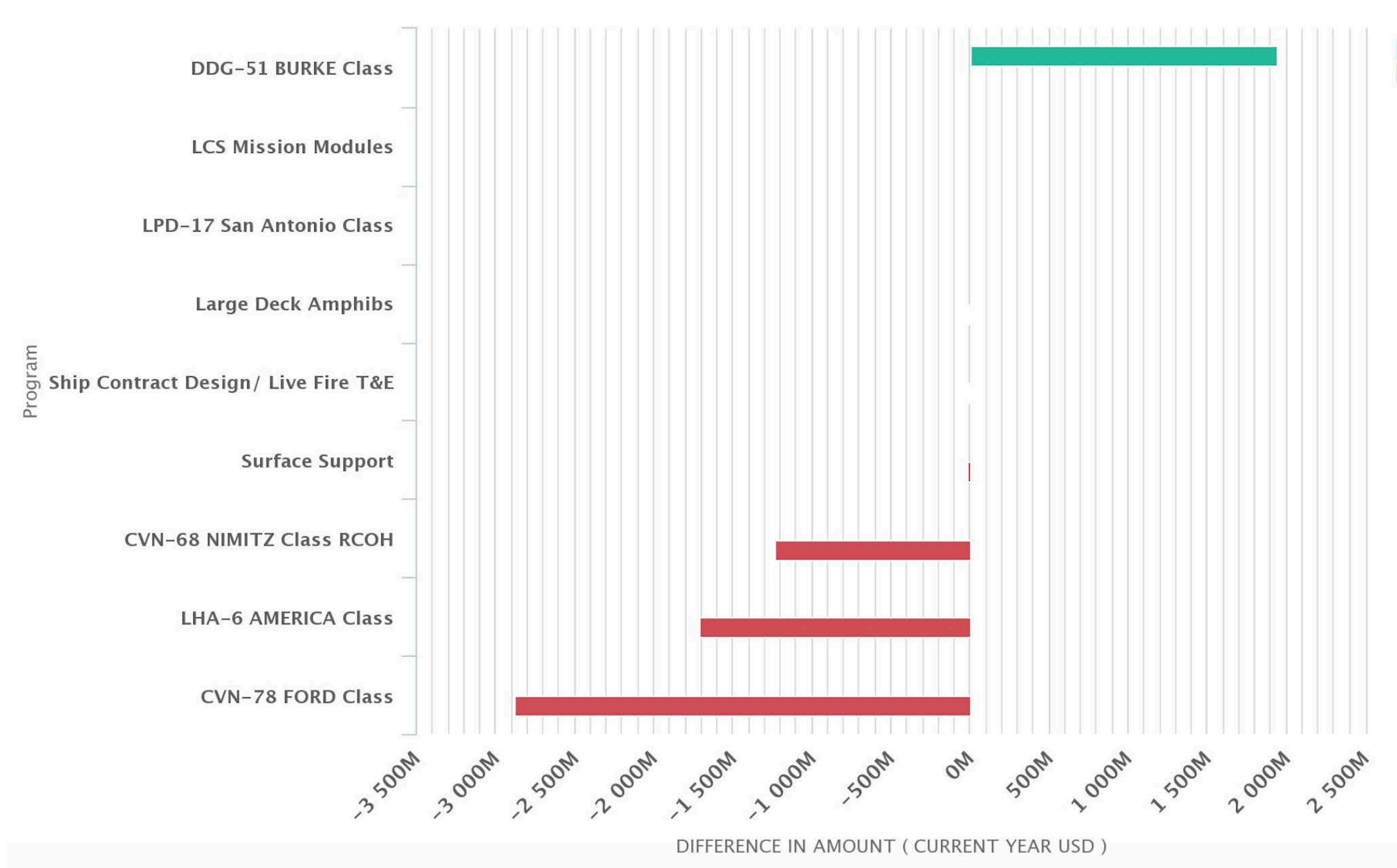
- Observations:
- RTN will be large beneficiary of Congressional largesse in final FY18 approp which will distort PB19 comps.
 - Fight tonight means increased munitions primarily supplied by RTN and LMT.

GD: PB 19 INVESTMENT CHANGES FROM PB18



- Observations:
- Note difference in scale of chart!
 - Shipbuilding ramp has begun with Navy requesting \$21.9B in PresBud 19

HII: PB 19 INVESTMENT CHANGES FROM PB18



- Observations:
- Chart reflects lumpiness of shipbuilding budget which allocates all
 - Shipbuilding ramp has begun with Navy requesting \$21.9B in PresBud 19

GAME CHANGING COMPETITIONS

Program	Svc	Value	Players	Date	Comments
GBSD	AF	18.1B	BA, NOC	Aug 17	ICBM repl; NOC a surprise
LRSO	AF	8.3B	LMT, RTN	Aug 17	Nuc cruise missile; controversial
JSTARS (radar)*	AF		NOC	Nov 17	RTN protesting; may be moot
H-1 Replacement	AF	4.2B	LMT, BA/LDO, TXT	May 18	H60/AW139/H-1; LMT protested
T-X	AF	16.3B	BA, LMT, DRS	Jun 18	Clean sheet vs. off shelf
MQ-25 UAS	N	3B+	LMT, BA, GA	Aug 18	GA teaming gives BA two shots
JSTARS (prime)*	AF	7.1B	NOC, BA, LMT	Aug 18?	USAF wants to cancel; Congress?
ITEP	A	10.4B	GE, UTC/HNY	Aug 18	6,000 engine potential
Light Attack Acft	AF	2.4B	SNC, TXT	Sep 18	A-29 vs. AT-6
JTRS AMF	A	1.7B	HRS, THLS	Jan 19	IDIQ winners compete for share

Red = awarded

FEARLESS PREDICTIONS

- **FY18 DoD Final Appropriation by Mar 23; will look like FY18 NDAA; little controversy**
- **FY19 authorization/appropriation underway; HASC/HAC complete by June; SASC/SAC by Oct?**
 - Some issues and anomalies between FY18 and 19, e.g., 90 JSF appropriated in FY18, only 77 in PB19
- **FY20 budget could be controversial**
 - Fully manned DoD now considering major program and contracting changes; assuming continued \$
 - New Congressional budget process and a new Congress by next year
 - Budget Control Act will loom its head once again
- **Mattis continues to focus on the ability to execute:** Be ready to “fight tonight”
- **Increased demand for US arms: New \$ from NATO, Japan, MidEast. 30% of future Defense sales**
- **“Something always happens.”**
 - **Korea: POTUS decision point approaching; US currently building stockpiles**
 - **Middle East: MbS’ tectonic changes continue; Iran situation slow to develop; Lebanon**
 - **Europe: Russia, Turkey**

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