

Joint Think Tank Exercise: *Alternative Defense Strategies*

Exercise Objectives

Each team was asked to:

- Develop its own alternative defense strategy and rebalance DoD's major capabilities in light of projected security challenges
- Use CSBA's tool to rebalance over the next two FYDPs (FY18-22 and FY23-27) in an unconstrained financial environment
 - Teams recognized that defense resourcing is not truly unconstrained
 - Exercise sought to explore strategies independent of arbitrary BCA caps
- Brief their strategy, rationale, major capability tradeoffs, and associated impacts (near-term, far-term)

The strategies devised and the choices implemented by each team reflect their personal views and not institutional perspectives

Team's developed rough resourcing and force structure requirements necessary to implement their strategy

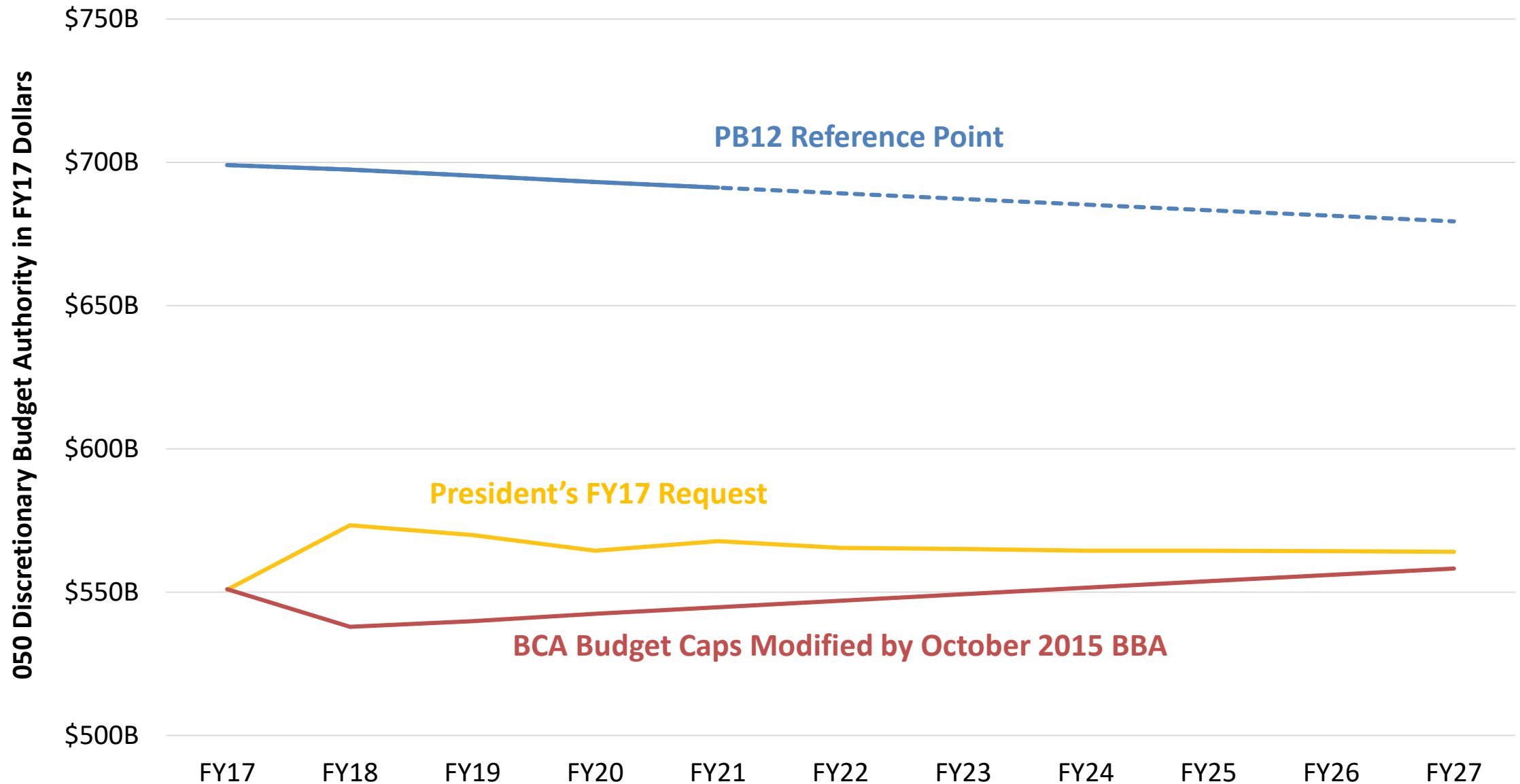
Develop an alternative defense strategy in light of future challenges

- Base strategy on team assessment of the future operating environment and identification of key security challenges or threats
- Prioritize mission areas for the future force
- Identify key capability shortfalls and opportunities for investment or divestment

Create a rebalancing strategy to support your priorities

- How should DoD be prepared to operate over the next ten years and beyond?
- What are the overarching operational concepts for each Service that should drive their capability investments?
- What capabilities mix will be needed in 10 years to support these concepts?

Budget Reference



CSBA's Strategic Choices Tool

- Options are organized by major capability areas (not Services)
- Clicking on a option opens a popup box with additional details
- Costs automatically update when an option is selected
- A running total of actual savings compared to target savings is displayed at the top
- Running total of force structure impacts is also displayed

The screenshot displays the CSBA Strategic Choices Tool interface. At the top, a summary table shows the Running Total and Target for Move 1 and Move 2. Below this, a grid of icons represents different capability areas: AIR, SEA, GROUND, SOF, NUCLEAR FORCES, SPACE CYBER COMMS, LOGISTICS & BASING, MISSILE DEFENSE, MUNITIONS, PERSONNEL, R&D, and READINESS. A detailed view of the DDG-51 AEGIS BMD Destroyer option is shown, including its description, attributes, and a table of force structure impacts.

	Move 1	Move 2
Running Total	-\$12.9B	-\$7.5B
Target	-\$131.6B	-\$72.5B

	Fixed-Wing Aircraft	Ships	USMC Bns.	Active BCTs	Active End-Strength
Running Total	5,188	320	40	30	1,273,200

	Fixed-Wing Aircraft	Ships	USMC Bns.	Active BCTs	Active End-Strength
Running Total	4,994	322	40	26	1,245,100

Cost / Incr.	Selection	Total Move 1	Total Move 2
\$3.3B	<input type="checkbox"/>	\$0.0B	\$0.0B
\$0.8B	0	\$0.0B	\$0.0B
\$4.7B	<input type="checkbox"/>	\$0.0B	\$0.0B
\$0.6B	0	\$0.0B	\$0.0B
\$1.8B	0	\$0.0B	\$0.0B

Force Structure Type	Start Move 1	Move 1	Move 2
Fighter / Attack (stealthy)	393	364	841
Bombers (non-stealthy)	137	137	120
Unmanned ISR / Strike (non-stealthy)	492	463	478
Fighter / Attack (non-stealthy)	2,831	2,405	1,804
Aerial Refueling	545	563	567

Add DDG-51 AEGIS BMD Destroyer

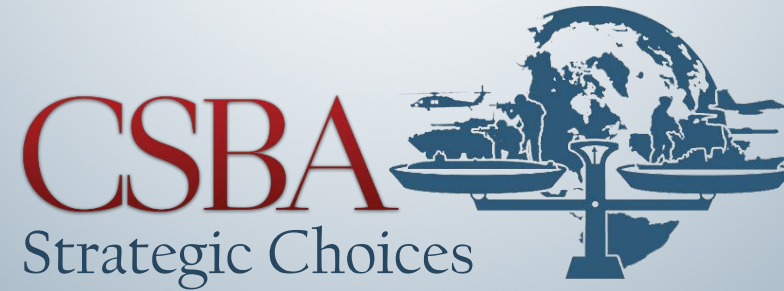
DDG 51 destroyers are warships that provide multi-mission offensive and defensive capabilities. They specialize in area air-defense and ballistic missile defense as well as land-attack capabilities.

This option would add additional DDG-51 destroyers to the FYDP in addition to the 10 the Navy already plans to procure. Personnel must be added separately. A destroyer typically requires a 400 sailors.

	Move 1	Move 2
Max Selection: 3		
Cost/Savings per Incr.	\$1.8B	\$0.2B

Cannot be selected in combination with: Reduce DDG-51 AEGIS BMD Destroyer Buy
Must be selected in combination with:

Attributes:
Displacement (tons): 9200
Rotary wing capacity (std complement): 2
VLS Tubes - Surface Ships: 96



Team Rebalancing Strategies and Choices

CSBA Strategic Choices 2016

October 18, 2016

Thomas Donnelly
Co-Director, Marilyn Ware Center for Security Studies
American Enterprise Institute

*Views expressed herein are my own and do not necessarily represent
those of the American Enterprise Institute*

US Defense Strategy

Three Geopolitical Imperatives

1. Necessity for immediate action
2. Global view of security interests
3. Create 21st-century international order

Three-Theater Force Sizing Construct

Deter Russian and Chinese aggression and roll back adversaries in the Middle East through:

- Forward-based forces
- Strategic reserve of active-duty and reserve forces
- Mobilization base capable of sustaining wars if needed

US is a global superpower. It should not “pivot.”

Three-Theater Construct: Europe

ACRs, stealthy fighters, and naval presence in Three Seas:

- Heavy ACR in Poland, medium in Baltics, and light in southeast Europe
 - Organic artillery/aviation battalions attached & tailored infantry/armor
- Combat aviation brigade & armored BCT in Germany, add new artillery brigade, cargo support aviation brigade, retain 173rd for AFRICOM missions
- Two blended F-22/F-35 wings
- Expanded logistics and forward basing in Central and Eastern Europe
- Secure the Three Seas: Baltic Sea, Black Sea, and Mediterranean Sea

Three-Theater Construct: East Asia

Two CSGs, two ARGs, and fifth-gen fighters:

- Forward-station two Carrier Strike Groups and two ARGs
 - Large F-35B fleet
 - Moving toward increased ARG presence in 2nd FYDP
- Two blended F-22/F-35 wings
- Forward-base 4 more SSNs, 2 more destroyers, new tenders
- Expand small surface combatant fleet & add new cruiser

Three-Theater Construct: Middle East

Ground-based aircraft, better ISR, carrier presence:

- Blended wing of F-22/F-35 fighters
- Permanent Carrier Strike Group, but less emphasis on strike
- Strong US & partner ISR capabilities
- Shift from raiding to campaigning — supplement SOF & strikes with enduring land-based presence
 - *“Americans in, Russians out, Iranians down “*

Three-Theater Construct: Operational & Strategic Reserve

Build capacity to win large, long, high-end conflicts:

- Larger Army and Marine Corps
- Modernization of bombers and nuclear and space assets
- Expanded strategic airlift
- Readiness buyback & sustained investment

Strengthening the Services

Army

1. Ready for long wars
2. Central to European deterrence & sustainable success in Middle East
3. Focus on restoring heavy maneuver capability

Navy

1. Central to East Asian posture
2. Refocus on sea control
3. Expand aviation and power projection

Air Force

1. Focus on stealth
2. Rebuild SEAD capabilities
3. Drive toward space control

Marine Corps

1. Refocus on high-intensity warfare
2. Exploit F-35B
3. Increase Marine Corps capacity

Major Capabilities

Modernization Highlights

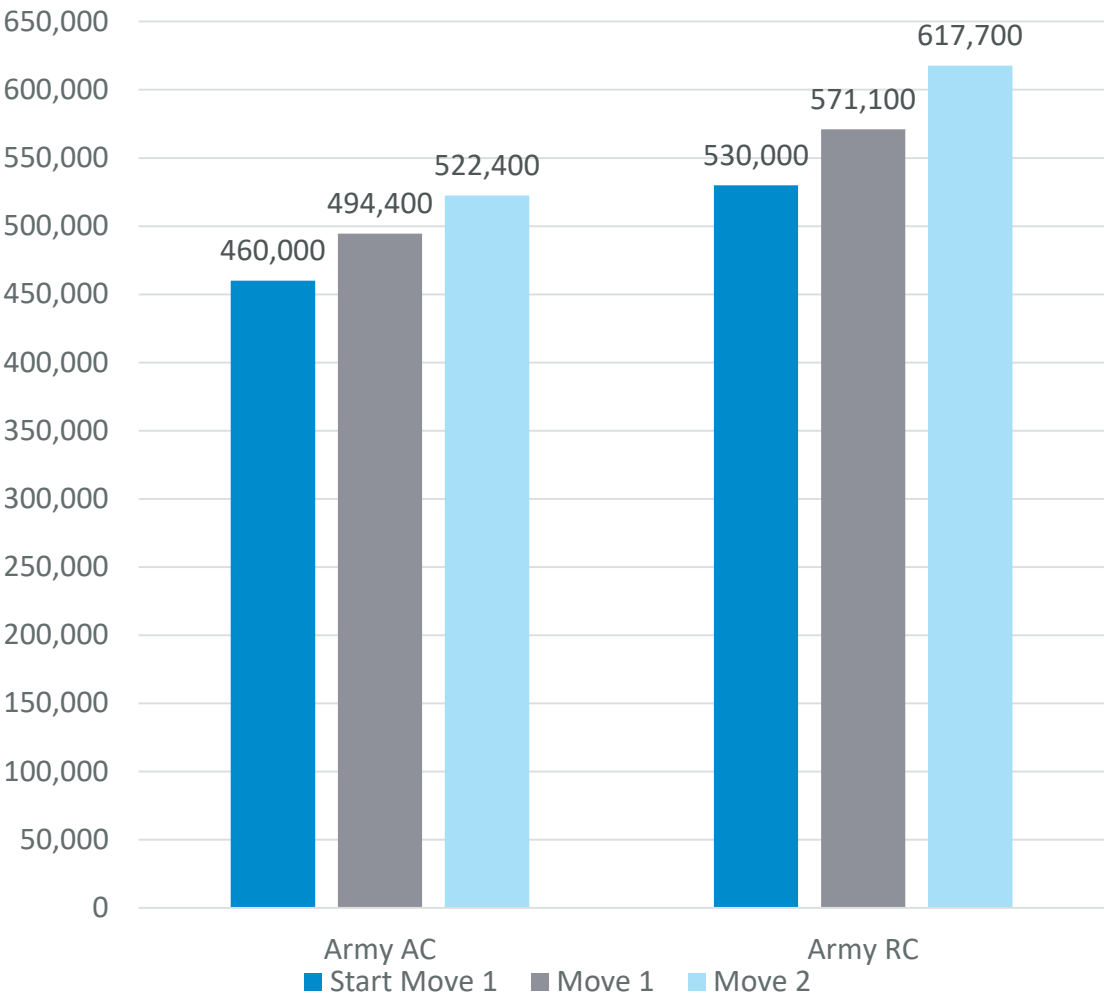
1. Stealth *en masse*: F-35, F-22, B-21
2. Protected, swarming power projection
 - i. Redesigned *Zumwalt*
 - ii. Carriers and amphibs with F-35B
3. Subsurface dominance: *Virginia*-class and SOSUS
4. Ground-gaining forces:
 - i. Restart Ground Combat Vehicle (GCV)
 - ii. More and longer-range artillery

Key Priorities of the Rebuild

Expand, invest, and forward base now:

- Expand force structure and invest in readiness
 - For day-to-day requirements and to build strategic reserve
- Procure mature capabilities rapidly
 - For high-end fights and to begin undoing procurement holiday
- Increase forward-based troops
 - Assure allies, deter adversaries, & defeat declared enemies

Army: End Strength and Force Structure



1,140,100
Total Army

Force Structure Element	Start Move 1	Move 1	Move 2
Armored BCTs (Active)	9	11	12
Stryker BCTs (Active)	7	7	7
Infantry BCTs (Active)	14	15	15
Combat Aviation Brigade (Active)	11	13	13
Advise and Assist Brigade (Active)	0	0	3
Armored BCTs (Guard / Reserve)	7	7	8
Stryker BCTs (Guard / Reserve)	2	2	2
Infantry BCTs (Guard / Reserve)	19	19	19
Expeditionary Combat Aviation Brigade (R/C)	10	10	13

Army (1): Ground

1. Increase artillery capability (e.g. Long-Range Precision Fires, land-based railgun, HVP)
2. Restart Ground Combat Vehicle (GCV)
3. Rapidly procure Joint Light Tactical Vehicle

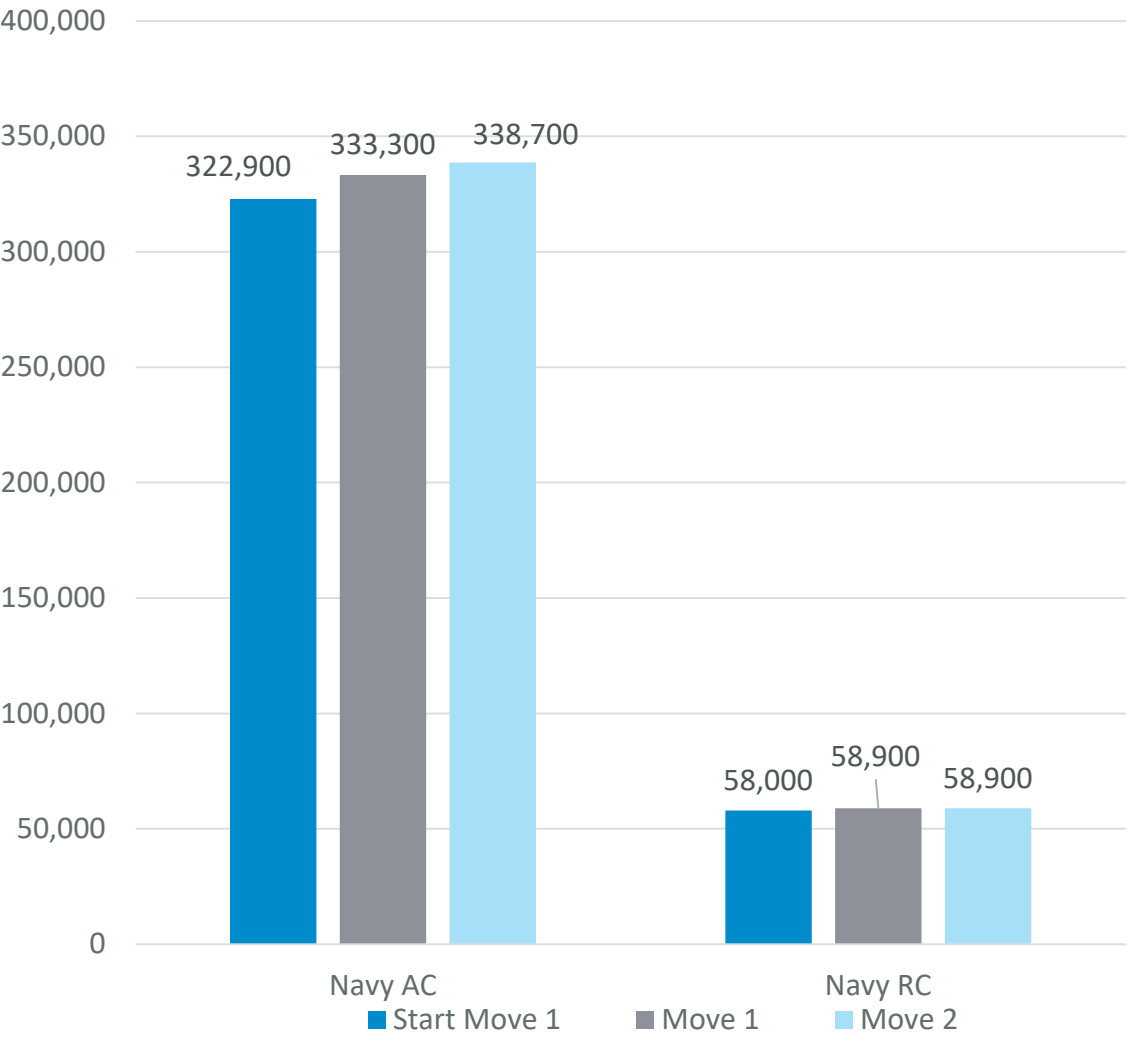
Army (2): Air

1. Increase Apache, Blackhawk, and Chinook buys
2. Accelerate Future Vertical Lift
3. Develop autonomous lift

Army (3): Missile Defense

1. Add 9th THAAD battery and buy 5 JLENS orbits
2. Develop AESA radar and low-cost interceptor for PAC-3
3. Accelerate Indirect Fire Protection Capability
4. Develop and deploy 12 High-Energy Laser batteries, four railgun batteries, and hypervelocity projectile

Navy: End Strength and Force Structure



396
Fleet Size

Force Structure Element	Start Move 1	Move 1	Move 2
Cruise Missile Subs	4	2	0
Small Surface Combatants	29	53	65
Large Surface Combatants	91	98	109
Amphibious Ships	32	37	44
Aircraft Carriers	11	12	11
Combat Logistics Force	29	40	50
Ballistic Missile Subs	14	14	13
Attack Subs	53	53	59
Support Vessels	28	41	45

Navy (1): Power Projection

1. Accelerate 1 carrier & increase *America*-class LHAs
2. Max out F-35 production: focus on STOVL first
3. Develop stealthy carrier-based strike and non-stealthy tanker drones
4. Retire F/A-18s
5. Develop sea-launched IRBM for *Virginia*-class boats

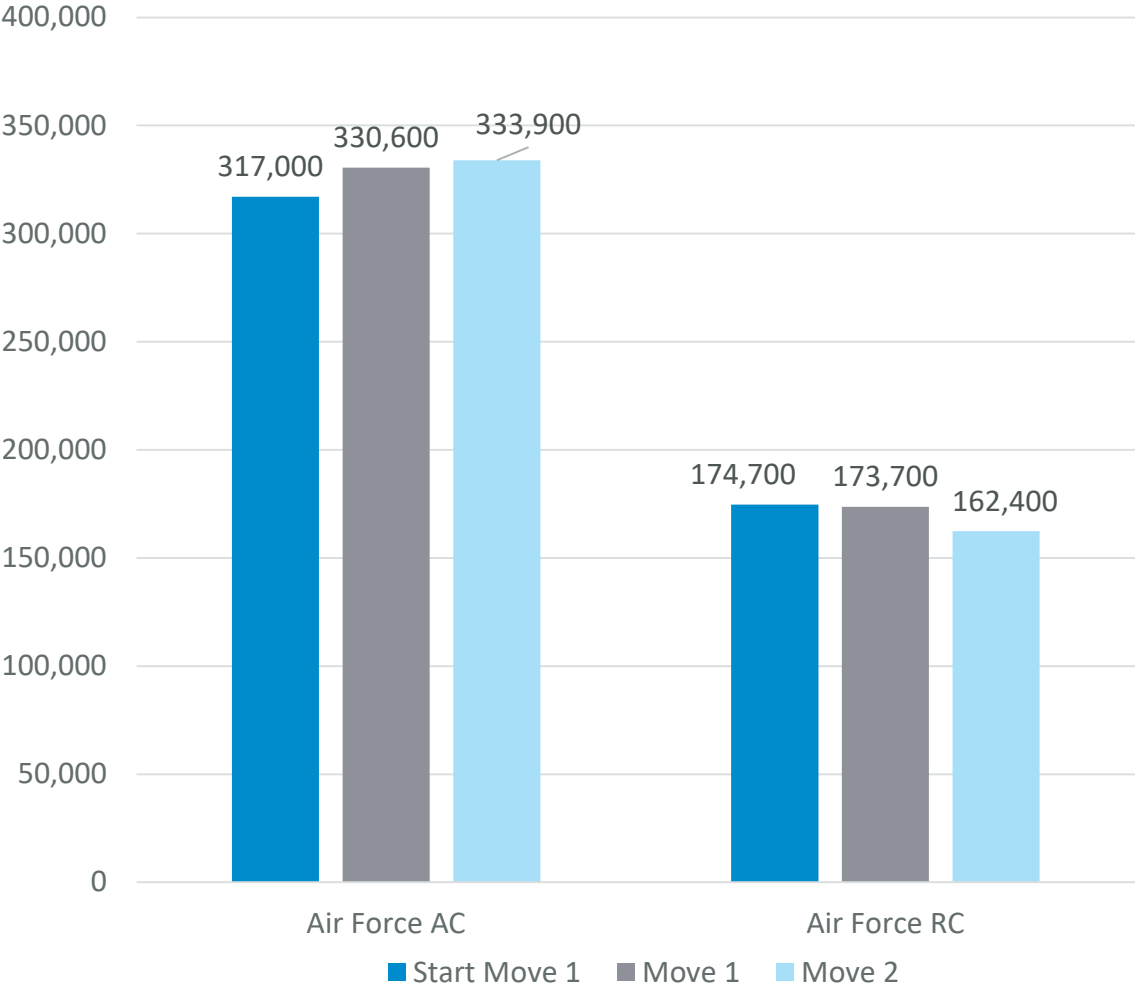
Navy (2): Sea Control

1. Develop & procure next-generation cruiser (based on *Zumwalt*-class DDG)
2. Buy 8 more LCS and 20 more SSC frigates
3. Procure 15 additional *Virginia*-class SSNs (3-4 total subs per year)
4. Increase SM-6 buy (with anti-ship capability)

Navy (3): Littoral and Antisubmarine

1. Invest in non-submarine based ASW capabilities
 1. Tactical SOSUS arrays
 2. SURTASS
2. Buy more MQ-8C Fire Scouts & lightweight torpedoes
3. Develop and deploy UUVs of different sizes

Air Force: End Strength and Force Structure



3,065
TACAIR Inventory

Force Structure Element	Start Move 1	Move 1	Move 2
Airlift	667	667	728
Bombers (non-stealthy)	138	138	78
Bombers (stealthy)	20	20	49
Fighter / Attack (non-stealthy)	2,767	2,013	602
Fighter / Attack (stealthy)	412	1,218	2,463
Unmanned ISR / Strike (non-stealthy)	280	766	918
Unmanned ISR / Strike (stealthy)	0	0	180
Aerial Refueling	545	633	707
Manned ISR / ASW / C2	338	366	322

Air Force (1): Air Superiority

1. Modernize fighter fleet
2. Restart F-22 Raptor line
3. Buy F-35As *en masse* (increase rate by over 50%)
4. Develop and deploy long-range air-to-air missiles

15%

Stealthy fighters in
FY2018

80%

Stealthy by F2027

Air Force (2): Long-Range Strike

1. Accelerate B-21 bomber as fast as allowed
2. Retire B-1s early
3. Recoup B-52s for long-range missiles and air-launched drones
4. Develop air-launched hit-to-kill missile interceptor

Air Force (3): Airlift and Refueling

1. Buy 40 additional KC-46As
2. Develop stealthy tanker
3. Restart C-17 production and phase out C-5

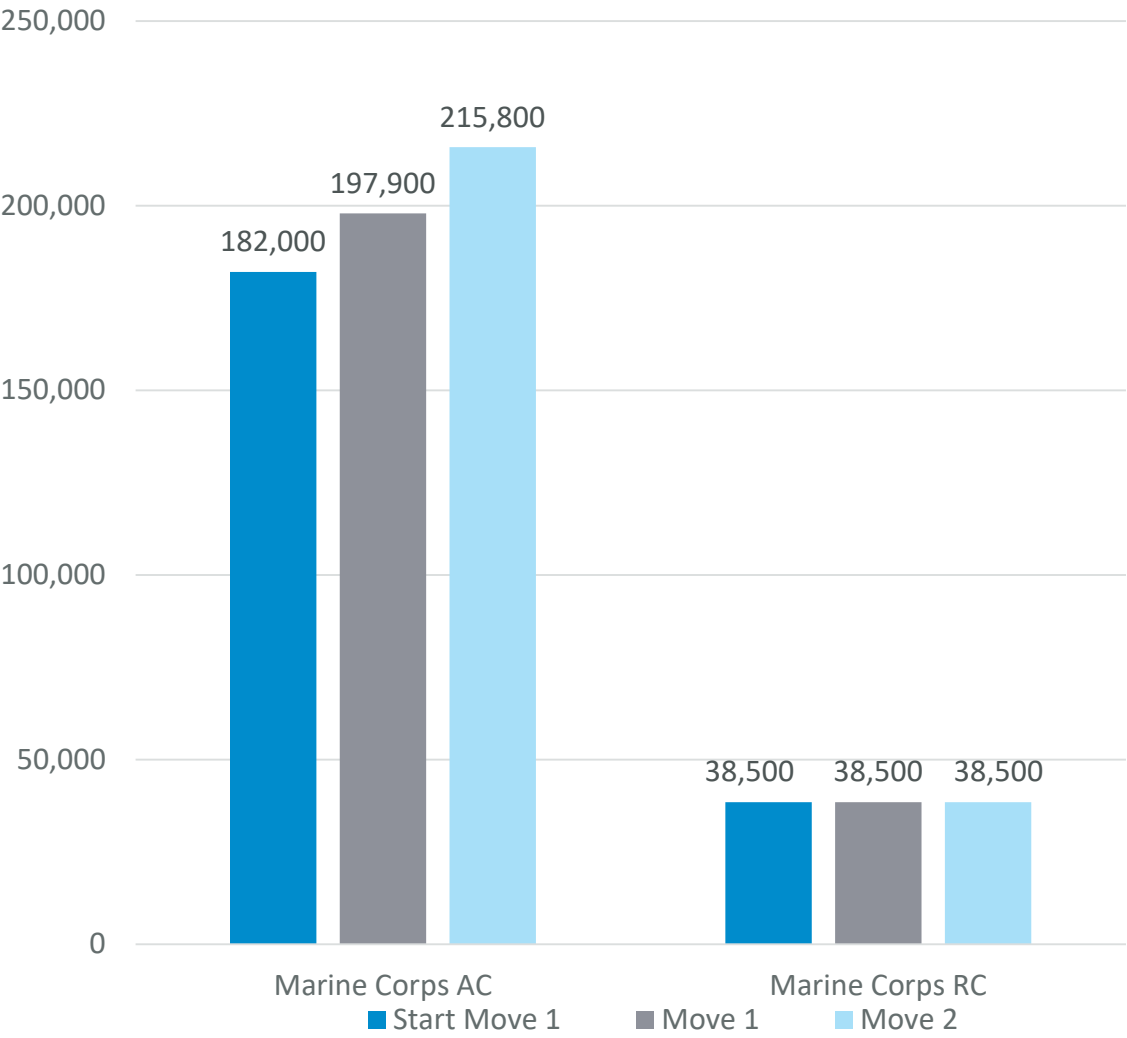
Air Force (4): ISR and SEAD

1. Expand MQ-9 Reaper fleet & stealthy tactical ISR drone
2. Develop stealthy penetrating ISR drone to replace U-2
3. Expand jamming and EW capabilities (MALD-J, CHAMP, AARGM)

Air Force (5): Space and Cyber

1. Invest in space control mission (microsatellites & SBSS)
2. Develop follow-on disaggregated satellite constellation (except WGS)
3. Harden receiver terminals & continue developing alternative PNT
4. Expand cyber test range & military offensive/defensive teams

Marine Corps: End Strength and Force Structure



14
Amphibious Ready Groups

Force Structure Element	Start Move 1	Move 1	Move 2
USMC Infantry Battalion (Active)	24	31	37
USMC Artillery Battalion (Active)	8	8	10
USMC Amphibian Battalion (Active)	3	3	3
USMC LAR Battalion (Active)	3	3	3
USMC Armored Battalion (Active)	2	2	2
USMC Infantry Battalion (Reserve)	8	8	8
USMC Artillery Battalion (Reserve)	3	3	3
USMC Amphibian Battalion (Reserve)	1	1	1
USMC LAR Battalion (Reserve)	1	1	1
USMC Armored Battalion (Reserve)	1	1	1

Marine Corps (1): End Strength and ARGs

1. Increase end strength from 24 to 37 battalions
2. Expand amphibious fleet to 38 in Move 1 and 44 in Move 2
3. Purchase:

2 *America*-class LHAs

3 *San Antonio*-class LPDs

3 LX(R)s

Marine Corps (2): Aviation and Combat Vehicles

1. Rapidly procure F-35Bs
2. Develop Future Vertical Lift for Army and USMC
3. Increase CH-53K Sea Stallion and KC-130J fleets
4. Restart EFV

Highest Priority Programs

Army

1. Long-Range Precision Fires
2. Ground Combat Vehicle
3. Future Vertical Lift

Navy

1. F-35B and C Joint Strike Fighters
2. More *Virginia* and *America*-class
3. Next generation cruiser CG(X)

Air Force

1. F-35A and F-22
2. B-21 Raider
3. KC-46A & Stealthy tanker

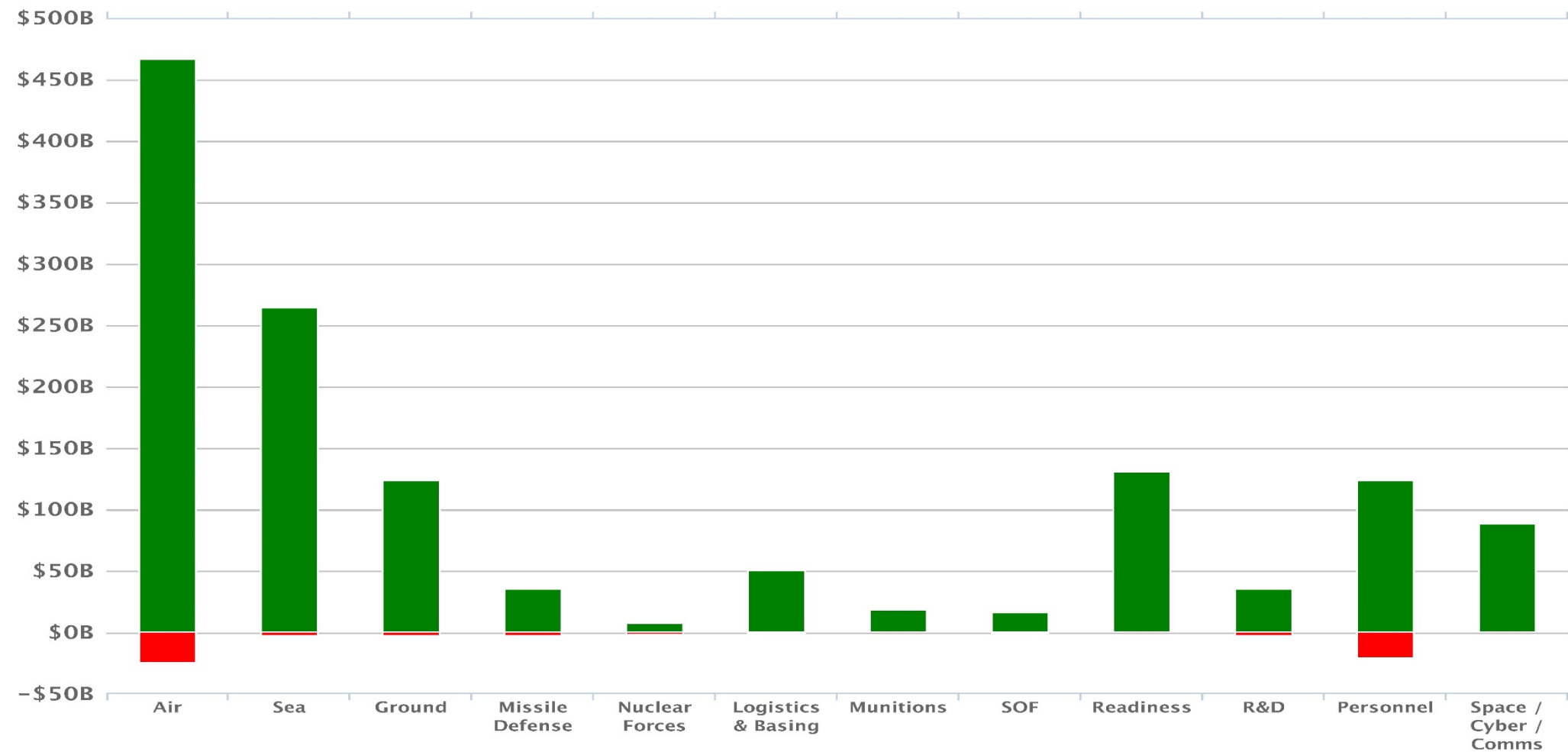
Marine Corps

1. F-35B Joint Strike Fighter
2. LX(R) and *America*-class
3. Expeditionary Fighting Vehicle

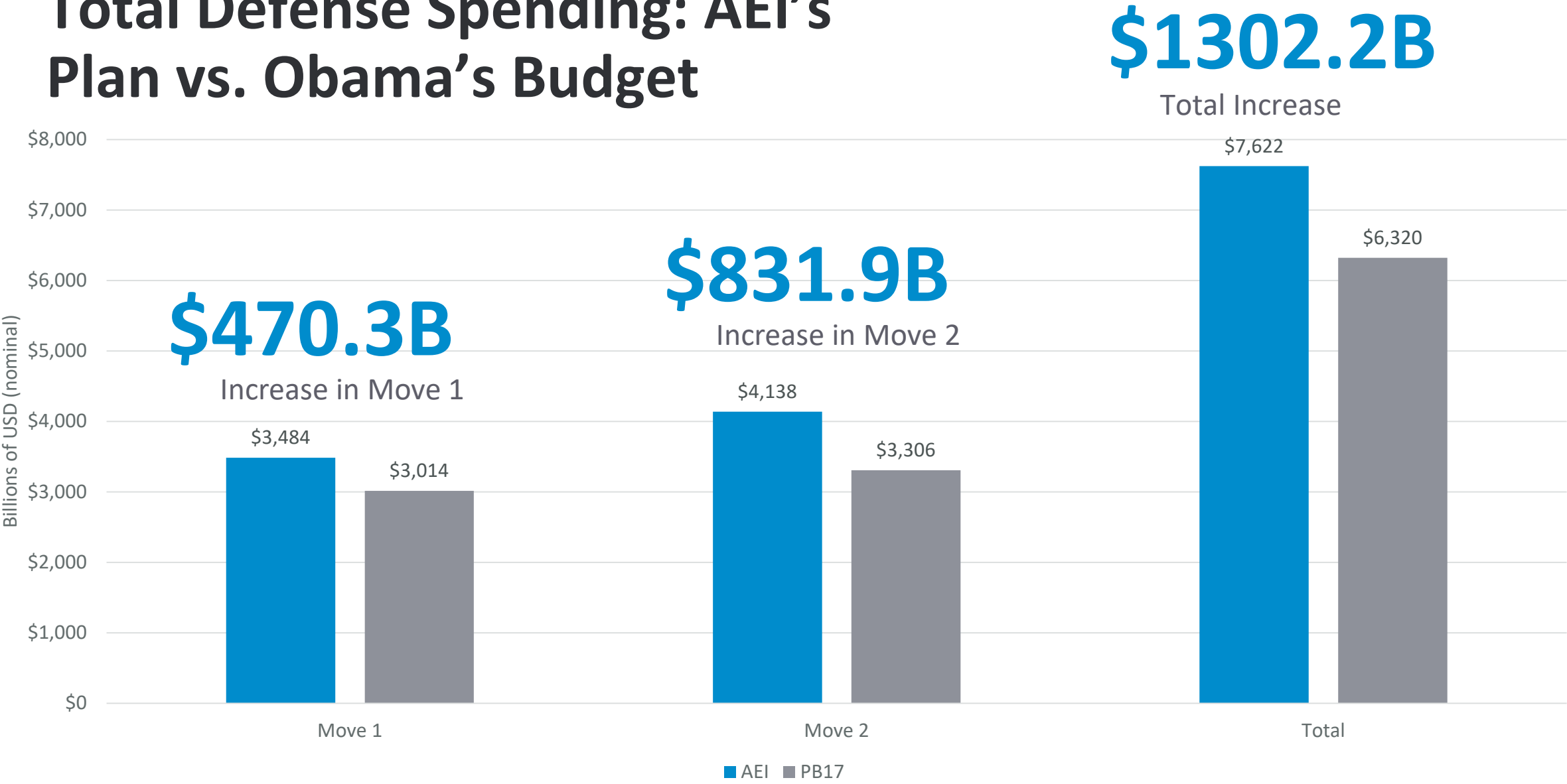
Budget Projections

Where the Money's Going

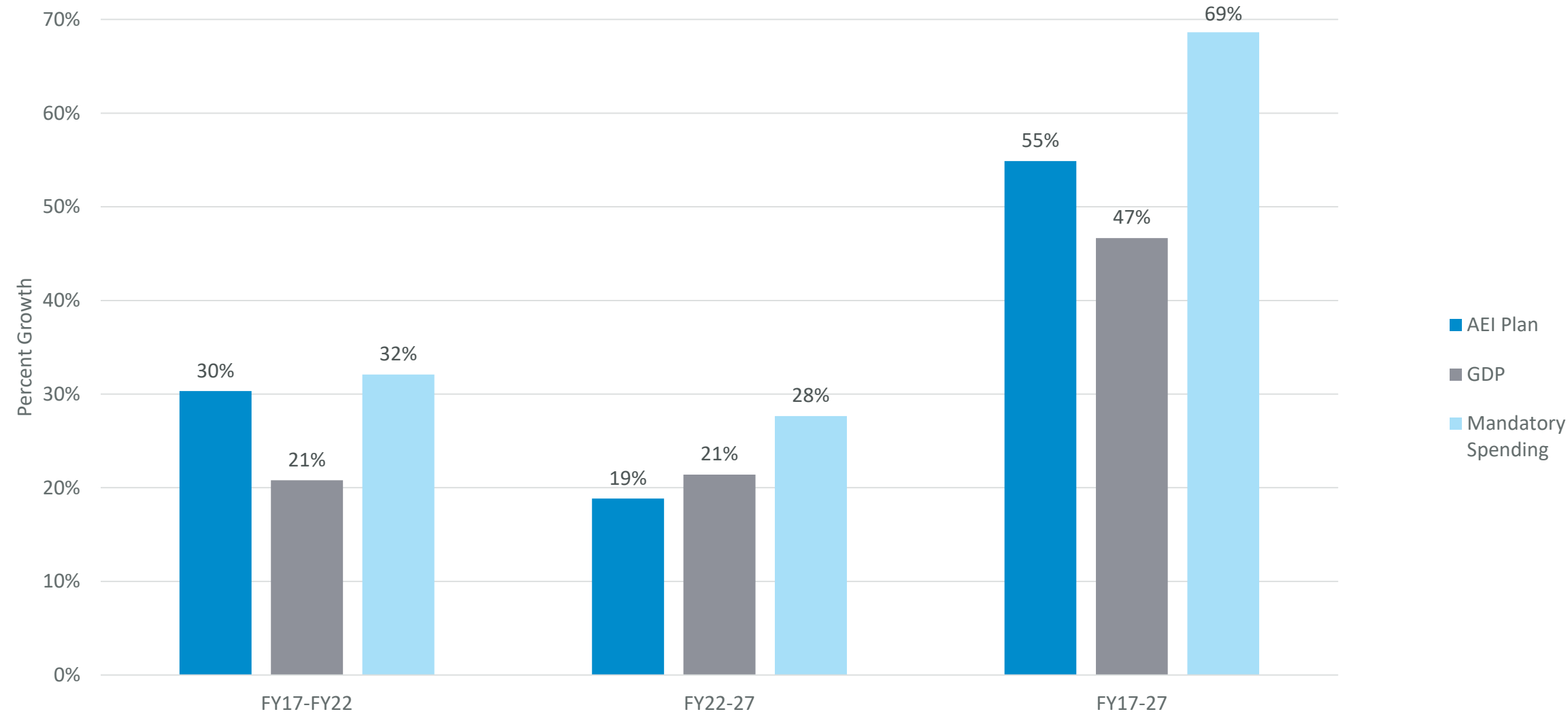
AEI 2016 Summary of Adds / Cuts



Total Defense Spending: AEI's Plan vs. Obama's Budget



Defense, GDP, and Mandatory Percent Growth



BUDGETARY SAVINGS UNDER A STRATEGY OF RESTRAINT

Developing Alternative Defense Strategies, 2016

Group Members

Benjamin Friedman, Cato Institute

Christopher Preble, Cato Institute

Trevor Thrall, Cato Institute

with help from

Eugene Gholz, Gordon Adams, William Ruger,

Matthew Fay, Laicie Heeley, Wendy Jordan

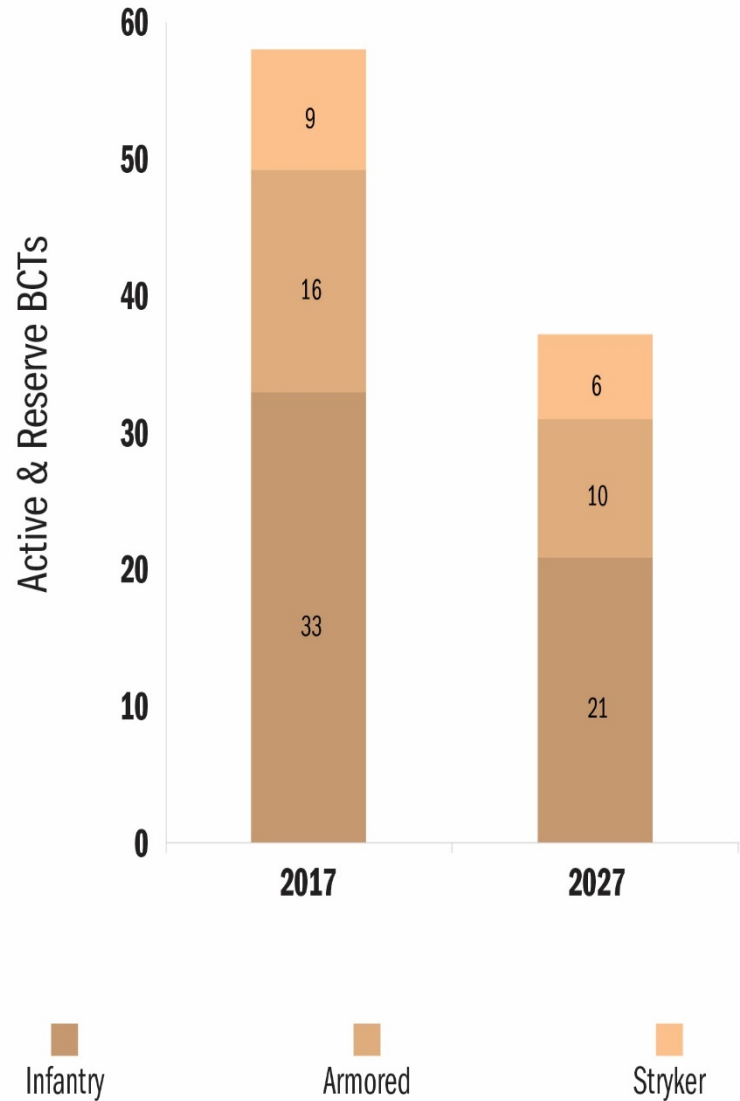
SAVINGS UNDER RESTRAINT

Total savings over the next 10 years: **\$1+ TRILLION**

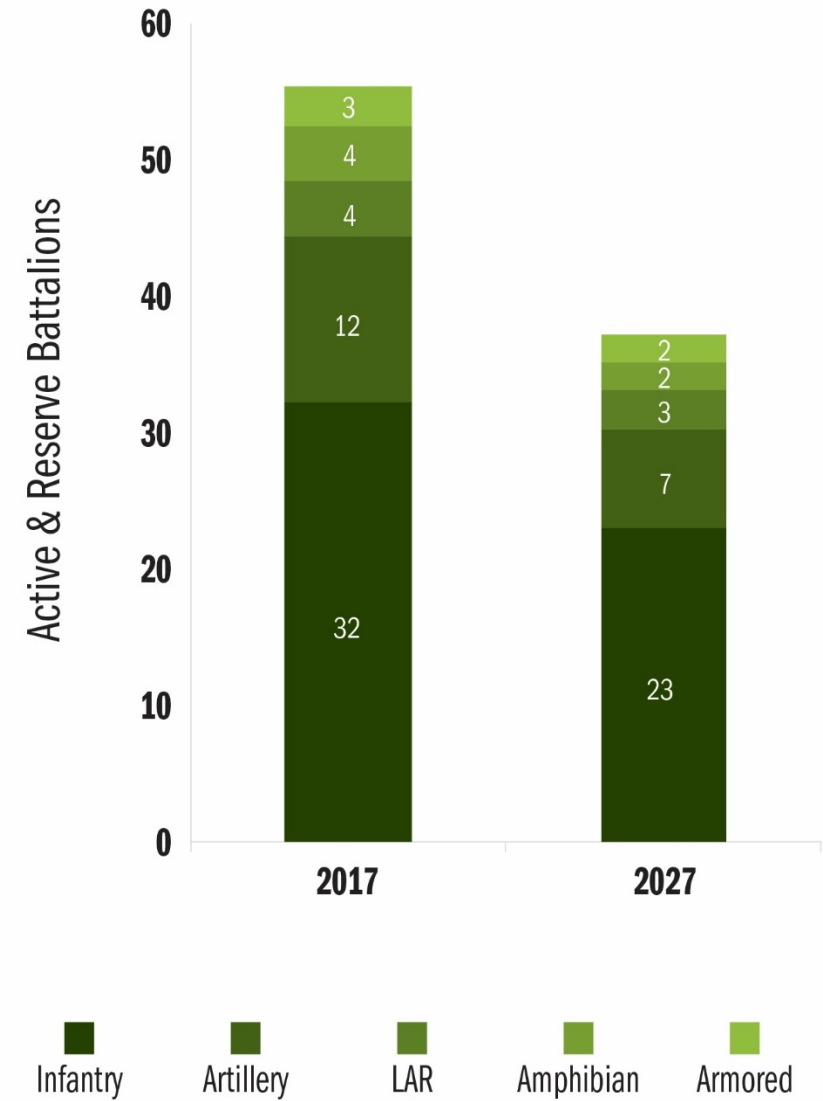
FYDP 2018-2022	FYDP 2018-2022 under Restraint
Projected Cost: \$2.98 Trillion	Projected Cost: \$2.64 Trillion
	Total Savings: \$345.3 Billion

FYDP 2023-2027	FYDP 2023-2027 under Restraint
Projected Cost: \$3.31 Trillion	Projected Cost: \$2.58 Trillion
	Total Savings: \$724.3 Billion

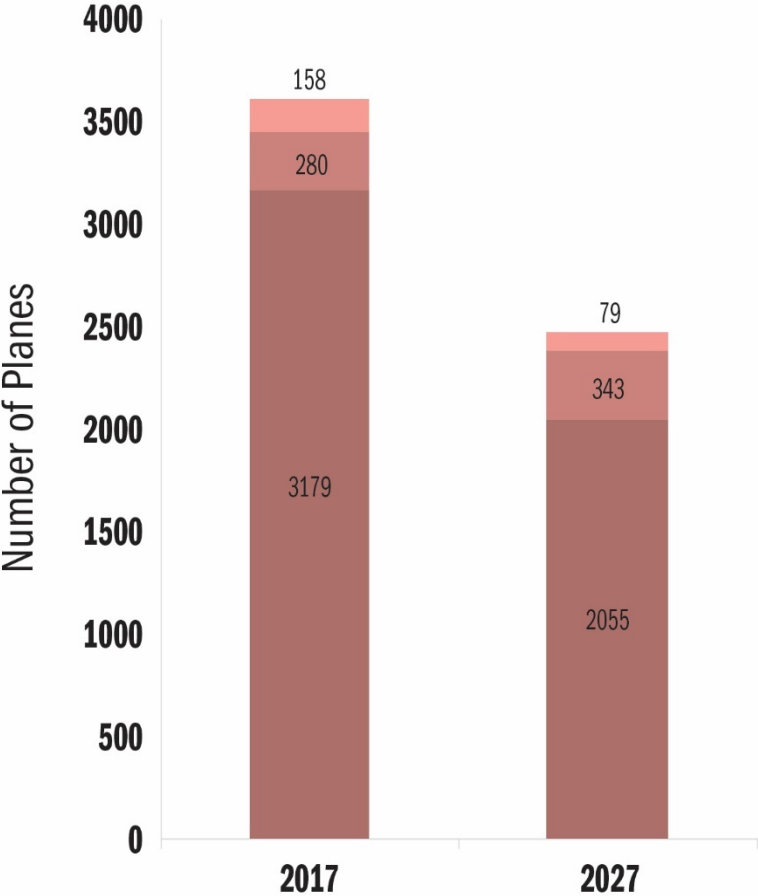
ARMY FORCE STRUCTURE



MARINE FORCE STRUCTURE

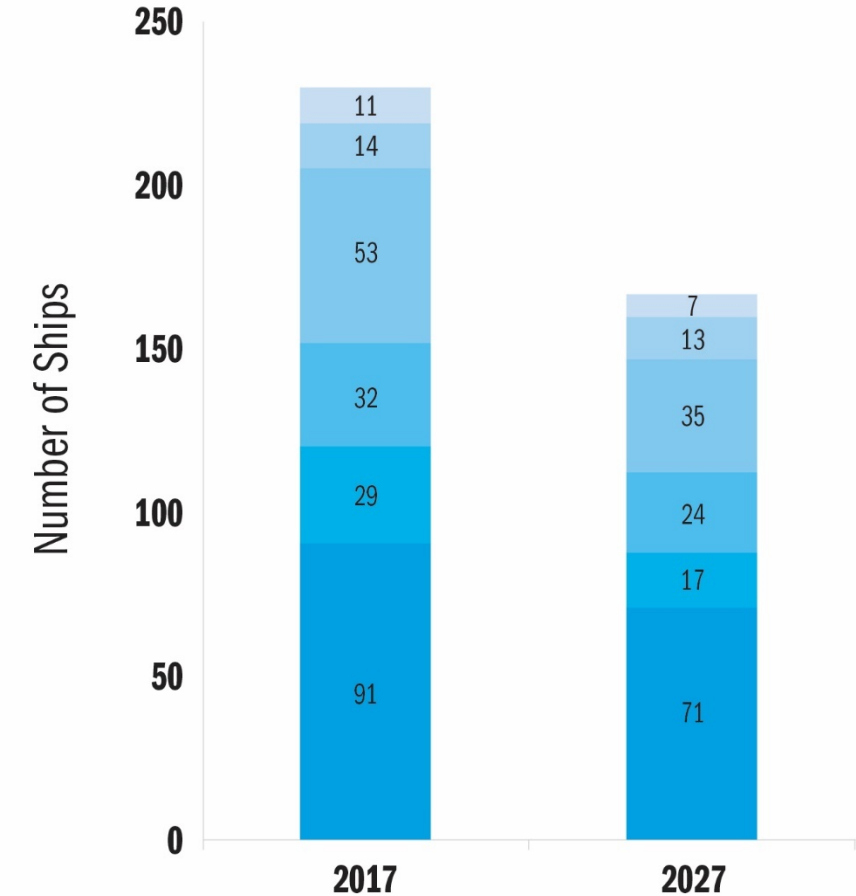


AIR FORCE STRUCTURE



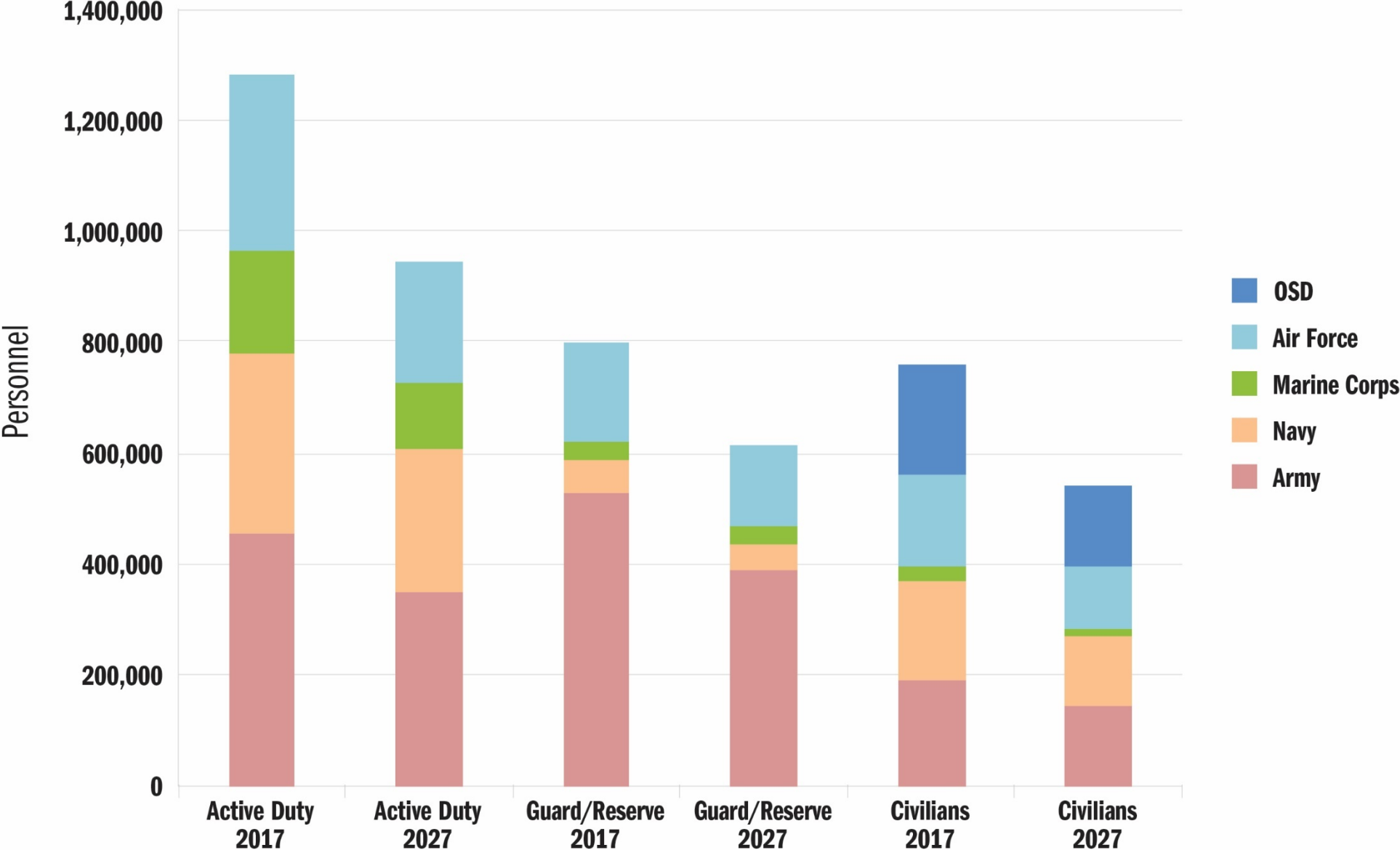
Fighters Unmanned Bombers

NAVY FORCE STRUCTURE



Large Surface Small Surface Amphibious Attack Subs Ballistic Subs Carriers

MILITARY PERSONNEL







Center for a
New American
Security

A Ready, Modern Force

READY FOR TODAY, PREPARED FOR TOMORROW

Jerry Hendrix, Paul Scharre, and Elbridge Colby

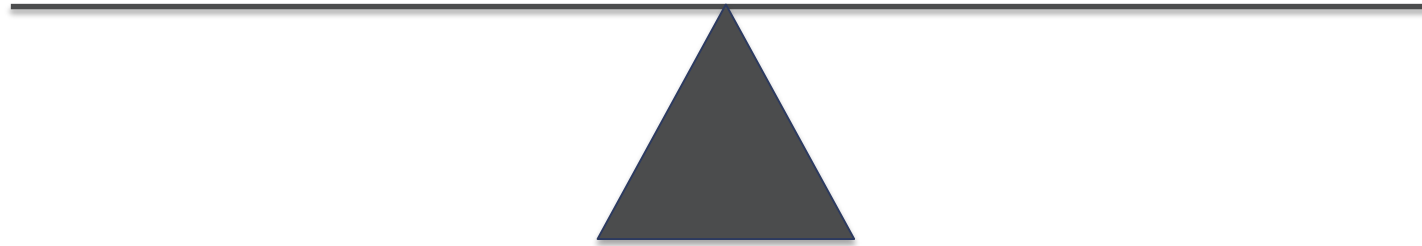
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A Balanced Strategy

Maintain readiness
for **today's threats.**

Modernize the
force for **emerging
challenges.**



Economically-Affordable Sustainment of U.S. Global Leadership

- **Defend the homeland** against terrorist, missile, and cyber attacks.
- Maintain a force sized sufficiently to provide a **stabilizing presence** abroad.
- **Project power into anti-access areas**, including Eastern Europe and the Western Pacific.
- Sustain and modernize our **nuclear deterrent**.
- Deter and defeat **regional aggression** by Iran, N. Korea, and non-state actors.

A Ready, Modern, Balanced Force

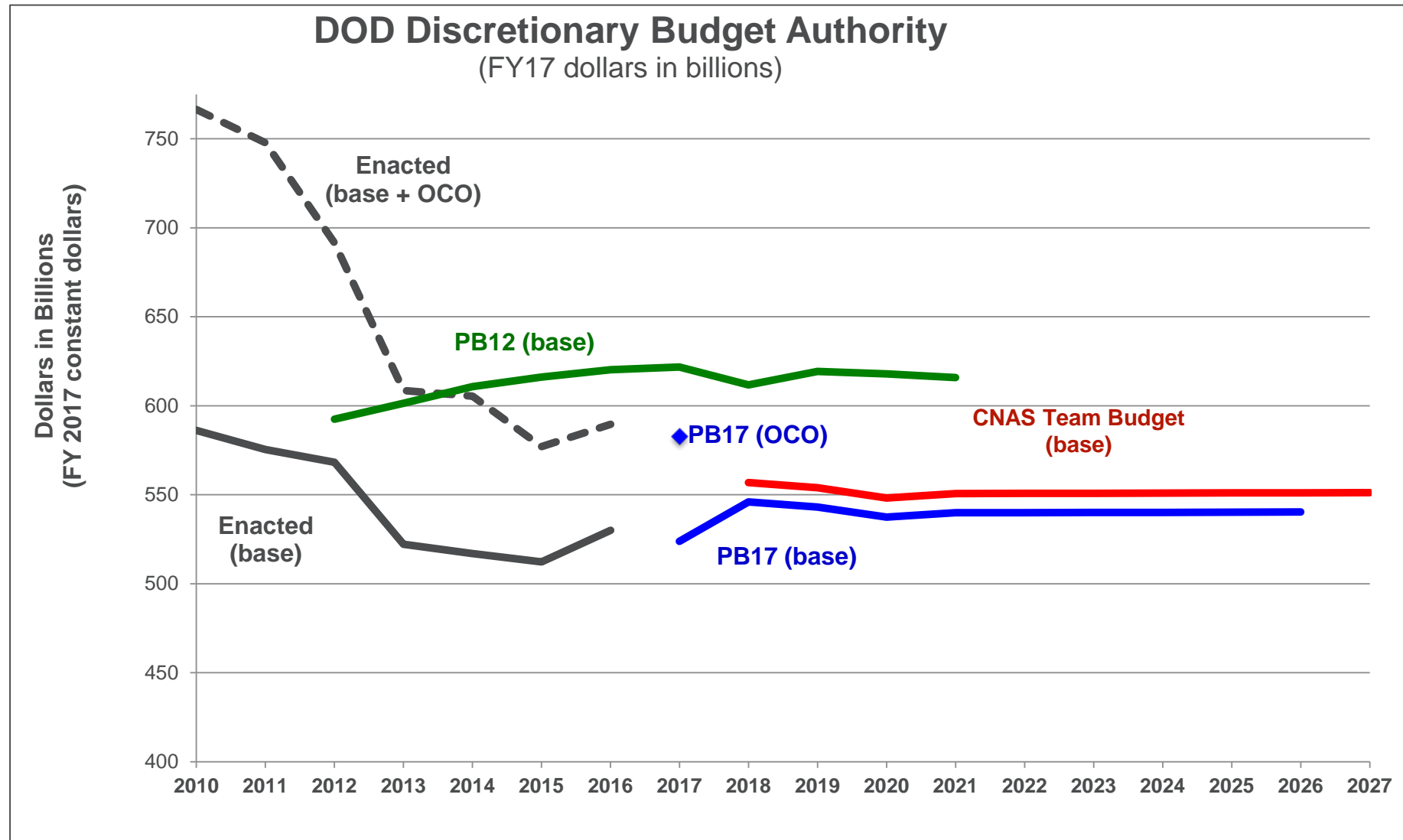
- Restore **readiness** (flying hours, depot maintenance).
- Invest in **emerging technologies** (cyber, robotics, directed energy, human performance, etc.).
- Field a diverse **high-low mix** of forces to cover the full range of missions most effectively and efficiently.

Predictable But Restrained Budget



Do it all within a **2% increase** in
defense spending **over PB17 levels.**

Budget Top-Line in Perspective



U.S. Navy

- **Grew the fleet by 27%** – from 272 ships to 345 – in 10 years.
- Increased **undersea strike capacity** – increased from 58 to 74 submarines, adding 680 cruise missile tubes.
- Invested in **new technologies** – unmanned systems, directed energy, electromagnetic rail gun, & high velocity projectile.
- Invested in lower-cost commercial derivative ships (black hulls) as expeditionary sea bases to expand overall **expeditionary lift capacity**.
- Reduced legacy high-cost, low-value assets for A2/AD environments – **terminated Ford- and America-class carrier production lines** and curtailed LPD/LSD fleet.

U.S. Air Force

- Increased:
 - Overall Air Force TACAIR inventory by **+180 aircraft** by using a high-low mix.
 - **Stealthy bombers by +44%** with an increased B-21 buy.
 - Developed new **stealthy uninhabited combat aircraft** (UCAV).
 - Additional KC-130J tankers for **distributed operations** inside A2/AD areas.
- Procured **advanced munitions** (JASSM-ER, SDB II, LRASM, MALD-J, new long-range air-to-air missile, collaborative munitions, upgraded PNT).
- Invested in **new technologies** – high-energy lasers, high-powered microwave weapons (CHAMP), and distributed aerial swarms (Gremlins).
- Preserved airlift and non-stealthy unmanned ISR.
- Funded investments by:
 - Reducing non-stealthy bombers (retired 60 B-1 bombers).
 - Trimming F-35A quantities by 60 aircraft over 10 years.

U.S. Army and Marine Corps

- Preserved active-duty Army end-strength at **~450,000**.
- Rebalanced from light infantry to **armor, precision fires, missile defense, and electronic warfare**.
- Increased **active-duty armor BCTs** from 9 to 12.
- Invested in **robotic logistics** (ground and air) to save costs.
- Cut **5 active-duty USMC battalions** to reflect decreased amphibious lift capacity.
- Cut U.S. Army Reserves by **11%** and USMC by **5%**.
- Preserved **regeneration capacity** in Advise and Assist Brigades.

Strategic Systems

- Modernized the **nuclear triad** and invested in enhanced C2.
- Increased **space resiliency** and airborne layer C2 & PNT.
- Increased strategic **cyber offense & defense**.
- Increased **missile defense**:
 - Additional THAAD (+2) and Patriot (+2) batteries.
 - +40 additional ground-based interceptors (GBIs).
 - Game-changing technologies: electromagnetic rail gun and high velocity projectiles (HVP).

Combat-Credible Forward Presence

+2 Armored BCTs
+1 Stryker BCT
+1 Combat Aviation Brigade



+2 Carriers
+ Attack Submarines
+ Destroyers



Base Resiliency and Access

- Increased capabilities for **airfield dispersal**, **rapid runway repair**, and **at-sea VLS rearming**.
- Invested \$2B on **improving partner bases** for U.S. access and logistics.
- Added **SOF regional hubs** for rapid access in high-threat regions.

Restored Readiness

- **Restored readiness** damaged by BCA cuts by increasing funding above PB17 levels for:
 - Flying hours
 - Depot maintenance

Increased R&D

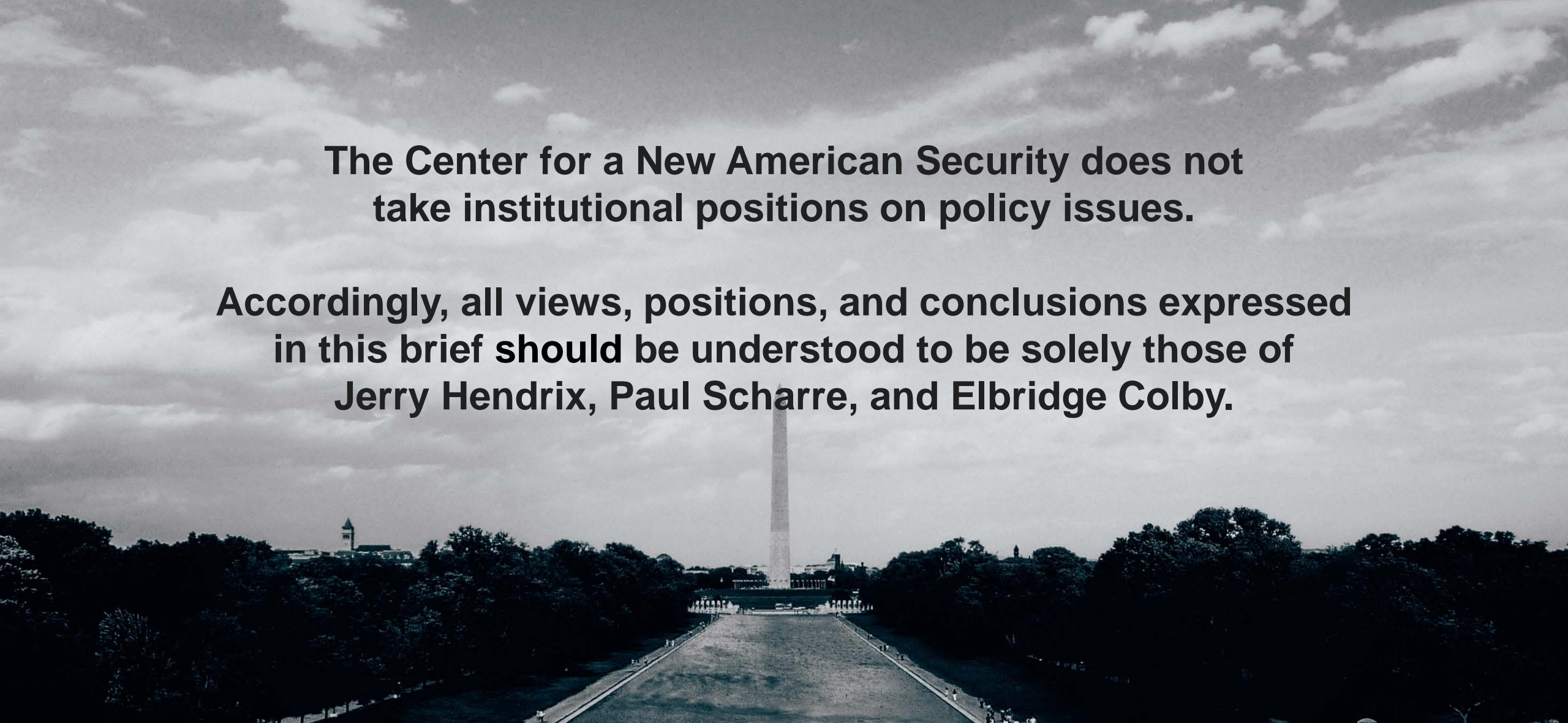
- Increased R&D spending by \$24 billion over 10 years to capitalize on **emerging technologies**:
 - Advanced weapons: railgun, hypersonics, high-energy lasers
 - Electronic warfare, cyber, networking, PNT
 - Advanced undersea and aerospace technologies
 - Artificial intelligence and human performance
- Increased **DARPA** agency funding.

Building Partner Capacity

- Invested in capabilities to build partner capacity:
 - Expanded **security force assistance** training.
 - Created 2 **Advise and Assist Brigades** (3000 personnel).
 - Created a **light attack squadron** to train partners in low-end air capabilities.
 - Increased SOF **language training**.

Management Efficiencies

- Saved **\$55B over 10 years** by cutting 5% of DOD civilian workforce and 8,000 contractors.
- Cuts made possible by **HQ de-layering, automation** of jobs, and **process efficiencies**.
- Trimmed additional **\$27B over 10 years** by initiating BRAC, eliminating commissary subsidies, and raising TRICARE fees.



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Center for Strategic and
Budgetary Assessments

Maintaining Our Military's Competitive Advantages

Mark Gunzinger, Jacob Cohn, Timothy Walton, Ryan Boone

18 October 2016



- **The United States will organize, train, and equip a military capable of:**
 - Defending the United States and its interests
 - Defeating enemies attempting to coerce or compel U.S. allies and partners
 - Deterring, denying, or, if necessary, preventing adversaries from constraining access to the global commons
 - Providing assistance to allies and partners to improve their security capacity against a range of threats
- **Russia and China both pose great-power challenges**
 - Whereas Russia poses the greater immediate threat, China poses the greater long-term challenge
 - Current U.S. capabilities and posture are insufficient to counter Russian or Chinese aggression
- **DoD must maintain a balance between current readiness and modernization – however, it can no longer tradeoff one for the other**

Regional priorities

- **Increase resources to meet commitments in the Asia-Pacific region, reassure U.S. allies and partners, deter and/or prevent an increasingly assertive China from successfully conducting acts of aggression**
- **Recommit to Europe to support NATO partners against both traditional Russian military threats as well as evolving A2/AD and subconventional challenges**
- **Continue to deter North Korea and Iran from conducting missile attacks (possibly with WMD), subconventional aggression, or other hostile acts**
- **Sustain operations to combat terrorist organizations across the Middle East and other geographic regions**

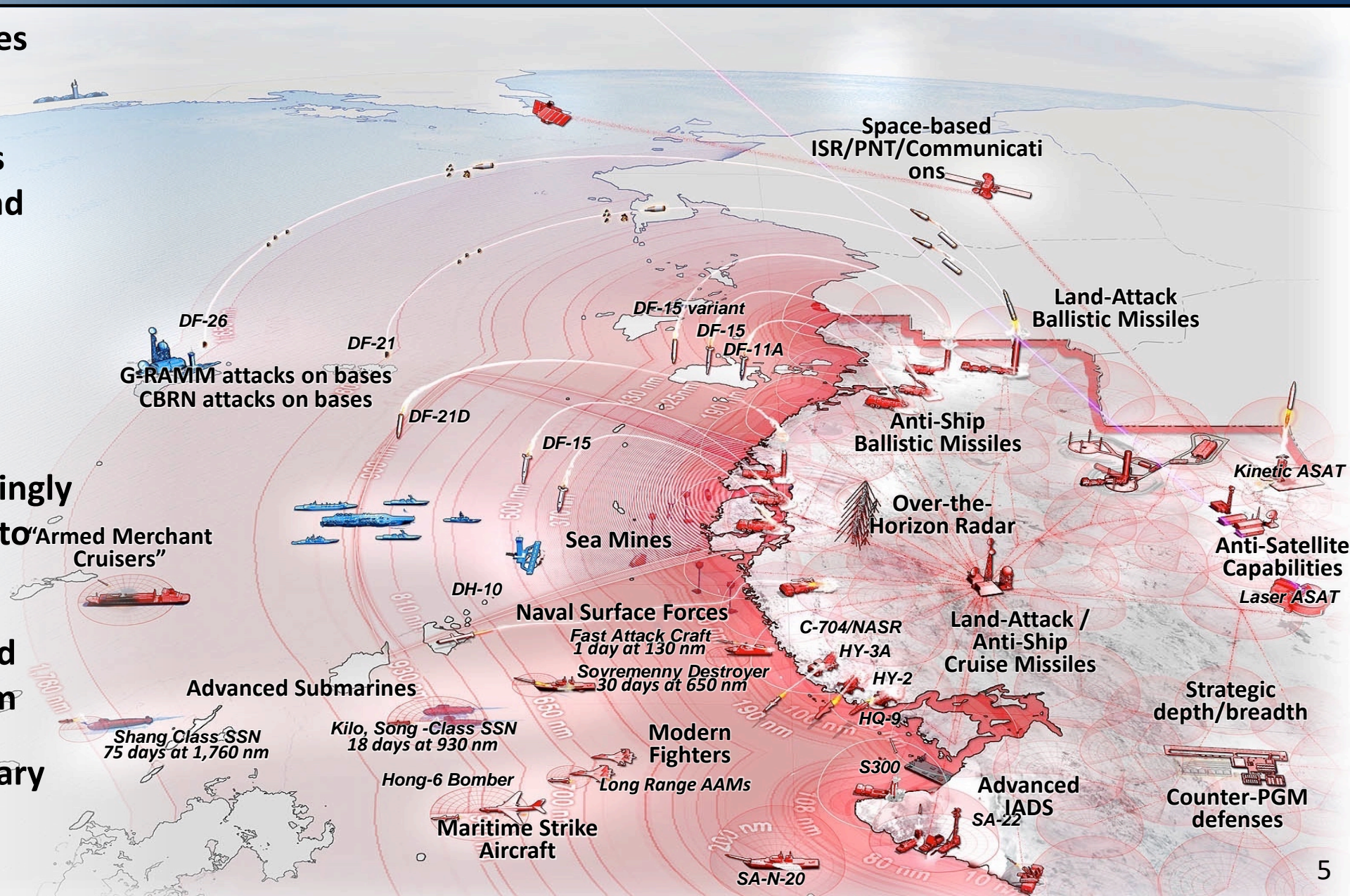


- **Access to modern technologies are lowering the bar for enemies to field asymmetric capabilities**
 - Precision guidance, robotics, autonomy, cyber/EM spectrum, directed energy, advanced computing, etc.
- **A2/AD complexes increase risks to forces operating from forward bases, in littoral regions, or tied to complex logistics chains**
- **Enemy precision-guided capabilities are eroding the U.S. military's strike advantage while posing a greater threat to U.S. allies and partners**
- **Growing cost-exchange imbalances as well as increasing U.S. personnel and O&M costs are undermining the U.S. military's ability to conduct operations as it has in the past**

The U.S. military must change how it plans to operate in the future – its operational concepts – as well as its capabilities

A2/AD core challenges

- Close-in ports and airbases are vulnerable to attack
- Surface ships and carriers easier to detect, track, and attack at range
- Non-stealthy aircraft vulnerable to modern integrated air defenses
- Legacy munitions increasingly costly and/or vulnerable to precision defenses
- Contested cyberspace and electromagnetic spectrum
- Space no longer a sanctuary



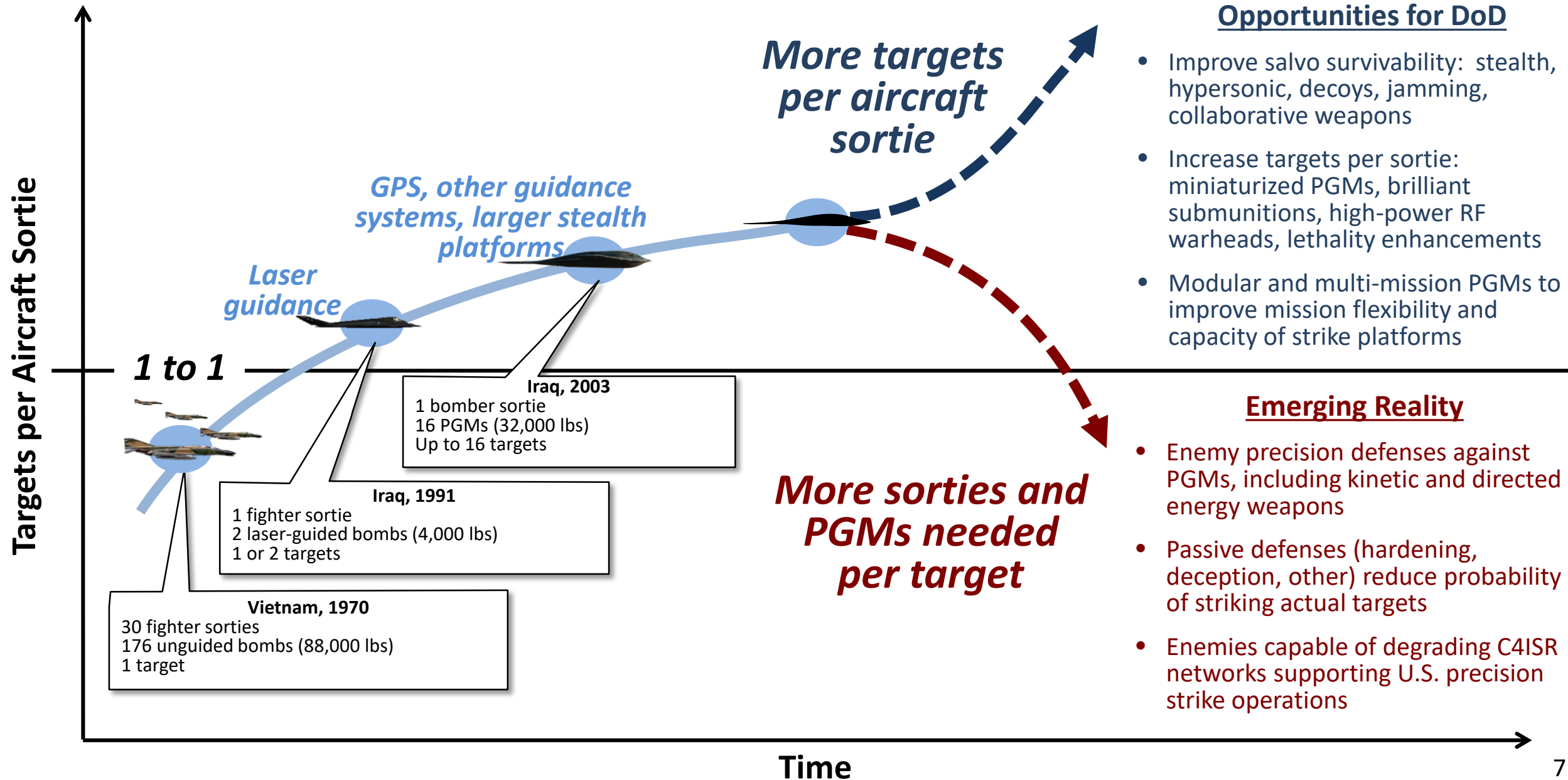
- **Competitions in all domains (air, sea, space, cyberspace/EM spectrum) are driven by predominant operational concepts and technologies**
- **We are entering new phases in a number of competitions**
 - Enabled by advances in computing power, commercial innovation, and proliferation of technology across borders
- **The U.S. can gain advantage by shifting early to the next phase of key competitions**
 - Identify where new competitive regimes align with American strengths, invest to solidify advantages
 - Shifting to the next phase can create more enduring advantages than continuing incremental (and increasingly expensive) improvements
 - This should be a key focus of “offset” strategies



Competitive shifts and implications

	Shift From	Shift Toward	Illustrative Implications
Deterrence	Preparing for “decisive” defeats in short-duration, conventional major theater wars	Countering gray zone aggression; preparing for denial & punishment ops, and protracted conflicts	Survivable forward presence backed by rapid response global strike forces
Precision Strike	Overwhelming strike advantage (precision replaces mass)	Strike parity, salvo competitions (precision + mass needed)	Survivable platforms launching short-range (70-400 nm) standoff strikes
Air-to-Air Warfare	Short-range sensors and weapons, maneuvering engagements	Networked sensors; BVR missile engagements	Stealthy, long-range, networked manned + unmanned aircraft with larger payloads
Air & Missile Defense	Active, kinetic, layered defenses prioritizing long-range intercepts; bias toward BMD	Shoot the archers; higher capacity, medium-range kinetic & non-kinetic salvo defenses; base resiliency	Distributed ops; lower-cost SAMs; DE including EW; gun-launched guided projectiles; dispersal; CCD; hardening
Naval Surface Warfare	“Full scope” power projection; all conflict phases; fleet defense	Sea/air denial operations; episodic power projection; more offensive capacity/distributed lethality	Multi-mission weapons; medium-range interceptors + non-kinetic defenses free VLS capacity for offensive weapons
Undersea Warfare	Maritime; manned submarine-centric; passive acoustic	Cross-domain operations; networked, low-frequency acoustic array and non-acoustic systems	Unmanned underwater vehicles and mission modules; fixed/expeditionary infrastructure

Salvo competition example



Competitive shifts and implications (2)

	Shift From	Shift Toward	Illustrative Implications
Carrier Aviation	Persistent carrier operations in range to strike inland targets	CVNs support sustained ISR & strike ops from greater standoff distances	Refuelable, broadband/all-aspect LO UCAS with significant payloads
Land Warfare	Combined arms maneuver warfare; counterinsurgency ops; assume local air superiority	Multi-domain operations in A2/AD; unconventional warfare; operations to counter gray zone aggression	Long-range, networked precision fires; air and missile defense; coastal sea denial operations; networked EW
EM Spectrum Warfare	High-power RF, large-bandwidth C2, space-based ISR and communications	Passive to low-power EMS operations including communications; improved signature reduction	Distributed, networked EMS operations; signature management; multi-functional capabilities
Amphibious Warfare	Large-scale assaults; establish lodgments for joint forces	Distributed, small-scale, littoral raids with limited objectives	Numerous ship-to-shore connectors; adaptable forces
Logistics	Lean, “just in time” delivery; specialized military requirements; hub-and-spoke	Robust, commercial-military hybrid requirements and delivery; distributed nodes	Less forward logistics support; graceful attrition; autonomous & predictive logistics
Space	Large, dedicated satellites for PNT, communications, and ISR	Fractionated/distributed; hosted payloads; increased space resiliency	Rapid replenishment/survivability; commercial comms; airborne layers
Nuclear Deterrence	Decreasing focus; wide area, strategic; counter-proliferation	Tailored, usable effects; counter-employment; survivable launch	Electronics hardening; survivable penetrators; more escalation options

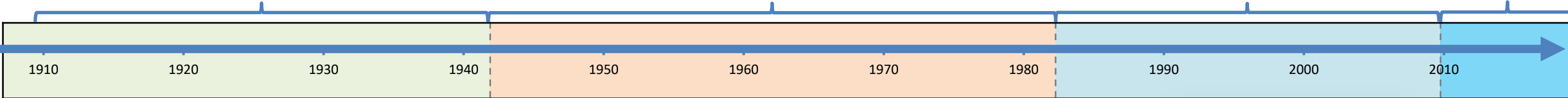
EM spectrum warfare example

Active vs. Passive Competition

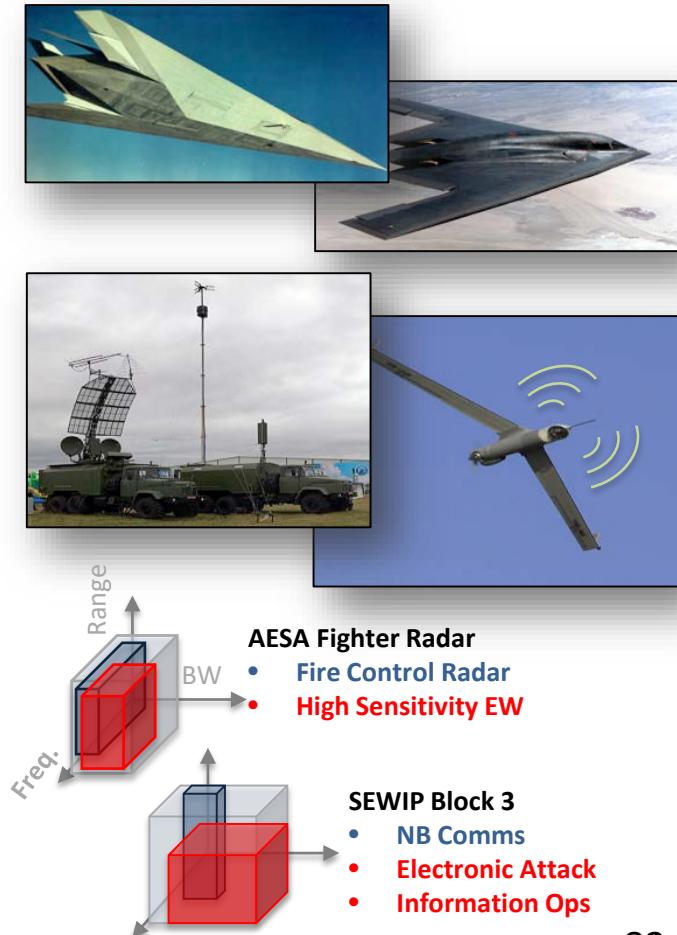
Active vs. Active Competition

Shift toward Stealth vs. Low-Power Networks

Low-to-No Power



- **Late Cold War:** U.S. began shifting towards stealth and low-probability of intercept/detection (LPI/LPD) communications and sensing
- **Today:** Shift to the next phase – “low to no power” sensors, communications, adaptive, networked EW – to keep ahead of innovative threats
 - Real-time analysis of EM environment, ability to adapt to avoid interference and improve countermeasures
 - Systems utilize greater portions of frequency spectrum, “frequency hop” to avoid detection and countermeasures
 - Smaller, multi-function (communications, EW, sensing) systems on nearly all platforms operating in contested areas
 - Networked passive sensors opportunistically use ambient EM energy to locate threats and avoid detection
 - Low-power sensors and jammers on networked unmanned systems and expendable weapons
 - Open architecture systems for faster tech refresh



CSBA Strategic Choices Land warfare in contested areas example

Old trends...

- Potential aggressors improving ability to mass forces and firepower
- Tempo of conflict is accelerating, aggressors seek rapid victories before Allied forces can respond
- Battlespace increasingly non-linear
- Aggressors numerically superior

... joined by new challenges

- Wide-area sensors and shooters allow adversaries to hold at risk larger geographic spaces
- New technology increases lethality of legacy, non-precise systems
- High-signature platforms and centralized C2 under greater threat
- Paramilitary challenges likely to continue alongside/in support of conventional conflict
- Wide area domain "control" in highly contested areas likely replaced by temporary and localized domain advantages

AirLand Battle, 1980s



Future Cross-Domain Operations



Strategic choices: Army

Trends

- Pace of conflict, contested theater access drive requirements to posture additional logistics-intensive forces and materials forward
- Ground forces should be capable of operating in contested operational areas with reduced support from air forces
- Precision strike technologies offer new offensive and defensive options for highly mobile ground forces, particularly in air-denied areas
- Persistent demand for Army forces to counter gray zone aggression and conduct train, advise, and assist operations in multiple geographic regions

Investment decisions

- Major expansion of ground-based, long-range precision fires and EW
- Lower-cost, higher-capacity air and missile defenses (e.g., HPM, EW, IFPC, lasers) plus increased current interceptors
- Forward base ABCTs, CABs, HIMARS, AMD batteries in Europe and Pacific to enhance deterrence and improve responsiveness; expand PREPO (especially for precision fires and AMD) to improve crisis response
- Expanded SOF and train, advise, and assist force to address likely challenges while preventing readiness loss in other areas

Investment Highlights

Fielded new HIMARS/FFL battalions	+12
Developed/procured long-range ground-based precision fires: GMLRS, SDB II, LRPF, IRBM	✓
Deployed GLCM batteries for littoral anti-ship and land attacks	+6
Accelerated Indirect Fires Protection Capability (IFPC) for <u>joint</u> AMD	✓
Deployed high-capacity directed energy UAV and missile defenses	✓
Added mobile camouflage & active protection for armored forces	✓
Increased Patriot battalions	+4
Forward-based ABCTs and more PREPO in Europe	+2/+2
Fielded forward-based and PREPO afloat fires brigades	+3/+3
Established partner advise and assist force (brigade HQs); increased SOF units for FID	+4/+4
Added combat aviation brigades to sustain distributed forces	+2
Procured UAS for ISR and logistics	✓

Strategic choices: Air Force

Trends

- Threats to airbases and tanker tethers increase need for combat aircraft with longer ranges, greater endurance, and larger payloads
- “First look/shot/kill” BVR intercepts shape counterair system-of-systems; active & passive means to avoid detection; networked sensors; manned-unmanned teaming
- Persistently high OPTEMPO stressing the force >>> readiness declining, airframes wearing out faster than replacement, pilot retention issues
- Threats to high-power emitters and space-based systems drive need for new EW capabilities, disaggregated command and control/battle management, networking, and increased autonomy

Investment decisions

- Prioritized family of long-range strike systems and multi-mission enablers, including penetrating UAS; increased PGMs for protracted campaigns and invested in next-gen precision strike enablers to prevail in salvo competitions
- Addressed pilot and aircraft shortages, stresses of sustained operations – procured low-cost fighter, restarted F-22 production, sustained F-35A procurement, enlarged pilot and support personnel pool
- Invested in air base defenses including hardening, dispersal, deception, and active defenses (joint USAF & Army active defense investments)

Investment Highlights

Accelerated B-21, procure more than 100 aircraft	✓
Developed and deployed stealthy ISR UAS	✓
Procured penetrating UCAVs for surveillance and strike	✓
Procured new long-range air-to-air missile	✓
Started line for F-22+, began development of new Penetrating Counterair Aircraft	✓
Retained A-10s to support current operations	✓
Created low-cost fighter force for steady-state operations	+9
Base resiliency, including rapid repair, hardening, CCD, and procuring active defenses	>\$10B
Expanded joint basing in partner countries	+\$10B
Addressed pilot shortage by increasing end strength	✓

Strategic choices: Navy & Marine Corps

Trends

- Growing need for theater deterrence forces to reassure allies, prevent crises from escalating, and provide lethal effects in conflicts
- Unmanned and other technologies offer new options for undersea warfare
- Increasing threat to theater logistics hubs and resupply vessels
- Growing reliance on USMC as “9-1-1” crisis response force and for distributed operations in contested areas; decreasing likelihood of amphibious landings

Investment decisions

- Grew battle force fleet from current 272 ships to 384 ships; shifted from LCS towards new frigates & unmanned surface vessels, added fast missile craft, increased forward-stationing of small surface combatants
- Expanded SSN production and invested in a family of UUVs as well as undersea payloads and infrastructure
- Invested in longer-range carrier aviation to restore the Navy’s offensive punch; expanded ASW capabilities
- Implemented new approach to fleet defense - invested in higher capacity, medium-range kinetic & non-kinetic defenses
- Major expansion of Combat Logistics Fleet, invested in at-sea VLS replenishment and tender support

Investment Highlights

Accelerated <i>Ford</i> -class carrier build	✓
Procured next-generation UAS, including a carrier-based stealth UCAV for ISR and strike	✓
Accelerated SSN procurement	+8
Procured USVs, seabed mission modules, and a family of UUVs including XLUUVs	✓
Invested in littoral sensor arrays for ASW in high-threat areas	✓
Developed post-LCS frigate, forward stationed with Blue/Gold crewing	+20
Add fast missile and patrol craft	✓
Grew Maritime Patrol Aircraft fleet	+40
Fielded higher-capacity fleet AMD, including DE and gun-launched HVPs	✓
Developed at-sea VLS replenishment and special VLS tenders	✓
Expanded Combat Logistics Fleet to sustain combat operations	+16
Procured sub-tenders & tending ships for UUV/USV operations	✓

Other key initiatives

Trends

- O&M growing faster than inflation; compensation and healthcare growing as % of DoD budget
- Longer lead times for R&D transitions to program of record
- Significant over-capacity in infrastructure as opportunity cost for future modernization

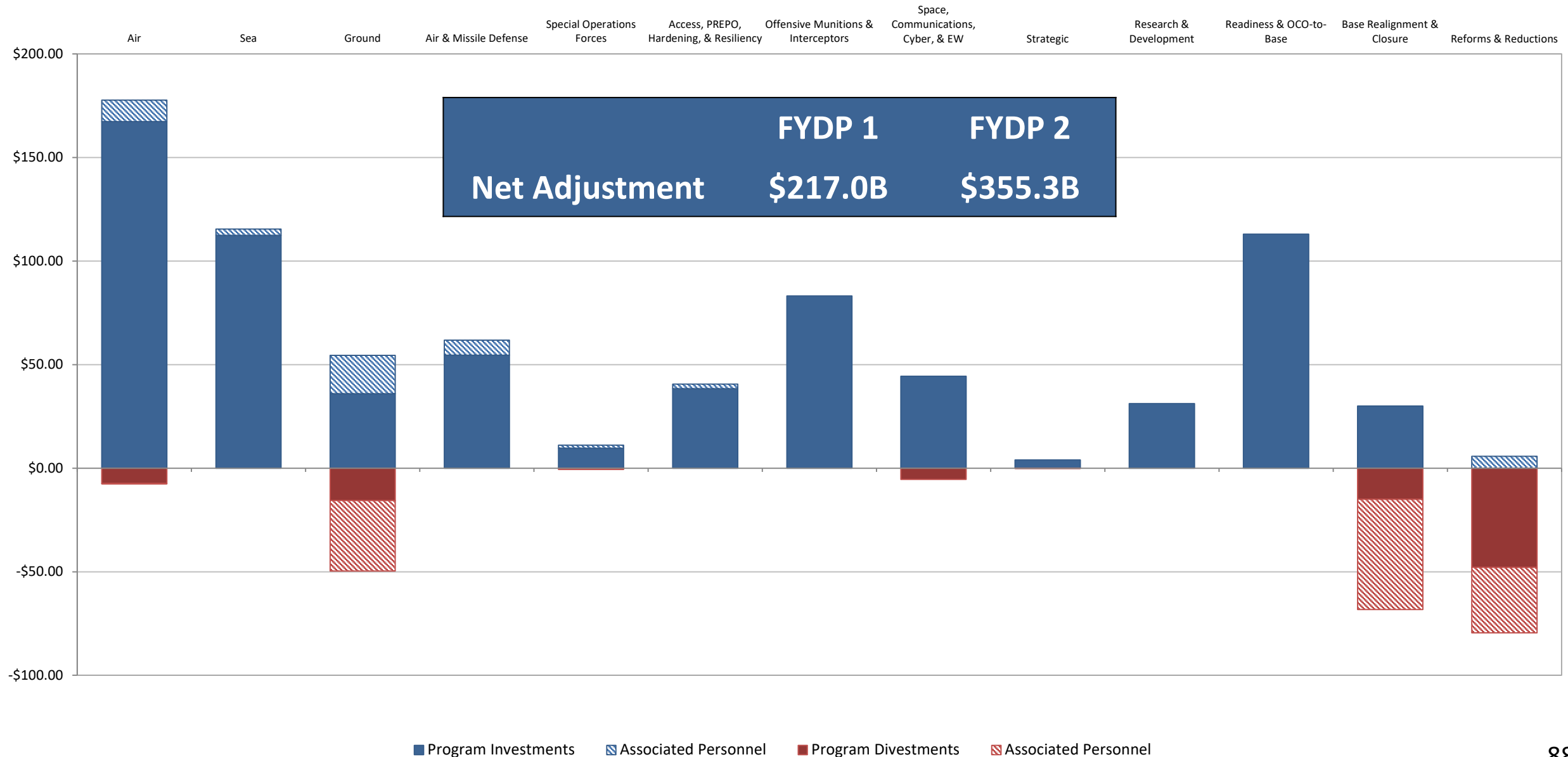
Initiatives

- Large plus-up in 6.1-6.3 S&T funding to maintain technical edge
- 2005-style BRAC to cut excess infrastructure and personnel
- Restored shipyard and depot maintenance to near 100% of requirements in base budget to protect asset service life and increase availability; increased flying hours and OPTEMPO
- Privatized TRICARE for dependents & retirees, reduced commissary subsidies
- 5% cut in Unified Combatant Command staffs; 3% cut in service support contractors; additional civilian reductions

Highlights

Increased S&T funding	+\$30B
Increased DARPA activity	✓
Initial BRAC spending	\$30B
BRAC upkeep & personnel savings over over 10 years	>\$65B
Reforms & personnel reduction savings over 10 years	>\$75B
Increased base budget funding for ship maintenance	>\$35B
Increased funding for aircraft maintenance	>\$40B
Increased base budget for vehicle and equipment depots	>\$5B
Increased base budget for OPTEMPO & flying hours	>\$25B

Adjustments to PB17 over next decade





Team Sage Grouse

Team Lead: Todd Harrison

Team Advisors: Mark Cancian and Andrew Hunter



Guiding Principles

- Rebalancing should be strategy-driven *AND* resource-constrained
 - Should spend as much as is necessary and prudent, but no more
 - Any caps on the defense budget should reflect this
- End the use of OCO to supplement base budget activities
 - Move ~\$30B / year of “forward presence and readiness” OCO funding back into the base budget
 - Use OCO only for the incremental cost of contingencies
- Push for “efficiencies” but don't assume any savings until accomplished
- Nothing is sacred, rethink old assumptions, and ruthlessly repurpose or divest “wasting assets”

Priority Roles and Missions

1. Protect the homeland
2. Protect U.S. vital interests around the world, including U.S. citizens and treaty commitments to allies
3. Provide a stabilizing balance in key regions when needed
4. Conduct humanitarian assistance and disaster relief operations

Key Threats

- Near-term
 - Russian creeping aggression / hybrid warfare in eastern Europe
 - Chinese “grey zone” aggression / territorial claims in South China Sea
 - North Korean / Iranian provocations
 - Global terrorist organizations and ungoverned space
 - Political instability and unrest among allies and partners
- Long-term
 - Weakening of U.S. power projection capabilities due to proliferation of precision-guided missiles & munitions, EW, cyber and counter-space capabilities
 - Growing power projection capabilities, reach, and influence of rival nations
 - Challenges to rules-based global system and U.S. network of alliances
 - Proliferation of nuclear weapons and loss of nuclear “taboo”
 - Potential collapse of key states and the spread of disorder

Summary of Strategy

- Focus on **major military competitions**
 - Provide a credible deterrent against China, Russia, North Korea, Iran
 - Maintain and extend operational and technological advantages in key areas of military competition (space, cyber, air, and undersea)
 - Work with allies to develop complementary capabilities and capacity
- Posture for **selective engagement**
 - Less emphasis on large-scale forward presence for other regional threats
 - Put a “thumb on the scale” but not necessarily “boots on the ground”
 - Be prepared to deploy rapidly when needed with relevant enabling capabilities (C2, ISR, logistics, munitions)
 - Be prepared to deal with the effects of disorder
 - Work with allies/partners to improve stability in critical areas
 - Integrate military approaches with other instruments of U.S. power

Capability Priorities

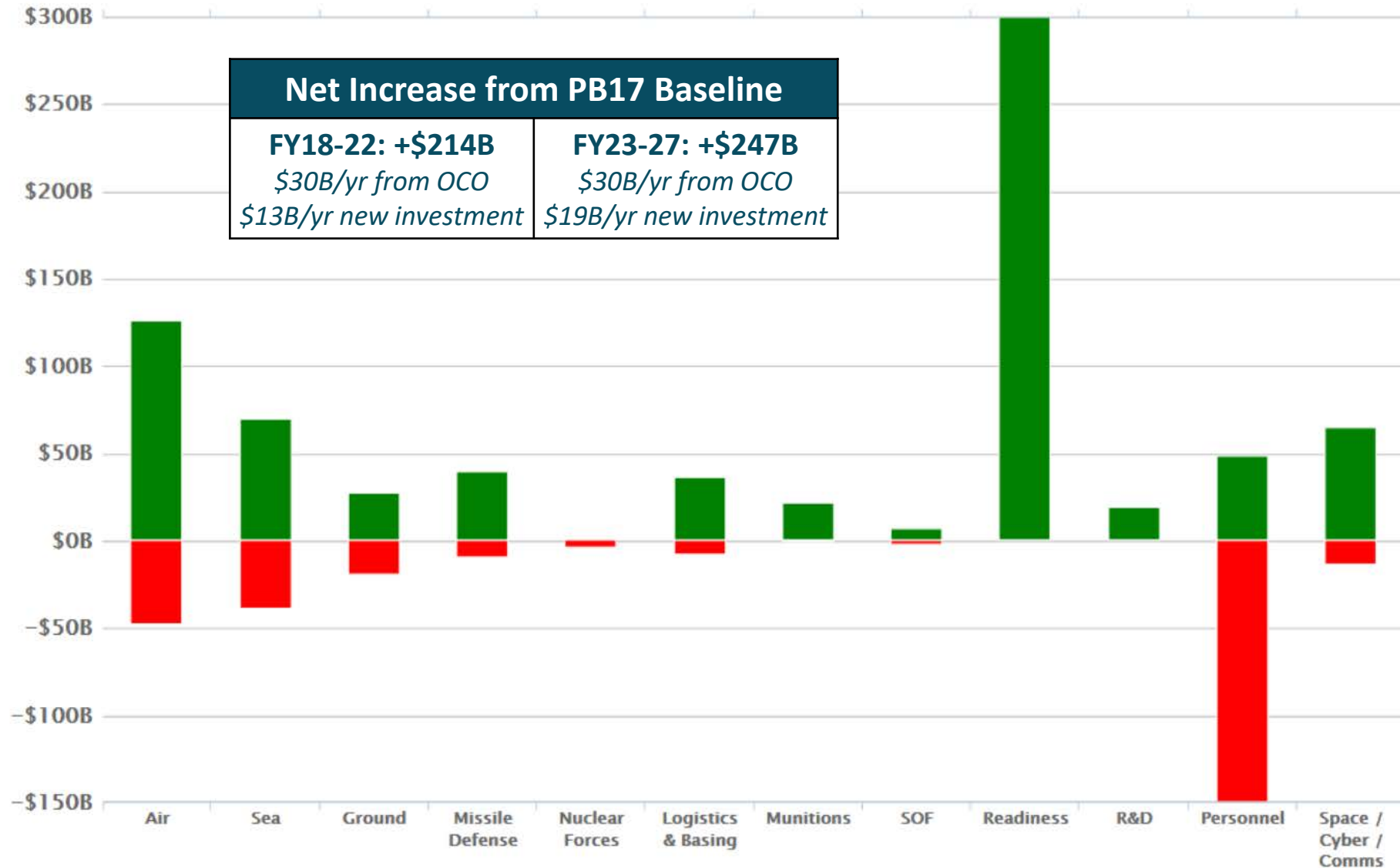
- Rebalance to a high-low mix of capabilities

	Air	Sea	Ground	Space	Cyber/Intel
Highly Contested Environment	<ul style="list-style-type: none"> • Stealthy, long-range strike and ISR • Stealthy tanking • Stealthy unmanned strike and ISR • Airborne nuclear deterrent • Advanced munitions 	<ul style="list-style-type: none"> • SSNs/SSGNs • UUVs • Sub-based nuclear deterrent • Sea-based missile defense • Advanced munitions & sensors 	<ul style="list-style-type: none"> • Long-range fires • Land-based air & missile defense • Land-based national missile defense • SOF • Armor in A/C • Counter WMD 	<ul style="list-style-type: none"> • Strategic protected SATCOM and missile warning • Hosted payloads for tactical protected SATCOM, missile warning, and PNT resilience 	<ul style="list-style-type: none"> • Offensive cyber teams • Defensive cyber teams • National infrastructure protection • Intel fusion, integrated C2
Less Contested Environment	<ul style="list-style-type: none"> • Non-stealthy strike & ISR • Non-stealthy unmanned strike and ISR • Airlift and tanking capacity • Airborne Warning / C2 • Rotary-wing attack / lift 	<ul style="list-style-type: none"> • Sealift • Amphibs • Small surface combatants 	<ul style="list-style-type: none"> • Pre-positioned equipment sets • Infantry in R/C 	<ul style="list-style-type: none"> • Commercial Narrowband SATCOM • Commercial Wideband SATCOM 	

Bold text = new or increased investment

Regular text = sustained investment

Budget Rebalancing Summary



Changes in Force Structure from Baseline

Ground

Army End Strength (AC/RC):	+15K/-33K
Armored BCTs (AC/RC):	+2/-3
Infantry BCTs (AC/RC):	-5/+4
Stryker BCTs (AC/RC):	+2/-2
Combat Aviation Bgd (AC/RC):	--/--
Short-Range Missile Bn (AC/RC):	+4/--
Long-Range Missile Bn (AC/RC):	+6/--
USMC End Strength (AC/RC):	-6K/-4K
USMC Amphibian Bn (AC/RC):	--/--
USMC Armored Bn (AC/RC):	-2/-1
USMC Artillery Bn (AC/RC):	--/--
USMC Aviation Group (AC/RC):	-1/--
USMC Infantry Bn (AC/RC):	--/--

Sea

Aircraft Carriers:	-1
Amphibious Ships:	--
Attack Subs (SSNs):	+2
Ballistic Missile Subs (SSBNs):	--
Cruise Missile Subs (SSGNs):	+3
Large Surface Combatants:	-6
Small Surface Combatants:	--
Support:	+13

Space/Cyber

Protected SATCOM (Sat/Host):	+1/+10
Narrowband (Mil/Comm):	-1/+7
Wideband (Mil/Comm):	--/+7
Missile Warning (Sat/Host):	+1/+10
GPS (Sat/Host):	--/+10
Cyber Mission Teams:	+55

Air

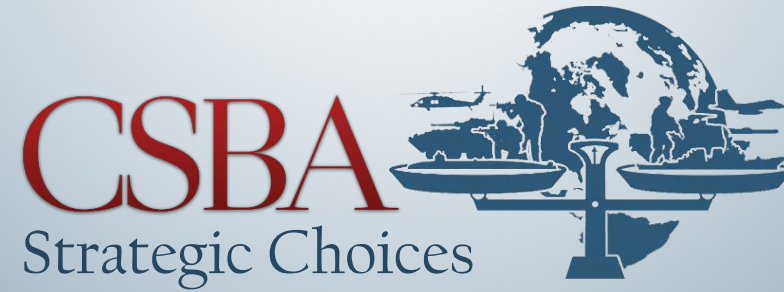
Aerial Refueling:	+20
Airlift:	--
Stealthy Manned Bombers:	+5
Stealthy Manned Fighter/Attack:	-240
Stealthy Unmanned ISR/Strike:	+150
Legacy Manned Bombers:	-20
Legacy Manned Fighter/Attack:	+160
Non-Stealthy Unmanned ISR/Strike:	-6
Non-Stealthy Manned ISR/ASW/C2	+45

Missile Def. / Nuclear

Long-Range AMD Bat (AC/RC)	+4/--
Medium-Range AMD Bat (AC/RC)	--/--
Short-Range AMD Bat (AC/RC)	+35/--
ICBM Wings	-1

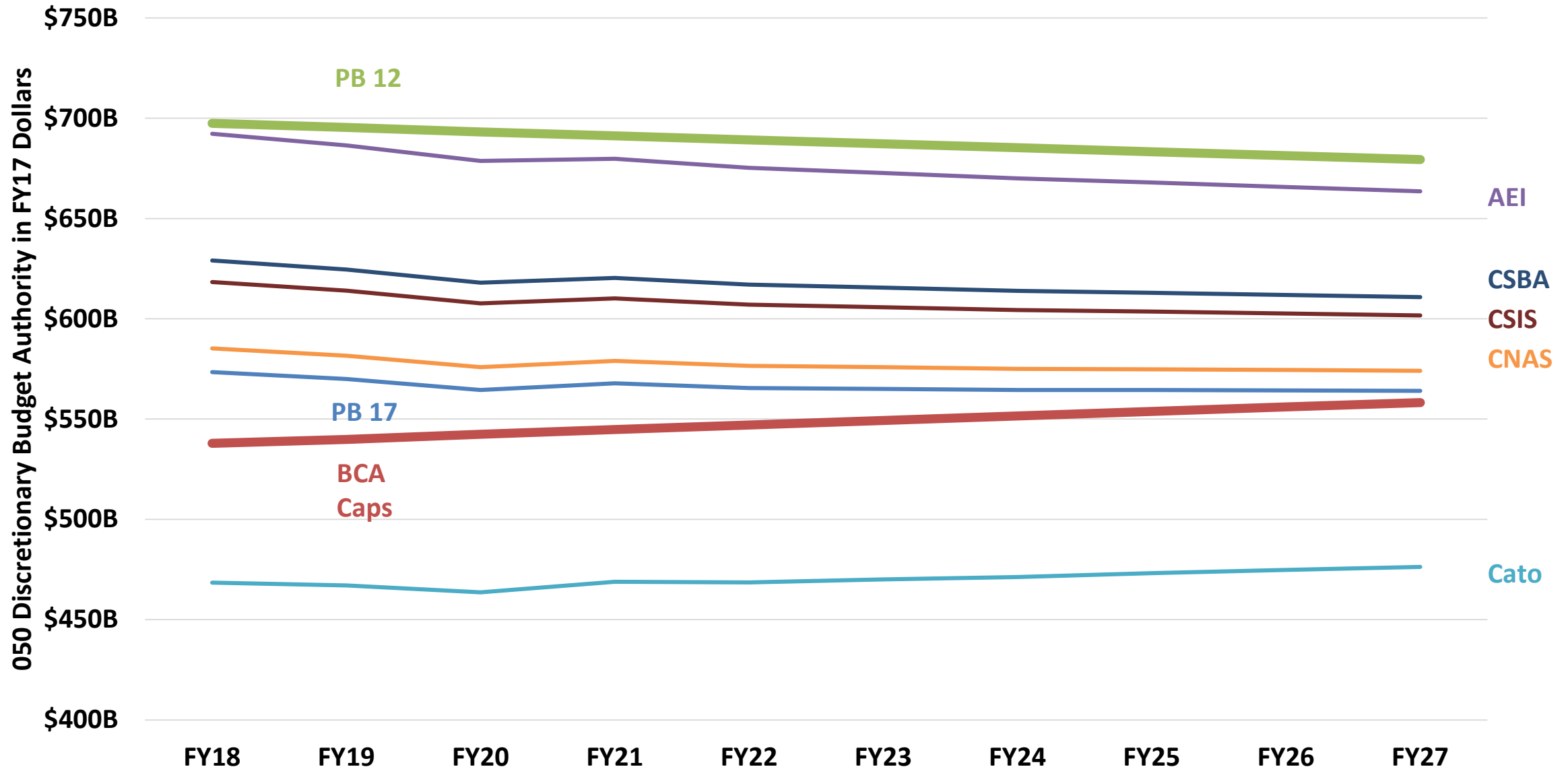
Risks

- Political
 - Continued budget pressures could limit resources available
 - Movements of forces between AC / RC would be unpopular in Congress
 - Reductions to major acquisition programs could be blocked
- Strategic
 - “Black Swan” event, especially in cyber or space
 - Rapid collapse of a major power and ensuing disorder
- Programmatic
 - Cost overruns and schedule delays are a constant challenge
 - New technologies may not mature as anticipated
 - Growing O&M costs could limit investments in new capabilities



Comparison of Team's Choices

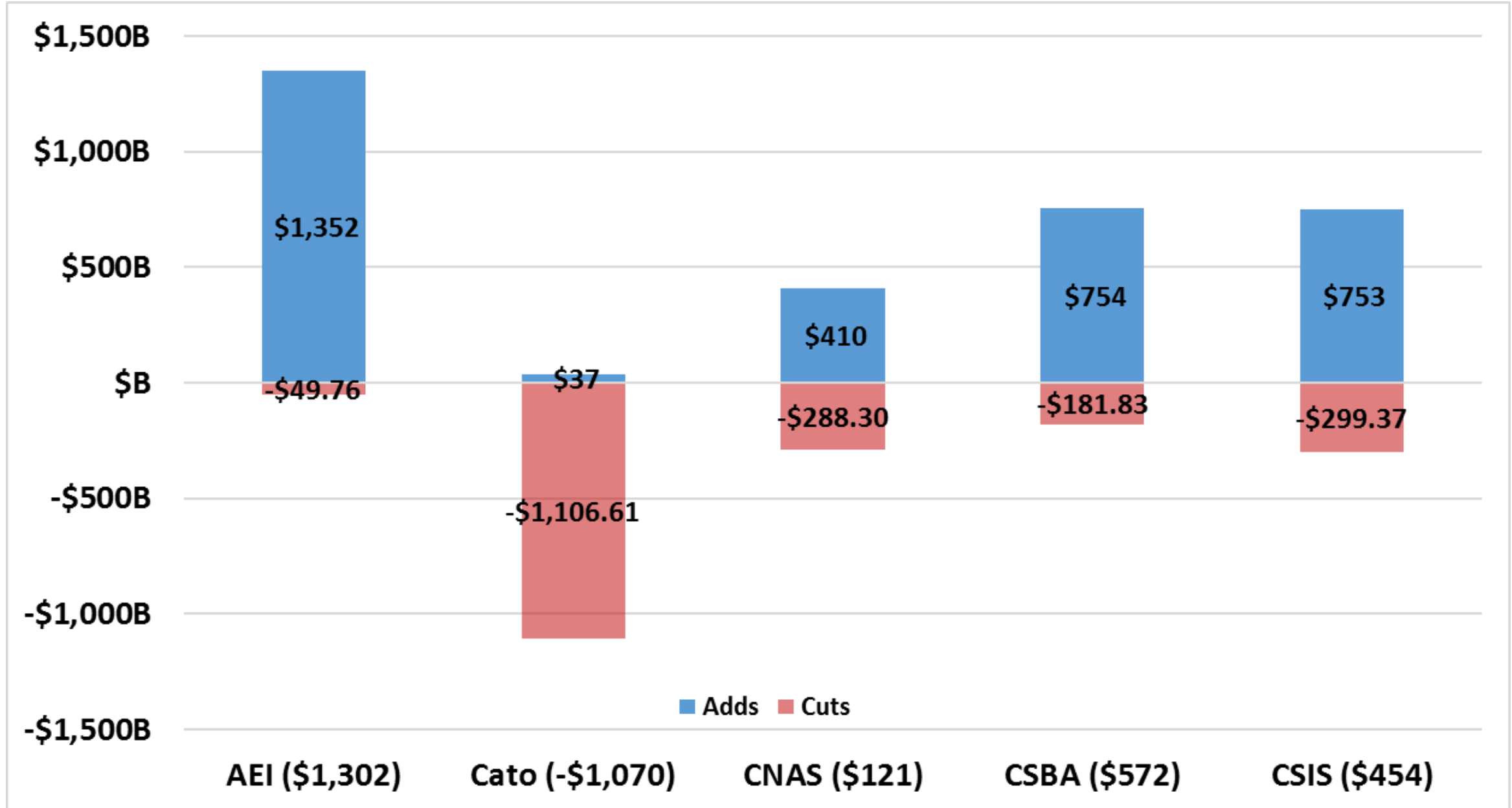
Budget Overview



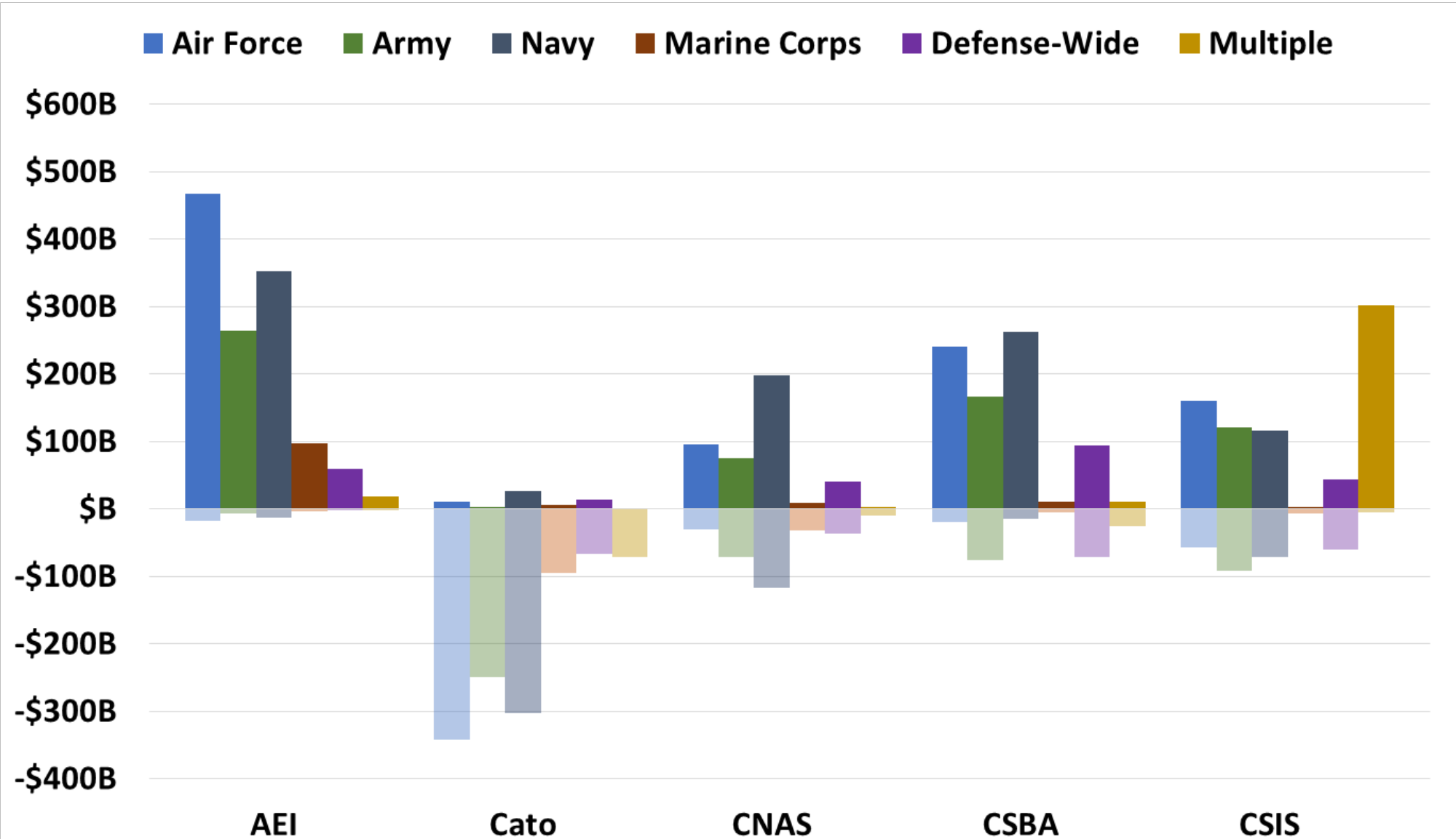
Recommended 050 Request

FY17 Billions \$	050 Total	% Difference from PB 17	\$ Difference from PB 17	050 Spending as % of GDP
PB17	\$ 5,663	100%	\$ -	2.58%
AEI	\$ 6,752	119%	\$ 1,089	3.08%
Cato	\$ 4,702	83%	\$ (961)	2.14%
CNAS	\$ 5,773	102%	\$ 109	2.63%
CSBA	\$ 6,174	109%	\$ 511	2.82%
CSIS	\$ 6,075	107%	\$ 412	2.77%
PB12	\$ 6,883	122%	\$ 1,219	3.14%
BCA Caps Modified by October 2015 BBA	\$ 5,481	97%	\$ (182)	2.50%

Overview of Rebalancing



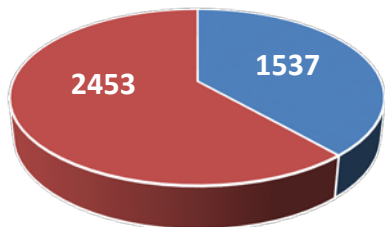
Rebalancing by Service



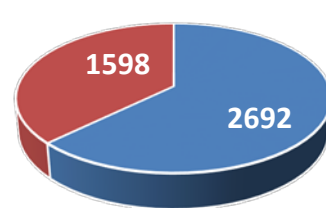
CSIS readiness spending reflects shifting funding for enduring requirements to the base budget. While counted under the readiness category, the enduring requirements shifted to the base budget encompass more than just readiness spending



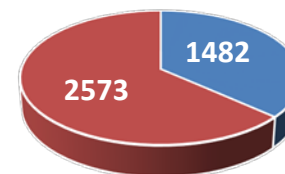
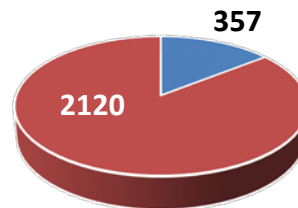
<i>Stealthy Bombers</i>	+15	-20	+15	+15	+5
<i>Non-Stealthy Bombers</i>	-60	-73	-60	0	-20
<i>Stealthy Fighter/Attack</i>	+960	-1160	-180	+80	-240
<i>Non-Stealthy Fighter/Attack</i>	-1280	-170	+180	+380	+160
<i>Stealthy Unmanned ISR/Strike</i>	+180	0	+110	+190	+150
<i>Non-Stealthy Unmanned ISR/Strike</i>	+485	-90	0	-6	-6



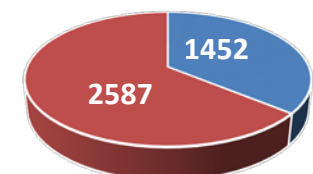
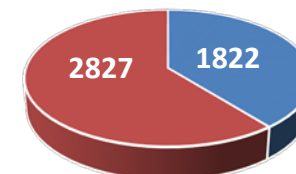
FY23-27 Planned



Stealthy



Non-Stealthy



Surface Vessels



<i>Aircraft Carriers</i>	0	-4	-1	0	-1
<i>Amphibious Ships</i>	+8	-12	-11	0	0
<i>Combat Logistics Force</i>	+20	-10	+2	+16	0
<i>Large Surface Combatants</i>	+10	-28	-13	0	-6
<i>Small Surface Combatants</i>	+28	-20	+22	+39	0

Undersea Vessels



<i>Attack Subs</i>	+15	-9	+13	+8	+2
<i>Cruise Missile Subs</i>	-1	0	+3	0	+3
<i>Long Endurance UUVs</i>	+3	0	+1	+10	+5
<i>Towed Payload Modules</i>	0	0	0	+5	+2
<i>Littoral Sensor Arrays</i>	+10	0	0	+2	0
<i>Submarine Tender</i>	+2	0	0	+1	+2
<i>SURTASS Ship and LFA Sonar Systems</i>	0	0	+1	+1	0
<i>Deep Sea Payload Pod</i>	+5	0	0	+5	0
<i>Towed Payload Modules</i>	0	0	0	+5	+2
<i>Extra-Large Displacement UUV</i>	+1	0	+1	+1	+1
<i>Littoral Seabed Support Modules</i>	+5	0	0	+7	0

Strategic Forces



	AEI	CATO INSTITUTE	Center for a New American Security	CSBA	CSIS
<i>B61 Life Extension</i>	Funded	Canceled	Funded	Funded	Funded
<i>F-35 Nuclear Mods</i>	Funded	Canceled	Delayed	Delayed	Canceled
<i>ICBM Wings</i>	0	-3	0	0	-1
<i>Ohio-Class SSBNs</i>	0	Delayed Replacement	0	0	0
<i>LRSO Program</i>	Increase Munitions Buy	Canceled	Accelerate Program	Increase Munitions Buy	Funded
<i>Minuteman Replacement</i>	Funded	Canceled	Funded	Funded	Funded
<i>Trident II D5 Mods</i>	Funded	Canceled	Funded	Funded	Funded
<i>Cert Training for B-52s</i>	Canceled	Canceled	Funded	Funded	Canceled
<i>Cert Training for Fighters</i>	Funded	Funded	Funded	Funded	Funded

Active Duty Personnel



Air Force

+17K

-98K

+2K

+27K

-7K

Army

+72K

-100K

-1K

+55K

+15K

Marine Corp

-34K

-59K

-8K

+5K

-6K

Navy

+26K

-65K

-10K

+10K

-2K

Pay Raises

Funded

Tricare

No Change

Raise Fees

Raise Fees

Privatize

Privatize

Commissary Subsidy

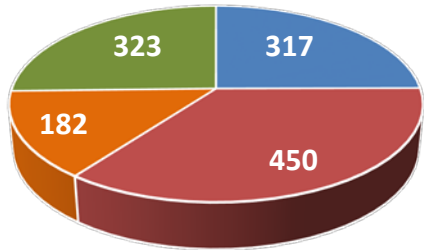
Funded

Canceled

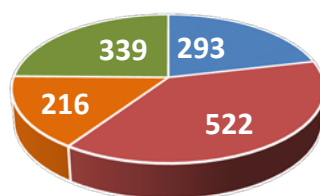
Canceled

Canceled

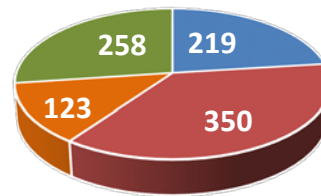
Funded



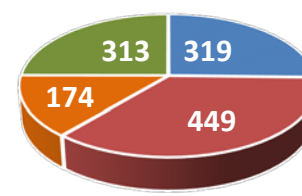
FY23-27 Planned



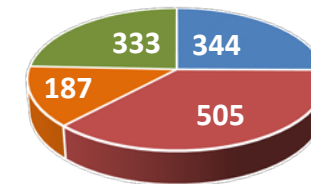
Air Force



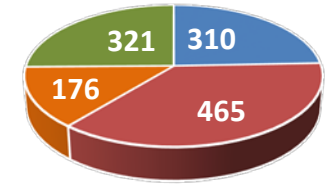
Army



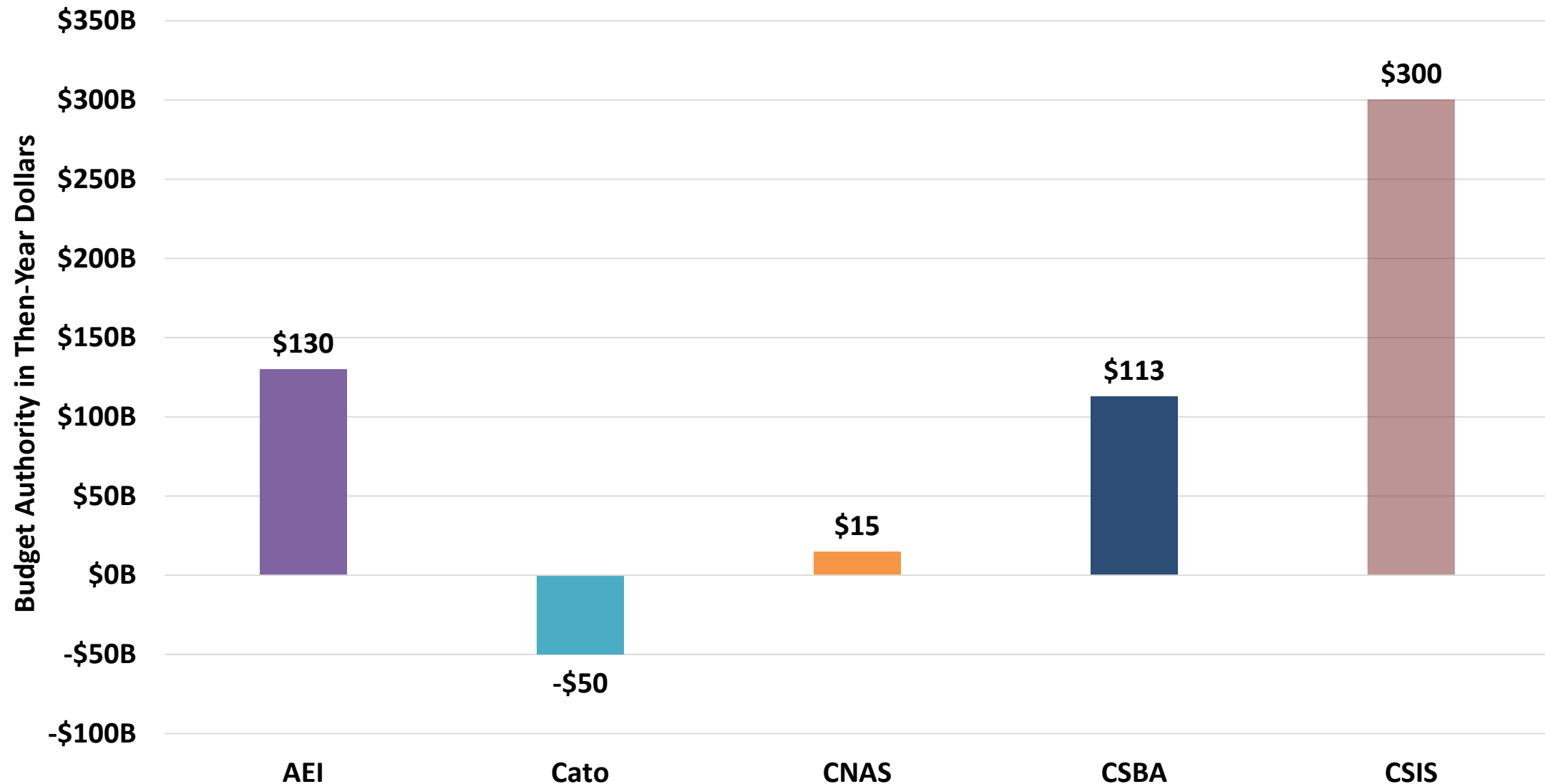
Marine Corp



Navy



Readiness Funding



CSIS readiness spending reflects shifting funding for enduring requirements to the base budget. While counted under the readiness category, the enduring requirements shifted to the base budget encompass more than just readiness spending

Space/Cyber and R&D Common Choices

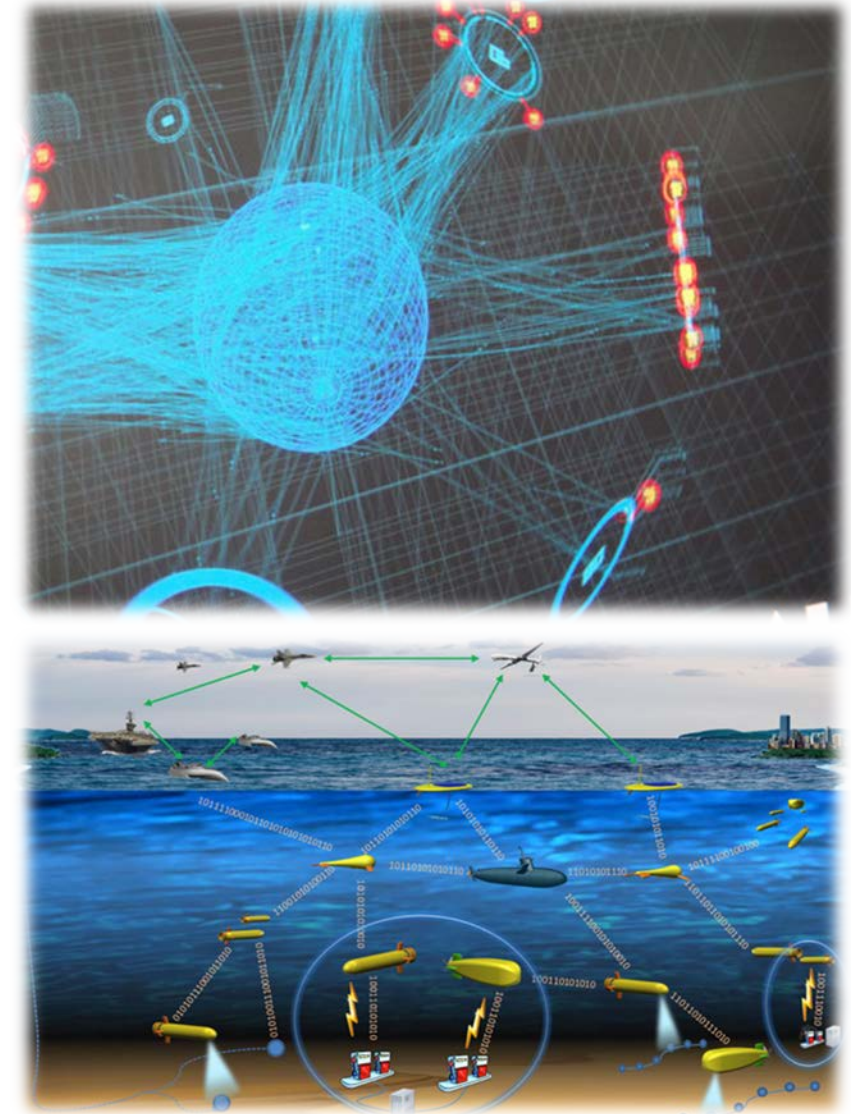
Just Focusing on Systems and Technology, Four teams selected:

Space/Cyber/Comms

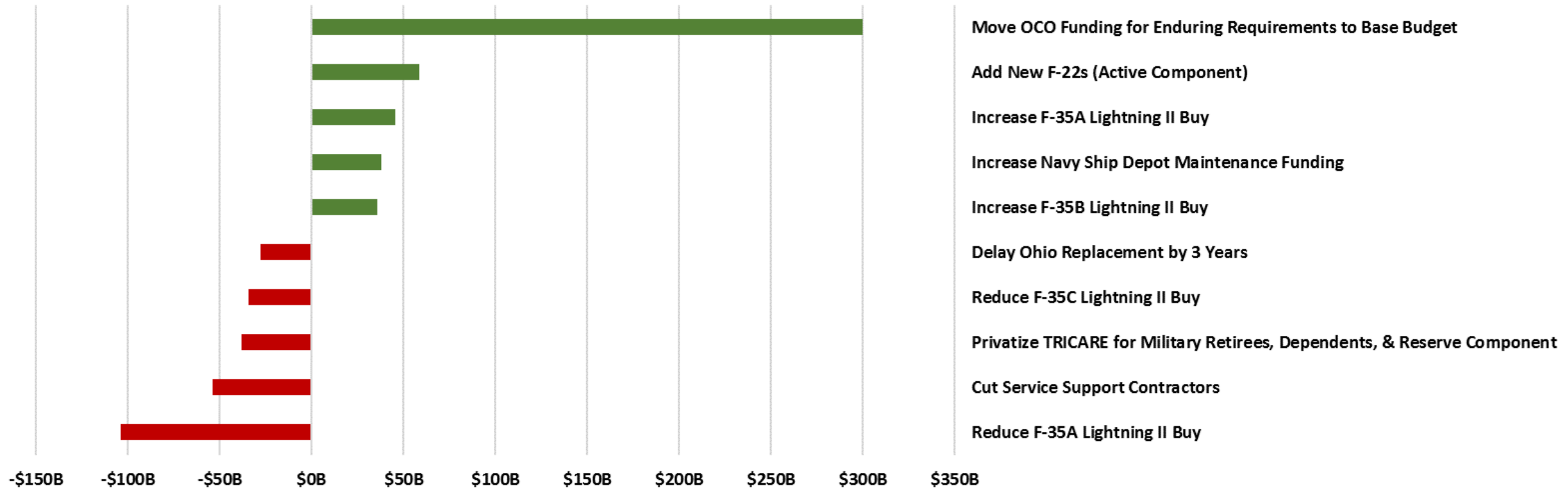
- Add Land-Based Mobile EW Systems
- Add Rapidly Deployable Low Cost Protected SATCOM Terminals
- Add Cyber Combat Mission Teams
- Develop and Deploy Joint Aerial Layer Network Technologies

R&D

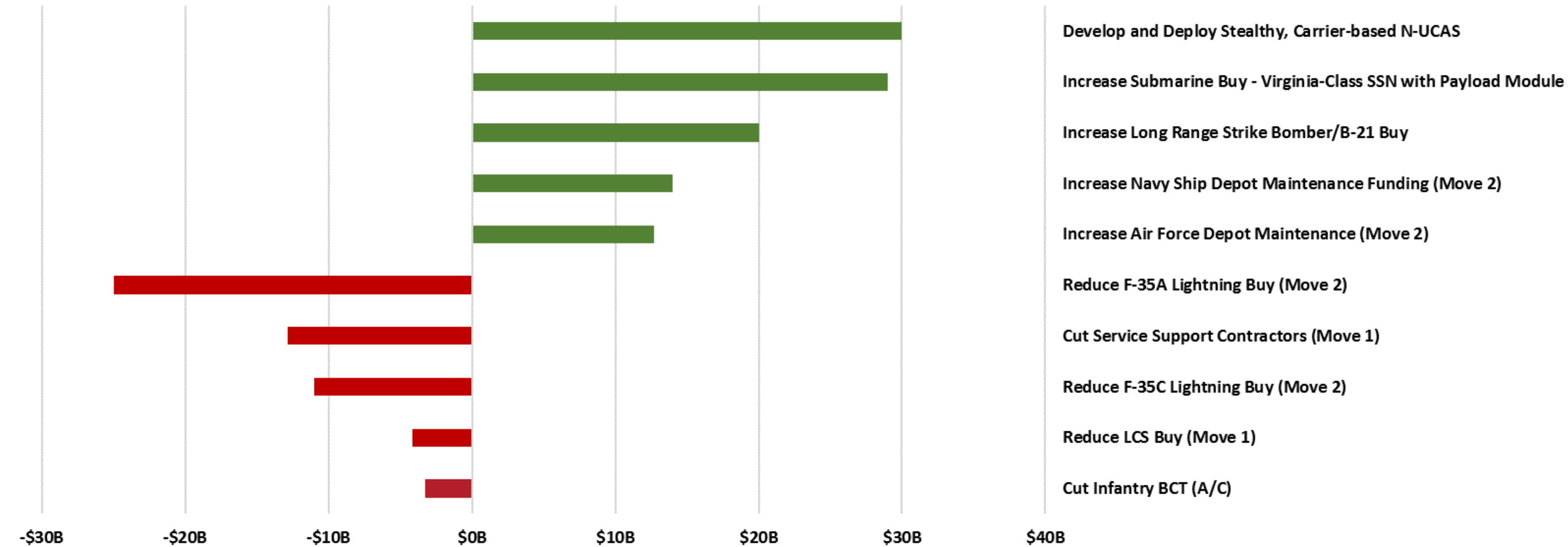
- Increase Funding for Advanced Undersea Warfare Technologies
- Increase Funding for Cyberspace, Network Warfare, and Machine Intelligence Technologies
- Increase Funding for High-Power Electric Laser Weapon Technologies

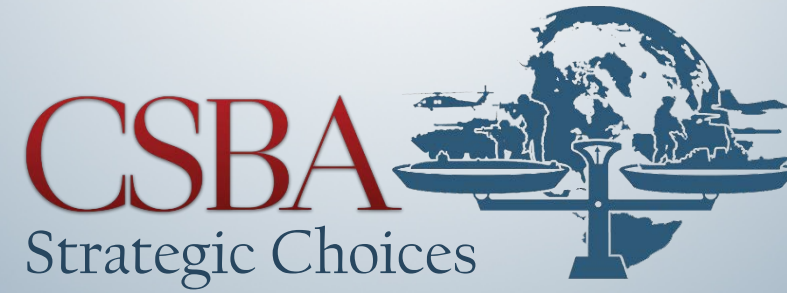


Top 5 Adds/Cuts Overall



Top 5 Adds/Cuts Selected by Min 3 Teams





Questions?