

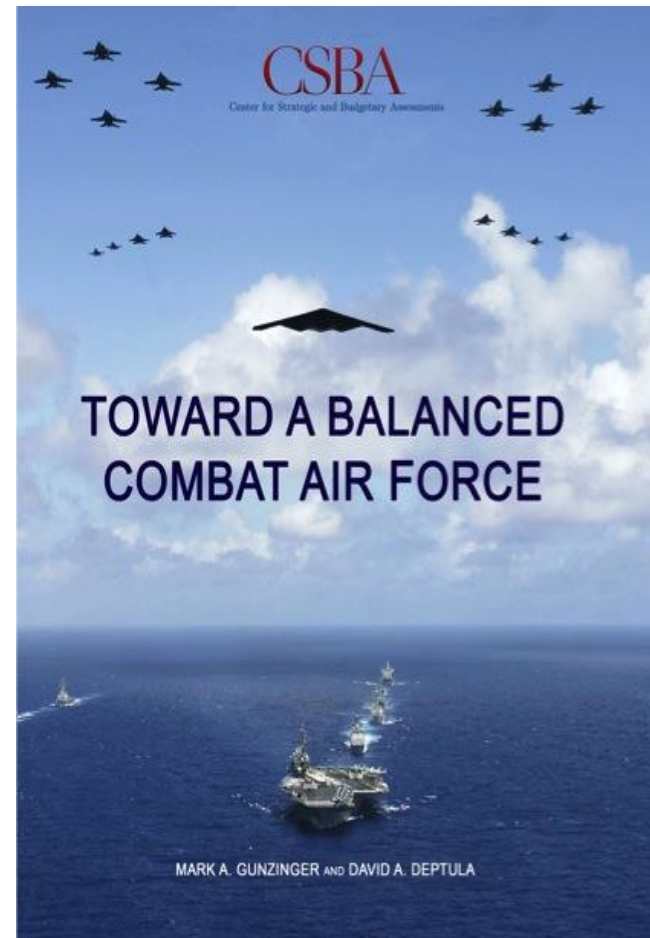
CSBA



*Thinking About A  
Balanced Future  
Combat Air Force*

# Overview

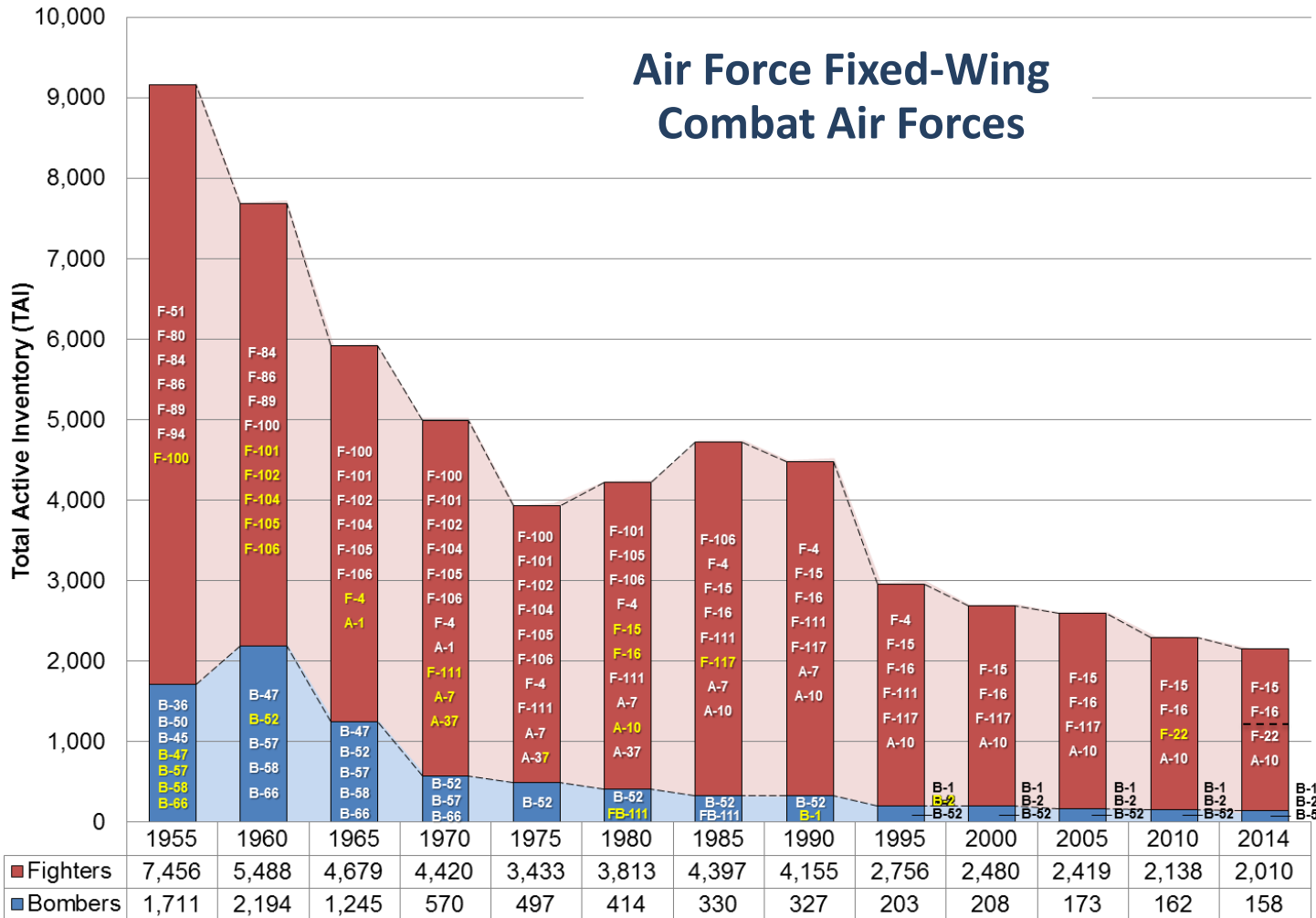
- **Why address this now?**
- **Window of opportunity**
- **Getting baseline requirements right**
- **A major unknown**



# Why Now?

*DoD is at a strategic inflection point*

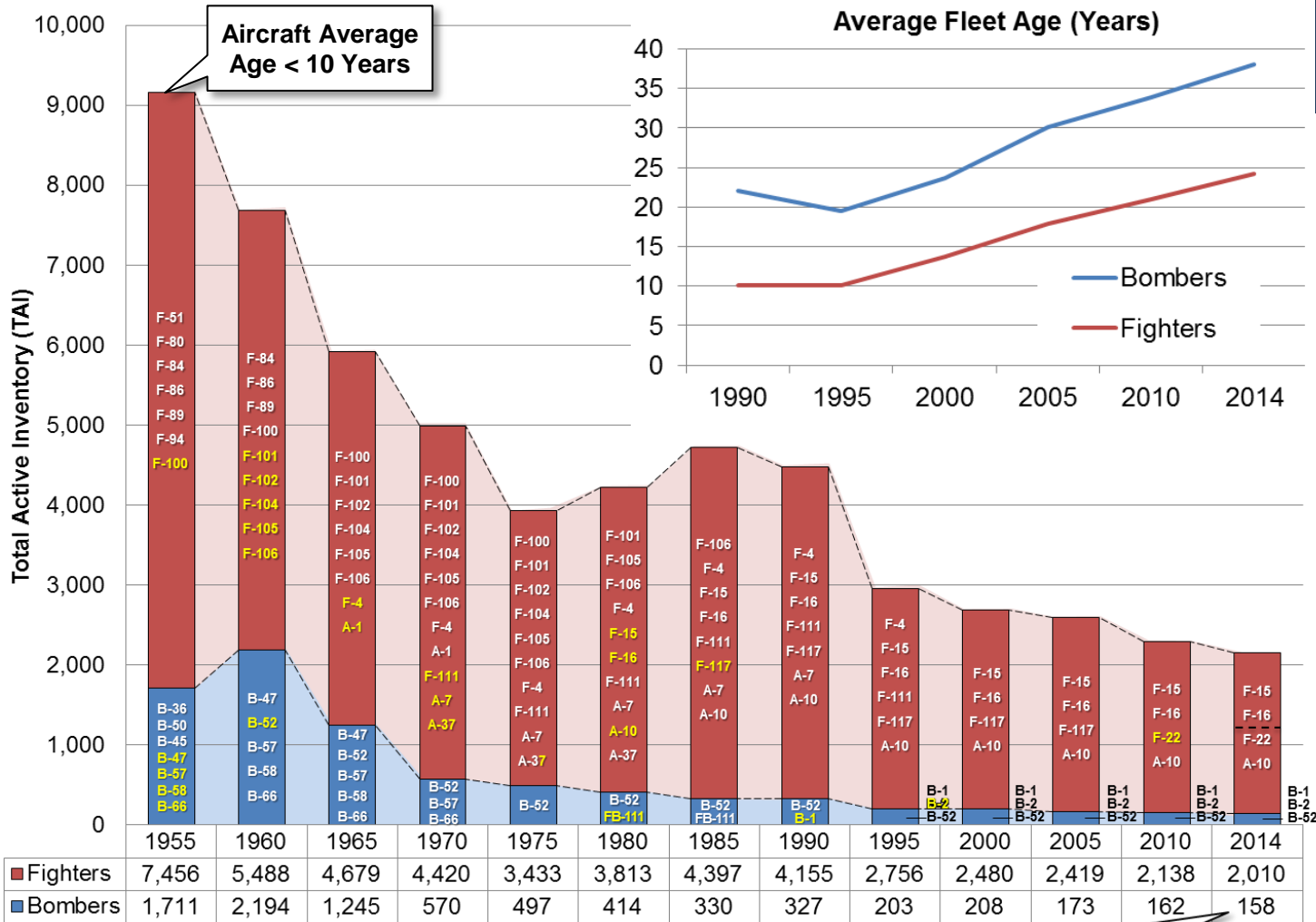
## Air Force Fixed-Wing Combat Air Forces



- New challenges to our asymmetric airpower advantage
- Strategic shift to the Asia-Pacific
- Emerging threats and future warfighting scenarios create the need to rebalance the CAF mix toward survivable, long-range surveillance/strike capabilities

- Approaching a limit on what can be done to keep aging CAF capabilities relevant
- This is a joint CAF problem—the Department of the Navy also needs to rebalance

# The Oldest and Smallest Air Force CAF Ever



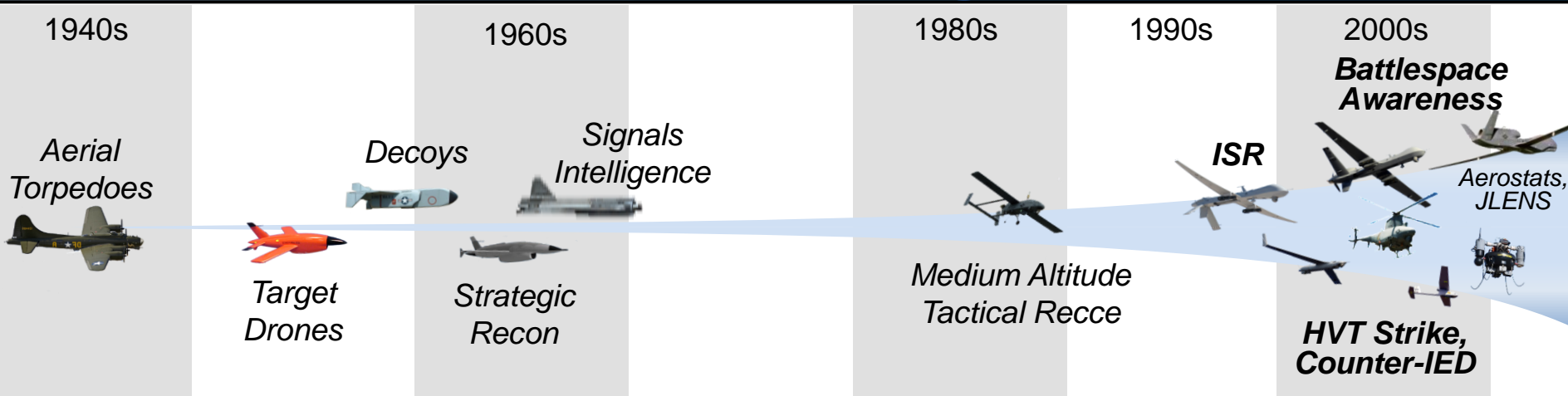
*How did we get to this point?*

- Today's diminished CAF driven in part by the need to meet budget cuts
- Procurement holiday of the 1990s followed closely by a ...
- ... thirteen year focus on stability and counterinsurgency operations
- Force modernization was sequenced to fit within given budget; the Air Force's global mobility force is well on the way to being recapitalized

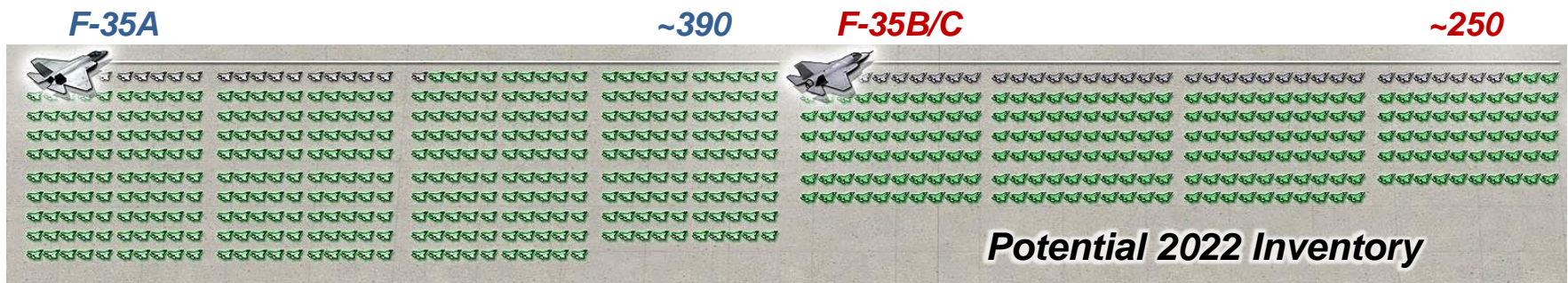
	Total Aircraft Inventory (TAI)	Primary Mission Aircraft Inventory (PMAI)	Average Age
<b>Fighters</b>	<b>2,010</b>	<b>1,161</b>	<b>24 years</b>
<b>Bombers</b>	<b>158</b>	<b>96</b>	<b>38 years</b>

(Assumes A-10s remain in the force in 2014)

# Where Resources for New Capabilities Have Been Weighted

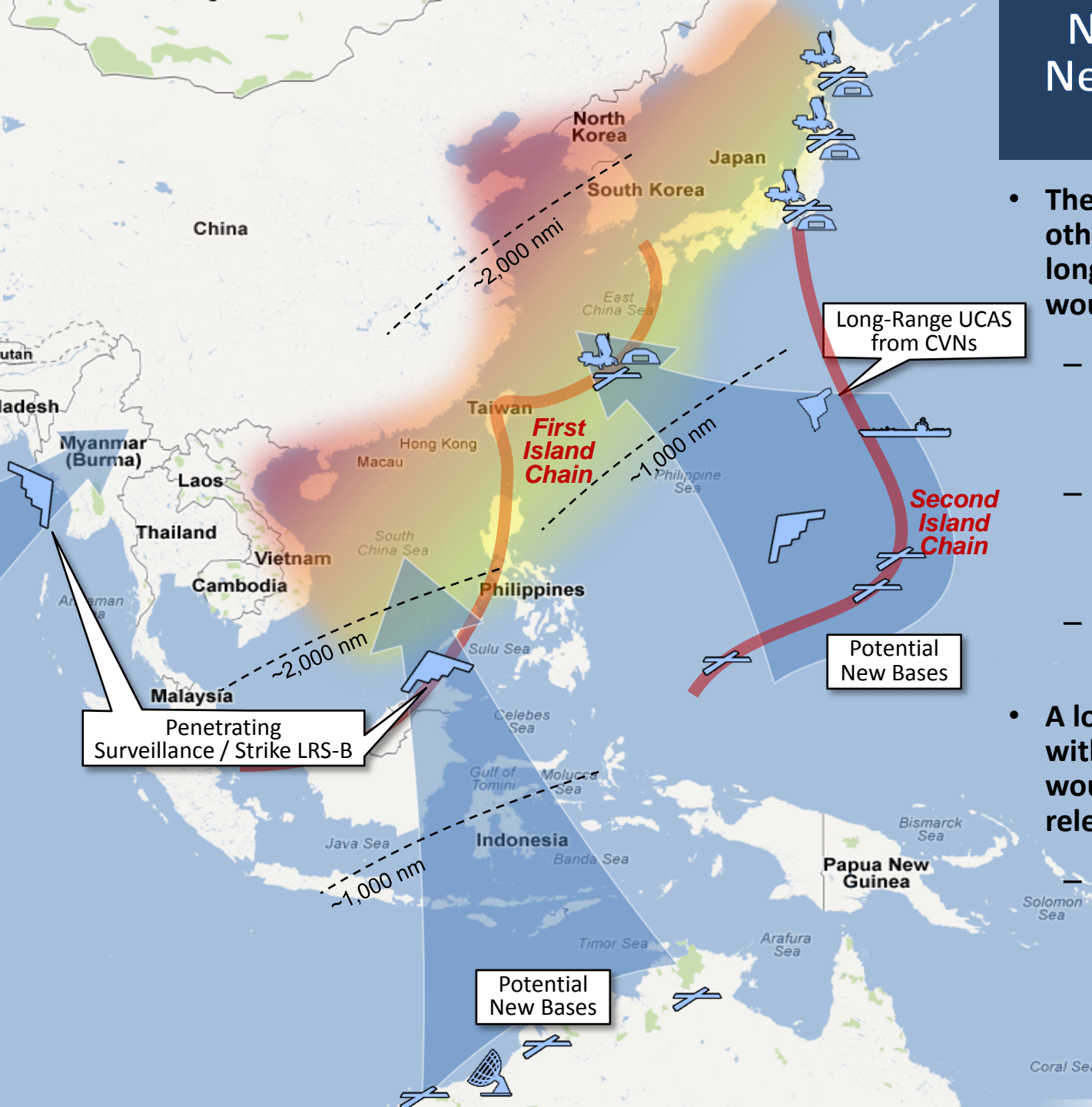


- Explosive growth in robotic systems: from 167 UAVs in 2001 to 11,300+ in 2014
- However, the overwhelming majority of current-generation UAS are used for surveillance and are unsuitable for operations in contested areas



- Slowly building toward a 5<sup>th</sup> generation fighter force
- However, competitors are developing their own guided strike capabilities to attack close-in theater airbases and aircraft carriers

# New Capabilities Needed for a More Balanced CAF



• The LRS-B, a carrier UCAS, and other manned and unmanned long-range penetrators would:

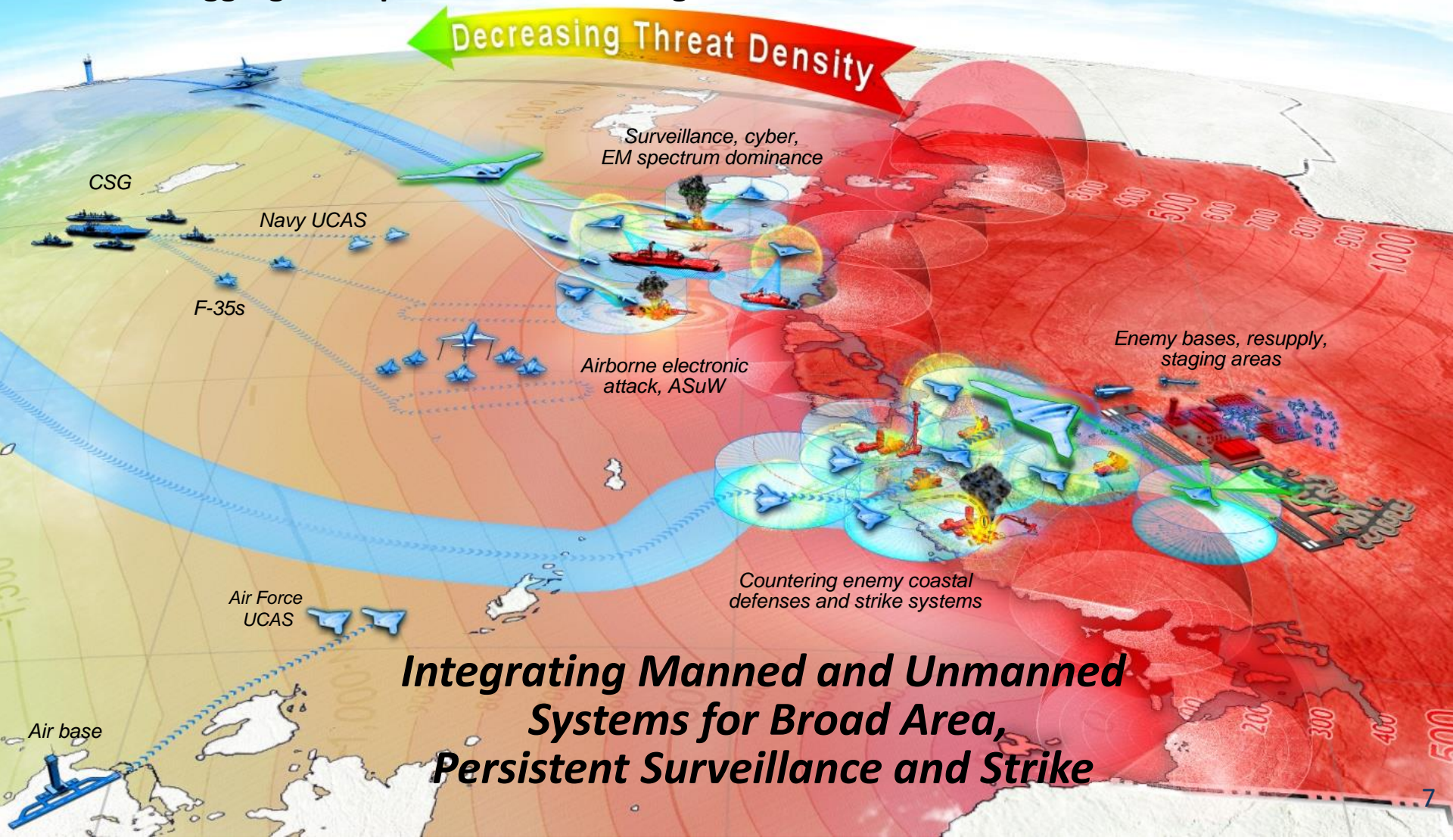
- Increase the joint CAF's ability to strike from outside A2 perimeters
- Enable operations from a more resilient, diversified basing posture
- Complicate an enemy's defensive operations

• A long-range, stealthy UCAS with fighter-size payloads would help keep CVNs relevant to the early fight

- A UCLASS that is optimized primarily for wide area maritime surveillance would be a redundant capability

# Opportunity to Create a “Combat Cloud”

- Increased speed of information, advances in stealth and precision strike, next-generation sensors, and advanced mission management will enable the creation of a combat cloud
  - Highly interconnected capabilities to conduct cross-domain, distributed, and disaggregated operations across large areas



**Integrating Manned and Unmanned Systems for Broad Area, Persistent Surveillance and Strike**

# Key Combat Cloud Enablers

- ❑ Secure, jam-resistant datalinks to connect all sensors and shooters coupled with a dynamic, responsive mission management architecture
- ❑ Increased autonomy/ability to operate in comms-degraded environments

Decreasing Threat Density

- ❑ Sufficient munitions to sustain operations against larger, more challenging target sets

- ❑ Not just a matter of developing new capabilities—creating a combat cloud will require a willingness to break from traditional warfighting concepts

Countering coastal defenses and strike systems

- ❑ Also requires realistic training to inculcate new joint tactics, techniques, and procedures



# Critical First Step for New Long-Range, Surveillance/Strike Capabilities

*Key Performance Parameters (KPPs)–  
"Performance attributes of a system  
considered critical to the development  
of an effective military capability"*

## Get the basics right:

**Threshold requirements for a combat aircraft's planform, size, weight, power generation, and internal cooling**



- **Determine useful payload (fuel, weapons, etc.) and ability to operate electronics systems such as radars and other offensive and defensive mission components**
- **A combat aircraft's planform is the single most important determinant of its survivability characteristics**

# Growth Potential and Unit Cost

## 1. Achieve the right balance between KPPs

- For example, over-optimizing the Navy's UCLASS for unrefueled endurance will affect its stealth characteristics and decrease its potential weapons/mission systems payload

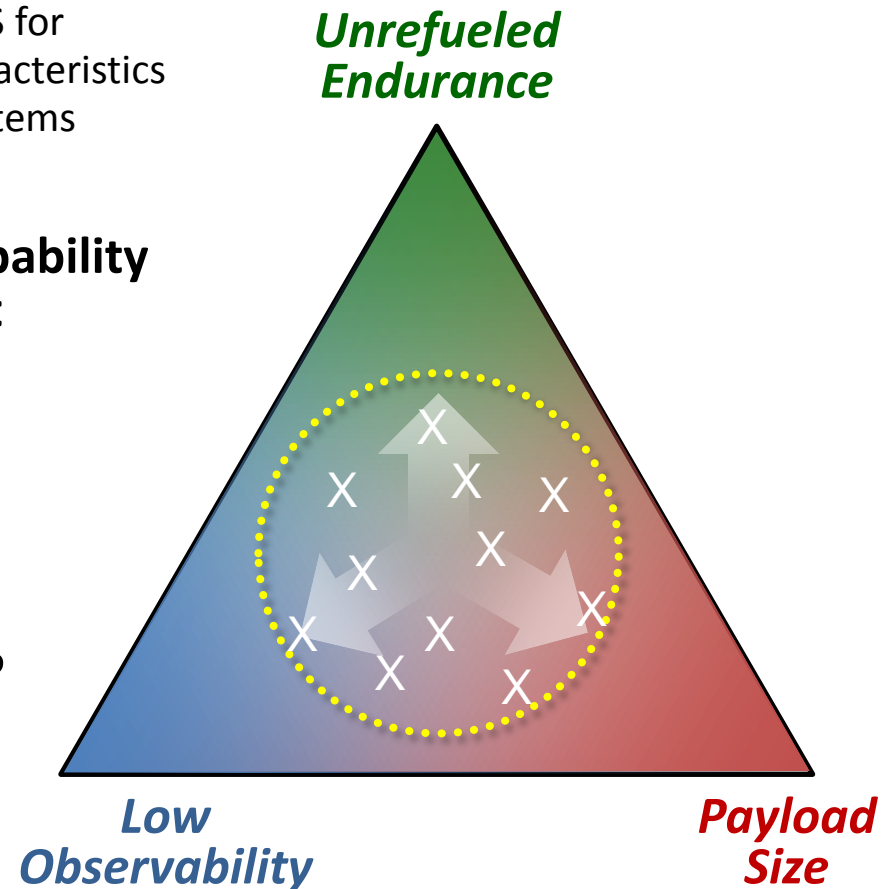
## 2. Should be ready to adjust KPPs if the capability balance in candidate designs aren't right

## 3. Don't sacrifice growth potential

- Major new surveillance/strike aircraft may be in the force for 30–40 years, so design for future threats and missions, not for today

## 4. Consider all implications of cost as a KPP

- Cost should be in context of the mission—e.g., must assess if a “cheap” penetrator would need so many supporting capabilities to be effective that it drives up cost of the overall force
- Goal should be to manage costs; for example, buy capability over time through planned upgrades, and possibly modularization



# Rebalancing the CAF Also Means Sizing for Future COCOM Needs

## *Twenty-year march to a min-sized force*

DoD Strategic Review	Guidance for Sizing the Force
1993 Bottom-Up Review	<b>184</b> bombers (100 for one major war)
1997 QDR	<b>142</b> operational bombers
2001 QDR	<b>112</b> combat-coded bombers
2010 QDR	<b>96</b> PMAI bombers
Future?	80 LRS-B + 20 B-2 = about <b>85</b> PMAI penetrating aircraft

- Based on assumptions that may now be the exception rather than the rule: permissive operating conditions, access to secure close-in bases, and enemies that lack their own precision strike capabilities

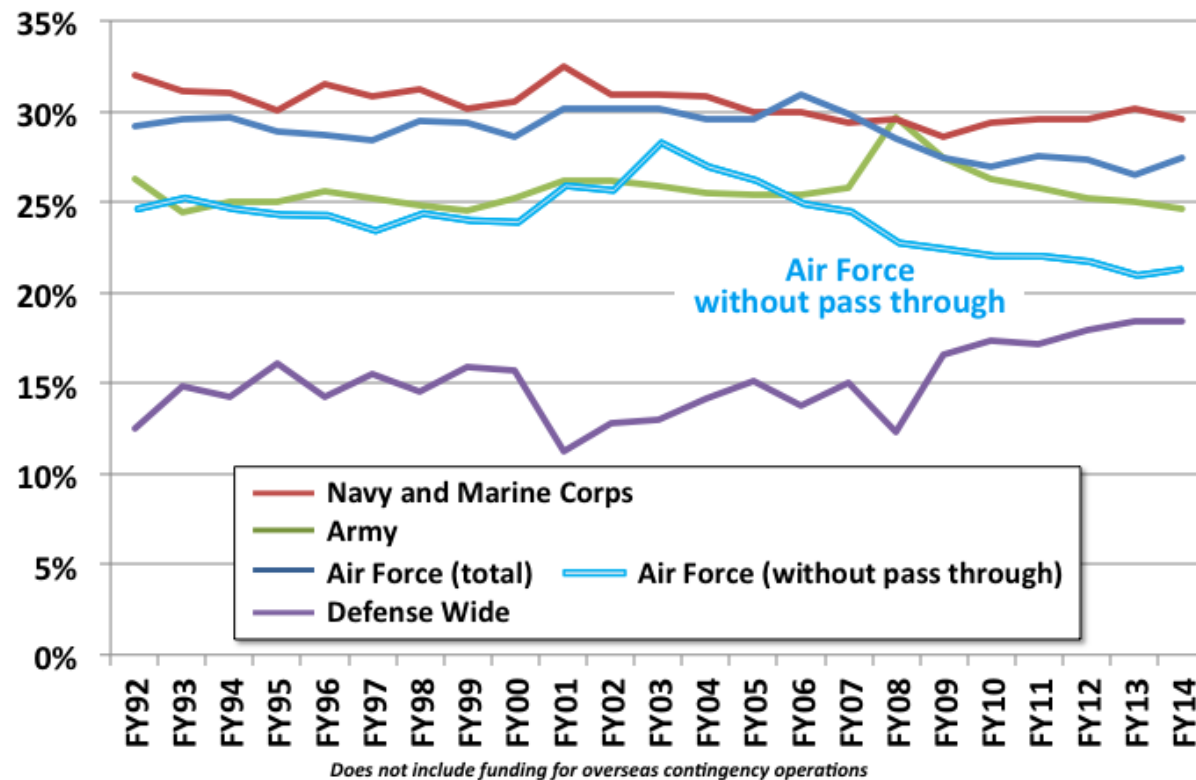
## *Size LRS-Bs to support strategic priorities, not a budget target*

	Number of LRS-B
1 squadron of 12 PMAI aircraft for each of 10 AEF	120
25 percent for test and training	30
20 percent for backup and attrition inventory	24
<b>Total</b>	<b>174</b>

- A2/AD and the tyranny of distance in the Asia-Pacific = need for more long-range surveillance/strike
- A national force capable of rapidly swinging between theaters to deter or deny opportunistic aggressors = need for a balanced CAF
- PGM “salvo competition” against capable enemies = need for precision PLUS mass

# Will Resources Be Available to Provision a Balanced CAF?

## Shares of DoD Budget Authority through FY14

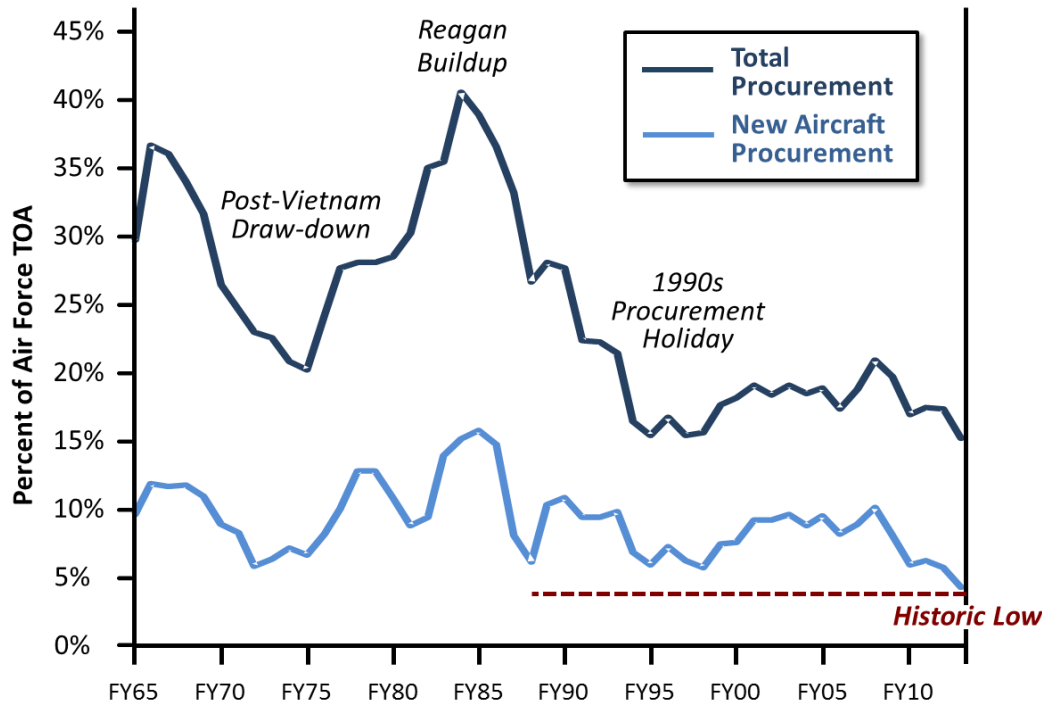


- With exceptions, shares have been relatively static over the last 20 years
- The most significant changes have been driven by near-term operational needs, not priorities to prepare the force for future challenges

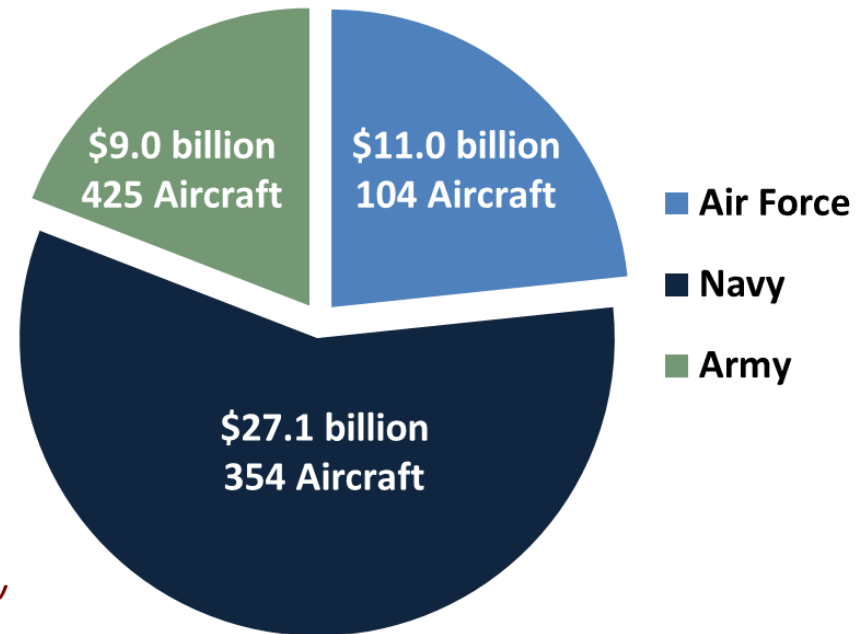
- DoD has said it intends to break from static budget shares to support Asia-Pacific rebalancing, address growing A2/AD threats, and rebalance the force

# Budget in Context

## Air Force Procurement Funding

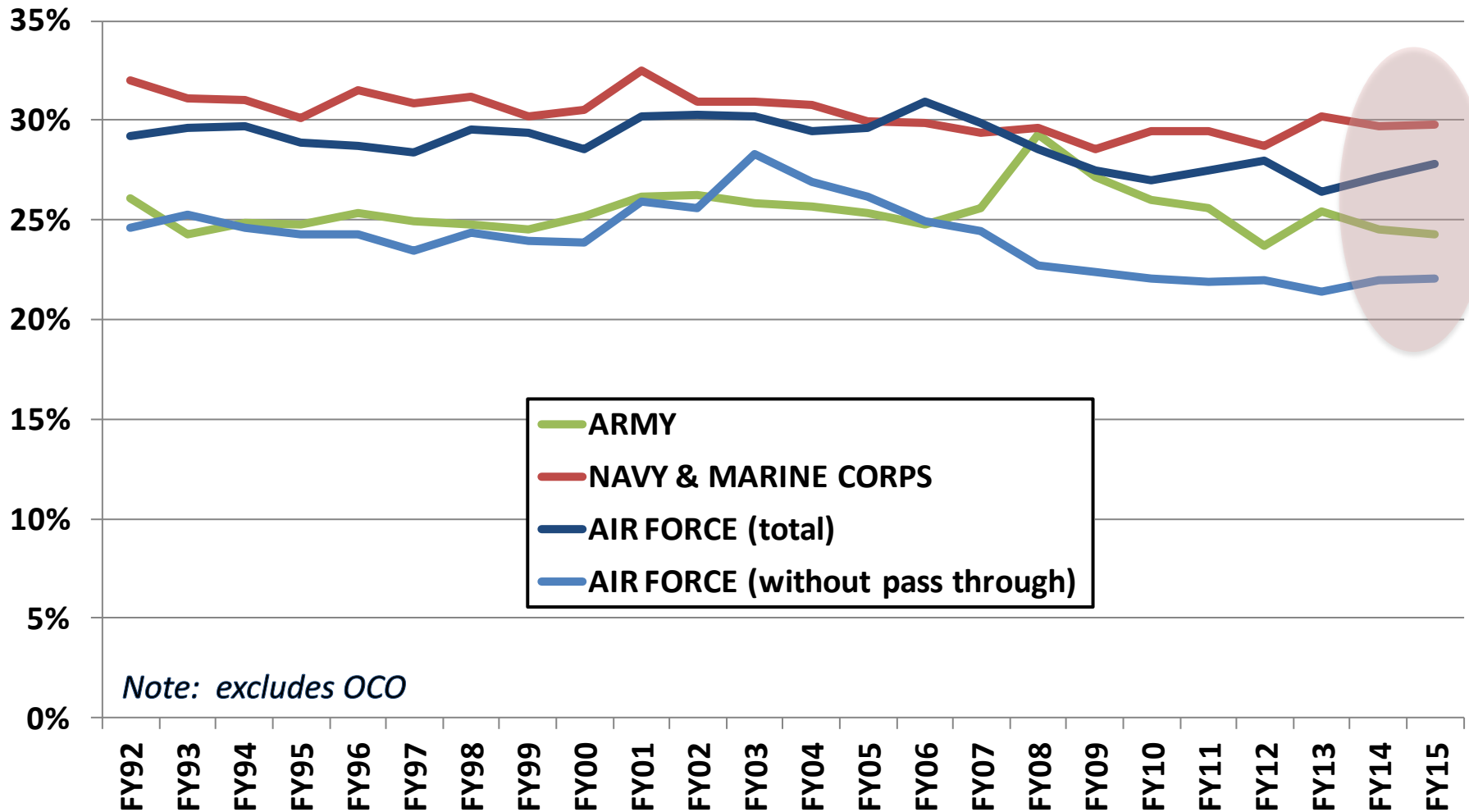


## FY13-14 Proposed Aircraft Procurement



- Air Force aircraft procurement as a percentage of its TOA is at a historic low, buying about fifty aircraft (of all types) per year
- The Department of the Navy is spending more on new aircraft than it allocates to shipbuilding

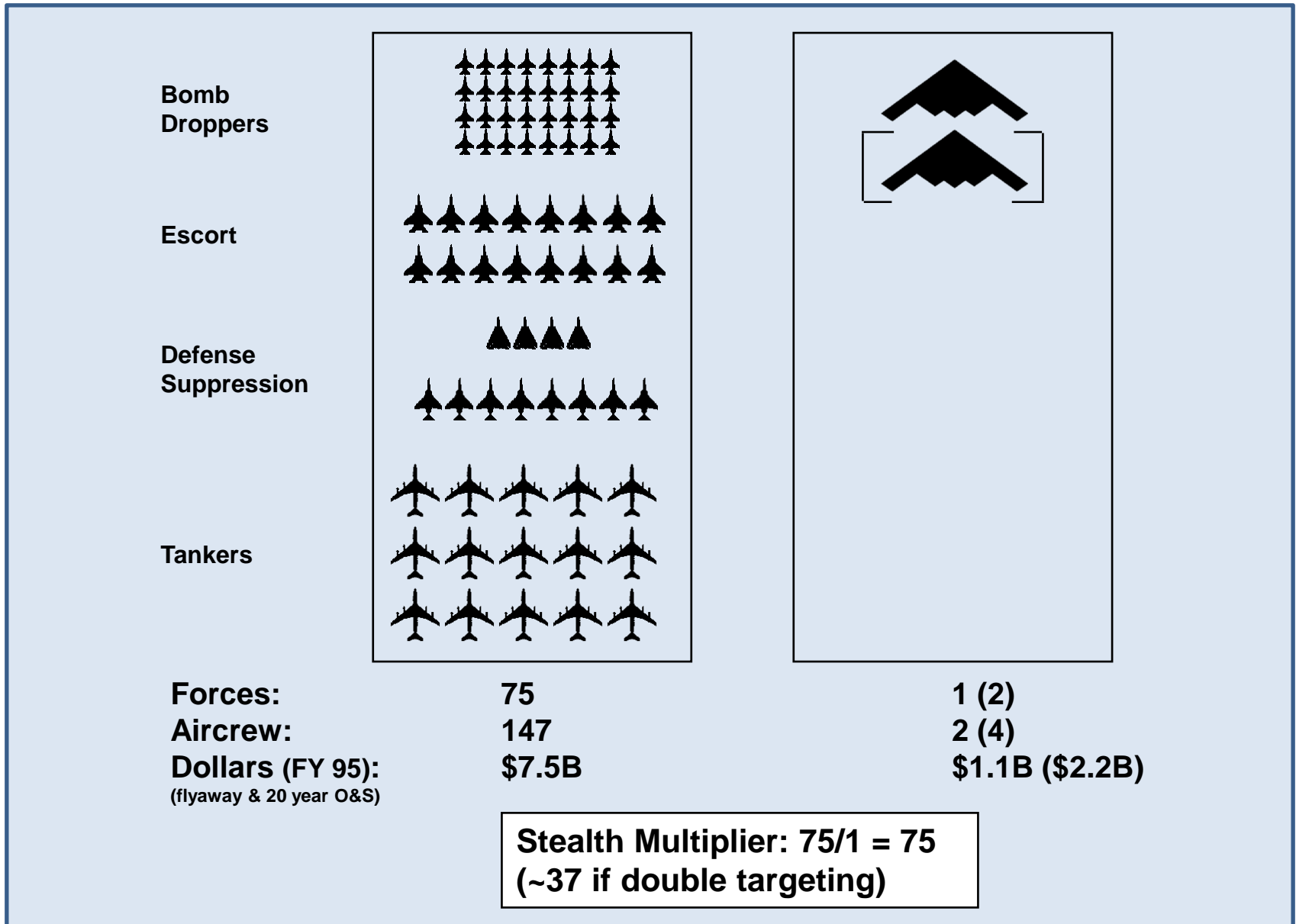
# Shares by Budget Authority through PB2015



Note: excludes OCO

- Reality: we see a slight shift in PB15, but shares are still static
- PB15 does not reverse the downturn in the Air Force's "blue" budget that began about ten years ago

# Cost per Desired Effect vs. Cost per Unit = Real Economy: Forces, Personnel, & \$\$ (equivalent force to hit 16 aimpoints—force package from actual Desert Storm attack)



# Why Numbers Matter

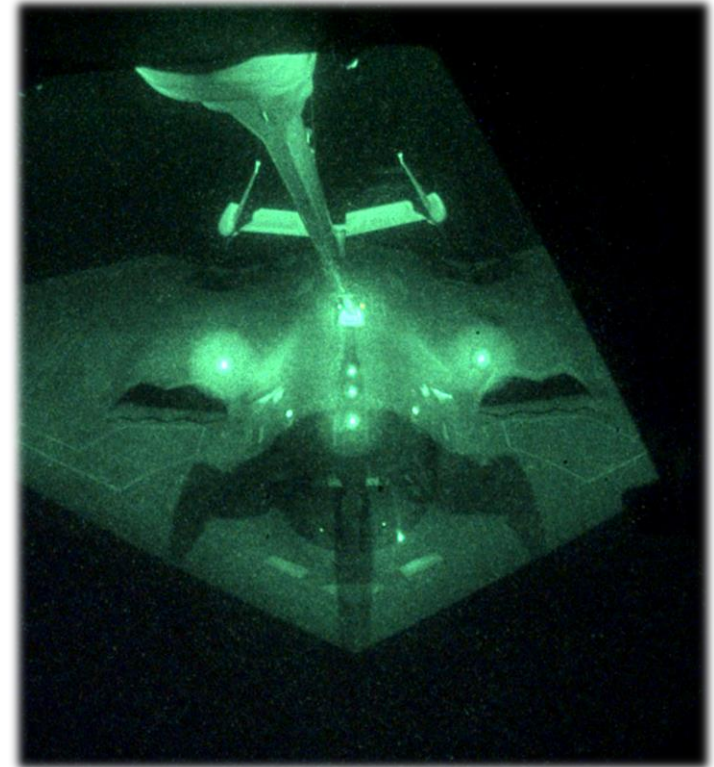
- **The United States possesses just 20 long range bombers with the survivability attributes required to successfully penetrate a modern air defense system—the B-2**
- **Given maintenance requirements and force management factors, only a handful of these airframes are available for a mission at a given time—i.e., 4-6 tails**
- **That is why fleet numbers matter—having 20 aircraft in the inventory does not mean that all 20 will be available to strike targets on a continual basis**
- **Combat losses and serious damage to aircraft would further degrade aircraft availability.**
- **There is no production line open to replace combat/operational losses for the B-2**





# Where Do We Go From Here?

- This is about our nation's ability to deter, fight and win
- History has proven repeatedly that we will not have the luxury of choosing when and where we fight—not all future engagements will look like Afghanistan and Iraq
- Long range strike is a critical capability:
  - Shapes key regions
  - Deters potential adversaries
  - Yields war-winning strategic results
  - Minimizes conflict duration
  - Reduces force requirements
  - Minimizes casualties
- Modernization is essential for maintaining this capability



***The only thing more expensive than a first rate Air Force is a second rate Air Force***

# Final Thoughts

- **We face a strategic choice: allocate sufficient resources toward creating a balanced CAF with increased range/persistence, survivability, and connectivity; or rely on an aging and much less capable force**
  - Shedding unneeded infrastructure, forces, and personnel will help
- **Create new operational concepts to underpin the future balanced CAF**
  - A combat cloud for wide-area, dispersed, and highly persistent surveillance and strike
- **Adopt flexible KPPs for new CAF capabilities and give credit for future growth potential**
- **Use caution on using cost as a KPP**
  - “Affordable” 80% solutions could require additional costly capabilities to make new systems combat effective, and may result in the need to prematurely invest in replacements to keep pace with emerging threats and technologies

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*Questions?*

# The Broader Context

## Iran-Iraq War (*Force-on-Force Combat*)

- Lasted 8 years—1980-1988
- Over 1.5 million combined casualties
- Tremendous economic, social, and political strain on both nations
- Massive refugee problems
- Horrific fighting, including the use of WMD
- No appreciable strategic gain attained by either side



VS.



## Operation Desert Storm (*Innovation*)

- Lasted 43 days—1991
- U.S. casualties: 148 battle deaths, 145 non-battle deaths, 460 wounded
- Iraqi Casualties: 100,000 battle deaths, 300,000 wounded, 150,000 deserted, and 60,000 taken prisoner (US estimates)
- Tremendously efficient use coalition resources—first day saw more targets attacked than the total number of targets hit by the entire 8<sup>th</sup> AF in 1942 and 1943
- Limited collateral damage to civilian population
- Effects-based targeting prevented Iraqi military from effectively engaging
- Effective and efficient use of force led to rapid victory
- Demonstrated success bolstered capability to deter numerous potential adversaries

Nor are such examples restricted to the pages of history:

- *Libya: \$6M per day; 180M per month; 6 months; ZERO American deaths*
- *Afghanistan: \$330M per day; \$10B per month; 12+ years, 2178 deaths 20,000 US Casualties*