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Defense Modernization Plans Through the 2020s: Addressing the Bow Wave

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Panel 14. The Big Picture of Defense Acquisition

Thursday, May 5, 2016	
11:15 a.m. – 12:45 p.m.	**Chair: Andrew Hunter,** Senior Fellow in the International Security Program, Director of Defense-Industrial Initiatives Group, Center for Strategic International Studies ***Defense Modernization Plans Through the 2020s: Addressing the Bow Wave*** Todd Harrison, Director, Defense Budget Analysis and Senior Fellow, CSIS ***Speed and Agility: How Defense Acquisition Can Enable Innovation*** Peter Modigliani, Division Chief Acquisition Specialist, The MITRE Corporation ***Defense Industrial Base Issue That Can Be Overlooked When Focusing on Major Weapon Systems*** Nancy Moore, Senior Management Scientist, RAND

Defense Modernization Plans Through the 2020s: Addressing the Bow Wave

Todd Harrison—is the Director of Defense Budget Analysis and a senior fellow in the International Security Program at CSIS. He leads the Center's efforts to provide in-depth, nonpartisan research and analysis of defense funding issues and provides expert analysis on space security issues. Harrison joined CSIS from the Center for Strategic and Budgetary Assessments, where he was a senior fellow for defense budget studies. He has authored publications on trends in the overall defense budget, defense acquisitions, military compensation, military readiness, the cost of nuclear forces, military space systems, and the cost of the wars in Iraq and Afghanistan.

Harrison frequently contributes to print and broadcast media and has appeared on CNBC, CNN, NPR, Al Jazeera English, and Fox News. He has been a guest lecturer for organizations and teaches a class on the defense budget at George Washington University's Elliott School of International Affairs and classes on military space systems and the defense budget at Johns Hopkins University's School of Advanced International Studies. He is a term member of the Council on Foreign Relations and was named one of the Defense News 100 Most Influential People in U.S. Defense.

Harrison previously worked at Booz Allen Hamilton where he consulted for the Air Force on satellite communications systems and supported a variety of other clients evaluating the performance of acquisition programs. Prior to Booz Allen, he worked for AeroAstro Inc. developing advanced space systems and technologies and as a management consultant at Diamond Cluster International. Harrison served as a Captain in the U.S. Air Force Reserves from 1998 to 2003. He is a graduate of the Massachusetts Institute of Technology with both a BS and an MS in Aeronautics and Astronautics.

Abstract

Since the enactment of the Budget Control Act (BCA) of 2011, much attention has been paid to the near-term effects of budgetary constraints on national defense. What has received less attention are the looming budgetary challenges that defense faces beyond the BCA budget caps and the Defense Department's five-year budget planning horizon. Many weapons programs will be at or near their peak years of funding requirements at roughly the same time in the 2020s, creating a modernization bow wave. Just as a large bow wave slows a ship by diverting its energy, carrying a large modernization bow wave is a drag on defense because it leads to program instability and inefficient procurement practices that weaken the buying power of defense dollars.

Current plans for major acquisition programs appear to follow the typical pattern of a modernization bow wave, with funding projected to increase by 23% from FY 2015 to the peak in FY 2022. However, this modernization bow wave is not evenly distributed across the Services and defense-related agencies. Much of the projected increase in modernization funding is driven by Air Force aircraft modernization programs, which are projected to nearly double in costs and account for nearly half of the overall bow wave increase. In contrast, Navy and Marine Corps modernization funding remains relatively flat through the early 2020s and then declines in the later part of the decade, driven mainly by a decline in aircraft procurements. The Army's budget for major acquisition programs is projected to increase 28% in real terms from FY 2015 to the peak in FY 2022, with notable bow waves in funding for ground and communications systems. However, these increases are balanced in part by a sharp reduction in Army aircraft procurements, and the total magnitude of increase in Army funding for major programs dwarfs in comparison to the increase in Air Force major programs.

This CSIS report details the plans for major acquisition programs over the next 15 years and explores the complicating factors that may make the situation more problematic for policymakers. It analyzes a range of options to mitigate the bow wave, including increasing the budget, cutting additional force structure, and making trades among major acquisition

programs. The report finds that while none of the choices available are easy, it provides an opportunity for the new administration taking office in 2017 to better align modernization plans with defense strategy.

Link to full report:
https://csis.org/files/publication/160126_Harrison_DefenseModernization_Web.pdf

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Todd Harrison

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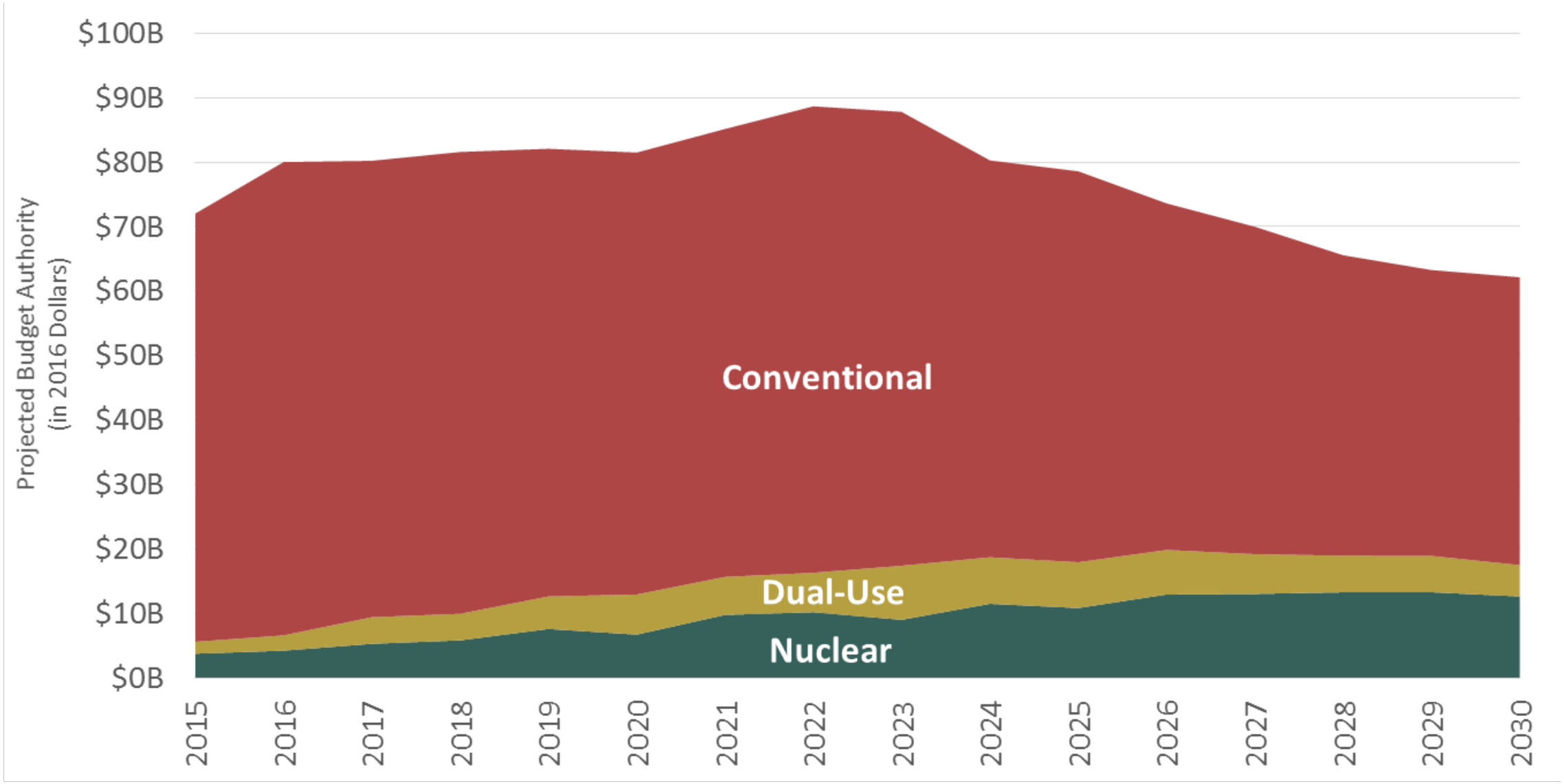
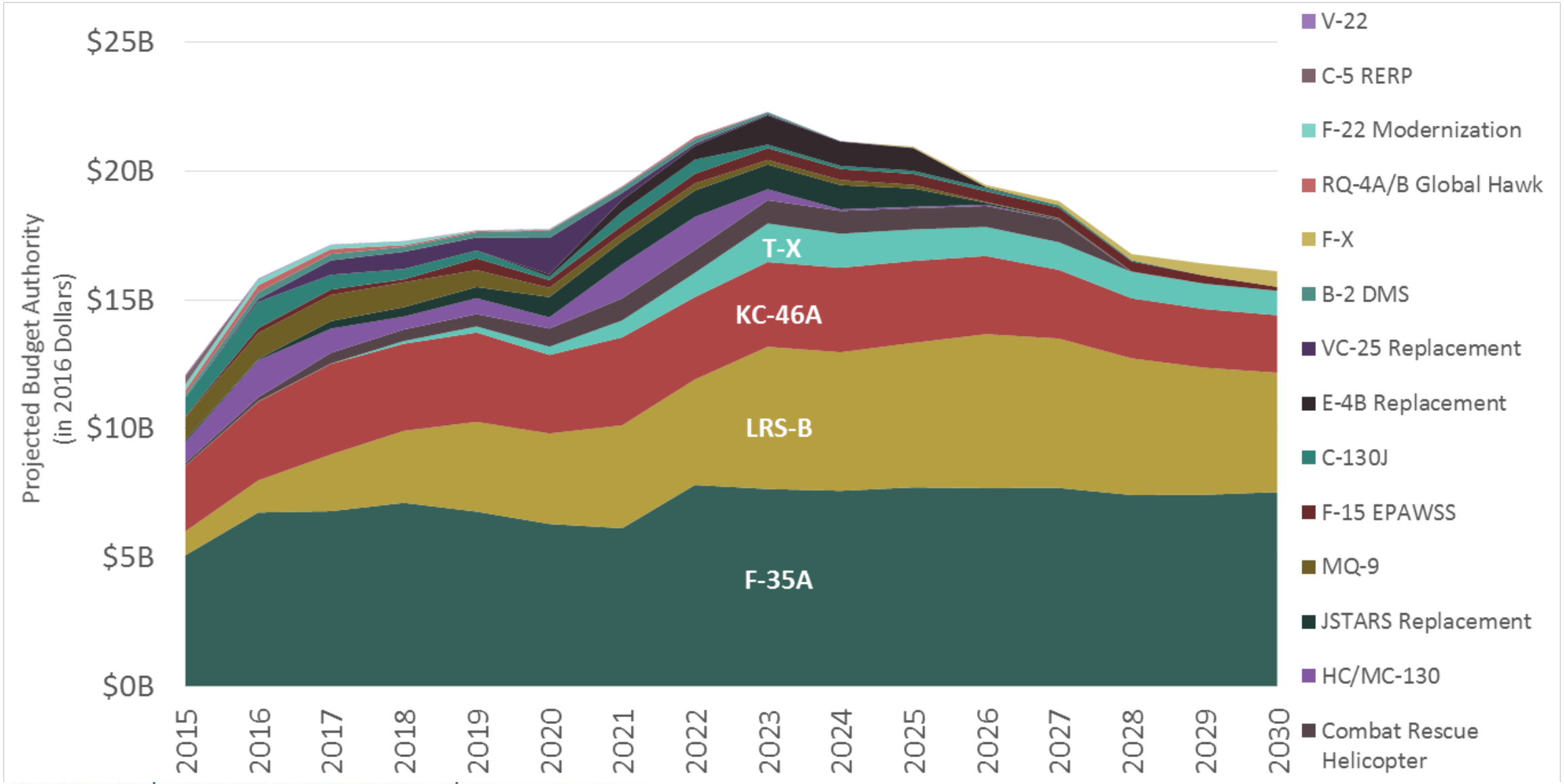
Introduction

- Modernization Bow Wave:
  - A phrase commonly used to describe long-term modernization plans that depend on a significant increase in future funding.
  - Typically forms as the overall defense budget declines and programs are delayed or stretched into the future.
- Scope of Study:
  - Focuses on 120 major acquisition programs over the next 15 years
  - Does not include operation and sustainment costs or “black” programs
- Primary Data Sources:
  - FY2016 President’s Budget Request
  - December 2014 Selected Acquisition Reports
  - 30-year aviation and shipbuilding plans
  - NNSA Stockpile Stewardship and Management Plan

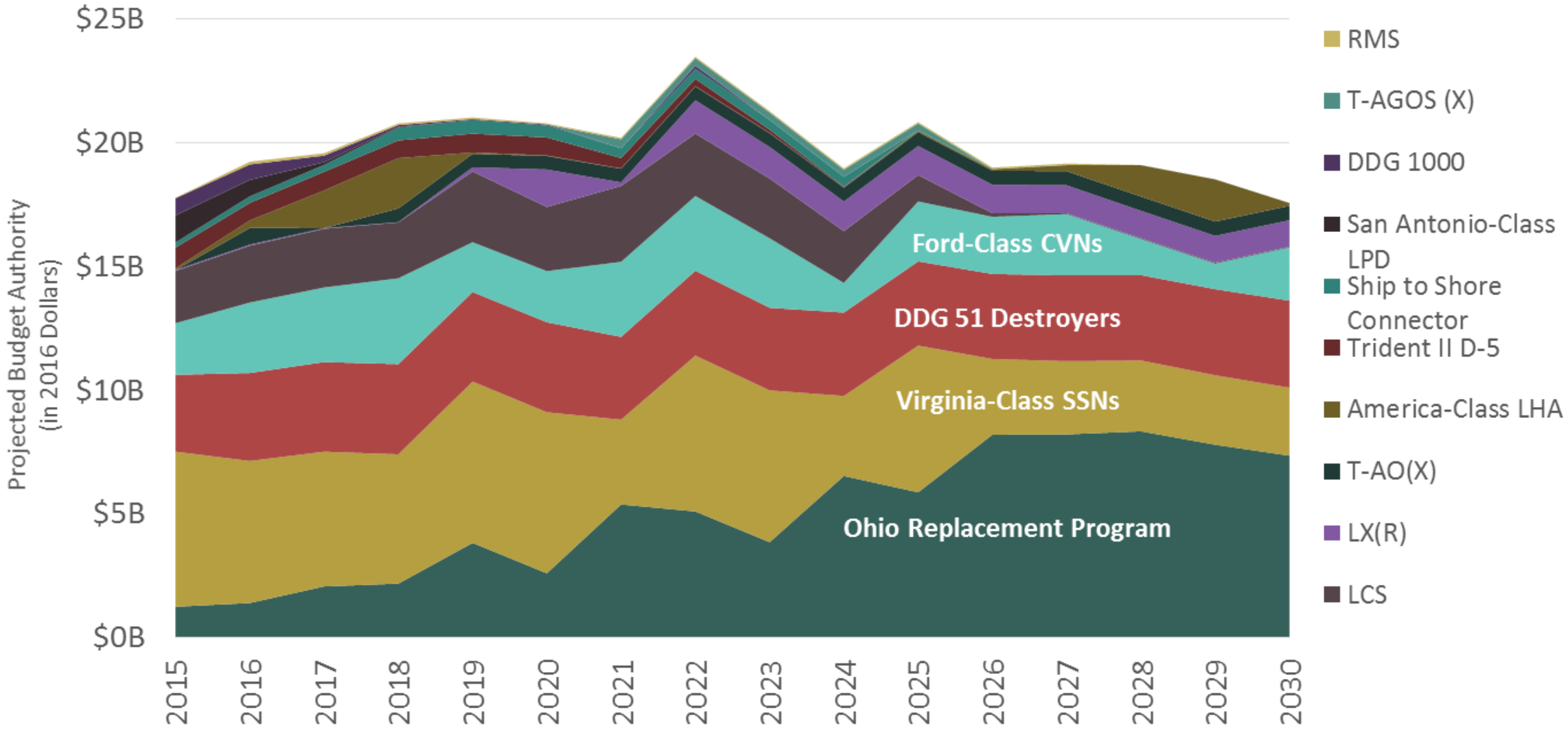
Nuclear vs. Conventional MDAP Bow Wave



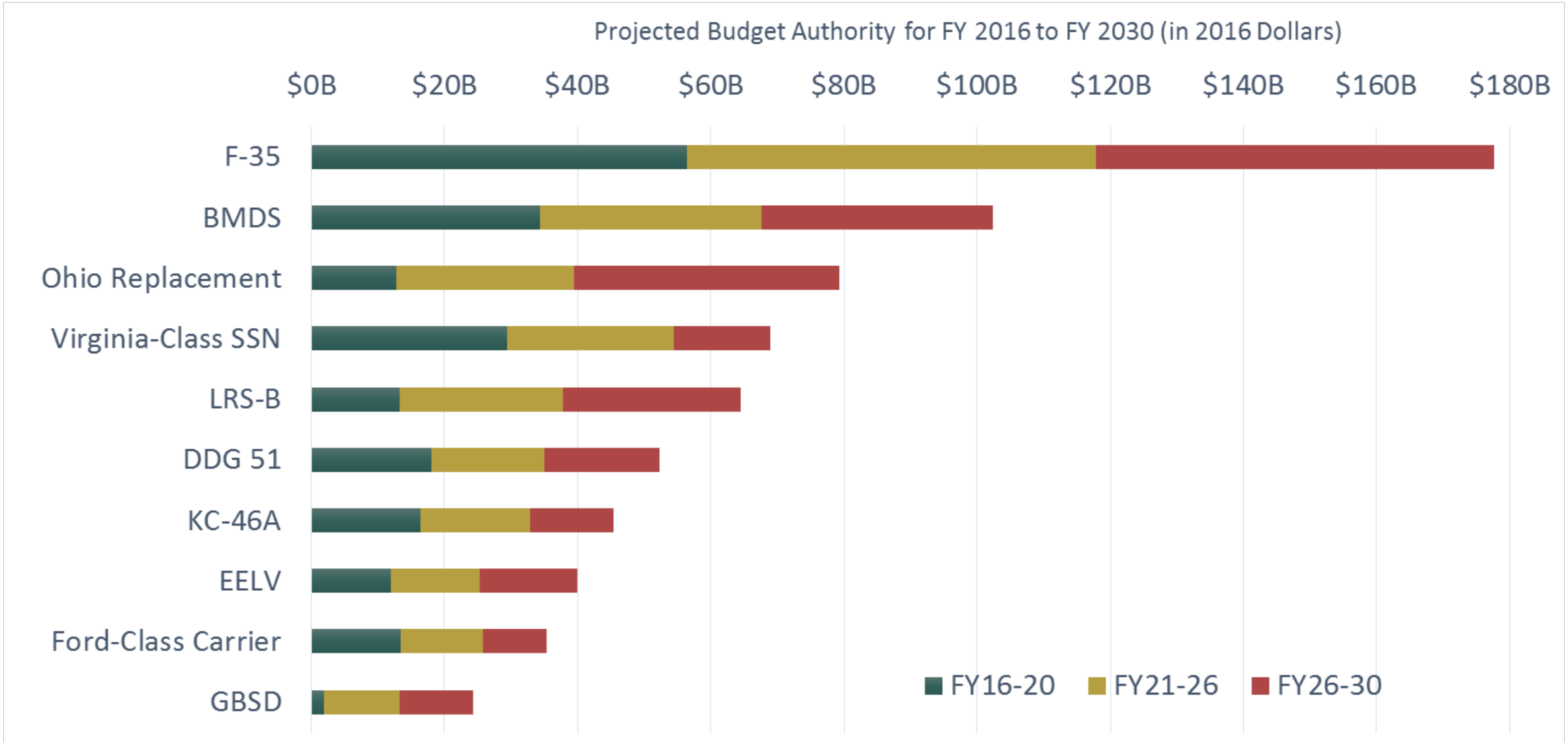
Air Force Major Aircraft Programs



Navy Ship and Nuclear Programs



Top 10 Acquisition Programs FY16-30

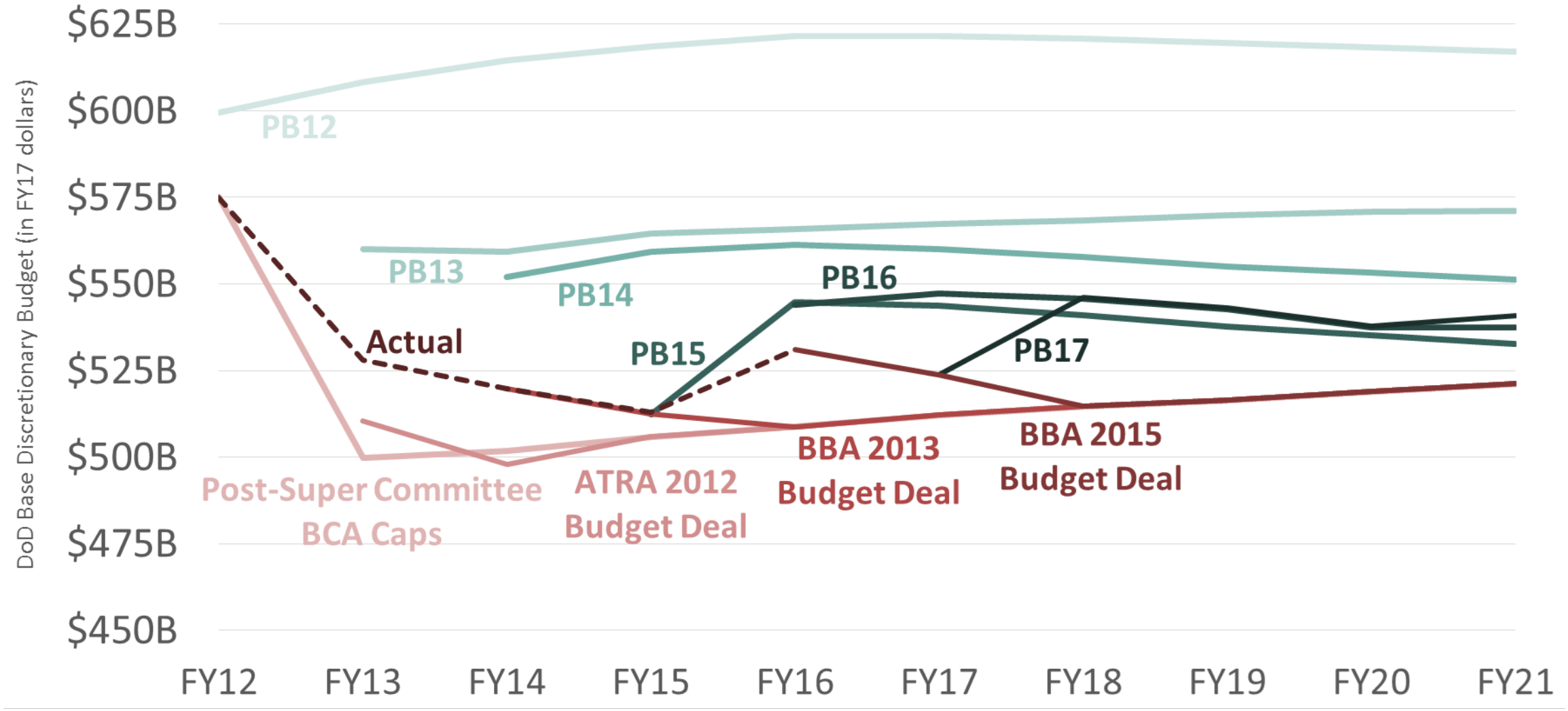


Potential for Cost Overruns

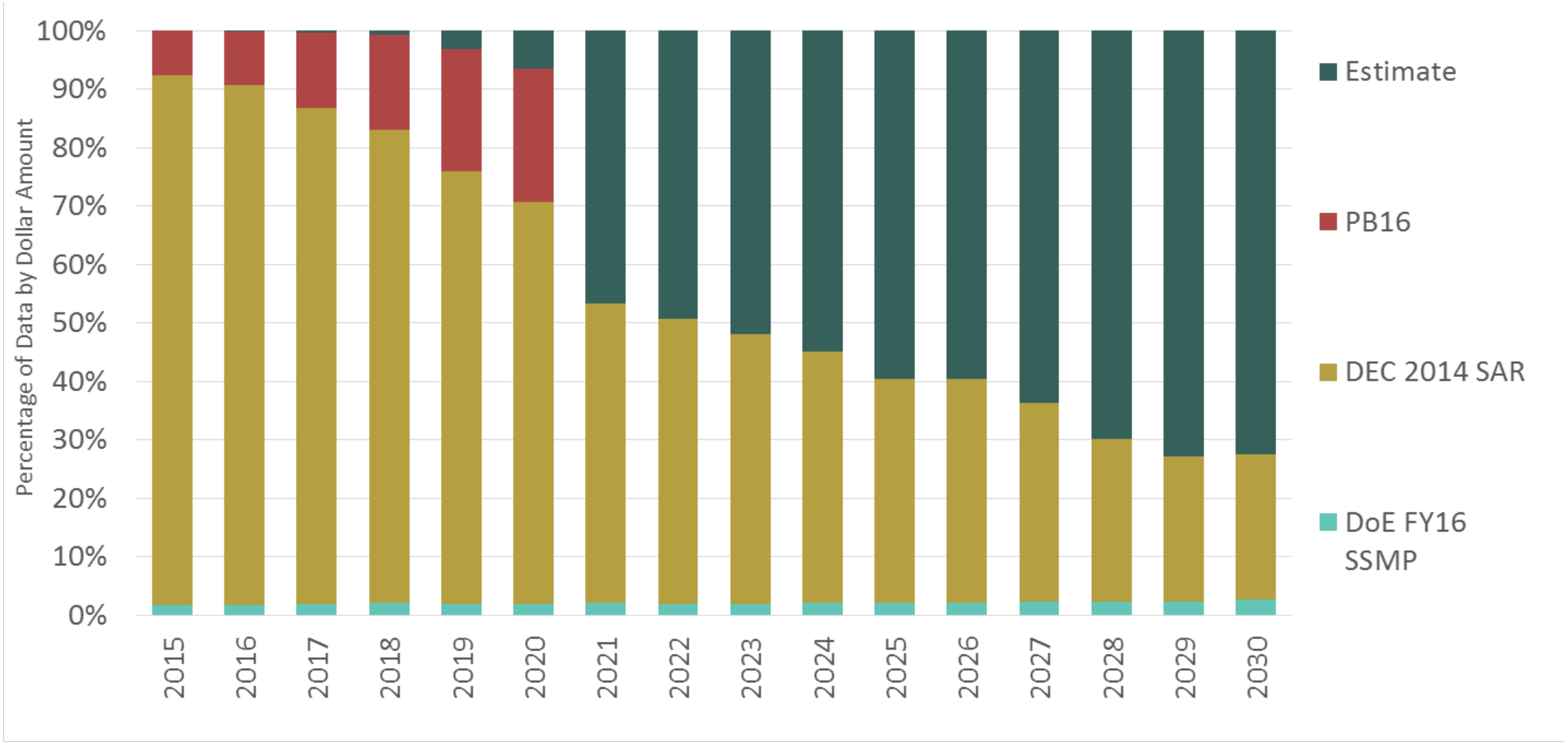
- Funding projections do not include potential cost overruns
- Prior studies have identified trends in cost overruns
  - Average growth of 57% in development and 34% in procurement (RAND 2008)
  - Average total growth of 46% (RAND 2006)
  - Correlation between magnitude of cost growth and programs initiated in a declining budget environment (IDA 2014)
- Errors in initial estimates are the single largest driver of cost growth
- Overruns are a significant risk for programs still in early development (e.g. LRS-B, JLTV, Ohio Replacement, etc.)

Questions?

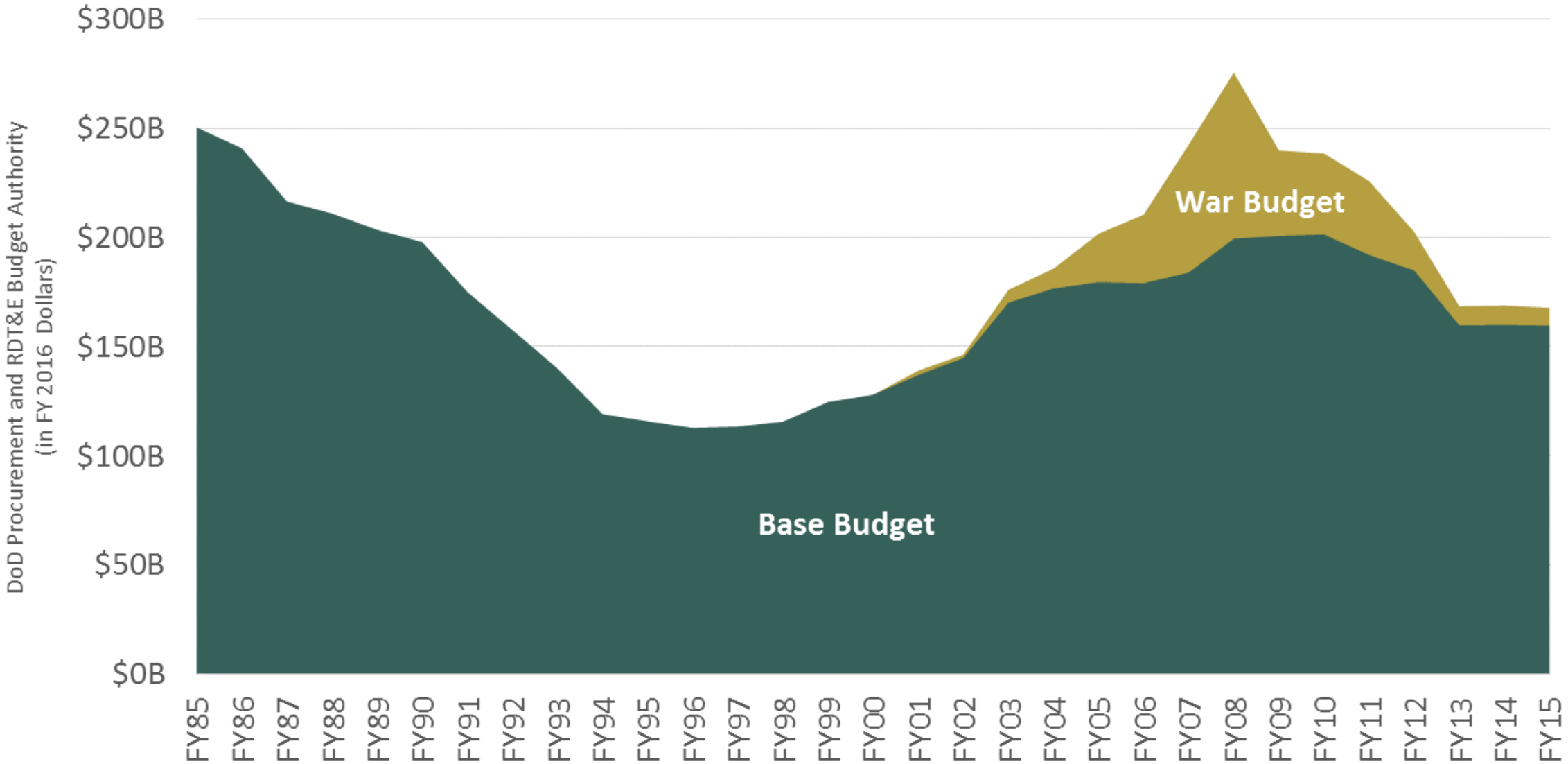
Funding Constraints of the BCA



Data by Source



The Hollow Buildup of the 2000s



Major Programs Canceled in Development 2001-2010

Program Name	Service	Sunk Costs (in then-year dollars)
Future Combat Systems (FCS)	Army	$18.1B
RAH-66 Comanche Armed Reconnaissance and Attack Helicopter	Army	$7.9B
National Polar-orbiting Operational Environmental Satellite System (NPOESS)	Air Force / NOAA	$5.8B
Airborne Laser (ABL)	Air Force	$5.2B
Future Imagery Architecture (FIA) Electro-Optical Imagery Satellites	NRO	$4B
VH-71 Presidential Helicopter	Marine Corps	$3.7B
Expeditionary Fighting Vehicle (EFV)	Marine Corps	$3.3B
Transformational SATCOM (TSAT)	Air Force	$3.2B
XM2001 Crusader Self-Propelled Howitzer	Army	$2.2B
E-10 Multi-sensor Command and Control Aircraft (MC2A)	Air Force	$1.9B
Space Based Infrared Systems (SBIRS) – Low	Air Force	$1.5B
Space Radar	Air Force	$0.6B
Advanced SEAL Delivery System (ASDS)	Navy	$0.6B
Armed Reconnaissance Helicopter	Army	$0.5B
Aerial Common Sensor	Army / Navy	$0.4B
CG(X) Next Generation Cruiser	Navy	$0.2B
CSAR-X Combat Rescue Helicopter	Air Force	$0.2B
Next Generation Bomber	Air Force	$0.1B
	Total	***$59B***

Some of the Changes in PB17

- Air Force:
  - Procurement of 75 additional MQ-9 Reapers
  - Slip of $3.5B in LRS-B funding over FYDP
  - Reduction of 45 F-35As over FYDP
- Navy:
  - Reduction of 12 LCS ships
  - Maintaining production of DDG-51s at two per year
  - Accelerating Virginia Payload Module
  - Increasing F-35B/C buy over FYDP