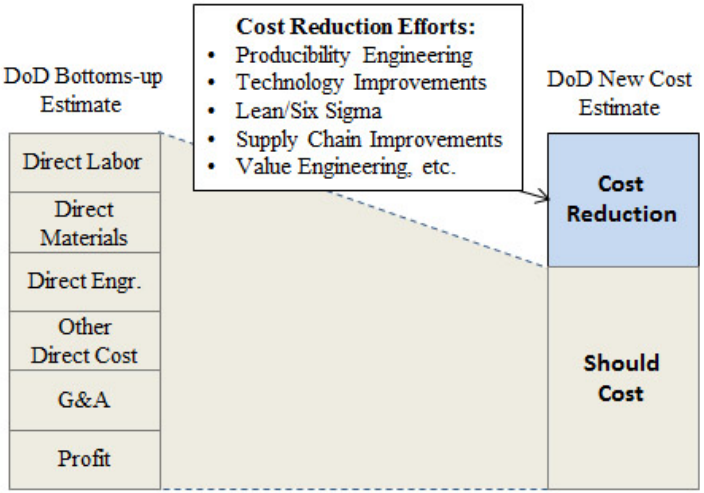
Applications of Should Cost to achieve cost reduction



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SECDEF Hagel speech at NDU
April 3, 2013

"…it is already clear to me that any serious effort to reform and reshape our defense enterprise must confront the principal drivers of growth in the Department's base budget – namely acquisitions, personnel costs, and overhead…

despite pruning many major procurement programs over the past four years, the military's modernization strategy still depends on systems that are vastly more expensive and technologically risky than what was promised or budgeted for. We need to continually move forward with designing an acquisition system that responds more efficiently, effectively and quickly…

One that rewards cost-effectiveness and efficiency, so that our programs do not continue to take longer, cost more, and deliver less than initially planned and promised."

http://www.defense.gov/speeches/speech.aspx?speechid=1764

USD(AT&L) BBP Guidance memo

Sep 14, 2010

MEMORANDOM FOR ACQUISITION PROFESSIONALS
SUBJECT: Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity in Defense Spending

TARGET AFFORDABILITY AND CONTROL COST GROWTH

"Drive productivity growth through Will Cost/Should Cost Management. During contract negotiations and program execution, our managers should be driving productivity improvement in their programs. "They should be scrutinizing every element of program cost, assessing whether each element can be reduced relative to the year before, challenging learning curves, dissecting overheads and indirect costs, and targeting cost reduction with profit incentive – in short, executing to what the program *should cost*…

I will require the manager of each major program to conduct a Should Cost analysis justifying each element of program cost and showing how it is improving year by year or meeting other relevant benchmarks for value."

http://bbp.dau.mil/docs/Better%20Buying%20Power--Guidance%20for%20Obtaining%20Greater%20Efficiency%20and%20Productivity%20in%20Defense%20Spending.pdf

USD(AT&L) BBP Implementation memo Nov 3, 2010

MEMORANDOM FOR SERVICE SECRETARIES AND AGENCY DIRECTORS
SUBJECT: Implementation Directive for Better Buying Power - Obtaining Greater Efficiency and Productivity in Defense Spending

TARGET AFFORDABILITY AND CONTROL COST GROWTH

"Effective November 15, 2010, you will establish "Should Cost" targets as management tools for all ACAT I programs as they are considered for major MS decisions…

By January 1, 2011, you will establish "Should Cost" estimates for ACAT II and III programs as they are considered for component MS decisions. You will use "Should Cost" based management to track performance of ACAT II and III programs."

http://bbp.dau.mil/docs/Implementation%20Directive%20for%20Better%20Buying%20Power%20--%20Restoring%20Affordability%20and%20Productivity%20in%20Defense%20Spending.pdf

Why? How?

Why:

- ? Challenge "business-as-usual" approach, with its underlying assumption that program costs will grow to match the ICE
- ? Identify and eliminate process inefficiencies and embrace cost reduction opportunities

How:

- Scrutinize every element of program cost
- Look for cost reductions in repetitive activities
- Leverage learning curves
- Examine overhead and indirect costs
- Incentivize your contractor to identify and create cost reductions
- Tie savings to specific discrete and measurable items and initiatives that can be quantified and tracked

"Self fulfilling prophecy," 2011 NDAA; DoD budget increases since 2000

Defense AT&L, "Should Cost Management: Why? How?," Carter and Mueller, (Sep/Oct 2011).

Ingredients of Should-Cost Management

USD(AT&L) memo, Apr 22, 2011: Implementation of Will-Cost and Should-Cost Management

1. Scrutinize each contributing ingredient of program cost and justify it. Why is it as reported or negotiated? What reasonable measures might reduce it?
2. Particularly challenge the basis for indirect costs in contractor proposals.
3. Track recent program cost, schedule, and performance trends and identify ways to reverse negative trend(s).
4. Benchmark against similar DoD programs and commercial analogues (where possible), and against other programs performed by the same contractor or in the same facilities.
5. Promote Supply Chain Management to encourage competition and incentivize cost performance at lower tiers.
6. Reconstruct the program (government and contractor) team to be more streamlined and efficient.
7. Identify opportunities to breakout Government-Furnished Equipment versus prime contractor-provided items.
8. Identify items or services contracted through a second or third party vehicle. Eliminate unnecessary pass-through costs by considering other contracting options.
9. In the area of test:
   a. Take full advantage of integrated Developmental and Operational Testing to reduce overall cost of testing;
   b. Integrate modeling and simulation into the test construct to reduce overall costs and ensure optimal use of National test facilities and ranges.
10. Identify an alternative technology/material that can potentially reduce development or life cycle costs for a program. Ensure the prime product contract includes the development of this technology/material at the right time.

http://bbp.dau.mil/docs/Joint%20Memorandum%20on%20Savings%20Realted%20to%20Should%20Cost.pdf

Causes of confusion/concern/cynicism

- © The name
- © What's different?
- © Just another new buzzword
- © We're already doing this…
- © So, if even our ICE's **underpredict** actual costs…
- © Understand the theory, but how you gonna implement?
- © Just another way to cut my budget / try to get more with less
- © What's going to happen to the funding delta?

Some views of others

"I think there are two kinds of Should Cost, one of which is the right approach and the second of which is not. From seeing the work on ICEs done by the CA division of CAPE, it shows us where the money is on the contracts, how much is in Overhead, etc. If you use that analysis to try to trim costs, that can be a good thing. The type of Should Cost analysis that worries me is when we look at the Will Cost estimate and say, 'oh no, it can't cost that much, it should cost this."

Ms. Christine Fox, Director, CAPE

"I will tell you that I personally am a big fan of Should Cost. It can help change the culture in how we think. To be honest though, I don't view it as an opportunity to necessarily return money to the gov't. If we can shoot for a lower target cost for the program and execute to that based on the "knowns," we can use savings from those Should Cost efforts to fund the inevitable "unknowns" that are otherwise unaccounted for. My goal is to ultimately keep the program at or under the ICE and not be one of the 80% of over-runners. That's my perspective, anyway. For a program in EMD, there are definitely a lot of unknowns to deal with."

COL Rob Rasch, PM, IAMD

"Simply put, our boss has framed Should Cost as 'beat the budget'"

Mr. Phil Rodgers, OSD/AT&L Lead for BBP 2.0 Should Cost Initiative

Affordability or Should Cost?

USD(AT&L) Memo, "Should-cost and Affordability" Aug 24, 2011

"Affordability as a requirement" directs that we establish quantified goals for unit production cost and sustainment costs for our products, driven by what the Department or Service can pay. We should set these goals early and use them to drive design trades and choices about affordable priorities…

"Should-cost" asks us consciously to do something different…to continuously fight to lower all our costs, wherever that makes sense. Should-cost is a tool to manage all costs throughout the life cycle and it operates in parallel with the effort to constrain our requirements appetites…Should-cost is focused on controlling the cost of the actual work that we are doing and expect to do.

http://bbp.dau.mil/docs/Should-cost%20and%20Affordability.pdf

Should Cost in 1802

Colonial Williamsburg Journal, Winter 2013,
"Lighthouses Marked the Shoals of the Commerce Clause,"
by Michael J. Lombardi, p. 34

New Point Comfort was a remote peninsula or island, depending on the tides, covered with drifting sand a few feet above sea level. It was a difficult spot to construct anything, let alone a lighthouse…

Congress budgeted $150 to acquire the land…

Philip Tabb of Gloucester County owned it. He saw the chance to make a substantitial profit from the government…I really thought considering every circumstance, that One Thousand Dollars, the price formally mentioned was by no means exhorbitant…The government would not budge…

Aerial view of New Point Comfort Lighthouse

Negotiations continued throughout 1802 and 1803, when Elzy Burroughs acquired the New Point property. Burroughs, anxious to start building, quickly sold the two acres to the government for $150.

http://www.history.org/foundation/journal/index.cfm

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AIM-9X Block II

- $ Applied traditional operations research methods to identify and prioritize cost reduction opportunities
  - € Fishbone diagram
  - € Pareto Analysis
  - € Plan of Action and Milestones
  - € Establish measurable targets
  - € Monitor progress
- $ Accelerated production deliveries
- $ Leveraged FMS for EOQ buys
- $ Active Optical Target Detector manufacturing improvements

Realized savings: $21M for Lot 11
Projected savings: $82M (FY11-15); $595M over program of record

Defense AT&L, "Should-Cost Management Tactics" Husband and Mueller, (Nov/Dec 2012).

AH-64E Apache
(Formerly Apache Block III)

- $ Combined government/contractor test team realized efficiencies in developmental and operational testing
  - € Identified duplicative or low-value test events
  - € Increased modeling & simulation in lieu of live fire testing
  - € Achieved 18 month schedule reduction
- $ Performance Based Logistics contract reduced spares in pipeline and money committed to Working Capital Fund

Realized savings: $35M for combined testing; $276M for PBL
Projected savings: $2.9B over program of record (MYP; improved parts reliability; reduced materiel and labor costs)

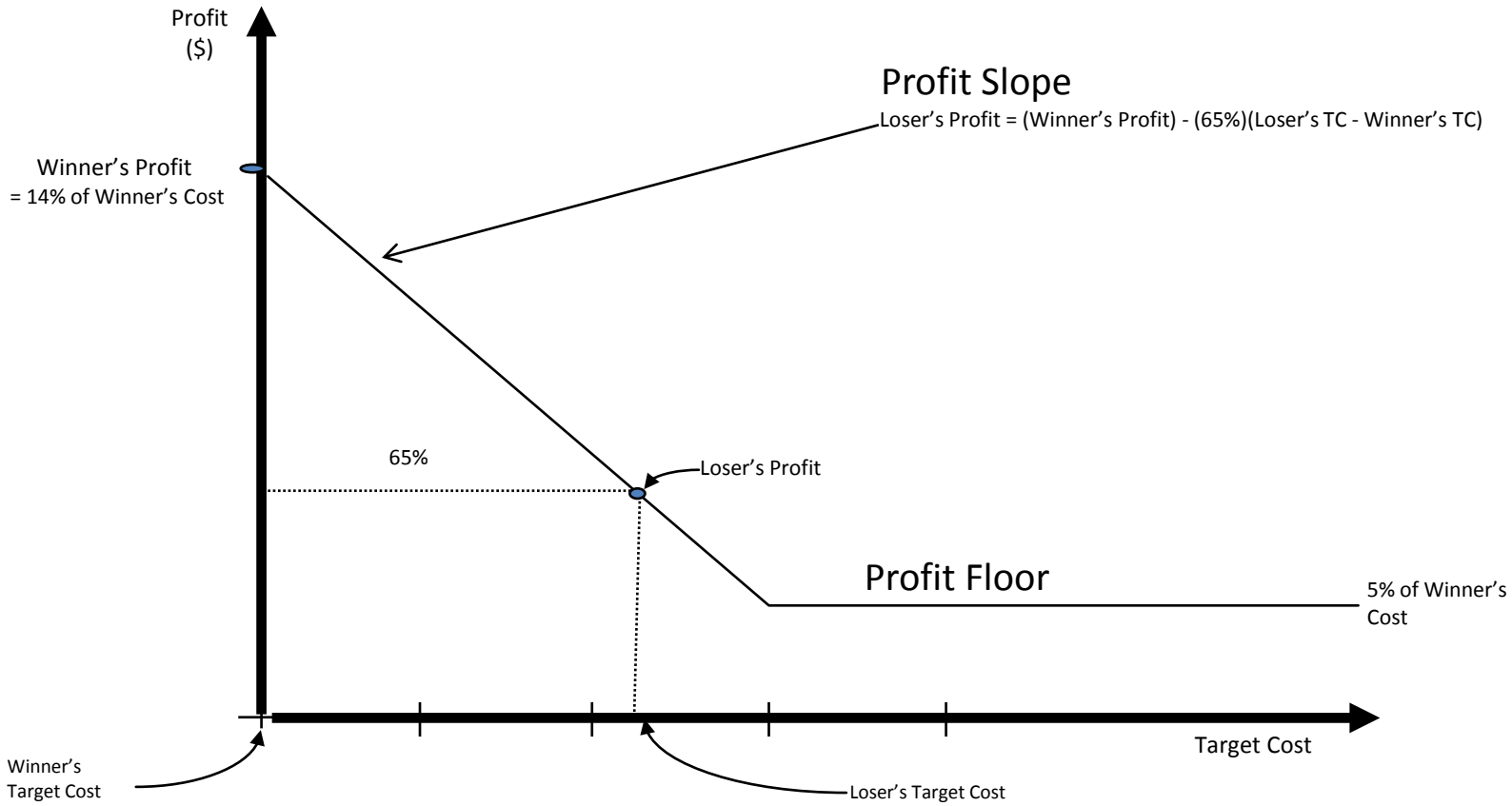
DDG-51

Arleigh Burke Class Guided Missile Destroyer

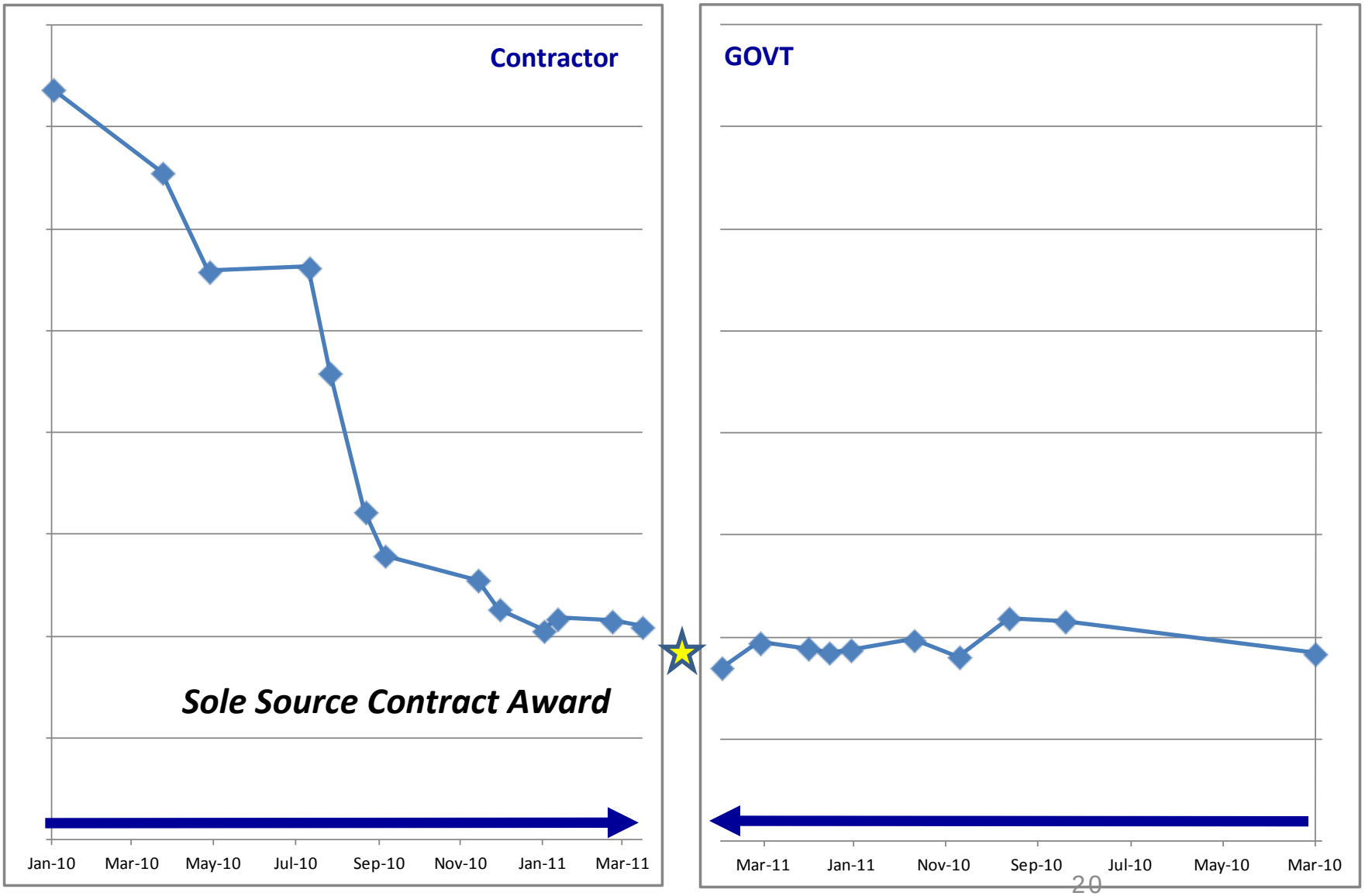
- $ Maximized competition through innovative contracting strategy
  - € Multiple technically qualified bidders
  - € Desire to split buys to maintain industrial base
  - € Profit-Related-to-Offer (PRO) contracting approach
- $ Conducted government should cost analysis to support sole source negotiations
  - € Confidence in government estimate justified year-long negotiation
  - € Required senior leader advocacy with Congress to retain money
- $ Competition for major sub-systems

Realized savings: ~$300M in FY11/12 for PRO
Projected savings: ~$400M (FY10-15) for Main Reduction Gear

Profit-Related-to-Offer (PRO)



Sole Source Negotiation Price Convergence



Creating Competition

- DDG 51 Main Reduction Gear (MRG)
  - Existing sole source subcontractor exited market
  - Transferred data rights and equipment to new company
  - Negotiations between new company and prime contractors were unsuccessful
  - Navy ran separate, performance specification-based competition for MRGs
    - Will provide to shipbuilders as GFE

Estimated Savings: ~$400 Million, FY10-15

E-2D Advanced Hawkeye

- Tandem-buy concept
  - Achieved economic order quantities through pricing based on two lots, even though Congress has not approved MYP
  - Prime and sub-tier contractors assumed risk by offering option pricing and self-funding
- Sharing benefits of favorable financing terms between gov't and contractors

Realized savings: ~$73M (4.5%) on LRIP 3/4 contract for tandem-buy

EELV
Evolved Expendable Launch Vehicle

- Initiated a FAR Part 15 Should Cost effort in 2010
  - Team of 50-60 people worked for six months preparing for negotiating a follow-on launch capability contract with ULA
  - What actually transpired was closer to a Tech Eval of ULA proposal
  - On savings recommendations:
    - "it's difficult to quantify true savings because many were contractor proposed additional efforts that the gov't never intended to do…there weren't a lot of new ideas for SC savings not previously identified"
- Developed strategy to achieve benefits of MYP without a MY
  - Defined rocket cores needed across DoD and NRO from FY13-17
  - Identified criteria for New Entrants and their capability to meet National Security requirements

F/A 18 E/F

- $ Applied traditional operations research methods to identify and prioritize cost reduction opportunities
- $ Airborne Electronic Attack kit procurement
- $ Infrared Search and Track affordability trades
- $ Dry Bay Fire Suppression System break-out
- $ FY11 MYP savings: $145.5M

Realized savings*: $22M for AEA kit; $3.1M for IRST; $2.3M for DBFSS; $145.5M for MYP
Projected savings*: ~$760M (FY12-17)

*All F/A-18 Will Cost / Should Cost Savings were allocated to N98 approved unfunded requirements

Production Should Cost Estimate: Dry Bay Fire Suppression System (DBFSS) Break-out

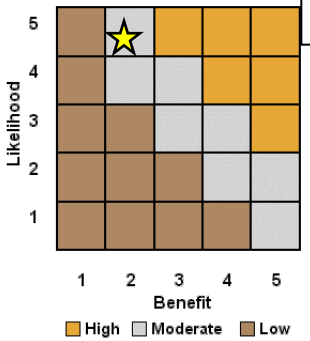
TY$M	FY12	FY13	FY14	FY15	Total All Years
Total Acq Will Cost (ICE for program)	4736.5	4842.3	3686.8	2859.7	114655.5
Will Cost (ICE)	2508.9	2378.6	1046.2	0.0	45575.2
Should Cost	2508.4	2378.1	1045.7	0.0	45573.7
Delta as % of Total Will Cost	0.0%	0.0%	0.0%	0.0%	0.0%
Actual Costs / New Estimates	TBD	TBD	TBD	TBD	TBD
Should Cost Delta	0.5	0.5	0.5	0.0	1.5
Prior Year Delta	0.0	To Comp Delta		0.0	0.0

Key Events/Schedule (Plan):

- ❑ **Step 1 - J&A approved through AIR 2.2**
- ❑ **Step 2 – Commerciality Claim approved by Legal**
- ❑ **Funding ID'ed and in place for contract award**
- ❑ **Negotiate contract through "alpha" contracting session**

Break Out DBFSS and go direct to Kidde Aero:

- ❑ **Currently paying for pass through at Northrop Grumman (NGC) for DBSS kits & proposed update to controller S/W**
  - Savings Realized eliminating NGC managing a "round-robin" update of controller from -3 to -4 logic.
- ❑ **Adjustments and Impacts to Spend Plan**
  - $2.3M savings
- ❑ **Contract Implications**
  - Only impact is the gov't now manages the "round robin effort vice NGC



Progress Update/Results:

- ✓ **Contract Awarded**
- ✓ **Achieved projected savings ~ 60 percent savings from original bid from OEM**
  - ✓ **Applied savings to emergent safety ECP 6227 – nacelle bleed plate crack correction of deficiency**

- ❑ **Opportunity**
  - Kdde Aero was orignial supplier w/ considerable pass-through charge to gov't
  - config change is necessary to reduce or eliminate inadvertent discharge of the DBFSS. This allowed for direct contract opportunity with
- ❑ **Risks**
  - ❑ **PMA-265 will now directly manage the turn-in and management of spares inventory**

F-22

- $ Conducted Should Cost analysis to inform negotiations prior to major contract award
  - € Early validation tests enabled less oversight of sub-contractor development
  - € Proposal SW development hours challenged based on contractor's advanced capability, process, and language experience
  - € Number of contract vehicles reduced (i.e. CLINS, DO's, etc.)
  - € Implemented defined promotion criteria for tests passed, requirements met, and number of known defects before code is promoted across phases and locations

Projected savings: $32M for Increment 3.2A (negotiated CPIF contract price compared to Will Cost)*

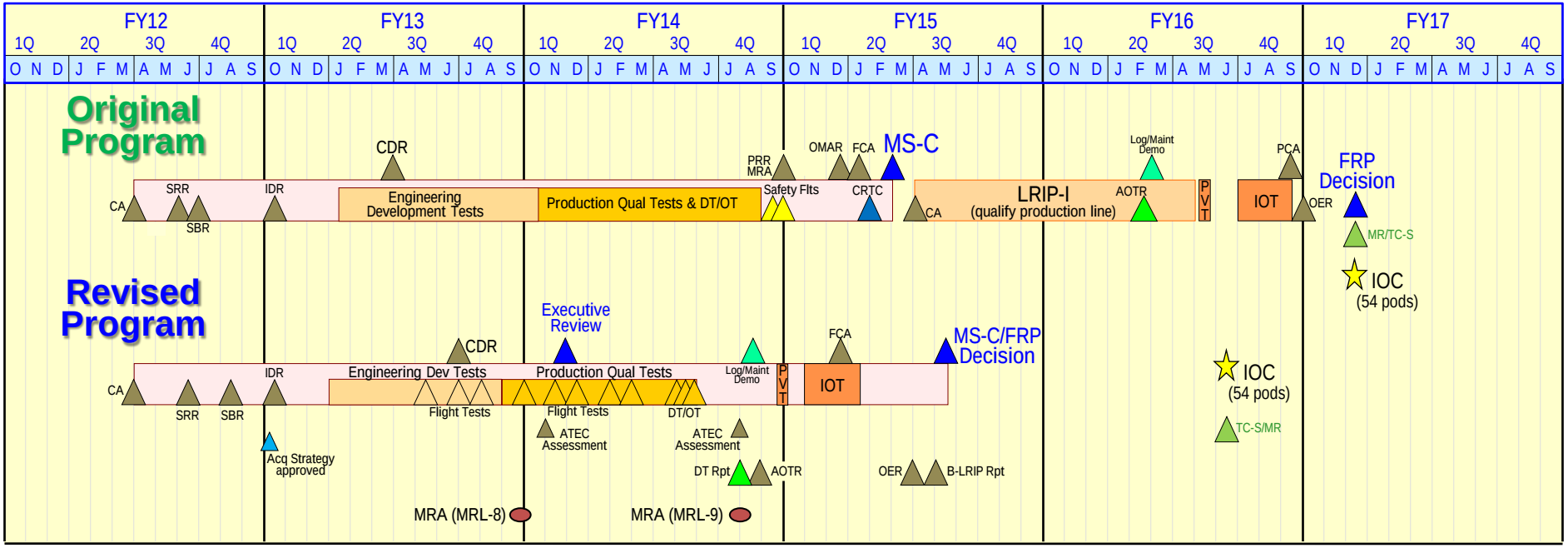
*Savings applied to Life Support System and Auto-Ground Collision Avoidance System unfunded requirements

GMLRS
Guided Multiple Launch Rocket System

- Bundled FY12 and FY13 procurements
  - Leveraged total quantities instead of independent annual quantities
  - Extending cost / pricing data through 31 Dec allowed PMO to execute FY13 procurement through contract mod to FY12 contract
    - Mod repriced FY12 FRP 7 Unitary rocket cost from $99.4K to $92.6K per rocket—a ~$23M savings in FY12
    - Mod avoided significant cost increase due to lower quantities in a FY13 stand alone contract—cost avoidance of ~$29.3M
- Alternative Warhead Should Cost approaches
  - Implemented test efficiencies
  - Shortened development schedule by 16 months (~32%)
  - Used rockets from inventory to build test articles
  - Aggressive contract negotiations

Realized savings: ~$52.3M for bundled procurements; ~$33.6M for Alternative Warhead Should Cost savings

Should Cost Initiatives



- Milestone C and FRP Decision Review concurrent
- LRIP eliminated
  - DoDI 5000.02, "…may not require low-rate production to provide production representative articles for operational testing; test articles, if needed, may come from the existing production line."
- Mature production line enables IOT&E to precede Milestone C
  - Executive Review in 1QFY14 confirms configuration for IOT&E
  - IOT&E remains RDT&E funded
- TEMP update developed with ATEC saves test cost and schedule
  - Ground and Flight testing streamlined to reduce range and hardware costs (22 rockets)

IAMD
Integrated Air and Missile Defense

- $ Applied traditional operations research methods to identify and prioritize cost reduction opportunities
  - € Fishbone diagram
  - € Pareto Analysis
  - € Plan of Action and Milestones
  - € Establish measurable targets
  - € Monitor progress
- $ A-Kit Design Implementation Contract
  - € Definitization of UCA leveraged existing activities from contributing programs, reducing IAMD's cost to develop adaptation kit
- $ Lower Tier Project Office - Patriot / IAMD Combined Testing
  - € Concurrent activities at WSMR in FY15-16 for PATRIOT and IAMD; savings projected from combining flight tests to meet both programs' requirements

Realized savings: ~$54M in RDT&E (FY13-15)
Projected savings: ~$240M in Procurement and ~$122M in O&S

Author: Mark Husband, Defense Systems Management College

EMD Should Cost Methodology

1. Analyze "Current Costs"

- Reviewed IAMD costs
- Each Product Office and Directorate Created a Common Understanding of Costs
- Identified Cost Drivers

2. Product Offices and Directorates Identified and Evaluated Opportunities

- Brainstormed Opportunities
- Selected Potential Initiatives
- Provided Evaluation Information:
  - Benefit of Implementation to IAMD
  - Investment Cost to Implement
  - Implementation Effort (LOE to Implement)
  - Operational Impact (Positive or Negative)
  - Year of Implementation

Methodology Modeled on AIM-9X Block II Program Approach from Aug 2011, with adaptations for EMD Program Phase

3. IAMD Compared and Evaluated Potential Initiatives

- Evaluated all Potential Initiatives against evaluation information
- Potential Initiatives were also judged based on technical and programmatic merits as IAMD Leadership Team
- Preliminary List of Initiatives Selected

4. Developed IAMD "Should Cost" Plan

- Quad Charts developed for each initiative with greater detail on costs, savings per year, and a POA&M to achieve
- Developed an IAMD "Should Cost" Summary by year with all selected Initiatives
- Established Measurable IAMD Targets

EXAMPLE

IAMD PO EOC Product Office
- EMD Should Cost Initiatives in Categories-

Fishbones

Acquisition Strategy

Alternatives for Unapproved HW
- Search for alternatives for HW not approved for procurement (e.g. KG-250X) to reduce risk

IT Box Acq. Strat.
- Switch to IT Box Acq Strat would remove CPD, MS C

Configuration Agreements
- With other programs on current/future configs of HW/SW components

Descope Install Kits from NG
- Descope Installation Kits (e.g. JBC-P) to a lower cost contract

Descope Superstructure from NG
- Descope superstructure int. to a lower cost contract

Review of Legacy Components for Re-Use
- Re-use fielded versions of legacy components

Total Package Fielding
- Deliver IMEI to NG with a NDI integrated (e.g. FMTV with BFT/JBC-P, CAU, etc) to reduce NG's integration LOE

Review of Components for Outsourcing
- Descope selected components from NG to other contracts at a lower cost

Alternative Design, Material, and Technical Opportunities

EOC Network Connection Architecture
- Review use of TRT for EOC network access, instead of intra-EOC HW

Use of SNAP Terminals for NIPR
- Use SNAP terminals purchased by LTPO for Intra-TF NIPR

CBRN/ABT Alarm
- Over-engineered current design
- Govt-developed soln + GFE
- Descope alarm from NG Contract

VM ADSI Functionality
- HW Solution may not be necessary
- Use SW-based ADSI solution

ICE EMP Protection Strategy
- Current solution does not meet dB req – further devel. needed
- Review req/soln delta & possibly alter requirement

Review COTS List for GFE Alternatives
- Review list of COTS in design for GFE alternatives – lower cost

Alternative Design, Material, and Technical Opportunities (2)

Antenna Mast Mount Design
- Dismounted solution unfavorable to User – Cost Δ Unknown
- Review alternative, existing solution (e.g. QEAM)
- Waive 10 cross-lateral req. (SS_4099)

EOC Generator/ECU/Trailer Choice
- DRASH products – Higher Cost
- Explore use of alternative products - Ongoing

EOC Prime Mover/ Shelter / Generator /ECU /Trailer
- Current products – High Cost
- Explore use of alternative products - Ongoing

Number of Generators Required
- 2 Generators may not be necessary (unit-supplied)
- Review use of single generator

Portable Timing Unit Removal
- Remove PTU from EOC Design

Weapons Rack Removal
- CAIV Weapons Rack – provided by unit

EOC Prime Mover Choice
- Explore use of alternative products - Ongoing

EOC Generator Choice
- Explore use of alternative products - Ongoing

EOC Trailer Choice
- Explore use of alternative products - Ongoing

EOC Shelter Choice
- Explore use of alternative products - Ongoing

EOC ECU Choice
- Explore use of alternative products - Ongoing

IAMD IOC

Training Management/ Test Management

Limit DT, Roll DT/OT Together
- Combine DT & OT to reduce cost

Single DT Location
- Consolidate DT to either G-SIL or C-SIL to reduce redundancies

Utilize Tests of Other Projects
- Utilize testing events of other projects as much as possible to reduce redundancies

Trainer EOCs
- Review necessity of Full Tactical Trainer EOCs instead of EOC Emulators

Requirements Management

Plt Configuration Requirements
- Review movement of Plt Config. Reqs to P3I

SLAMRAAM Requirements
- Remove SLAMRAAM Reqs. Due to discontinuation

Stacked Requirements
- Review req. for instances of improperly stacked reqs.

Environmental Requirements
- NG plan to meet reqs. is over-engineered
- Direct NG to use kits to meet reqs.

1 km Separation Requirements
- NG over-interprets requirement
- Formally provide intent and scope of these reqs.

Nuclear Survivability Requirements
- SETA-led Survivability Analysis of a Netted/Distributed System w/ NG & USANCA

Decontamination Strategy
- Direct Std. Army strategy – no strict COTS HW outside shelter

Full Reqs & User Expectation Review
- Review reqs. & expectations for necessity & possible relief

JLENS Requirements
- Prepare reqs. For alteration in case of JLENS discontinuation

JTT Requirements
- Review JTT reqs. For necessity of unique query function

MIDS Requirements
- Review reqs. for necessity of MIDS at every EOC

MIDS Voice Requirements
- Link-16 Voice – Limited Utility, Higher Cost
- Review reqs. For necessity of MIDS Voice
- Use LVT(2) instead of LVT(11) with no Voice

MIDS Procurement Strat.
- LVT(11) not supported by G8
- Review use of LVT(2) w/ voice adaptor instead of LVT(11)

Organizational Management

IPT/WG Structure
- Current structure leads to unfulfilled action items, poor communication – schedule/cost creep
- Alter section 6 of NG contract to include charters, reqs. For meeting action items & minutes, etc.

MS/Decision Review Preparation Process
- Communications gap throughout IAMD PO
- Future– include all PdMs/Directors in E/E Criteria Generation

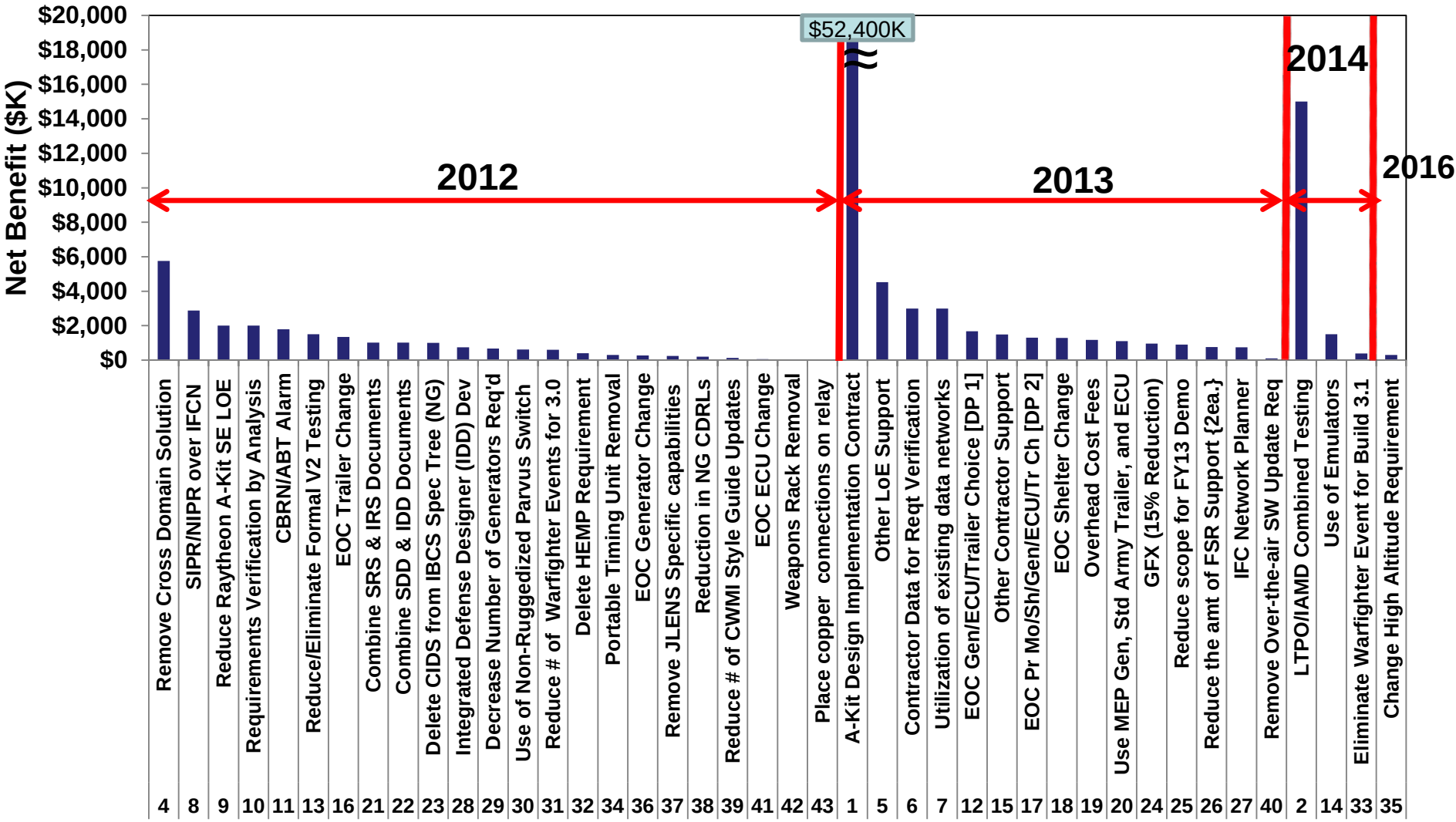
Manage Communications within IAMD PO
- Communications gap throughout IAMD PO
- Ensure all stakeholders are aware of pertinent information/changes

CDRL Review Process
- Current 30d CDRL Comment Review LoE causes overtime charges, etc.
- Implement variable CDRL comment period

Organization of Govt + SETA Team
- Communication gap throughout IAMD PO
- Seat Govt & SETA personnel in close proximity

Blue = Initiatives viewed as cost avoidance
Red – Initiatives carried forward for PM review
Black – Initiatives reviewed but not recommended

IAMD RDT&E Should Cost Initiatives by Year Implemented



KC-46

- $ Achieved Should Cost savings through competitive source selection that placed premium on price
  - € Established contractually binding prices and not-to-exceed prices for entire acquisition program, including EMD, Interim Contractor Support, and production lots 1-13

Realized savings: $2.4B (TY11-16) compared to Will Cost (SCP); PB13 reflects these "realized" savings
Projected savings: EMD ceiling price is $428M less than Will Cost estimate; will be "realized" by FY17 if gov't costs do not exceed ceiling

Littoral Combat Ship

- Automation enables operation with reduced-size core crew
  - Total crew of 95-100, compared to ~200 for Navy frigates and ~300 for Navy cruisers and destroyers
    - Total crew is made up of Ship's core crew, Mission Module crew and the Aviation Detachment
- Block Buy competition resulted in significant savings
  - Savings from competition created opportunity to award each bidder a fixed price 10-ship block buy
  - Allowed Navy to increase LCS Ship procurement by one ship in FY12 which provided for 10 ships to each bidder
  - Portion of savings was re-applied to other major shipbuilding programs

Realized savings: Block Buy/Dual Award savings for 20 ships estimated at $2.9B in procurement from FY10-15 compared to PB11

OHIO-class sub (SSBN[X])

- Design trades to balance affordability and capability
  - Reduced tubes from 20 to 16; masts from 10 to 6; tube diameter from 97 to 87 inches; torpedo room capacity (defensive load only); force protection features (current OHIO-class system)
  - Partner with UK to design common missile tubes; gain volume benefits
  - Reuse existing sub-systems from legacy OHIO-class
    - Trident D5
  - Leverage other sub-systems designs
    - Ship control system, propulsor, combat systems from VIRGINIA-class sub
    - Modify hydraulic pumps for size, but leverage common supply parts, vendor base

Projected savings: Estimate of subs 2-12 reduced by ~$1B per boat to ~$5.6B (CY10$), with further target of $4.9B per boat

OHIO Replacement Program Affordability

Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY2011	Unit Cost CY10 $=	**$6B to $7B**

Detailed requirements review produced savings

Reduced number of missile tubes	20 to 16 tubes
Reduced missile tube diameter	97 inches to 87 inches
Reduced torpedo room capacity	Minimum capacity for defensive load only
Removed chin array	Minimum acoustic sensors for defensive detection; leverage VIRGINIA-Class combat systems
Reduced sail mast capacity	10 to 6 masts
Reduced force protection features	Current OHIO-Class system
Reduced OR unique design features	Increased use of VIRGINIA-Class components

Milestone A Service Cost Position	Average Follow-on Ship CY10 $ =	**$5.6B**

Recent Affordability Initiatives	EOQ and multi-year procurement Facilities Design for producibility Requirements and regulations Integrated Product Development Environment (IPDE) Manufacturing technologies, service, and support

Milestone A Cost Target	Average Follow-on Ship CY10 $=	**$4.9B**

Delivering the Core Essential Military Capability at the Lowest Possible Cost

R&D Design Contract

- Five-years, cost-plus fixed fee incentivized contract
- Continues the development work required to recapitalize the nation's survivable leg of the strategic triad
- Unique research and development contract:
  - Purchases level of effort and specific deliverables, much in completion contract
  - Incentive pool designed to reduce the program's total cost across research, design, acquisition, and O&S, with receipt tied to proven cost reductions
  - Continues prototyping efforts by utilizing open competitions to the greatest extent possible
  - The contract aligns with Better Buying Power 2.0

Stryker

- Bundle buy concept
  - Achieved economies of scale by combining order for 294 Double V-Hulls (FY11) with 100 NBCRVs (FY12)
  - Required senior leader authority to purchase on tight timeline
- Test cost efficiencies
  - Utilize existing test data
  - Combine test events

Realized savings: ~$18M bundle-buy; ~$7.7M test efficiencies (FY12)

PEO GCS

Stryker: Test Cost Efficiencies

$K	FY12 Funding	FY13 Funding	FY14 Funding	FY15 Funding	FY16 Funding	FY17 Funding	Total FY12-17	To Complete	Total All Years
Total Will Cost *	886,823	477,333	65,948	70,647	75,663	76,378	1,652,792	0	1,652,792
Projected Will Cost of Target Process	32,989	25,856	0	0	0	0	58,845	0	58,845
Projected Should Cost of Target Process	25,294	24,563	0	0	0	0	49,858	0	49,858
Percentage of Projected Savings	0.9%	0.3%	%	%	%	%	0.5%	%	0.5%

Supporting Evidence for Should Cost:

- ❑ **Utilize existing test data; combine test events**
  - Leverage test data from a GD verification test on MGS A/C and hydraulic warm up circuit for purposes of satisfying government validation.
  - Combine testing of the 5 obsolete LRU's (funded by GDLS) with the CREW re-location efforts.
  - Decrease express/short term shipping costs by better defining requirements for hardware required for future testing at YPG and EPG.
  - Combine testing of the MEV Litter Lift and MEV EA Troop Seat testing.
  - Combine testing of the OEF Exterior Stowage Kit and RPG Netting on the NBCRV.
- ❑ **Stakeholders Roles and Responsibilities to Facilitate Success:**
  - ATEC will be required to adjust test schedules to accommodate dual purpose testing
- ❑ **Other key Assumptions**
  - Test hardware will be delivered in time to support test plan
  - Program will be funded to current Alt POM (1) levels and funds are received on time
- ❑ **Help Needed by Senior Leaders**
  - None above the PEO level

Milestones & Key Events for FY12:

- ✓ **Finalize testing options, Target date 30 Nov 2011**
- ✓ **Open discussions with ATEC, Target date 1 Dec 2011**
- ✓ **Finalize testing plan, Target date 31 Jan 2012**

As of 19 JUL 12

Updated Total Cost Estimate of Target Process: $49.858M (19 JUL 12)

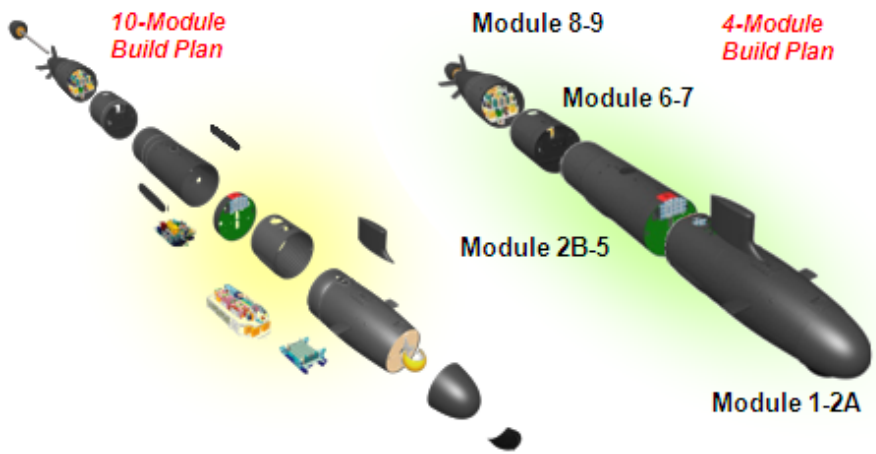
** Established prior to ACP/ICE development supporting NBCRV FRP DAB 6 Dec 2011; reflects ALT POM 30 Aug 11. Only two years of funding remain in vehicle line (FY12/13). Transition to Sustainment in FY16.*

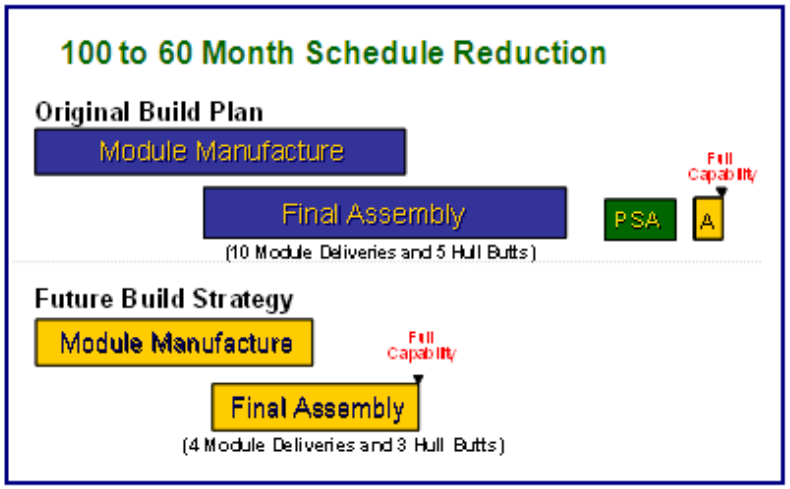
VIRGINIA-class Submarine

- "2 for 4 in 2012"
  - Navy set goal in 2005 to produce 2 subs per year for $4B by 2012
    - Increase production with MYP (FY09-13) and EOQ material
    - Production improvement
    - Redesign for more efficient production
- Increase operational cycle and reduce depot availability
  - Operating cycle to be extended from 72 to 96 months
  - Reduce depot availabilities from four to three over 33-year service life
  - Increases deployments from 14 to 15 during service life

Realized savings: "2 for 4 in 2012" required $600M investment to reduce program costs by $3B
Projected savings: $1.4B BY10$ O&S through increased op cycle

Block II - Class Build Plan Improvement





Virginia Class 4-Module Build Plan was Implemented starting with SSN778

Sections 1 thru 2A
1,546 tons

Sections 2B thru 5
1,538 tons

Sections 6 and 7
990 tons

Sections 8 and 9
1,595 tons

Progressive Schedule Reduction Objectives

SSN776

86 Months

- 20 Month Span from last module arrival to Delivery
- On-Schedule Delivery
- 62% of MIP installed during new construction

PHC 9/2/05 | Delivery 12/22/06 | 4/14/05 Last Unit Arrived | 4/28/06 Float-Off | 12/31/06 Contract Delivery

0.25 Month Early Delivery

SSN777

82 Months

- 18 Month Span from last module arrival to Delivery
- Near On-Schedule Delivery
- 52% of MIP installed during new construction

PHC 8/31/06 | Delivery 2/22/08 | 6/16/06 Last Unit Arrived | 5/5/07 Float-Off | 12/31/07 Contract Delivery

SSN778

71 Months

- 15 Month Span from last module arrival to Delivery
- First full ship MIP during new construction at Electric Boat

PHC 7/20/07 | Delivery 8/27/08 | 5/29/07 Last Unit Arrived | 2/21/08 Float-Off | 4/09 Contract Delivery

8 Months Early Delivery

SSN779

70 Months

- 19 Month Span from last module arrival to Delivery
- First full ship MIP during new construction at NGSB

PHC 5/4/08 | Delivery 12/29/09 | 3/2/08 Last Unit Arrived | 1/18/09 Float-Off | 4/10 Contract Delivery

4 Months Early Delivery

SSN780

65 Months

- 18 Month Span from last module arrival to Delivery

PHC 5/09 | Delivery 7/29/10 | 2/24/09 Last Unit Arrived | 11/09 Float-Off | 4/11 Contract Delivery

9 Months Early Delivery

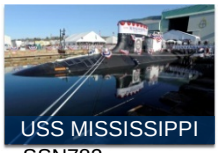
SSN781

65 Months

- 18 Month Span from last module arrival to Delivery

PHC 4/10 | Delivery 8/7/11 | 2/9/10 Last Unit Arrived | 11/10 Float-Off | 4/12 Contract Delivery

8.5 Months Early Delivery



SSN782

63 Months

PHC 4/11 | Delivery 5/2/12 | 2/12/11 Last Unit Arrived | 1/12 Float-Off | 4/13 Contract Delivery

11.5 Months Early Delivery

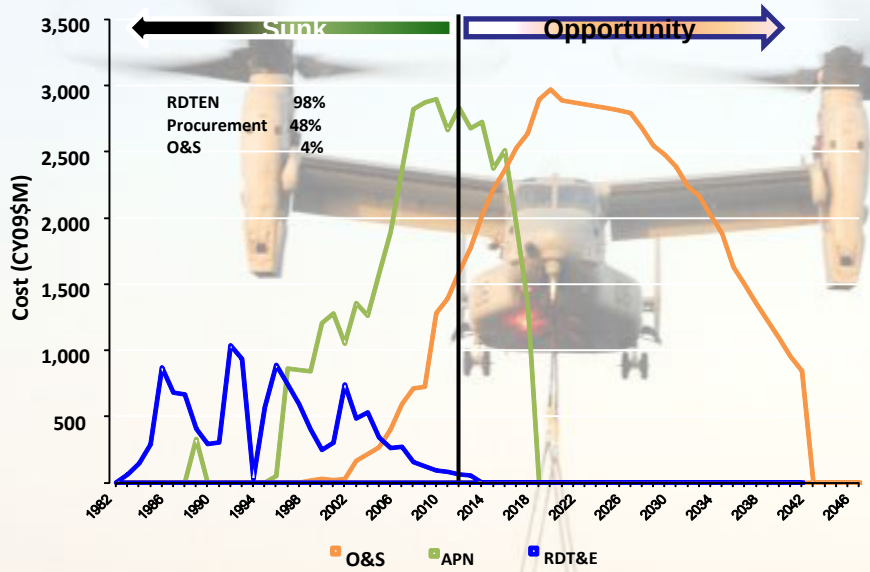
As of Oct 2012

V-22

- $ Operating & Sustainment cost reduction
  - € Tightened linkage between Industry and Gov't
    - £ Executive level integration of requirements and strategy
    - £ Disciplined battle rhythm, down to weekly execution reviews
  - € Increased repair of consumable parts
    - £ Now repairing 414 parts that were previously consumable
  - € Adopted phased PBL strategy
  - € Industry assisted maturation of D / I maintenance capability
    - £ Industry lead-turning Depot standup support
    - £ Providing equipment, bills of material, drawings
    - £ Technical assistance, training

Realized savings: From 2010 to 2012, reduced cost per flying hr ~18% while improving mission capable rate from 53 to 68%

Better Buying Power Initiative



Target Affordability & Cost Growth -Production

- Executing First Multi-Year (MYP I)
  - Cost Reduction Initiatives meeting targets
  - FPIF contract type
- Planning for MYP II
  - Provides stability
  - FPIF contract type
  - Engaging supply base

Multiyear Strategy Provides > $1B Cost Avoidance

Target Affordability & Cost Growth – O&S

Savings achieved through numerous projects:

– Windscreens: ≈$303M net savings
– Obsolescence Management: $140M cost avoidance
– Swashplate Actuator Fluid Intrusion: ≈ $328M net savings
– Variable Frequency Generator Fluid Intrusion: ≈ $152M net savings
– Prop Rotor Gear Box Planetary Bearing Redesign: ≈ $48M net savings
– Anti Drive Base Assembly changes: ≈ $27M net savings
– Pylon Conversion Actuator Crossover Hamming Fix: ≈ $15M net savings
– Measured Gas Temperature Increase: ≈ $1.2B net savings
– Complete Block A to Block B Mods: ≈ $31M net savings
– Contract breakout strategy with NAVSUP reduced 73 component prices by 25.4%

Cost Avoidance > $1.8B within FYDP and > $10B LCC

Since 2010: Readiness up 28%, Operating Cost reduced by 18%

Should Cost strategies (TDP & EMD)

1. Balance affordability and capability in design (OHIO)
2. Establish aggressive affordability targets (OHIO, GCV, JLTV, Combat Rescue helo, AMPV, Armed Aerial Scout, etc.)
3. OR to identify/prioritize opportunities (IAMD)
4. DT / OT efficiencies (Apache, GMLRS, Stryker)
5. EMD schedule reductions (Apache, GMLRS)
6. Should Cost analysis to inform negotiations prior to major award (F-22)

Should Cost strategies (Production)

1. OR to identify/prioritize opportunities (AIM-9X, F-18)
2. Production efficiencies (AIM-9X, EELV, F-18, VIRGINIA)
3. Tandem-buy concept (E-2D, GMLRS, Stryker)
4. Accelerated production deliveries (AIM-9X)
5. Leverage FMS for EOQ buys (AIM-9X)
6. MYP (C-130J, CH-47F, DDG-51, E-2D, F/A-18 E/F, UH/MH-60 aircraft and avionics, V-22, VIRGINIA)

MYP examples (2010-2012)

- F/A-18 E/F
  - ~$590M (CAPE) from FY10-13
- UH-60M/HH-60M/MH-60R/S
  - ~$886M, 10.6% (CAPE) to ~$1.4B (Service) from FY12-16
- MH-60R/S Mission Avionics and Common Cockpits
  - ~$165M, 11.2% (CAPE) from FY12-16

MYP examples (future)

- CH-47F, DDG-51, V-22
  - MY FY13-17 authorized in NDAA; awaiting appropriation bill
- E-2D, C-130J
  - MY FY14-18 request being prepared
- VIRGINIA-class submarine
  - MY FY14-18 requested in PB13; awaiting appropriation bill

Projected savings (TY$):
CH-47F: $373M# to ~$810M*
DDG-51: $319M# to ~$1.6B*
V-22: $852M# to >$1B*
E-2D: ≥10%# (≥$500M#)
C-130J: ≥9.5%#
Virginia: $1.04B# to ~$4.5B*

#USD(AT&L) certication letter (based on CAPE ICE)
*Service estimate

Should Cost strategies (O&S)

1. Performance Based Logistics (Apache, V-22)
2. Increase operational cycle, reduce depot time (VIRGINIA)
3. Repair parts that were previously consumable (V-22)
4. Incorporate increased automation early in design to potentially lower future costs, especially sustainment (LCS)

Should Cost contracting approaches

1. Competitive SS that placed premium on price (KC-46)
2. Maximize price competition through PRO (DDG-51)
3. Share benefits of favorable financing (E-2D)
4. Gov't SC analysis to support negotiations (DDG-51, EELV, F-22, GMLRS)
5. Block Buy downselect changed to dual award based on affordable proposals resulting from competition (LCS)

Lessons Learned/Challenges
reported by CAEs, Nov 2012 – Jan 2013

- $ Realized savings generally reallocated within program
- $ Majority of savings are from a few large programs
- $ Will-Cost baselines are inconsistent
- $ Expertise to conduct SC activities is lacking
- $ Difficult to distinguish between SC savings, Affordability initiatives, and cost avoidance
- $ Continuing Resolution and budget cuts affect SC initiatives
- $ Implementing SC for IT programs is challenging
- $ Processes for collection, analysis and reporting are intensive
- $ Hesitancy to share savings—concern about premature cuts

Additional program examples
reported by CAEs

- Army
  - FMTV
  - Ammunition
  - Black Hawk
  - Patriot / PAC-3
  - TOW
- Navy
  - H-60
  - CANES
- Air Force
  - MMP Upgrade
  - Remote Rey-Key
  - HTVSF
  - QF-16
  - IFF Mode 5 Crypto
  - KG-3X
  - MQ-9
  - F-35
  - Global Hawk
  - SBIRS
  - AEHF
- NSA
  - Teleport Gen III
  - GEMSIS
  - GCCS-J
- Tricare Mgt Activity
  - iEHR
- MDA
  - GMD seg of BMDS

Should Cost Policy Guidance

- USD (AT&L) Memos:
  - 14 Sep 2010: "Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity in Defense Spending"
  - 3 Nov 2010: "Implementation Directive for Better Buying Power - Obtaining Greater Efficiency and Productivity in Defense Spending"
  - 22 Apr 2011: "Implementation of Will-Cost and Should-Cost Management"
  - 24 Aug 2011: "Should-cost and Affordability"
- USD(AT&L) and USD/FM Joint Memo 22 Apr 2011: "Joint Memorandum on Savings Related to 'Should Cost'"
- OSD(AT&L/ARA) memo 12 Dec 2011: "Should-Cost Templates"
- Service Memos
  - Army: SAAL-ZR 10 Jun 2011: "Army Implementation of USD(AT&L) Affordability Initiatives"
  - Air Force: SAF/FM & SAF/AQ 15 Jun 2011: "Implementation of Will-Cost and Should-Cost Management"
  - Navy: ASD (RDA) 19 Jul 2011: "Implementation of Should-Cost Management"

DEPARTMENT OF DEFENSE Better Buying Power Acquisition, Technology and Logistics http://bbp.dau.mil BBP Gateway

BBP Initiatives Training Modules Community https://acc.dau.mil/bbptraining DAU modules

BACKUP

From DoD BBP website

BBP Initiatives Successfully Employed in Acquisition of Navy Destroyer

BBP Initiatives Employed in Acquisition Strategy for Navy Destroyer

Guided by Better Buying Power initiatives, the Navy team leading the acquisition of three DDG 51 Class Guided Missile Destroyers successfully conducted an innovative competition. In 2009, the Navy agreed to allocate the construction of three DDG 51 Class Guided Missile Destroyers to two shipbuilders while truncating the DDG 1000 Program. After extended sole source negotiations resulted in unacceptable pricing, the team obtained permission to modify the acquisition strategy. In less than 90 days, the team developed and obtained approval for the modified strategy and issued a request for proposals. These actions resulted in competitive Fixed Price Incentive Firm contracts for DDG 114 and DDG 115 as well as a priced option for the FY12 DDG, exemplifying Better Buying Power initiatives. The Team set a short timeline and adhered to it while incentivizing industry productivity. The Team combined an innovative strategy, Profit Related to Offers (PRO) with other contract provisions including sharelines and ceiling values to obtain true competition while sustaining the shipbuilding industrial base.

The team accomplished this effort less than six months from the decision to compete to contract award, while satisfying all procurement regulations and policy and utilizing the newly implemented enterprise resource planning system in the award process. This competitive procurement resulted in savings of $298 million to the Navy across these three ships and established the conditions for the follow-on FY13-17 multi-year procurement for DDG 51 class ships.

http://bbp.dau.mil/DDG_51.html

From DoD BBP 2.0 Fact Sheet

BBP PROGRAM SUCCESSES

Stryker

The Army generated considerable savings in the Stryker program by combining FY12 buys of 292 Double V-Hulls and 100 Nuclear BioChemical Reconnaissance vehicles into a single contract, gaining economies of scale, and is estimating up to 5 percent savings in its production of JTRS Handheld radios through incentives to incorporate commercial components and technologies.

From DoD BBP 2.0 Fact Sheet

F-22

The F-22 System Program Office realized a 15 percent efficiency during Increment 3.2A negotiations using Should Cost analysis. The Air Force successfully identified and implemented specific cost saving initiatives to address areas in the software development process that were above industry benchmarks. This effort resulted in a 15 percent reduction and $32 million savings in cost for Increment 3.2A.

From DoD BBP 2.0 Fact Sheet

DDG 51

The Navy utilized a competitive allocation strategy for the FY11 and FY12 DDG 51 class ships called Profit Related to Offers (PRO). This strategy utilizes Fixed Price Incentives – Firm Target (FPIF) contracts with priced options to ensure reasonable prices while maintaining the industrial base. The result of the competitive allocation was a 12 percent reduction in basic construction costs of the three ships at Bath Iron Works (BIW) and Huntington Ingalls Incorporated (HII) and government savings of $298 million. This strategy will be repeated for the FY13-17 DDG 51 Multi-year procurement.

Additional information available at: https://dap.dau.mil/bbp