

# **Selected Acquisition Report (SAR)**

RCS: DD-A&T(Q&A)823-582



Signal Data Processor with Sierra Chip (SDP-S)



Planar Array Antenna Assembly (PAAA)

# **Cooperative Engagement Capability (CEC)**

As of December 31, 2012

Defense Acquisition Management Information Retrieval (DAMIR)

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#### **Program Information**

#### **Program Name**

Cooperative Engagement Capability (CEC)

#### **DoD Component**

Navy

#### Joint Participants

U.S. Air Force Airborne Early Warning and Control System (AWACS); U.S. Army (PATRIOT); Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS)

CEC configurations include: shipboard (AN/USG-2), airborne (AN/USG-3), United States Marine Corps (USMC) ground mobile (AN/USG-4), USA JLENS (AN/USG-5), and Foreign Military Sales (FMS) (AN/USG-6/7/8)

#### **Responsible Office**

#### Responsible Office

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#### References

#### SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated April 3, 2002

#### Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 16, 2004

#### **Mission and Description**

#### Mission

The CEC increases overall Naval Air Defense capabilities by integrating sensors and weapon assets into a single, integrated, real-time network which expands the battlespace; enhances situational awareness; increases depth of fire and enables longer intercept ranges; and improves decision and reaction times.

#### **Description**

CEC is a real-time sensor netting system that enables high quality situational awareness and Integrated Fire Control (IFC) capability, which revolutionizes naval air defense by providing improved accuracy, continuity, and identification consistency. This sensor netting system significantly improves Naval Carrier and Expeditionary Strike Group's Area Air Defense capabilities by extracting and distributing sensor-derived information such that the superset of this data is available to all participating CEC Cooperating Units (CUs). CEC fuses the distributed data from shipboard, airborne, Composite Tracking Network (CTN) ground mobile units, Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), and select coalition partners into a single fire control quality air track picture. Radar measurement data from individual CUs within a CEC equipped force are transmitted to other CUs using the Line-Of-Sight Data Distribution System. A variety of automated network configurations are possible since CEC terminals provide highly directional, point-to-point data exchanges.

The CEC system distributes data between sensor and weapon assets to create a single, distributed, integrated air picture that supports and enables IFC. Individual sensors on all platforms in a CEC network are used in a cooperative manner as a distributed system to obtain track information to form a single, real-time composite track. This real time composite tracking enables CEC to support Theater Air and Missile Defense allowing coordination of Naval and Joint sensor system assets among CEC-equipped ships, aircraft, and land platforms and joint operational access to engage cruise missiles that threaten joint forces in a denied access environment.

CEC consists of the following variants:

AN/USG-2: Shipboard designation of CEC deployed aboard the Aegis Guided Missile Cruisers, Aegis Guided Missile Destroyers, Aircraft Carriers and Amphibious Transport Dock/Amphibious Assault ships

AN/USG-3: Airborne designation of CEC deployed in E-2C and E-2D aircraft

AN/USG-4: United States Marine Corps CTN platform

AN/USG-5: US Army JLENS platform

AN/USG-6/7/8: Foreign Military Sales

#### **Executive Summary**

The CEC program is continuing development efforts to keep pace with the security threats and ensure producibility. Currently, the focus is on upgrading legacy configurations through modernization efforts. The program remains focused on ensuring compatibility, appropriate maintenance, and ultimate disposal.

The Under Secretary of Defense for Acquisition, Technology and Logistics memorandum of May 25, 2012 redesignated CEC from an Acquisition Category (ACAT) ID to an ACAT IC program with the Navy as lead component and authorized the Navy to procure the third increment of Low Rate Initial Production (LRIP) units for the CEC airborne variant. This authorized the procurement of five additional AN/USG-3B systems for a total quantity of 15. An Operational Test Readiness Review was successfully conducted on September 13, 2012 certifying entry into Initial Operational Test and Evaluation. Operational Testing will continue through third quarter of 2013, associated analysis to follow with reports by Commander Operational Test & Evaluation Force and Director, Operational Test and Evaluation expected July 2013. The AN/USG-3 Full Rate Production (FRP) Decision Review is tentatively planned for late FY 2013.

CEC continues to follow an evolutionary acquisition process, delivering capability in increments of hardware and/or software upgrades. This evolutionary approach acknowledges the need for future capability improvements to pace evolutionary trends.

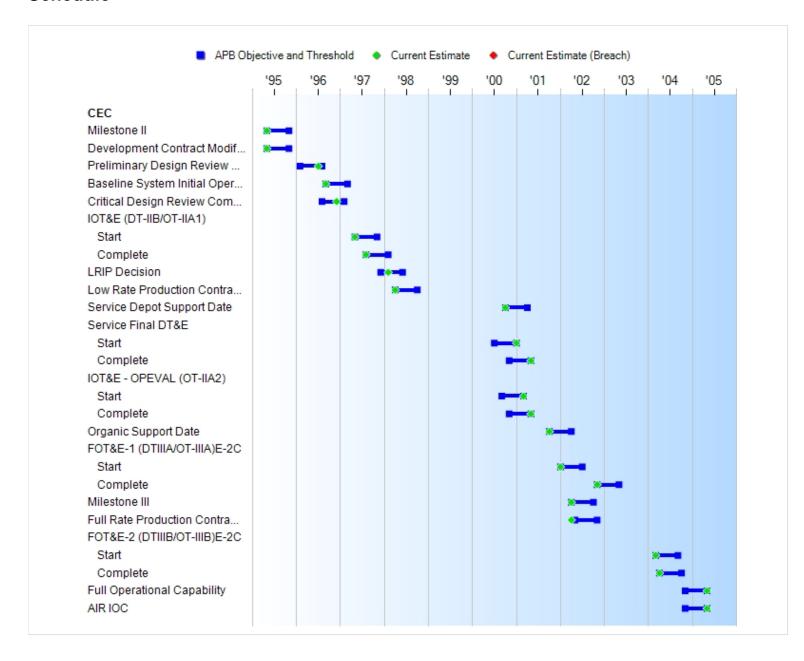
The CEC program achieved a Milestone III FRP decision in April 2002 for the shipboard variant. The program received incremental LRIP authority for the airborne system starting in FY 2002 with the Full Operational Capability planned for FY 2013.

There are no significant software-related issues with this program at this time.

# **Threshold Breaches**

APB	Breaches		Explanation of Breach
Schedule			This breach was reported in the December 2011 SAR.
Performance			
Cost	RDT&E	V	
	Procurement		
	MILCON		
	Acq O&M		
O&S Cost			
<b>Unit Cost</b>	PAUC		
	APUC		
Nunn-McC	urdy Breache	s	
Current UCR E	Baseline		
	PAUC	None	
	APUC	None	
Original UCR E	Baseline		
	PAUC	None	
	APUC	None	

#### **Schedule**



Milestones	SAR Baseline Prod Est	Proc	ent APB luction e/Threshold	Current Estimate
Milestone II	MAY 1995	MAY 1995	NOV 1995	MAY 1995
<b>Development Contract Modification</b>	MAY 1995	MAY 1995	NOV 1995	MAY 1995
Preliminary Design Review Complete	FEB 1996	FEB 1996	AUG 1996	JUL 1996
Baseline System Initial Operational Capability	SEP 1996	SEP 1996	MAR 1997	SEP 1996
Critical Design Review Complete	AUG 1996	AUG 1996	FEB 1997	DEC 1996
IOT&E (DT-IIB/OT-IIA1)				
Start	MAY 1997	MAY 1997	NOV 1997	MAY 1997
Complete	AUG 1997	AUG 1997	FEB 1998	AUG 1997
LRIP Decision	DEC 1997	DEC 1997	JUN 1998	FEB 1998
Low Rate Production Contract Award	APR 1998	APR 1998	OCT 1998	APR 1998
Service Depot Support Date	OCT 2000	OCT 2000	APR 2001	OCT 2000
Service Final DT&E				
Start	JUL 2000	JUL 2000	JAN 2001	JAN 2001
Complete	NOV 2000	NOV 2000	MAY 2001	MAY 2001
IOT&E - OPEVAL (OT-IIA2)				
Start	SEP 2000	SEP 2000	MAR 2001	MAR 2001
Complete	NOV 2000	NOV 2000	MAY 2001	MAY 2001
Organic Support Date	OCT 2001	OCT 2001	APR 2002	OCT 2001
FOT&E-1 (DTIIIA/OT-IIIA)E-2C				
Start	JAN 2002	JAN 2002	JUL 2002	JAN 2002
Complete	AUG 2002	NOV 2002	MAY 2003	NOV 2002
Milestone III	APR 2002	APR 2002	OCT 2002	APR 2002
Full Rate Production Contract Award	MAY 2002	MAY 2002	NOV 2002	APR 2002
FOT&E-2 (DTIIIB/OT-IIIB)E-2C				
Start	MAR 2003	MAR 2004	SEP 2004	MAR 2004
Complete	JUL 2003	APR 2004	OCT 2004	APR 2004
Full Operational Capability	DEC 2003	NOV 2004	MAY 2005	MAY 2005
AIR IOC	DEC 2003	NOV 2004	MAY 2005	MAY 2005

#### **Acronyms And Abbreviations**

AIR IOC - Airborne Initial Operational Capability

DT - Developmental Test

DT&E - Developmental Test and Evaluation

FOT&E - Follow-on Test and Evaluation

IOT&E - Initial Operational Test and Evaluation

LRIP - Low Rate Initial Production

**OPEVAL - Operational Evaluation** 

OT - Operational Test

#### **Change Explanations**

None

#### **Performance**

Characteristics	SAR Baseline Prod Est		nt APB uction /Threshold	Demonstrated Performance	Current Estimate
Operational Availability	>=.95	>=.95	>=.90	>=.94	>=.95
Interoperability					
Information Exchange Requirements (IER)	100% of top- level IERs	100% of top-level IERs.	100% of top- level IERs designated critical	100% of top- level IERs designated critical	100% of top-level IERs designated critical
Track File Consistency	Integration will improve track file consistency in each host system	CEC integration will improve track file consistency as measured in each host system	CEC integration must not degrade track file consistency (0% degradation) as measured in each host system	consistency as measured in	CEC integration will improve track file consistency in each host system

**Requirements Source:** Operational Requirements Document (ORD) dated January 31, 2002 and ORD Change 1 dated January 31, 2011

#### **Change Explanations**

None

Classified Performance information is provided in the classified annex to this submission.

### **Track To Budget**

#### **General Memo**

All Appropriations (APPNs) and Project Elements (PEs) have been updated to align with FY 2014 President Budget (PB) values.

Updated PE 0604234N from Project 3501 to Project 3051.

Project element ICN 464017 reported as sunk. Project element ICN 200100 reported as sunk. Project element ICN 090000 reported as sunk. Project element ICN 096000 reported as sunk.

RDT&E				
APPN 1319	BA 07	PE 0206313M	(Navy)	
	Project C2273	Marine Corps Communication Systems/Marine Corps Communication Systems	(Shared)	
APPN 1319	BA 04	PE 0603658N	(Navy)	
	Project K2039	Cooperative Engagement Capability (CEC)		
	Project K2616A	Cooperative Engagement Capability (CEC)/Cooperative Engagement Capability (CEC)		(Sunk)
APPN 1319	BA 05	PE 0604234N	(Navy)	
	Project 3051 Project Y5EJ Sunk in FY 2012	Advanced Hawkeye Advanced Hawkeye	(Shared) (Shared)	(Sunk)
APPN 2040	BA 07	PE 0102419A	(Army)	
	FY 2012 in PB 2	Army Patriot JLENS listed as sunk in 2011 SAR since n 013. The PE was listed as shared cated for FY 2013 in PB 2014.		

#### **Procurement**

APPN 1109	BA 01	PE 0206313M	(Navy)	
	ICN 464017 Sunk in FY 2014.	Procurement, Marine Corps	(Shared)	(Sunk)
APPN 1506	BA 01	PE 0204152N	(Navy)	
	ICN 019500	E-2C (Early Warning) HAWKEYE (MYP)	(Shared)	
APPN 1611	BA 02	PE 0204112N	(Navy)	
	ICN 200100 Sunk in FY 2014.	CVN Replacement Program	(Shared)	(Sunk)
	ICN 208600	Refueling Complex Overhaul	(Shared)	
APPN 1611	BA 05	PE 0204228N	(Navy)	
	ICN 211900 Sunk in FY 2008.	DDG 1000, 1001	(Shared)	(Sunk)
APPN 1611	BA 02	PE 0204222N	(Navy)	
	ICN 211900 Sunk in FY 2010.	DDG 1002	(Shared)	(Sunk)
	ICN 212200	DDG-51	(Shared)	
APPN 1611	BA 03	PE 0204411N	(Navy)	
	ICN 303500 ICN 303600 ICN 304100	LHD-1 LPD-17 LHA 8	(Shared) (Shared) (Shared)	(Sunk)
APPN 1810	BA 01	PE 0204228N	(Navy)	
	ICN 090000 Sunk in FY 2014.	DDG Modernization	(Shared)	(Sunk)
APPN 1810	BA 01	PE 0204162N	(Navy)	
	ICN 096000 Sunk in FY 2013.	Cruiser Modernization	(Shared)	(Sunk)
APPN 1810	BA 02	PE 0204228N	(Navy)	

Cooperative Engagement Capability (CEC) ICN 260600

**APPN 1810** PE 0204221N (Navy) BA 02

> ICN 260600 Cooperative Engagement Capability (CEC) (Sunk)

# **Cost and Funding**

# **Cost Summary**

#### **Total Acquisition Cost and Quantity**

	BY2002 \$M			BY2002 \$M		TY \$M	
Appropriation	SAR Baseline Prod Est	Curren Produ Objective/	ction	Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	2028.1	2435.7	2679.3	2808.4	1946.5	2394.3	2927.3
Procurement	2095.2	2095.2	2304.7	1518.1	2364.2	2364.2	1769.3
Flyaway	1759.8			1317.2	1985.6		1517.6
Recurring	1759.8			1317.2	1985.6		1517.6
Non Recurring	0.0			0.0	0.0		0.0
Support	335.4			200.9	378.6		251.7
Other Support	335.4			200.9	378.6		251.7
Initial Spares	0.0			0.0	0.0		0.0
MILCON	0.0	0.0		0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0		0.0	0.0	0.0	0.0
Total	4123.3	4530.9	N/A	4326.5	4310.7	4758.5	4696.6

<sup>&</sup>lt;sup>1</sup> APB Breach

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	16	27	30
Procurement	256	256	222
Total	272	283	252

### **Cost and Funding**

#### **Funding Summary**

# Appropriation and Quantity Summary FY2014 President's Budget / December 2012 SAR (TY\$ M)

Appropriation	Prior	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	To Complete	Total
RDT&E	2473.0	61.3	76.6	70.7	89.0	77.8	78.9	0.0	2927.3
Procurement	1279.6	78.7	57.2	65.8	68.3	80.6	74.9	64.2	1769.3
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2014 Total	3752.6	140.0	133.8	136.5	157.3	158.4	153.8	64.2	4696.6
PB 2013 Total	3764.3	146.1	150.4	167.7	166.6	172.4	44.1	162.7	4774.3
Delta	-11.7	-6.1	-16.6	-31.2	-9.3	-14.0	109.7	-98.5	-77.7

Program funding and production quantities listed in this SAR are consistent with the FY 2014 President's Budget (PB). The FY 2014 PB did not reflect the enacted DoD appropriation for FY 2013, nor sequestration; it reflected the President's requested amounts for FY 2013.

Quantity	Undistributed	Prior	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	To Complete	Total
Development	30	0	0	0	0	0	0	0	0	30
Production	0	145	11	7	8	10	12	11	18	222
PB 2014 Total	30	145	11	7	8	10	12	11	18	252
PB 2013 Total	30	142	12	9	14	10	12	10	30	269
Delta	0	3	-1	-2	-6	0	0	1	-12	-17

# **Cost and Funding**

# **Annual Funding By Appropriation**

**Annual Funding TY\$** 

1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
1994							203.2
1995							154.1
1996							256.4
1997							224.7
1998							200.8
1999							189.8
2000							179.8
2001							173.4
2002							106.7
2003							107.1
2004							91.1
2005							114.0
2006							99.8
2007							55.0
2008							53.4
2009							44.2
2010							65.8
2011							59.6
2012							60.0
2013							58.9
2014							76.6
2015							70.7
2016							89.0
2017							77.8
2018							78.9
Subtotal	22						2890.8

Annual Funding BY\$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 \$M	Non End Item Recurring	Non Recurring Flyaway BY 2002 \$M	Total Flyaway	Total Support BY 2002 \$M	Total Program BY 2002 \$M
1994							224.2
1995							166.8
1996							272.9
1997							236.3
1998							209.4
1999							195.7
2000							182.7
2001							173.8
2002							105.9
2003							104.7
2004							86.7
2005							105.7
2006							89.7
2007							48.3
2008							46.0
2009							37.6
2010							55.1
2011							48.7
2012							48.1
2013							46.3
2014							59.0
2015							53.5
2016							66.1
2017							56.7
2018							56.4
Subtotal	22						2776.3

Annual Funding TY\$
2040 | RDT&E | Research, Development, Test, and Evaluation, Army

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
1999							9.7
2000							
2001							
2002							
2003							
2004							
2005							
2006							
2007							
2008							
2009							8.6
2010							5.2
2011							5.0
2012							5.6
2013							2.4
Subtotal	8						36.5

Annual Funding BY\$
2040 | RDT&E | Research, Development, Test, and Evaluation, Army

Fiscal	Quantity	End Item	Non End Item Recurring	Non Recurring Flyaway BY 2002 \$M	Total Flyaway BY 2002 \$M	Total Support BY 2002 \$M	Total Program BY 2002 \$M
1999							10.0
2000							
2001							
2002							
2003							
2004							
2005							
2006							
2007							
2008							
2009							7.3
2010							4.3
2011							4.1
2012							4.5
2013							1.9
Subtotal	8						32.1

Annual Funding TY\$
1109 | Procurement | Procurement, Marine Corps

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
2008			3.0		3.0		3.0
2009	10	16.0			16.0		16.0
2010							
2011			11.3		11.3		11.3
2012			3.8		3.8		3.8
Subtotal	10	16.0	18.1		34.1		34.1

# Annual Funding BY\$ 1109 | Procurement | Procurement, Marine Corps

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 \$M	Non End Item Recurring Flyaway BY 2002 \$M	Non Recurring Flyaway BY 2002 \$M	Total Flyaway BY 2002 \$M	Total Support BY 2002 \$M	Total Program BY 2002 \$M
2008			2.6		2.6		2.6
2009	10	13.5			13.5		13.5
2010							
2011			9.1		9.1		9.1
2012			3.0		3.0		3.0
Subtotal	10	13.5	14.7		28.2		28.2

Annual Funding TY\$
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
2000	6	35.0			35.0		35.0
2001	1	14.7			14.7		14.7
2002	5	27.6			27.6		27.6
2003	6	33.3			33.3		33.3
2004	6	27.9			27.9		27.9
2005							
2006							
2007							
2008							
2009	2	7.7			7.7		7.7
2010	3	12.6			12.6		12.6
2011	5	16.3			16.3		16.3
2012	5	15.6			15.6		15.6
2013	5	15.9			15.9		15.9
2014	5	16.1			16.1		16.1
2015	5	16.4			16.4		16.4
2016	6	20.1			20.1		20.1
2017	8	27.3			27.3		27.3
2018	8	27.7			27.7		27.7
2019	8	28.2			28.2		28.2
2020	8	28.7			28.7		28.7
2021	2	7.3			7.3		7.3
Subtotal	94	378.4			378.4		378.4

Annual Funding BY\$
1506 | Procurement | Aircraft Procurement, Navy

Fiscal	Quantity	End Item Recurring Flyaway BY 2002 \$M	Non End Item Recurring Flyaway BY 2002 \$M	Non Recurring Flyaway BY 2002 \$M	Total Flyaway BY 2002 \$M	Total Support BY 2002 \$M	Total Program BY 2002 \$M
2000	6	35.1			35.1		35.1
2001	1	14.6			14.6		14.6
2002	5	27.0			27.0		27.0
2003	6	32.0			32.0		32.0
2004	6	26.1			26.1		26.1
2005							
2006							
2007							
2008							
2009	2	6.5			6.5		6.5
2010	3	10.4			10.4		10.4
2011	5	13.1			13.1		13.1
2012	5	12.3			12.3		12.3
2013	5	12.3			12.3		12.3
2014	5	12.2			12.2		12.2
2015	5	12.2			12.2		12.2
2016	6	14.7			14.7		14.7
2017	8	19.6			19.6		19.6
2018	8	19.5			19.5		19.5
2019	8	19.5			19.5		19.5
2020	8	19.4			19.4		19.4
2021	2	4.9			4.9		4.9
Subtotal	94	311.4			311.4		311.4

Annual Funding TY\$
1611 | Procurement | Shipbuilding and Conversion, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
1995	1	13.9			13.9	1.6	15.5
1996	1	11.3			11.3	0.1	11.4
1997							
1998	3	31.8			31.8	3.2	35.0
1999	1	9.0			9.0	0.9	9.9
2000	2	14.3			14.3	1.7	16.0
2001	2	12.3			12.3	1.1	13.4
2002	2	15.4			15.4	1.7	17.1
2003	1	5.8			5.8	8.0	6.6
2004	1	6.3			6.3	0.6	6.9
2005	1	7.6			7.6	0.6	8.2
2006	2	12.6			12.6	1.3	13.9
2007	3	16.8			16.8	5.9	22.7
2008	2	12.8			12.8	3.3	16.1
2009	3	13.8			13.8	6.4	20.2
2010	1	6.9			6.9	0.7	7.6
2011	3	12.1			12.1	4.9	17.0
2012	2	9.1			9.1	2.8	11.9
2013	4	19.0			19.0	4.8	23.8
2014	1	5.0			5.0	1.4	6.4
2015	2	8.9			8.9	2.4	11.3
2016	3	14.9			14.9	3.9	18.8
2017	3	14.7			14.7	3.9	18.6
2018	2	9.4			9.4	2.5	11.9
Subtotal	46	283.7			283.7	56.5	340.2

Annual Funding BY\$
1611 | Procurement | Shipbuilding and Conversion, Navy

Fiscal	Quantity	End Item	Non End Item Recurring Flyaway BY 2002 \$M	Non Recurring Flyaway BY 2002 \$M	Total Flyaway	Total Support BY 2002 \$M	Total Program BY 2002 \$M
1995	1	14.7			14.7	1.7	16.4
1996	1	11.8			11.8	0.1	11.9
1997							
1998	3	32.0			32.0	3.2	35.2
1999	1	8.9			8.9	0.9	9.8
2000	2	13.8			13.8	1.7	15.5
2001	2	11.5			11.5	1.0	12.5
2002	2	14.3			14.3	1.6	15.9
2003	1	5.1			5.1	0.7	5.8
2004	1	5.3			5.3	0.5	5.8
2005	1	6.2			6.2	0.5	6.7
2006	2	9.9			9.9	1.0	10.9
2007	3	12.6			12.6	4.4	17.0
2008	2	9.3			9.3	2.4	11.7
2009	3	9.7			9.7	4.5	14.2
2010	1	4.7			4.7	0.5	5.2
2011	3	8.0			8.0	3.2	11.2
2012	2	5.9			5.9	1.8	7.7
2013	4	12.1			12.1	3.0	15.1
2014	1	3.1			3.1	0.9	4.0
2015	2	5.5			5.5	1.4	6.9
2016	3	9.0			9.0	2.3	11.3
2017	3	8.7			8.7	2.3	11.0
2018	2	5.4			5.4	1.5	6.9
Subtotal	46	227.5			227.5	41.1	268.6

Annual Funding TY\$
1810 | Procurement | Other Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
1998	5	55.2			55.2	12.1	67.3
1999	5	79.7			79.7	1.7	81.4
2000	3	53.2			53.2	6.0	59.2
2001	6	36.4			36.4		36.4
2002	4	77.6			77.6	6.4	84.0
2003	6	64.9			64.9	6.1	71.0
2004	4	60.4			60.4	5.8	66.2
2005	3	60.9			60.9	6.2	67.1
2006	3	21.2			21.2	3.8	25.0
2007	5	34.4			34.4	3.6	38.0
2008	4	33.1			33.1	5.8	38.9
2009	4	29.3			29.3	4.9	34.2
2010	5	42.4			42.4	8.2	50.6
2011	5	42.8			42.8	8.7	51.5
2012	3	24.3			24.3	10.3	34.6
2013	2	25.8			25.8	13.2	39.0
2014	1	19.7			19.7	15.0	34.7
2015	1	15.3			15.3	22.8	38.1
2016	1	11.9			11.9	17.5	29.4
2017	1	16.3			16.3	18.4	34.7
2018	1	16.6			16.6	18.7	35.3
Subtotal	72	821.4			821.4	195.2	1016.6

Annual Funding BY\$
1810 | Procurement | Other Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 \$M	Non End Item Recurring Flyaway BY 2002 \$M	Non Recurring Flyaway BY 2002 \$M	Total Flyaway BY 2002 \$M	Total Support BY 2002 \$M	Total Program BY 2002 \$M
1998	5	57.3			57.3	12.5	69.8
1999	5	81.6			81.6	1.8	83.4
2000	3	53.7			53.7	6.1	59.8
2001	6	36.3			36.3		36.3
2002	4	76.3			76.3	6.3	82.6
2003	6	62.6			62.6	5.9	68.5
2004	4	56.9			56.9	5.4	62.3
2005	3	55.8			55.8	5.6	61.4
2006	3	18.8			18.8	3.4	22.2
2007	5	29.8			29.8	3.2	33.0
2008	4	28.2			28.2	5.0	33.2
2009	4	24.7			24.7	4.1	28.8
2010	5	35.0			35.0	6.7	41.7
2011	5	34.7			34.7	7.1	41.8
2012	3	19.3			19.3	8.2	27.5
2013	2	20.1			20.1	10.4	30.5
2014	1	15.1			15.1	11.5	26.6
2015	1	11.5			11.5	17.1	28.6
2016	1	8.8			8.8	12.9	21.7
2017	1	11.8			11.8	13.3	25.1
2018	1	11.8			11.8	13.3	25.1
Subtotal	72	750.1			750.1	159.8	909.9

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#### **Low Rate Initial Production**

	Initial LRIP Decision	Current Total LRIP	
Approval Date	3/2/1998	5/25/2012	
<b>Approved Quantity</b>	7	79	
Reference	LRIP-1 – ASN (RDA) ADM	LRIP-13 – USD (AT&L)	
		ADM	
Start Year	1998	1998	
End Year	1998	2012	

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the requirements (1) to meet ship installation schedules, (2) to outfit Land Based Test Sites in preparation for completion of Operational Testing (OT), and (3) to maintain the Minimum Sustaining Rate for production of CEC systems pending completion of OT and entry into Full Rate Production (FRP).

A total of 79 AN/USG-2 (shipboard) and AN/USG-3 (airborne) Low-Rate Initial Production (LRIP) systems have been authorized and procured as follows:

- LRIP-1 The Office of the Assistant Secretary of the Navy (Research Development and Acquisition) (ASN(RD&A)) memorandum of March 2, 1998 to the Program Executive Office (PEO) for Theater Air Defense; and ASN (RD&A) memorandum of August 24, 1998 to the PEO for Theater Air Defense and Surface Combatants authorized the procurement of seven systems. These seven systems represented two percent of the total procurement quantity of 295 planned at that time.
- LRIP-2 The ASN(RD&A) memorandum of May 14, 1999 to the PEO for Theater Surface Combatants authorized the procurement of seven systems.
- LRIP-3 The ASN(RD&A) memorandum of April 7, 2000 to the PEO for Theater Surface Combatants authorized the procurement of twelve systems.
- LRIP-4 The Under Secretary of Defense (Acquisition, Technology and Logistics) (USD (AT&L)) memorandum of May 4, 2001, to the Secretary of the Navy (SECNAV) authorized the procurement of seven systems and four foundations for E-2C aircraft. (Four backfit kits were later procured to complete four LRIP systems for E-2C.)
- LRIP-5/6 The USD (AT&L) memorandum of April 3, 2002, to the SECNAV and the Chairman, Joint Chiefs of Staff authorized the procurement of five AN/USG-3 (airborne) systems in FY 2002 and six AN/USG-3 systems in FY 2003.
- LRIP-7/8 The USD (AT&L) memorandum of September 4, 2003 to the SECNAV authorized two more years of LRIP for the airborne version (AN/USG-3), two in FY 2004 and two in FY 2005, with FRP pending successful completion of Follow-On Test and Evaluation.
- LRIP-9 The USD (AT&L) memorandum of January 19, 2009 to the SECNAV authorized an increase in the total LRIP quantity for the CEC program of an additional 14 AN/USG-3A systems to support the production of E-2D Advanced Hawkeye (AHE) aircraft beginning in FY 2009.
- LRIP-10 The USD (AT&L) memorandum of February 12, 2010 to the SECNAV authorized the second LRIP of up to six complete AN/USG-3B systems and the procurement of up to two additional Single Data Processor with Sierra II

chip (SDP-S) components to support the E-2D AHE LRIP. SDP-S procurement authorizes partial system buy, and does not constitute an increase in total LRIP system quantities.

LRIP-11 - The USD (AT&L) memorandum of August 27, 2010 authorized the Navy to procure one additional LRIP Lot 2 (FY 2010 increment) CEC AN-USG 3B system to support one additional E-2D AHE aircraft as included in the DoD Appropriations Act 2010, Public Law 111-118. The authority to procure one additional unit increased the total authorized CEC LRIP Lot 2 quantity to seven.

LRIP-12 - The USD (AT&L) memorandum of December 5, 2011 authorized the Navy to procure one additional CEC AN/USG-3B unit as part of the FY 2011 LRIP Lot 2. The authority to procure one additional unit increased the total authorized CEC LRIP Lot 2 quantity to eight. This decision also authorized an increase in the total CEC AN/USG-3A/B LRIP quantity to not more than 16 units.

LRIP-13 - The USD (AT&L) memorandum of May 25, 2012 authorized the Navy to procure up to five complete AN/USG-3B systems as part of the LRIP Lot 3. In addition, the memorandum re-designated the CEC program from an Acquisition Category (ACAT) ID to an ACAT IC program with the Navy as the lead component.

### **Foreign Military Sales**

The CEC Program Office, in conjunction with the Integrated Warfare Systems International Program Office, has active Foreign Military Sales (FMS) cases with the United Kingdom, Australia and Canada towards integration of the CEC capability across their respective fleets in compliance with United States Government directives and FMS requirements.

The FMS cases are not included in this SAR as they have been deemed sensitive by these individual countries.

#### **Nuclear Cost**

None

#### **Unit Cost**

# **Unit Cost Report**

Average Procurement Unit Cost (APUC)

Cost

Quantity

Unit Cost

	BY2002 \$M	BY2002 \$M	
Unit Cost	Current UCR Baseline (JUN 2004 APB)	Current Estimate (DEC 2012 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	4530.9	4326.5	
Quantity	283	252	
Unit Cost	16.010	17.169	+7.24
Average Procurement Unit Cost (APUC	C)		
Cost	2095.2	1518.1	
Quantity	256	222	
Unit Cost	8.184	6.838	-16.45
	BY2002 \$M	BY2002 \$M	
Unit Cost	Original UCR Baseline (JUL 1995 APB)	Current Estimate (DEC 2012 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	2443.4	4326.5	
Quantity	183	252	
Unit Cost	13.352	17.169	+28.59

1262.8

7.257

174

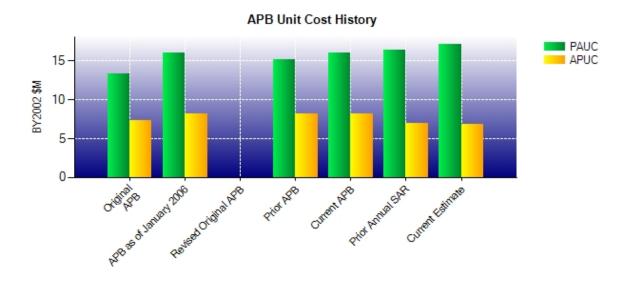
1518.1

222

-5.77

6.838

# **Unit Cost History**



		BY2002 \$M		TY	\$M
	Date	PAUC	APUC	PAUC	APUC
Original APB	JUL 1995	13.326	7.257	14.061	8.222
APB as of January 2006	JUN 2004	16.010	8.184	16.814	9.235
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	APR 2002	15.159	8.184	15.848	9.235
Current APB	JUN 2004	16.010	8.184	16.814	9.235
Prior Annual SAR	DEC 2011	16.333	6.924	17.748	8.155
<b>Current Estimate</b>	DEC 2012	17.169	6.838	18.637	7.970

#### **SAR Unit Cost History**

#### Initial SAR Baseline to Current SAR Baseline (TY \$M)

Initial PAUC		Changes							PAUC
Dev Est	Econ	Econ Qty Sch Eng Est Oth Spt Total						Prod Est	
14.060	-0.656	-2.840	0.590	0.420	5.010	0.000	-0.736	1.788	15.848

#### **Current SAR Baseline to Current Estimate (TY \$M)**

PAUC	Changes							PAUC	
Prod Est	Econ	Econ Qty Sch Eng Est Oth Spt Total				Current Est			
15.848	0.371	-0.066	0.760	1.431	0.428	0.000	-0.135	2.789	18.637

#### Initial SAR Baseline to Current SAR Baseline (TY \$M)

Initial APUC				Chang	jes				APUC
Dev Est	Dev Est Econ Qty Sch Eng Est Oth Spt Total				Prod Est				
8.220	-0.532	-0.797	0.291	-0.439	1.761	0.000	0.731	1.015	9.235

#### **Current SAR Baseline to Current Estimate (TY \$M)**

APUC	Changes								APUC
Prod Est	Econ	Econ Qty Sch Eng Est Oth Spt Total					Current Est		
9.235	0.247	-0.321	0.140	-0.583	-0.595	0.000	-0.153	-1.265	7.970

#### **SAR Baseline History**

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone II	N/A	MAY 1995	MAY 1995	MAY 1995
Milestone III	N/A	OCT 1998	APR 2002	APR 2002
IOC	N/A	SEP 1996	SEP 1996	SEP 1996
Total Cost (TY \$M)	N/A	2573.1	4310.7	4696.6
Total Quantity	N/A	183	272	252
Prog. Acq. Unit Cost (PAUC)	N/A	14.061	15.848	18.637

Initial Operational Capability (IOC) identified above refers to the CEC Shipboard configuration, AN/USG-2. Full Operational Capability occurred in conjunction with Air IOC in May 2005.

# **Cost Variance**

Summary Then Year \$M							
	RDT&E	Proc	MILCON	Total			
SAR Baseline (Prod Est)	1946.5	2364.2		4310.7			
Previous Changes							
Economic	+32.5	+40.9		+73.4			
Quantity	+51.6	-296.0		-244.4			
Schedule	+81.7	+40.0		+121.7			
Engineering	+490.2	-161.2		+329.0			
Estimating	+222.7	-66.4		+156.3			
Other							
Support		+27.6		+27.6			
Subtotal	+878.7	-415.1		+463.6			
Current Changes							
Economic	+6.0	+14.0		+20.0			
Quantity		-89.3		-89.3			
Schedule	+78.9	-9.0		+69.9			
Engineering		+31.7		+31.7			
Estimating	+17.2	-65.6		-48.4			
Other							
Support		-61.6		-61.6			
Subtotal	+102.1	-179.8		-77.7			
Total Changes	+980.8	-594.9		+385.9			
CE - Cost Variance	2927.3	1769.3		4696.6			
CE - Cost & Funding	2927.3	1769.3		4696.6			

Summary Base Year 2002 \$M							
	RDT&E	Proc	MILCON	Total			
SAR Baseline (Prod Est)	2028.1	2095.2		4123.3			
Previous Changes							
Economic							
Quantity	+47.8	-237.9		-190.1			
Schedule	+60.5	-37.2		+23.3			
Engineering	+427.4	-124.0		+303.4			
Estimating	+174.8	+50.1		+224.9			
Other							
Support		-91.3		-91.3			
Subtotal	+710.5	-440.3		+270.2			
Current Changes							
Economic							
Quantity		-64.3		-64.3			
Schedule	+56.4	-5.7		+50.7			
Engineering		+22.6		+22.6			
Estimating	+13.4	-46.2		-32.8			
Other							
Support		-43.2		-43.2			
Subtotal	+69.8	-136.8		-67.0			
Total Changes	+780.3	-577.1		+203.2			
CE - Cost Variance	2808.4	1518.1		4326.5			
CE - Cost & Funding	2808.4	1518.1		4326.5			

Previous Estimate: December 2011

RDT&E	\$1	Λ
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+6.0
Stretch out of CEC Research, Development, Test and Evaluation (RDT&E) effort to FY 2018. (Schedule)	+56.4	+78.9
Additional United States Marine Corps (USMC) RDT&E funding for integration with CEC. (Estimating)	+13.2	+17.3
CEC RDT&E budget offset for Small Business Innovative Research (SIBR) and other miscellaneous budget reductions. (Estimating)	-2.8	-3.7
Additional Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) Army RDT&E funding to support JLENS integration. (Estimating)	+4.2	+5.2
Adjustment for current and prior escalation. (Estimating)	-1.2	-1.6
RDT&E Subtotal	+69.8	+102.1

Procurement	\$N	1
	Base	Then
Current Change Explanations	Year	Year
Revised escalation indices. (Economic)	N/A	+14.0
Total Quantity variance resulting from an increase of three CEC systems from 43 to 46 (Navy). (Subtotal)	+11.0	+18.9
Quantity variance resulting from an increase of three CEC systems from 43 to 46 (Navy). (Quantity) (QR)	(+15.7)	(+27.0)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(+1.0)	(+1.7)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(-4.1)	(-7.1)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-1.6)	(-2.7)
Total Quantity variance due to a decrease of 20 CEC systems from 92 to 72 (Navy). (Subtotal)	-71.2	-103.6
Quantity variance due to a decrease of 20 CEC systems from 92 to 72 (Navy). (Quantity) (QR)	(-101.9)	(-148.3)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(-6.7)	(-9.6)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(+26.7)	(+38.8)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(+10.7)	(+15.5)
20 CEC OPN systems removed. (Quantity) (QR)	+21.9	+32.0
Stretch-out of procurement buy profile to FY 2018 (Navy). (Schedule)	0.0	+0.4
Stretch out of CEC Other Procurement, Navy (OPN) schedule to FY 2018. (Schedule)	+24.0	+32.6
Schedule stretch out due to OPN funding reduction. (Schedule)	0.0	-0.1
APN schedule realignment. (Schedule)	-24.0	-34.3
APN procurement profile realigned. (Schedule)	0.0	+0.3
Reduced CEC budget controls/program improvements. (Estimating)	-8.2	-14.2
Reduction to accommodate changes in Carrier, Fixed Wing Aircraft, Nuclear (CVN) profile. (Estimating)	-2.5	-4.0
Adjustment for current and prior escalation. (Estimating)	-2.4	-3.2
CEC OPN realignment for hardware installations. (Estimating)	+0.5	+1.4
Reconciliation of prior years funding. (Estimating)	-12.1	-17.0

Realized unit cost savings Aircraft Procurement, Navy (APN). (Estimating)	-26.6	-36.5
Procurement Marine Corps (PMC) funding reduction due to realignment of PMC funds. (Estimating)	-4.0	-4.9
Adjustment for current and prior escalation. (Support)	-0.5	-0.7
Decrease CEC software integration support. (Support)	-38.9	-56.2
Decrease in technical integration and installation support services. (Subtotal)	-3.8	-4.7
Decrease in Other Support due to Ship Construction, Navy (SCN) funding reductions (Support)	(-0.5)	(-0.3)
Decrease in Quantity related technical integration and installation support due to SCN funding reductions. (Support) (QR)	(-3.3)	(-4.4)
Procurement Subtotal	-136.8	-179.8

(QR) Quantity Related

#### Contracts

#### Appropriation: RDT&E

Contract Name

Contractor

Design Agent/Engineering Services

Raytheon - Network Centric Systems

Contractor Location 8333 Bryan Dairy Road Largo, FL 33777-1444

Contract Number, Type N00024-08-C-5202, CPFF

Award Date January 17, 2008
Definitization Date June 06, 2008

Initial Cor	ntract Price (	(\$M)	Current C	ontract Price	(\$M)	Estimated Price At Completion (\$M)		
Target	Ceiling	Qty	Target	Target Ceiling Qty		Contractor	Program Manager	
9.7	N/A	N/A	336.9	N/A	N/A	336.9	336.9	

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (9/28/2012)	+0.4	0.0
Previous Cumulative Variances	+0.3	0.0
Net Change	+0.1	+0.0

#### **Cost And Schedule Variance Explanations**

The favorable net change in the cost variance is due to realignment of tasks to lower labor categories for system and software lab maintenance efforts.

#### **Contract Comments**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to increases in current target price for additional Design Agent /Engineering Services (DA/ES) efforts.

This contract includes labor, facilities, engineering, and technical support services required for CEC System Design Agent Services, support equipment, and computer program installations as well as Engineering and Technical services in support of existing CEC assets, Common Equipment Sets, auxiliary equipment, and stand alone equipment.

The Program Manager, Contractor, and Performance Estimated Price at Completion (EPAC) reflect the EPAC for the Design Agent Services portion of the contract only.

This contract has been extended to September 30, 2013.

Contract price data is current as of March 22, 2013.

**Appropriation: Procurement** 

Contract Name FY08 - FY11 CEC Production

Contractor Raytheon - Network Centric Systems

Contractor Location 8333 Bryan Dairy Road Largo, FL 33777-1444

Contract Number, Type N00024-08-C-5203, FFP

Award Date July 21, 2008
Definitization Date July 21, 2008

Initial Contract Price (\$M)			Current C	Current Contract Price (\$M)		Estimated Pr	rice At Completion (\$M)
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
29.4	N/A	13	191.5	N/A	54	183.6	183.6

#### **Cost And Schedule Variance Explanations**

Cost and Schedule variance reporting is not required on this FFP contract.

#### **Contract Comments**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to increases from the first increment of funding provided at the base year of the contract and the value of the total contract price at award, including incentive fees to be earned.

This contract is more than 90% complete; therefore, this is the final report for this contract.

This contract includes CEC production requirements for CEC systems. Requirements for associated Installation and Checkoutkits and Planar Array Antenna Assembliesbackfit are also included.

Contract price data is current as of March 22, 2013.

#### **Appropriation: Procurement**

Contract Name
Contractor
Contractor
Contractor Location
Contractor Sechan Electronics Inc
Contractor Location
Contract Name
CEC SDP-S Production
Sechan Electronics Inc
Lititz, PA 17543-8902

Contract Number, Type N00024-12-D-5203/1, IDIQ/FFP

Award Date December 20, 2011
Definitization Date December 20, 2011

Initial Contract Price (\$N		ract Price (\$M) Current Contr		ontract Price	(\$M)	Estimated Pr	rice At Completion (\$M)
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
13.8	N/A	N/A	18.7	N/A	N/A	64.2	64.2

#### **Cost And Schedule Variance Explanations**

Cost and Schedule variance reporting is not required on this IDIQ/FFP contract.

#### **General Contract Variance Explanation**

This contract is a Firm Fixed Price (FFP) Indefinite Delivery Indefinite Quantity (IDIQ) contract and does not require Earned Value (EV) reporting.

#### **Contract Comments**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the award of Delivery Order (D.O.) 0002 on February 13, 2013.

This is a D.O. contract to procure Signal Data Processor with Sierra Chip (SDP-S).

Contract price data is current as of March 22, 2013.

**Appropriation: Procurement** 

Contract Name CEC Production UCA

Contractor Raytheon - Network Centric Systems

Contractor Location 8333 Bryan Dairy Road

Largo, FL 33777-1444

Contract Number, Type N00024-12-C-5231, FFP

Award Date September 28, 2012

Definitization Date May 03, 2013

Initial Contract Price (\$M)			Current Contract Price (\$M)		Estimated Price At Completion (\$M)		
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
16.4	N/A	N/A	16.4	N/A	N/A	99.2	99.2

#### **Cost And Schedule Variance Explanations**

Cost and Schedule variance reporting is not required on this FFP contract.

#### **Contract Comments**

This is the first time this contract is being reported.

This is an Undefinitized Contract Action for CEC production systems. The \$16.4 million value represents the first increment of funds at the base year of the contract.

Contract price data is current of as of March 22, 2013.

# **Deliveries and Expenditures**

Deliveries To Date	Plan To Date	Actual To Date	Total Quantity	Percent Delivered
Development	30	30	30	100.00%
Production	120	120	222	54.05%
Total Program Quantities Delivered	150	150	252	59.52%

Expenditures and Appropriations (TY \$M)						
Total Acquisition Cost	4696.6	Years Appropriated	20			
Expenditures To Date	3723.0	Percent Years Appropriated	71.43%			
Percent Expended	79.27%	Appropriated to Date	3892.6			
Total Funding Years	28	Percent Appropriated	82.88%			

The above data is current as of 3/31/2013.

#### **Operating and Support Cost**

#### CEC

#### **Assumptions and Ground Rules**

#### Cost Estimate Reference:

The Operating and Support (O&S) cost estimate reflected in the Office of the Secretary of Defense Cost Analysis Improvement Group report dated February 19, 2002 supported the AN/USG-2 Milestone III Production and Deployment (formerly Full-Rate Production (FRP)) decision. Cost estimates will be updated prior to the AN/USG-3B FRP scheduled for late FY 2013.

#### Sustainment Strategy:

The O&S costs are based on 251 total systems with a service-life of 20 years. Costs include: costs for prime contractor in-service engineering support, costs of continuing engineering support for Navy in-house facilities and software maintenance costs, costs to operate and maintain CEC training and support equipment, and modification kit procurement and installation costs beyond FY 2010.

#### **Antecedent Information:**

There is no antecedent system.

Unitized O&S Costs BY2002 \$K						
Cost Element	CEC Avg Annual Sys Cost	No Antecedent System (Antecedent) No Antecedent System				
Unit-Level Manpower	3.4	0.0				
Unit Operations	274.0	0.0				
Maintenance	16.7	0.0				
Sustaining Support	127.0	0.0				
Continuing System Improvements	103.9	0.0				
Indirect Support	6.6	0.0				
Other	0.0	0.0				
Total	531.6					

#### **Unitized Cost Comments:**

Unitized costs reflect average annual system costs and do not include antecedent system values as there was no antecedent system.

	Total O&S Cost \$M						
	Current Production APB Objective/Threshold		Current Estimate				
	CEC		CEC	No Antecedent System (Antecedent)			
<b>Base Year</b>	0.0	0.0	2668.4	N/A			
<b>Then Year</b>	0.0	N/A	3749.6	N/A			

#### **Total O&S Costs Comments:**

The O&S cost values are based on the 2002 Program Life Cycle Cost Estimate (PLCCE). The PLCCE and other cost documents (Cost Analysis Requirements Document and Acquisition Program Baseline) are in development with plans to be completed in the fourth guarter of FY 2013 prior to FRP for AN/USG-3B.

#### **Disposal Costs**

Disposal costs are based on a 20-year service-life from initial deployment and are five percent (Base Year \$75.905 million) of system procurement cost. The CEC Program Management Office is addressing demilitarization and disposal requirements with assistance from Naval Surface Warfare Center, Port Hueneme Division. Demilitarization and disposal planning follows the requirements of DOD 4160.21-M-1, Defense Demilitarization and Trade Security Control Manual.