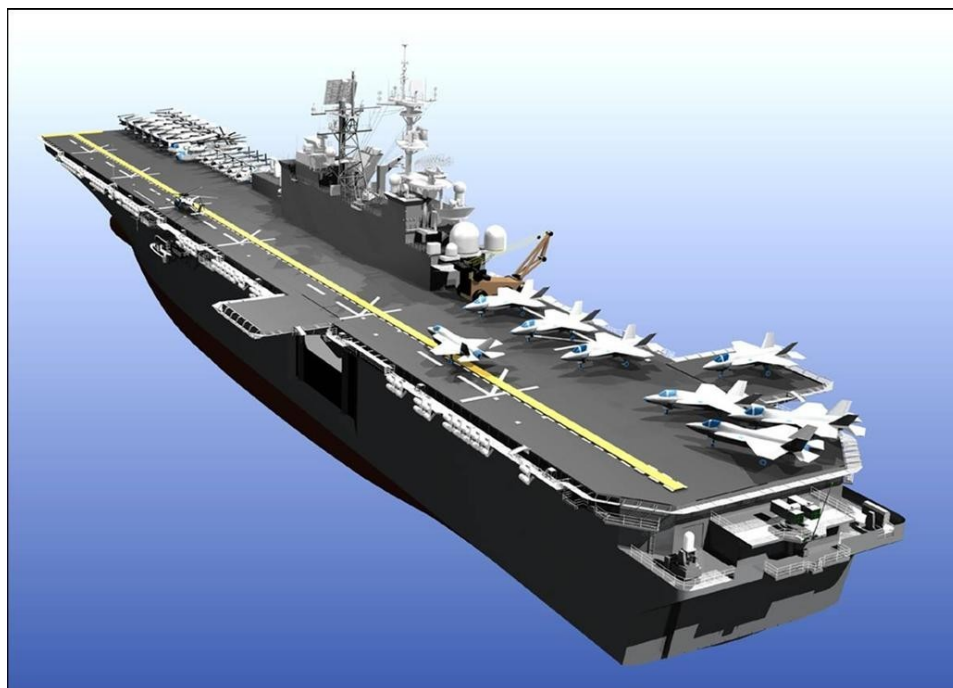




Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-333



LHA 6 America Class Amphibious Assault Ship (LHA 6)

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Report Documentation Page

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Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
BY - Base Year
DAMIR - Defense Acquisition Management Information Retrieval
Dev Est - Development Estimate
DoD - Department of Defense
DSN - Defense Switched Network
Econ - Economic
Eng - Engineering
Est - Estimating
FMS - Foreign Military Sales
FY - Fiscal Year
IOC - Initial Operational Capability
\$K - Thousands of Dollars
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MILCON - Military Construction
N/A - Not Applicable
O&S - Operating and Support
Oth - Other
PAUC - Program Acquisition Unit Cost
PB - President's Budget
PE - Program Element
Proc - Procurement
Prod Est - Production Estimate
QR - Quantity Related
Qty - Quantity
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
Sch - Schedule
Spt - Support
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting

Program Information

Program Name

LHA 6 America Class Amphibious Assault Ship (LHA 6)

DoD Component

Navy

Responsible Office

Responsible Office

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References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 12, 2006

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated May 8, 2012

Mission and Description

The LHA Replacement (LHA(R)) Program is planned to replace existing LHA 1 Class Amphibious Assault Ships, which reach the end of their extended service lives between 2011 and 2015.

The LHA(R) will be the key platform in the Expeditionary Strike Group (ESG)/Amphibious Ready Group (ARG) of the future and will provide the Joint Force Commander options to project expeditionary power. The LHA 6 America Class, the first ship of the LHA(R) Program, will embark and support all of the Short Take-off Vertical Landing (STOVL) and Vertical Take-off Landing (VTOL) Marine expeditionary aviation assets in the ESG/ARG, including the MV-22 and the F-35B, the STOVL model of the Joint Strike Fighter (JSF). The ship will embark over 1600 Marines and transport them and their equipment ashore by rotary-wing aircraft when the situation requires.

The LHA 6 America Class is an LHD 8 gas turbine variant with enhanced aviation capability.

Executive Summary

The LHA (R) program has completed a successful year, managing LHA 6 (AMERICA) final completion stages, start of fabrication for LHA 7 (TRIPOLI), and early industry involvement for LHA 8. During 2013, Huntington Ingalls Industries (HII) continued its design and construction efforts on LHA 6. LHA 6 went to sea for the first time on November 4, 2013 to commence Builder's Trials, which successfully completed on November 9, 2013. Following Builder's Trials, Acceptance Trials commenced the week of January 27th and successfully completed on the 31st. As of December 2013, the LHA 6's Vessel physical progress was approximately 98% complete, and ship delivery is scheduled for April 2014.

Both HII and the Program Manager's estimate of cost at completion are approximately equal to the contract Ceiling Price. The FY 2013 appropriation added sufficient funding to fully fund the contract ceiling price liability. The FY 2014 Appropriation Act included \$37.7M to fund the contract Economic Price Adjustment liability.

The heat of the F-35 exhaust requires strengthening the flight deck in the landing areas and shielding systems located at the flight deck edge and relocating some ship self-defense and Command, Control, Communications, Computers and Intelligence systems. The relocation and heating issues are not specific to LHA 6. Solutions to the F-35 issues are currently planned to be installed in LHA 6 during Post Shakedown Availability (PSA) in May 2015. LHA 6 Initial Operational Test & Evaluation is not expected to be impacted if the F-35 interoperability solutions are incorporated during PSA as planned.

The next ship of the AMERICA Class is the LHA 7, a repeat design configuration of the LHA 6 with fact of life updates for equipment obsolescence. During 2013, an Integrated Baseline Review (IBR) for LHA 7 was executed in two parts, Engineering and Vessel, to establish a mutually understood baseline for the management of LHA 7's construction. The Engineering IBR was completed in January 2013 with the Vessel IBR completed in February 2013. Action items from the IBR are continuing to be adjudicated as the baseline is refined. A contract modification was initiated in October 2013 to incorporate flight deck strengthening and other design changes to address the F-35 integration issues discussed on LHA 6 above. The official baseline will be recognized following incorporation of the F-35 design changes and completion of any necessary re-planning of the production schedule. HII marked the start of sustained production for LHA 7 on July 15, 2013. As of December 2013, LHA 7's vessel progress is approximately 1% complete. A formal Program Manager's Estimate At Completion for LHA 7 will be established once Vessel physical progress is 20% complete.

Configuration and requirements for LHA(R) Flight 1 (LHA 8) were studied under the direction of a 3-Star Board of Directors that included the Assistant Secretary of the Navy (Research, Development and Acquisition), Naval Sea Systems Command, Office of the Chief of Naval Operations, and Marine Corps Combat Development Command. LHA 8 will be designed with a two Landing Craft, Air Cushion well deck and a reduced island. The FY 2014 PB includes funding for Advanced Procurement in FY 2015 and FY 2016, with the construction funding following in FY 2017 and FY 2018. The revised LHA(R) Capability Development Document is in Joint Staffing. Contracts for early industry involvement, for planning and design development of the ship to include initiatives that will garner potential acquisition and life cycle cost savings, were awarded to National Steel and Shipbuilding Company (General Dynamics) and HII in November 2012. These efforts were ongoing throughout FY 2013, and will continue in 2014.

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

Threshold Breaches

APB Breaches

Schedule		<input type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input checked="" type="checkbox"/>
	Procurement	<input checked="" type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Explanation of Breach

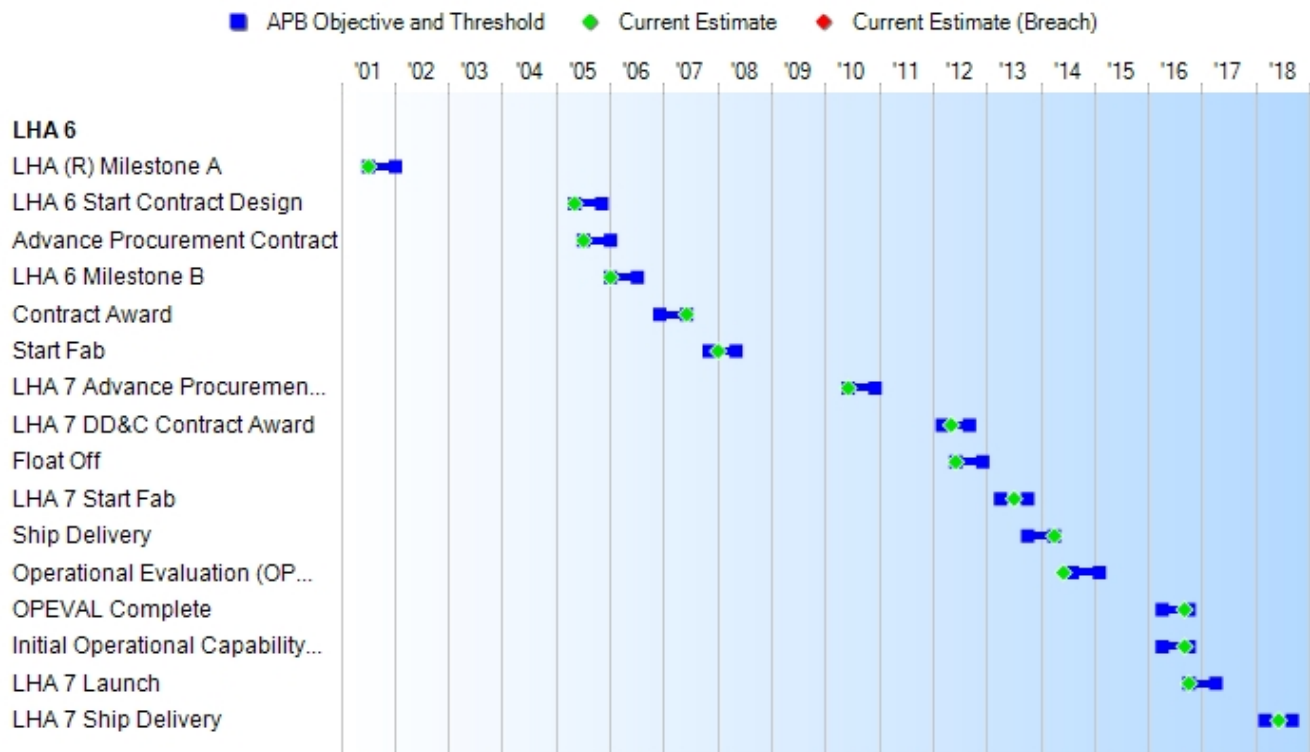
Cost breaches first reported in the December 2009 and December 2010 SARs.

The Current Estimate reflects FY 2015 PB funding for all appropriations for the LHA 6, LHA 7 and LHA 8. The inclusion of the LHA 8 funding is driving the cost breach to the APB, which contains only the LHA 6 and LHA 7. The funding identified for LHA 6 and LHA 7 alone does not constitute a cost breach for RDT&E and Procurement to the APB threshold.

Nunn-McCurdy Breaches

Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule



Milestones	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	
LHA (R) Milestone A	JUL 2001	JUL 2001	JAN 2002	JUL 2001	
LHA 6 Start Contract Design	MAY 2005	MAY 2005	NOV 2005	MAY 2005	
Advance Procurement Contract	JUL 2005	JUL 2005	JAN 2006	JUL 2005	
LHA 6 Milestone B	JAN 2006	JAN 2006	JUL 2006	JAN 2006	
Contract Award	DEC 2006	DEC 2006	JUN 2007	JUN 2007	
Start Fab	NOV 2007	NOV 2007	MAY 2008	JAN 2008	
LHA 7 Advance Procurement Contract Award	N/A	JUN 2010	DEC 2010	JUN 2010	
LHA 7 DD&C Contract Award	N/A	MAR 2012	SEP 2012	MAY 2012	
Float Off	AUG 2010	JUN 2012	DEC 2012	JUN 2012	
LHA 7 Start Fab	N/A	APR 2013	OCT 2013	JUL 2013	(Ch-1)
Ship Delivery	DEC 2011	OCT 2013	APR 2014	APR 2014	(Ch-2)
Operational Evaluation (OPEVAL) Start	AUG 2012	AUG 2014	FEB 2015	JUN 2014	(Ch-3)
OPEVAL Complete	SEP 2013	APR 2016	OCT 2016	SEP 2016	(Ch-4)
Initial Operational Capability (IOC)	SEP 2013	APR 2016	OCT 2016	SEP 2016	(Ch-5)
LHA 7 Launch	N/A	OCT 2016	APR 2017	OCT 2016	
LHA 7 Ship Delivery	N/A	MAR 2018	SEP 2018	JUN 2018	

Change Explanations

(Ch-1) The LHA 7 Start Fab Current Estimate updated from April 2013 to July 2013 to reflect actual start date of sustained production.

(Ch-2) The Ship Delivery Current Estimate updated from March 2014 to April 2014 to reflect the current projected delivery date for LHA 6.

(Ch-3) The OPEVAL Start Current Estimate changed from August 2014 to June 2014 to reflect the LHA 6 projected Sail Away date.

(Ch-4) The OPEVAL Complete Current Estimate updated from April 2016 to September 2016 based on projected April 2014 ship delivery date for LHA 6.

(Ch-5) The IOC Current Estimate changed from April 2016 to September 2016 to reflect updates to the LHA 6 delivery date.

Acronyms and Abbreviations

DD&C - Detail Design & Construction

Fab - Fabrication

Performance

Characteristics	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
Net Ready	100% of interfaces; services; policy-enforcement controls; and data correctness, availability and processing requirements in the joint integrated architecture	100% of interfaces; services; policy-enforcement controls; and data correctness, availability and processing requirements in the joint integrated architecture	100% of interfaces; services; policy-enforcement controls; and data correctness, availability and processing requirements designated as enterprise level or critical in the joint integrated architecture	TBD	100% of interfaces; services; policy-enforcement controls; and data correctness, availability and processing requirements designated as enterprise level or critical in the joint integrated architecture
Vertical Take Off and Landing land/launch spots	9 CH-53E/MV-22	9 CH-53E/MV-22	9 CH-53E/MV-22	TBD	9 CH-53E/MV-22
F-35B capacity	23 Aircraft	23 Aircraft	20 Aircraft	TBD	23 Aircraft
Aviation operations	6 Spots 12 hrs/day (Sustained) 6 Spots 24 hrs/day for six consecutive days (Surge)	6 Spots 12 hrs/day (Sustained) 6 Spots 24 hrs/day for six consecutive days (Surge)	6 Spots 12 hrs/day (Sustained) 6 Spots 24 hrs/day for six consecutive days (Surge)	TBD	6 Spots 12 hrs/day (Sustained) 6 Spots 24 hrs/day for six consecutive days (Surge)
Vehicle space	12,000 sq. ft.	12,000 sq. ft.	10,000 sq. ft.	TBD	11,760 sq. ft.
Total manpower (includes ship's force and all embarked elements such as troops, staffs, detachments, etc.)	2,891 Persons	2,891 Persons	2,891 Persons	TBD	2,891 Persons
Cargo space	160,000 cu. ft.	160,000 cu. ft.	130,000 cu. ft.	TBD	160,000 cu. ft.
Troop accommodations	1,686 Persons	1,686 Persons	1,626 Persons	TBD	1,686 Persons

Survivability: Navy Survivability Policy for Surface Ships	Equals threshold, implement recommendations of the NAVSEA USS COLE Survivability Review Group Phase II Analysis Report of Amphibious Ships, April 2003	Equals threshold, implement recommendations of the NAVSEA COLE Survivability Review Group Phase II Analysis Report of Amphibious Ships, April 2003	Level II per OPNAV-INST 9070.1 of September 23, 1988 (LHA(R) cargo magazine protection as stated in para. 6.b.17 of the CDD	TBD	Equals threshold, implement recommendations of the NAVSEA COLE Survivability Review Group Phase II Analysis Report of Amphibious Ships, April 2003
Force Protection: Collective Protection System (CPS)	Expanded CBR protection that provides a toxic-free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities as well as key operational spaces that can be affordably integrated into ship design	Expanded CBR protection that provides a toxic-free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities as well as key operational spaces that can be affordably integrated into ship design	CBR protection that provides a toxic-free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities	TBD	CBR protection that provides a toxic-free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities
Force Protection: Decontamination Stations	Four decontamination stations (two CPS, one casualty, and one conventional)	Four decontamination stations (two CPS, one casualty, and one conventional)	Four decontamination stations (two CPS, one casualty, and one conventional)	TBD	Four decontamination stations (two CPS, one casualty, and one conventional)

	providing a capability of decontamination an avg of ten people per hr per station	providing a capability of decontamination an avg of ten people per hr per station	providing a capability of decontamination an avg of ten people per hr per station		providing a capability of decontamination an avg of ten people per hr per station
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Classified Performance information is provided in the classified annex to this submission.

Requirements Source

Capability Development Document (CDD) dated December 17, 2009

Change Explanations

None

Acronyms and Abbreviations

avg - average
 CBR - Chemical, Biological, and Radiological
 CDD - Capability Development Document
 cu. - cubic
 etc. - Etcetera
 ft. - feet
 hrs - hours
 INST. - Instruction
 NAVSEA - Naval Sea Systems Command
 OPNAV - Office of the Chief of Naval Operations
 sq. - Square

Track to Budget

RDT&E

Appn	BA	PE		
Navy	1319	04	0603564N	
	Project		Name	
	0408		Ship Preliminary Design & Feasibility Studies/Ship Development	(Shared) (Sunk)
Navy	1319	05	0604567N	
	Project		Name	
	2465		Ship Contract Design/Live Fire Test & Evaluation/LHA(R)	(Shared)
	9235		Ship Contract Design/Live Fire Test & Evaluation/LHA (R) DESIGN	(Shared) (Sunk)
	9236		Ship Contract Design/Live Fire Test & Evaluation/LHA(R) DESIGN	(Shared) (Sunk)

Procurement

Appn	BA	PE		
Navy	1611	03	0204411N	
	Line Item		Name	
	3041		LHA Replacement	
	Notes:		LHA Replacement End Cost	
Navy	1611	05	0204411N	
	Line Item		Name	
	5110		Outfitting & Post Delivery	(Shared)
	5300		Completion of Prior Year Shipbuilding Programs	(Shared)
	Notes:		Budget realigned to line item 3041 during year of execution.	

Acq O&M

Appn	BA	PE		
Navy	1804	01	0204411N	
	Project		Name	
	6C		LHA(R) TADTAR	(Shared)

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY2006 \$M			BY2006 \$M	TY \$M		
	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	199.9	240.6	264.7	362.3 ¹	197.5	239.9	382.9
Procurement	2677.5	5420.9	5963.0	8259.4 ¹	2896.0	6563.4	10845.9
Flyaway	--	--	--	8259.4	--	--	10845.9
Recurring	--	--	--	8259.4	--	--	10845.9
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	1.6	1.8	1.8	0.0	1.6	1.8
Total	2877.4	5663.1	N/A	8623.5	3093.5	6804.9	11230.6

¹ APB Breach

Confidence Level for Current APB Cost 50% -

The estimate to support this program, like most cost estimates, is built upon a product-oriented work breakdown structure based on historical actual cost information to the maximum extent possible, and, most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which we have been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for Major Defense Acquisition Programs (MDAPs). Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about as likely the estimate will prove too low or too high for the program as described.

LHA 6 is the first LHA replacement ship of the LHA 6 AMERICA Class. The original SAR Baseline development estimate only included LHA 6. The current approved APB, signed on May 8, 2012, included LHA 7 and will represent the baseline for Flight 0 Ships (LHA 6 and LHA 7) only. In accordance with the LHA 7 Acquisition Decision Memorandum, a separate APB for the third ship, LHA 8 (Flight I), is under development.

The Current Estimate reflects FY 2015 PB funding for the LHA 6, LHA 7 and LHA 8. The inclusion of the LHA 8 funding is driving the cost breach to the APB. The funding for LHA 6 and LHA 7 alone does not constitute a breach to the APB threshold.

Quantity	SAR Baseline Dev Est	Current APB Development	Current Estimate
RDT&E	0	0	0
Procurement	1	2	3
Total	1	2	3

Procurement reflects a quantity of three units: LHA 6 (2007), LHA 7 (2011) and LHA 8 (2017).

Cost and Funding

Funding Summary

Appropriation and Quantity Summary FY2015 President's Budget / December 2013 SAR (TY\$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	271.3	80.8	10.6	8.8	2.5	4.4	4.5	0.0	382.9
Procurement	6413.8	66.8	61.1	296.1	1591.0	2389.2	27.9	0.0	10845.9
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.7	0.2	0.2	0.1	0.2	0.2	0.2	0.0	1.8
PB 2015 Total	6685.8	147.8	71.9	305.0	1593.7	2393.8	32.6	0.0	11230.6
PB 2014 Total	6755.9	106.0	106.9	269.3	1628.5	2447.7	5.1	0.0	11319.4
Delta	-70.1	41.8	-35.0	35.7	-34.8	-53.9	27.5	0.0	-88.8

Current funding reflects the LHA 6, LHA 7, and LHA 8.

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	2	0	0	0	1	0	0	0	3
PB 2015 Total	0	2	0	0	0	1	0	0	0	3
PB 2014 Total	0	2	0	0	0	1	0	0	0	3
Delta	0	0	0	0	0	0	0	0	0	0

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
2001	--	--	--	--	--	--	15.2
2002	--	--	--	--	--	--	4.9
2003	--	--	--	--	--	--	38.1
2004	--	--	--	--	--	--	52.9
2005	--	--	--	--	--	--	43.0
2006	--	--	--	--	--	--	21.6
2007	--	--	--	--	--	--	12.9
2008	--	--	--	--	--	--	10.9
2009	--	--	--	--	--	--	7.6
2010	--	--	--	--	--	--	8.7
2011	--	--	--	--	--	--	10.0
2012	--	--	--	--	--	--	20.4
2013	--	--	--	--	--	--	25.1
2014	--	--	--	--	--	--	80.8
2015	--	--	--	--	--	--	10.6
2016	--	--	--	--	--	--	8.8
2017	--	--	--	--	--	--	2.5
2018	--	--	--	--	--	--	4.4
2019	--	--	--	--	--	--	4.5
Subtotal	--	--	--	--	--	--	382.9

Annual Funding BY\$

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2006 \$M	Non End Item Recurring Flyaway BY 2006 \$M	Non Recurring Flyaway BY 2006 \$M	Total Flyaway BY 2006 \$M	Total Support BY 2006 \$M	Total Program BY 2006 \$M
2001	--	--	--	--	--	--	16.6
2002	--	--	--	--	--	--	5.3
2003	--	--	--	--	--	--	40.7
2004	--	--	--	--	--	--	55.0
2005	--	--	--	--	--	--	43.5
2006	--	--	--	--	--	--	21.2
2007	--	--	--	--	--	--	12.4
2008	--	--	--	--	--	--	10.3
2009	--	--	--	--	--	--	7.1
2010	--	--	--	--	--	--	8.0
2011	--	--	--	--	--	--	8.9
2012	--	--	--	--	--	--	17.9
2013	--	--	--	--	--	--	21.7
2014	--	--	--	--	--	--	68.7
2015	--	--	--	--	--	--	8.8
2016	--	--	--	--	--	--	7.2
2017	--	--	--	--	--	--	2.0
2018	--	--	--	--	--	--	3.5
2019	--	--	--	--	--	--	3.5
Subtotal	--	--	--	--	--	--	362.3

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
2005	--	149.3	--	--	149.3	--	149.3
2006	--	350.1	--	--	350.1	--	350.1
2007	1	1131.1	--	--	1131.1	--	1131.1
2008	--	1365.8	--	--	1365.8	--	1365.8
2009	--	191.8	--	--	191.8	--	191.8
2010	--	169.5	--	--	169.5	--	169.5
2011	1	937.6	--	--	937.6	--	937.6
2012	--	1942.0	--	--	1942.0	--	1942.0
2013	--	176.6	--	--	176.6	--	176.6
2014	--	66.8	--	--	66.8	--	66.8
2015	--	61.1	--	--	61.1	--	61.1
2016	--	296.1	--	--	296.1	--	296.1
2017	1	1591.0	--	--	1591.0	--	1591.0
2018	--	2389.2	--	--	2389.2	--	2389.2
2019	--	27.9	--	--	27.9	--	27.9
Subtotal	3	10845.9	--	--	10845.9	--	10845.9

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2006 \$M	Non End Item Recurring Flyaway BY 2006 \$M	Non Recurring Flyaway BY 2006 \$M	Total Flyaway BY 2006 \$M	Total Support BY 2006 \$M	Total Program BY 2006 \$M
2005	--	141.7	--	--	141.7	--	141.7
2006	--	321.0	--	--	321.0	--	321.0
2007	1	991.6	--	--	991.6	--	991.6
2008	--	1158.3	--	--	1158.3	--	1158.3
2009	--	158.0	--	--	158.0	--	158.0
2010	--	135.1	--	--	135.1	--	135.1
2011	1	724.7	--	--	724.7	--	724.7
2012	--	1470.8	--	--	1470.8	--	1470.8
2013	--	131.4	--	--	131.4	--	131.4
2014	--	48.8	--	--	48.8	--	48.8
2015	--	43.8	--	--	43.8	--	43.8
2016	--	207.9	--	--	207.9	--	207.9
2017	1	1095.3	--	--	1095.3	--	1095.3
2018	--	1612.5	--	--	1612.5	--	1612.5
2019	--	18.5	--	--	18.5	--	18.5
Subtotal	3	8259.4	--	--	8259.4	--	8259.4

Cost Quantity Information**1611 | Procurement | Shipbuilding and Conversion, Navy**

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2006 \$M
2005	--	--
2006	--	--
2007	1	2837.5
2008	--	--
2009	--	--
2010	--	--
2011	1	2538.6
2012	--	--
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	1	2883.3
2018	--	--
2019	--	--
Subtotal	3	8259.4

Annual Funding TY\$
1804 | Acq O&M | Operation and
Maintenance, Navy

Fiscal Year	Total Program TY \$M
2010	0.2
2011	0.2
2012	0.2
2013	0.1
2014	0.2
2015	0.2
2016	0.1
2017	0.2
2018	0.2
2019	0.2
Subtotal	1.8

Annual Funding BY\$
1804 | Acq O&M | Operation and
Maintenance, Navy

Fiscal Year	Total Program BY 2006 \$M
2010	0.2
2011	0.2
2012	0.2
2013	0.1
2014	0.2
2015	0.2
2016	0.1
2017	0.2
2018	0.2
2019	0.2
Subtotal	1.8

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	2/14/2006	5/8/2012
Approved Quantity	1	2
Reference	LHA(R)/LHA-6 ADM	LHA(R)/LHA-6 ADM/LHA 7 ADM
Start Year	2007	2007
End Year	2013	2018

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the Acquisition Decision Memorandum (ADM) dated February 14, 2006, which approved 1 ship, which is standard for shipbuilding programs.

An additional ADM authorized a second ship on May 8, 2012.

Foreign Military Sales

None

Nuclear Costs

None

Unit Cost**Unit Cost Report**

	BY2006 \$M	BY2006 \$M	
Unit Cost	Current UCR Baseline (MAY 2012 APB)	Current Estimate (DEC 2013 SAR)	BY % Change

Program Acquisition Unit Cost (PAUC)

Cost	5663.1	8623.5	
Quantity	2	3	
Unit Cost	2831.550	2874.500	+1.52

Average Procurement Unit Cost (APUC)

Cost	5420.9	8259.4	
Quantity	2	3	
Unit Cost	2710.450	2753.133	+1.57

	BY2006 \$M	BY2006 \$M	
Unit Cost	Original UCR Baseline (JAN 2006 APB)	Current Estimate (DEC 2013 SAR)	BY % Change

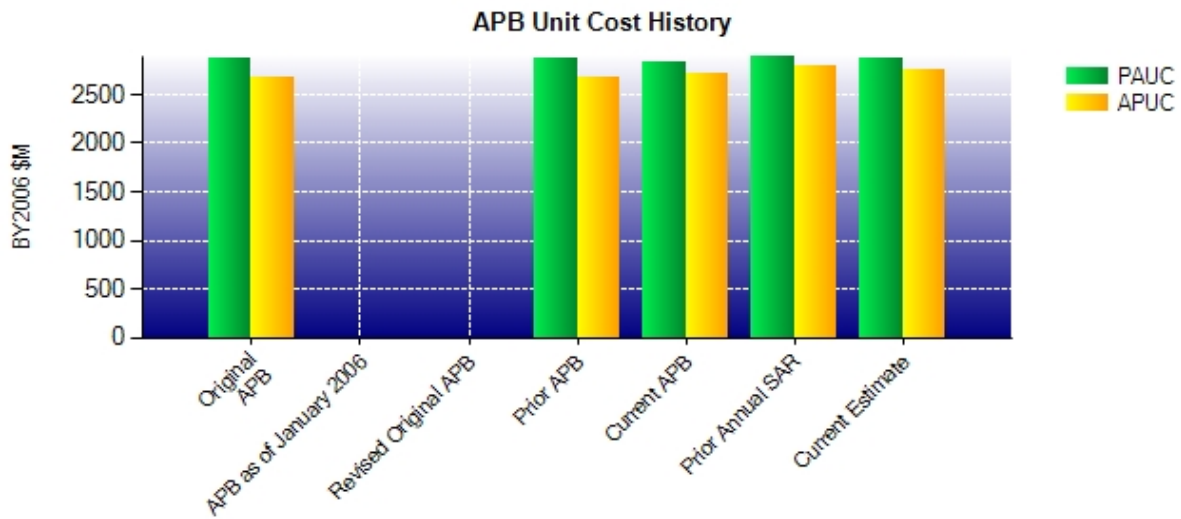
Program Acquisition Unit Cost (PAUC)

Cost	2877.4	8623.5	
Quantity	1	3	
Unit Cost	2877.400	2874.500	-0.10

Average Procurement Unit Cost (APUC)

Cost	2677.5	8259.4	
Quantity	1	3	
Unit Cost	2677.500	2753.133	+2.82

Unit Cost History



	Date	BY2006 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	JAN 2006	2877.400	2677.500	3093.500	2896.000
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	JAN 2006	2877.400	2677.500	3093.500	2896.000
Current APB	MAY 2012	2831.550	2710.450	3402.450	3281.700
Prior Annual SAR	DEC 2012	2899.133	2784.667	3773.133	3652.567
Current Estimate	DEC 2013	2874.500	2753.133	3743.533	3615.300

SAR Unit Cost History

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

Initial PAUC Dev Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
3093.500	259.167	566.565	5.800	16.667	-288.833	90.667	0.000	650.033	3743.533

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

Initial APUC Dev Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2896.000	259.067	698.233	5.800	0.000	-334.467	90.667	0.000	719.300	3615.300

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone A	N/A	JUL 2001	N/A	JUL 2001
Milestone B	N/A	JAN 2006	N/A	JAN 2006
Milestone C	N/A	N/A	N/A	N/A
IOC	N/A	SEP 2013	N/A	SEP 2016
Total Cost (TY \$M)	N/A	3093.5	N/A	11230.6
Total Quantity	N/A	1	N/A	3
Prog. Acq. Unit Cost (PAUC)	N/A	3093.500	N/A	3743.533

Cost Variance

Summary Then Year \$M					
	RDT&E	Proc	MILCON	Acq O&M	Total
SAR Baseline (Dev Est)	197.5	2896.0	--	--	3093.5
Previous Changes					
Economic	+1.3	+759.0	--	--	+760.3
Quantity	--	+7886.7	--	--	+7886.7
Schedule	--	+17.4	--	--	+17.4
Engineering	--	--	--	--	--
Estimating	+161.1	-873.4	--	+1.8	-710.5
Other	--	+272.0	--	--	+272.0
Support	--	--	--	--	--
Subtotal	+162.4	+8061.7	--	+1.8	+8225.9
Current Changes					
Economic	-1.0	+18.2	--	--	+17.2
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	+50.0	--	--	--	+50.0
Estimating	-26.0	-130.0	--	--	-156.0
Other	--	--	--	--	--
Support	--	--	--	--	--
Subtotal	+23.0	-111.8	--	--	-88.8
Total Changes	+185.4	+7949.9	--	+1.8	+8137.1
CE - Cost Variance	382.9	10845.9	--	1.8	11230.6
CE - Cost & Funding	382.9	10845.9	--	1.8	11230.6

Summary Base Year 2006 \$M					
	RDT&E	Proc	MILCON	Acq O&M	Total
SAR Baseline (Dev Est)	199.9	2677.5	--	--	2877.4
Previous Changes					
Economic	--	--	--	--	--
Quantity	--	+6142.3	--	--	+6142.3
Schedule	--	-33.3	--	--	-33.3
Engineering	--	--	--	--	--
Estimating	+141.7	-682.2	--	+1.8	-538.7
Other	--	+249.7	--	--	+249.7
Support	--	--	--	--	--
Subtotal	+141.7	+5676.5	--	+1.8	+5820.0
Current Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	+42.5	--	--	--	+42.5
Estimating	-21.8	-94.6	--	--	-116.4
Other	--	--	--	--	--
Support	--	--	--	--	--
Subtotal	+20.7	-94.6	--	--	-73.9
Total Changes	+162.4	+5581.9	--	+1.8	+5746.1
CE - Cost Variance	362.3	8259.4	--	1.8	8623.5
CE - Cost & Funding	362.3	8259.4	--	1.8	8623.5

Previous Estimate: December 2012

RDT&E	\$M	
	Base Year	Then Year
Current Change Explanations		
Revised escalation indices. (Economic)	N/A	-1.0
Adjustment for current and prior escalation. (Estimating)	+0.6	+0.7
Congressional add for design alternative analysis and development for LHA 8 (Flight I). (Engineering)	+42.5	+50.0
Revised estimates for Navy Working Capital Fund rates, contract services reductions. (Estimating)	-19.5	-23.4
Impacts of Sequestration (Estimating)	-2.9	-3.3
RDT&E Subtotal	+20.7	+23.0
Procurement	\$M	
	Base Year	Then Year
Current Change Explanations		
Revised escalation indices. (Economic)	N/A	+18.2
Adjustment for current and prior escalation. (Estimating)	-3.8	-4.8
Revised estimates for Navy Working Capital Fund rates, contract services reductions, and better buying power initiatives. (Estimating)	-70.4	-102.0
Revised estimates for Outfitting and Post Delivery for LHA 6 and LHA 7. (Estimating)	+33.4	+47.9
Impact of sequestration. (Estimating)	-53.8	-71.1
Procurement Subtotal	-94.6	-111.8
Acq O&M	\$M	
	Base Year	Then Year
Current Change Explanations		
Refined estimate for LHA 7 and LHA 8. (Estimating)	0.0	0.0
Acq O&M Subtotal	0.0	0.0

Contracts

Appropriation: Procurement

Contract Name	LHA 7 Detail Design & Construction Contract (DD&C)
Contractor	Huntington Ingalls Incorporated
Contractor Location	Pascagoula, MS 39567
Contract Number, Type	N00024-10-C-2229, FPIF
Award Date	June 30, 2010
Definitization Date	May 31, 2012

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price at Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
2355.0	2664.9	1	2370.2	2664.9	1	2330.7	2370.2

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of scope for the incorporation of Flight Deck Strengthening and the Joint Strike Fighter modifications. An undefinitized contract action is in place for \$15M until the full value of the modification is definitized.

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/19/2014)	-8.2	-17.7
Previous Cumulative Variances	+9.7	-3.2
Net Change	-17.9	-14.5

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to early performance inefficiencies in hull fabrication shops, and dominated by material invoice timing variances.

The unfavorable net change in the schedule variance is due to the replanning effort that is underway and near completion that incorporates the Joint Strike Fighter/Flight Deck Strengthening modifications, as mentioned in the executive summary. As a result, variances are being caused due to a difference in the spread of the additional scope, which is included in the Estimate At Completion, but not yet in the Budgeted Cost of Work Scheduled (BCWS). With the definitization of the full value for these mods, the BCWS will be distributed to the performance measurement baseline which will eliminate the majority of the schedule variance to date.

Contract Comments

The LHA 7 Advance Procurement (AP) Contract and Long Lead Time Material (LLTM) Contract Line Item Number (CLIN) has been subsumed by the LHA 7 DD&C contract. The Program Manager Estimate at Completion (PMEAC) reflects the Current Target Price of the contract. The Program Manager will develop a PMEAC once the contract has reached 20% progress.

Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	3	0.00%
Total Program Quantity Delivered	0	0	3	0.00%

Expended and Appropriated (TY \$M)

Total Acquisition Cost	11230.6	Years Appropriated	14
Expended to Date	3639.0	Percent Years Appropriated	73.68%
Percent Expended	32.40%	Appropriated to Date	6833.6
Total Funding Years	19	Percent Appropriated	60.85%

The above data is current as of 3/3/2014.

Operating and Support Cost

LHA 6

Assumptions and Ground Rules

Cost Estimate Reference:

The Operating and Support Cost Analysis Model (OSCAM) Naval Suite Version 8.0 is the total ship platform O&S cost estimating tool used for the LHA 6 and LHA 7 O&S cost estimate. OSCAM is sponsored by the Naval Center for Cost Analysis (NCCA) and provides a means of analyzing O&S costs of Navy shipboard systems and ships. The objective of the OSCAM program is to provide a tool for estimating O&S costs over a ships service life, as well as for assessing the impact of alternative maintenance strategies and operating policies on cost and availability. The OSCAM model comes with annually updated datasets that are based on historical data extracted from the Visibility and Management of Operating and Support Costs (VAMOSOC) database that is also managed by the NCCA.

O&S costs for the LHA 6 and LHA 7 were developed between 2010 and 2011 in support of the LHA 7 Program Life Cycle Cost Estimate (PLCCE), and the OSCAM dataset utilized in their development included the then-latest data available for the LHD 1 Class, for which VAMOSOC included FY 1990-2009 data and the Ships, Maintenance, Material, Management (3-M) Open Architecture Retrieval System (OARS) database included FY 1999-2008 data. The historical datasets were developed in FY 2011 and deflated to BY 2006. The LHA 7 PLCCE was developed in April 2012.

Sustainment Strategy:

Two ships currently in production, the LHA 6 and LHA 7, will be sustained over a 40 year life cycle. Sustainment requirements for a planned third ship, the LHA 8, are being developed.

The LHA 6 sustainment strategy includes the use of commercial shipyards for depot maintenance in concert with Organizational and Intermediate level maintenance strategies. Existing shore support and infrastructure will be used to the maximum extent possible. Life cycle cost savings are anticipated from fuel savings realized from the propulsion system and Manpower savings expected from operations and maintenance of the Gas Turbine engines.

Antecedent Information:

The antecedent system designated for LHA 6 is LHD 1. LHD 1 Unitized O&S Costs (BY 2006 \$M) were developed in 2013 and also reflect the OSCAM historical average dataset for LHD 1. VAMOSOC data reflects average O&S return data for active ships (LHD1-7) between FY 1992 and FY 2011. OARS 3-M data includes the years FY 2001 through FY 2011. Like the LHA 6 and LHA 7 Unitized O&S Costs, antecedent costs reflect a 40 year life cycle.

Projected manning on LHA 6 and LHA 7 includes approximately 24 fewer officer and 55 fewer enlisted personnel than the average historical manning on LHD 1-7. However, FY 2006 Military Pay Rates utilized to estimate LHA R Flight 0 Personnel are approximately 12 percent higher than the average LHD 1-7 historical rates, which were inflated to FY 2006. Therefore, Unit Level Personnel costs do not reflect expected savings due to reduction in crew size. If personnel rates were normalized, the LHA 6 and LHA 7 would show an approximate 10 percent savings when compared to the antecedent class. The discrepancy between historical rates and the FY 2006 set could be driven in part by actual crews being manned with lower ranking personnel than that assumed in the LHA 6 and LHA 7 baseline.

For comparative purposes, the FY 2006 cost per barrel of Diesel Fuel, Marine (DFM) was substituted for the historical average cost of DFM observed in LHD 1 class data. This methodology better aligns LHD 1 historical

requirements for Unit Operations with estimated requirements for the LHA 6 and LHA 7.

In line with LHA 6 and LHA 7 Maintenance requirements, antecedent Maintenance costs reflect requirements laid out in the OPNAV 4700 (2011).

The scope of LHD 1 Indirect Support costs, which were first mandated in the Office of the Secretary of Defense Cost Assessment and Program Evaluation O&S Cost Estimating Guide (published October 2007), align with LHA 6 and LHA 7 requirements but reflect a larger average historical crew size than that projected for the LHA 6 and LHA 7.

Unitized O&S Costs BY2006 \$M			
Cost Element	LHA 6		LHD 1 (Antecedent)
	Average Annual Cost Per Ship		Average Annual Cost Per Ship
Unit-Level Manpower	65.684		63.895
Unit Operations	11.953		18.246
Maintenance	27.936		33.525
Sustaining Support	4.440		4.873
Continuing System Improvements	7.692		7.376
Indirect Support	27.247		31.094
Other	0.000		0.000
Total	144.952		159.009

Unitized Cost Comments:

The total O&S cost for the LHA 6 program is estimated to be 11,596.3 BY 2006 \$M and 12,720.7 BY 2006 \$M for the LHD 1 antecedent cost. These costs reflect a 40 year service life for two ships at a unitized cost of approximately 144.952 BY 2006 \$M or 159.009 BY 2006 \$M for the antecedent (Total O&S Cost = 2 Ships x 40 Service Life x Unitized LHA 6 Cost or LHD 1 Antecedent Cost). The LHA 8 cost estimate is being developed.

	Total O&S Cost \$M			
	Current Development APB Objective/Threshold		Current Estimate	
	LHA 6	LHA 6	LHA 6	LHD 1 (Antecedent)
Base Year	12095.2	13304.7	11596.3	12720.7
Then Year	24951.0	N/A	23788.5	N/A

Total O&S Costs Comments:

O&S costs for the LHA 6 and LHA 7 have been estimated as an annual cost based on one ship with an expected service life of 40 years. The intent is to estimate the normal costs of operating and supporting the ship in typical peacetime operations. Additional costs that might be incurred under wartime operating scenarios are not included. Potential costs of currently unplanned and unknown future upgrades or configuration changes are assumed to occur in the same proportion as modernization work that has occurred on the LHD 1 ship classes. OSCAM builds the O&S costs by month, and the results show the estimated cost by year based on the Operational Tempo (OPTEMPO) and maintenance cycle. In order to obtain a per year estimate, the total O&S cost as reported by OSCAM (without disposal costs included) is divided by the 40 year life expectancy. Nominal OPTEMPO is assumed to be 2700 hours steaming underway and 1200 hours steaming not underway, based on the fuel burn rates and time profiles provided by the LHA 6 design team (in section 6.0 of the Cost Analysis Requirements Description).

Disposal Costs:

The CG class of ship was determined by the NAVSEA Inactive Ships Program Office (PMS 333) as most comparable to the LHA 7 out of those vessels historically disposed of by NAVSEA. The decision to use the CG class of ships was based upon the comparison of warship compartmentalization, hazardous materials to remove and hull weight, influenced by scrap metal commodity prices. The total cost estimate for the disposal of LHA(R) is 25.8 TY\$M or 9.9 BY 2006 \$M.