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Department of Defense  
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

## **Selected Acquisition Report (SAR)**



## **National Security Space Launch (NSSL)**

**FY 2024 President's Budget**

**Defense Acquisition Visibility Environment  
(DAVE)**

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## Common Acronyms and Abbreviations

\$B - Billions of Dollars  
\$K - Thousands of Dollars  
\$M - Millions of Dollars  
ACAT - Acquisition Category  
Acq O&M - Acquisition-Related Operations and Maintenance  
ADM - Acquisition Decision Memorandum  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
BA - Budget Authority/Budget Activity  
Blk - Block  
BY - Base Year  
CAPE - Cost Assessment and Program Evaluation  
CARD - Cost Analysis Requirements Description  
CDD - Capability Development Document  
CLIN - Contract Line Item Number  
CPD - Capability Production Document  
CY - Calendar Year  
DAB - Defense Acquisition Board  
DAE - Defense Acquisition Executive  
DAMIR - Defense Acquisition Management Information Retrieval  
DoD - Department of Defense  
DSN - Defense Switched Network  
EMD - Engineering and Manufacturing Development  
EVM - Earned Value Management  
FMS - Foreign Military Sales  
FOC - Full Operational Capability  
FRP - Full Rate Production  
FY - Fiscal Year  
FYDP - Future Years Defense Program  
ICE - Independent Cost Estimate  
Inc - Increment  
IOC - Initial Operational Capability  
JROC - Joint Requirements Oversight Council  
KPP - Key Performance Parameter  
LRIP - Low Rate Initial Production  
MDA - Milestone Decision Authority  
MDAP - Major Defense Acquisition Program  
MILCON - Military Construction  
N/A - Not Applicable  
O&M - Operations and Maintenance  
O&S - Operating and Support  
ORD - Operational Requirements Document  
OSD - Office of the Secretary of Defense  
PAUC - Program Acquisition Unit Cost  
PB - President's Budget

PE - Program Element  
PEO - Program Executive Officer  
PM - Program Manager  
POE - Program Office Estimate  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
SCP - Service Cost Position  
TBD - To Be Determined  
TY - Then Year  
U.S. - United States  
UCR - Unit Cost Reporting  
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)  
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

## Program Information

### Program Name

National Security Space Launch (NSSL)

### DoD Component

Air Force

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## Responsible Office

### Program Manager

**Name:** Col. Douglas W. Pentecost

**Date Assigned:** February 15, 2022

**Address:** Space Systems Command/Los Angeles Air Force Base

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## Mission and Description

The mission of the National Security Space Launch (NSSL) program is to acquire launch services to provide critical space support required to satisfy DoD warfighter, national security, and other Government spacelift missions while fostering interagency and commercial cooperation. This mission includes the execution of flight worthiness certification processes and booster-to-satellite mission integration to maintain assured access to space and achieve 100% mission success.

The NSSL system includes launch vehicles, launch capability, a standard payload interface, support systems, mission integration (includes mission unique requirements), flight instrumentation and range interfaces, special studies (alternative upper and lower stage rocket propulsion sub-systems, mission feasibility analysis, secondary payloads, dual integration, special flight instrumentation, loads analysis, etc.), post-flight data evaluation and analysis, mission assurance, infrastructure, critical component engineering, Government Mission Director support, system/process and reliability improvements, training, and other technical support. The system also includes launch site operations activities, activities in support of assured access, systems integration and tests, and other related support activities. Additionally the program is working to develop two or more domestic, commercially viable, space launch providers that meet all National Security Space launch requirements.

In accordance with section 2273 of Title 10, U.S. Code, the DoD is responsible for maintaining assured access to space. NSSL is the foundation for the access for intermediate and larger class payloads for the foreseeable future. In accordance with policy, NSSL maintains at least two families of space launch vehicles capable of reliably launching national security payloads.

## Executive Summary

NSSL

### Program Highlights Since Last Report

Since the last SAR (containing data as of April 19, 2022) the NSSL program office accomplished six successful National Security Space (NSS) launches. Mission success is NSSL's number one priority. NSSL maintained its 100% mission success and now stands at 97-consecutive successful NSS launches over the program's existence. Other NSSL priorities include cultivating innovative mission assurance, transitioning to new launch vehicles, and assured access for current and future space architectures. Incorporating innovation and agility into the mission assurance processes will ensure continued mission success. The Space Force continues investing in industry to support the development of new launch vehicles for NSS payloads, assuring access to space into the next decade.

Of the six missions launched since the last SAR, two were on Atlas V launch vehicles: United States Space Force (USSF)-12 on July 1, 2022, and Space-Based Infrared System Geosynchronous Earth Orbit (SBIRS GEO)-6 on August 4, 2022. One was on a Falcon 9 launch vehicle: Global Positioning System (GPS) III-6 on January 18, 2023. Two were on Falcon Heavy launch vehicles: USSF-44 on November 1, 2022, and USSF-67 on January 15, 2023. One was on a Delta IV Heavy launch vehicle: National Reconnaissance Office Launch (NROL)-91 on September 24, 2022 which was the last Delta Heavy from the Western Range.

These six launches included several significant achievements for the Space Force. SBIRS GEO-6 was the final mission completing the SBIRS constellation. In addition, the mission profile was modified to capitalize on available rocket performance and significantly extending the life and operational capabilities of the spacecraft. USSF-44 was the first NSSL launch on Falcon Heavy launch vehicle; its successes include accurate orbital insertion of multiple payloads and the recovery of both Falcon side boosters back to land. USSF-67 was the first NSSL mission on the Phase 2 launch service procurements contract. This mission was also the first to reuse Falcon Heavy side boosters, first flown on November 1, 2022 for USSF-44. The GPS III-6 mission was the first NSSL mission to reuse a NASA-flown booster. The booster was first used for NASA's Crew-5 mission and demonstrated NSSL's ability to use NASA's assessment of the booster to satisfy flightworthiness certification requirements and save precious resources for other missions.

NSSL completed certification on the Space Exploration Technologies (SpaceX) Falcon Heavy launch system and accomplished the first NSSL launch on November 1, 2022. The ULA Vulcan launch system Non-recurring Design Validation (NRDV) and development activities continue to make progress towards first NSS launch in CY 2023. Vulcan Certification Flight #1 launch vehicle completed production and delivery to Cape Canaveral. Certification Flight #1 completed Launch Vehicle Readiness (LVR) testing in preparation for Pathfinder Tanking Tests and a Flight Readiness Firing prior to first launch NET early May 2023. BE-4 engines entered formal qualification testing however, Blue Origin was unable to meet initial operating set-point conditions on the two planned BE-4 qualification engines to progress through testing as originally planned. Test planning has been modified to conduct a focused Certification Flight qualification, which began February 24, 2023, while technical investigations are ongoing. A full formal qualification test will follow once the investigation and production modifications are complete. Both Certification Flight #1 engines are unaffected by this issue and successfully passed acceptance testing by demonstrating all performance parameters. The Vulcan Booster Structural Qualification Testing continues and is projected to complete in March 2023. The Centaur V structural qualification testing continues at the NASA Marshall Space Flight Center (MSFC) and is projected to complete in March 2023. The Vulcan development schedule supports the completion of Vulcan system NRDV before the first NSS Phase 2 launch in late CY 2023.

In addition to executing current launch service contracts, NSSL continues to refine the acquisition strategy for the Phase 3 launch services procurements from FY 2025 - 2034. This will be a full and open competition to ensure continued mission success and assured access, while simultaneously harnessing industry innovation to ensure affordable launch services with limited technology investments. Phase 3 will be a dual-lane (hybrid) contract approach and will provide resiliency to the Warfighter by leveraging diverse commercially available capabilities on Lane 1 and protecting most critical missions on Lane 2. The Milestone Decision Authority (MDA) concurred with the Phase 3 acquisition strategy in January 2023. The Phase 3 Acquisition Strategy Document (ASD) is currently in coordination within OSD for final approval. The NSSL program hosted a Phase 3 Industry Day February 28 through March 1, 2023, industry feedback will be incorporated into the Phase 3 RFP which is scheduled for release 4th Quarter FY 2023. There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation	
History of Significant Developments Since Program Initiation	
Date	Significant Development Description
Mar - 2023	Accomplished 97 successful NSSL launches since the inception of the NSSL program.
Jan - 2023	Successfully accomplished the first to reuse Falcon Heavy side boosters, USSF-67 mission on January 15, 2023. The both boosters were first flown on USSF-44 on November 1, 2022.
Jan - 2023	The first NSSL mission to reuse a NASA flown booster was successfully accomplished on January 18, 2023. The booster was first used for NASA's Crew-5 mission and demonstrated NSSL's ability to use NASA's assessment of the booster to satisfy flightworthiness certification requirements and save precious resources for other missions.
Nov - 2022	Successfully accomplished the first NSSL launch on Falcon Heavy launch vehicle, USSF-44, on November 1, 2022; its successes include accurate orbital insertion of multiple payloads and the recovery of both Falcon side boosters back to land.
Sep - 2022	The final Delta IV heavy mission from Western Range, United States Space Force (USSF)-91, was launched on September 24, 2022.
Mar - 2022	MDA approved a revised APB updating the Current Baseline to close the 2015 RDT&E Total Cost APB Breach caused by receipt of Congressional RDT&E funds for Rocket Propulsion development.
Sep - 2021	Awarded four Space Enterprise Consortium (SpEC) prototype project agreements to incentivize industry innovation and development of launch systems capabilities.
Jun - 2021	Successfully accomplished the first NSSL launch of a reused launch vehicle, Falcon 9 GPS III-5 mission on June 17, 2021.
Aug - 2020	Awarded two Firm Fixed Price contracts for launch service procured in FY 2020 through 2024, launching in FY 2022 through 2027; one each to SpaceX and ULA.
Mar - 2019	The FY 2019 NDAA contained a provision to re-name the EELV program the National Security Space Launch (NSSL) program effective March 1, 2019.
Dec - 2018	Successfully accomplished the first Falcon 9 EELV launch, Global Positions System (GPS) III-2 on December 23, 2018.
Oct - 2018	Awarded three LSA OTAs for development of Launch System Prototypes.
Oct - 2018	MDA approved a new ASD to allow a full and open competition with an award to two providers for FY 2020 - 2025 procurements.
Jun - 2017	MDA approved the Launch Service Agreements (LSA) ASD with two key priorities: improving affordable NSS assured access to space and transitioning from the use of non-allied engines. The strategy implements the funding provided in FY 2016 and 2017 PBs to invest in one or more launch provider's emerging systems.
May - 2016	AFSPC publishes CPD to replace 1998 ORD. Basis for next generation rocket requirements (Standard Interface Specifications (SIS) and Systems Performance Requirements Document (SPRD) were both updated and signed in June 2017) with guidance leaning forward to space warfighting capability in the 2020s.
Apr - 2016	Reintroduced competition and awarded the first FFP competitive contract in over a decade. This contract was the first with SpaceX and the Falcon 9 launch vehicle.
May - 2015	Announced that the Space Exploration Technologies (SpaceX) Falcon 9 Launch System was capable of meeting NSS launch requirements.



Date	Significant Development Description
Feb - 2015	Breached Research, Development, Test, and Evaluation APB total cost threshold. This was due to cumulative effect of additional EELV funds provided in three actions: 1) FY 2014 Omnibus to invest in key propulsion technologies for a technical maturation and risk reduction program to invest in key propulsion technologies; 2) FY 2015 NDAA and Appropriations Act initiated development of a Rocket Propulsion System; and 3) FY 2016 Resource Management Decision directing the Air Force to provide two, commercially-viable, domestically-sourced, space launch services.
Jun - 2013	Awarded one Firm Fixed Price/Cost Plus Incentive Fees contact for launch production services for 36 launch vehicle cores and launch capability implementing the 2011 ASD.
Feb - 2013	Amended the ASD to include competitive launch service awards starting in FY 2015, reintroducing competition to EELV for the first time since 1998.
Feb - 2013	MDA approved a revised APB updating the Current and Original Baseline cost thresholds, extending the program from 2020 to 2030 and increasing the quantity of launch services by 60. MDA also approved the amended Acquisition Strategy Document (ASD) and the ADM reinstating MS C (MS III).
Jul - 2012	MDA certified to Congress that EELV had met all requirements pursuant to the NM law.
Apr - 2012	In the FY 2012 National Defense Authorization Act (NDAA), Congress required EELV to resume MDAP reporting. EELV resumed SAR reporting with updated APUC and PAUC, triggering a critical NM breach. The breach was caused by Satellite Vehicle programs' delivery delays or cancellation, decreased NSS launch service demand from 138 to 92 missions and the rising cost of launch vehicle propulsion systems largely due to the cancellation of the Space Shuttle program.
Nov - 2011	Restructured the Acquisition Strategy to maintain mission success while incentivizing cost reductions through steady production rates, long-term commitments, and opportunities for competition.
Oct - 2011	New Entrant Certification Guide was approved, establishing that: The Air Force strategic intent is to promote the viability of multiple domestic EELV-class launch providers as soon as feasible.
Oct - 2007	AFSPC extended the EELV program lifecycle from 2020 to 2030.
Aug - 2007	MDA approved an APB reflecting the end of Production Phase, marking the completion of MS III (MS C), and moving EELV from an active MDAP to a Sustainment Program. In September 2007, EELV submitted a termination SAR ending EELV MDAP reporting.
Mar - 2007	Successfully accomplished the first Atlas V NSS launch, Space Test Programs (STP)-1 on March 9, 2007.
Dec - 2006	Air Force Space Command (AFSPC) Commander declared EELV IOC and FOC.
Oct - 2006	Federal Trade Commission granted United Launch Alliance (ULA) anti-trust clearance allowing Boeing and Lockheed to form ULA. The new company stood up on December 1, 2006.
Jun - 2005	MDA approved MS C and placed the program into its Production Phase.
Mar - 2005	Revised EELV Acquisition Strategy to implement the 2004 NSPD-40 direction to -fund the annual fixed costs for both launch services providers- by implementing separate contracts for launch services and for annual infrastructure capability, known as EELV Launch Services (ELS) and EELV Launch Capability (ELC).
Dec - 2004	Accomplished the successful launch of the Delta IV HLV demonstrating the capability to meet all NSS launch requirements.

Date	Significant Development Description
Dec - 2004	President signed National Security Policy Directive (NSPD)-40, National Space Transportation Policy (NSTP), in December 2004. Stating in part: The Secretary of Defense shall maintain overall management responsibilities for the EELV program and shall fund the annual fixed costs for both launch services providers.
Apr - 2004	MDA certified to Congress that EELV had met all requirements pursuant to the NM law.
Dec - 2003	Breached Critical Nunn-McCurdy cost thresholds. The primary cause was price increases from the collapse of the commercial launch market. The FY 2005 PB funded EELV to cover an expected 50% increase in prices, and the cost of continued assured access to space.
Mar - 2003	Successfully accomplished the first Delta IV NSS launch, Defense Satellite Communications System (DSCS) IIIB-27 (A3) on March 11, 2003.
Dec - 2002	Both contractors considered exiting the launch market due to the lack of a commercial launch market. To protect assured access to space with two families of launch vehicles, the Government planned to fund EELV fixed costs.
Dec - 2002	Lockheed's Atlas V and Boeing's Delta IV successfully launched their first missions (both commercial).
Sep - 2000	ILS contracts and OTA agreements were restructured based on a review of NSS requirements. The demand for West Coast launch services was not sufficient to support two contractors and Lockheed was relieved of the requirement to build a West Coast launch facility. In consideration, the AF awarded Boeing all ILS West Coast launches and funded a Heavy-Lift vehicle (HLV) demonstration flight to increase mission success confidence.
Dec - 1999	The U.S suffered six space launch failures over ten months. A Broad Area Review was established to evaluate practices, procedures, and operations, and make recommendations to avoid further failures.
Oct - 1998	Awarded Initial Launch Services (ILS) two Firm Fixed Price (FFP) competitive contracts for 28 missions and two Other Transaction Authority Agreements (OTAs): one each to Lockheed and Boeing. The OTAs provided Government capital investments to meet NSS unique requirements.
Jun - 1998	MDA approved MS II and EELV entered into EMD.
Nov - 1997	Updated acquisition strategy to partner with industry to develop two families of launch vehicles instead of selecting one, based on the commercial launch industry's projections for a robust commercial launch market. The new strategy procured launch services, where the Government would not take ownership of any hardware or property.
Dec - 1996	Awarded two Pre-EMD contracts, one each to The Boeing Company (previously McDonnell Douglas) (Boeing) and Lockheed Martin Corporation (Lockheed), in line with the strategy to down-select to one provider.
Dec - 1996	MDA approved EELV Milestone (MS) I.
Aug - 1995	Awarded four contracts to begin the development of evolved expendable launch systems with the intent to down-select to one launch provider.
Aug - 1994	President approved National Space Transportation Policy (NSTP) establishing the EELV program, a space launch system that satisfies the National Launch Forecast requirements to place National Security Space (NSS) space vehicles on orbit.

## Schedule

NSSL

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold			Current Estimate/Actual	Deviation
Milestone I	Dec 1996	Dec 1996	Dec 1996	Dec 1996		
Milestone II	Jun 1998	Jun 1998	Jun 1998	Oct 1998		
Tailored CDR	Oct 1999	Oct 1999	Oct 1999	Oct 1999		
MLV First Operational Flight	Aug 2002	Aug 2002	Aug 2002	Aug 2002		
HLV OLSO Flight	Dec 2004	Dec 2004	Dec 2004	Dec 2004		
Initial & Full Operational Capability	Jun 2006	Jun 2006	Jun 2006	Jun 2006		
HLV First Operational Flight	Nov 2007	Nov 2007	Nov 2007	Nov 2007		
Milestone C Reapproval	Feb 2013	Feb 2013	Feb 2013	Feb 2013		

## Performance

### NSSL

Performance Characteristics					
Milestone Baseline	Current Baseline Objective/Threshold	Demonstrated Performance	Current Estimate/Actual	Deviation	
<b>Performance Mass to Orbit - GEO: 19,323nm x19,323nm, 0 deg (lbs)</b>					
14,175	14,175	13500	13500	13500	None
<b>Performance Mass to Orbit - GTO: 19,324nm x 90nm, 27 deg (lbs)</b>					
7,015-9,775 (15%)	7,015-9,775 (15%)	6,100-8,500	6,100-8,500	6,100-8,500	None
<b>Standardization - Launch Pads</b>					
Standardized and able to launch all configs of EELV for that site	Standardized and able to launch all configs of EELV for that site	Standardized and able to launch all configs of EELV for that site	Standardized and able to launch all configs of NSSL for that site	Standardized and able to launch all configs of NSSL for that site	None
<b>Performance Mass to Orbit - LEO: 100nm X 100nm 63.4 deg (lbs)</b>					
19,550	19,550	17000	17000	17000	None
<b>Performance Mass to Orbit - MOLNIYA: 21,150nm x 650nm, 63.4 deg (lbs)</b>					
8,050	8,050	7000	7000	7000	None
<b>Standardization - Payload interfaces</b>					
One std payload interface	One std payload interface	Std payload interface for each vehicle class (add'l interface rqmts met by payload adapter)	Std payload interface for each vehicle class (add'l interface rqmts met by payload adapter)	Std payload interface for each vehicle class (add'l interface rqmts met by payload adapter)	None
<b>Performance Mass to Orbit - POLAR 1: 450nm x 450nm, 98.2 deg (lbs)</b>					
5,060-8,050 (15%)	5,060-8,050 (15%)	4,400-7,000	4,400-7,000	4,400-7,000	None
<b>Performance Mass to Orbit - POLAR 2: 100nm x 100nm, 90 deg (lbs)</b>					
43,050	43,050	41000	41000	41000	None
<b>Performance Mass to Orbit - SEMI-SYNC: 10,998nm x 100nm, 55.0 deg (lbs)</b>					
2,875-5,152 (15%)	2,875-5,152 (15%)	2,500-4,725	2,500-4,725	2,500-4,725	None
<b>Vehicle Design Reliability (%)</b>					
>98	>98	98	98	98	None

### Requirement Reference

EELV Operational Requirement Document (ORD) II dated September 15, 1998, re-validated April 24, 2012

The Performance characteristics in this table are based on the EELV Operational Requirements Document (ORD) II

September 15, 1998. These requirements were reconfirmed by Air Force Space Command (AFSPC/CC) via an EELV Service Acquisition Requirements Review Memorandum to the Air Force Acquisition Service Executive signed October 11, 2011. As part of the Nunn-McCurdy recertification, the Joint Requirements Oversight Council (JROC) issued a memorandum (JROCM 058-12), dated April 24, 2012, revalidating the Key Performance Parameters (KPPs) in the ORD II.

**Note:**

The NSSL program office successfully accomplished 97 NSS NSSL program launches (51 on Atlas V launch vehicles, 37 on Delta IV launch vehicles, and nine on Falcon 9 launch vehicle).

Performance Characteristics were not designed to represent any specific satellite mission. Demonstrated Performance has been verified via Government review and analysis.

Air Force Space Command and the program office completed a Spacelift CPD on May 31, 2016. The requirements have been incorporated into two subsequent documents (SPRD and SIS), driving the design of new launch vehicles and capturing new space vehicle requirements for Phase 2 implementation. The Performance Requirements Reference will be updated in a revised APB.

## Acquisition Budget Estimate

NSSL

### Total Acquisition Cost

		Milestone APB	Current Baseline		Budget Estimate PB 2024		
Category	Base Year	Objective (BY\$M)	Objective (BY\$M)	Threshold (BY\$M)	BY\$M	TY\$M	Deviation
RDT&E	2012	2,365.1	5,128.1	5,640.9	5,063.1	5,090.0	
Procurement	2012	59,078.3	59,078.3	64,986.1	46,272.7	54,267.6	
MILCON	2012	0					
Acq. O&M	2012	0					
<b>Total</b>		<b>61,443.4</b>	<b>64,206.4</b>	<b>70,627</b>	<b>51,335.8</b>	<b>59,357.6</b>	
PAUC	2012	404.233	422.411	464.652	255.402	295.311	
APUC	2012	391.247	391.247	430.372	231.364	271.338	

#### Budget Note:

Since the last SAR in 2022, the NSSL RDT&E Cost Estimate has increased by \$3.8M due to Congressional funding revisions in the FYDP.

Since the last SAR in 2022, the NSSL Procurement Cost Estimate has decreased by \$-1.7B. The decrease was due to a combination of factors: a decrease in quantity based on Satellite Vehicle requirements; the rephrasing of budget to realign to mission procurement quantities; an adjustment in estimating methodology for launch services support; changes in satellite vehicle requirements necessitating assignment of missions to different configurations; and a transfer of funds for center-wide support for the stand-up of Space Systems Command.

All NSSL launch services are fully funded in the year ordered, two or three years prior to launch, depending on vehicle configuration, and are fixed price. Launch support and capability costs are funded on an annual basis. The Space Force missions, purchased with Missile (APPN 3020), Space (APPN 3021), and Space Force (APPN 3022) Procurement funds, comprise 113 of the 200 total launches. The remaining missions in the table above include funding and quantities from other sources to include the National Reconnaissance Office, the Space Development Agency, Missile Defense Agency, International partners, and the Department of the Navy. Navy launch service procurement funding and quantities are included in the NSSL SAR; however, the satellite program baselines also include these funds.

### Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	1	1
Procurement	151	200
O&M-Acquired	--	--

#### Quantity Note:

RDT&E Development Quantity of one, represents the Heavy-Lift Vehicle (HLV) Operational Launch Service Demonstration (OLSD), also referred to as the Heavy Demo, launched in December 2004. RDT&E funds include past Defense Advanced Research Projects Agency (DARPA) and National Reconnaissance Office (NRO) funding. Previously stated in past reports as Advanced Research Projects Agency (ARPA) and National User.

**Unit Cost**

NSSL

<b>Current UCR Baseline and Current Estimate (Base-Year Dollars)</b>			
<b>Category (\$M) Base Year: 2012</b>	<b>Current UCR Baseline</b>	<b>Current Estimate</b>	<b>% Change</b>
<b>Program Acquisition Unit Cost</b>			
Cost	64,206.4	51,335.8	
Quantity	152	201	
Unit Cost	422.411	255.402	-39.54%
<b>Average Procurement Unit Cost</b>			
Cost	59,078.3	46,272.7	
Quantity	151	200	
Unit Cost	391.247	231.364	-40.87%
<b>Original UCR Baseline and Current Estimate (Base-Year Dollars)</b>			
<b>Category (\$M) Base Year: 2012</b>	<b>Original UCR Baseline</b>	<b>Current Estimate</b>	<b>% Change</b>
<b>Program Acquisition Unit Cost</b>			
Cost	61,443.4	51,335.8	
Quantity	152	201	
Unit Cost	404.233	255.402	-36.82%
<b>Average Procurement Unit Cost</b>			
Cost	59,078.3	46,272.7	
Quantity	151	200	
Unit Cost	391.247	231.364	-40.87%
<b>Cost Growth Details</b>			
<b>Unit Cost Note</b>			

Average unit cost figures reported above are a combination of each of multiple launch vehicle configurations and annual launch capability requirements. The average unit cost will vary due to shifts in payload weight and volume, mission-unique services, number of missions per year and other factors.

**Risk****NSSL*****Risk and Sensitivity Analysis*****Risk and Sensitivity Analysis****Current Procurement Cost (December - 2022)**

1. Impacts of variability in National Security Space launch requirements; that the program launch manifest and procurement requirements remain relatively stable.

**Revised Original/Original Estimate (February - 2013/October - 1998)**

1. There are no risks identified with this Baseline Estimate.

**Current Baseline Estimate (March - 2022)**

1. The Current Baseline Estimate for: Procurements is the Independent Cost Estimate developed by the OSD Cost Analysis and Program Evaluation team in January 2013; RDT&E is the Service Cost Position developed by the Air Force Cost Analysis Agency in November 2021. The following are two risks identified in their estimate: creation of a more competitive launch provider environment in a declining launch need environment could increase costs to the program; and that the program launch manifest and procurement requirements remain relatively stable.

***Significant Schedule Risks*****Significant Schedule Risks****Current Estimate (December - 2022)**

1. There are no schedule risks identified at this time.

***Technologies and Systems Engineering*****Significant Technical Risks****Current Estimate (December - 2022)**

1. There are no schedule risks identified at this time.



## Low Rate Initial Production

### NSSL

There is no LRIP for this program.

**Contracts & Efforts**

Contract Data	
Contract Number	FA8811-20-D-0001
Effort Number	
Modification Number	
Award Date	08/12/2020
Definitization Date	08/12/2020
Order Number	
CAGE Code/CAGE Legal Name	United Launch Alliance
Contract Title	NSSL Phase 2 Launch Service Procurements
Contract Address	Centennial, CO
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	August 12, 2020
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$3,399.7	\$3,399.7	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
\$3,399.7	\$3,399.7	
Initial Quantity	Current Quantity	Delivered Quantity
2	9	0

**Contract Note:**

The difference between the Initial Quantity and the Current Quantity is due to the Task Order awards for additional missions; contract values are not dependent of quantity and therefore do not change. Of the nine launches, none have been launched.

Contract Data	
Contract Number	FA8811-20-D-0002
Effort Number	
Modification Number	
Award Date	08/12/2020
Definitization Date	08/12/2020
Order Number	
CAGE Code/CAGE Legal Name	Space Exploration Technology
Contract Title	NSSL Phase 2 Launch Service Procurements
Contract Address	Hawthorne, CA
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$3,338.9	\$3,338.9	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
\$3,338.9	\$3,338.9	
Initial Quantity	Current Quantity	Delivered Quantity
1	6	1

**Contract Note:**

The difference between the Initial Quantity and the Current Quantity is due to the Task Order awards for additional missions; contract values are not dependent of quantity and therefore do not change. Of the six launches, one has been launched.

**Contracts & Efforts**

Contract Data	
Contract Number	FA8811-19-C-0002
Effort Number	
Modification Number	
Award Date	10/24/2018
Definitization Date	10/24/2018
Order Number	
CAGE Code/CAGE Legal Name	United Launch Alliance
Contract Title	Delta IV Heavy Launch Service Procurements
Contract Address	Centennial, CO
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

**Contracts/Effort Price, Quantity, and Performance (TY\$M)**

Initial Target Price	Current Target Price	
\$467.0	\$1,674.9	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
\$1,674.9	\$1,674.9	
Initial Quantity	Current Quantity	Delivered Quantity
3	3	1

**Contract Note:**

The difference between the Initial Target Price and the Current Target Price is due to the modification for launch operations support. Of the three planned launches, one has been launched.

Contract Data	
Contract Number	FA8811-19-9-0003
Effort Number	
Modification Number	
Award Date	10/10/2018
Definitization Date	10/10/2018
Order Number	
CAGE Code/CAGE Legal Name	/United Launch Alliance
Contract Title	United Launch Alliance Launch Services Agreement
Contract Address	Centennial, CO
Contracting Office	
Supported Phase	Production
Contract Strategy	10 USC 2371b (OTA)
Contract Type	Other Transaction Agreement
Modification Date	
Work Start Date	October 10, 2018
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
\$967	\$967	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
\$967	\$967	
Initial Quantity	Current Quantity	Delivered Quantity
N/A	N/A	N/A

**Contract Note:**

There were no changes to this contract. Schedule and Cost Variance is not required for this OTA contract. Other Transaction Agreement is for the shared cost investment in the development of Launch Systems Prototypes with at least one-third statutory cost-sharing by contractor.

Contract Data	
Contract Number	FA8811-19-C-0005
Effort Number	
Modification Number	
Award Date	02/19/2019
Definitization Date	02/19/2019
Order Number	
CAGE Code/CAGE Legal Name	/United Launch Alliance
Contract Title	NSSL Phase 1A-6
Contract Address	Centennial, CO
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	February 19, 2019
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
\$441.8	\$454.9	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
\$454.9	\$454.9	
Initial Quantity	Current Quantity	Delivered Quantity
3	3	2

**Contract Note:**

The difference between the Initial Target Price and the Current Target Price is due to contract modifications for mission support. Of the three planned launches, two have been launched.

Contract Data	
Contract Number	FA8811-18-C-0001
Effort Number	
Modification Number	
Award Date	03/14/2018
Definitization Date	03/14/2018
Order Number	
CAGE Code/CAGE Legal Name	Space Exploration Technology
Contract Title	NSSL Phase 1A-4
Contract Address	Hawthorne, CA
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
\$243.9	\$243.9	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
\$243.9	\$243.9	
Initial Quantity	Current Quantity	Delivered Quantity
3	3	3

**Contract Note:**

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

There were no changes to this contract. Of the three planned launches, three have been launched.

## Deliveries and Expenditures

### NSSL

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	1	1	1	100.00%
Production	96	96	197	48.73%
Total Program Quantity Delivered	97	97	198	48.99%

### Expended and Appropriated (TY \$M)

Years Appropriated to date: 30

Total Years Appropriated Funding (Current Baseline): 37

Percent Years Appropriated: 81.08%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 81.08%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 62.56%

Total Acquisition Cost: \$59,357.6



## Operating and Support Costs

NSSL

### *O&S Cost Breakdown:*

Category (BY2012\$ Million)	NSSL
Unit-Level Manpower	
Unit Operations	
Maintenance	
Sustaining Support	
Continued System Improvements	
Other	
<b>Total</b>	

**Cost Estimate Source:** ICE dated December 31, 2015

Total Program O&S Cost Compared with Baseline					
	Current Baseline				
Base Year: 2012	Objective (BY\$M)	Threshold (BY\$M)	Current Estimate (BY\$M)	Current Estimate (TY\$M)	Deviation
<b>Total O&amp;S</b>	\$1,256.8	\$1,382.5	\$1,382.5	\$1,255.5	

**Note:** NSSL is no longer reporting any Antecedent Systems as there are no comparable systems. The diversity of payloads exceeds any of the previous individual launch systems. NSSL procures launch services for DoD, National Reconnaissance Office, and other National Security Space satellite vehicles from commercial launch service providers. All previous launch programs, Titan II, Delta II, Atlas II, and Titan IV were government procured launch vehicles systems. The NSSL program does not take any ownership of launch vehicles.

### *Operating and Support Costs - Disposal and Unitized Costs*

#### **Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

NSSL is no longer reporting any Antecedent Systems as there are no comparable systems. The diversity of payloads exceeds any of the previous individual launch systems. NSSL procures launch services for DoD, National Reconnaissance Office, and other National Security Space satellite vehicles from commercial launch service providers. All previous launch programs, Titan II, Delta II, Atlas II, and Titan IV were government procured launch vehicles systems. The NSSL program does not take any ownership of launch vehicles.