



“Introduction to the EELV SPO”



OVERVIEW

1. What is a SPO? What is EELV?
2. Chain of Command
3. EELV Organization
4. EELV Hardware
5. EELV Geography
6. Who are EELV customers?
7. Mission Management



What is a SPO?

The U.S. Air Force has many weapons systems (F-16, F-15, C-17, A-10, HH-60, etc.)



Every weapon system has a SPO

SPO = System Program Office

A SPO is responsible for the development, testing, acquisition, sustainment, and eventual disposal of a weapon system



What is EELV?

EELV = Evolved Expendable Launch Vehicle

A new rocket system for the USAF

**While EELV is not a USAF weapon system,
it is a service that accomplishes
a specific and important USAF mission:
getting Air Force satellites into space**



What makes EELV unique?

The EELV program is breaking new ground in the area of Commercial-Military Integration (CMI) via the integration of the space-related defense industrial base with the commercial space industrial base. As described and approved in the June 1998 Acquisition Strategy (AS), this acquisition is structured to maintain competition over the life of the EELV program; encourage contractor investment and innovation throughout development; procure commercial launch services under one contract instead of production launch vehicles and launch operations under two or more separate contracts; leverage the benefits of a commercial marketplace; and provide the Government with adequate insight into contractor performance without costly and unnecessary oversight.

Source: *EELV Acquisition Strategy June 1998*



What makes EELV unique?

Old Paradigm:

- Cost-type contract for EMD
- Two system test flights
- Down-select to one Contractor
- Production

EELV Paradigm:

- Fixed Government investment for development in addition to Contractor investment
- No system test flights
- Compete two Contractors over life of program
- Launch services



EELV History (Page 1 of 4)

Attempts in the 1980s and 1990s to explore alternative launch vehicle systems ended without a clear national consensus. Congress tasked the DoD in the FY94 Authorization Act to conduct a study and develop a Space Launch Modernization Plan (SLMP) to determine the most appropriate course of action to remedy space launch deficiencies and reduce the rising costs of space launch services. In response, the Space Launch Modernization Study (SLMS) was completed in April 1994. The SLMS included participation from the nation's four space sectors: defense, intelligence, civil, and commercial. The SLMP contained four "roadmaps" or options that established priorities, goals, and milestones for the modernization of US space launch capabilities. These four options were: (1) sustain existing launch systems (2) evolve current expendable launch systems (3) develop a new expendable launch system, and (4) develop a new reusable launch system.

Source: *EELV Acquisition Strategy June 1998*



EELV History (Page 2 of 4)

The SLMP led to the signing of the National Space Transportation Policy (PDD/NSTC-4), by the President on 5 Aug 94, tasking the Secretary of Defense to provide an implementation plan for improvement and evolution of the current Expendable Launch Vehicle (ELV) fleet. On 25 Oct 94, the Deputy Secretary of Defense signed the implementation plan for the National Space Transportation Policy, identifying the EELV program as DoD's solution to reducing the cost of launch. In FY95, Congress appropriated \$40M for space launch modernization. The budget supported evolving a current expendable launch vehicle or component thereof into a single expendable launch vehicle family for the nation (Option 2 of the SLMP). On 24 Aug 95, LCCV contracts were awarded to Alliant Techsystems, Boeing Defense and Space Group, Lockheed Martin Astronautics, and McDonnell Douglas Aerospace.

Source: *EELV Acquisition Strategy June 1998*



EELV History (Page 3 of 4)

On 20 Dec 96, the Secretary of the Air Force announced Pre-EMD contract awards to Lockheed Martin Astronautics and McDonnell Douglas Aerospace (which has since become a wholly-owned subsidiary of Boeing). On 3 Nov 97, Under Secretary of Defense (Acquisition & Technology) approved a change to the original acquisition strategy. The revised approach (1) positioned the DoD to procure launch services instead of separate production and launch operations efforts (2) maintained an ongoing competition between two contractors rather than down-selecting to one, and (3) provided for the contractors to share the cost of developing a national launch capability that meets Government requirements and is commercially marketable. The simultaneous award of Development and Initial Launch Services contracts to both Lockheed Martin and The Boeing Company occurred on 16 Oct 98. With inaugural launches in the summer/fall of 2002, both EELV systems will transition from launch vehicle development to recurring operations. As a result, the EELV SPO was able to reduce the traditional 7 year development timeline to just 4 years.

Source: *EELV Acquisition Strategy June 1998*



EELV History (Page 4 of 4)

Program History Acquisition Strategy

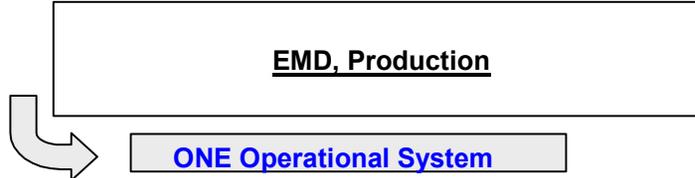
<u>LCCV Module</u> Concept Refinement/Risk Reduction			
Alliant	Lockheed Martin	Boeing	McDonnell Douglas

Tailored Preliminary Design Review

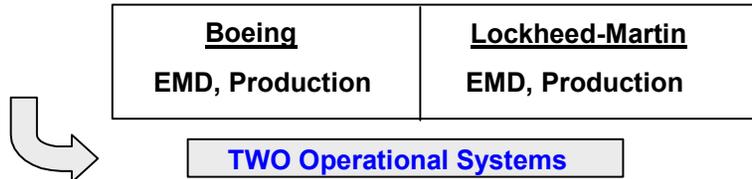
<u>Pre-EMD Module</u> Concept Development	
Lockheed Martin	McDonnell Douglas

Downselect Design Review

Pre – Nov 97



Post Nov 97



Acquisition restructure Sep 00 eliminated West Coast requirement for Atlas V and added Heavy Lift Vehicle (HLV) Demonstration for Delta IV

USAF “Heritage” Space Launch Vehicles



Delta II

Delta III

Atlas II

Titan II

Titan IV

EELV will replace these systems



Program Overview

EELV Mission & Objectives



EELV Mission:

Partner with industry to develop two national launch systems (Atlas V and Delta IV) that far exceed all customers' mission assurance and affordability requirements

Objectives:

- Increase U.S. space launch competitiveness in the international space launch market
- Implement acquisition reform initiatives

EELV's Key Performance Parameters:

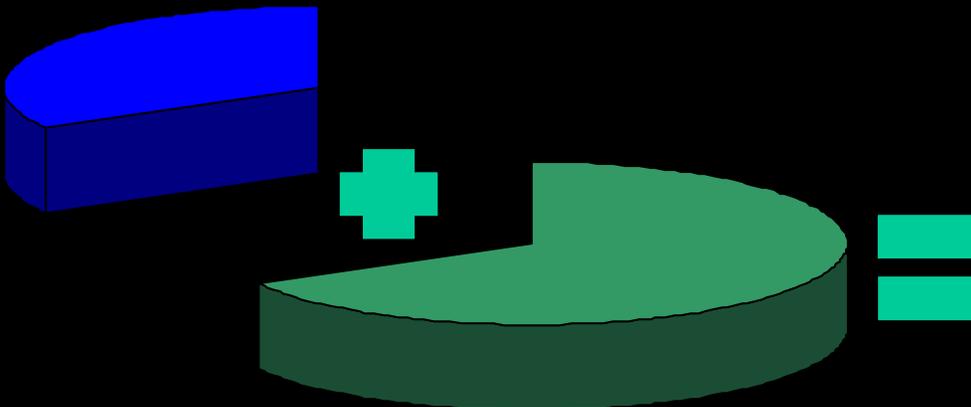
- Mass-to-Orbit
- Reliability
- Standard Payload Interface
- Standard Launch Interface

**EELV is a Government purchased service,
not Government purchased equipment**

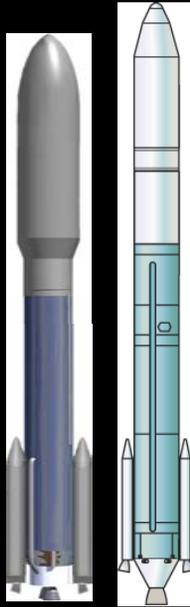


EELV Program Overview

Government R & D Contribution
(\$500 million each contractor)



Private Funding by
Corporations



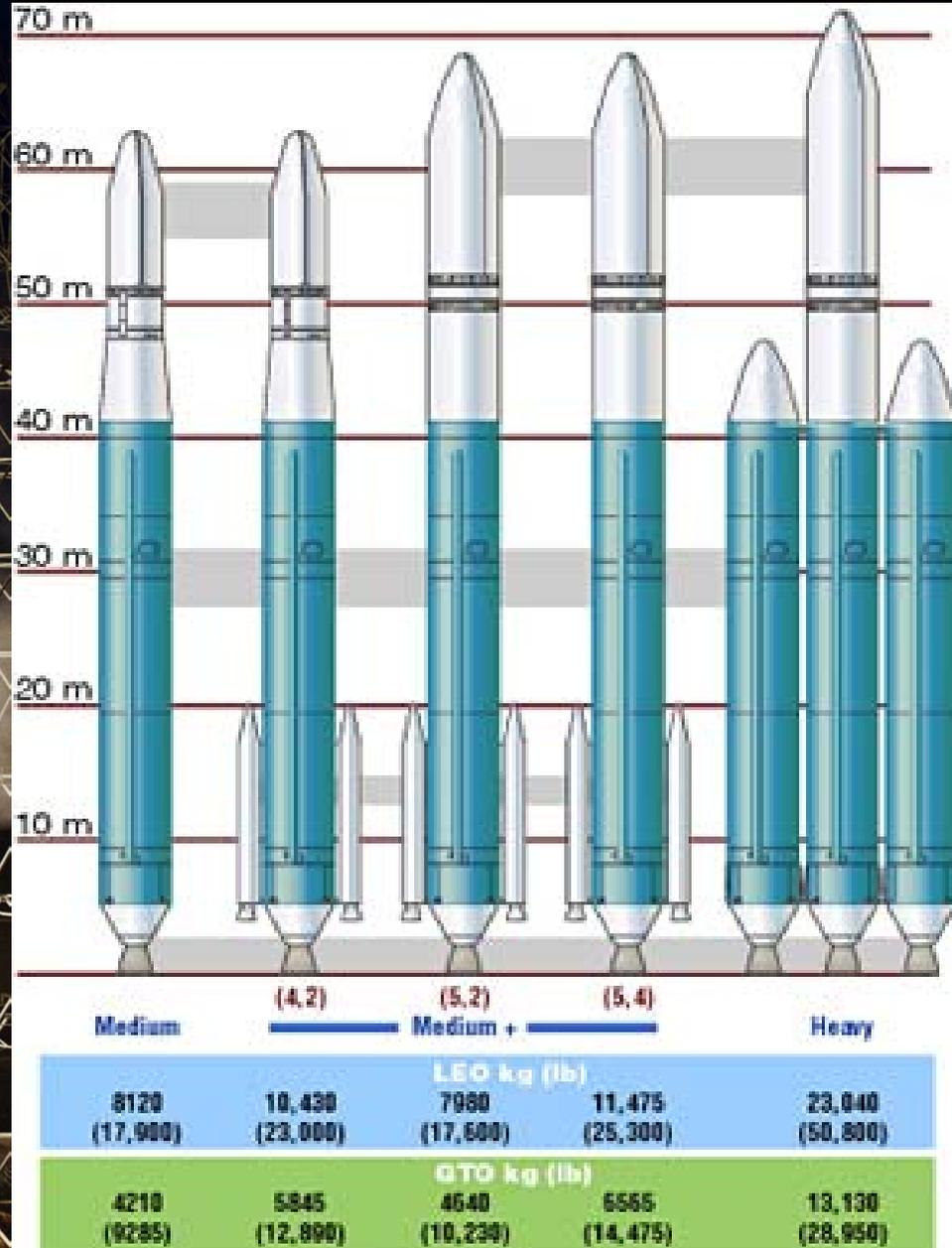
Traditional
7 year
development
completed in
4 years!

Partnership / Cost-Sharing With Industry

**What did the Launch Vehicle Contractors develop
with the Government's \$500 million
and their own investment?**



Delta IV Med+ (4,2)
Successful
First Flight
20 Nov 02



For more information visit:
www.boeing.com/defense-space/space/delta

**Atlas V 401
Successful
First Flight
21 August 2002!**

LOCKHEED MARTIN



FOR THE NEXT MILLENNIUM

ATLAS V



For more information visit: www.ast.lmco.com



Assured Access to Space!



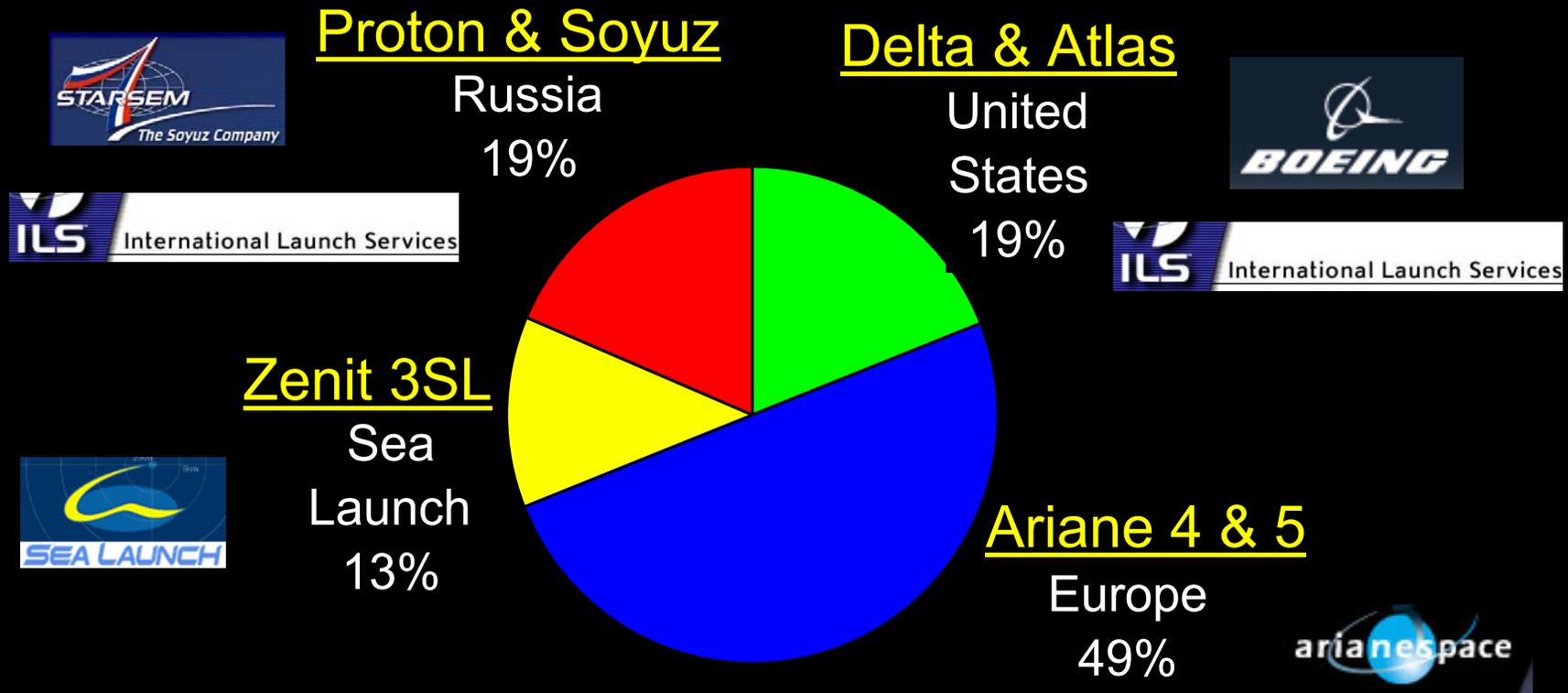
6 Consecutive Successful Launches!





Who are EELV's international competitors?

2001 Worldwide Commercial Launch Market Share





Who are EELV's international competitors?



The **Ariane Family** of rockets is developed and designed by **ESA** (European Space Agency – consortium of 15 European Countries). The manufacturing, sales and launch operations are then the responsibility of **Arianespace** (which in turn is partially owned and supported by **ESA**).

Since first launching in 1979, the **Ariane Family** has launched 152 times, including Ariane 1, 2, & 3, with 107 **Ariane 4** and 8 **Ariane 5** successes. Manufacturing of **Ariane 4** has since ceased and the **Ariane 5** heavy-lift vehicle is currently the only vehicle available. The launches of the Delta IV and Atlas V in late 2002 introduced its first direct competition.



Ariane 5 launch vehicles produced by **Arianespace**





Who are EELV's international competitors?

Sea Launch stands out for a number of reasons:

1. They are the World's only solely commercial launch service provider. Their ocean-going launch pad offers freedom from government involvement
2. The equatorial launch location provides the most direct route to geostationary orbit, offering maximum lift capacity for increased payload mass or extended spacecraft life.

3. **Sea Launch** is an international partnership:



- American Boeing: fairing, spacecraft integration and operations,
- Russian RSC Energia: upper stage, launch integration and operations,
- Ukrainian Yuzhnoye: 2nd & 3rd stage, integration and operations support, and
- Norwegian Kaevner: designed, built and operate Command Ship and Launch Platform

Starting up in 1995, the first launch of the **Zenit 3SL** was in 1999. Since then **Sea Launch** has launched 8 times with 7 straight successes.



Prepared by SMC/MVP



Who are EELV's international competitors?



The **Soyuz** launch vehicles produced by the Russian **TsSKB-Progress** (Samara Space Center) and **RKK Energia RSC**, is a converted ICBM. The **Soyuz** has flown 557 successful missions since 1980, from Baikonur, Kazakhstan and Plesetsk, Russia.



Russia

The **Proton** launch vehicle is produced by the Russian **Khrunichev Space Center** and **RKK Energia RSC**. **Proton** has flown 200 successful missions since 1980 from Baikonur, Kazakhstan.



Starsem is responsible for the commercial sales of **Soyuz** rockets. They are a European-Russian organization combining the Russian vehicle and launch operations with sales and marketing by **Arianespace**.



ILS is responsible for the commercial sales of **Proton** rockets. They are an American-Russian organization combining the Russian vehicle and launch operations with sales and marketing by **Lockheed**.



Who are EELV's international competitors?



Japan

The **H-2** launch vehicles produced by the National Space Development Agency of Japan (NASDA) has only launched twice. NASDA's mission is to promote utilization of the space environment through the development and launching of launch vehicles and satellites.



India



GSLV launch vehicle is produced by the **Indian Space Research Organization (ISRO)**. **ISRO** was established in 1969 and is currently under the Department of Space. This vehicle has only been launched once, in 2001.



China

Long March (Chang Zheng - CZ) vehicle family is produced by the **China Aerospace Science and Technology Corporation (CASC)**, a state owned enterprise under the direct supervision of the Central Government. There was 1 government launch in 2001 and 5 in 2000, and no commercial launches since 1999. China's commercial prospects are constrained by U.S. export restrictions on satellite technology.





OVERVIEW

1. What is a SPO? What is EELV?
2. Chain of Command
3. EELV Organization
4. EELV Hardware
5. EELV Geography
6. Who are EELV customers?
7. Mission Management

DoD Space Organizations



Air Force Space Leaders

- Warfighting
- Organize, Train, & Equip
- Acquisition



GEN MYERS
CJCS



ADMIRAL ELLIS
USSTRATCOM



GEN JUMPER
CSAF



GEN LORD
AFSPC/CC



Mr. PETER TEETS
Undersecretary of the Air Force, Director of the National Reconnaissance Office, and Air Force Acquisition Executive for Space



MAJ GEN HAMEL
14AF/CC
COMSPACEAF



MAJ GEN KLOTZ



BRIG GEN DARNELL



LT GEN ARNOLD
SMC/CC &
PEOSPACE



Command or Acquisition?

Chain of Command:

LT GEN Brian Arnold (SMC/CC) and Col Brian Kistner (61 ABG/CC) are the only officers with UCMJ authority at LAAFB. As a result, LT GEN Arnold is the commander for military personnel within LAAFB acquisition SPOs. As the SMC/CC, LT GEN Arnold reports to General Lance Lord (AFSPC/CC) for issues pertaining to organizing, training, and equipping Air Force assets. As the Program Executive Officer for Space Acquisition (PEOSPACE), LT GEN Arnold also has acquisition authority.

Chain of Acquisition Reporting Authority:

EELV SPO Division Chiefs (a.k.a. “3 letters”, e.g. MVB, MVI, MVK, etc.) report to the EELV System Program Director (a.k.a “The 2 letter”, MV). The EELV System Program Director reports to the PEOSPACE (LT GEN Arnold). The PEOSPACE reports to the Under Secretary of the Air Force for Space Acquisition, Mr. Peter Teets.



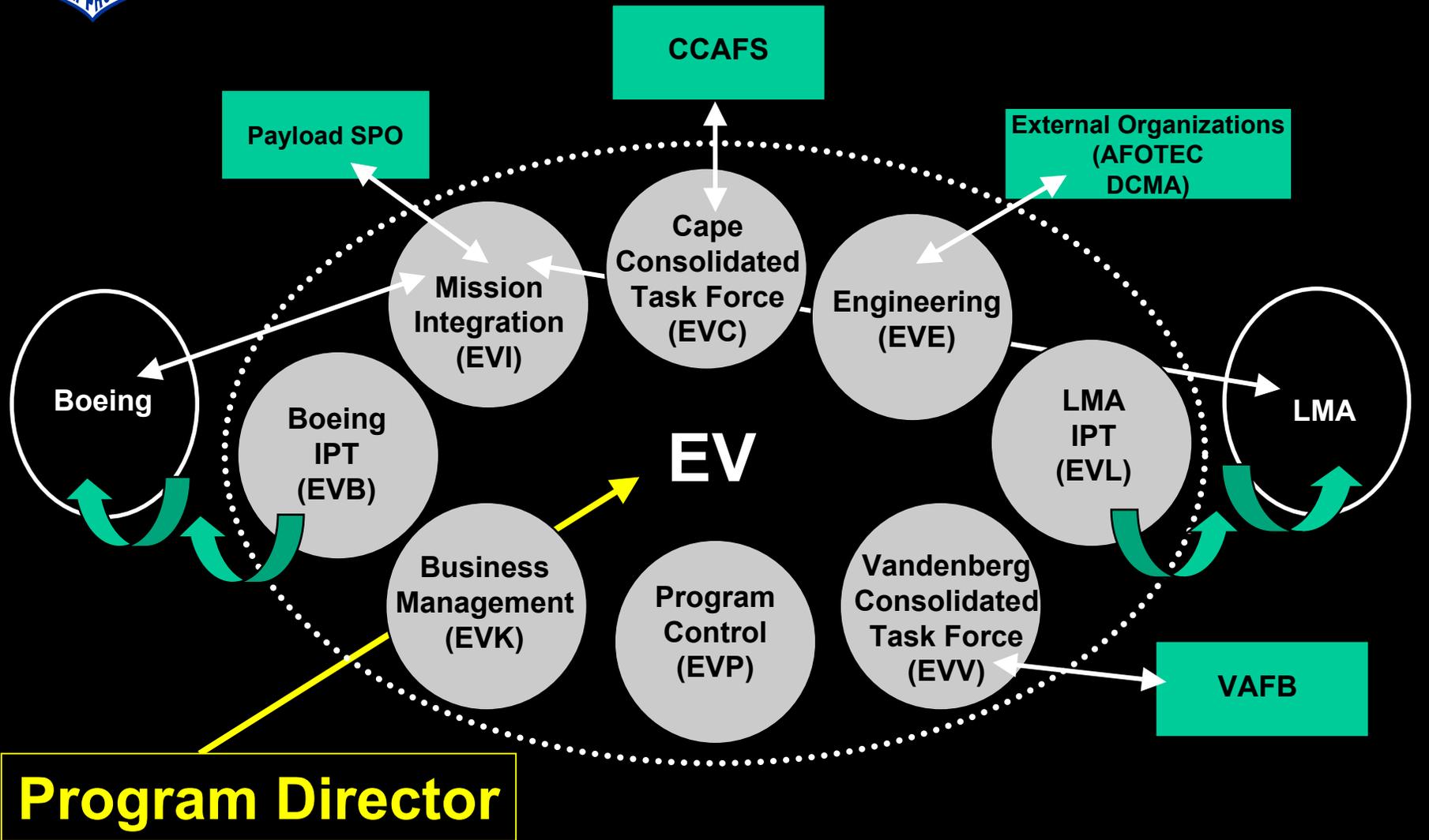
OVERVIEW



1. What is a SPO? What is EELV?
2. Chain of Command
- 3. EELV Organization**
4. EELV Hardware
5. EELV Geography
6. Who are EELV customers?
7. Mission Management



EELV SPO Roles & Communication





EELV Division Roles & Responsibilities



EVB:

Organized to mirror Boeing's IPT structure, EELV's Boeing Integrated Production Team (IPT) is the lead organization chartered with the responsibility of gathering validating and distributing insight into the Boeing Delta IV program. In order to best satisfy this requirement it is absolutely necessary for team members to remain intricately familiar with all aspects of the program at all times. Team members spend countless hours visiting Boeing facilities witnessing tests and providing constructive technical oversight. Earned over years of hard work trust and a commitment to producing the launch system of the future, the close relationship which now exist between the IPT and the Boeing Company is based on a common goal of launch success. The Boeing IPT is integral to the success of future of U.S. space launch vehicles.



EELV Division Roles & Responsibilities



EVC (CCTF):

The Cape Consolidated Task Force (CCTF) is our program office extension at Cape Canaveral Air Force Station, Florida. The CCTF is the EELV SPO on-site launch base organization at CCAFS responsible for monitoring EELV contractor launch base activities and launch operations (the LMA Atlas V at SLC-41 and the Boeing Delta IV at SLC-37). The CCTF mission focus is to provide engineering insight and support at the launch site. Additionally, the CCTF represents Government EELV interests at the launch site by providing expertise, surveillance, review/comment, systems integration support, and technical information exchange on all launch site-specific systems, procedures, and operations as well as system level items affected by or affecting launch site systems/interests. The CCTF is part of SMC Detachment 8, which is a conglomeration of assets from various SMC SPOs (both SV & LV). While the CCTF has a Det 8 Commander, the CCTF is directed by an EELV SPO division chief.



EELV Division Roles & Responsibilities



EVE:

The EELV Engineering Division is responsible for ensuring that the two EELV launch systems are standardized. EVE is responsible for ensuring launch vehicle safety, environmental regulations compliance, and EELV system education and training. EVE is also the focal point for Range, STARS, and ELSS issues. EVE is led by the EELV Chief Engineer. The Chief Engineer responsibilities include chairing the EELV Risk Management Council, planning launch verification efforts, interfacing with the Independent Review and Assessment Teams (IRRT & MAT), as well as interfacing with other Chief Engineers across the Center through the Chief Engineers Council. The Chief Engineer is the focal point for EELV Mission Assurance and ensures a consistent technical approach is applied across both families of launch vehicles.



EELV Division Roles & Responsibilities



EVI:

The Mission Integration Division is the EELV customer interface for the EELV SPO. Government missions are assigned a Mission Integration Manager (MIM), supported by a team of personnel from The Aerospace Corporation and Scitor. The MIM is the focal point between the launch vehicle contractor and the satellite vehicle program offices and is responsible for leading all integration efforts to include requirements development, contracting efforts, risk management, technical issue resolution, mission verification and assurance, and schedule integration for the launch campaign. MVI is also the focal point for Mission Specification Development, the EELV launch manifest, and Current Launch Scheduling Review Board support.



EELV Division Roles & Responsibilities



EVK:

The Business Management Division is responsible for the award and administration of two Initial Launch Services (ILS) contracts and two Other Transaction Agreement (OTAs) (a.k.a. Contracts Division). EVK business advisors are key members of the two Integrated Product Teams (IPTs). They advise the program office on the best contract arrangements to meet the customer requirement. EVK drafts Request for Proposals (RFP), contract modifications, EELV program correspondence and archives all contractual documents. Only the warranted military Contracting Officer (CO) for each launch vehicle contract has the contracting authority to give direction to the launch vehicle contractors . The Business Management Division is composed of both military and civilian contracting experts.



EELV Division Roles & Responsibilities



EVL:

Organized to mirror Lockheed-Martin's IPT structure, EELV's Lockheed-Martin Integrated Production Team (IPT) is the lead organization chartered with the responsibility of gathering validating and distributing insight into the Lockheed-Martin Atlas V program. In order to best satisfy this requirement it is absolutely necessary for team members to remain intricately familiar with all aspects of the program at all times. Team members spend countless hours visiting Lockheed-Martin facilities witnessing tests and providing constructive technical oversight. Earned over years of hard work trust and a commitment to producing the launch system of the future, the close relationship which now exist between the IPT and Lockheed-Martin Astronautics is based on a common goal of launch success. The Lockheed Martin IPT is integral to the success of future U.S. space launch vehicles.



EELV Division Roles & Responsibilities



EVO:

The Management Operations Division is responsible for ensuring that the EELV SPO has a strong foundation upon which to operate. This role includes providing administrative support (OPR/EPR, Awards/Decorations, TDY orders etc), personnel actions (MILMOD actions, Leave, Ergometry, In/Out Processing, etc), manpower, education and training requirements, and document management. In addition to ensuring Information Security, EVO provides Information Technology (IT)/help desk support and maintains our computer hardware and software requirements. EVO is led by EELV's top enlisted member.



EELV Division Roles & Responsibilities



EVP:

The Program Control Division is responsible for all EELV accounting, cost estimates, budget controls, and market research. The budget branch (EVPB) builds, defends, and executes the budget for current and future years. The cost branch (EVPC) ensures that contractor proposals are reasonably priced and performs analysis on program life cycle costs and cost savings. The acquisition reporting and market research branch (EVPA) performs statutorily mandated program execution reporting and analyzes the commercial launch market.



EELV Division Roles & Responsibilities



EVV (VCTF):

The Vandenberg Consolidated Task Force (VCTF) is our program office extension at Vandenberg Air Force Base, California. The VCTF is the EELV SPO on-site launch base organization at VAFB responsible for monitoring EELV contractor launch base activities and launch operations (currently limited to the Boeing Delta IV at SLC-6). The VCTF mission focus is to provide engineering insight and support at the launch site. Additionally, the VCTF represents Government EELV interests at the launch site by providing expertise, surveillance, review/comment, systems integration support, and technical information exchange on all launch site-specific systems, procedures, and operations as well as system level items affected by or affecting launch site systems/interests. The CCTF is part of SMC Detachment 9, which is a conglomeration of assets from various SMC SPOs (both SV & LV). While the VCTF has a Det 9 Commander, the VCTF is directed by an EELV SPO division chief.



OVERVIEW

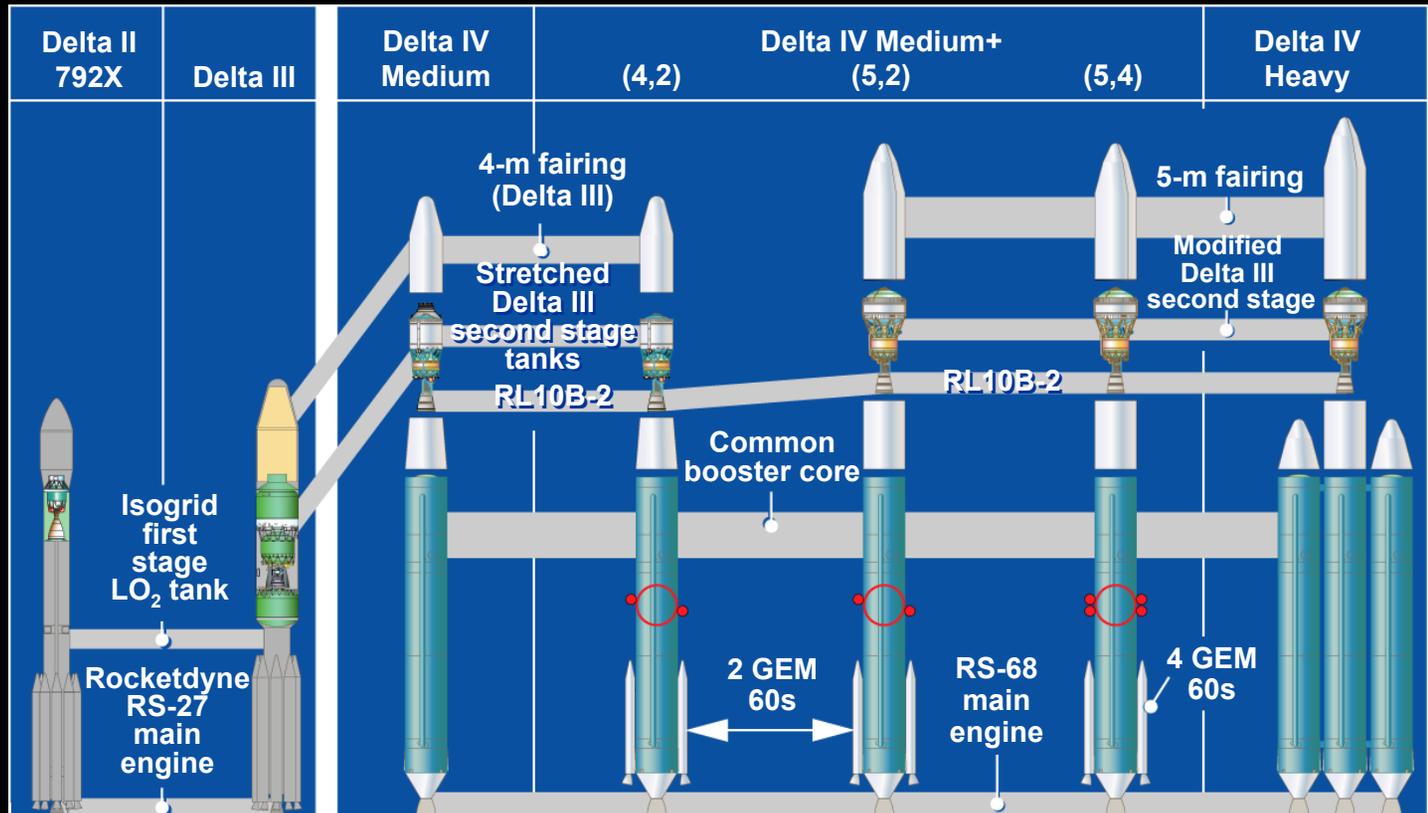
1. What is a SPO? What is EELV?
2. Chain of Command
3. EELV Organization
4. EELV Hardware
5. EELV Geography
6. Who are EELV customers?
7. Mission Management



Boeing Delta IV Hardware



Delta Evolution



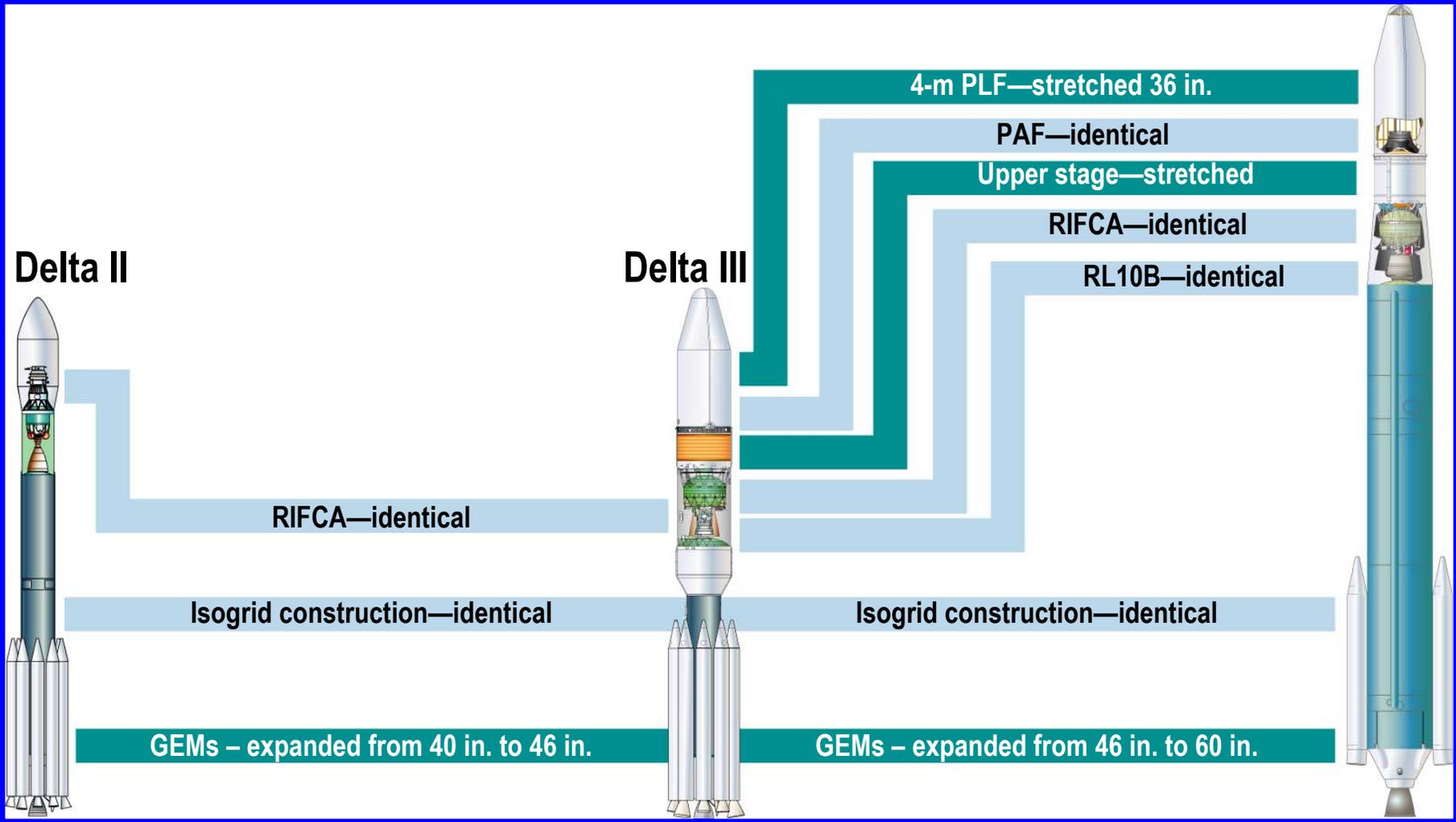
LEO	4,971 kg (10,960 lb)	8,292 kg (18,280 lb)	8,120 kg (17,900 lb)	10,430 kg (23,000 lb)	7,980 kg (17,600 lb)	11,475 kg (25,300 lb)	23,040 kg (50,800 lb)
GTO	1,799 kg (3,965 lb)	3,810 kg (8,400 lb)	4,210 kg (9,285 lb)	5,845 kg (12,890 lb)	4,640 kg (10,230 lb)	6,565 kg (14,475 lb)	13,130 kg (28,950 lb)

GTO: 185 km by 35,786 km, 28.7 deg inclination (Delta II/Delta III) or 27 deg inclination (Delta IV)



Delta Evolution

Delta IV-M+
(4,2)

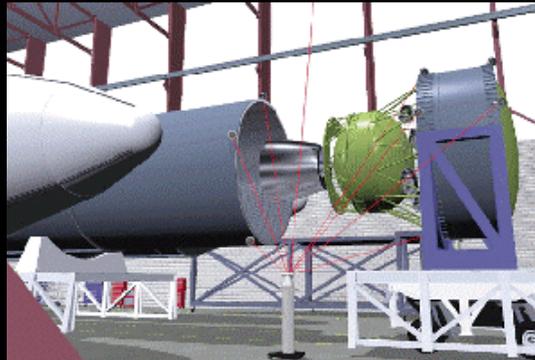




Produce > Transport > Mate > Erect > Encapsulate > Launch



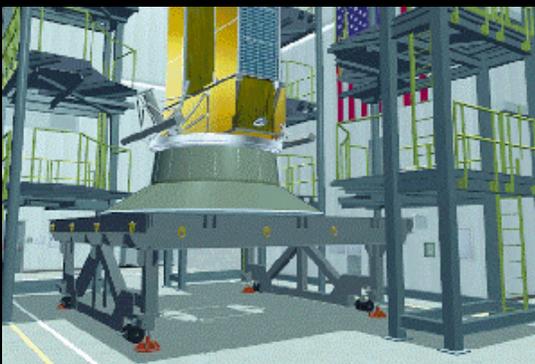
1. Components are shipped from Decatur, Alabama factory and arrive at CCAFS via Delta Mariner



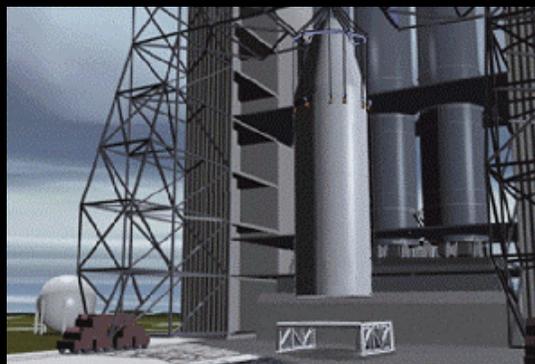
2. Using lasers for exact alignment, 1st & 2nd stages mated & checked at HIF



3. The vehicle is transported and erected on the launch pad



4. Meanwhile, the payload is encapsulated inside the fairing at a separate facility



5. The encapsulated payload is mated to the Common Booster Core at the launch pad



6. Countdown and launch (Delta IV Heavy class launch vehicle shown)



Boeing Delta IV Decatur, AL Facility





Delta Mariner delivers Common Booster Core (CBC) to CCAFS, Florida



Boeing Delta IV Hardware



CBC Exiting Delta Mariner



**KAMAG
Transport
Vehicle**

Boeing Delta IV Hardware



CBC being transported to Horizontal Integration Facility (HIF) by KAMAG



Boeing Delta IV Hardware



Horizontal Integration Facility

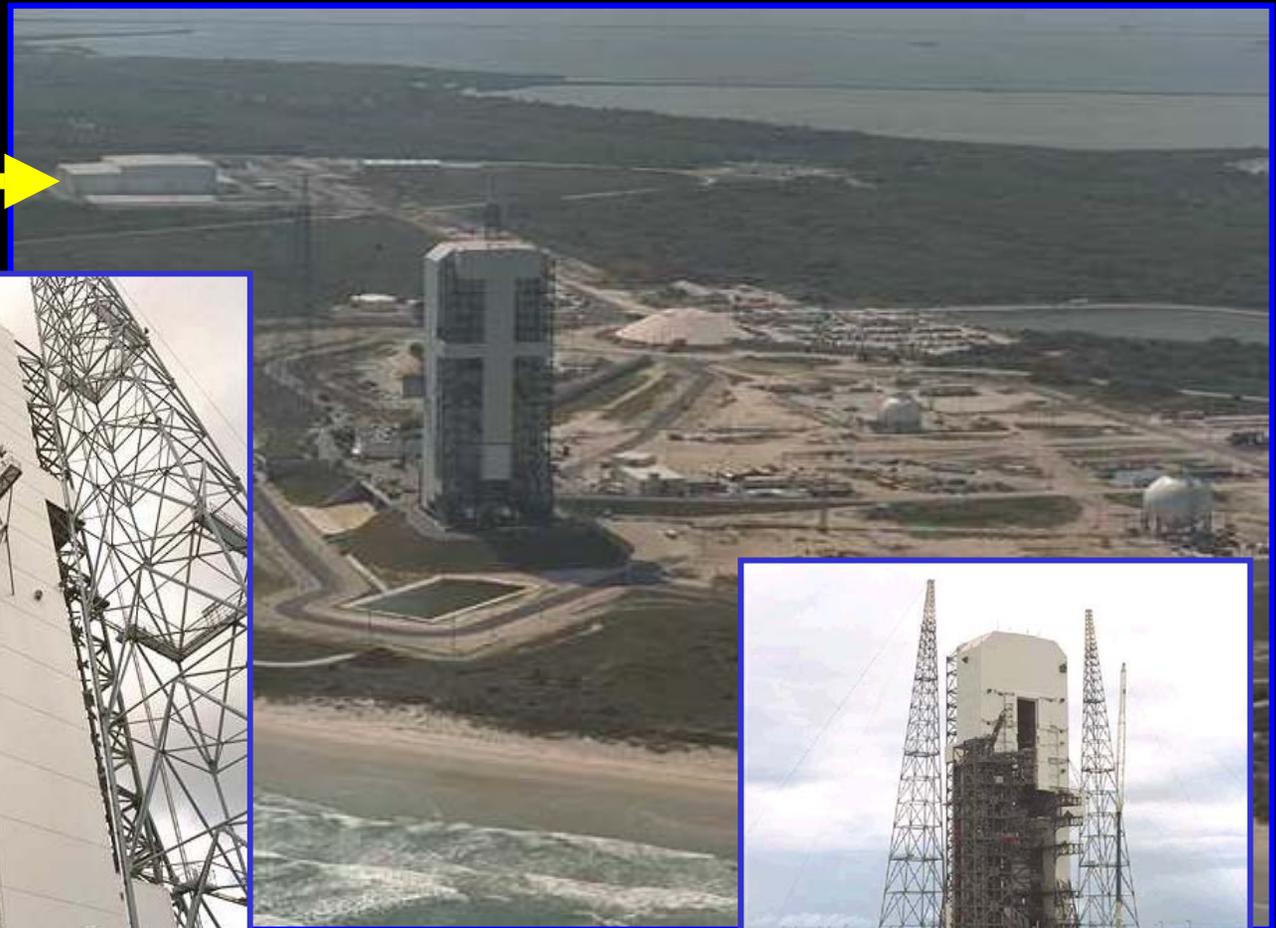


Boeing Delta IV Hardware



CCAFS Delta IV Space Launch Complex 37 (SLC-37)

Horizontal Integration Facility (HIF)



Boeing Delta IV Hardware



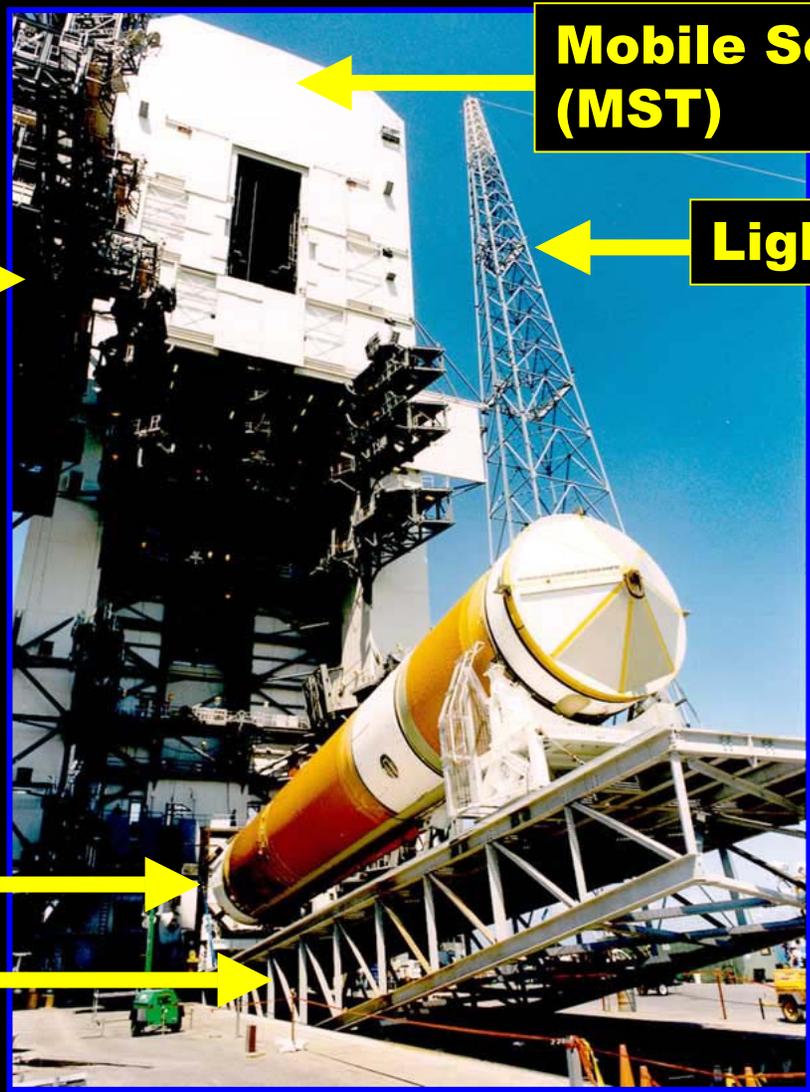
Fixed Umbilical Tower (FUT)

Launch Mate Unit (LMU)

Fixed Pad Erector (FPE)

Mobile Service Tower (MST)

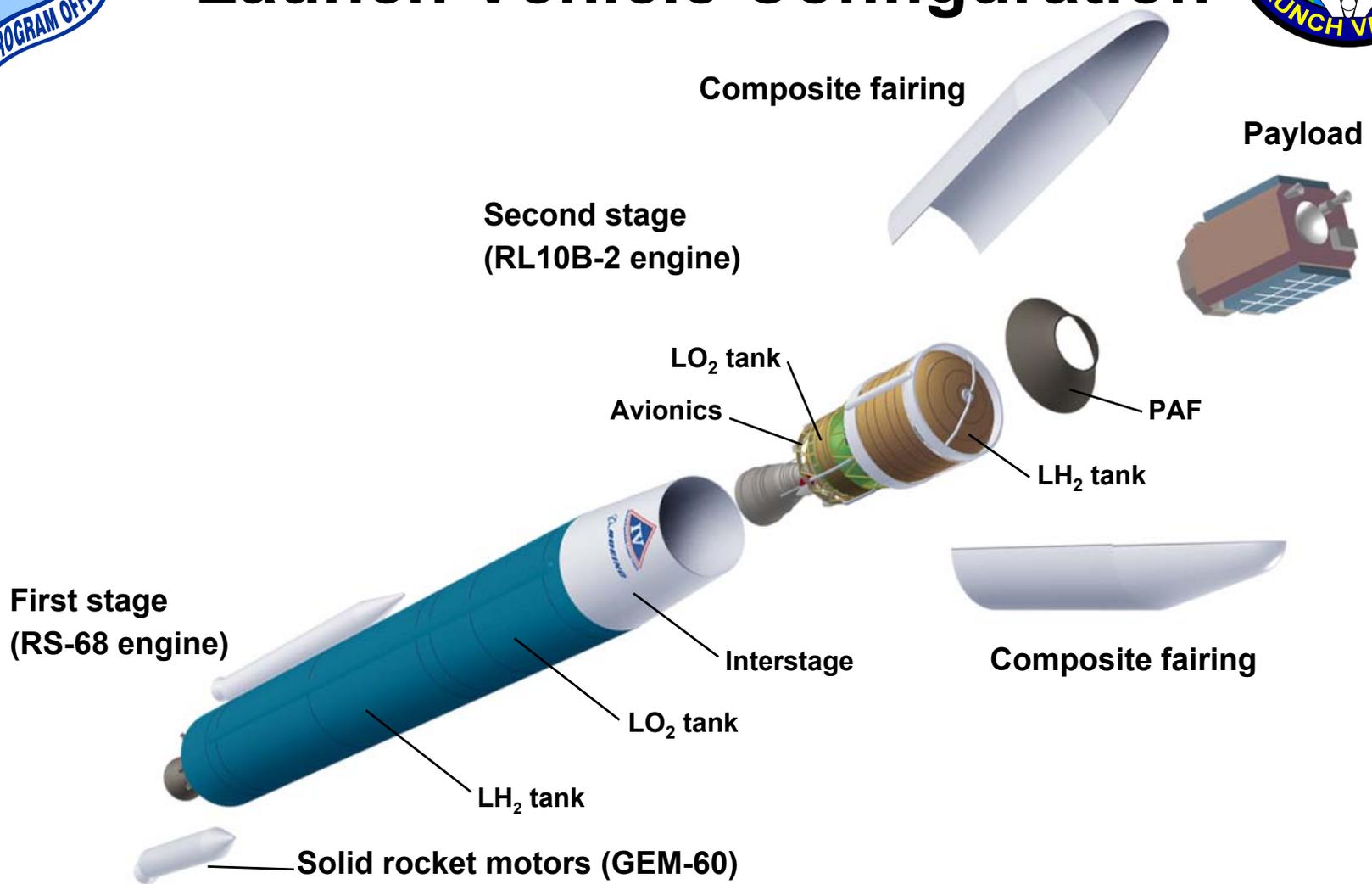
Lightning Tower



Boeing Delta IV Hardware



Delta IV M+ (4,2) Launch Vehicle Configuration





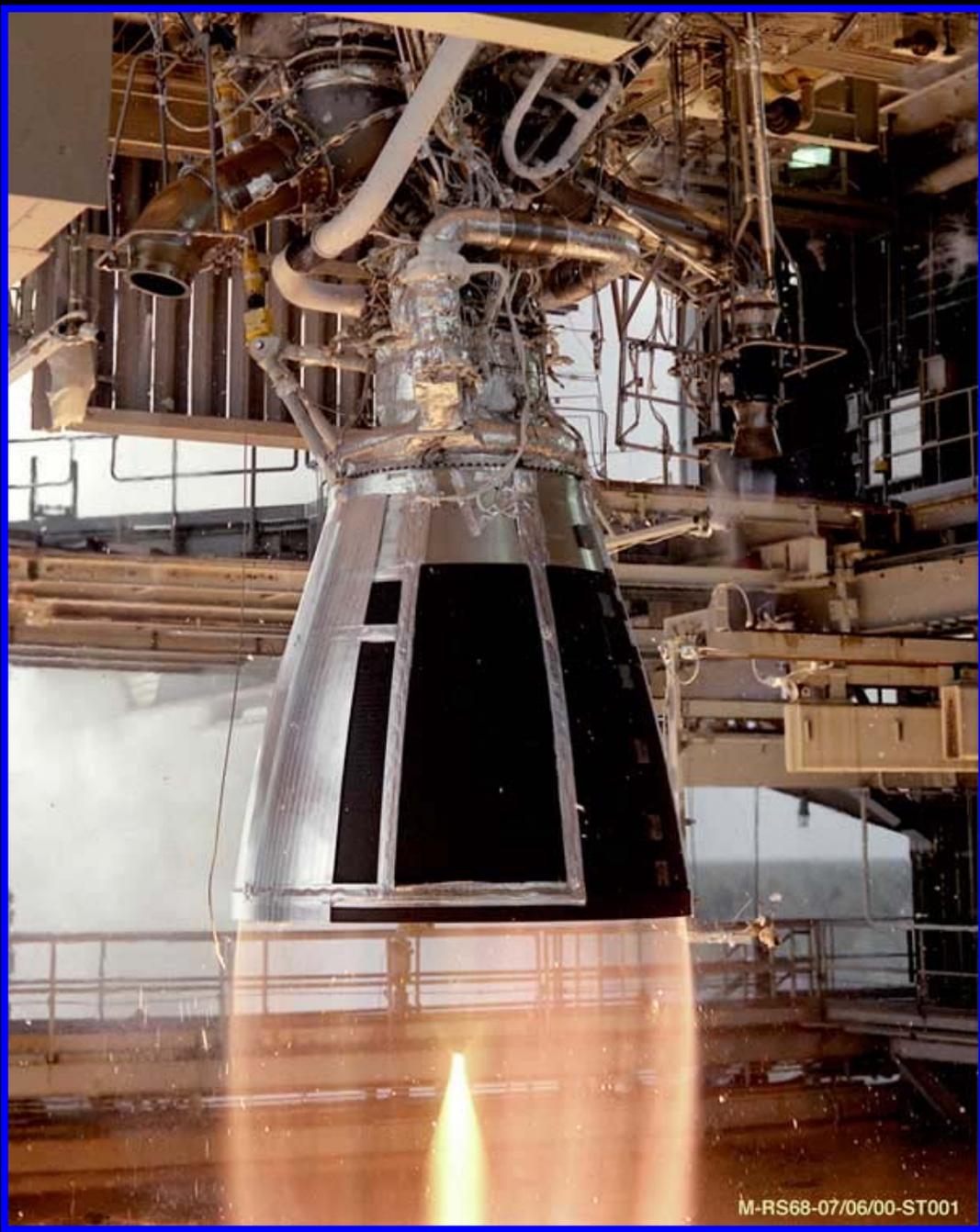
Delta IV Upper Stage



Boeing Delta IV Hardware



Delta IV RS-68 Engine



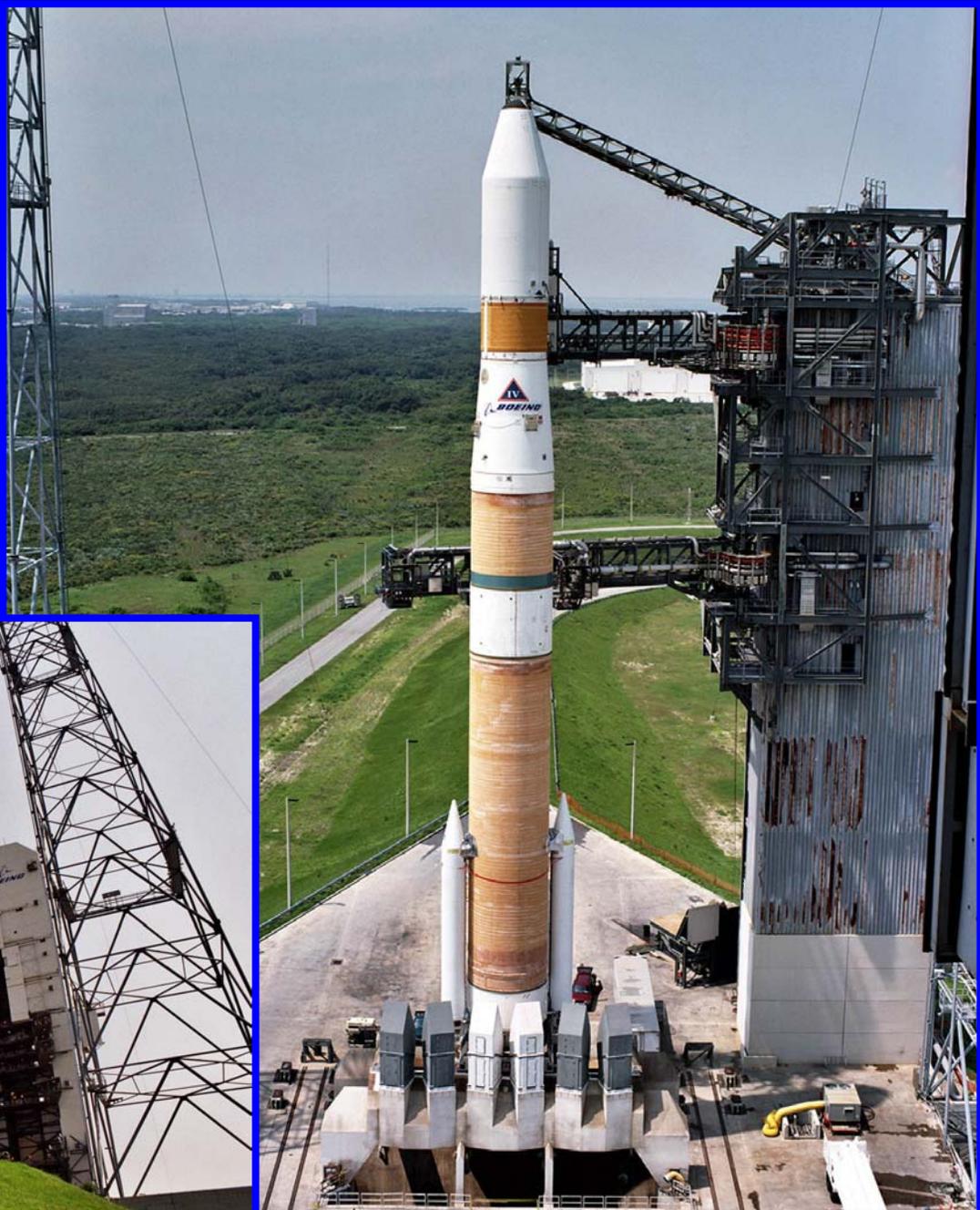
M-RS68-07/06/00-ST001



Boeing Delta IV Hardware



Delta IV M+ (4,2) First Flight



Boeing Delta IV Hardware

Space Launch Complex 6 (SLC-6) Vandenberg AFB



Boeing Delta IV Hardware

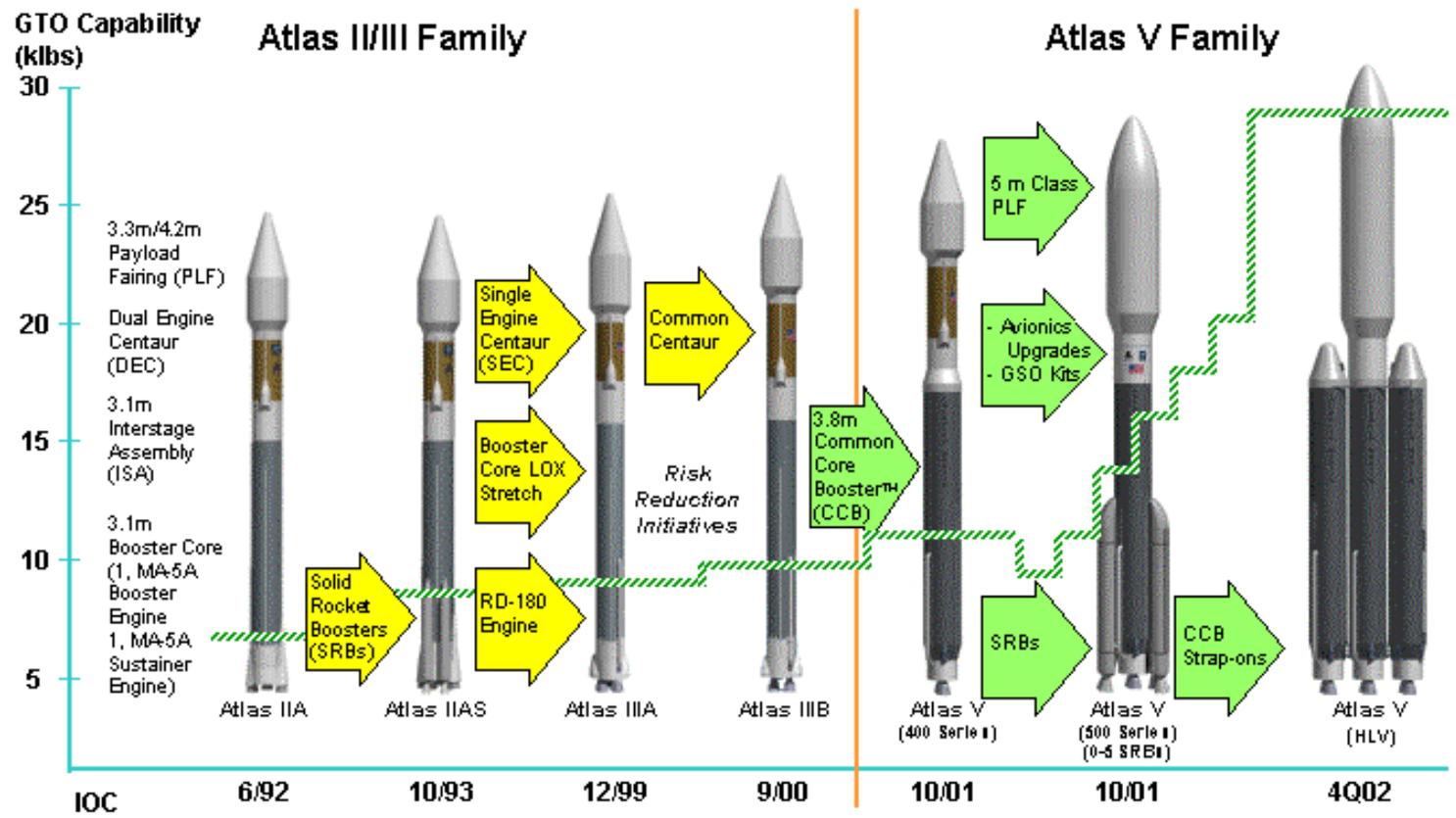


Lockheed-Martin Atlas V Hardware

Lockheed-Martin Atlas V Hardware



Atlas Evolution



Implementing a Low Risk Evolution Process

Lockheed-Martin Atlas V Hardware



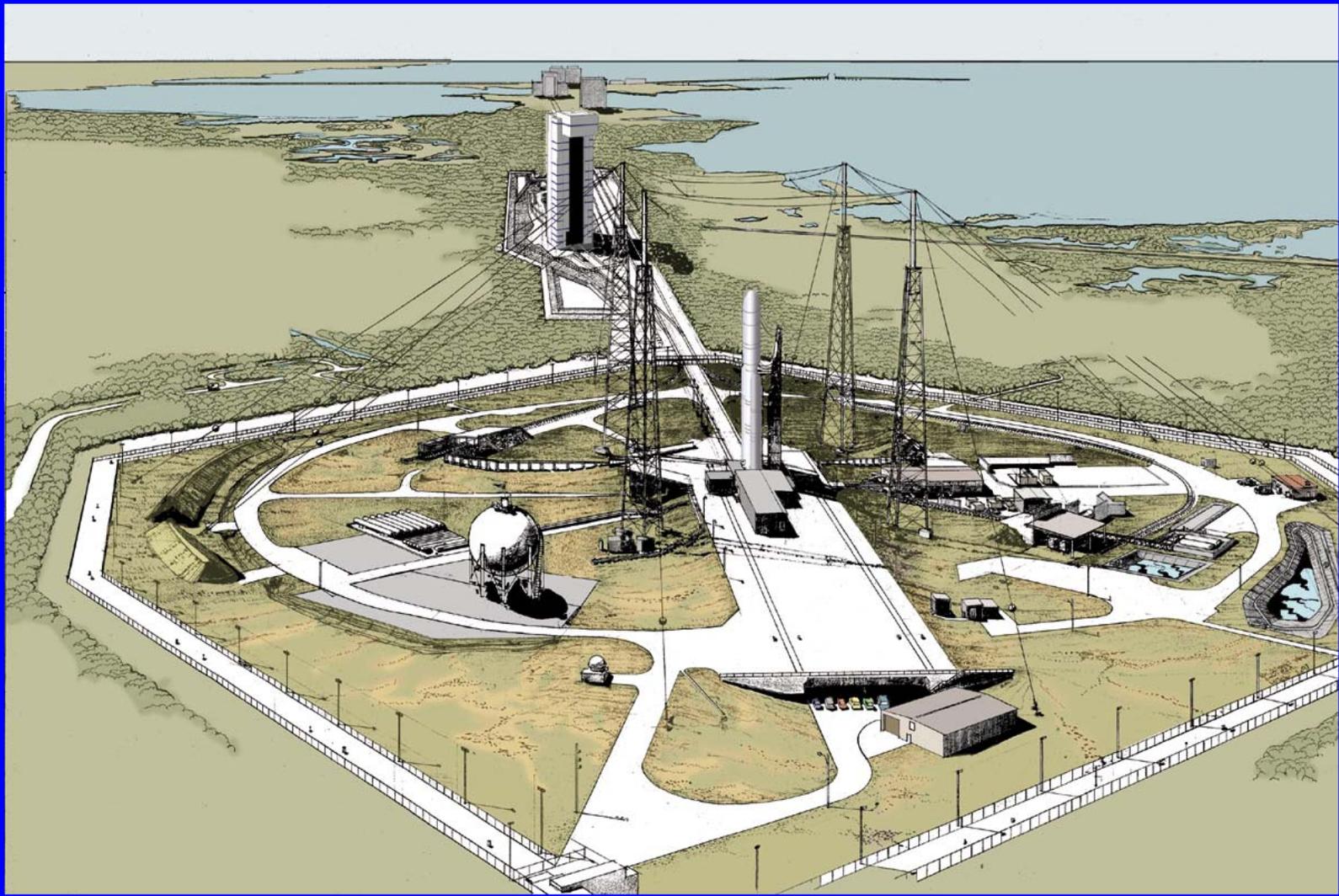
Atlas V Space Operations Center and LC 41 at CCAFS



Lockheed-Martin Atlas V Hardware



Atlas V Launch Complex 41



Lockheed-Martin Atlas V Hardware



Atlas V Mobile Launch Platform



Lockheed-Martin Atlas V Hardware



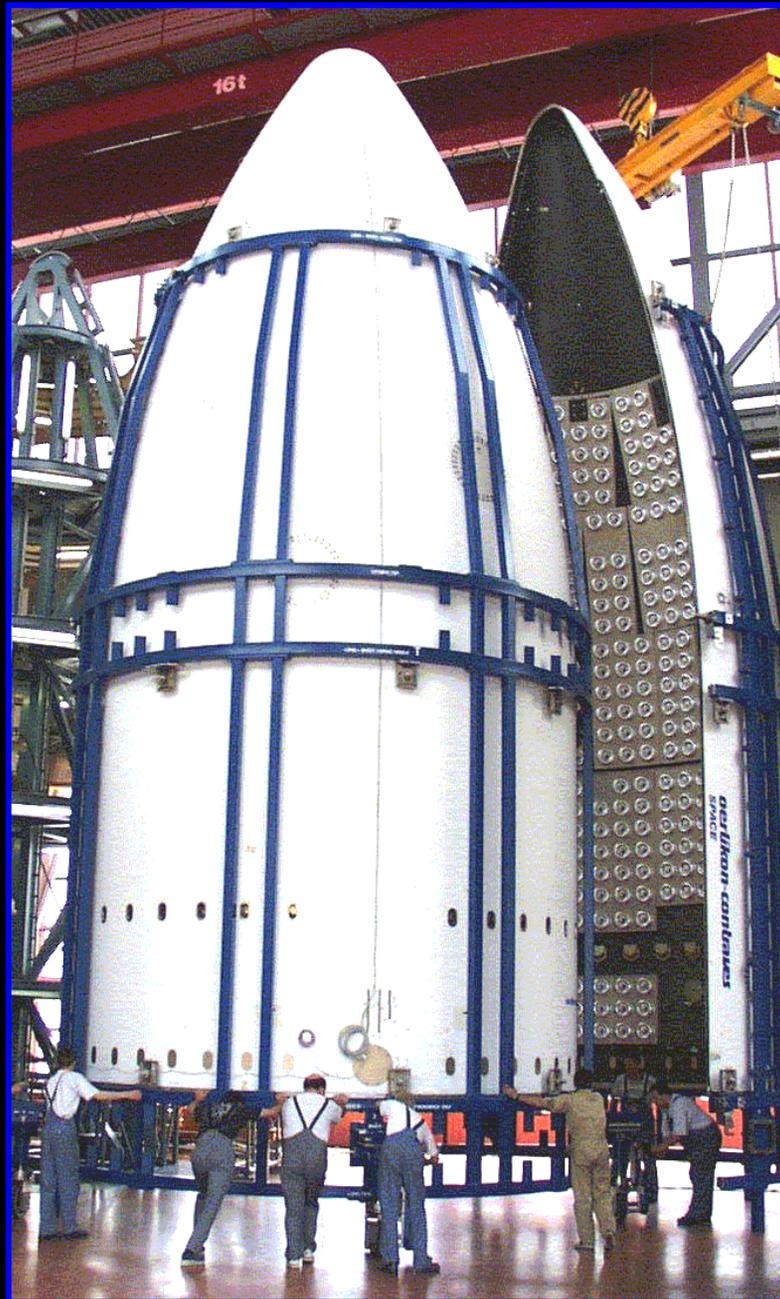
Atlas V Vertical Integration Facility



Lockheed-Martin Atlas V Hardware



Atlas V Contraves Fairing Halves



Lockheed-Martin Atlas V Hardware



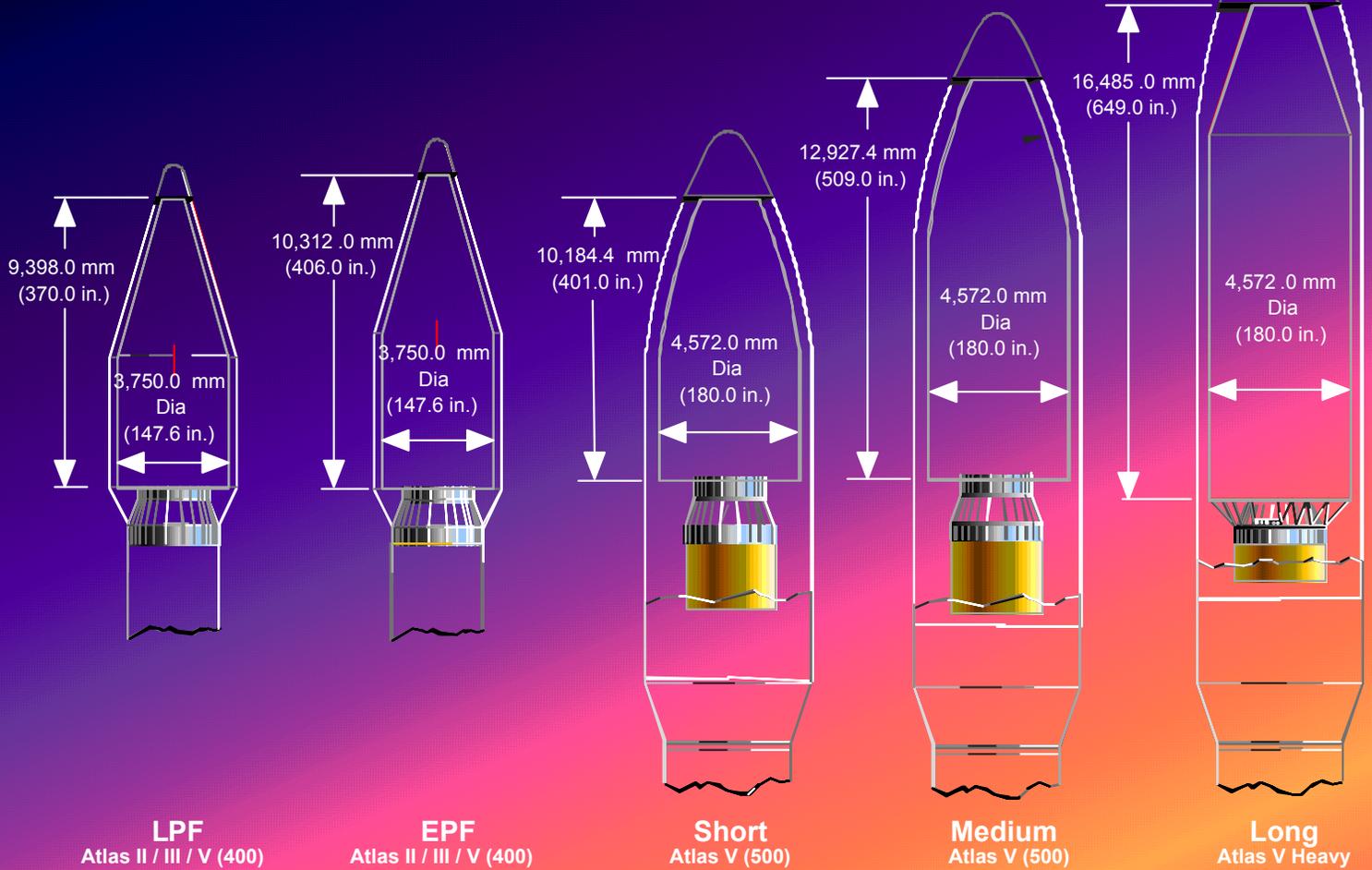
Atlas V Encapsulated Spacecraft Transport (4m Payload Fairing)



Lockheed-Martin Atlas V Hardware



Atlas V Payload Envelopes



Lockheed-Martin Atlas V Hardware



Centaur Upper Stage at Atlas Space Operations Center



Lockheed-Martin Atlas V Hardware



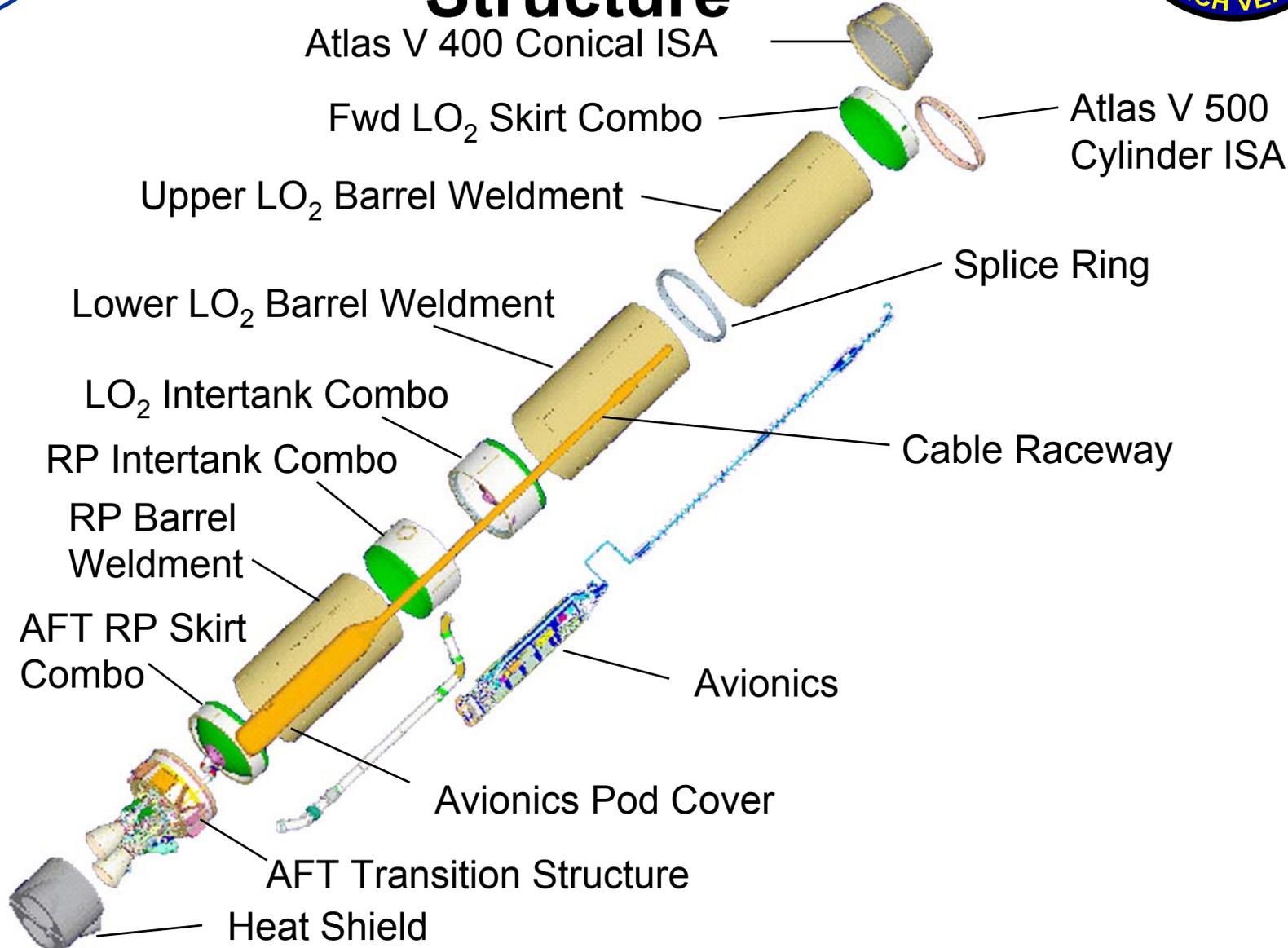
Centaur Upper Stage transport operations in San Diego



Lockheed-Martin Atlas V Hardware



Atlas V Common Core Booster (CCB) Structure



Lockheed-Martin Atlas V Hardware

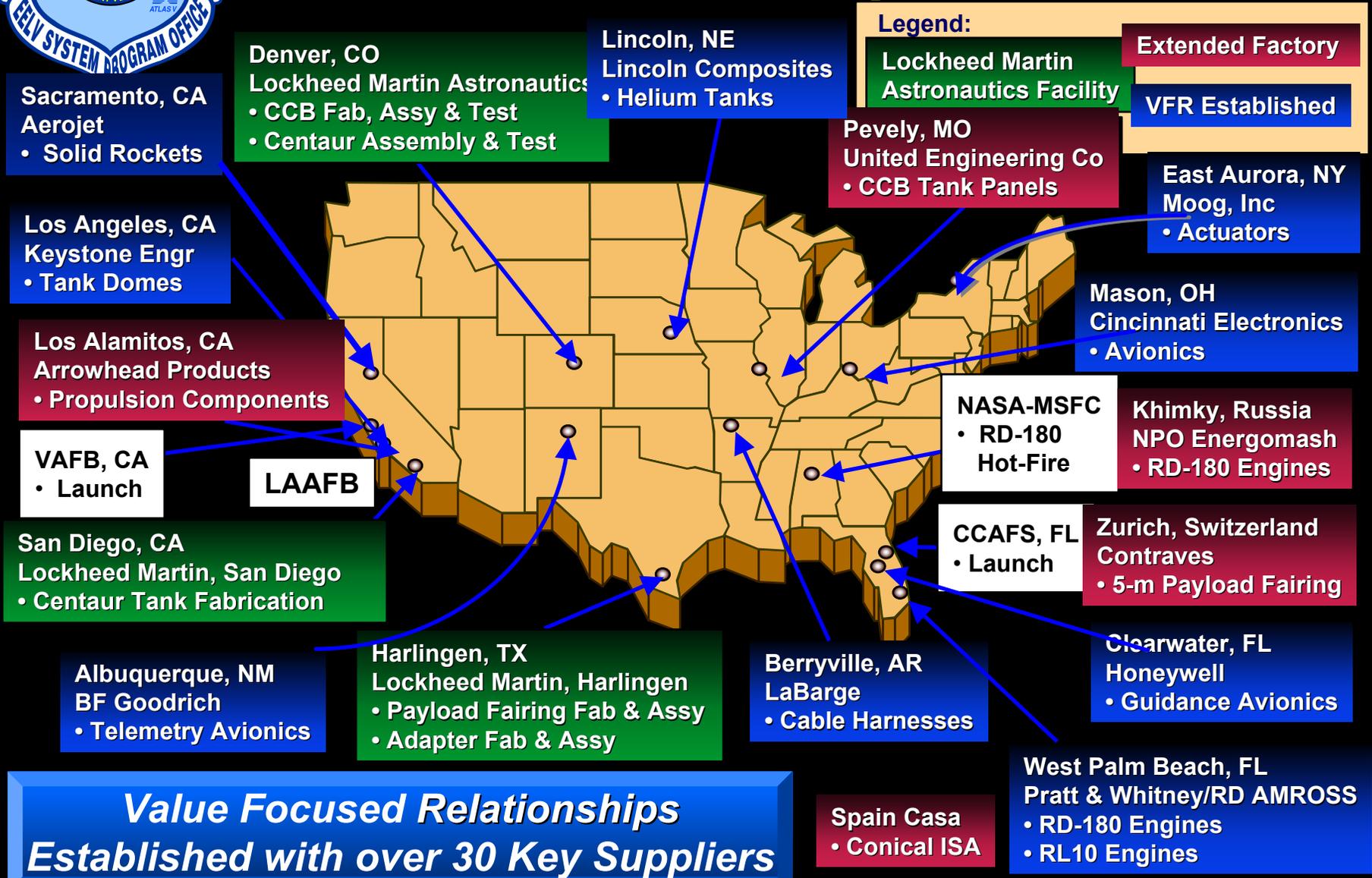


RD-180 Engine



Lockheed-Martin Atlas V Hardware

Atlas V Manufacturing: Extended Enterprise



**Value Focused Relationships
Established with over 30 Key Suppliers**

Lockheed-Martin Atlas V Hardware



Atlas V International Subcontracts*

**Contraves
5.4m Fairing**



Switzerland France USA

**British Aerospace,
Four Major Avionics
Components**



Great Britain USA

**Low Shock
Separation System**



Sweden USA

**Eagle Pitcher Main
Vehicle Battery**



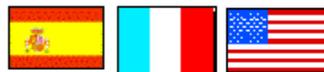
The Netherlands USA

**CASA Composite
Boattail**



Spain France USA

**CASA Composite
Interstage Adapter**



Spain France USA

**NPO Energomash
RD-180 Booster
Engine**



Russia Ukraine

**KAMAG Payload/
Fairing Transport
Vehicle**



Germany



**All Lead Contractor countries listed first*

Lockheed-Martin Atlas V Hardware

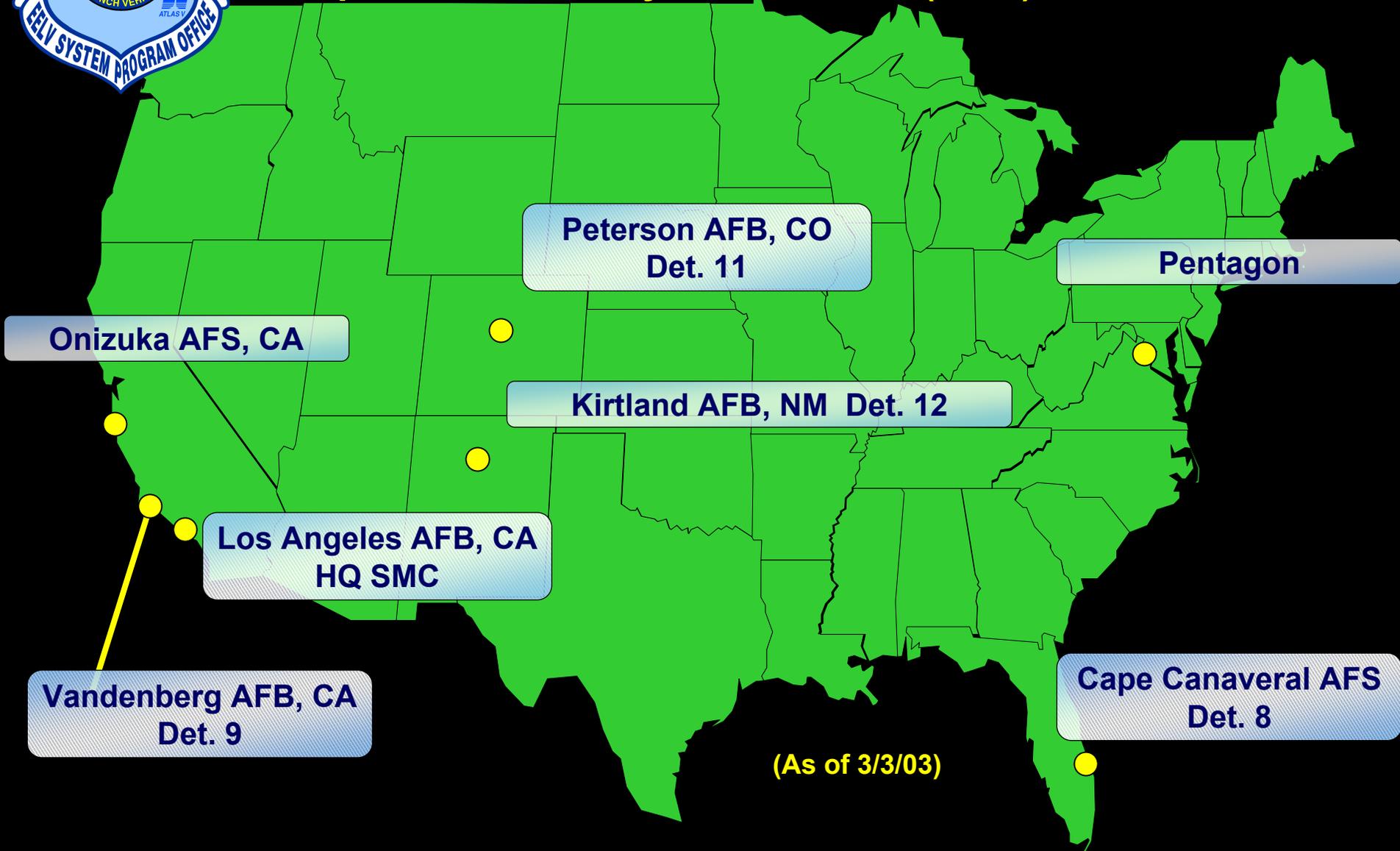


OVERVIEW

1. What is a SPO? What is EELV?
2. Chain of Command
3. EELV Organization
4. EELV Hardware
- 5. EELV Geography**
6. Who are EELV customers?
7. EELV Contracts & Administration

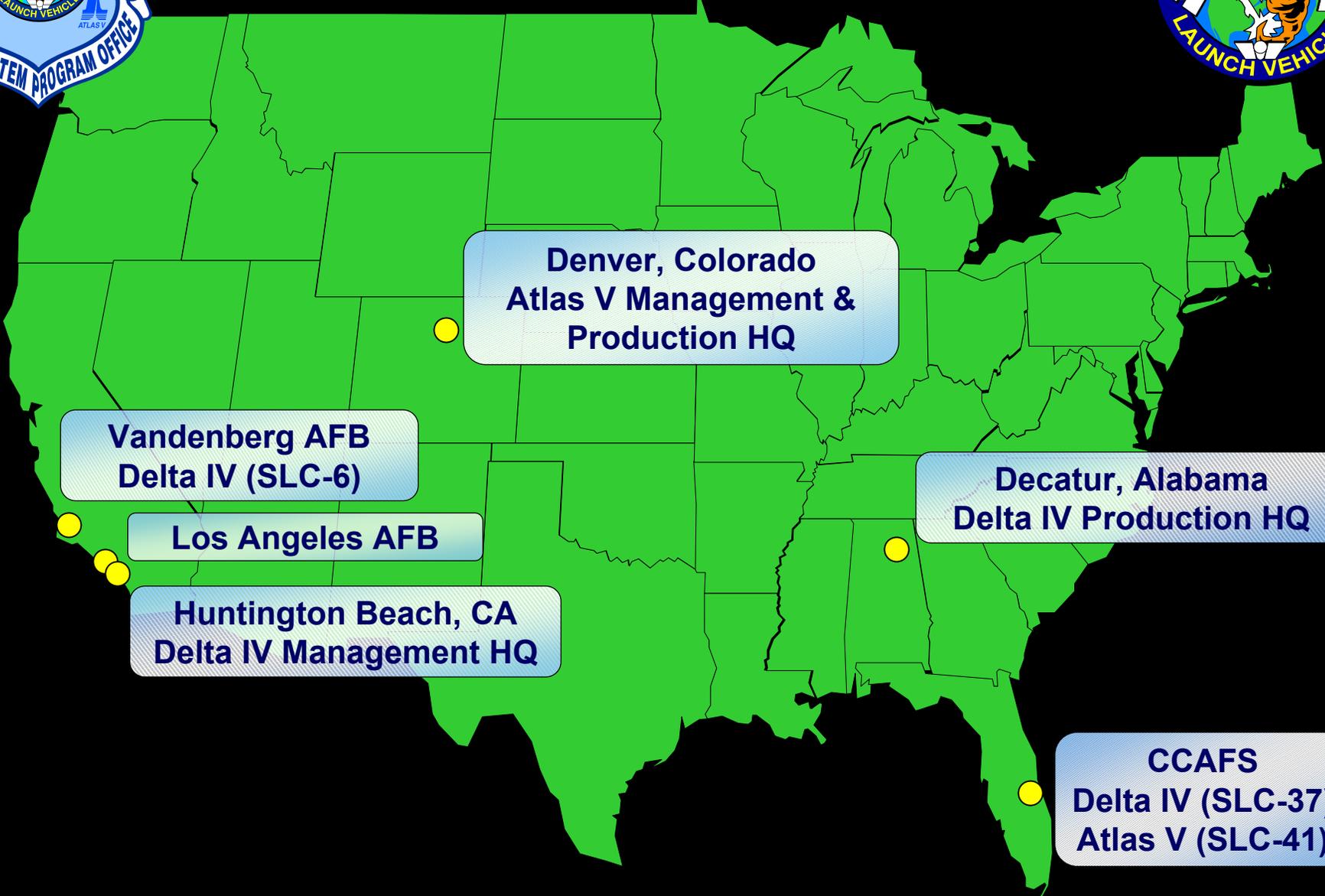
Space Acquisition

Space & Missile Systems Center (SMC) Locations



(As of 3/3/03)

EELV on the Map



Denver, Colorado
Atlas V Management & Production HQ

Vandenberg AFB
Delta IV (SLC-6)

Los Angeles AFB

Huntington Beach, CA
Delta IV Management HQ

Decatur, Alabama
Delta IV Production HQ

CCAFS
Delta IV (SLC-37)
Atlas V (SLC-41)



OVERVIEW

1. What is a SPO? What is EELV?
2. Chain of Command
3. EELV Organization
4. EELV Hardware
5. EELV Geography
6. Who are EELV customers?
7. Mission Management

Who are EELV customers?

**Defense Satellite
Communication
System (DSCS)**



**Defense
Meteorological
Satellite Program
(DMSP)**



**Milstar Satellite
Communications
System**



**Defense Support
Program (DSP)**



**Navstar Global
Positioning
System (GPS)**



Also satellites for:

- **National Reconnaissance Office (NRO)**
- **DoD Experimental Satellites (Space Test Program Office)**
- **NASA**



Who are EELV customers?



As the Air Force transitions to EELV systems, the Air Force is also transitioning to new space vehicles.

Current:

DSCS & WGS

DSP

DMSP

GPS

Future:

AEHF

SBIRS, SBR

NPOESS

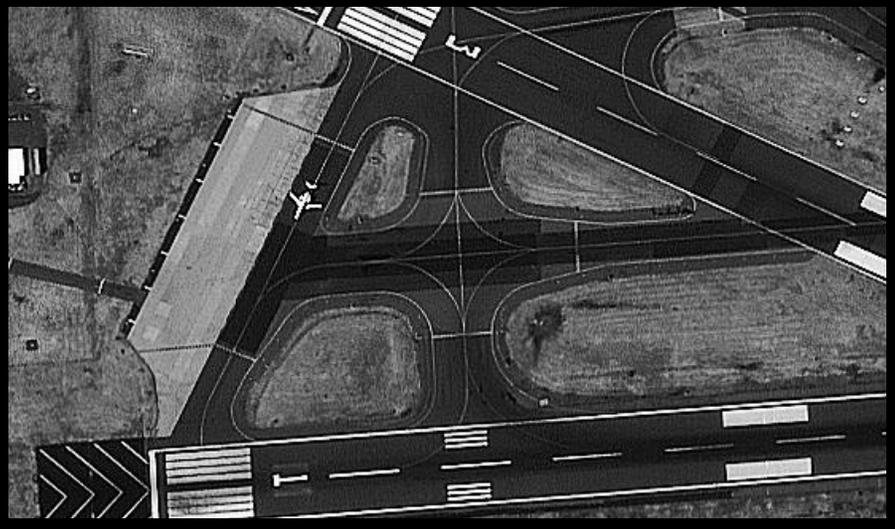
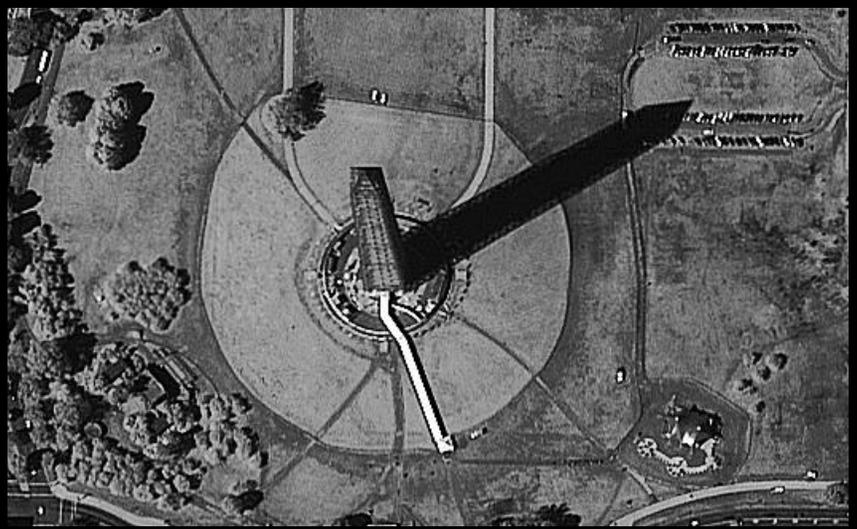
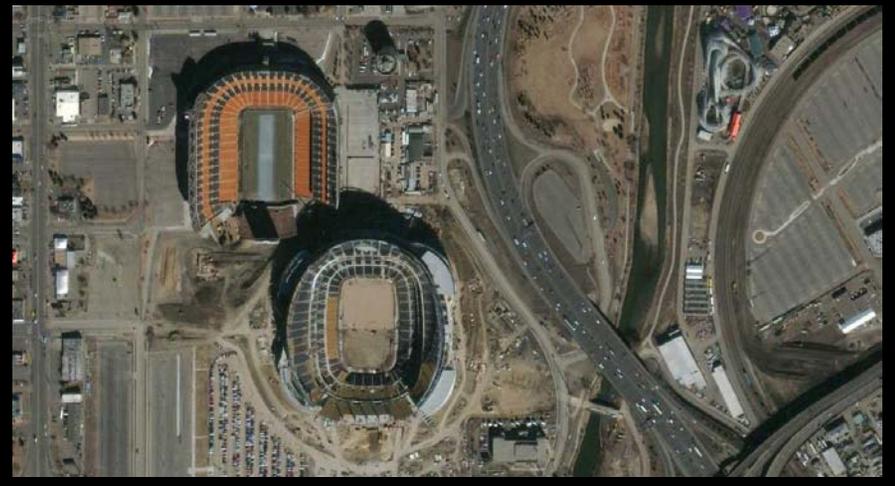
GPS Upgrades



How are the payloads used?

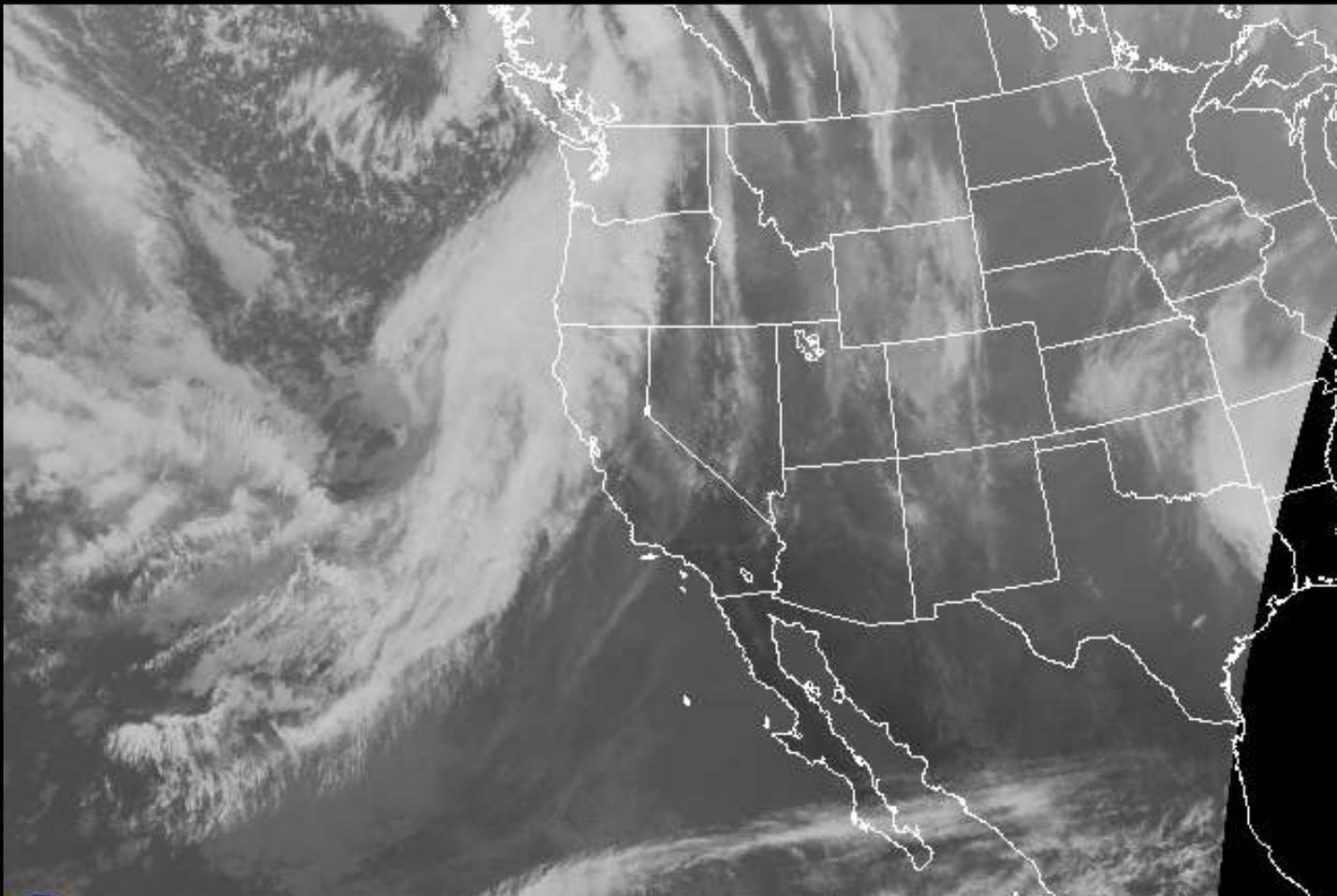


Satellite Imagery



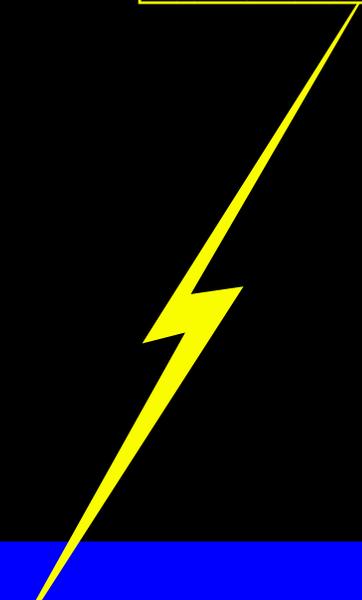
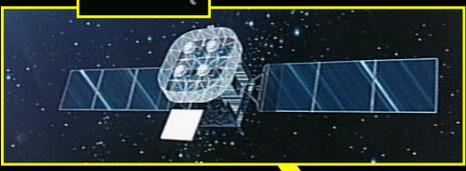
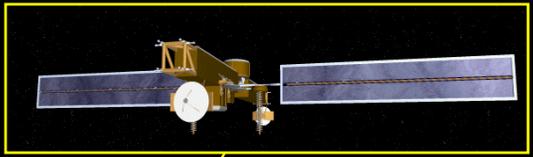


Weather Forecasting & Imagery



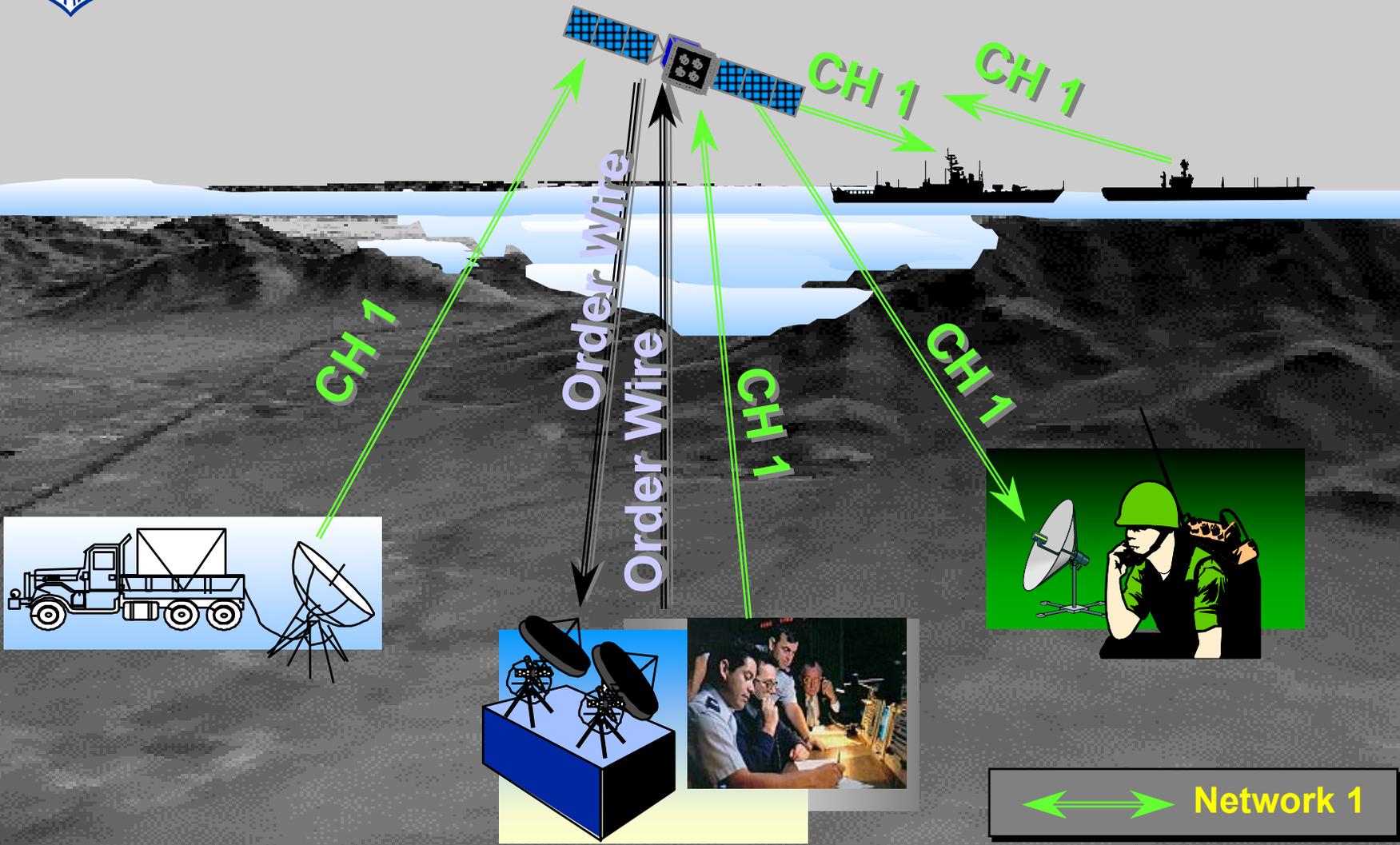


Satellite Communication





Satellite Communication



Camouflage Detection

Panchromatic



True Color

Near IR



Short-wave IR





GPS Aided Munitions

Joint Direct Attack Munition (JDAM)



HARM (AGM-88 D)



Conventional Air Launched Cruise Missile (CALCM) AGM-86 D

Tomahawk Cruise Missile



AGM-130

Lightweight



Army TACTical Missile System (ATACMS)

GPS satellites transmit separate frequencies for military users and civilian users

Do you have a GPS Handheld Receiver?



OVERVIEW

1. What is a SPO? What is EELV?
2. Chain of Command
3. EELV Organization
4. EELV Hardware
5. EELV Geography
6. Who are EELV customers?
7. Mission Management

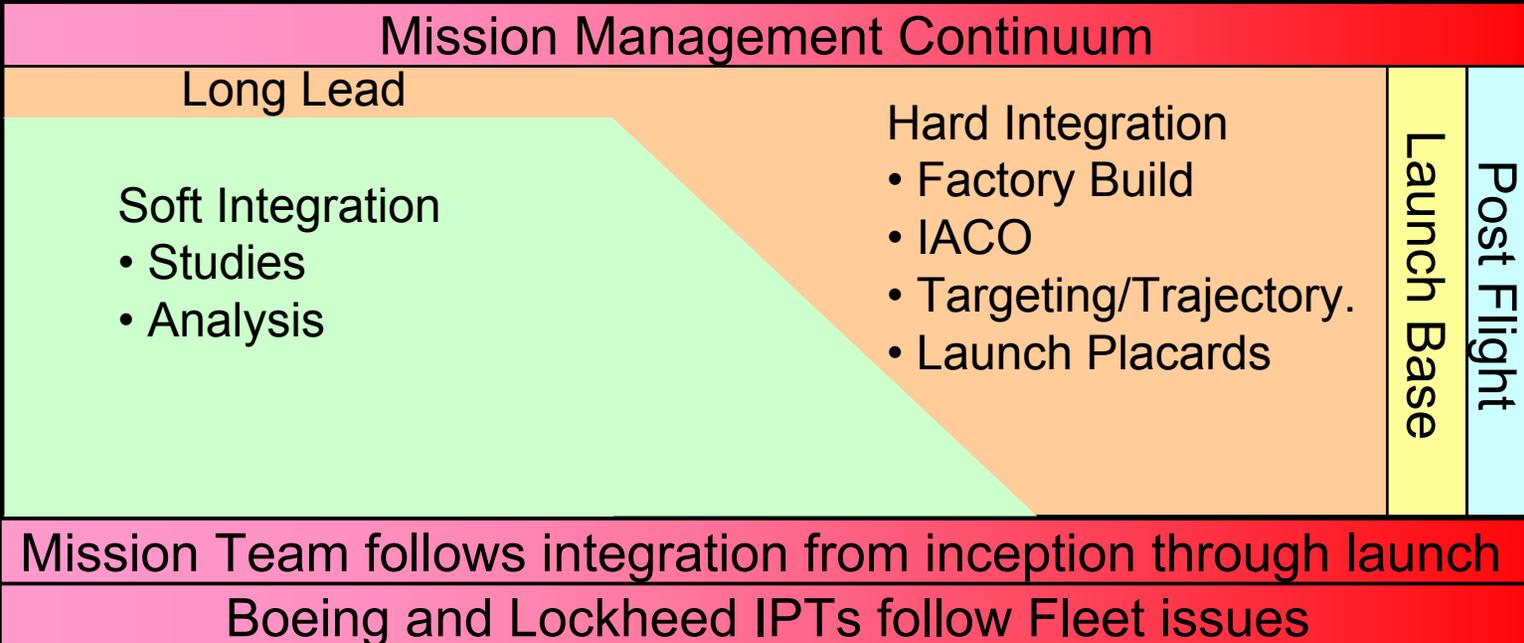


EELV Mission Management Process

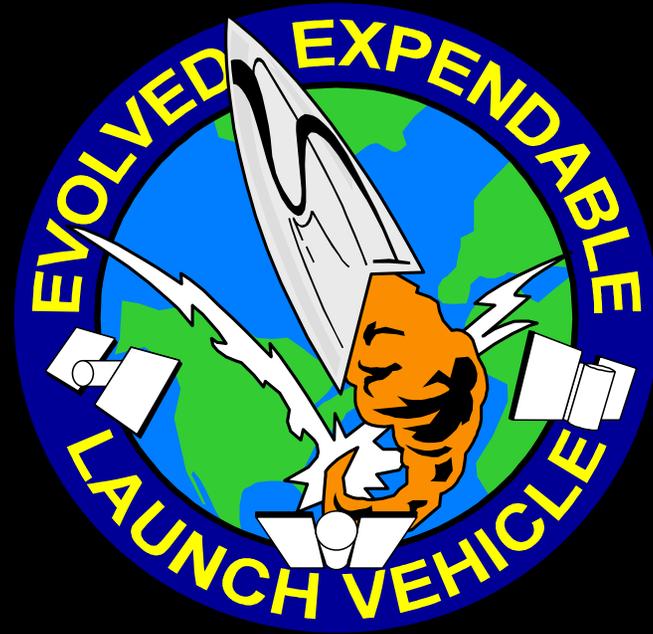
L-24 Months

L-12 Months

L-0



***Underwritten by Integrated Data Management Systems
(LMA's Webvue or Boeing's Genisys)***



**Do you have
questions or comments?**

Contact the EELV Webmaster: eelv.webmaster@losangeles.af.mil