

Launch Enterprise



Rocket Systems Launch Program

Small Launch Evolutions



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RSLP Launch History

SMC LAUNCH ENTERPRISE

18 consecutive successful launches of new vehicle configurations:

- STARBIRD
- TCMP-I
- TCMP-II
- MSLS
- ait-1
- ait-2
- NTW/QRLV
- Minotaur I
- Minotaur II/TLV
- LRALT
- NFIRE TLV
- Minotaur IV Lite (HTV-2)
- Minotaur IV
- E-LRALT
- Juno
- Minotaur V
- Falcon 9 1.1
- Janus



Minotaur IV



NTW at PMRF

...5 different launch vehicle contractors

- Orbital Sciences/Orbital ATK
- Lockheed Martin
- L-3 Coleman/AR Coleman
- Space Vector
- SpaceX



ait at Kodiak



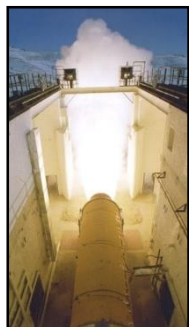
LRALT from C-17

.... From 7 different Ranges

- Wallops
- Cape Canaveral
- Wake
- Vandenberg
- Kodiak
- PMRF
- RTS



SR19 Static Fire



SR118 Static Fire



Minotaur I at Vandenberg/SSI



TCMP at Wake Is



Mainstreaming Small Launch

SMC LAUNCH ENTERPRISE

SPACENEWS February 15, 2018

Defense budget establishes a “small launch” program with a dedicated funding line of \$192.5 million over five years

WASHINGTON — It’s been widely reported that the U.S. military views its satellites in space as prime targets of enemy aggression. But opinions diverge over how to deter and defeat potential attacks.

One school of thought is that satellites could be made less attractive targets if the military were able to launch new ones into orbit at will, within minutes or hours of an attack. This approach appears to be gaining traction especially as the commercial “new space” industry produces increasingly sophisticated vehicles in smaller sizes.

*Small Launch
Procurement funding
begins 1 Oct 18*

Air Force Secretary Heather Wilson said the goal is to “have a variety of launch capabilities in order to have assured access to space.”



Tactical Implications

What do strategic shifts mean for us?

SMC LAUNCH ENTERPRISE

- **Increasing Small Space Launch Manifest**
 - **Current**
 - STP-2 (SpaceX)
 - NRO-111, -129, -174 (Orbital ATK)
 - IceCAP (Spaceflight)
 - Rapid Agile Launch Initiative (3x STP-S27s) (VOX et. al.)
 - **Planned within next 12 months**
 - STP (STP-S28) (OSP-4)
 - ORS-8 (OSP-4)
 - Monolith (OTA)
 - ASLON (SRP-O)
- **Increasing budget**
 - **Next Slide**



RSLP Launch/Support Contracts Overview

SMC LAUNCH ENTERPRISE

		CURRENT					FUTURE									
		FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	
Sub Orbital		Sounding Rocket Program - 3						Sounding Rocket Program - 4								
								Small Rocket Program – Orbital (0 – 400 lb to LEO)							Est End Dec 29	
Orbital		Orbital/Suborbital Program – 3 Lane 1 (400 – 4,000 lb to LEO)														
		Orbital/Suborbital Program – 3 Lane 2 (4,000 – 20,000+ lb to LEO)						Orbital Services Program – 4 (400 – 8,000 lb to GTO)								Est End Nov 29
AS		Aging Surveillance					Aging Surveillance Follow-On									
MA		Launch Services Mission Assurance (LSMA)							LSMA Follow On							Est End TBD

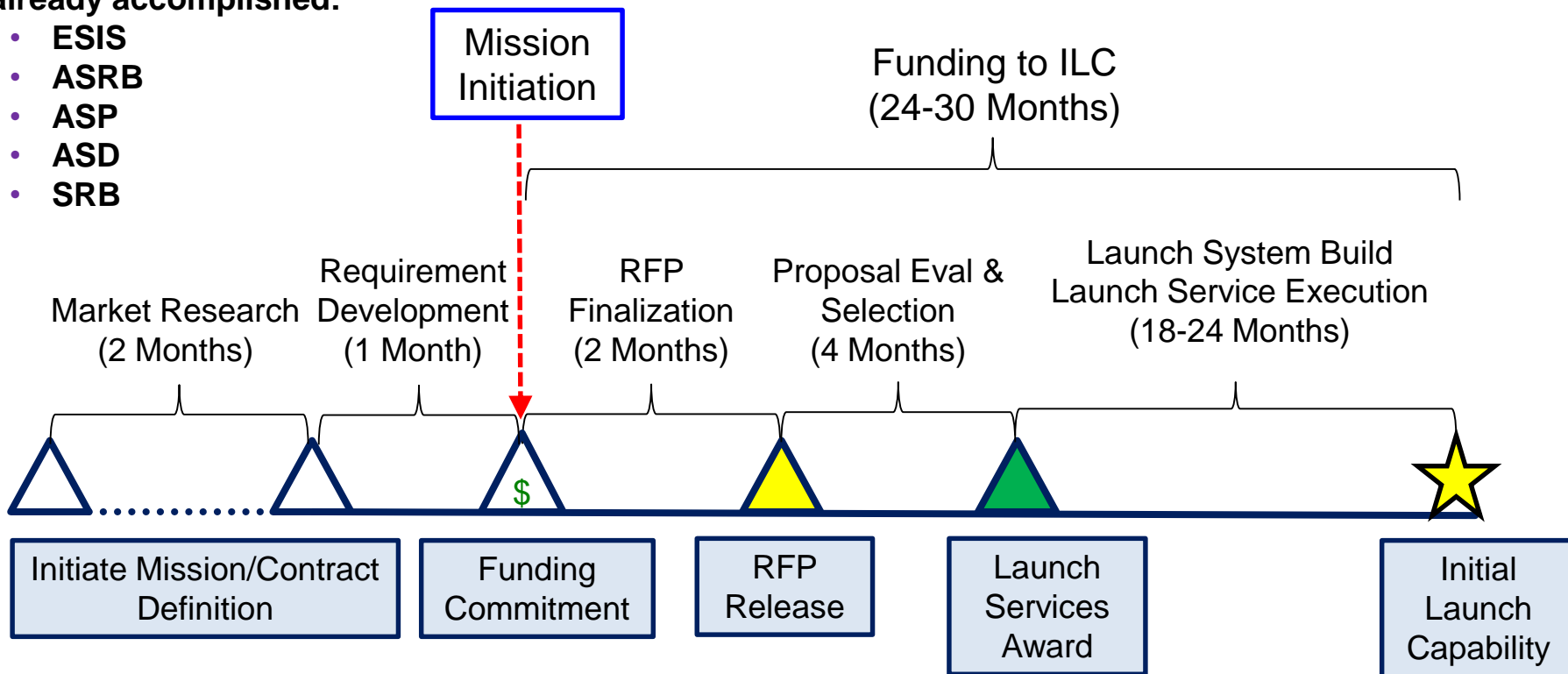


Planned OSP-4/SRP-0 Acquisition Schedule

SMC LAUNCH ENTERPRISE

Timeline assumes the following SMC pre-solicitation activities already accomplished:

- ESIS
- ASRB
- ASP
- ASD
- SRB





Small Launch Struggles - #1 of 4

SMC LAUNCH ENTERPRISE

- **Provider “Continuity”**
 - **Movement away from IDIQ leaves providers “hanging” between missions**
 - **Personnel/Facility Security Issues**
 - **No “pool” to support special studies**
- **Solutions we’re exploring**
 - **IDIQ “On the side”**
 - **For all SRP-O/OSP-4 technically acceptable offerors**
 - **No limit to the competitive pool**
 - **Reverse on tradition - competing for a mission gets you into the IDIQ**



Small Launch Struggles - #2 of 4

SMC LAUNCH ENTERPRISE

• Mission Assurance Capability

Provider	Comm'l	Cat 0 (OTA)	Cat "1-" (OTA or SRP-O)	Cat 1 (SRP-O)	Cat "1+" (SRP-O)	Cat 2 (SRP-O)
A	On Contract	On Contract	Stated Objective	Unknown	Unknown	Unknown
B	On Contract	On Contract	Stated Objective	Unknown	Unknown	Unknown
C	On Contract	On Contract	Stated Objective	Unknown	Unknown	Unknown
D	On Contract	Stated Objective	Stated Objective	Unknown	Unknown	Unknown
E	On Contract	Stated Objective	Stated Objective	Unknown	Unknown	Unknown
F	On Contract	Stated Objective	Stated Objective	Unknown	Unknown	Unknown
G*	Launched	Stated Objective	Stated Objective	Unknown	Unknown	Unknown
Gov PWS Content	N/A	10	15	137	180	238
PWS Deliverables	N/A	4	9	59**	80**	153**
Certification	FAA	FAA	FAA	FAA	SMC	SMC
Indemnification	FAA	FAA	FAA	FAA	FAA	USAF
Reliability	80-90%	80-90%	90-95%	95%	95%-99%	99%

Color Codes	Launched	On Contract	Stated Objective	Unknown
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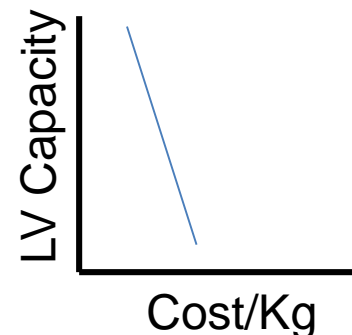
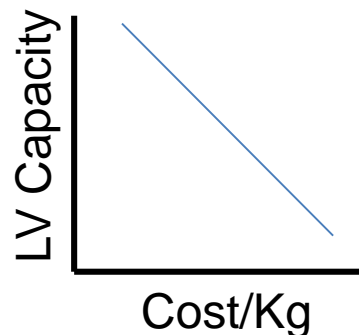
* - Not an OTA Prototype Candidate
 ** - Some are multiple/recurring



Small Launch Struggles - #3 of 4

SMC LAUNCH ENTERPRISE

- **Rideshare vs Dedicated**
 - Rideshare is **Always** less expensive
 - Dedicated is **Always** more desirable
 - This truth has always limited USG Small Launch, **BUT**:
 - You are Moving the Tradespace from 10:1 > 3:1





Small Launch Struggles – #4 of 4

SMC LAUNCH ENTERPRISE

- **Avoiding Duplicate Work**
 - **Launch Vehicle and Launch Service Contractor capability must be evaluated, BUT**
 - **Not more than ONCE (unless/except...)**
- **Solutions we're exploring**
 - **“Credit” for prior proposals, either:**
 - **Within OSP-4 and/or SRP-O**
 - **Proposal: “We offer the same vehicle previously evaluated...”**
 - **Inclusive of EELV Certification**
 - **Proposal: “We offer the certified version of...”**