

Exploring the Potential Use of Long-Range Unmanned Aerial Systems (UAS) to Address Capability Gaps in the U.S. Coast Guard



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Abstract

There are growing threats to international order, especially in the maritime environment. The USCG is perfectly positioned to respond to these threats in means that can avoid conflict. Increased mission demand for ISR missions coupled with an aging fleet of aircraft, reveal an expanding capability gap in the USCG's resources. There is an opportunity to leverage the capabilities of UAS to augment the fleet. By utilizing DoD acquisition frameworks, a standardized approach is employed to analyze the potential benefits and costs of adding UAS capabilities into the USCG's aviation portfolio.

"We want a free, open, prosperous, and secure international order."
-2022 NSS

"Our actions in this decade will shape the maritime balance of power for the rest of this century."
-2021 Tri-Service Strategy

"Now is the time to move our Service forward. ... We will sharpen our competitive edge by driving a culture of innovation to integrate new technology and provide our people with reliable assets, systems, and infrastructure. And we will advance our mission excellence by pioneering new operating concepts while enhancing our readiness."
-2022 Coast Guard Strategic Outlook

Methods

Capabilities Based Assessment

- Past 10 years of USCG fixed wing operational data was analyzed
- USCG Medium Range Surveillance (C-27 & HC-144) PoR is not a viable, long-term solution
- Redistribution of mission hours to Long Range Surveillance (HC-130J) PoR yields gap of 13,000 annual flight hours in ISR missions

DOTmLPF-P Analysis

- A materiel solution, specifically a commercial solution vice developmental, is warranted
- There are numerous COTS/GOTS/NDI solutions that can address the capability gap

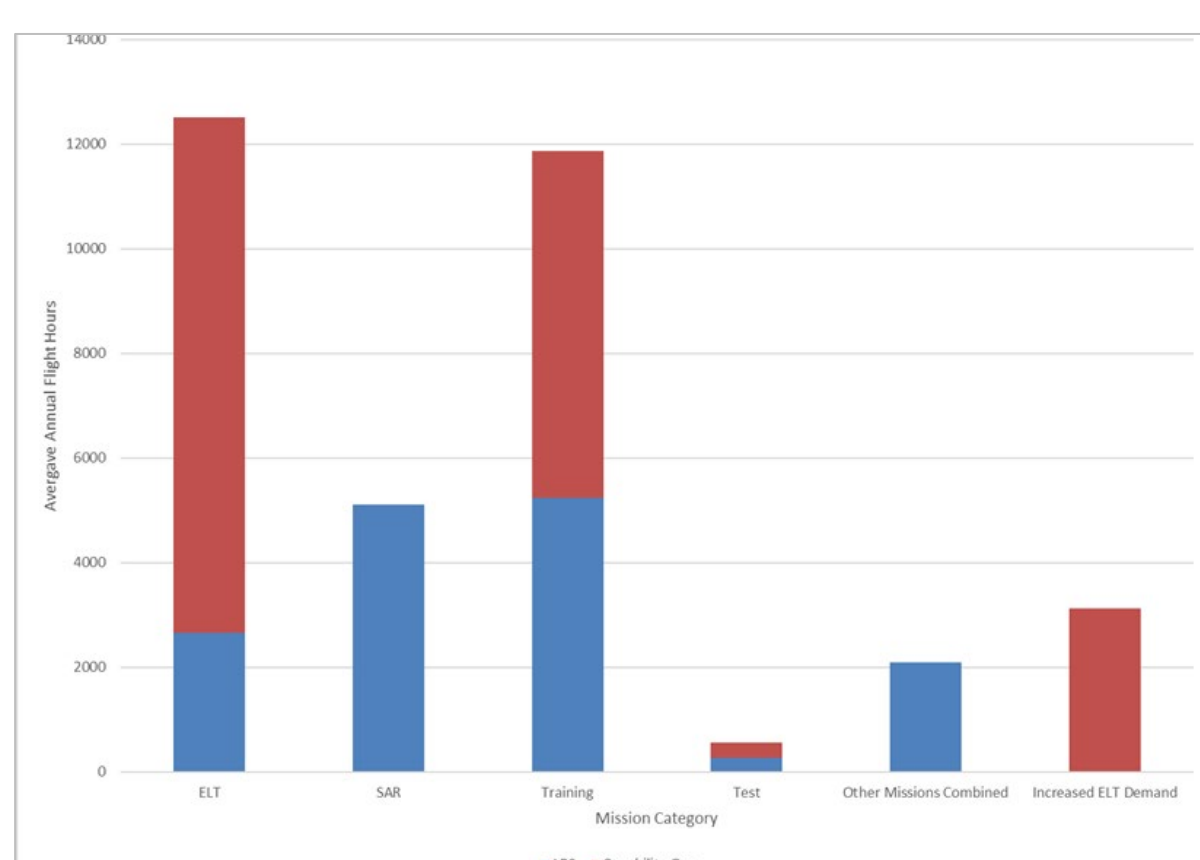
Analysis of Alternatives

- Compared 9 UAS platforms that represent commercial capabilities
- Some platforms offer considerably higher capability than is needed
- ISR missions can be completed by a smaller, less costly UAS platform
- Multiple commercial alternatives meet future USCG requirements

Results & Their Impact

With advancements in size, power, and weight characteristics of ISR payloads, significant capability can be achieved at a relatively low payload weight requirement. This opens up new possibilities to execute USCG missions with smaller, more efficient, and less costly platforms.

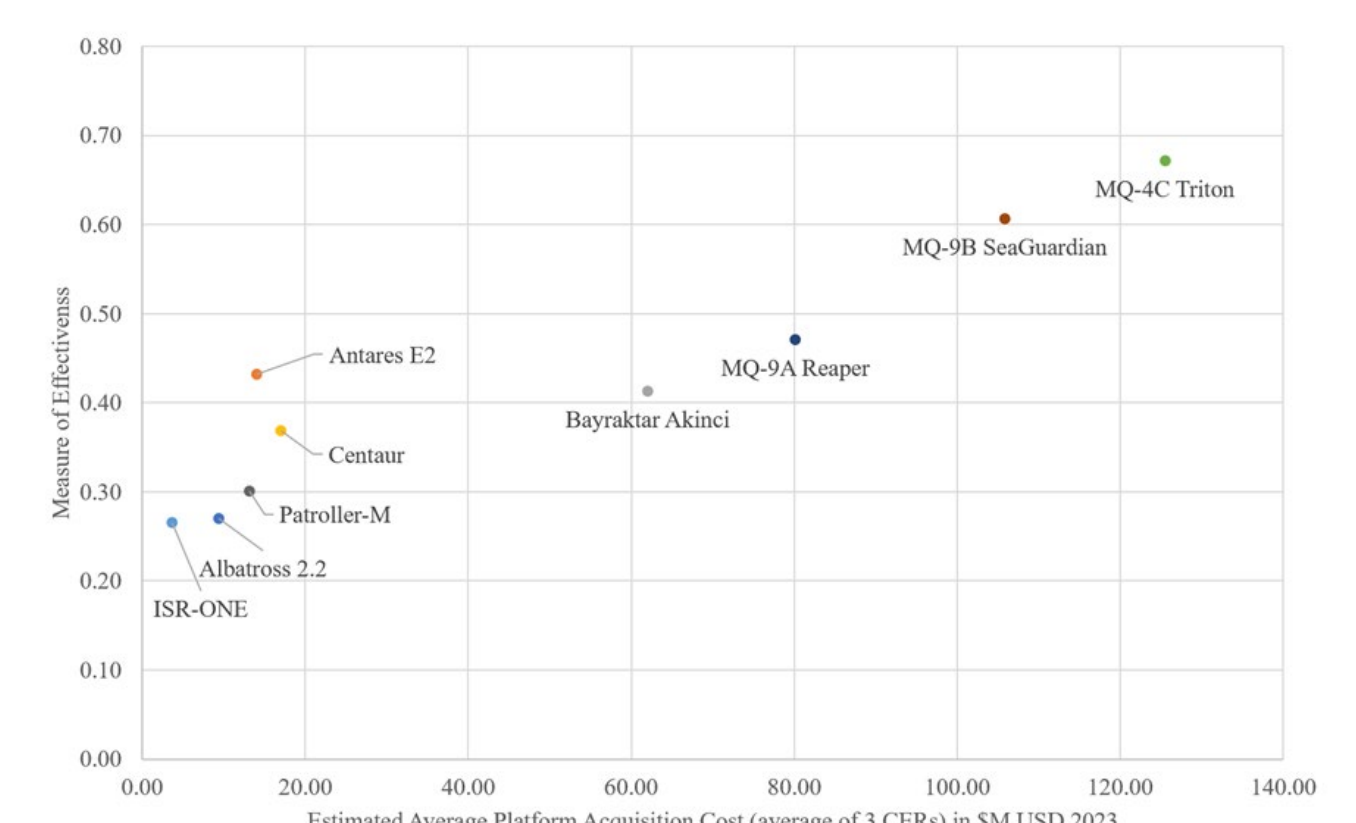
Analysis recommended that a COCO model would best suit the USCG in its initial fielding of a Long Range-UAS capability. This model will allow the Service to adapt to future technology changes while growing the organic knowledge and experience with the systems.



CBA Revealed Capability Gap (red) in ISR Missions

Name	MGTOW (lbs)	Wingspan (ft)	Endurance (hrs)	Range (NM)	Max Alt (ft)	Cruise Speed (kts)	Payload (lbs)
Albatross 2.2	1210	49	20	1401	23600	110	551
Antares E2	3638	75	40	3355	20000	100	440
Bayraktar Akinci	12125	66	24	3107	40000	150	2976
Centaur	3935	44	24	2301	27500	160	800
ISR-ONE	1300	31	15	2302	18000	120	220
MQ-4C Triton	32250	131	24	9436	56500	322	5602
MQ-9A Reaper	10500	66	27	1323	50000	200	3850
MQ-9B SeaGuardian	12500	79	30	5000	40000	210	4750
Patroller-M	2315	59	30	1243	25000	70	551

Qualitative Analysis of Likelihood of Meeting Future USCG UAS Requirements.



Cost Effectiveness Analysis of 9 Alternatives

Acquisition Research Program

www.acquisitionresearch.net



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