

ENERBAY - NEAR SPACE SYSTEMS (ENSS)

PROVIDING AFFORDABLE, PERSISTENT, WIDE-AREA COMMUNICATIONS AND SENSING

Among ENSS's flagship products is the StarLight, a Lighter-Than-Air Unmanned Aerospace System. We are developing a family of lighter-than-air (LTA) platforms that carry aloft wide-area communications, broadband, and sensing devices to meet the demands of both military and commercial customers for network connectivity and ready access to mission critical information.

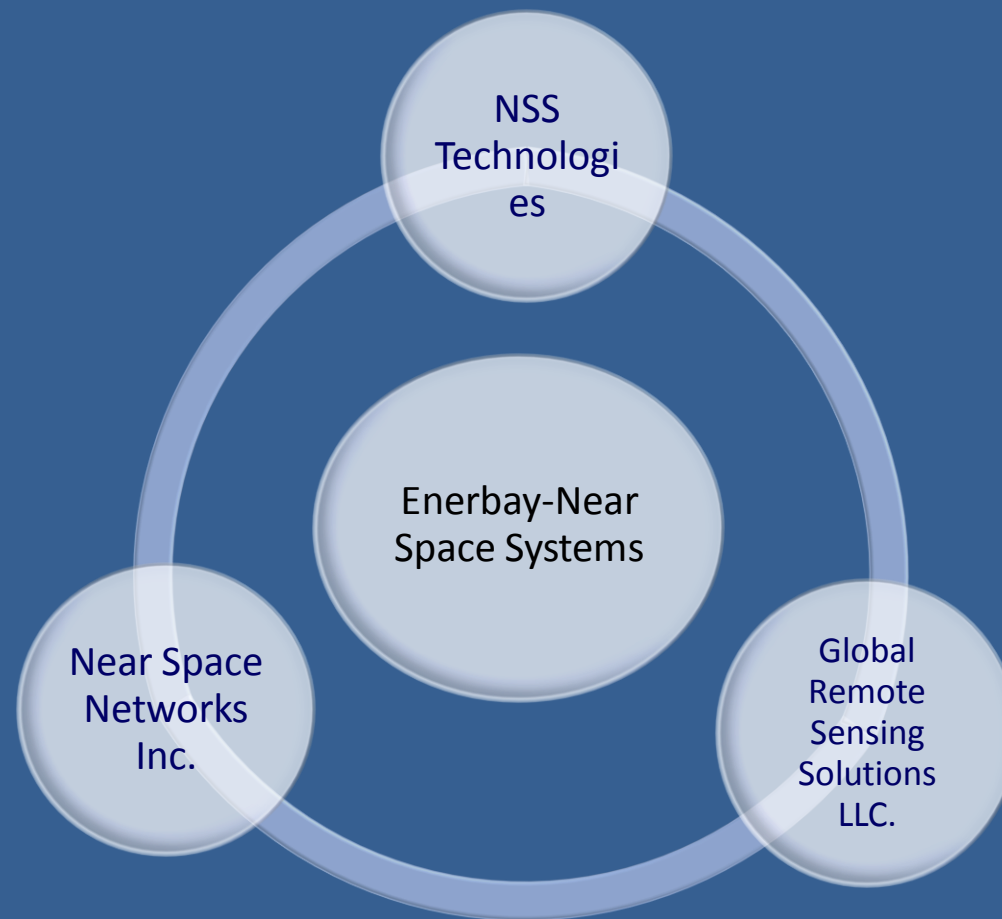
Fighting terrorism. Securing our borders and protecting resources. Bringing high-speed communications to remote locations. Combating natural disasters. Managing climate change and improving the environment. Ensuring adequate food supplies. Only Near Space Systems provides low-cost, innovative, effective and environmentally clean platforms for tackling the 21st century's most difficult challenges.

Led by subject matter experts representing more than 300 years of combined experience in commercial and military management, defense, engineering, weapon system development, military operations and technology research and development, NSS develops and manufactures technology for employment from Near Space. The StarLight is designed to help commercial, state and federal customers obtain satellite-like telecommunications and surveillance capabilities for a fraction of the cost of space-based systems.

❖ **Owned, led and managed by U.S. Military Veterans**

❖ **Founded in 2006**

BUSINESS STRUCTURE





OFFICE AND
PRODUCTION FACILITY



160-ACRE TEST SITE

NEAR SPACE SYSTEMS FLEET

FOUR OPTIONS TO PROVIDE AFFORDABLE AERIAL PERSISTENCE

- ❖ Advanced LTE Broadband-Aerial Networks
- ❖ Wide Area Surveillance & Communication
- ❖ Remote Sensing
- ❖ Disaster Response



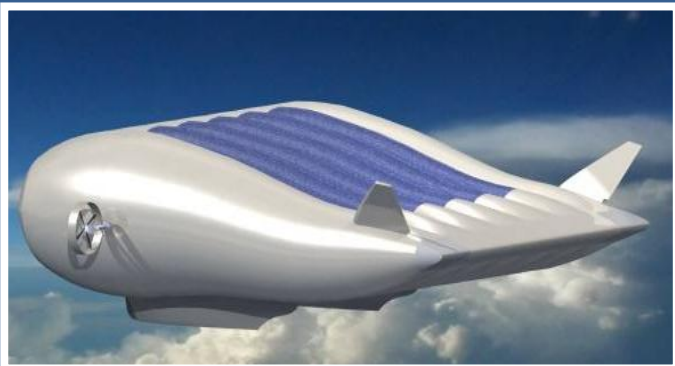
Star✧Light
65K - 85K ft



The Responder 25K - 40K ft



Star✧Tower 1K - 10K ft
(tethered)



Star✧Shadow
SFC-15K ft

STAR✧SYSTEM

COVERAGE BY ALTITUDE

	Altitude (feet/meter)	RF Range (miles/kilometer)	RF Area Coverage (miles ² /kilometer ²)
Star✧ Tower	2,000 ft / 610 m	55 mi / 88 km	9,432 mi ² / 24,429 km ²
	4,000 ft / 1,220 m	78 mi / 125 km	18,862 mi ² / 48,852 km ²
	5,000 ft / 1,524 m	87 mi / 139 km	23,576 mi ² / 61,061 km ²
Star✧ Shadow	10,000 ft / 3,048 m	123 mi / 197 km	47,144 mi ² / 122,102 km ²
	15,000 ft / 4,572 m	150 mi / 241 km	70,701 mi ² / 183,117 km ²
Star✧ Light	85,000 ft / 25,908 m	356 mi / 574 km	399,533 mi ² / 1,034,786 km ²

STAR✧ TOWER AEROSTAT



Fixed Base Operations



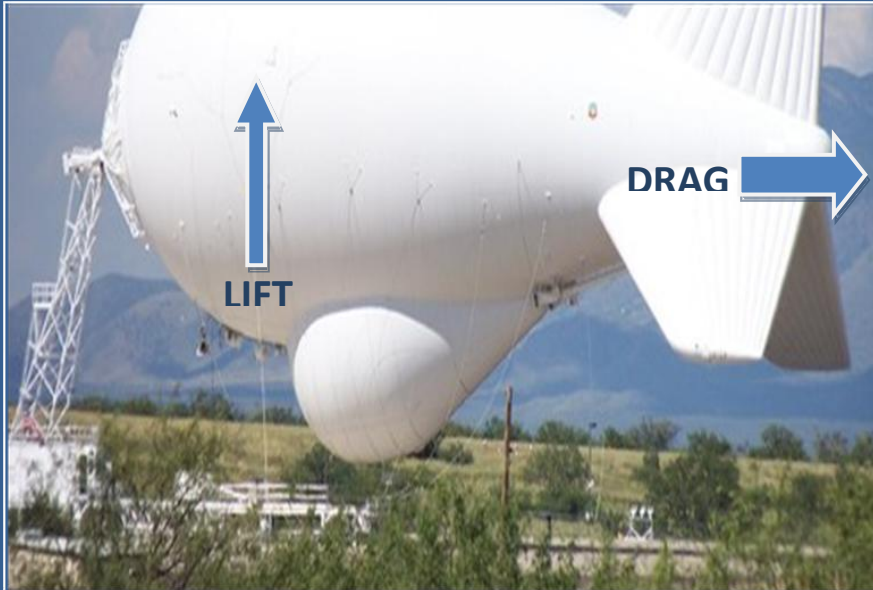
**Remote
Operations**

- Fully self-contained
- Can operate at fixed or remote sites
- Surface up to 3,000 meters
- Up to 500 kilos of payload

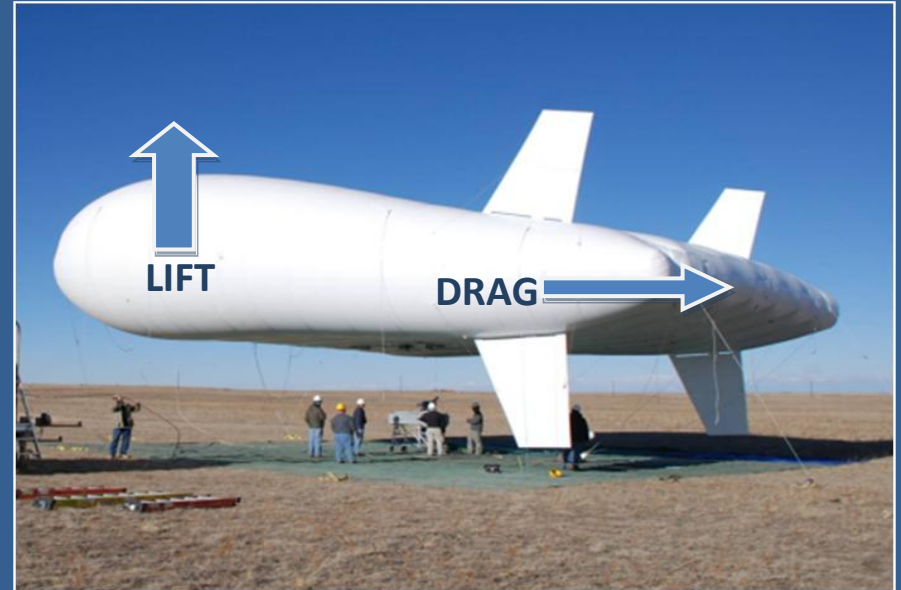
- Up to 10 kW power for payload
- Operate in winds up to 70 kts
- Out performs all other aerostats

THE STAR ✧ TOWER

DIFFERENCE

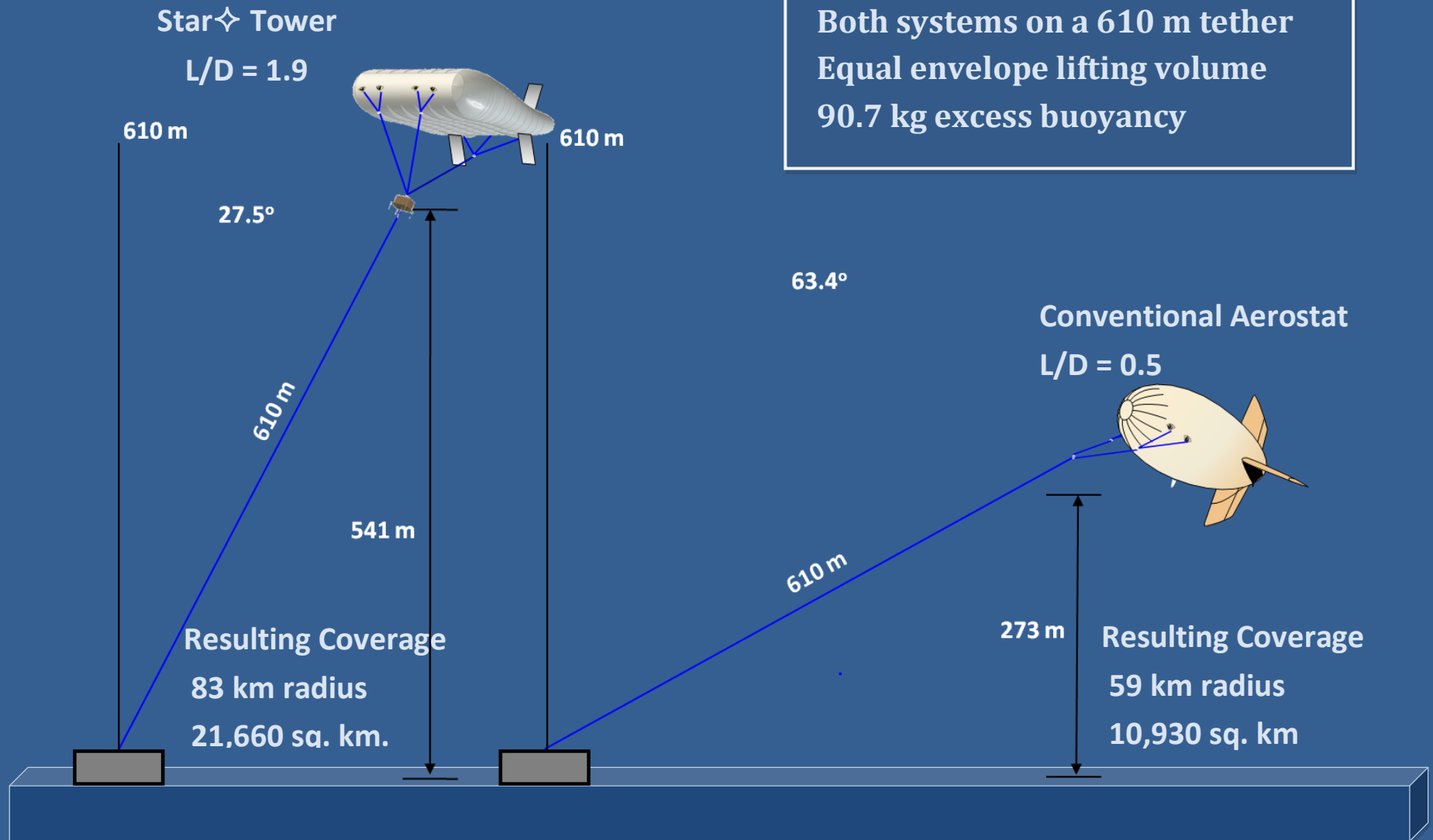


- ❖ A traditional aerostat generates 2x more aerodynamic *drag* than lift
- ❖ Result: aerostat is blown over, providing less sensor coverage in high winds



- ❖ A Star Tower aerostat generates 2x more aerodynamic *lift* than drag
- ❖ Result: aerostat lifts more in the wind and does not get blown over, providing greater sensor coverage in high winds

MISSION IMPACT



STAR✧SYSTEMS GCS

(GROUND CONTROL SYSTEM FOR ALL STAR✧SYSTEMS)

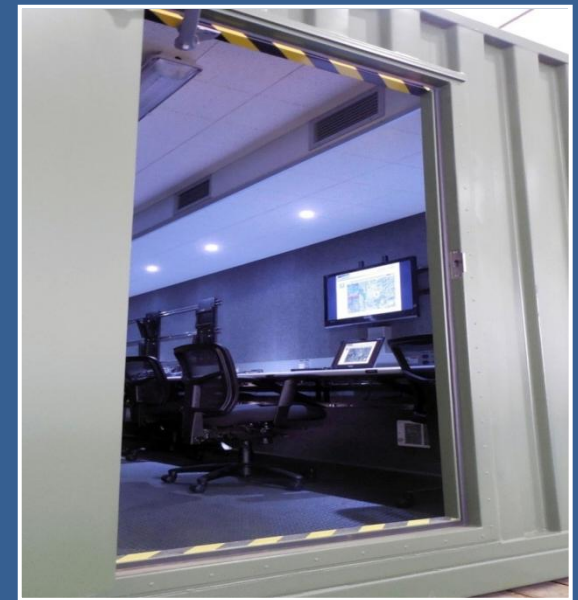
- ❖ Fully self-contained w/HVAC, power , communications & data connectivity
- ❖ Transports in a ready state for immediate operations



Generator with connection for Shore



Heating, Ventilation & Air Condition Unit



Three operator consoles plus general work area; storage area

STAR✧SHADOW

MEDIUM ALTITUDE AIRSHIP



- ❖ Based on proven Star✧Tower high-performance airfoil shaped gas envelope
- ❖ Solar power, augmented by a gas-powered auxiliary power unit
- ❖ Flight endurance up to 3 weeks; surface to 5,000 meters above ground; 42-kts cruise speed, 60-kts dash speed; unmanned operations w/ optional pilot cockpit
- ❖ Payload capacity of 500 kilos, 8 kW of power



STAR✧LIGHT HIGH-ALTITUDE AIRSHIP

(SATELLITE CAPABILITIES AT A FRACTION OF THE COST)



Description

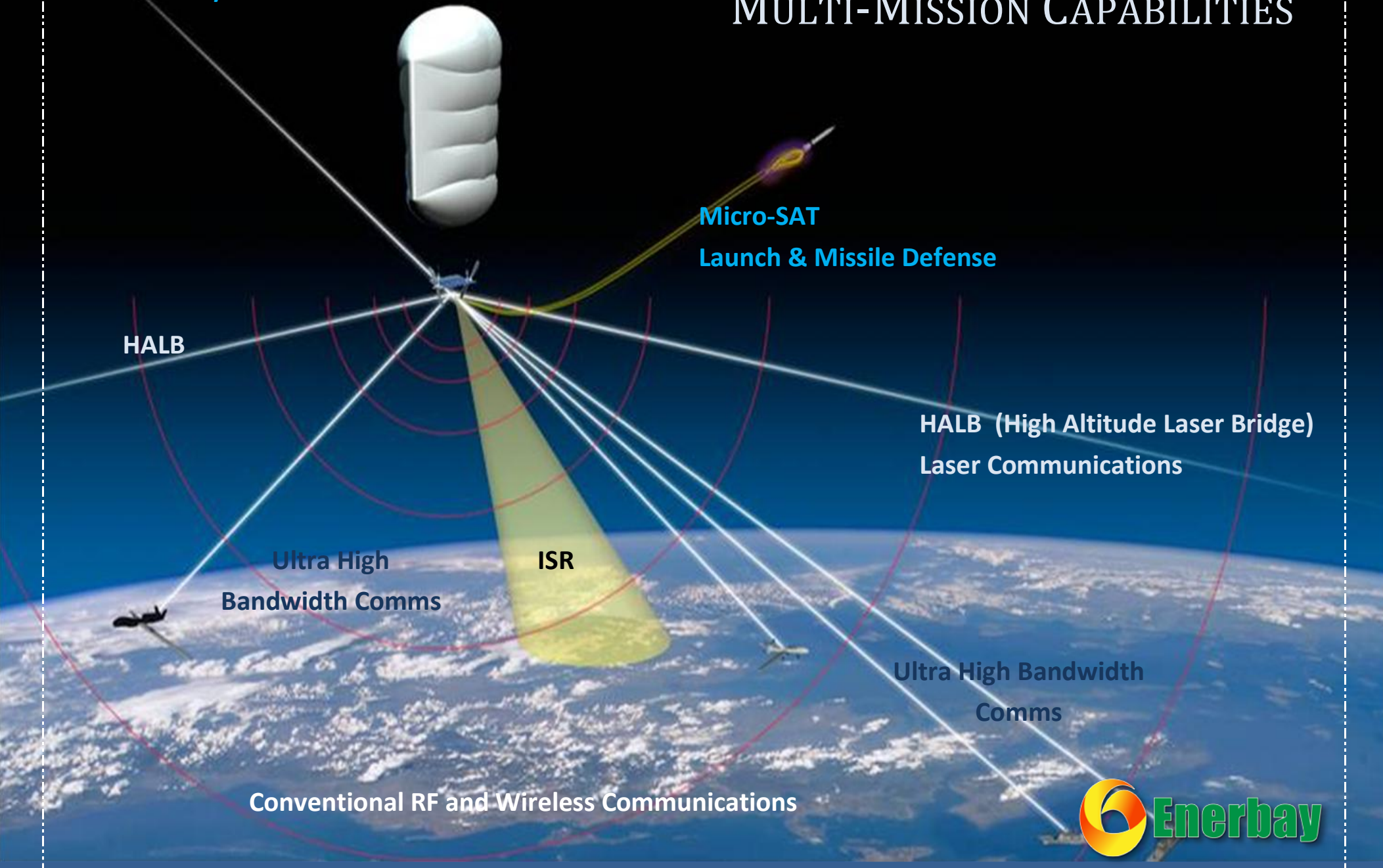
- ❖ 2-stage airship
- ❖ Quick-turn, precision fly down lower stage
- ❖ Low-cost upper stage
- ❖ Hydrogen or Helium
- ❖ Solar-electric powered

Operations

- ❖ Operates at 65k-85k ft ASL
- ❖ Flt Duration: 3-4 months
- ❖ Air speed: 60 knots IAS
- ❖ Station-keep or transit long distances
- ❖ Remote area operations

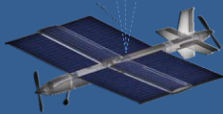
Counter Space, Space C3I and Missile
Defense w/ Multi-Function Laser

STAR ✧ LIGHT'S MULTI-MISSION CAPABILITIES



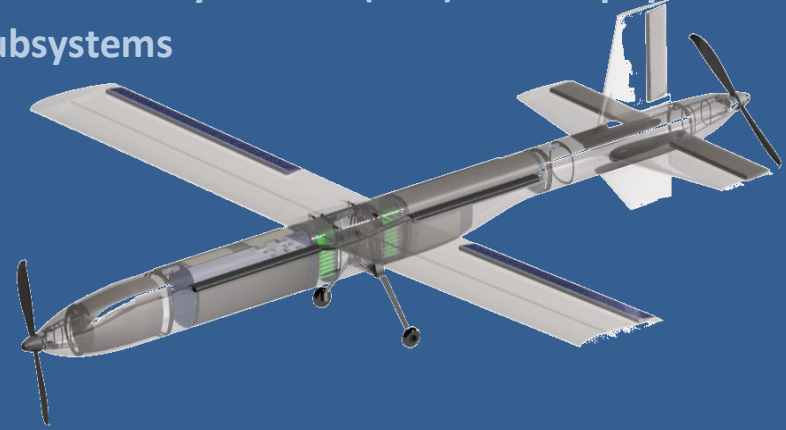
DESIGN OVERVIEW

Upper Stage Gas Envelope

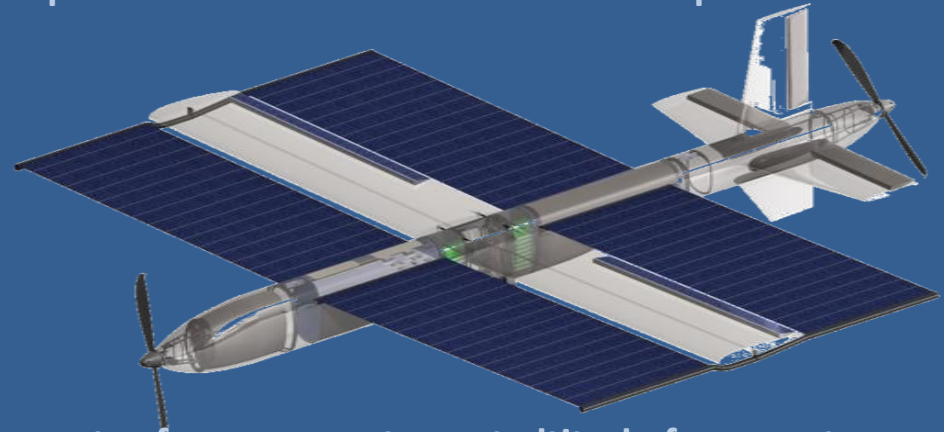


Fly-down Lower Stage

Stratospheric Recovery Vehicle (SRV) houses payload and all major subsystems



Solar panels are extended for on-station operations



- ❖ SRV separates from upper stage at altitude for an autonomous, precision, recovery and arrested landing.
- ❖ SRV and payload has return capability from beyond 150 km.

STAR✧LIGHT SUBSCALE TESTING

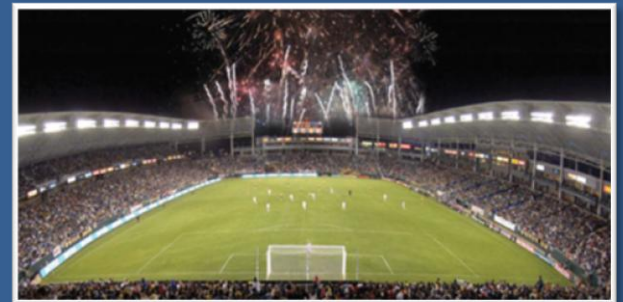
TESTING INCLUDED:

- ❖ Carbon fuselage manufacturing
- ❖ Propulsion System
- ❖ Power collection and storage
- ❖ Electrical Power Management Avionics and Data Systems



WIDE-AREA SECURITY

- ❖ Maritime and Airspace Surveillance
- ❖ Border, Coast, Airport & Port Security
- ❖ Command & Control of All Response Forces
- ❖ Security for Critical National Resources
- ❖ Emergency Response & Public Safety
- ❖ Public Safety





Technical Partners

Communications Partners

Sensor Partners



SUMMARY

- ❖ Lighter-than-air platforms are well-suited for a wide range of telecommunications and sensing applications to meet needs in every country
- ❖ Affordability of Star✧Systems with a tailored payload suite make it ideal for growing markets in developing countries
- ❖ Wide-Area applications coupled with ease and simplicity of operations & maintenance make it the best value for every customer
- ❖ Join us in shaping the future



