AIR FORCE NUCLEAR WEAPONS CENTER

Never Doubted, Always Feared

Air Force Nuclear Weapons Center (AFNWC) Small Business Innovation Research Overview

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Agenda

1. Air Force Nuclear Weapons Center (AFNWC) Overview
2. AFWERX
3. AFNWC SBIR Contract Types
4. AFNWC Pitch Day Topics
5. AFNWC Open Topic Focus Areas

AFNWC Overview
The U.S. Strategic Nuclear Triad

NUCLEAR TRIAD

RESPONSIVE	SURVIVABLE	VISIBLE
With 400 ICBMs, no adversary can disarm the U.S. nuclear deterrent without attacking hundreds of targets simultaneously.	A portion of the SSBN fleet and its 240 SLBMs is always on patrol, making them very difficult to find and track.	The 60 nuclear-capable bombers are a clear and visible signal of U.S. intent and resolve during a crisis, and provide the President a variety of options.

The three legs of the U.S. nuclear Triad are complementary, with each component offering unique strengths. Together, the Triad ensures the United States can effectively withstand and respond to any attack.

"The Nuclear Triad has kept the peace since nuclear weapons were introduced and has sustained the test of time."

-General Mark A. Milley, CJCS

AFNWC Overview
Strategic Systems

ICBM

Minuteman III / Ground Based Strategic Deterrent

W78
W87

Weapon System Command & Control

Flight System

Launch System

Weapon / Aircraft Integration

B61

B83

W80

Air Delivered Capabilities

B61-12 Tail Kit Assembly

Air Launched Cruise Missile / Long Range Stand Off Weapon

Weapon Storage and Security Systems

Nuclear Technology and Integration

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AFNWC Overview
Nuclear Command, Control & Communications

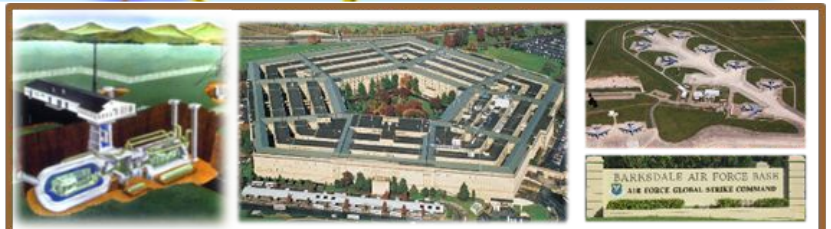
Ground Based External Dependencies

Space Based External Dependencies

Air Force
Radios, Terminals, Messaging and Conferencing Systems
establishing and functioning across the NC3 Networks

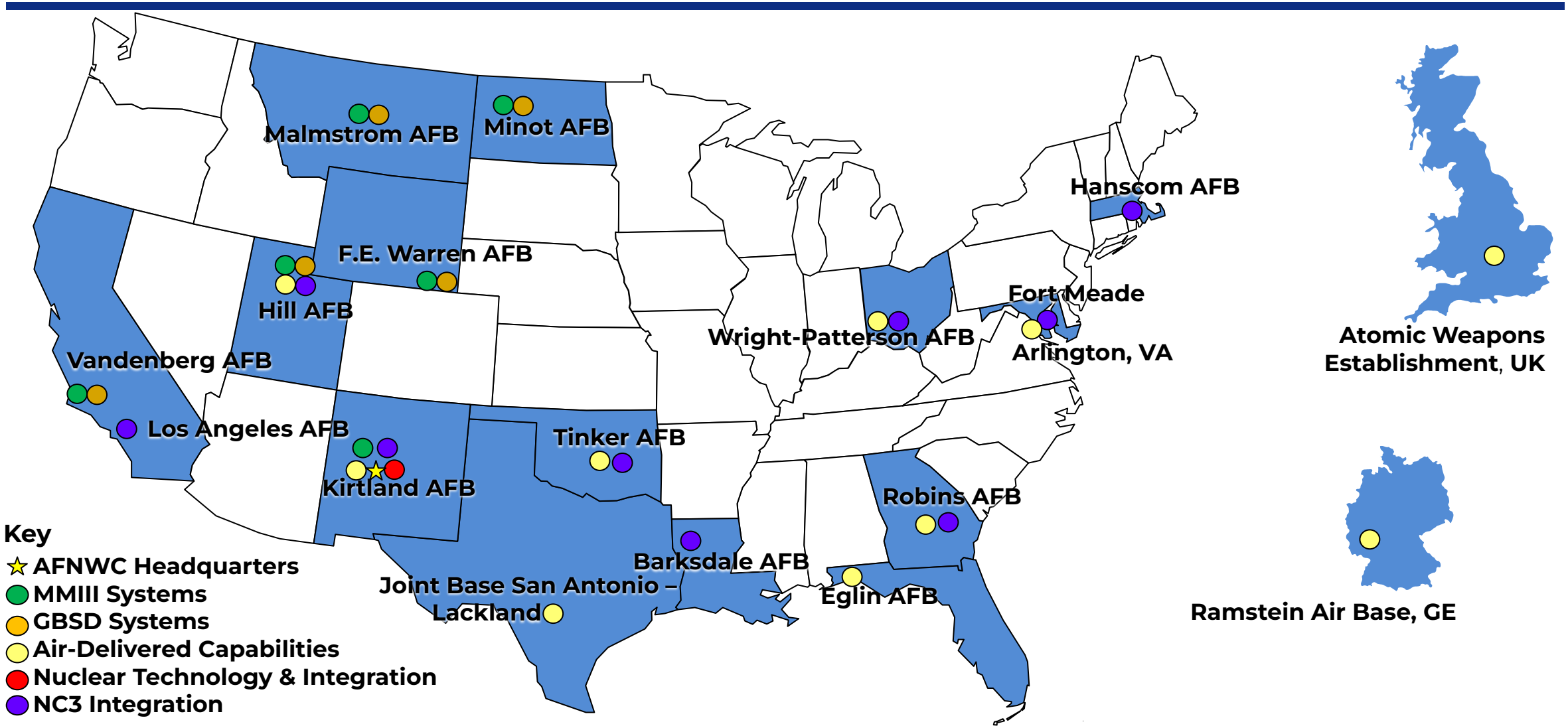
Transportable Configuration Elements

Fixed Ground Configuration Elements



Airborne Configuration Elements

AFNWC Overview
Snapshot



AFWERX
Talent, Technology and Transition

- **Mission:**
  - AFWERX accelerates agile and affordable capability transitions by teaming innovative technology developers with Airmen and Guardian talent.

- **Organization:**
  - Three efforts: AFVentures, Spark and Prime

- **AFVentures:**
  - An investment program that creates simple pathways for commercial innovators and private capital investment to help the Department of the Air Force solve problems.
  - This program continues to evolve with innovative contracting and funding pathways.
  - Transform the Air and Space Force into an early-stage “investor”
    - Leverage private capital
    - Accelerate commercialization using military missions
    - Grow the number of companies partnering with us

AFNWC SBIR Contract Types

Contract Type	Timeframe	SBIR Funding	Deliverable	Notes
Phase I	90 Days	$75K	Customer Discovery	No technical work
Phase II	15-21 months	$750K - $1.25M	Prototype	Follow-on from Phase I
AFNWC SBIR Pitch Day (Direct-to-Phase II)	24 months	$1.5M	Prototype	▪ No need for Phase I ▪ Optional Customer Memorandum
AFWERX Direct-to-Phase II Open Topic	15-21 months	$750K - $1.25M	Prototype	▪ No need for Phase I ▪ Required Customer Memorandum

AFNWC Pitch Day Topics (22.2)

- **Broad Technology Categories**
  - Aeroshell Material
  - Artificial Intelligence
  - Data Management
  - Digital Engineering
  - Missile Technology
  - Modeling and Simulation
  - Radiation Hardening
  - Robotics
  - Sensors
  - Supply Chain

- **For more information, please reference our website at:**
  - https://www.afnwc.af.mil/Innovation/

- **Or contact us at:**
  - AFNWC.CZ.SBIRSTTR@us.af.mil

AFNWC Pitch Day Topics (22.2)

- Engineering Directorate (EN)
  - Advanced Parts Management System
  - Digitization and Management of Authoritative Resources
  - Stakeholder Concern-Directed Modeling
  - Alternative to GPS-based Navigation
  - Robotics
  - Hybrid Ceramic Throats for High-Temperature Propellants
  - Nuclear Protection of Carbon-Carbon Composites
  - Scale-Up and Testing of Hardened Aeroshells to Thermo-Mechanical Effects
  - Artificial Intelligence for Counterfeit Parts
- Air Delivered Capabilities Directorate (ND)
  - Digital Transformation for Air Delivered Capabilities

AFNWC Pitch Day Topics (22.2)

- Minuteman II Systems Directorate (NM)
  - Missile Field Real-time “Health of Fleet” Capability
  - Digital Environment Tools Development
- Nuclear Technology & Integration Directorate (NT)
  - Advanced Automated Analysis Methods for Critical System Evaluations
- Ground Based Strategic Deterrent Directorate (NX)
  - Strategic Radiation Hardened (Rad-Hard) Microelectronics (ME)
  - Novel Utility Corridor Trenching/Trenchless Methods
  - Sea-Based Platform System for Testing
  - Telemetry Package (Receiver) for Tracking and Terminal Scoring
  - Digital Engineering Technologies
  - Kubernetes Day 1/Day 2 Service Improvement at the Tactical Edge
  - Software Bill of Material (SBOM) Integration with DoD Platform One

AFNWC Pitch Day Topics (22.2)

- **NX (Cont.)**
  - **Technology Database**
  - **Digital Solutions for Supply Chain Risk Management (SCRM)**
  - **AR/VR Technologies**

AFNWC Open Topic Focus Areas (22.4)

- **EN**
  - **Structural Profile Disruption Re-entry**
- **NT**
  - **Thermal Test Specimen Effects Data Collection and Analysis Methods**
  - **Concentrated Solar Beam Profile Characterization Method**
  - **Thermal Test Specimen Pre and Post Test Non-destructive Inspection Methods**
  - **Flash Shutter System Design**
  - **Thermal Testing Solar Beam Environmental Factor Interference Monitoring**
  - **Quartz Window Monitoring System**
- **NX**
  - **Path Length Module (PLM) Sensor for Re-entry Vehicle (RV) Acceleration Measurement**

Open Topic Focus Areas are currently hosted on the AFWERX website:
https://afwerx.com/focus-areas/

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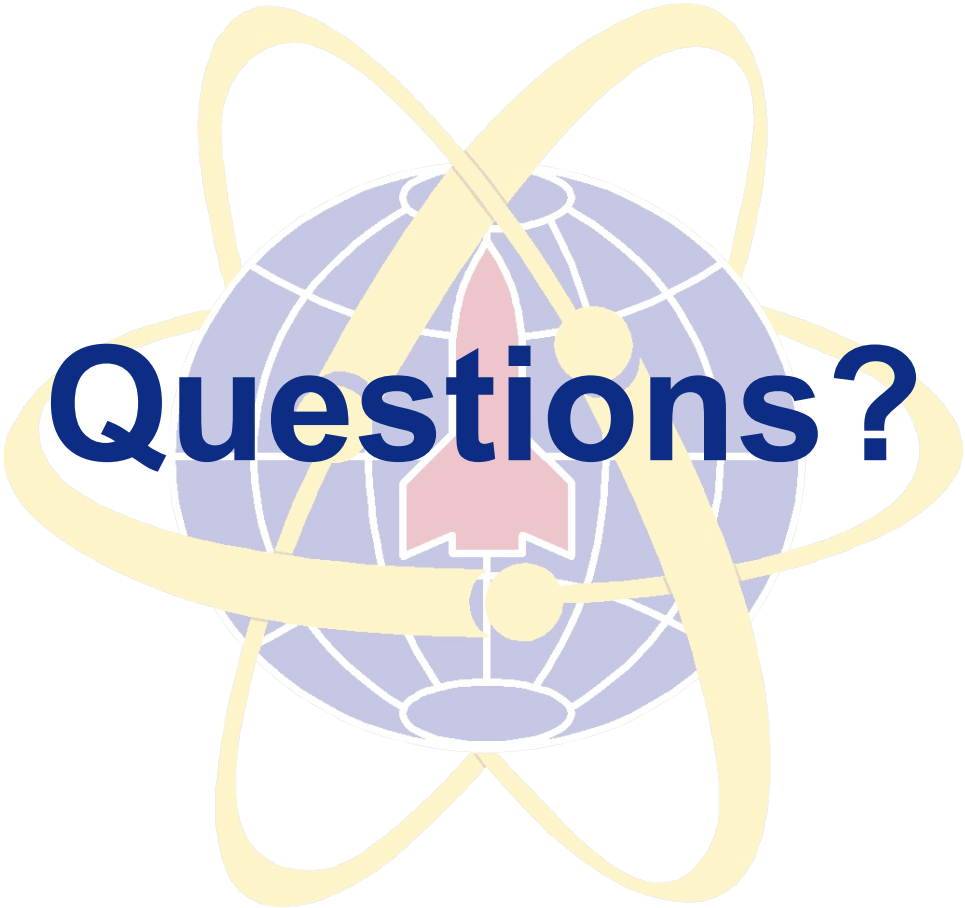

Questions?