A Strategy for Naval Energetics
Surface Navy Association
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To research, develop, test, evaluate, manufacture, and provide in-service support of energetics and energetic systems, and provide Soldiers, Marines, Sailors, and Airmen worldwide with information and technology to detect/locate, access, identify, render safe, recover, exploit, and dispose of explosive threats.
WHAT ARE ENERGETICS?

Energetics include:
- Propellants
- Explosives
- Fuels
- Pyrotechnics
- Reactive materials
- Warheads
- Rocket motors
- Munitions

Range
Speed
Lethality
Safety

Signature
Size
Weight
Logistics
Obsolescence
Naval weapon systems use energetic materials and systems (EMS) across all domains – undersea, surface, air, and land – and will continue to do so for at least the next 30 years.
The Navy has **accepted risk in EMS**, impacting warfighting capability technical sustainment ability

**Threats** are growing and getting more complex

- Future conflicts will not be limited to line-of-sight engagements
- Future naval warfighters will require plentiful, lighter and more capable energetic solutions

EMS is an **inherent DoN technology** that is perceived as a technologically “frozen” commodity

- Technical advancement and transition **have no acquisition champion**
- Program offices have **few TRL 5/6 technologies**
- Workforce and competencies have **no sustainment champion**

A naval energetics renaissance will simultaneously reestablish and integrate the energetics technology base while resolving the most compelling operational gaps
In collaboration with Naval Air Warfare Center Weapons Division (NAWCWD), IHEODTD developed a multi-generation technology roadmap with organizational and policy change recommendations to renew our nation’s focus on the health and development of energetics.

Seven of the 8 Focus Areas in Gen 1 have either a primary application or a leveraged impact on a Surface domain gap:

• Critical Material Obsolescence Replacement
• Propulsion for longer Missile Range
• High-Lift Airframe for 100nm Gun Range
• Long-life Gun Barrel
• Propulsion for 100nm Gun Range (SFRJ Projectile)
• USW Warhead (RM/EM Coupled WH)
• 4x Missile Range
Elements of Generation 1 S&T

- Ingredients
- Propulsion
- Effects
- Systems, Materials, & Components
- Accelerators (M&S, T&E, etc)

**Increased**
- Range
- Speed
- Lethality
- Safety

**Decreased**
- Signature
- Size
- Weight
- Logistics
- Obsolescence
Advances in naval energetics are needed to meet all four challenges.
• There is an imperative for a renewed focus on EMS research, development and manufacturing technology

• Industry cannot provide EMS advancements necessary to maintain pace with potential adversaries

• IHEODTD and NAWCWD have completed a coordinated effort to identify solutions to current and emerging energetics warfighting challenges

• Requires visionary leadership, experienced scientists and engineers, challenging work, and unique facilities

• There are many revolutionary advancement opportunities in EMS capabilities for the surface fleet

**Energetics is a National Responsibility**