

# FY21 BUDGET HIGHLIGHTS

From R&D to Live Deployments

For over 40 years, the DoD has sought to develop and deploy high energy laser weapons. In FY21, this dream could finally become a reality. After decades of research and testing, the DoD is finally on the cusp of successful directed energy deployment.

At **\$106.6 billion**, the DoD's FY 2021 RDT&E budget is the largest ever requested and is "laser focused" on developing next generation capabilities including directed energy. The FY21 budget also illustrates the transitioning of DE technology out of R&D and into live production as well as an emphasis on near-term DE capabilities vs. the development of more complex space-based technology.

To shed light on these trends and provide some insight into the DoD's rapidly evolving approach to DE deployment, we created this budget infographic. **Scroll down to learn more.**



## DEFENSE WIDE INVESTMENTS



### OFFICE OF THE SECRETARY OF DEFENSE

**\$105M**

#### HIGH ENERGY LASER ADVANCED TECHNOLOGY PROGRAM

This effort is focused on scaling the capabilities of high energy laser (HEL) weapons up to the level needed for multi-Service missions, both tactical and strategic, such as (but not limited to) integrated air and missile defense against hard targets. It leverages and/or builds upon other investments in HEL development, such as laser scaling and propagation and beam control.

##### FY 2021 Plans:

- **Laser Scaling:** Designs for 300 kW class HELs will be finalized and the system elements will be integrated into prototype 300 kW lasers. Architectures will be developed for laser scaling from 300 kW to achieve 500 kW.
- **Propagation and Beam Control:** Continue research on thermal blooming of 300-500 kW class lasers, including data collection, modeling and simulation, and scaled field experiments. High Energy Laser lethality: Collect additional data on laser damage effects experimentation from the services, including modeling and simulation results. Once this data is collected, it will be integrated into the unified database developed in FY 2020.

**\$10M**

#### DIRECTED ENERGY TESTING

Will support the testing of DE to ensure a thorough understanding their effectiveness and limitations. Includes testing for counter improvised explosive device (C-IED) operations.

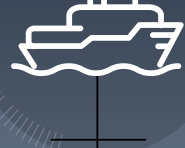


### DARPA

**\$15M**

#### COUNTER HIGH ENERGY LASERS (C-HEL)

Will fund the development of a system that detects, locates and disrupts HEL adversary kill chains before irreversible damage occurs and offers survivability protection and concept of operations (CONOPS) for multi-domain U.S. assets.



### U.S. NAVY

**\$129M**

#### TOTAL DIRECTED ENERGY AND ELECTRIC WEAPON SYSTEMS RDT&E FUNDING

**\$88.3M**

#### HIGH ENERGY LASER AND INTEGRATED OPTICAL-DAZZLER WITH SURVEILLANCE (HELIOS)

Supports the development and testing of a Lockheed Martin developed prototype with a **reported** range of about five nautical miles. That system is set to have a 60kW laser, but could eventually increase to 150kW.

**\$68M**

#### NAVY LASER FAMILY OF SYSTEMS (NLFOS)

The NLFoS is an accelerated acquisition initiative to provide near-term, ship-based laser weapon capabilities. The program includes the:

- **Surface Navy Laser Weapon System (SNLWS)** which is designed to addresses anti-surface warfare and counter-intelligence, surveillance and reconnaissance (C-ISR) gaps. Also possesses the ability to dazzle and destroy UASs and defeat fast inshore attack craft (FIAC). SNLWS includes the development of an advanced prototype laser weapon system in the 60 kW or higher class.
- **Solid State Laser Technology Maturation (SSL-TM)** which funds the advancement of a 150kW High Energy Laser (HEL) weapon demonstrator to support future laser development with system capability demonstrations on LPD 27, USS Portland, in FY 2021.



### U.S. AIR FORCE

**\$128M**

#### DIRECTED ENERGY TECHNOLOGY RDT&E

**\$30M**

#### DIRECTED ENERGY PROTOTYPING

**\$45M**

#### DIRECTED ENERGY TECHNOLOGIES APPLIED RESEARCH

This program funds Department of Defense Directed Energy applied research through the Joint Directed Energy Transition Office. Includes programs such as:

- **\$22M** - Directed Energy Propagation Technologies
- **\$7M** - Directed Energy Technologies Maturation
- **\$6M** - Advanced Directed Energy Technologies
- **\$4M** - Directed Energy Modeling
- **\$4M** - Directed Energy Lethality Research

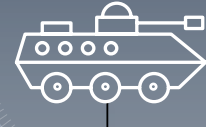
**\$15M**

#### HIGH ENERGY LASER RESEARCH INITIATIVES

This program funds basic research aimed at developing fundamental scientific knowledge to support future Department of Defense Directed Energy Weapon systems through the Joint Directed Energy Transition Office.

##### FY 2021 Plans:

- Continue investigations into innovative laser technologies, in diode-pumped lasers, fiber, and solid state laser technologies.
- Continue investigations into innovative microwave technologies, in microwave sources, antennas, and related microwave component technologies.
- Continue overseas efforts to leverage international technology advancements.
- Continue investigations into innovative high power laser and high power microwave technologies.



### U.S. ARMY

**\$10M**

#### HIGH ENERGY LASER ENABLING AND SUPPORT TECHNOLOGY

**\$9M**

#### HIGH ENERGY LASER TACTICAL VEHICLE DEMONSTRATOR TECHNOLOGY

**\$5M**

#### OPTIMIZED ENERGY FOR C5ISR PLATFORMS

JUNE 25 - 26, 2020  
ONLINE EVENT

**DIRECTED ENERGY**  
SYSTEMS

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## SPEAKER HIGHLIGHTS



**The Honorable Ellen M. Lord**  
Under Secretary of Defense for Acquisition and Sustainment  
DoD



**Lieutenant General Neil Thurgood**  
Director, Army Hypersonic Directed Energy, Space and Rapid Acquisition, Army Space and Missile Defense Command, US Army

\* NO COST TO ALL ACTIVE U.S. MILITARY, GOVERNMENT & LAW ENFORCEMENT EMPLOYEES

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