

# ONR's record-setting test to showcase railgun's military relevance

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This is a photograph taken from a high-speed video camera during a record-setting firing of an electromagnetic railgun (EMRG) at Naval Surface Warfare Center, Dahlgren, Va., on Jan. 31, 2008, firing at 10.64 megajoules with a muzzle velocity of 2,520 meters per second. The Office of Naval Research's EMRG program is part of the Department of the Navy's Science and Technology investments, focused on developing new technologies to support Navy and Marine Corps warfighting needs. Credit: US Navy photo by John F. Williams

Senior Navy leaders will be on hand Dec. 10 at Naval Surface Warfare Center Dahlgren Division (NSWCDD), a tenant command to Naval Support Facility (NSF), Dahlgren, Va., for a record-setting test of the Office of Naval Research's (ONR) experimental Electromagnetic Railgun, the service's effort to evolve surface ship weapons.

With the latest demonstration, the Navy will fire a 32-megajoule muzzle energy shot, and attempt to set a new world record for the Railgun program. A megajoule is a measurement of energy associated with a mass traveling at a certain velocity. For example, a one-ton vehicle moving at 100 mph equals a megajoule of energy.

The test will also show the tactical relevance of the technology.

"The importance of the 32-megajoule demonstration is the feasibility of the system at an energy level that has [military](#) significance," said Roger Ellis, ONR's Electromagnetic Railgun program manager.

Capability-wise, a future tactical Electromagnetic Railgun will hit targets at ranges almost 20 times farther than conventional surface ship combat systems. A 32-megajoule shot, for example, could reach ranges of more than 100 nautical miles with Mach 5 velocity, said Dr. Elizabeth D'Andrea, strategic director for ONR's Electromagnetic Railgun program.

Additionally, the two industry competitors, BAE Systems and General Atomics, will showcase their advanced composite prototype Railgun launcher systems at NSWCDD.

The goal of the Electromagnetic Railgun program is to develop a new surface ship weapon that will use a projectile driven by kinetic energy. This new munition will eliminate the need for a high-energy explosive warhead and traditional gun propellants, ONR officials said.

Removing explosives and chemicals will improve safety for Sailors and Marines and reduce the munitions logistics chain.

The Railgun is being developed for use on a wide range of ships, whether the vessel has an integrated power system, such as DDG 1000,

or a non-integrated power system, such as a DDG 51, ONR officials said.

The system would be capable of a rate of fire of six to 12 rounds per minute and guided to targets with a high degree of precision. Improved accuracy should result in minimizing collateral damage, ONR officials added.

Provided by Office of Naval Research

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