

# Navy evaluating second electromagnetic railgun innovative naval prototype

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The Office of Naval Research's (ONR) Electromagnetic (EM) Railgun program is evaluating the second of two industry railgun prototype launchers at a facility in Dahlgren, Va., officials announced today.

The EM Railgun launcher is a long-range naval weapon that fires projectiles using electricity instead of traditional gun propellants such as explosive chemicals. Magnetic fields created by high electrical currents accelerate a sliding metal conductor, or armature, between two rails to launch projectiles at 4,500-5,600 mph.

The Navy is pursuing development of the launcher system through two industry teams—[General Atomics](#) and BAE Systems—to reduce risk in the program and to foster innovation in next-generation shipboard weapons.

"It's exciting to see how two different teams are both delivering very relevant but unique launcher solutions," said Roger Ellis, EM Railgun program manager.

General Atomics has delivered its prototype launcher to Naval Surface Warfare Center (NSWC) Dahlgren Division, where engineers have engaged in a series of tests similar to the evaluations conducted on the prototype demonstrator made by BAE Systems that arrived on Jan. 30.

"We're evaluating and learning from both prototype designs, and we'll be folding what we learn from the evaluations into the next phase of the

program," said Ellis.

Both General Atomics and [BAE Systems](#) are commencing work on concept designs for a next-generation prototype EM Railgun capable of increased firing rates. This includes continued development of automatic projectile loading systems and [thermal management systems](#) for the barrel. Officials plan to evaluate the concept designs at the end of the year.

The EM Railgun is an Innovative Naval Prototype being managed by ONR's Naval Air Warfare and Weapons Department. The two prototype demonstrators incorporate [advanced composites](#) and improved barrel life performance resulting from development efforts on laboratory railgun systems located at the Naval Research Laboratory and NSWC-Dahlgren Division.

The EM Railgun laboratory demonstrator based at NSWC-Dahlgren Division fired a world record setting 33-megajoule shot in December 2010. One megajoule of energy is equivalent to a 1-ton car traveling at 100 miles per hour.

Provided by Office of Naval Research

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