FACT SHEET

Electro-Magnetic Rail Gun

The Electro-Magnetic Laboratory Rail Gun is a 32-megajoule electro-magnetic weapon being evaluated by the Office of Naval Research – part of the Naval Air Warfare and Weapons Department. 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.

The gun is a long-range naval weapon that fires projectiles using electricity instead of chemical propellants. Magnetic fields created by high electrical currents accelerate a sliding metal conductor, or armature, between two rails to launch projectiles at 4,500 mph to 5,600 mph. Electricity generated by the ship is stored over several seconds in the pulsed power system.

Next, an electric pulse is sent to the railgun, creating an electromagnetic force accelerating the projectile to Mach 7.5. Using its extreme speed on impact, the kinetic energy warhead eliminates the hazards of high explosives in the ship and unexploded ordnance on the battlefield.

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.

A 32-megajoule prototype has been delivered by BAE Systems. This particular rail gun delivers fire from up to 220 miles in range, around 10 times the distance capable of standard ship mounted guns with rounds landing more swiftly and with little or no warning compared to a volley of *Tomahawk* cruise missiles.

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