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STUDIES

Changing the Game: the Promise of Directed-Energy Weapons

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Resources: Future Warfare & Concepts

America's ability to project conventional power abroad is eroding swiftly as state and non-state actors acquire advanced capabilities to offset the U.S. military's strengths across all operating domains—air, land, sea, space, and cyberspace.

Potential adversaries are pursuing guided weapons and other sophisticated systems that are designed to threaten the U.S. military's freedom of action and its overseas basis. Moreover, many of these threats, particularly precision-guided cruise and ballistic missiles, are on balance less expensive and easier to replace than the expensive kinetic weapons the U.S. military relies on to defend against them. As a result, America's future power projection operations may be far more challenging and inordinately more costly compared to conventional operations that it has undertaken over the last twenty years.

To change this emerging dynamic, the Department of Defense should invest in new technologies that will help the U.S. military retain its freedom of action and create cost-exchange ratios that favor the United States. Throughout history, technological breakthroughs such as machine guns, armored vehicles, submarines, precision-guided weapons, and stealth aircraft have proven to be great sources of operational advantage for militaries that were willing and able to exploit them. This report addresses the potential of a new family of emerging technologies known as directed energy (DE) to achieve similar results.