



Fact Sheet

Advanced Technology

The Advanced Technology Program Executive Office develops new system concepts and key components to ensure the Ballistic Missile Defense System (BMDS) keeps pace with the continually evolving ballistic missile threat. The advanced technology effort is focused on developing and demonstrating the next generation of technology that will give us the capability to intercept across the battle space, discriminate in all phases of the kill chain, and reduce the number of interceptors required to defeat a raid.



- **Discrimination Technology:** Our near-term goal is to add high altitude airborne or space based electro optical sensors into the BMDS architecture that can acquire, track and discriminate ballistic missile targets. The Agency is developing and testing these sensors on-board unmanned aerial vehicles already deployed in the field today.
- **Directed Energy:** Our overall vision is to shift the calculus of our potential adversaries by introducing directed energy into the BMDS architecture. This will revolutionize missile defense, dramatically reducing, if not eliminating, the role of interceptors. Additionally, the Agency is exploring two promising, high energy laser candidates, the Diode Pumped Alkali Laser system and the Fiber Combining Laser system using a system of engineering knowledge points to measure progress. In the 2025 time frame, our goal is to integrate a compact, efficient, high power laser into a high altitude, long endurance aircraft capable of carrying that laser and destroying targets in the boost phase.
- **Kill Vehicle Common Technology:** The Kill Vehicle Common Technology effort focuses on identifying and maturing advanced technology common to kill vehicles operating outside the earth's atmosphere. This effort's objective is to enhance the performance of existing and future BMDS interceptors while broadening the supplier and vendor base.
- **Advanced Concepts and Performance Assessments:** The Agency established a "Smart Buyer" approach using model-based engineering tools and techniques. We assess emerging missile defense needs, analyze alternative concepts and technology, ultimately informing requirements, reducing risk and ensuring cost effective mission solutions.
- **University Research Programs:** The Agency awards contracts to colleges and universities to develop next generation technology for possible implementation into the BMDS. Research is ongoing in many technology areas including minimizing the impact of debris, rapid response architecture optimization, propulsion, electro-optical sensors, and materials characterization.
- **Small Business Innovation Research (SBIR) Program:** The SBIR program harnesses the innovative talents of our nation's small technology companies for U.S. military and economic strength. The SBIR program funds early-stage Research and Development (R&D) at these companies and is designed to: stimulate technological innovation; increase private sector commercialization of federal R&D; increase small business participation in federally-funded R&D; and foster participation by minority and disadvantaged firms in technological innovation.
- **Small Business Technology Transfer (STTR) Program:** The STTR program is similar in structure to the SBIR program but funds *cooperative* R&D projects involving a small business and a research institution (e.g., university, federally-funded R&D center, or nonprofit research institution). The STTR program creates an effective vehicle for moving ideas from our nation's research institutions to the market, where they can benefit both private sector and military customers.