

- 3) **Space-based Neutral Particle Beam Weapons:** a high-power accelerator of neutral hydrogen particles is scheduled for demonstration in space by the early 1990's. The state of development of this technology lags behind that of space-based lasers, but is on a par with other directed energy weapons and with space-based kinetic energy weapons.
- 4) **Nuclear-Driven Directed Energy Weapons (X-Ray Laser):** a prototype of the Advanced Tracking and Pointing (ATP) device, to be used with the nuclear-driven Excalibur X-Ray Laser, will be assembled and tested in space. Research on the Excalibur device itself is being conducted by the Department of Energy.

III. Kinetic Energy Weapons (KEW)

A) **Definition:** kinetic energy weapons use projectiles to destroy their targets, either by direct collision ("hit-to-kill") or through the use of explosive warheads. These weapons are being designed to intercept ballistic missiles and their warheads in all phases of their trajectory.

B) **Research Areas:**

1) **Technology Base:**

- a) *Endo-atmospheric Non-Nuclear Kill Technology:* a project to develop the means to intercept warheads as soon as they enter the atmosphere, in a terminal layer of defence. Weapons of this type might, for example, be equipped with heat-seeking, explosive warheads. They would be applicable not just to strategic defence but also to an Anti-Tactical Ballistic Missile (ATBM) defence of Europe, used against Soviet theatre nuclear forces (TNF).
- b) *Exo-Atmospheric Non-Nuclear Kill Technology:* this type of weapon system, using direct collision to destroy a target in space, would further develop the "hit-to-kill" technology initially demonstrated in the Homing Overlay Experiment (HOE) (10 June 1984).
- c) *System Engineering:* this project will develop the interceptor guidance, control, and propulsion technologies.