



Precision Strike – Industry Perspective

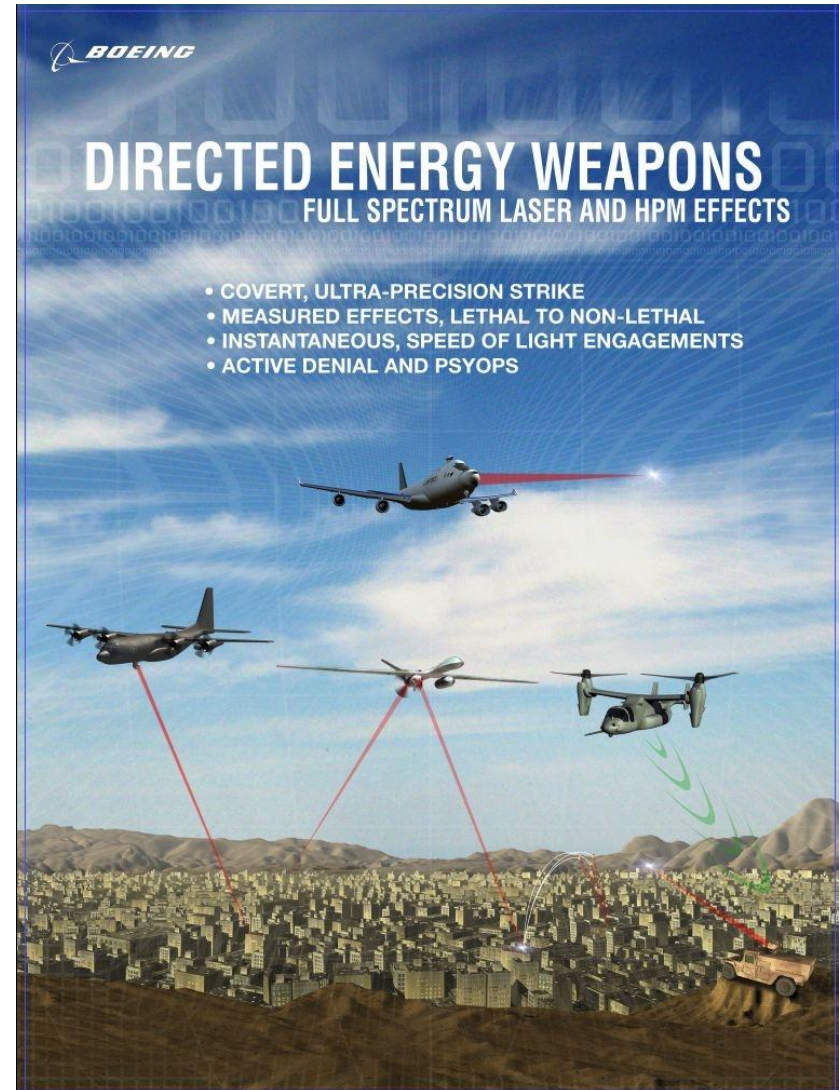
“Closer than you think”

Bob Van Allen
Program Director
HEL and EO Systems

The Promise

Missile Defense Systems |

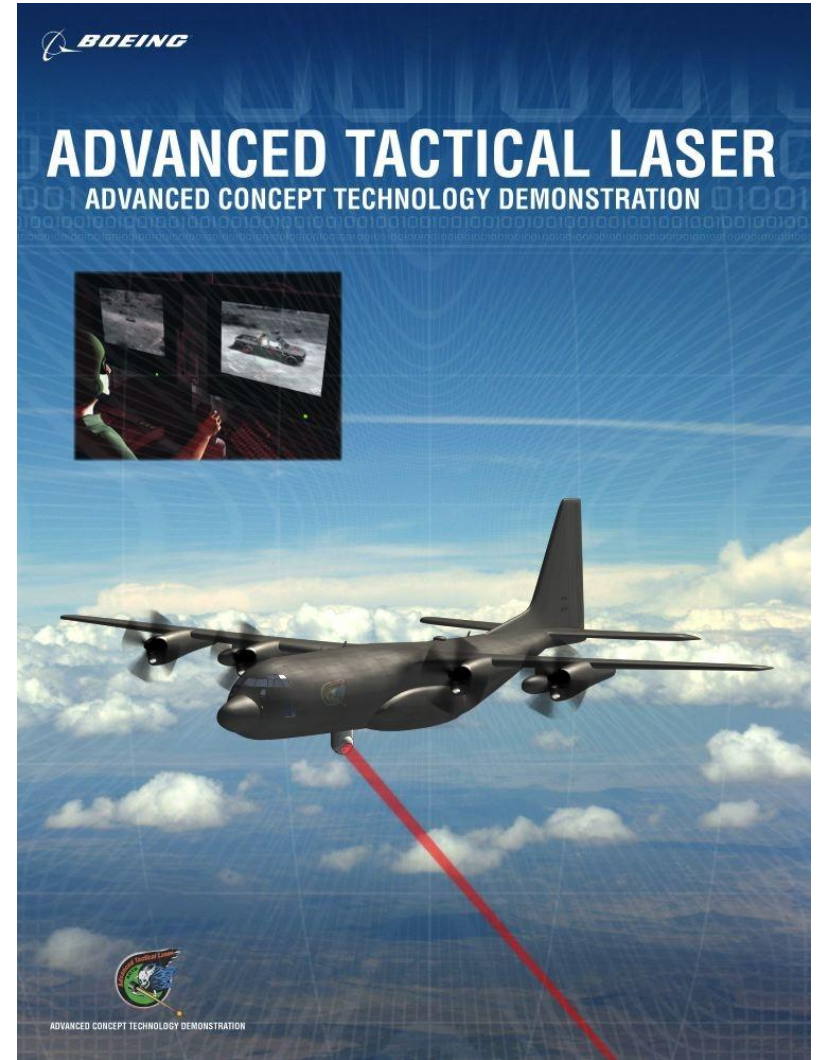
- **HEL Attributes**
 - Speed of light engagement
 - High precision offers low collateral damage
 - Graduated damage effects
 - Concurrent sensing capabilities
 - Deep magazine potential
 - Standoff range
- **Challenges**
 - Field of regard limited to Line of Sight
 - Atmospheric losses over long propagation lengths
 - Availability subject to weather: Clouds and obscurants limit field of engagement



HEL Programs Are In Integration and Field Test

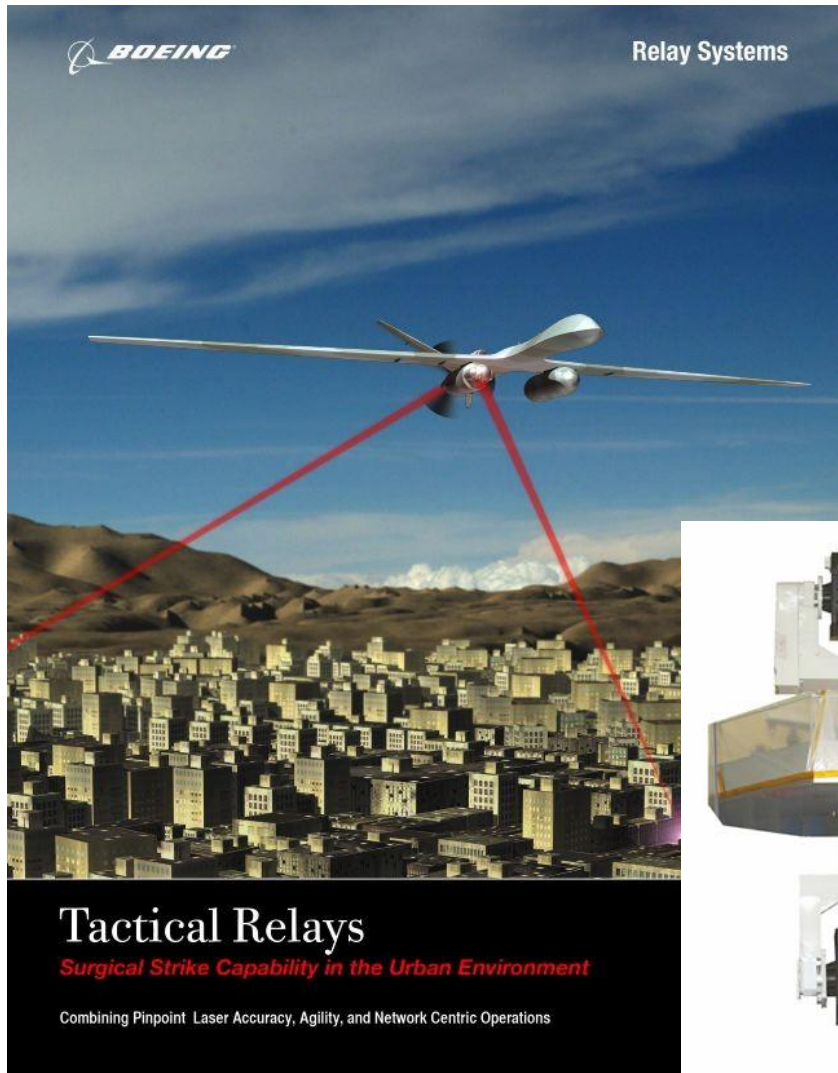
Missile Defense Systems |

- **Airborne Laser (ABL)**
- **Advanced Tactical Laser (ATL)**
- **HEL Relay Systems (“redirected energy”)**



HEL Technology is Maturing

Missile Defense Systems



BOEING Relay Systems

Tactical Relays
Surgical Strike Capability in the Urban Environment

Combining Pinpoint Laser Accuracy, Agility, and Network Centric Operations

This advertisement features a Boeing Tactical Relay aircraft in flight, emitting two red laser beams that converge on a target in a city. The background shows a desert landscape with mountains and a city at night.



BOEING

ARMS
AEROSPACE RELAY MIRROR SYSTEM
PERFORMANCE ENHANCEMENT FOR FUTURE HEL SYSTEMS

This advertisement features a Boeing ARMS Aerospace Relay Mirror System. It shows a satellite in space with a large mirror reflecting a red laser beam. The background is a dark space with binary code and a grid pattern.

Hurdles

Missile Defense Systems

- **System/technology readiness**
- **Military utility and effects**
- **Development/ life cycle cost**
- **Development Funding**
- **Policy**

BEAM CONTROL TECHNOLOGY
ENABLING HEL WEAPONS

See Better

Predator Tactical Relay

Osprey

Ground Vehicle SSL

Raw
"In Focus" but "Poor Resolution"

Real-Time Imaging
Becomes a Clear Image

Aimpoint Maintenance

Engage Efficiently

Beam Control Technologies

Optical Analysis

Adaptive Controls

Advanced Tracking

Enhanced Stabilization

Precision Pointing

Distributive Processing

Brassboard Testing