Operational Energy in the Department of Defense

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What is Operational Energy?
Energy for Warfighting

More Capability, More Energy

Range
Endurance
Payload
Speed
Survivability

While enabling capability, increased energy requirements also bring risk
New adaptations needed to succeed in contested operating environments
Objectives

• Reduce demand
• Diversify supply
• Adapt the future force

Operational Energy Strategy

Objectives

• Improve future capability
• Identify and reduce risk
• Enhance current operations

Assure delivery of operational energy to the warfighter
Energy Key Performance Parameter (KPP) and Energy Supportability Analyses (ESA)

- Move upstream in force development
  - Early analysis of energy demands identifies shortfalls
  - Informs development of energy KPP
  - Identified risks can be mitigated or accepted

- Wargaming and M&S support ESA
  - Test new concepts and introduce active RED threat
  - Allow multiple iterations, sensitivity analyses
Future Capabilities on the Way

- Adaptive engine technology will provide revolutionary advances in range, persistence, and thrust.

- Improved helicopter engines will fly at higher altitudes, hotter temperatures, and increase range.

- New designs and materials will decrease weight and drag, increase strength.
Key Operational Energy Challenge: High Power Weapons

• New weapons also will create new energy challenges

• How will we meet these energy needs in contested environments?

• How will we address thermal and power management for these new weapons?
Adapting policy, doctrine, forces, and training to ensure OE is not a constraint in operations

- **Improve capabilities of forces, platforms, bases**
  - Provide commanders with options with resilient installations, and forces with increased range and endurance.

- **Lighten logistics footprint and reduced risk from disruptions in energy supply**
  - Ensure uninterrupted operations thus enabling combat forces to focus on operational missions, not force protection.

- **Energy-informed force development and planning**
  - Energy analyses drive decision-making in PPBE, requirements, acquisition, operational planning.
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