US Navy Intelligence, Surveillance, and Reconnaissance Perspective

National Defense Industrial Association Naval Energy Forum

Rear Admiral Matt Klunder

14 October 2011
N2N6 – Who Are We?

Direction

1. **Consolidate N2 and N6 and other information capabilities within the OPNAV staff.**

2. **Establish Fleet Cyber Command.**

3. **Create an Information Dominance Corps.**

Elevating Information to a “Main Battery” Status
• We will **innovate to use new technologies** and operating concepts to sharpen our warfighting advantage against evolving threats.

• The **reach and effectiveness** of our ships and aircraft will be greatly expanded through new and updated weapons, **unmanned systems, sensors, and increased power**.

• Unmanned systems in the air and water will **employ greater autonomy and be fully integrated** with their manned counterparts.

**Steady Course and Speed!**
Energy Opportunities

• Unmanned and Distributed Netted Sensors
• Long-Endurance Energy Sources
• Network Automation
• Vehicle/Sensor Smart Autonomy
Why Go Unmanned and Distributed?

- **Endurance:**
  - Persistent ISR unfettered by crew & platform limitations

- **Far Forward:**
  - Expanded Area of Operations beyond those inaccessible or hazardous to manned platforms

- **Complementary:**
  - Augments manned platforms to fill capacity gaps & reduce costs.

Greater Flexibility Enhances Capacity & Capability
Long-Endurance Energy Sources

- Advanced Battery Solutions: Chemistry/Monitoring/Certification

- Two Recent BAAs for UUVs: 21” UUV FNC and LDUUV INP
  - 21” UUV Future Naval Capability: High and Low Temp Fuel Cells and Hybrids
  - Large Displacement UUV Innovative Naval Prototype

- Biofuels: Successfully demonstrated on FIRE SCOUT UAV

- “Exotics” - Wave / Ocean Energy Harvesting, Solar, Wind, Solid Oxides
A Role for Autonomy

- Network Automation (TCPED)
  - Energy-efficient processors, also reduced heat loading
  - Reduced Manning (with consequent savings)

- Vehicle “AI”
  - Improved autonomy reduces data volume transmitted
  - Assess on-board energy budget for mission optimization

Total System Energy Budget Counts!
Cross-Domain Challenges

• Energy & Propulsion
• Autonomy
• Operational Integration across all Domains
• Data formats & standards
• Reliability

Common Solutions for Multi-domain Missions
Questions?