Sustainability Challenges of the "GREEN RANGE"

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Overview

- NAVAIR Ranges & Sustainability Office
- Urban Development
- OCS Energy Development
- Renewable Energy Development
- California Low-Sulfur Fuel Regulation
NAVAIR Ranges

Pacific Ranges

Atlantic Ranges

• Chesapeake Test Range
• Atlantic (Off-Shore) Warning Areas
Sustainability Office

• Mission: Support the fleet’s sustainable readiness by ensuring the NAVAIR Team has access to ranges, facilities, resources and public support for its test, training, evaluation and experimentation mission.

• What Do We Do?
  – Environmental planning for ranges
  – Encroachment prevention & management

• Approach
  – External engagement/outreach
  – Coordination with Installations, Fleet, Other Services, Regions, RECs and others
  – Enhanced Readiness Teams

• Senior leadership involvement & support is critical
Urban Development
Atlantic Test Range

- Increased development in Lexington Park, MD Eastern Shore, & VA Northern Neck
- Substantial outreach/engagement
- Encroachment partnering/REPI project for easements to prevent incompatible development
OCS Energy Development

Atlantic Test Range

- Oil & gas
- Wind energy
- Engagement with USFF & OSD tiger team to identify areas of incompatible development
- Engagement/outreach with Maryland & Virginia
Existing & Proposed Wind & Solar Energy Projects
Renewable Energy Mission Impacts

• Wind Energy
  – Low-level airspace
  – Ground based radars/telemetry
  – Airborne radars

• Solar Energy
  – Glint/glare
  – Affect on infrared sensors
  – Habitat destruction (secondary effect)
NAVAIR Airborne Radar/Wind Turbine Testing

- Tested airborne RADAR Implications Against Wind Turbine Installations in Region
- Assessed Impacts of Turbines on Current & Future Test Capabilities
  - Conducted Open Air Testing in Various Flight Scenarios
  - Actual Wind Turbine Truth Data Utilized for all Testing
State of the Art Wind Turbine

- Tower Height: ~328 ft
- Rotor Diameter: ~361 ft
- Rated Capacity: ~3 MW
- Cut-in wind speed: ~6.8 kts
- Cut-out wind speed: ~52 kts
- Rated wind speed: 27 kts
- Rotor speed: 8.5 – 15.3 rpm
- Blade tip speed: ~170 kts
Radar Test Results

- Increased Processing Time
  - Busy Processing False Targets Vice Actual Targets
- Inability to Acquire Targets
  - Too Many Targets or too Much Noise to see Targets
- Detailed Results Available in Classified Brief
- Implications
  - Airborne RADAR “Laboratory” Would be Destroyed by Turbines
  - Inability to Field Weapons Systems to Warfighter
  - Training???
- No current mitigation
- Additional testing planned
California Low-Sulfur Fuel Regulation
Point Mugu Sea Range

• Most shipping uses Traffic Separation Scheme (Santa Barbara Channel)
  – Exceptions: Supertankers
    • Average of 2 ships/day on range
  – Minimal impact on Sea Range operations
• California regulation requires low-sulfur fuel within 24 nm of mainland – effective 1 JUL 2009
  – Significant Navy involvement/objection
• Since regulation went into effect, traffic avoiding the Santa Barbara Channel has increased to over 14 ships/day
Existing Regulatory Zone

Existing Shipping Lanes

Point Mugu Sea Range

Increased Ship Transits Since 1 July 2009
California Low-Sulfur Fuel Regulation
What Are We Doing?

• Established communications with shipping industry through LA/LB Marine Exchange
• Monitoring impacts
  – Minimal operational delays
  – Redirecting significant number of ships
• Engaged with CA Air Resources Board
  – CARB is modifying regulation to remove financial incentive to leave the Santa Barbara Channel
  – Unclear if change will be enough
California Low-Sulfur Fuel Regulation
Operational Impacts

• Minimal until recently
• CSSQT delay
• Two tests cancelled but unclear if unrelated to low-sulfur reg
  – Ships well beyond 24 nm
  – 9 APR 10: F-22 Small Diameter Bomb
  – 25 MAY 10: X-51A Test
California Low-Sulfur Fuel Regulation
What’s Next?

• USCG studying formal shipping lanes through Sea Range
  – NAVAIR engaged

• CA Air Resources Board has considered formal regulation to reduce vessel speeds in existing channel, up to 100 nm from ports within 24 nm or 40 nm from mainland
  – Now saying speed reduction can’t be limited to SB Channel

• Whale strikes: Proposals to reduce speed to 10 knots in SB Channel
  – No good species data outside SB Channel

• US EPA Emissions Control Area (ECA) off the West Coast
  – Will supersede CA regulation in 2015 but not speed reduction
Summary

• Significant external encroachment issues but no major impacts – yet
• Significant resources required