US Navy Tactical Fuels From Renewable Sources Program

18 May 2012

Prepared For: Advanced Biofuel Industry Round Table

Presented By: Rick Kamin
Navy Fuels Lead
richard.kamin@navy.mil
## Navy Fuels Specifications

- At-Sea Operating Environment Places Additional Requirements on the Fuel Necessitating Navy Unique Specifications

### JP-5: MIL-DTL-5624
- At-Sea Aviation Fuel (aircraft and non-aircraft)
- Critical Properties
  - Flash Point – Min 140 F
  - Water Separation
  - Stability (Storage and Thermal)
  - Energy Density
  - Cetane (New Req’t For Non-Petroleum Sources/blends)
- 10.8 Million Barrels Used In FY11

### F-76: MIL-DTL-16884
- Ship Propulsion Fuel (Gas Turbine, Diesel, Boiler)
- Critical Properties
  - Flash Point – Min 140 F
  - Water Separation
  - Stability (Storage)
  - Energy Density
  - No Oxygenates
- 14.9 Million Barrels Used in FY11

### Key Fuel Test and Certification Entrance Criteria
- Drop-in Fuel Potential : Spec, Fit For Purpose, Other Test Results
- Ability To Produce Sufficient Test Quantities
- Potential To Meet EISA 2007 Section 526 Requirements
- Timeframe to Produce Operational Quantities

---

Not Replacing JP-5 or F-76:
Approving New Sources and Production Processes To Produce JP-5 and F-76
Navy Energy Goals

50% Alternative Energy by 2020

50% Net Zero Installations by 2020

Sail the Great Green Fleet

2012 Green Strike Group Demo

2016 Great Green Fleet Sail

50% Less Petroleum in Commercial Vehicles by 2015

2020 Target:
8 Million bbls of JP-5/F-76

2012 (Complete):
• 10.7 K bbls

2016 Target:
• 40 K bbls JP-5
• 40 K bbls F-76

Must Be
• Drop-in replacement
• Meets All Stakeholder R’qts
• EISA 2007 526 Compliant
• Cost Competitive

Energy Efficient Acquisition
Phase 1:
- Chemical And Physical Property Similarity
  - Specification
  - Fit For Purpose

Phase 2:
- Performance Similarity
  - Materials
  - Components
  - Propulsion/Fuel Systems
  - Distribution Systems

Phase 3:
- Operational Similarity
  - Weapon System Trials

Phase 4:
- Long Term Operability
  - Field Trials
Plan Forward

- Summer 2012: 50/50 HEFA JP-5 Blend and 50/50 HEFA F-76 Blend Operational Testing (RIMPAC)
- Summer 2012: HEFA and FT 50/50 Blends added to JP-5 Spec
- Summer 2013: HEFA 50/50 blend added to F-76 Spec
- On-going: Spec and Fit-For Purpose Testing on Multiple Pathways at Navy’s Pax River Fuels Lab
- Summer/Fall 2012: Initiate Alcohol to Jet Component Testing