

Launching Renewable Aviation Fuels



Chris Tindal

Director for Operational Energy

Office of the Deputy Assistant Secretary of the Navy (Energy)



Bulk Fuel Purchases / Farm to Fleet



- Rocky Mountain/ West Coast bulk fuels contract awarded for fuel delivery starting December 2015 awarded 77.6 MM gallons of F-76 with 10% synthetic fuels content (142 MM gallons total F-76)
 - Covers San Diego, Bremerton, Hawaii
 - Synthetic fuel supplied by AltAir (Paramount, CA) using the HEFA process
 - **Provides the fuel for RIMPAC 2016**
 - Solicitation for deliveries starting 1 October 2016 recently closed
- Inland/ East/ Gulf Coast solicitation recently closed for fuel delivery starting 1 April 2017
 - Covers Norfolk, Mayport, and Jacksonville
 - All services will accept synthetic fuel blends in Jet A and JP-8 in accordance with published fuel specifications
 - Awardees (including any information on synthetic fuel content) will be announced 1 March 2017





Great Green Fleet Launches



Jan 2016



June 2016

Alt Fuel



Alt Fuel



Alt Fuel





July 2016





Defense Production Act Advanced Drop-In Biofuels Production Project



Company	Location	Feedstock	Conversion Pathway	Fuels	Capacity (MM gpy)
	US Gulf Coast	Fats, Oils, and Greases	Hydroprocessed Esters and Fatty Acids (HEFA)	F-76	82
	McCarran, NV	Municipal Solid Waste	Gasification – Fischer Tröpsch (FT)	JP-5, 8	10.8
	Lakeview, OR	Woody Biomass	Gasification – Fischer Tröpsch (FT)	F-76, JP-5,8	12

- Fulcrum and Red Rock have announced major jet fuel offtakes (Southwest, United, Cathay Pacific)



The Importance of Cert/Qual



- If you do not test and qualify synthetic fuels, then you might as well cross off several of those types of fuel and limit what the jet can accept and where it can go.

SERVICE THIS AIRCRAFT
WITH GRADE JP-4, 5, 8, 8+100,
JET A, A-1, B OR NATO FUEL GRADE
F-34, F-35, F-37, F-40, F-44



Navy Synthetic Fuel Qualification Roadmap



2017
CHCJ Added to JP-5 Spec

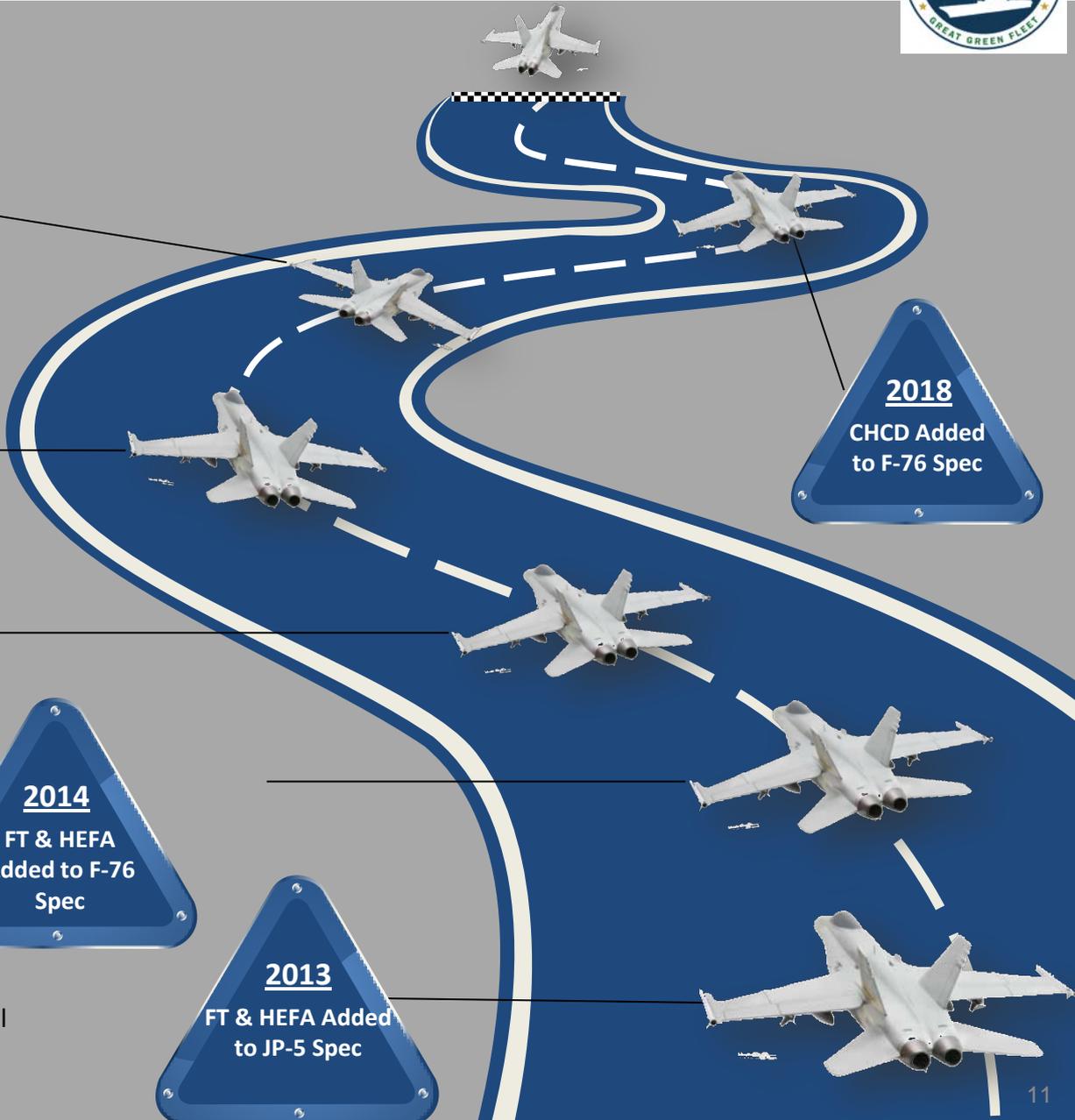
2016
SIP Added to F-76 Spec

2016
SIP and ATJ Added to JP-5 Spec

2014
FT & HEFA Added to F-76 Spec

2013
FT & HEFA Added to JP-5 Spec

2018
CHCD Added to F-76 Spec



FT: Fischer-Tropsch
HEFA: Hydrotreated Esters and Fatty Acids
SIP: Synthetic Iso-Paraffins
ATJ: Alcohol to Jet
CHCD: Catalytic Hydrothermolysis Conversion Diesel
CHJ: Catalytic Hydrothermolysis Conversion Jet



Other Notable Progress



- The market is open. If it's in the MILSPEC, we'll take it. And we've made sure the other Services will too (someone has to lead)
- We offer a premium for renewable jet fuel derived from USDA-approved feedstocks (Commodity Credit Corporation)
- International markets are expanding... In RIMPAC, eight of other navies have agreed to use alternative fuels during the exercise. More to follow.



Discussion Points



- Long-term contracts are limited to 5 years (+5 option years), are not part of normal business practice, and are for near term production (issued in September for deliveries beginning October the same year)
- Commodity Credit Corporation funds are non-recurring
- Congressional language, internal policy, and interpretation of the FAR has essentially pegged us to petroleum (cost competitive)
- Inclusion of jet fuel in Low Carbon Fuel Standards



I wish this was alternative fuel

Synthetic Hydrocarbons in Aviation Fuels

2012: 50%

2016: 100%

