

Appendix B: Fuel Readiness Level

Commercial Fuel Readiness Level (FRL) - Alternative Aviation Fuels

FRL	Description	CAAFI Toll Gate	FRL	Description	CAAFI Toll Gate	Fuel Qty	MRL	USAF TRL
1	Basic Principles Observed and Reported	Feedstock and process basic principles identified					1	
2	Technology Concept Formulated	Feedstock and complete process concept identified					2	
3	Proof of Concept	Small Fuel Sample Available from Lab Basic Fuel Properties Validated (Thermal Stability/Freezing Point)				500 ml	3	1. Basic Fuel Properties Observed and Reported
4.1 4.2	Preliminary Technical Evaluation	System Perf. & Integration Studies Entry Criteria/Specification Properties Evaluated (MSDS/D1655/MIL 83133)				10 gal	4	2. Fuel Specification Properties
5.1 5.2 5.3 5.4	Process Validation	Laboratory Production Development Subscale Production Demonstrated Scalability of Production Demonstrated Pilot Plant Capability Enabled	6.1 6.2 6.3 6.4	Full-Scale Technical Evaluation	Fit-For-Purpose Prop's Evaluated Turbine Hot Section Component/Rig/Emissions Testing Engine/APU Testing	80 gal 4K gal 20K gal 225K gal	5 6 7 8	3. Fit for Purpose 4. Extended Lab Fuel Property Test 5. Component Rig Testing 6. Small Engine Testing
			6.5					7. Pathfinder
			7	Fuel Approval	Fuel Class/Type Listed in Int'l Fuel Standards			8. Validation/Certification 9. Field Service Evaluations
8	Commercialization Validated	Business Model Validated for Production Go-Ahead Airline/Military Purchase Agreements						
9	Production Capability Established	Full Scale Plant Operational					9-10	

Legend:	R & D	Certification/Qualification	Business & Economics
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