REDAC Human Factors Subcommittee

R&D Budget Status

Mike Gallivan September 16, 2014



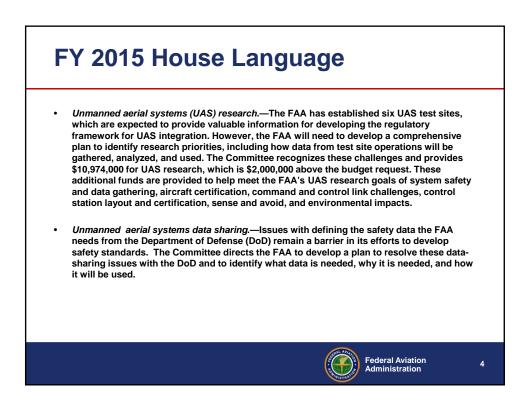
R,E&D FY 14 Budget

- R,E&D FY 14 Budget Request \$166.0M
- FY 14 Appropriation \$158.792
 - Signed Jan. 17, 2014
 - Safety \$87.244
 - Improve Efficiency \$24.329
 - Reduce Environmental Impacts \$41.579
 - Mission Support \$5.640



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		FY 15	FY 15	FY 2015			FY 15
	FY 2015	House	Request/FY	Senate	FY 15	2015	Request/FY15
	Request	Mark	15 House	Mark	Request/FY15		Draft
Program	(\$000)	(\$000)	+/-	(\$000)	Senate +/-	Mark (\$000)	Conference +/-
Fire Research and Safety	6.929	6.929		6.000	(929)		(6,929)
Propulsion and Fuel Systems	2,413	2,413		2.000	(929) (413)		(6,929)
Advanced Materials/Structural Safety	2,413	2,413		2,000	(413)		(2,909)
Aircraft Icing /Digital System Safety	5.889	5.889		5.500	(389)		(5,889)
Continued Airworthiness	9,619	9,619		9.619	-		(9,619)
Aircraft Catastrophic Failure Prevention Research	1,567	1,567	-	1,500	(67)		(1,567)
Flightdeck/Maintenance/System Integration Human							
Factors	9,897	6,000	(3,897)	8,500	(1,397)		(9,897)
System Safety Management	7,970	7,970		7,970	-		(7,970)
Air Traffic Control/Technical Operations Human							
Factors	5,898	5,898	-	5,400	(498)		(5,898)
Aeromedical Research	8,919	8,919	-	8,300	(619)		(8,919)
Weather Program	17,800	15,897	(1,903)	15,847	(1,953)		(17,800)
Unmanned Aircraft Systems Research	8,974	10,974	2,000	12,974	4,000		(8,974)
NextGen - Alternative Fuels for General Aviation NextGen - Advanced Systems and Software Valida	5,700	6,000	300	6,000	300		(5,700)
Joint Planning and Development Office					-		
NextGen - Wake Turbulence	8.541	8.541		8.541	-		(8.541)
NextGen - Air Ground Integration Human Factors	9,697	9.697		9.697	-		(9,697)
NextGen - Self Separation Human Factors	3,087	3,057	-	3,031	-		-
NextGen - Weather Technology in the Cockpit	4,048	4,048	-	4,048	-		(4,048)
Environment and Energy	14,921	14,921	-	14,921	-		(14,921)
NextGen - Environmental Research - Aircraft							
Technologies, Fuels, and Metrics	19,514	23,014	3,500	21,514	2,000		(19,514)
System Planning and Resource Management	2,135	2,135	-	2,100	(35)		(2,135)
William J. Hughes Technical Center Laboratory							
Facility	3,410	3,410	-	3,410	-		(3,410)
TOTAL	156,750	156,750	-	156,750	-	-	(156,750)



FY 2015 House Language

- NextGen—Alternative fuels for general aviation.—The Committee provides \$6,000,000 for alternative fuels research for general aviation, which is \$300,000 above the budget request. During the complex transition of the general aviation piston fleet to an unleaded fuel, an increase in funding above last year is merited to move from research to a phase focused on coordinating and facilitating the fleet-wide evaluation, certification and deployment of an unleaded fuel and to help overcome any market issues that prevent it from moving forward. The Committee recognizes this is a multi-year effort and looks forward to updates on the continued progress on this initiative as it effectively balances environmental improvement with aviation safety, technical challenges, and economic impact.
- NextGen environmental research—aircraft technologies, fuels and metrics.—The Committee provides \$23,014,000 for the FAA's NextGen environmental research aircraft technologies, fuels and metrics program, which is \$3,500,000 above the budget request. Over the last few years, the Committee has provided additional resources for the FAA's environmental research program in an effort to expedite the development of viable alternative fuels that can be used in aircraft. Recognizing that fuel costs continue to consume the largest portion of airline operating budgets and in an effort to reduce the aviation sector's emissions footprint, the Committee provides additional resources to continue the tesearch, development and testing of alternative fuels. Now that the United States Air Force Research Laboratory is no longer able to support alternative fuels testing, it is expected that the FAA will use some of these resources to produce fit for purpose chemical-analytical, fuel-property and material compatibility testing for many of the new chemical processes that produce alternative jet fuel. In addition, and Noise Program.





 Unmanned Aerial Systems Research—Center of Excellence.—The Committee recommendation includes \$12,974,000 for unmanned aircraft systems research, an increase of \$4,000,000 above the budget request and \$4,330,000 above the fiscal year 2014 enacted level. The administration's request includes \$1,000,000 for a new center of excellence on unmanned aircraft systems [UAS], but given its importance, the Committee directs the FAA to dedicate the full funding increase to the center, which would receive a total of \$5,000,000 under the Committee recommendation.

The Committee is pleased with the Department's progress in establishing a UAS center of excellence to address a host of research challenges associated with integration of UAS into the national airspace. The formation of a UAS center of excellence is essential to meet the requirements enacted as part of the FAA Modernization and Reform Act of 2012. The Committee directs that when the FAA selects candidates for the center, the agency shall consider a geographically and climatically diverse team of academic institutions with proven track records in unmanned aircraft systems engineering and certification, airspace integration, aviation modeling and simulation, UAS policy, UAS training and pilot certification, and collaboration with partners in the UAS industry. As cyber security is of paramount importance to safe UAS operations, the FAA should pay particular attention to teams with National Security Administration and Department of Homeland Security cyber education, research and operations certifications. Candidates should be well integrated with the FAA UAS test sites, with emphasis on teams that have the capacity to research beyond line of sight small UAS operations. Candidates should have close relations with disaster response agencies, the Department of Homeland Security and the Department of Agriculture in order to facilitate research into key UAS mission areas, such as environmental monitoring, weather and hydrologic prediction, precision agriculture, law enforcement, disaster response and oil transportation systems monitoring.



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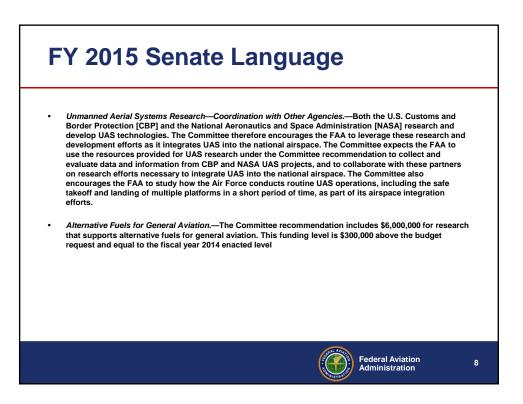
FY 2015 Senate Language

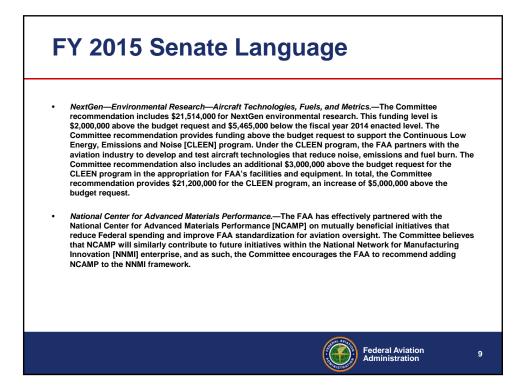
Unmanned Aerial Systems Research—Strategic Plan for Research.— In order to support the integration of UAS into the national airspace, the FAA Modernization and Reform Act of 2012 required the FAA to work with other Federal agencies and representatives from the aviation industry on a comprehensive plan that would include a timeline for the necessary research and regulations. The law also required the FAA to write its own roadmap for integrating UAS into the national airspace, to update this roadmap each year, and to designate six test sites that will collect data and conduct research.

Although the FAA has completed each of these requirements, the Committee remains concerned that the FAA has not yet shown details on how its research will directly lead to better UAS integration. The first edition of FAA's roadmap, entitled the "Integration of Civil Unmanned Aircraft Systems [UAS] in the National Airspace System [NAS] Roadmap," contains no discussion on what specific questions need to be answered before integrating UAS into the national airspace, what research projects would answer those questions, or which data are necessary to support that research. Importantly, the roadmap does not provide a strategy on how the test sites will participate in these efforts.

The Committee understands that the new UAS center of excellence can perform a vital role in coordinating with each of the test sites and filling research gaps for the FAA. However, the Committee believes that the FAA must direct the strategy itself. The Committee therefore directs the FAA to include a strategic plan on research efforts as part of its next edition of the roadmap. The roadmap shall include a section that discusses the specific research needs to safely integrate UAS into the NAS, including an examination of the research goals that the FAA must reach in order to successfully and safety advance NAS integration; FAA's strategy to obtain the identified research through partnerships with other Federal agencies, the UAS center of excellence, participants in the UAS and aviation industry, and the UAS test sites; and an evaluation of the ability of the UAS test sites to coordinate with the FAA and its center of excellence, and participate in the FAA's strategy, and help achieve the research goals identified in the roadmap.







	FY 15	FY 15	Difference	Fy 15	Difference
Account	Request	House Mark	(+/-)	Senate Mark	(+/-)
Operations	\$ 9,750,000,000	\$ 9,750,000,000		\$ 9,750,000,000	
Facilites & Equipment	\$ 2,603,700,000	\$ 2,600,000,000			\$ (130,000,000)
Research, Engineering & Developmen		\$ 156,750,000		\$ 156,750,000	
Airports Total	\$ 2,770,000,000 \$ 15,280,450,000	\$ 3,350,000,000 \$ 15,856,750,000	\$ 580,000,000 \$ 576,300,000	\$ 3,480,000,000 \$ 15,860,450,000	\$ 710,000,000 \$ 580,000,000

FY 15 R,E&D Request

		FY 2014	FY 2015	
	FEDERAL AVIATION ADMINISTRATION	Enacted	Pres. Bud. Request	
A. Re:	search, Engineering and Development	158,792	156,750	
A11	Improve Aviation Safety	87,244	94,484	
a.	Fire Research and Safety	8,000	6,929	
b.	Propulsion and Fuel Systems	1,800	2,413	
с.	Advanced Materials/Structural Safety	2,600	2,909	
d.	Aircraft Icing/Digital System Safety	7,500	5,889	
e.	Continued Airworthiness	8,000	9,619	
r.	Aircraft Catastrophic Failure Prevention Research	1,500	1,567	
g.	Flightdeck/Maintenance/System Integration Human Facto	5,000	9,897	
h.	System Safety Management	11,000	7,970	
L.	Air Traffic Control/Technical Operations Human Factors	5,000	5,898	
j.	Aeromedical Research	7,000	8,919	
k.	Weather Program	14,200	17,800	
L.	Unmanned Aircraft Systems Research	8,644	8,974	
m.	NextGen - Alternative Fuels for General Aviation	6,000	5,700	
n	NextGen - Advanced Systems and Software Validation	1,000	-	
A12	Improve Efficiency	24,329	22,286	
a.	Joint Planning and Development Office		· -	
b.	NextGen - Wake Turbulence	9.000	8.541	
с.	NextGen - Air Ground Integration Human Factors	11.329	9.697	
d.	NextGen - Self-Separation Human Factors			
е.	NextGen - Weather Technology in the Cockpit	4,000	4,048	
A13	Reduce Environmental Impact	41.579	34,435	
а.	Environment and Energy	14.600	14.921	
b.	NextGen - Environmental Research - Aircraft Technologi	26,979	19,514	
A14	Mission Support	5,640	5,545	
a.	System Planning and Resource Management	2.200	2.135	
b.	William J. Hughes Technical Center Laboratory Facility	3,440	3,410	
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