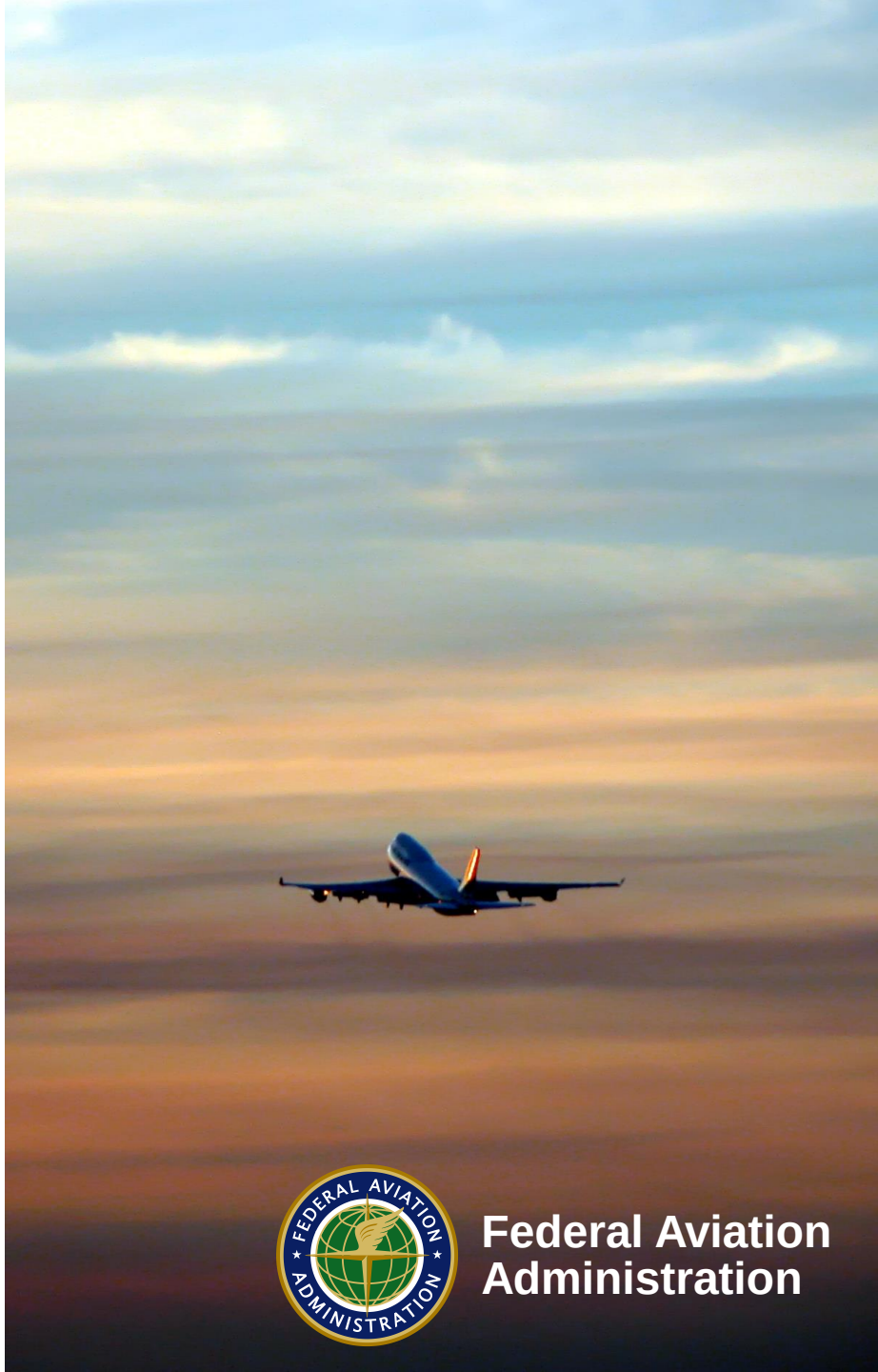
REDAC
TBD
Subcommittee

R,E&D Budget Status

Presented to: REDAC Subcommittee

By: Tom Kelly

Date: August 2023



R,E&D FY 2023 Budget

- **FY 23 R,E&D Request $260.5M**
  - House Appropriation Committee
    - R,E&D funded at $260.5M
  - Senate Appropriation Committee
    - R,E&D funded at $266.1M
  - Enacted – Signed December 29, 2022
    - R,E&D funded at $255M

FY 2024 Budget- House Mark

- **FY2024 RE&D President's Budget Request:**
  - FY 2024 RE&D Request: $255.1M
- **Budget Submitted on March 9, 2023**
- **House Appropriations Mark, approved full committee July 18, 2023**
- **$196.050, a reduction of $64.080**
- **Environmental BLI's zero'd out**
- **Two new BLI's added**
- **UAS increased and Workforce grants increased**

FY24 House Mark with comment

FY 2024 BLI	BLI Name	FY 2022 Enacted $248.5M ($000s)	FY2023 Enacted $255M ($000s)	FY2024 President's Budget $255.1M ($000s)	FY2024 House Mark $196M ($000s)	FY2024 Request/ FY2024 House +/- ($000s)	Comments
	Research, Engineering & Development						
a.	Fire Research and Safety	7,136	7,136	7,722	7,722	0	
b.	Propulsion and Fuel Systems	3,000	3,000	6,374	6,374	0	
c.	Advanced Materials /Structural Safety	14,720	14,720	2,526	2,526	0	
d.	Aircraft Icing	2,472	2,472	3,960	3,960	0	
e.	Digital System Safety	3,689	3,689	7,109	7,109	0	
f.	Continued Air Worthiness	8,829	8,829	8,425	8,425	0	
g.	Flight deck/Maintenance/System Integration Human Factors	14,301	14,301	15,646	15,646	0	
h.	System Safety Management/Terminal Area Safety	7,000	9,252	9,349	9,349	0	
i.	Air Traffic Control/Technical Operations Human Factors	5,911	5,911	6,389	6,389	0	
j.	Aeromedical Research	11,000	9,000	12,205	12,205	0	
k.	Weather Program	13,786	13,786	19,220	19,220	0	
l.	Unmanned Aircraft Systems Research	22,077	22,077	21,128	31,128	10,000	AdditionalFunding - $10M for Counter UAS - Mike Monroney Aeronautical Center and R1 University.
m.	Alternative Fuels for General Aviation	5,434	10,000	11,201	11,201	0	
	Emerging Technology Accelerator (ETA)	-	-	-	-	0	
n.	Commercial Space Transportation Safety	5,708	4,708	6,157	6,157	0	
o.	NextGen Wake Turbulence	3,728	3,728	4,680	4,680	0	
	NextGen - Air Ground Integration Human Factors	3,000	-	-		0	
	NextGen - Weather Technology in the Cockpit	2,659	4,000	-		0	
	NextGen - Flight Data Exchange	1,000	-	-		0	
p.	Information/Cyber Security	4,769	4,769	6,415	6,415	0	
q.	Environment & Energy	22,000	21,000	21,305	-	(21,305)	
r.	NextGen – Environmental Research – Aircraft Technologies and Fuels	67,500	68,000	70,774	-	(70,774)	
s.	System Planning and Resource Management	3,300	4,141	5,097	5,097	0	
t.	Aviation Grant Management	10,000	15,000	2,001	15,000	12,999	Additional Funding - 10M for Aviation Maintenance Workers and 5M for Aviation Workforce Development
	Women in Aviation and Pilot Shortage Study				5,000	5,000	New BLI
u.	William J. Hughes Technical Center Laboratory Facilities	5,481	5,481	5,447	5,447	0	
v.	Aviation Accessibility Research	-	-	2,000	2,000	0	
	Aircraft Radio Altimeter Development, Testing, and Certification				5,000	5,000	New BLI
	TOTAL RE&D	**248,500**	**255,000**	**255,130**	**196,050**	**(64,080)**	

Avaition Workforce Development renamed to Aviation Grant Management in FY 2024

Aviation Accessiblity Research new BLI to fund Wheelchair Accessibility on Airplanes Research

FY24 House Mark- with FY22 & 23

FY 2024 BLI	BLI Name	FY 2022 Enacted $248.5M ($000s)	FY2023 Enacted $255M ($000s)	FY2024 President's Budget $255.1M ($000s)	FY2024 House Mark $196M ($000s)	FY2024 Request/ FY2024 House +/- ($000s)
	Research, Engineering & Development					
a.	Fire Research and Safety	7,136	7,136	7,722	7,722	0
b.	Propulsion and Fuel Systems	3,000	3,000	6,374	6,374	0
c.	Advanced Materials /Structural Safety	14,720	14,720	2,526	2,526	0
d.	Aircraft Icing	2,472	2,472	3,960	3,960	0
e.	Digital System Safety	3,689	3,689	7,109	7,109	0
f.	Continued Air Worthiness	8,829	8,829	8,425	8,425	0
g.	Flight deck/Maintenance/System Integration Human Factors	14,301	14,301	15,646	15,646	0
h.	System Safety Management/Terminal Area Safety	7,000	9,252	9,349	9,349	0
i.	Air Traffic Control/Technical Operations Human Factors	5,911	5,911	6,389	6,389	0
j.	Aeromedical Research	11,000	9,000	12,205	12,205	0
k.	Weather Program	13,786	13,786	19,220	19,220	0
l.	Unmanned Aircraft Systems Research	22,077	22,077	21,128	31,128	10,000
m.	Alternative Fuels for General Aviation	5,434	10,000	11,201	11,201	0
	Emerging Technology Accelerator (ETA)	-	-	-	-	0
n.	Commercial Space Transportation Safety	5,708	4,708	6,157	6,157	0
o.	NextGen Wake Turbulence	3,728	3,728	4,680	4,680	0
	NextGen - Air Ground Integration Human Factors	3,000	-	-		0
	NextGen - Weather Technology in the Cockpit	2,659	4,000	-		0
	NextGen - Flight Data Exchange	1,000	-	-		0
p.	Information/Cyber Security	4,769	4,769	6,415	6,415	0
q.	Environment & Energy	22,000	21,000	21,305	-	(21,305)
r.	NextGen – Environmental Research – Aircraft Technologies and Fuels	67,500	68,000	70,774	-	(70,774)
s.	System Planning and Resource Management	3,300	4,141	5,097	5,097	0
t.	Aviation Grant Management	10,000	15,000	2,001	15,000	12,999
	Women in Aviation and Pilot Shortage Study				5,000	5,000
u.	William J. Hughes Technical Center Laboratory Facilities	5,481	5,481	5,447	5,447	0
v.	Aviation Accessibility Research	-	-	2,000	2,000	0
	Aircraft Radio Altimeter Development, Testing, and Certification				5,000	5,000
	TOTAL RE&D	**248,500**	**255,000**	**255,130**	**196,050**	**(64,080)**

Avaition Workforce Development renamed to Aviation Grant Management in FY 2024

Aviation Accessiblity Research new BLI to fund Wheelchair Accessibility on Airplanes Research

FY 2024 House Language

- ***Counter UAS*** —The Committee notes that the FAA lacks a centralized activity with the full capability to address specific research, development, test and evaluation issues related to the integration of Counter-UAS into the NAS. Critical issues include the employment of radars, radar deconfliction, use of directed energy, employment of GPS denial and counter- PNT technologies, infrared tracking, acoustic methods, radio frequency and other technologies. The committee provides $10,000,000 to establish a research, development, testing and evaluation Counter-UAS program to address these issues, utilizing the assets of the Mike Moroney Aeronautical Center and an R1 university with an active airport and a demonstrated ability to develop applicable radar technology, system integration, and conduct test and evaluation.
- **Radio altimeters** --- The committee provides $5,000,000 for the FAA to establish a program at the Mike Moroney Aeronautical Center, in partnership with aviation manufacturers, to accelerate testing, certification, and implementation of new radio altimeter capabilities consistent with the next generation avionics standards.
- **UAS test sites** ---The committee encourages the FAA to expand its authorized UAS test sites to include a new location focusing on Large UAS (L-UAS) and AAM airspace integration, flight verification and validation through testing in medium density complex environments which support commercial operations in the Gulf of Mexico.

FY 2024 House Language

- ***Aviation workforce*** —The Committee supports increasing the strength and number of aviation professionals who are well-trained and can be relied upon to make air travel safe and efficient. The committee provides $10,000,000 for the aviation maintenance technician development program and $5,000,000 for aviation workforce development program in accordance with section 625 of the FAA Reauthorization Act of 2018.

- **Women in aviation** --- The committee recognizes the importance of addressing the pilot shortage through the continued development of a skilled pilot workforce and supporting the training of women pilots who have been historically underrepresented in the industry. The committee provides $5,000,000 to be awarded to an accredited university of higher education or a consortium located in a critical hub for global aviation to conduct research on diversifying the pilot workforce to promote greater representation of women pilots in the industry and address pilot shortage factors, such as the aging workforce, compensation, or fluctuating recruitment requirements.

FY 2024 Budget- Senate Mark

- **FY2024 RE&D President's Budget Request:**
  - FY 2024 RE&D Request: $255.1M
- **Budget Submitted on March 9, 2023**
- **Senate Appropriations Mark, Subcommittee report available July 21**
- **$260.0M, an increase of $4.9M**
- **Advanced Materials/Structural Safety increased $12.2M, Aviation Grant Mgt. increased $18M, Various reductions to other BLI's (next slide has summary)**

FY24 Senate Mark with comment

FY 2024 BLI	BLI Name	FY2023 Enacted $255M ($000s)	FY2024 President's Budget $255.1M ($000s)	FY2023 Senate Mark $260M ($000s)	FY2023 Request/ FY2023 Senate +/- ($000s)	FY2024 Senate Directed Item	Comments
	Research, Engineering & Development						
a.	Fire Research and Safety	7,136	7,722	7,136	(586)		
b.	Propulsion and Fuel Systems	3,000	6,374	4,000	(2,374)		
c.	Advanced Materials /Structural Safety	14,720	2,526	14,720	12,194	12,194	Additional Funding - Reference Senate Language
d.	Aircraft Icing	2,472	3,960	2,472	(1,488)		
e.	Digital System Safety	3,689	7,109	3,689	(3,420)		
f.	Continued Air Worthiness	8,829	8,425	8,425	-		
g.	Flight deck/Maintenance/System Integration Human Factors	14,301	15,646	14,301	(1,345)		
h.	System Safety Management/Terminal Area Safety	9,252	9,349	9,252	(97)		
i.	Air Traffic Control/Technical Operations Human Factors	5,911	6,389	5,911	(478)		
j.	Aeromedical Research	9,000	12,205	10,000	(2,205)		
k.	Weather Program	13,786	19,220	14,786	(4,434)		
l.	Unmanned Aircraft Systems Research	22,077	21,128	21,128	-	16,000	AdditionalFunding - Reference House and Senate Language
m.	Alternative Fuels for General Aviation	10,000	11,201	11,201	-		
n.	Commercial Space Transportation Safety	4,708	6,157	2,000	(4,157)		
o.	NextGen Wake Turbulence	3,728	4,680	3,728	(952)		
	NextGen - Air Ground Integration Human Factors	-	-	-	-		
	NextGen - Weather Technology in the Cockpit	4,000	-	-	-		
	NextGen - Flight Data Exchange	-	-	-	-		
p.	Information/Cyber Security	4,769	6,415	5,707	(708)		
q.	Environment & Energy	21,000	21,305	21,000	(305)	8,500	Reference - Senate Language
r.	NextGen – Environmental Research – Aircraft Technologies and Fuels	68,000	70,774	68,000	(2,774)	64,500	Reference - Senate Language
s.	System Planning and Resource Management	4,141	5,097	5,097	-		
t.	Aviation Grant Management	15,000	2,001	20,000	17,999	17,999	Additional Funding - Reference House and Senate Language
	Women in Aviation and Pilot Shortage Study			-	-		New BLI
u.	William J. Hughes Technical Center Laboratory Facilities	5,481	5,447	5,447	-		
v.	Aviation Accessibility Research	-	2,000	2,000	-		
	Aircraft Radio Altimeter Development, Testing, and Certification	-	-	-	-		New BLI
	TOTAL RE&D	**255,000**	**255,130**	**260,000**	**4,870**		

Avaition Workforce Development renamed to Aviation Grant Management in FY 2024

Aviation Accessiblity Research new BLI to fund Wheelchair Accessibility on Airplanes Research

FY 2024 Senate Language

- ***Advanced Materials /Structural Safety*** —The Committee recommendation includes a total of $14,720,000 for advanced materials/structural safety, of which not less than $10,000,000 shall be for the COE for joint advanced materials and structures (JAMS). The committee recommendation includes $6,000,000 to advance the use of these new additive materials (both metallic and non-metallic based additive processes) in the commercial aviation industry and $4,000,000 to advance the use of fiber reinforced composite materials in the commercial aviation industry through the FAA joint advanced materials and structures COE.

- **UAS Research** --- The committee recommendation includes $21,128,000 for UAS research . Of this amount, $14,000,000 is for the UAS COE of which $2,000,000 is for transportation disaster preparedness and response, partnering with institutions that have demonstrated experience in damage assessment, collaboration with State transportation agencies, and applied UAS field testing.

FY 2024 Senate Language

- ***Alternative Fuels for General Aviation*** —The Committee recommendation includes $11,201,000 for alternative fuels for general aviation. The Committee directs the FAA's management advisory council to initiate a special review of the FAA's actions and plans to phase out lead from aviation gasoline. The special review shall include the effectiveness of the FAA's eliminate aviation gasoline lead emissions [EAGLE] initiative, the role of agencies beyond the DOT and Environmental Protection Agency [EPA] to help expedite the phase out of lead, whether additional actions or measures can be taken to accelerate the safe transition to unleaded aviation gasoline, and recommendations for improving the FAA's ongoing activities, including additional interagency participation and support, with a view towards accelerating the phase out of lead from aviation gasoline. The FAA shall submit a summary of the Council's findings to the House and Senate Committees on Appropriations no later than 2 years after the date of enactment of this act.

- **Environment and Energy** --- The Committee recommendation includes $21,000,000 for environment and energy, of which $8,500,000 shall be for the aviation sustainability center [ASCENT] COE on sustainable aviation fuels [SAFs].

FY 2024 Senate Language

- ***NextGen Environmental*** —The Committee recommendation includes $68,000,000, of which $26,500,000 shall be for the ASCENT COE on SAFs and aviation noise, and $38,000,000 shall be for the continuous lower energy, emissions, and noise [CLEEN] program. The Committee continues to direct the FAA to prioritize research related to SAFs, certification of SAFs, and challenges associated with the SAF supply chain. The Office of Environment and Energy and the Office of Airports should work together to identify SAF related projects at airports that can be funded from airport improvement program [AIP] grants. The FAA should also support hydrogen and fuel-cell related technologies that could reduce the noise and emissions footprint in future aircraft. Within the CLEEN program, the FAA may use any unused funds to work with commercial supersonic aircraft manufacturers that will help mature clean and quiet technologies for conventional nonsupersonic aircraft manufacturers.

- **SAF Assessment** --- The Committee supports the Department's commitment to support the development of infrastructure and transportation systems that will connect SAF feedstock producers, SAF refiners, and aviation end users. Within 90 days of enactment of this act, the FAA is directed to update the House and Senate Committees on Appropriations on these efforts, including an assessment of locations in FAA's Central Region that are near a significant Defense Logistics Agency refueling location.

FY 2024 Senate Language

- **Aviation Grant Management** --- The Committee recommendation includes $20,000,000 for the aviation workforce development programs as authorized by section 625 of the FAA Reauthorization Act of 2018. Funds provided for aircraft pilot workforce should be prioritized for applicants that can help increase the number of qualified pilots in commercial service and that demonstrate the ability to leverage private sector investments.

- **Aircraft Accessibility Research** --- The Committee directs the FAA to research how transport category aircraft accessibility can be improved. This research should include how manual and powered personal wheelchairs can be safely secured in the passenger seating areas of transport category airplanes, determining the optimal safe evacuation processes for persons with disabilities, including persons who use wheelchairs, and determining how various types of transport category airplanes could most safely and efficiently be retrofit for accessible lavatories. The FAA shall include the resource needs for such research in future budget justifications.

FY24 House & Senate Summary

FY 2024 BLI	BLI Name	FY2023 Enacted $255M ($000s)	FY2024 President's Budget $255.1M ($000s)	FY2024 House Mark $196M ($000s)	FY2024 Request/ FY2024 House +/- ($000s)	FY2023 Senate Mark $260M ($000s)	FY2023 Request/ FY2023 Senate +/- ($000s)
	Research, Engineering & Development						
a.	Fire Research and Safety	7,136	7,722	7,722	-	7,136	(586)
b.	Propulsion and Fuel Systems	3,000	6,374	6,374	-	4,000	(2,374)
c.	Advanced Materials /Structural Safety	14,720	2,526	2,526	-	14,720	12,194
d.	Aircraft Icing	2,472	3,960	3,960	-	2,472	(1,488)
e.	Digital System Safety	3,689	7,109	7,109	-	3,689	(3,420)
f.	Continued Air Worthiness	8,829	8,425	8,425	-	8,425	-
g.	Flight deck/Maintenance/System Integration Human Factors	14,301	15,646	15,646	-	14,301	(1,345)
h.	System Safety Management/Terminal Area Safety	9,252	9,349	9,349	-	9,252	(97)
i.	Air Traffic Control/Technical Operations Human Factors	5,911	6,389	6,389	-	5,911	(478)
j.	Aeromedical Research	9,000	12,205	12,205	-	10,000	(2,205)
k.	Weather Program	13,786	19,220	19,220	-	14,786	(4,434)
l.	Unmanned Aircraft Systems Research	22,077	21,128	31,128	10,000	21,128	-
m.	Alternative Fuels for General Aviation	10,000	11,201	11,201	-	11,201	-
n.	Commercial Space Transportation Safety	4,708	6,157	6,157	-	2,000	(4,157)
o.	NextGen Wake Turbulence	3,728	4,680	4,680	-	3,728	(952)
	NextGen - Air Ground Integration Human Factors	-	-	-	-	-	-
	NextGen - Weather Technology in the Cockpit	4,000	-	-	-	-	-
	NextGen - Flight Data Exchange	-	-	-	-	-	-
p.	Information/Cyber Security	4,769	6,415	6,415	-	5,707	(708)
q.	Environment & Energy	21,000	21,305	-	(21,305)	21,000	(305)
r.	NextGen – Environmental Research – Aircraft Technologies and Fuels	68,000	70,774	-	(70,774)	68,000	(2,774)
s.	System Planning and Resource Management	4,141	5,097	5,097	-	5,097	-
t.	Aviation Grant Management	15,000	2,001	15,000	12,999	20,000	17,999
	Women in Aviation and Pilot Shortage Study			5,000	5,000	-	-
u.	William J. Hughes Technical Center Laboratory Facilities	5,481	5,447	5,447	-	5,447	-
v.	Aviation Accessibility Research	-	2,000	2,000	2,000	2,000	-
	Aircraft Radio Altimeter Development, Testing, and Certification	-	-	5,000	5,000	-	-
	TOTAL RE&D	**255,000**	**255,130**	**196,050**	**(62,080)**	**260,000**	**4,870**

Avaition Workforce Development renamed to Aviation Grant Management in FY 2024

Aviation Accessiblity Research new BLI to fund Wheelchair Accessibility on Airplanes Research

Out Year Targets

- **Targets**
  - FY 25 - $261M
  - FY 26 - $267M
  - FY 27 - $273M
  - FY 28 - $279M
  - FY 29 - $286M
- **Expect targets to change**

FAA Reauthorization

- **Reauthorization expires on September 30, 2023.**