

Research, Engineering, & Development Advisory Committee (REDAC)

R,E&D Budget Status

Presented to: REDAC
By: Tennille Blackwell, ABP-310
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**Federal Aviation
Administration**

Agenda

- **Budget Overview**
 - RE&D FY 2022-2026 Summary
 - IRA Summary
- **FY 2022-2024 RE&D Planned vs. Actuals**
- **FY 2025 PB Submission**
- **FY 2026 OST Submission**
- **FY 2027-FY 2030**
 - Outyear Plans w/Inflationary Estimates



RE&D Summary

BLI Name	FY 2022 Enacted \$248.5 M (\$000s)	FY 2023 Enacted \$255 M (\$000s)	FY 2024 Enacted \$280 M (\$000s)	FY 2025 PB Request \$250 M (\$000s)	FY 2025 House Mark \$259.8 M (\$000s)	FY 2026 NARP \$267 M (\$000s)	FY 2026 Planned \$256 M (\$000s)
Research, Engineering & Development							
Fire Research and Safety	7,136	7,136	7,136	8,750	10,136	7,722	7,136
Propulsion and Fuel Systems	3,000	3,000	4,000	5,174	5,174	6,880	3,000
Advanced Materials /Structural Safety	14,720	14,720	14,720	2,548	2,548	3,526	14,720
Aircraft Icing	2,472	2,472	2,472	3,064	3,064	4,000	2,472
Digital System Safety	3,689	3,689	3,689	6,312	6,312	7,110	3,689
Continued Air Worthiness	8,829	8,829	8,425	10,339	10,339	8,925	8,829
Flight deck/Maintenance/System Integration Human Factors	14,301	14,301	14,301	16,382	16,382	15,150	14,301
System Safety Management/Terminal Area Safety	7,000	9,252	9,252	15,000	15,000	9,650	9,252
Air Traffic Control/Technical Operations Human Factors	5,911	5,911	5,911	5,993	5,993	6,391	5,911
Aeromedical Research	11,000	9,000	10,000	12,186	12,186	12,205	9,000
*Weather Program	13,786	13,786	14,786	19,843	19,843	19,220	13,786
Unmanned Aircraft Systems Research	22,077	22,077	31,128	15,567	30,567	21,130	22,077
Alternative Fuels for General Aviation	5,434	10,000	11,201	8,411	10,000	11,700	10,000
Commercial Space Transportation Safety	5,708	4,708	2,000	5,350	5,350	5,657	4,708
NextGen Wake Turbulence	3,728	3,728	3,728	4,243	4,243	4,180	3,728
NextGen - Air Ground Integration Human Factors	3,000	-	-	-	-	-	-
*NextGen - Weather Technology in the Cockpit	2,659	4,000	-	-	-	-	4,000
NextGen - Flight Data Exchange	1,000	-	-	-	-	-	-
Information/Cyber Security	4,769	4,769	5,707	5,943	5,943	7,515	4,769
Environment & Energy	22,000	21,000	21,000	21,194	17,500	21,305	21,000
NextGen – Environmental Research – Aircraft Technologies and Fuels	67,500	68,000	68,000	70,994	48,625	71,034	68,000
System Planning and Resource Management	3,300	4,141	5,097	5,088	5,088	5,200	4,141
*Aviation Grant Management	10,000	15,000	20,000	2,125	15,000	13,000	15,000
*Women in Aviation and Pilot Shortage Study	-	-	5,000	-	-	-	0
William J. Hughes Technical Center Laboratory Facilities	5,481	5,481	5,447	5,494	5,494	5,500	5,481
*ARPA-C Aviation Climate Research	-	-	2,000	-	-	-	-
*Aircraft Radio Altimeter Development, Testing, and Certification	-	-	5,000	-	5,000	-	-
*FY 2026 Redistribution	-	-	-	-	-	-	1,000
TOTAL RE&D	248,500	255,000	280,000	250,000	259,787	267,000	256,000

*FY 2026 OMB Max reduces from \$267M to \$256M. BLI Planned Targets adjusted per the REB to FY 2023 Enacted



IRA Summary

IRA Funding Overview

Congressional Description	Allocated	Obligated	Committed	Available
Sustainable Aviation Fuels	\$ 244,530,000	\$ -	\$ -	\$ 244,530,000
Grants and Administrative Oversight	\$ 5,940,000	\$ 909,179	\$ -	\$ 5,030,821
Low Emissions	\$ 46,530,000	\$ -	\$ -	\$ 46,530,000
Grand Totals	\$ 297,000,000	\$ 909,179	\$ -	\$ 296,090,821



RE&D FY 2022 Plan vs. Actuals

Program	Allocation	Obligations	Commitments	Available
Fire Research and Safety	\$ 7,136,000	\$ 7,076,855	\$ 3,530	\$ 55,615
Propulsion and Fuel Systems	\$ 3,000,000	\$ 2,972,764	\$ -	\$ 27,236
Advanced Materials /Structural Safety	\$ 14,720,000	\$ 14,621,237	\$ -	\$ 98,763
Aircraft Icing	\$ 2,472,000	\$ 1,539,394	\$ 392,163	\$ 540,444
Digital System Safety	\$ 3,689,000	\$ 3,663,267	\$ 6,629	\$ 19,105
Continued Air Worthiness	\$ 8,829,000	\$ 7,421,751	\$ 1,277,326	\$ 129,923
Flight deck/Maintenance/System Integration Human Factors	\$ 14,301,000	\$ 11,196,744	\$ 1,902,822	\$ 1,201,435
System Safety Management/Terminal Area Safety	\$ 7,000,000	\$ 6,479,413	\$ 0	\$ 520,587
Air Traffic Control/Technical Operations Human Factors	\$ 5,911,000	\$ 4,360,359	\$ 1,268,268	\$ 282,374
Aeromedical Research	\$ 11,000,000	\$ 10,968,166	\$ -	\$ 31,834
*Weather Program	\$ 13,786,000	\$ 13,707,825	\$ -	\$ 78,175
Unmanned Aircraft Systems Research	\$ 22,077,000	\$ 19,737,392	\$ -	\$ 2,339,608
Alternative Fuels for General Aviation	\$ 5,434,000	\$ 4,818,006	\$ 362,915	\$ 253,079
Commercial Space Transportation Safety	\$ 5,708,000	\$ 5,706,479	\$ -	\$ 1,521
Wake Turbulence	\$ 3,728,000	\$ 3,711,396	\$ -	\$ 16,604
Next Gen - Air Ground Integration Human Factors	\$ 3,000,000	\$ 2,977,391	\$ -	\$ 22,609
Next Gen - Weather Technology in the Cockpit	\$ 2,659,000	\$ 2,648,373	\$ -	\$ 10,627
NextGen - Flight Data Exchange	\$ 1,000,000	\$ 203,648	\$ -	\$ 796,352
Information/Cyber Security	\$ 4,769,000	\$ 4,737,963	\$ -	\$ 31,037
Environment & Energy	\$ 22,000,000	\$ 21,850,801	\$ 103,025	\$ 46,174
Environmental Research – Aircraft Technologies and Fuels	\$ 67,500,000	\$ 67,052,701	\$ -	\$ 447,299
System Planning and Resource Management	\$ 3,300,000	\$ 3,290,838	\$ -	\$ 9,162
*Aviation Grant Management	\$ 10,000,000	\$ 9,994,398	\$ -	\$ 5,602
William J. Hughes Technical Center Laboratory Facilities	\$ 5,481,000	\$ 5,450,253	\$ -	\$ 30,747
Grand Totals	\$ 248,500,000	\$ 236,187,415	\$ 5,316,676	\$ 6,995,908



RE&D FY 2023 Plan vs. Actuals

Program	Allocation	Obligations	Commitments	Available
Fire Research and Safety	\$ 7,136,000.00	\$ 6,921,504.96	\$ -	\$ 214,495.04
Propulsion and Fuel Systems	\$ 3,000,000.00	\$ 2,256,151.53	\$ 25,600.00	\$ 718,248.47
Advanced Materials /Structural Safety	\$ 14,720,000.00	\$ 4,126,728.30	\$ 185,880.00	\$ 10,407,391.70
Aircraft Icing	\$ 2,472,000.00	\$ 1,147,216.15	\$ -	\$ 1,324,783.85
Digital System Safety	\$ 3,689,000.00	\$ 2,348,270.91	\$ 2,758.25	\$ 1,337,970.84
Continued Air Worthiness	\$ 8,829,000.00	\$ 5,149,239.41	\$ 545,894.49	\$ 3,133,866.10
Flight Deck/Maintenance/System Integration Human Factors	\$ 14,301,000.00	\$ 6,027,002.80	\$ 8,742.25	\$ 8,265,254.95
System Safety Management/Terminal Area Safety	\$ 9,252,000.00	\$ 6,570,590.77	\$ 96,305.51	\$ 2,585,103.72
Air Traffic Control/Technical Operations Human Factors	\$ 5,911,000.00	\$ 2,864,792.00	\$ 88,311.88	\$ 2,957,896.12
Aeromedical Research	\$ 9,000,000.00	\$ 6,384,001.12	\$ 944,900.00	\$ 1,671,098.88
Weather Program	\$ 13,786,000.00	\$ 10,024,185.07	\$ 2,541,550.00	\$ 1,220,264.93
Unmanned Aircraft Systems Research	\$ 22,077,000.00	\$ 5,336,057.82	\$ -	\$ 16,740,942.18
Alternative Fuels for General Aviation	\$ 10,000,000.00	\$ 4,176,935.13	\$ 242,786.77	\$ 5,580,278.10
Commercial Space Transportation Safety	\$ 4,708,000.00	\$ 1,476,746.59	\$ 277,048.38	\$ 2,954,205.03
Wake Turbulence	\$ 3,728,000.00	\$ 2,824,123.09	\$ -	\$ 903,876.91
Air Ground Integration Human Factors	\$ -	\$ -	\$ -	\$ -
Weather Technology in the Cockpit	\$ 4,000,000.00	\$ 2,722,667.75	\$ -	\$ 1,277,332.25
Information/Cyber Security	\$ 4,769,000.00	\$ 4,053,749.54	\$ 310,000.00	\$ 405,250.46
Environment & Energy	\$ 21,000,000.00	\$ 18,035,339.96	\$ -	\$ 2,964,660.04
Environmental Research – Aircraft Technologies and Fuels	\$ 68,000,000.00	\$ 54,500,319.60	\$ -	\$ 13,499,680.40
System Planning and Resource Management	\$ 4,141,000.00	\$ 4,106,369.53	\$ -	\$ 34,630.47
Aviation Grant Management	\$ 15,000,000.00	\$ 5,353,078.22	\$ -	\$ 9,646,921.78
William J. Hughes Technical Center Laboratory Facilities	\$ 5,481,000.00	\$ 5,276,045.94	\$ 138,214.25	\$ 66,739.81
Grand Totals	\$ 255,000,000.00	\$ 161,681,116.19	\$ 5,407,991.78	\$ 87,910,892.03



RE&D FY 2024 Plan vs. Actuals

Program	Allocation	Obligations	Commitments	Available
Fire Research and Safety	\$ 7,136,000	\$ 4,381,638	\$ -	\$ 2,754,362
Propulsion and Fuel Systems	\$ 4,000,000	\$ 2,014,429	\$ -	\$ 1,985,571
Advanced Materials /Structural Safety	\$ 14,720,000	\$ 1,070,167	\$ -	\$ 13,649,833
Aircraft Icing	\$ 2,472,000	\$ 947,246	\$ -	\$ 1,524,754
Digital System Safety	\$ 3,689,000	\$ 1,508,593	\$ -	\$ 2,180,407
Continued Air Worthiness	\$ 8,425,000	\$ 3,359,543	\$ -	\$ 5,065,457
Flight Deck/Maintenance/System Integration Human Factors	\$ 14,301,000	\$ 2,926,556	\$ -	\$ 11,374,444
System Safety Management/Terminal Area Safety	\$ 9,252,000	\$ 2,450,790	\$ -	\$ 6,801,210
Air Traffic Control/Technical Operations Human Factors	\$ 5,911,000	\$ 2,587,198	\$ -	\$ 3,323,802
Aeromedical Research	\$ 10,000,000	\$ 3,512,979	\$ -	\$ 6,487,021
Weather Program (includes NextGen - Weather in the Cockpit)	\$ 14,786,000	\$ 5,331,238	\$ 1,408,850	\$ 8,045,912
Unmanned Aircraft Systems Research	\$ 31,128,000	\$ 1,548,788	\$ -	\$ 29,579,212
Alternative Fuels for General Aviation	\$ 11,201,000	\$ 10,244	\$ -	\$ 11,190,756
Commercial Space Transportation Safety	\$ 2,000,000	\$ -	\$ -	\$ 2,000,000
Wake Turbulence	\$ 3,728,000	\$ 827,133	\$ -	\$ 2,900,867
Air Ground Integration Human Factors	\$ -	\$ -	\$ -	\$ -
Weather Technology in the Cockpit	\$ -	\$ 272,004	\$ -	\$ (272,004)
Information/Cyber Security	\$ 5,707,000	\$ 109,731	\$ 3,051,150	\$ 2,546,119
Environment & Energy	\$ 21,000,000	\$ 5,339,133	\$ 360,785	\$ 15,300,082
Environmental Research – Aircraft Technologies and Fuels	\$ 68,000,000	\$ 1,015,612	\$ -	\$ 66,984,388
System Planning and Resource Management	\$ 5,097,000	\$ 2,338,833	\$ -	\$ 2,758,167
*Aviation Grant Management - Section 625	\$ 20,000,000	\$ 625,030	\$ -	\$ 19,374,970
*Women in Aviation and Pilot Shortage Study	\$ 5,000,000	\$ -	\$ -	\$ 5,000,000
William J. Hughes Technical Center Laboratory Facilities	\$ 5,447,000	\$ 3,642,015	\$ 604,644	\$ 1,200,342
*Aviation Accessibility Research	\$ 2,000,000	\$ -	\$ -	\$ 2,000,000
*Aircraft Radio Altimeter Development, Testing, and Certification	\$ 5,000,000	\$ -	\$ -	\$ 5,000,000
Grand Totals	\$ 280,000,000	\$ 45,818,899	\$ 5,425,428	\$ 228,755,673

*Deficit being cleared by ANG.



FY 2025 PB Request

- FY 2025 Request
\$250M**

- FY 2025 OMB Passback early December reduced Aviation Workforce Development from \$12,994,000 to \$2,125,000.

Program	Target
Fire Research and Safety	\$ 8,750
Propulsion and Fuel Systems	\$ 5,174
Advanced Materials /Structural Safety	\$ 2,548
Aircraft Icing	\$ 3,064
Digital System Safety	\$ 6,312
Continued Air Worthiness	\$ 10,339
Flight deck/Maintenance/System Integration Human Factors	\$ 16,382
System Safety Management/Terminal Area Safety	\$ 15,000
Air Traffic Control/Technical Operations Human Factors	\$ 5,993
Aeromedical Research	\$ 12,186
Weather Program	\$ 19,843
Unmanned Aircraft Systems Research	\$ 15,567
Alternative Fuels for General Aviation	\$ 8,411
Commercial Space Transportation Safety	\$ 5,350
Wake Turbulence	\$ 4,243
Information/Cyber Security	\$ 5,943
Environment & Energy	\$ 21,194
NextGen – Environmental Research – Aircraft Technologies and Fuels	\$ 70,994
System Planning and Resource Management	\$ 5,088
Aviation Grant Management - Section 625	\$ 2,125
William J. Hughes Technical Center Laboratory Facilities	\$ 5,494
Grand Totals	\$ 250,000

In FY24 WTIC proposed to merged with Weather.

In FY24 Aviation Workforce Development changed to Aviation Grant Management



FY 2026 Planned

- **FY 2026 Planned \$256M**
 - OMB reduced from \$267M to \$256M subject to change.
 - REB requested to revised FY26 BLI targets to FY23 Enacted. \$1M remaining for redistribution.

Program	NARP Planned	OMB Planned
Fire Research and Safety	\$ 7,722	\$ 7,136
Propulsion and Fuel Systems	\$ 6,880	\$ 3,000
Advanced Materials /Structural Safety	\$ 3,526	\$ 14,720
Aircraft Icing	\$ 4,000	\$ 2,472
Digital System Safety	\$ 7,110	\$ 3,689
Continued Air Worthiness	\$ 8,925	\$ 8,829
Flight deck/Maintenance/System Integration Human Factors	\$ 15,150	\$ 14,301
System Safety Management/Terminal Area Safety	\$ 9,650	\$ 9,252
Air Traffic Control/Technical Operations Human Factors	\$ 6,391	\$ 5,911
Aeromedical Research	\$ 12,205	\$ 9,000
Weather Program	\$ 19,220	\$ 17,786
Unmanned Aircraft Systems Research	\$ 21,130	\$ 22,077
Alternative Fuels for General Aviation	\$ 11,700	\$ 10,000
Commercial Space Transportation Safety	\$ 5,657	\$ 4,708
Wake Turbulence	\$ 4,180	\$ 3,728
Information/Cyber Security	\$ 7,515	\$ 4,769
Environment & Energy	\$ 21,305	\$ 21,000
NextGen – Environmental Research – Aircraft Technologies and Fuels	\$ 71,034	\$ 68,000
System Planning and Resource Management	\$ 5,200	\$ 4,141
Aviation Grant Management - Section 625	\$ 13,000	\$ 15,000
William J. Hughes Technical Center Laboratory Facilities	\$ 5,500	\$ 5,481
Redistribution		\$ 1,000
Grand Totals	\$ 267,000	\$ 256,000

In FY24 WTIC proposed to merge with Weather.

FY24 REB request for FY26 targets to FY23 Enacted. RE&D Planned Target reduced from \$267M to \$256M.



Out-Year Targets

Inflationary Estimates:

- FY 2027 - \$262M
- FY 2028 - \$268M
- FY 2029 - \$274M
- FY 2030 - \$280M

***Targets subject to change.**



Questions

