

# 2024 United Airlines Environmental Performance Data

## Greenhouse Gas Emissions

	2024 metric tons CO <sub>2</sub> e	2023 metric tons CO <sub>2</sub> e	2022 metric tons CO <sub>2</sub> e	2021 metric tons CO <sub>2</sub> e	2020 metric tons CO <sub>2</sub> e	2019 metric tons CO <sub>2</sub> e
<b>Direct (Scope 1) emissions</b>	38,520,027	36,588,996*	30,400,715	21,375,343	15,490,115	34,413,871
Mainline aircraft direct emissions	38,388,474	36,453,056	30,263,431	21,253,384	15,392,536	34,263,990
Conventional jet fuel	38,387,484	36,452,528	30,263,216	21,253,316	15,392,491	34,263,908
Sustainable aviation fuel - CH <sub>4</sub> and N <sub>2</sub> O	990	528	215	68	45	82
Mainline vehicles (diesel, gasoline, CNG, LPG)	53,489	52,976	47,447	38,242	24,766	65,161
Facilities (natural gas combustion, engine test cells)	78,064	82,964	89,837	81,997	70,797	80,573
Dry ice from catering	0	0	0	1,720	2,015	4,147

	2024 metric tons CO <sub>2</sub> e	2023 metric tons CO <sub>2</sub> e	2022 metric tons CO <sub>2</sub> e	2021 metric tons CO <sub>2</sub> e	2020 metric tons CO <sub>2</sub> e	2019 metric tons CO <sub>2</sub> e
<b>Biogenic emissions - outside of scopes</b>	125,374	68,871*	26,806	5,745	5,975	13,852
Mainline aircraft emissions - CO <sub>2</sub> from sustainable aviation fuel <sup>1</sup>	125,374	68,871*	26,806	5,745	5,975	13,852

	2024 metric tons CO <sub>2</sub> e	2023 metric tons CO <sub>2</sub> e	2022 metric tons CO <sub>2</sub> e	2021 metric tons CO <sub>2</sub> e	2020 metric tons CO <sub>2</sub> e	2019 metric tons CO <sub>2</sub> e
<b>Indirect (Scope 2) emissions (market-based)</b>	134,497	144,019	149,252	160,794	175,087	189,682
Electricity consumption (location-based)	160,201	160,340	166,757	183,311	196,066	201,690
Electricity consumption (market-based)	134,490	143,991	149,251	160,794	175,087	189,682
Steam consumption	7	28	0	0	0	0

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<b>Other Indirect (Scope 3) emissions</b>	13,585,207	12,671,510	13,343,676	12,170,494	9,144,359	17,473,543
3: Mainline aircraft fuel production	7,821,375	7,391,936	7,250,196	5,106,044	3,754,315	8,362,104
Conventional jet fuel	7,796,417	7,377,814	7,246,478	5,104,506	3,752,824	8,356,884
Sustainable aviation fuel	24,957	14,122	3,718	1,538	1,491	5,220
4: Regional aircraft direct emissions and fuel production	5,317,688	4,873,562	5,587,322	6,569,358	5,014,650	8,690,617
Regional aircraft and bus-operated flights flown under capacity purchase agreement - direct emissions	4,383,161	4,048,183	4,504,664	5,294,725	4,053,434	7,025,889
Regional vehicles (diesel, gasoline, CNG, LPG)	12,502	12,799	14,533	15,481	13,658	24,588
Regional aircraft flown under capacity purchase agreement - fuel production	894,682	789,189	1,030,688	1,202,863	908,708	1,640,141
Regional aircraft flown on an at-risk basis - fuel production	27,343	23,391	37,437	56,289	38,850	0
7: Employee commuting	123,171	125,795	111,108	52,278	80,980	176,205
14: Regional aircraft flown on an at-risk basis	139,246	122,425	163,902	243,553	162,170	0
15: Ownership stake in Azul Brazilian Airlines	183,190	156,432	229,912	199,099	132,220	244,605
15: United Airlines Ventures investments <sup>2</sup>	537	1,361	1,236	162	24	12

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<b>Gross GHG emissions (market-based)</b>	52,239,731	49,404,525*	43,893,642	33,706,631	24,809,561	52,077,096
Carbon offsets	0	0	0	0	0	0
<b>Net GHG emissions</b>	52,239,731	49,404,525*	43,893,642	33,706,631	24,647,395	52,085,532

## Carbon Emissions Intensity Rates

	2024	2023	2022	2021	2020	2019
United-specific metric tons CO <sub>2</sub> e per million RTKs <sup>3</sup>	1,041.9	1,056.9	1,097.7	1,317.3	1,533.4	1,208.1
General-use customer metric tons CO <sub>2</sub> e per million RTKs <sup>4</sup>	1,044.4	1,058.3	1,098.4	1,317.5	1,533.8	1,208.3
Revenue tonne-kilometers (RTKs – millions)	49,711	46,361	39,526	25,212	15,934	42,760
United-specific metric tons CO <sub>2</sub> e per million ASMs <sup>5</sup>	167.3	169.0	176.2	187.5	200.9	181.9
General-use customer metric tons CO <sub>2</sub> e per million ASMs <sup>6</sup>	167.7	169.3	176.2	187.6	201.0	181.9
Available seat-miles (ASMs – millions)	311,185	291,333	247,858	178,684	122,804	284,999

## Energy Consumption

	2024	2023	2022	2021	2020	2019
Conventional jet fuel - Mainline aircraft (gallons – millions)	3,977	3,779	3,139	2,205	1,600	3,562
Sustainable aviation fuel - Mainline aircraft (gallons – millions)	13.6	7.3	2.9	0.6	0.6	1.2
Lifecycle reduction from SAF	83.5%	82.4%	86.9%	83.4%	79.3%	62.0%
Emissions reductions from SAF (metric tons CO <sub>2</sub> e)	126,174	11,308	3,419	987	1,220	8,517
Conventional jet fuel - Regional aircraft (gallons – millions)	453	418	466	523	404	729
Electricity (MWh)	463,619	434,790	435,259	447,714	477,751	489,197
Natural gas (MM BTUs)	1,390,794	1,481,604	1,628,722	1,494,698	1,264,964	1,432,250

## Local Air Quality

	2024 tons	2023 tons	2022 tons	2021 tons	2020 tons	2019 tons
<b>Total NO<sub>x</sub> emissions</b>	20,233	11,554	16,144	11,626	8,565	16,410
Mainline aircraft (jet fuel)	19,106	10,356	14,948	10,813	7,660	14,720
Vehicles (diesel, gasoline, CNG, LPG)	973	1,197	1,196	813	905	2,035
Facilities (Natural gas combustion, engine test cells)	154	156	153	121	130	148

	2024 tons	2023 tons	2022 tons	2021 tons	2020 tons	2019 tons
<b>Total SO<sub>2</sub> emissions</b>	1,770	1,251	1,414	1,022	731	1,427
Mainline aircraft (jet fuel)	1,769	1,250	1,413	1,022	730	1,426
Vehicles (diesel, gasoline, CNG, LPG)	0	0	0	0	0	0
Facilities (Natural gas combustion, engine test cells)	1	1	1	1	1	1

	2024 tons	2023 tons	2022 tons	2021 tons	2020 tons	2019 tons
<b>Total CO emissions</b>	13,479	16,089	16,759	10,507	9,207	21,153
Mainline aircraft (jet fuel)	9,824	9,027	7,805	5,503	3,743	8,010
Vehicles (diesel, gasoline, CNG, LPG)	3,574	6,977	8,864	4,921	5,388	8,175
Facilities (Natural gas combustion, engine test cells)	81	85	91	83	76	83

## Waste Management

	2024 metric tons	2023 metric tons	2022 metric tons	2021 metric tons	2020 metric tons	2019 metric tons
<b>Waste – total</b>	79,759	56,317	25,176	31,407	26,667	53,832
Hazardous and non-hazardous waste generation	42,002	19,303	22,399	24,253	15,602	26,621
Catering – Municipal waste	37,757	37,014	2,776	10,367	11,066	27,210
<b>Recycling – total</b>	14,839	9,209	6,112	5,818	4,468	8,332
Non-catering – recycled	8,882	5,047	5,255	4,446	3,302	4,489
Catering – recycled	5,957	4,158	857	1,372	1,166	3,843

## Water Consumption

	2024 millions of gallons	2023 millions of gallons	2022 millions of gallons	2021 millions of gallons	2020 millions of gallons	2019 millions of gallons
<b>Billed water consumption<sup>7</sup></b>	390	429	329	661	484	521

The reporting period is January 1, 2024–December 31, 2024. The reporting boundary includes facilities and equipment under United Airline’s operational control. It excludes emissions from subsidiaries and joint ventures that are not operationally material.

Our GHG Emissions Footprint is calculated using methodologies from the GHG Protocol and ISO14064-1. CO<sub>2</sub>e emissions include carbon dioxide, methane and nitrous oxide emissions aggregated in accordance with the GHG Protocol using AR6 Global Warming Potentials (GWPs) and consist of the following:

- Scope 1: Consists of direct GHG emissions generated by United’s operations including the combustion of conventional jet fuel and SAF by mainline and regional aircraft (TTW), fuel consumed by ground support equipment, and natural gas used in our facilities and airport spaces.
- Scope 2: Consists of GHG emissions from the use of purchased electricity and steam used in our facilities and airport spaces.
- Scope 3: Includes indirect GHG emissions from: Category 3, Fuel- and energy-related activities (WTT); Category 4, upstream transportation and distribution; Category 7, employee commuting; Category 14 franchises; and Category 15, investments.
- Biogenic: CO<sub>2</sub> emissions from the combustion of SAF which contains biologically sequestered carbon dioxide.
- GHG emissions factors from: IATA, July 2023 release; The Climate Registry, February 2024 release; International Energy Agency, September 2024 release; The U.S. EPA GHG Emission Factors Hub and eGRID, January 2025 release.

The data presented herein reflecting United’s 2024 GHG emissions footprint has been internally validated by United Airlines Internal Audit Department and externally verified by our third-party verification party ERM. United obtains this third-party verification of our GHG emissions on an annual basis. ERM Certification and Verification Services (ERM CVS, a wholly owned subsidiary of the ERM Group, a global market leader in sustainability services) conducts our emissions verification and provides an ISO 14064-3 limited assurance on our GHG emissions for reporting.

[Download our GHG Emissions Verification Report](#)

### Footnotes:

1. United accounts emissions reductions associated with the use and combustion of sustainable aviation fuel (SAF) to be a Scope 1 reduction, as it is in-sector and a sustainable alternative to the conventional jet fuel usage that is accounted in the gross emissions of this Scope.
2. United Airlines Ventures investments include Alder Renewables, Archer Aviation, Boom, Electric Power Systems, EOS, Eve Air Mobility, Fulcrum BioEnergy, Heart Aerospace, Natron Energy and ZeroAvia, with most not yet operating at a stage that would produce material GHG emissions.
3. Intensity metric used to track progress against United’s near-term 2035 target. Includes Scope 1, Scope 2, and Scope 3 categories 3 and 4 emissions. This intensity figure considers all SAF for which United claimed Scope 1 emissions reductions from, including SAF for which specific customers or parties have retained Scope 3 end-user rights. This intensity should not be used for reporting purposes by general-use customers.
4. General-use customer intensities consider only SAF for which United has claimed Scope 1 emissions reductions and maintained ownership of end-user attributes, enabling the use of this figure for reporting by United’s general-use customers.
5. Includes Scope 1, Scope 2, and Scope 3 categories 3, 4, 7 and 14 emissions. This intensity figure considers all SAF for which United claimed Scope 1 emissions reductions from, including SAF for which specific customers or parties have retained Scope 3 end-user rights. This intensity should not be used for reporting purposes by general-use customers.
6. General-use customer intensities consider only SAF for which United has claimed Scope 1 emissions reductions and maintained ownership of end-user attributes, enabling the use of this figure for reporting by United’s general-use customers.
7. Does not account for all United locations or locations shared with other companies (e.g., airport terminals) and as a result may change considerably from year to year

\* The calculation has been revised since the publication of United’s Form 10-K to incorporate additional SAF volumes for which supporting documentation was received after the initial filing.

Totals may not add up due to rounding.

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