Average CO2 emissions per km from new passenger cars (2000-2023)

The Regulation (EU) No 2019/631 requires Countries to record information for each new passenger car registered in its territory. The indicator is defined as the average carbon dioxide (CO2) emissions per km by new passenger cars in a given year. The reported emissions are based on type-approval and can deviate from the actual CO2 emissions of new cars. Since 2021, the emissions are measured with a new test procedure (Worldwide harmonized Light vehicles Test Procedure WLTP), compared to the New European Driving Cycle (NEDC) procedure used until 2020. The WLTP aims to reflect better real driving conditions and WLTP values are systematically higher than NEDC values. This change leads to a break in time series between 2020 and 2021.

Simple

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Point of contact	

Organisation name	Individual name	Electronic mail address	Website	Role
European Environment Agency		sdi@eea.europa.eu	http://www.eea.europa.eu	Point of contact

Point of contact

No information provided.

Point of contact

No information provided.

Maintenance and update frequency	Annually
Date of next update	2025
Keywords	
Keywords	
GEMET	- carbon dioxide - passenger transport - road transport - emission - statistical data
Continents, countries, sea regions of the world.	- Iceland - EU27 (from 2020) - Norway
Reporting obligations	CO2 emissions from new passenger cars
EEA Management Plan	2024 2.1.5

[EEA topics](#)	• [Transport and mobility](#) • [Road transport](#) • [Climate mitigation](#) • [Sustainability](#)
Unit of measure	• g CO2 per km
Available breakdowns	• Country
Reference period	• Calendar year
Use constraints	Other restrictions
Other constraints	EEA standard re-use policy: unless otherwise indicated, re-use of content on the EEA website for commercial or non-commercial purposes is permitted free of charge, provided that the source is acknowledged (http://www.eea.europa.eu/legal/copyright). Copyright holder: European Environment Agency (EEA).
Language of dataset	English
Topic category	• Environment • Transportation
Begin date	2000-01-01
End date	2023-12-31
Distribution format	• Microsoft Excel (.xls, .xlsx) ( ) • ascii (.csv, .txt, .sql) ( )

OnLine resource

Protocol	Linkage	Name
EEA:FOLDERPATH	https://sdi.eea.europa.eu/webdav/datastore/public/eea_s_eu-sdg-13-31_p_2000-2023_v01_r00	
WWW:URL	https://sdi.eea.europa.eu/data/e886c8ea-3137-4208-be9d-f6250f5ee16e	Direct download
WWW:LINK-1.0-http--link	https://www.eea.europa.eu/ims/co2-performance-of-new-passenger	EEA Indicator: CO2 performance of new passenger cars in Europe
WWW:LINK-1.0-http--link	https://circabc.europa.eu/ui/group/4cf23472-88e0-4a52-9dfb-544e8c4c7631/library/6c4cb908-ea46-4276-9f1f-e21374d4b2fb	List of CO2 Monitoring Decisions
WWW:LINK-1.0-http--link	http://co2cars.apps.eea.europa.eu/	CO2 passenger cars (Elastic Data Viewer)
WWW:LINK-1.0-http--link	https://ec.europa.eu/eurostat/cache/metadata/en/sdg_13_31_esmsip2.htm	Eurostat indicator: Average CO2 emissions per km from new passenger cars

OnLine resource

No information provided.

OnLine resource	Protocol	Linkage	Name

	DOI	
Hierarchy level	Dataset	

Accuracy of time measurement

Name of measure	Frequency of dissemination
Measure description	The indicator is updated annually.

Quantitative result

Value	Every year

Accuracy of time measurement

Name of measure	Timeliness
Measure description	New data points are disseminated within one year after the reference year.

Quantitative result

Value	T+1 year

Quantitative attribute accuracy

Name of measure	Reference area
Measure description	Data are presented for all EU Member States plus Iceland and Norway.

Quantitative result

Value	All EU MS

Domain consistency

Name of measure	Comparability - geographical
Measure description	Data are comparable between all EU Member States and with the other presented countries.

Quantitative result

Value	All EU MS

Domain consistency

Name of measure	Time coverage
Measure description	Presented time series (including EU aggregates) starts in 2000.

Quantitative result

Value	> 10 years

Domain consistency

Name of measure	Comparability - over time

Measure description	Since 2021, the emissions are measured with a new test procedure (Worldwide harmonized Light vehicles Test Procedure WLTP), compared to the New European Driving Cycle (NEDC) procedure used until 2020. The WLTP aims to reflect better real driving conditions and WLTP values are systematically higher than NEDC values. This change leads to a break in time series between 2020 and 2021.

Quantitative result

Value	> 4 data points

Statement	EU average specific CO2 emissions are calculated as the average emissions (as recorded in the certificates of conformity, based on type approval values) of all new passenger cars first registered in the EU in a particular year. For calculating manufacturers/pools' average emissions, eco-innovation savings and super-credits (for 2020-2022) are also taken into account.
	For each manufacturer/pool, an annual specific emissions target is calculated on the basis of the fleet-wide target and the average 'mass in running order' of the registered vehicles, using the formula in ANNEX 1, part A of Regulation (EU) 2019/631.
	For the purpose of EU SDG statistics, the NEDC emissions values for the years 2017, 2018 and 2019 have been converted into equivalent WLTP ones, using the 2020 dataset, which contains both values (NEDC and WLTP) for all individual vehicles. From 2021 only WLTP values are reported.
	In the monitoring for cars and vans, emissions data are reported using NEDC protocol until 2019, using both protocols NEDC and WLTP in 2020 and only WLTP protocol from 2021. In this table, from 2020, WLTP data are shown; for the period 2017-2019 a conversion factor, calculated using 2020 data in NEDC and WLTP, is used to show data in WLTP; before 2017, NEDC data are shown.

Source	• [Monitoring of CO2 emissions from passenger cars Regulation (EU) 2019/631](#)

Metadata

File identifier	e886c8ea-3137-4208-be9d-f6250f5ee16e [XML](#)

Metadata language	English

Character set	UTF8

Hierarchy level	Tabular dataset

Hierarchy level name	Tabular dataset

Date stamp	2025-02-04T14:01:05.324042Z

Metadata standard name	ISO 19115/19139

Metadata standard version	1.0

Metadata author					
	Organisation name	**Individual name**	**Electronic mail address**	**Website**	**Role**
	European Environment Agency		sdi@eea.europa.eu		Point of contact

Overviews

Dataset for indicator:	Average CO2 emissions per km from new passenger cars (2000-2025)
EU SDG:	13_31
Dimension:	G_KM
Dimension (Label):	Average CO2 emissions per km from new passenger cars
Unit:	G_KM
Unit (Label):	gCO2 per km

GEO (Labels) / GEO (Codes). Values by year (flags shown inline in cell: b = break in time series, e = estimated, p = provisional).

GEO (Codes)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
EU27_2020								157.5	152.8	145	139.6	135.3	132	126.6	123.1	119.1	117.6	143 be	145.6 e	148 e	130.8	115.7	109.8	107.6
BE	166.5	163.7	161.1	158.1	156.5	155.2	153.9	152.8	147.8	142.1	133.4	127.2	128	124	121.3	117.9	115.9	140.5 be	144.7 e	147.3 e	130.6	117	104.5	85.3
BG								171.6	173.1	172.1	158.9	151.4	149.2	141.7	135.9	130.1	125.8	133 be	153.6 e	157.8 e	147.1	139.3	134.3	129.4
CZ					154	155.3	154.2	154.2	154.4	155.5	148.9	144.5	140.8	134.6	131.6	126.3	121.2	150.4 be	152.7 e	156 e	144.9	138.8	137.7	136
DK	175.7	172.9	170	169	165.9	163.7	162.5	159.8	146.4	139.1	126.2	125	117	112.7	110.2	106.2	106	129.8 be	132.8 e	135.6 e	116.4	92.3	86.3	72.8
DE	182.2	179.5	177.4	175.9	174.9	173.4	172.5	169.5	164.8	154	151.1	145.6	141.6	136.1	132.5	128.3	126.9	134.2 be	157 e	139 e	136	115.5	105.9	113
EE					175	183.7	182.7	181.6	177.4	170.3	162	156.9	150.3	147	140.9	137.2	133.9	161 be	160.5 e	157.7 e	147.6	142.6	141.6	134.6
IE	161.3	166.6	164.3	166.7	167.6	166.8	166.3	161.6	156.8	144.4	133.2	128.3	125.1	120.7	117.1	114.1	112	135.3 be	137.3 e	137.9 e	130	112.8	100.7	93.7
EL	180.3	166.5	167.8	168.9	168.8	167.4	166.5	165.3	160.4	157.4	143.7	132.7	121.1	111.9	108.2	106.4	106.3	131.9 be	135 e	140.1 e	130.5	119.8	118	112.7
ES	159.2	158.8	156.4	157	155.3	155.3	155.6	153.2	148.2	142.2	137.9	133.8	128.7	122.4	118.6	115.3	114.4	139.4 be	143.1 e	147 e	135.5	126	121.5	117.5
FR	163.6	159.8	156.8	155	153.1	152.3	149.9	149.4	140.1	133.5	130.5	127.7	124.4	117.4	114.2	111	109.8	133.8 be	136 e	137.9 e	121.1	108.6	103.1	96.8
HR														127.1	115.8	112.8	111.5	137.1 be	139.7 e	144.7 e	135.2	127.9	127.3	127.1
IT	155.1	158.3	156.6	152.9	156	149.5	149.2	146.5	144.7	136.3	132.7	129.6	126.2	121.1	118.1	115.2	113.3	137.3 be	140.5 e	144.7 e	132.5	126.3	119.2	120.1
CY					175.4	179	170.1	170.3	165.6	160.7	155.8	149.9	144.3	139.2	129.8	125.7	123.5	148.1 be	149.6 e	153.6 e	151.9	145.9	136.8	126.1
LV					192.4	187.2	183.1	183.5	180.6	176.9	162	154.4	152	147.1	140.4	137.1	128.9	156.1 be	156.1 e	155 e	146.8	142.8	134.6	132.1
LT					187.5	186.3	163.4	176.5	170.1	166	150.9	144.4	144.2	139.8	135.8	130	126.2	154.4 be	155.9 e	160 e	146.2	135.7	135.9	129.9
LU	176.7	177	173.8	173.5	169.7	168.6	168.2	165.8	159.5	152.5	146	142.2	137	133.4	129.9	127.5	126.1	153.9 be	159.3 e	161.2 e	143.9	123.8	115.7	105.8
HU					158.5	156.3	154.8	155	153.4	153.4	147.4	141.6	140.8	134.4	133	129.6	125.9	152.2 be	155 e	157.2 e	141.4	131.1	131.2	127.4
MT					148.8	150.5	145.9	147.8	146.9	135.7	131.2	124.7	121.5	118.7	113.3	113.3	111.8	134.5 be	130.5 e	122.3 e	128.1	107.5	91.4	91.3
NL	174.2	174	172.4	173.5	171	169.9	166.7	164.8	156.7	146.9	135.8	126.1	118.6	109.1	107.3	101.2	105.9	131.1 be	127.9 e	119.3 e	95.1	86.8	74.2	
AT	168	165.6	164.4	163.8	161.9	162.1	163.7	162.9	158.1	150.2	144	138.7	135.7	131.6	128.5	123.7	120.4	146.3 be	149.1 e	152.1 e	135.7	116.1	112	104.1
PL					154.1	155.2	155.9	153.7	153.1	151.6	146.2	144.5	141.3	138.1	132.9	129.5	125.8	154.7 be	157.3 e	158 e	146	137.6	135.7	132.7
PT	169.2			154	149.9	147.1	144.9	145	144.2	138.2	133.8	127.2	122.8	117.6	112.2	108.8	105.7	104.7	126.9 be	128.6 e	132.6 e	118	107.1	103.1	89.8
RO								154.8	156	157	148.5	140.7	139	132.1	128.2	125	122	146.2 be	147.3 e	150.7 e	138.5	125.6	119.7	116.2
SI					152.7	157.2	155.3	156.3	155.9	152	144.4	139.7	133.4	125.6	121.3	119.2	119	145 be	146.5 e	150 e	138.6	133.7	129.1	123.6
SK						157.4	152	152.7	150.4	146.6	149	144.9	141	135.1	131.7	127.6	124.8	152.8 be	154.7 e	158 e	144.6	138	136.8	134.5
FI	181.1	178.1	177.2	178.3	179.8	179.5	179.2	177.3	162.9	157	149	144	139.1	131.8	127.4	123	120	143.3 be	141.4 e	139.7 e	120	98.3	85.3	60.9
SE	200	200.2	198.2	198.5	197.2	193.8	188.6	181.4	173.9	164.5	151.3	141.8	135.9	133.2	131	126.3	123.1	148.2 be	148.1 e	145.1 e	111.7	88.3	66.6	61
IS																			141.6 be	138.5 e	96.3	80.3	76.1	61.9
LI																								
NO																						27.6	17.8	14.5
CH																								
BA																								
ME																								
MK																								
AL																								
RS																								
TR																								
XK																								

Flags and special values (2025)

special values	:	not
Flags	b	break in time series
	e	estimated
	p	provisional

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