SDG Goal 9 Industry, innovation and infrastructure

SDG Target 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource- use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

SDG Indicator 9.4.1 CO_2 emission per unit of value added

1. Name of data series	
CO_2 emissions (without land use, land-use change and forestry) per real GDP	
Compliant with SDG metadata: yes, but calculated in constant Euro	SDG Metadata

2. Definition of indicator
The indicator shows the CO_2 intensity of the total economy. By indicating how much CO_2 is emitted (needed) to produce one unit of gross domestic product (GDP), the carbon intensity is a proxy for clean technology production and the developmental state of an industry.
3. Comparison with SDG metadata (as of 13/03/2018)
GDP used in the calculation of the indicator is given in terms of Euro not in terms of US dollar as asked in the SDG metadata.

4. Data description	
The data on CO_2 is taken from the National Inventory Report submitted under the United Nations Framework Convention on Climate Change 2009 by the German Environment Agency (UBA). The data on GDP is calculated by the Federal Statistical Office's National Accounts as a secondary statistic. GDP is adjusted based on a price base changing every year (previous year's price base). After several revisions due to new data input, final results are available four years after the first preliminary release.	
5. Calculation method	
CO_2 emissions per unit of value added $= \frac{\text{Total CO2 emissions}}{\text{price adjusted GDP}}$	
6. Unit of measure	g/EUR

7. Timeliness	8. Frequency
CO_2: t + 17 months GDP: t + 15 days	Annual
9. Last regular revision	10. Revised period
2014	2010-2014

11. Accessibility of source data
CO_2: http://cdr.eionet.europa.eu/de/eu/mmr/art07_inventory/ghg_inventory/envwldoww/index_html?&page=2 GDP (Only available in German): https://www.destatis.de/DE/Themen/Wirtschaft/Volkswirtschaftliche-Gesamtrechnungen-Inlandsprodukt/_inhalt.html
12. Metadata on source data
CO_2: http://cdr.eionet.europa.eu/de/eu/mmr/art07_inventory/ghg_inventory/envwldoww/index_html?&page=2 GDP (Only available in German): https://www.destatis.de/DE/Methoden/Qualitaet/Qualitaetsberichte/Volkswirtschaftliche-Gesamtrechnungen/einfuehrung.html
13. Related SDG data series (duplicate indicators or sub-indicators to same indicator)
9.4.1 CO_2 emissions per gross value added (price adjusted) in manufacturing industries

For more information please contact:
https://www.destatis.de/EN/Service/Contact/Contact.html

SDG Goal 9 Industry, innovation and infrastructure

SDG Target 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource- use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

SDG Indicator 9.4.1 CO_2 emission per unit of value added

1. Name of data series	
CO_2 emissions per gross value added (price adjusted) in manufacturing industries	
Compliant with SDG metadata: yes, but calculated in constant Euro	SDG Metadata

2. Definition of indicator
The indicator shows the CO_2 intensity of the manufacturing sector. By indicating how much CO_2 is emitted (needed) to produce one unit of gross value added, this carbon intensity is a proxy for clean technology production and the developmental state of an industry.
3. Comparison with SDG metadata (as of 13/03/2018)
Gross value added used in the calculation of the indicator is given in terms of Euro not in terms of US dollar as asked in the SDG metadata.

4. Data description
The data on CO_2 emissions and value added of manufacturing sector has been calculated by the Federal Statistical Office of Germany as secondary statistics. The emissions are based on the national energy balance by the Working Group on Energy Balances (AGEB). Gross value added of manufacturing sector is calculated at constant 2010 price. For price adjustment, the nominal value of 2010 is taken as basis year. This value is then multiplied by the prices of 2010 adjusted index for gross value added of the reference year. After several revisions of the indexes due to new data input, final results are available 4 years after the first preliminary release.
5. Calculation method
CO_2 emissions per unit of gross value added $=$ $\dfrac{CO_2 \text{ emissions in manufacturing sector}}{\text{price adjusted gross value added in manufacturing sector}}$

6. Unit of measure	g/EUR

7. Timeliness	8. Frequency
CO_2: t + 17 months Value added: t + 14 months	Annual
9. Last regular revision	10. Revised period
Not available	Not available

11. Accessibility of source data
CO_2: https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Umwelt/Materialfluesse-Energiefluesse/Tabellen/treibhausgase.html Gross value added: GENESIS online 42251-0001: Persons employed, turnover, output and value added of enterprises in manufacturing Index of gross value added: GENESIS online 81000-0103: National accounts - Gross value added (nominal/price-adjusted)
12. Metadata on source data
CO_2 (Only available in German): https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Umwelt/Publikationen/Umweltnutzung-Wirtschaft/umweltnutzung-und-wirtschaft-energie-pdf-5850014.pdf?__blob=publicationFile&v=5 Gross value added (Only available in German): https://www.destatis.de/DE/Methoden/Qualitaet/Qualitaetsberichte/Industrie-Verarbeitendes-Gewerbe/einfuehrung.html
13. Related SDG data series (duplicate indicators or sub-indicators to same indicator)
9.4.1 CO_2 emissions (without land use, land-use change and forestry) per real GDP

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