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Fossil CO_2 and GHG emissions of all world countries

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Abstract

The Emissions Database for Global Atmospheric Research provides emission time series from 1970 until 2018 for CO_2 and until 2015 for non-CO_2 GHGs for all countries. This report is contributing to the Paris Agreement process with an independent and quantitative view of global GHG emissions.

Foreword

Tackling climate change is one of the most important challenges that the international community is currently facing. Policy makers, scientists and citizens around the world are increasingly aware of the urgent need to implement climate change mitigation policies in order to keep global mean temperature increases below 1.5 C, demanding concrete and realistic actions from policy makers.

The European Union, as a signatory of the Paris Agreement (2015), has set ambitious targets in terms of greenhouse emission reductions. These targets are also a key topic of the future Commission political agenda, which has the ambition for Europe to become the first carbon neutral continent by 2050. However, climate change abatement requires a global effort to act and monitor emission reduction policies. Consequently, the development of transparent and consistent emission inventories at global scale becomes crucial for the identification and assessment of undertaken measures.

While energy related activities are and will remain a major source of greenhouse gas emissions at the global level, in the latest decades the European Union has succeeded in decoupling the energy sector from the economic growth. Indeed, as highlighted by the last report on the state of the Energy Union, the transition to a modern, low carbon and energy-efficient economy is underway, and Europe is on a credible pathway to meeting its Paris Agreement commitments.

Such a success is based on the comprehensive policy design developed in recent years, including the newly approved "Clean energy for all Europeans package" providing a view to the EU's long-term strategy of achieving carbon neutrality by 2050. The overall Energy Strategy goal of making energy in Europe more secure, affordable and sustainable contains harmonized pieces of sectorial legislation directly impacting inter alia the carbon footprint of the energy produced, traded and consumed across the Union.

In such a context of rapid regulatory changes, it is essential that the European Commission, in addition to developing its legislative framework, equips itself with transparent and state-of-the-art tools, as the Emissions Database for Global Atmospheric Research (EDGAR), a global greenhouse gas inventory developed by Joint Research Centre. Such a tool has widely demonstrated its value and will be crucial in monitoring and understanding how specific measures may influence or have influenced emission trends at the global scale, providing policy decision makers with feedback on the actual effectiveness of regulation updates needed to meet EU and global climate targets.

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Executive summary

Policy context

In the context of the 2030 Energy and Climate framework, the European Union has currently set a target of reducing its greenhouse gas emissions by at least 40% compared to the 1990 levels. By 2050, further reductions are needed if the European Union is to become climate-neutral, as outlined in the European Commission's Clean Planet for All vision (1) and mentioned by the President-elect of the European Commission in her Agenda for Europe.

The European Union climate mitigation policies not only cover the largest emitting gases (CO_2, CH_4, N_2O), but also the fluorinated greenhouse gases, as well as emission and absorption of the land use and forestry sectors. Together they aim of cutting these emissions by at least 40% by 2030 compared to the 1990 levels in order to meet the EU's Nationally Determined Contribution to the Paris Agreement. Also other countries are in the process to define and implement policies to deliver on their Nationally Determined Contributions.

In order to track the progress in GHG emission reduction strategies, the Paris Agreement has set the transparency framework under which all Parties are requested to implement bottom-up inventories of the national GHG emissions and to report them to the United Nations Framework Convention on Climate Change (UNFCCC). Reported emission inventories, however, do not cover the entire globe, have data gaps for specific sectors, and lack decades-long time series.

The European Commission's in-house Emissions Database for Global Atmospheric Research (EDGAR) fills these gaps, completing the global picture with time-series for each country, contributing to enhanced transparency and providing a benchmark against which national and global estimates can be compared. The current version of the EDGAR database (EDGARv5.0_FT2018) contains estimates of fossil CO_2 emissions from 1970 to 2018, while estimated non-CO_2 GHGs (CH_4, N_2O and F-gases) emissions are provided from 1970 to 2015.

EDGAR estimates are based on the latest available global statistics and state-of-the-art scientific knowledge of emission mechanisms for a wide range of anthropogenic activities. The methodology used is fully transparent and in line with both the most recent scientific literature and Intergovernamental Panel on Climate Change (IPCC) recommendations. This combination of reliability, independence and completeness makes EDGAR a valuable quantitative tool to support the complex international scientific and political discussions on climate mitigation. In particular, EDGAR data can contribute to providing a comprehensive picture needed for the UNFCCC's Global Stocktake of 2023. The previous two editions of this booklet (2017, 2018) have been presented to the annual Conference of Parties (COP) under UNFCCC.

(1) https://ec.europa.eu/clima/policies/strategies/2050_en

Key conclusions

In preparing the latest edition of this booklet, the EDGAR database has been updated to provide emission time series from 1970 until 2018 for anthropogenic fossil CO_2 (2) and from 1970 until 2015 for anthropogenic non-CO_2 GHG emissions. This year, the booklet features for the first time fluorinated gases (F-gases) (3) together with the greenhouse gases CO_2, CH_4 and N_2O that were already covered in previous editions.

Globally, the increase of CO_2 and other GHG emissions, in the period 2016 and 2017, continued in 2018. The EDGAR time series shows that the European Union and Russia were the only industrialised economies (among the major emitting regions) whose GHG emissions are significantly below 1990 levels. European Union GHG emissions were 19.3% lower in 2015 and fossil CO_2 emissions 21.6 % lower by 2018 compared to 1990. By comparison, the United States and Japan increased both their CO_2 and GHG emissions by 4-5% compared to 1990 levels, while the emerging economies of China and India have respectively 3.7 and 3.4 times more CO_2 emissions in 2018 compared to 1990, due to their rapid industrialisation in the past two decades.

Main findings

Since the beginning of the 21st century, global GHG emissions have grown in comparison to the three previous decades, mainly due to the increase in CO_2 emissions from China, India and other emerging economies. The latest estimates from EDGAR confirm the continuation of this trend in 2018, with global anthropogenic fossil CO_2 emissions increasing by 1.9% compared to 2017, to reach 37.9 Gt CO_2.

Figure 1. Fossil CO_2 emissions of the major emitting economies.

(2) In this study the fossil CO_2 emissions include emissions from fossil fuel combustion (coal, oil and gas), from fossil fuel use (combustion, flaring), industrial processes (cement, steel, chemicals and urea) and product use; no short-cycle carbon CO_2 emissions are included for any sector.

(3) Fluorinated gases (F-gases) include: Sulfur hexafluoride (SF6), Nitrogen trifluoride (NF3), Perfluorocarbons (PFCs: CF_4, C_2F_6, C_3F_8, c-C_4F_8), Hydrofluorocarbons (HFCs: HFC-125, HFC-134a, HFC143a, HFC-152a, HFC-227ea, HFC-23, HFC-236, HFC-245, HFC-32, HFC-365mfc, HFC43-10-mee). Other fluorinated compounds such as chlorofluorocarbons (CFC) and hydrochlorofluorocarbons (HCFC) are also potent greenhouse gases. However, CFCs and HCFCs are not included in EDGAR inventory because since 1990 under the Montreal Protocol they have been phased-out and replaced by HFCs.

In 2018, China, the United States, India, the EU28, Russia and Japan - the world's largest CO_2 emitters - together accounted for 51% of the population, 65% of global Gross Domestic Product World Bank (2019), 80% of total global fossil fuel consumption (BP, 2019) (4) and emitted 67.5% of total global fossil CO_2. Emissions from these five countries and the EU28 show different changes in 2018 compared to 2017: the largest increase in the emissions between 2017 and 2018 is found for India (+7.2%), followed by Russia (+3.5%), the United States (+2.9%) and China (+1.5%). By comparison, both the EU28 (-1.9%) and Japan (-1.7%) reduced their fossil CO_2 emissions. Compared to 1990, EU28 fossil CO_2 emissions were 21.6% lower in 2018 at 3.46 Gt CO_2, representing 9.1% of the global share and equivalent to 6.8 t CO_2/cap/yr in per-capita terms.

Trends vary also across the other 11 countries with more than 1% share of total global fossil CO_2 emissions, showing decreases of 4.5% in Germany, 2.3% in Mexico, 1.3% in Brazil, 1.1% in Saudi Arabia and 0.1% in Canada, and increases of 0.6% in Turkey, 0.9% in Australia, 1% in South Africa, 2.9% in Korea, 4.8% in Iran and Indonesia. Emissions from international aviation and shipping increased by 1% and 2% respectively compared to 2017, and are in 2018 equivalent to 3.3% of total global fossil CO_2 emissions.

Anthropogenic GHG emissions are dominated by fossil CO_2 emissions, and also increased steadily over the period 1990-2015 from 32.8 to 49.1 Gt CO_2eq/yr, an overall increase of approximately 50%. Global per capita GHG emissions decreased in the 1980s and 1990s to a minimum in 2001 of 5.7 t CO_2eq/cap/yr but have increased by 13.4% from 2000 to 2015 to reach 6.7 t CO_2eq/cap/yr.

We have estimated that emission changes are accurate to within ±0.5% (Olivier et al., 2016) when based on robust statistical activity data (e.g. IEA energy balance data for 1970-2015) and up to 2% for the data for 2016-2018 (based on a Fast-Track (5) approach), depending on regional, sectorial and fuel contributions. Uncertainty for other GHGs is much higher than for the reported CO_2 and strongly dictated by the contribution of highly uncertain processes to the national total (Janssens-Maenhout et al., 2019). These uncertainties should be considered when using these data for any kind of analysis by readers of this booklet and policy makers.

(4) Defined as the sum of all coal, liquid fossil fuel and natural gas consumption.

(5) International activity data, mainly energy balance statistics of IEA (2017) for 1970-2015 were used to estimate CO_2 from fossil fuel consumption. These emissions are extended until 2018 using a sectorial (IEA) and fuel (BP) dependent Fast-Track approach. As a consequence, emissions for the last three years are characterized by higher uncertainty. Further details on the Fast Track methodology are provided in Annex 1.

Related and future JRC work

The reliability, independence and completeness of the EDGAR GHG emissions data make them a valuable quantitative tool to support the complex international scientific and political discussions on climate mitigation. The EDGAR database compiles global greenhouse gas and air pollutant emissions making use of international global statistical data sources and of a globally consistent methodology across countries, whereas national inventories represent the official emissions data reported by the EU Member States to the European Environmental Agency which are used for tracking policy targets. Therefore, the objectives of the EDGAR database are: to inform policy makers and the scientific community involved in the field of GHG emissions and budgets; complement and support the compilation of national inventories and the coming UNFCCC Global Stocktake; underpin analyses of the co-benefits of air pollution and GHG emission mitigation strategies; interpretation of satellite data and understanding of emission uncertainties. In addition, the EDGAR framework and the JRC experience in compiling emissions inventories are shared and compared within the international emissions community of the Global Emissions InitiAtive (GEIA).

While this booklet summarises data for GHG emissions for 1970-2018, it should be noted that EDGAR is a comprehensive global emission database, including both GHG and air pollutant emissions for all countries. The EDGAR GHG emissions reported in this booklet will be used by Working Group Three on mitigation of the next Intergovernmental Panel on Climate Change (IPCC) Assessment Report. EDGAR also supports the IPCC Task Force on National Greenhouse Gas Inventories, compiling and refining guidelines for national GHG emission inventories and providing training support and knowledge databases to visualise emission hot spots. Finally, EDGAR is also supporting the Arctic Council's 'Arctic Monitoring and Assessment Programme' (AMAP) by providing CH_4 and mercury emission data.

Quick guide

For each country, a fact sheet is provided with time series of fossil CO_2 and GHG emissions from all anthropogenic activities except land use, land-use change, forestry and large-scale biomass burning. The upper panel of the fact sheet includes fossil CO_2 annual totals from 1990 until 2018 by sector, together with emissions per capita and per GDP ([6]). The second panel shows GHG emissions from 1990 to 2015 by substance (CO_2, CH_4, N_2O and F-gases) expressed as CO_2 equivalent calculated using the 100-year global warming potential (GWP -100) previously used in the IPCC 4th Assessment report (AR4) ([7]). An overview table with total emissions by country for the years 1990, 2005, 2015 and 2018 is also reported, together with per capita and per GDP emission data. Finally, the bottom panel of each fact sheet shows the changes in CO_2 and GHG emissions by sector for the last available year (2018 or 2015) compared to 1990 and 2005.

([6]) Gross Domestic Product in US Dollars expressed in 2011 Purchasing Power Parity.

([7]) The latest UNFCCC revision of the reporting guidelines adopted by COP (2014) decided to use from 2015 onwards the global warming potential coefficients over a period of 100 years (GWP-100) in IPCC's Fourth Assessment Report (IPCC AR4, 2007) with 25 for CH_4 and 298 for N_2O, to calculate GHG emissions in terms of CO_2 equivalent.

Introduction

Scope

In December 2015, the Paris Agreement brought "all nations into a common cause to undertake ambitious efforts to combat climate change" and required all parties to the agreement to put forward their best efforts through "nationally determined contributions". Acknowledging the need to ensure environmental integrity, a transparency framework was created and 5-yearly Global Stocktakes from 2023 onwards were planned.

The Emissions Database for Global Atmospheric Research (EDGAR) contributes to global climate action with an independent and quantitative view of global GHG emissions. EDGAR is a global database that estimates country and sector specific emissions of CO_2 and other greenhouse gases implementing a fully transparent state-of-the-art methodology. As such, it supports efforts to provide a consistent, transparent emissions estimate that is global in scope and can inform climate action under the Paris Agreement, although the conception and early versions of EDGAR precede by far the Paris Agreement.

This report gives a country by country overview of fossil CO_2 and GHG emissions as estimated by EDGAR. In particular, it provides fossil CO_2 emission estimates until 2018 based on robust statistical data and a consolidated Fast Track (FT) methodology. Due to the lack of comparable updates for relevant sectors for non-CO_2 GHG (e.g. agricultural activities, product use, chemicals production, etc.), the overall greenhouse gas time series are provided until 2015.

A key feature of this booklet is the improved analysis of the F-gas emissions. This family of gases are regulated by the Kyoto Protocol and are also included in the Parties' commitment under the Paris Agreement. Furthermore, in October 2016 in Kigali, the Montreal Protocol was amended to include also a phase-down the use of HFCs. As a result, industrialised countries started the phase-down already on the 1st of January 2019, while most of the developing countries will start their HFCs phase-down in 2024. The EU Regulation on F-gases (No 517/2014) implements an EU-wide phase-down for HFCs, which started in 2015, with the aim of cutting emissions by two thirds by 2030 in the EU compared with 2014. Therefore, an overview of current F-gas emissions is urgently needed to monitor the emission reductions foreseen for the next years at the global scale.

Overview

Trends of global fossil CO_2 emissions and of the major emitting countries and the EU28 from 1990 to 2018 are presented, followed by the corresponding GHG emissions from 1990 to 2015. Then, a fact sheet with both fossil CO_2 and GHG emission time series, per capita and per GDP data and sector specific trends is presented for every country. Details on the bottom-up methodology applied for the EDGAR emission compilations are then reported together with the data sources and references used. Finally, concluding remarks are also provided. Additional analyses can be found in the companion publication "Trends in Global CO_2 and Total Greenhouse Gas Emissions – 2019 Report" by Olivier et al. (2019).

Global Fossil CO_2 Emissions from 1990 until 2018

The global annual emissions of fossil CO_2 in Gt CO_2/yr are illustrated in Fig. 2 for the entire time series of the EDGAR database (1970-2018). Shares of emissions originating from the main activity sectors (namely power industry (8), other industrial combustion (9), transport (10), buildings and other sectors (11)) are also presented. Figure 3 shows the total annual fossil CO_2 emissions for the EU28 and the three largest emitting countries. Per capita CO_2 emissions (in t CO_2/cap/yr) for the EU28 and the same top emitting countries are represented in Fig. 4.

Figure 2. Total global annual emissions of fossil CO_2 in Gt CO_2/yr by sector. Fossil CO_2 emissions include sources from fossil fuel use, industrial processes and product use (combustion, flaring, cement, steel, chemicals and urea).

(8) Includes power and heat generation plants (public and autoproducers).

(9) Includes combustion for industrial manufacturing and fuel production.

(10) Includes road transport, non-road transport, domestic aviation and inland waterways for each country. International shipping and aviation also belong to this sector and are presented separately before the country fact-sheets due to their international feature.

(11) Includes industrial process emissions (non-metallic minerals, non-ferrous metals, solvents and other product use, chemicals), indirect emissions (for N_2O only), agriculture (including agricultural soils, agricultural waste burning, enteric fermentation, manure management) and waste.

As shown in Figs. 3 and 4, EDGAR data include uncertainty bands that estimate the random uncertainty inherent in the emission estimates. The uncertainty takes stock of accuracy of both activity statistics and of the emission factor per type of fuel. Uncertainty estimates use the tiered estimate model suggested by the Intergovernmental Panel on Climate Change (IPCC, 2006). It should be noted that the uncertainties in emissions calculated with the Fast Track approach (i.e., fossil CO_2 emissions for 2016-18) are likely higher for individual sectors and countries due to the assumptions behind this methodology. We have estimated that emission changes are accurate to within ±0.5% (Olivier et al., 2016) when based on robust statistical activity data (e.g. IEA energy balances data for 1970-2015) and up to 2% for the Fast-Track data for 2016-2018 depending on regional, sectorial and fuel contributions. This should be considered when using these data for any kind of analysis.

Figure 3. Total annual emissions of fossil CO_2 in Gt CO_2/yr for the EU28 and large emitting countries with uncertainty (coloured bands).

Figure 4. Per capita CO_2 emissions (in t CO_2/cap/yr) from fossil fuel use, industrial processes and product use for the EU28 and large emitting countries with uncertainty (in coloured bands) and for the world average.

Global fossil CO_2 emissions in 2018 increased by 1.9% to a total of 37.9 Gt CO_2, continuing the increasing trend observed between 2016 and 2017 (+1.2%). By comparison, 2015 and 2016 were years with no, or limited growth in global emissions (0.0% in 2015 and 0.4% in 2016). Table 1 provides a global overview of the CO_2 emission change between the years 2017 and 2018 for top emitting countries. Among the major CO_2 emitting countries, only the European Union (by 1.9%) and Japan (by 1.7%) reduced emissions in 2018, representing shares of 9.1% and 3.2% respectively of the global total. China (1.5%), the United States (2.9%), Russia (3.6%) and India (7.2%) all increased their emissions in 2018, representing 29.7%, 13.9%, 4.6% and 6.9% respectively of the global total. Outside the larger emitting countries, the largest increases are observed for Iran by 4.8% (1.9% share), South Korea by 2.9% (1.8% share) and Indonesia by 4.8% (1.5% share). Global CO_2 per capita emissions have increased by ca 17% from 4.25 t CO_2/cap/yr to 4.97 t CO_2/cap/yr between 1990 and 2018.

Among the EU Member States, Germany, responsible for 2% of the global emissions, had the largest reduction (4.5%). Besides the European Union and Japan, the largest percentage reductions are seen in Mexico (representing 1.3% of the global total) with a 2.3% reduction and Brazil (representing 1.3% of the global total) with a 1.3% reduction.

Table 1. Global share in 2018 and change in fossil CO_2 emissions for top emitting countries (contributing for more than 1% each to the global total) between 2017 and 2018. Light blue shading highlights countries with CO_2 emissions increasing by more than 1% between 2017 and 2018. The average annual change since 2015 (%) representing a longer trend is also reported.

Top emitting countries	Global share	Change between 2017 and 2018	Average annual % change since 2015
China	29.7%	1.5%	1.3%
United States	13.9%	2.9%	0.3%
EU28	9.1%	-1.9%	-0.3%
India	6.9%	7.2%	4.7%
Russia	4.6%	3.6%	1.1%
Japan	3.2%	-1.7%	-0.8%
Iran	1.9%	4.8%	5.3%
South Korea	1.8%	2.9%	2.9%
Saudi Arabia	1.6%	-1.1%	0.9%
Canada	1.6%	-0.1%	0.3%
Indonesia	1.5%	4.8%	4.4%
Brazil	1.3%	-1.3%	-1.8%
Mexico	1.3%	-2.3%	0.6%
South Africa	1.3%	1.0%	0.0%
Turkey	1.1%	0.6%	4.6%
Australia	1.1%	0.9%	1.1%
International shipping	1.8%	2.0%	2.2%
International aviation	1.5%	1.0%	2.0%

EU28 total fossil CO_2 emissions have decreased over the past two decades, such that emissions in 2018 are 21.6% lower than in 1990 and 18.7% lower than in 2005 ([12]). The EU28 share of the global total emissions decreased from 9.6% to 9.1% between 2015 and 2018. In 2018 the EU28 emitted 3.5 Gt CO_2, corresponding to 6.8 t CO_2 per person. A closer look to recent trends shows that a stalling in 2016 has been followed by an increase of 1.3% in 2017 and by a decrease of 1.9% between 2017 and 2018. In terms of sectors and countries, in 2018, CO_2 emissions from fossil fuel combustion in the power industry decreased by 2.1% in the EU with the largest reductions for Portugal (7.7%), Bulgaria (6.7%), Germany (4.8%) and Italy (3.2%). Conversely, lime production emissions increased by 2.4% for the same period. Among the EU28 countries, in 2018 the largest contributor to the EU28 CO_2 emissions was Germany with 21.8%, followed by the United Kingdom (10.8%), Italy (10%), Poland (9.7%), France (9.4%) and Spain (8%). The shares of coal, oil and gas in total fossil fuel consumption in the EU28 were 18%, 51% and 31%, respectively. Reductions in fossil fuel consumption were observed in 2018: coal: 5.1%, oil: 0.4% and gas: 1.5% drop compared to the year before. These consumption reductions contributed to decreases in CO_2 fossil emissions which were especially noticeable in Portugal (7.9%), Bulgaria (6.8%), Germany (5.0%), Italy (3.3%), France (2.7%), Sweden (2.6%), Spain (2.4%), Malta (2.4%), the United Kingdom (2.2%) and The Netherlands (2.1%). In most of these countries, the reductions were also a consequence of swapping from coal and liquid fossil fuel to less carbon intense energy sources.

China's fossil CO_2 emissions, after a slight decrease in 2015 (-0.1%) increased in 2016 by 1.3%, in 2017 by 1.1% and in 2018 by 1.5% reaching 11.3 Gt CO_2. The equivalent per capita CO_2 emissions (8 t CO_2/cap/yr) in 2018 are 18% higher than the European average, while CO_2 emissions per GDP unit, amount to about 499 kg CO_2 /1000 USD(PPP)/yr, i.e., the highest of the top-15 emitting countries. The increase in Chinese emissions in 2018 is mainly due to increases in oil and gas consumption of 5.0% and 17.7%, respectively, while coal consumption increased only slightly by 0.9%; the shares of oil, gas and coal in fossil fuel consumption were 23.0%, 8.7% and 68.3%. The sectors contributing most to the fossil CO_2 emissions in China are power generation (41%) and other industrial combustion (24%); in 2018 the emissions from these sectors increased by 1.3% and 1.9%, respectively.

([12]) As mentioned in the executive summary, EDGAR emission estimates provide the global context needed for the upcoming UNFCCC Global Stocktakes, complementing officially reported national emission inventories. Therefore, the EDGAR data are not those used to track the accomplishment of EU reduction policies.

Emissions of fossil CO_2 of the **United States** in 2018 increased by 2.9% from 2017, reversing the decreases seen since 2015. Total fossil CO_2 emissions in 2018 accounted for approximately 5.3 Gt, with 95% emitted by combustion sources. The inter-yearly increase of CO_2 emissions was driven by higher oil (1.9 %) and natural gas consumption (1.1%). Compared to peak emissions in 2005, 2018 emissions are 11% lower (but still higher than the 1990 levels), whereas the population has increased by over 10% over the same period. Total CO_2 emissions fell by about 3.1% in 2015 and 1.9% in 2016, mainly because of reduced coal consumption for power generation (BP, 2019). In 2018, the value of emissions per unit of GDP was 290 kgCO_2/1000 USD(PPP)/yr, the same as in 2017, after 7 years of reductions. Emissions per capita have on the contrary increased by 2% compared to 2017 to reach 16.1 t CO_2/cap/yr.

India's fossil CO_2 emissions continued to increase to 2.6 Gt CO_2 in 2018, 7.1% more than in 2017, the second largest increase in the last five years and above the average annual increase of 4.5% per year for the period 2014–2018. India's emissions already surpassed those of Russia in 2009. With a share of 6.9% of total global CO_2 emissions in 2018, India is the fourth largest emitting economy after China, the United States and the EU28. However, India's per capita emissions of 1.9 t CO_2/cap/yr are about four times lower than China and the EU28, about eight times lower than United States and lower even than the average per capita emissions of many developing countries. A major contribution to India's growing emissions comes from the 7.5% increase in fossil fuel consumption, 61.1% of which is supplied by coal. Annual coal consumption, mostly domestically produced, increased by 8.7% whereas annual oil consumption increased by 5.3% according to BP (2019).

Russia's fossil CO_2 emissions, after six years of steady decreases at the average rate of 0.6% per year, increased in 2018 by 3.5% (60 Mt of CO_2) to reach about 1.7 Gt, while GDP increased by 2.3% compared to 2017. With a share in global CO_2 emissions of 4.6% in 2018, Russia is the fifth largest emitter after China, the United States, EU28 and India. The increase in 2018 CO_2 emissions was mainly due to an increase in consumption of coal by 4.9%, natural gas by 5.4% and oil by 0.5% (BP, 2019). Russian per capita emissions of 12.1 t CO_2/cap/yr are higher than those of China (by 53%), EU28 (by 79%) and Japan (by 29%) and 25% lower than those of the United States.

After stagnation in 2017, **Japan** saw fossil CO_2 emissions fell by 1.7% in 2018, in contrast to the slight increase in GDP between 2016 and 2017 (1.7%) and a substantial plateau between 2017 and 2018. Japanese fossil CO_2 emissions accounted for 1.2 Gt CO_2 in 2018, representing 3.2% of global CO_2 emissions. A decrease in the consumption for the three main fuel types was observed, mainly driven by lower oil consumption. Japan's per capita emissions in 2018 of 9.4 t CO_2/cap/yr are of the same order of magnitude as those of the Netherlands (9.5) and slightly higher than those of Germany (9.15).

Global Greenhouse Gas Emissions from 1990 until 2015

The non-CO_2 greenhouse gases considered in this report together contribute around 26% to the 2015 global GHG emissions measured in this report ([13]), an amount comparable to the CO_2 emissions of the largest emitting single country (China). Therefore, although global CO_2 emissions are by far the largest contributor to the accumulation of GHGs in the atmosphere, the contribution of the other gases considered in this section is considerable.

EDGARv5.0 provides emission estimates also for non-CO_2 greenhouse gases from 1970 until 2015 using entirely international statistics, in particular for CH_4, N_2O and fluorinated gases (F-gases). Total GHG emissions are summed in CO_2 equivalent (CO_2eq) using the GWP-100 metric of AR4. GHG emissions for the major emitting countries and regions are briefly described, as well as the per capita and per GDP trends. For a more detailed description of our findings for the EU28 and the five largest emitting countries, we refer to Olivier et al. (2019). Uncertainty for GHGs is much higher than for CO_2 and strongly dictated by the contribution of highly uncertain processes to the national total (Janssens-Maenhout et al., 2019).

Global GHG emissions are dominated by the fossil CO_2 share and increased steadily over the entire period 1990-2015 from 32.8 to 49.1 Gt CO_2eq/yr, with an overall increase in total GHG emissions of ca 50%. Non-CO_2 GHG emissions continue to increase in absolute terms, though their share in total global emissions appears to be declining. Per capita GHG emissions decreased in the 1980s and 1990s to a minimum of 5.7 t CO_2eq/cap/yr but have since increased by 13.4% from 2000 to 2015 to reach 6.7 t CO_2eq/cap/yr. In 1990 CH_4 and N_2O emissions accounted for 23.6% (7.7 Gt CO_2eq) and 6.3% (2.1 Gt CO_2eq) of the global total, respectively, but these shares decreased to 18.8% (9.2 Gt CO_2eq) and 5.2% (2.6 Gt CO_2eq) by 2015, respectively. These patterns can be explained by the changes in the economic structure of most emerging economies, moving from agricultural societies, with a large share of N_2O and CH_4 emissions coming from agricultural activities to industrialised economies, with significant increases in fossil CO_2 emissions from the energy and industrial sectors. By comparison, F-gases doubled their share of the global GHG total from 1.1% (0.3 Gt CO_2eq) in 1990 to 2% (ca 1 Gt CO_2eq) in 2015. The main driver of the growth in the emission of F-gases is the use of hydrofluorocarbons (HFCs) as alternatives to ozone depleting substances (e.g. hydrochlorofluorocarbons (HCFCs) and chlorofluorocarbons (CFCs)), banned under the Montreal Protocol since the beginning of the 90s.

([13]) Noting that emissions from land use, land-use change and forestry are not included.

EU28 GHG emissions have decreased since the eighties and the 4.5 Gt CO_2eq/yr GHG emissions in 2015 is a reduction of 21.7% compared to 1990. In the seventies, emissions were characterised by an increase of 12% over the entire decade, whereas in the eighties and nineties they fell by 8% and 9% respectively. GHG emissions from the EU28 are dominated by fossil CO_2 emissions which are more than three quarters of the total GHGs (ranging from 77.7% to 81.7% over the 1990-2015 period). The CH_4 contribution to total GHG emissions varies from 12.7% to 15.7% and it is mainly from the agricultural sector (enteric fermentation and manure management, representing 41.1 % of CH_4 emissions in 2015), waste treatment and disposal (representing 30.2% of CH_4 emissions in 2015) and production of coal and gas (representing 15.8 % of CH_4 emissions in 2015). In 2015, the top six emitting countries, responsible for 65% of EU28 CH_4 emissions are United Kingdom (17.3%), Germany (12.9%), France (10.7%), Poland (10.3%), Spain (7%) and Italy (6.7%). CH_4 emissions from the agricultural sector went down by 23%, from 0.33 Gt CO_2eq/yr to 0.26 Gt CO_2eq/yr between 1990 and 2015. At the European level, CH_4 emissions from landfill have been falling from 1996 onwards; however, individual countries have behaved differently. With the exception of Spain and Cyprus, most Western EU countries significantly reduced their CH_4 emissions from landfills over time, while Eastern EU countries (in particular Romania, Slovakia, Hungary and Czechia) had stable or increasing emissions. CH_4 fugitive emissions from coal and gas production are also falling, with most of the reductions associated with the production of coal in Poland, Romania, Germany and United Kingdom, while increasing emissions from the gas production sector are seen in several EU countries. N_2O emissions represent between 6.1% and 7.9% of the total greenhouse gas emissions in the 1990-2015 period and are produced mainly from agricultural soils (representing 46.2% of N_2O emissions in 2015) and the chemicals industry (adipic and nitric acid production, representing 13.8% of total N_2O). In 2015, the six top emitting countries, France (14.4%), Germany (14.3%), Poland (9.6%), United Kingdom (9.4%), Spain (8.1%) and Italy (6.0%) were responsible for more than 60% of N_2O emissions in the EU. In 2015, F-gases contributed with 0.12 Gt CO_2eq representing 3.5% of EU28 GHG emissions. Despite the absolute increase in HFCs (the main group of the F-gases) emissions from 1990 to 2015, the percentage change in the emissions per year has been decreasing over the same time period. In 2015, for the first year, HFCs emissions are stabilized ([14]), reflecting the implementation of the new EU Regulation on F-gases (No 517/2014). The per capita emission of GHG in the EU28 in 2015 is of 8.9 t CO_2eq/cap/yr. The effect of non-CO_2 GHGs on the per capita value was to raise the CO_2 alone per capita emissions by ca 29% in 2015.

([14]) The latest EEA report on F-gases (https://www.eea.europa.eu/publications/fluorinated-greenhouse-gases-2018, European Environmental Agency) confirms that in 2015 HFCs have started declining and in 2016 they have decreased by 0.1% compared with the previous year.

China's GHG emissions increased almost 6.6 times between 1970 and 2015, from 2 Gt CO_2eq/yr in 1970 to 13.1 Gt CO_2eq/yr in 2015. The contribution of CH_4 in total CO_2eq fell from 47.6% in 1970, to 30.4% in 1990 and 11.9% in 2015, whereas for N_2O they were 7.3%, 7.3% and 3.1%, respectively. Overall the contribution of non-CO_2 GHG to total CO_2eq decreased considerably from 55.1% in 1970 to 44.9% in 1990 and 17.2% in 2015, showing the relative increase in industrial versus agriculture development on GHG emissions since 1970. Non-CO_2 GHGs add ca 21% to both per capita emissions and per GDP CO_2eq emission in 2015. F-gases with 0.28 Gt CO_2eq/yr contribute a further 2.2% to Chinese GHG emissions.

In 2015 **United States**' GHG emissions reached 6.4 Gt CO_2eq and were dominated by fossil CO_2 emissions, which contributed 81.1% of the total. CH_4 had the second largest share representing 9.8% of US GHG emissions, while N_2O and F-gases contributed for 4.6% and 4.5%, respectively. CH_4 is mainly emitted by agricultural activities (enteric fermentation and manure management: 34.7% in 2015), fugitive emissions from the production of oil gas and coal (42.3% in 2015), and the waste sector (waste water treatment and landfills: 18.8% in 2015). N_2O is mainly emitted by activities related to the agricultural soil sector and the production of chemicals (adipic and nitric acid production). The per capita emission of GHG in the United States in 2015 is 20.1 t CO_2eq/cap/yr. Non-CO_2 GHGs comprise 23.3% of the per capita CO_2eq emissions in 2015.

India's GHG emissions reached 3.3 Gt CO_2eq/yr in 2015, compared with 0.8 and 1.4 Gt CO_2eq/yr in 1970 and 1990, respectively. The CH_4 share fell from 61% in 1970 to 47% in 1990 and 25% in 2015. Over the same period, the share of N_2O emission also fell from 9.4% to 9.2% and then to 6%. India experienced a noticeable shift from 1970, when non-CO_2 GHGs accounted for a 71% share of overall GHG emissions, falling to 31% by 2015, mostly due to a decreasing share of agricultural activities in Indian economy. The per capita emission of GHG in India in 2015 is of 2.6 t CO_2eq/cap/yr. Non-CO_2 GHGs comprise 46.4% of the per capita CO_2eq emissions in 2015. The same figure was above 70% in 2006. F-gases represent a minor contribution to Indian's GHG, with a 0.8% share in 2015.

Russia's GHG emissions fell by 27% from 1990-2015 after an increase of 69.8% from 1970 to 1990. This corresponds to a change in GHG emissions from 1.8 Gt CO_2eq/yr in 1970 to 3 Gt CO_2eq/yr in 1990, falling back to 2.2 Gt CO_2eq/yr in 2015. The shares of CH_4 for these three years in total CO_2eq emissions in Russia were 19%, 16.8% and 19.4%, whereas for N_2O were 5.7%, 3.6% and 3.3%, respectively. The per capita emission of GHG in Russia in 2015 is of 15.5 t CO_2eq/cap/yr. Non-CO_2 GHGs comprise about 32% of the per capita and per GDP CO_2eq emissions in 2015. In 2015, F-gases contributed with 0.03 Gt CO_2eq representing 1.4% of Russian GHG emissions.

Japan's GHG emissions have increased slowly over the past decades: in 1990 and 2015 the levels of emissions were 1.3 and 1.4 Gt CO_2eq/yr, respectively. The shares of CH_4 emission in those two years were rather stable representing ca 6% of Japanese GHG emissions (0.06 Gt CO_2eq), whereas for N_2O decreased from 2.2% in 1990 to 1.4% in 2015. Per capita GHG emissions in Japan in 2015 are of 10.6 t CO_2eq/cap/yr. The effect of non-CO_2 GHGs on per capita emission is to raise the CO_2 alone per capita emissions by 10.7% in 2015. In 2015, F-gases contributed with 0.06 Gt CO_2eq representing 4.4% of Japanese GHG emissions.

Conclusions

The Emissions Database for Global Atmospheric Research (EDGAR) is a comprehensive inventory of anthropogenic emission time series from 1970 until 2018 for CO_2 and until 2015 for other GHGs. An IPCC-based bottom-up emission calculation methodology is applied to all countries, demonstrating that consistent inventories can be developed for all countries within the limitations of the quality of the available statistical data. EDGAR complements the data prepared by most of Annex I ([15]) countries (mostly industrialised countries) that can count on a good statistical data infrastructure and regular reporting system to the UNFCCC. In the case of countries with less developed statistical data infrastructure, EDGAR can provide useful information for their future emission inventory requirements, by providing an independent estimate, methodological tools and expertise to support country efforts in developing their own inventory. In particular, the time series of EDGARv5.0_FT2018 can provide the emissions trend information for non-Annex I ([16]) countries that will be needed for the UNFCCC's Global Stocktake in 2023. EDGARv5.0_FT2018 provides an important input to the analysis of global CO_2 trends with its 48-year time series.

Analysis of the EDGAR time series shows that since the beginning of the 21st century GHG emissions have increased compared to the three previous decades, mainly driven by the increase in CO_2 emissions from countries with emerging economies. EDGARv5.0_FT2018 shows that global fossil CO_2 emissions from anthropogenic activities, excluding biomass burning and the land use, land-use change and forestry sector have, after stagnating in 2014-2015, increased by 1.9% between 2017 and 2018, reaching a total of 37.9 Gt CO_2. Compared to 2017, CO_2 emissions in the United States increased by 2.9% in 2018 and in China by 1.5%, while they decreased in the EU28 by 1.9%. Overall, EU28 CO_2 emissions have decreased over the past two decades, reaching in 2018 a total of 3.5 Gt CO_2, representing reduction levels of 21.6% compared to 1990 and 18.7% compared to 2005. The EU28 emission reduction determined a decreasing share on the global total, from 9.6% to 9.1% between 2015 and 2018, reaching an average 6.8 t CO_2/cap/yr which is above the global per capita average (4.97 t CO_2/cap/yr).

Global GHG emissions are dominated by fossil CO_2 and increased steadily over the entire period 1990-2015 by about 50% from 32.8 to 49.1 Gt CO_2eq/yr. Per capita GHG emissions decreased in the 1980s and 1990s to a minimum of 5.7 t CO_2eq/cap/yr but have then increased by 13.4% from 2000 to 2015 to reach 6.7 t CO_2eq/cap/yr.

([15]) Annex I countries under the UN Framework Convention on Climate Change: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czechia, Denmark, European Union, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States.

([16]) Non-Annex I countries are developing countries, under the Kyoto Protocol without legally binding emissions reductions targets.

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WSC, World Semiconductor Council: Joint statement of the 20th meeting of world semiconductor council, Seoul, Korea, May 26, 2016.

List of abbreviations and definitions

AR4	Fourth Assessment Report of IPCC
BP	BP plc (oil and gas company; formerly British Petroleum Company plc)
cap	capita (head)
CCA	China Cement Association
CCRI	China Cement Research Institute
CH_4	Methane, greenhouse gas with GWP-100 = 25 under AR4
CO_2	Carbon dioxide
CO_2eq	CO_2 equivalent (using the GWP-100 metric of AR4)
DG CLIMA	Directorate-General for Climate Action, European Commission
EC	European Commission
EDGAR	Emissions Database for Global Atmospheric Research
EIA	Energy Information Administration (of the U.S.)
EU28	European Union with 28 Member States
GDP	Gross domestic product
GGFR	Global Gas Flaring Reduction Partnership of the World Bank
GHG	Greenhouse Gas
Gt	Gigatonnes (1000 megatonnes = 10^9 metric tonnes)
GWP-100	Global Warming Potential over a 100 years period
IEA	International Energy Agency of the OECD (Paris)
IFA	International Fertiliser Association
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
JRC	Joint Research Centre of the European Commission
kUSD	1000 US Dollar GDP
LULUCF	Land use, land-use change and forestry
Mt	Megatonnes (10^6 tonnes or 1 tera gramme) mass of a given (greenhouse gas) substance
NBSC	National Bureau of Statistics of China
NOAA	U.S. National Oceanic and Atmospheric Administration
N_2O	Nitrous oxide, greenhouse gas with GWP-100 = 298 under AR4
n/a	Not Available
OECD	Organisation for Economic Co-operation and Development
PBL	Netherlands Environmental Assessment Agency
PPP	Purchasing Power Parity
RFA	Renewable Fuels Association
t	tonne (1 t or 1 mega gramme) mass of a given (greenhouse gas) substance
UNFCCC	United Nations Framework Convention on Climate Change
UNPD	United Nations Population Division
USD	U.S. Dollar
USGS	United States Geological Survey
worldsteel	Word Steel Association

Annexes

Annex 1: Bottom-up methodology for the emissions compilation

The basis for the fossil CO_2 time series presented in this report is EDGARv5.0, which covers the period 1970-2017 (Muntean et al., 2018). Emissions of non-CO_2 GHGs, namely CH_4, N_2O and F-gases are provided for the period 1970-2015 (http://edgar.jrc.ec.europa.eu/overview.php?v=booklet2019; Lo Vullo et al. (2019); Olivier et al. (2018)).

In EDGAR, emissions per country and compound are calculated on an annual basis and sector wise by multiplying the country-specific activity and technology mix data by country-specific emission factors and reduction factors for installed abatement system for each sector.

For the greenhouse gas emission factors, the default values recommended in the IPCC 2006 guidelines were used: global values for CO_2 from fuel combustion, and where recommended, region-specific values were applied for other sources.

All human activities leading to climate relevant emissions are included, except biomass/biofuel combustion (short-cycle carbon) in the power, industry, buildings, transport and agricultural sectors, large-scale biomass burning and land use, land-use change and forestry (LULUCF). EDGAR makes use of the IPCC sectorial classification and a consistent bottom-up emission calculation methodology is applied to all countries, so that emissions of different countries can be compared, considering their respective levels of detail, uncertainties or data limitations. In particular for developing countries with less robust and systematic statistical data infrastructures and limited experience in reporting their fossil fuel emissions inventories, EDGAR can provide information and support them in complying with their inventory preparation.

EDGARv5.0_FT2018 uses international activity data, mainly energy balance statistics of IEA (2017) for 1970-2015 to estimate CO_2 from fossil fuel consumption. CO_2 emissions are extended with a Fast Track approach until 2018 using BP statistics that assumes the same sectoral breakdown as in the last year of the IEA energy balance statistics for 2015. A consequence of this approach is that the emissions for the Fast Track years (2016-2018) reported in this booklet may not be comparable with those reported in subsequent editions of this booklet, where they are based on future releases of the definitive IEA energy balance statistics.

Updates for 2016, 2017 and 2018 for cement, lime, ammonia and ferroalloys production are based on USGS statistics, urea production and consumption are based on IFA statistics, associated gas used from flaring from GGFR/NOAA (2019), steel production from world steel and cement clinker production from UNFCCC (2019b). For the other sectors with lower contributions to the global CO_2 emissions, the time series have been extended for the period 2015-2018 using proxy data and relative changes in activity data compared to 2015, reported in recent data sources.

For energy: detailed IEA (2017) activity data are used to calculate CO_2 emissions for the period 1970-2015. The recent trends in coal, oil and natural gas consumption reported in the BP Review of World Energy (BP, 2019) are used to calculate the relative changes beyond 2015 for CO_2 only. For oil consumption, BP figures were corrected for road biofuel use (fuel ethanol and biodiesel) which are included in the BP oil consumption data for road transport. For the change in international transport, we apply the reported change in oil consumption per country according to BP for the historically most contributing countries to global marine and aviation fuel sales.

For the fugitive emissions: CO_2 emissions from coke production for 2015 to 2018 follow the same relative change as reported for the crude steel production of world steel (2019). CO_2 flared at oil and gas extraction for 1994 onwards was based on the total amount of gas flared derived from satellite observation of the intensity of flaring lights per country (GGFR/NOAA, 2019).

For the metal industry: the largest contribution is from blast furnaces, which in addition to the CO_2 emissions from blast furnace gas combustion accounted for under the energy sector, emit also CO_2 from the coke/coal input as reducing agent and limestone used in for iron and steel production. Here the crude steel production statistics reported by World Steel Association (worldsteel, 2019) are used as input to calculate CO_2 emissions. Ferro-alloys production data from USGS are used to update the activity data in EDGARv5.0 up to 2015 and for more years (2016, 2017 and 2018) further updates are performed by using the pig iron production trends.

For non-metallic minerals: CO_2 emissions from carbonates used in cement clinker production are based on reported or estimated cement clinker production. Cement production was calculated from cement production reported by the USGS (2019), except for China in 2018 (NBSC, 2019). Next, the clinker-to-cement ratio is based on the clinker production data until 2016 from UNFCCC (2019) for so-called Annex I countries and for China from the China Cement Almanac (CCA, 2016) and from 2011 onwards from the China Cement Research Institute (CCRI, 2019). For four other countries (India, Brazil, Egypt and Thailand), we used clinker production ratios from the Cement Sustainability Initiative database "Getting the Numbers Right" of the World Business Council for Sustainable Development (WBCSD, 2018). The changes in the lime production from USGS (2019) are applied to extrapolate CO_2 emissions from all other carbonate uses (glass production etc.). With regards to the feedstock use for chemicals production, the ammonia production from USGS (2019) is used, except for urea consumption and production, where data are provided by the International Fertiliser Industry Association (IFA, 2019). It is assumed that small soil liming emissions follow the gross ammonia production trend.

For waste: CH_4 and N_2O emissions from wastewater handling have been updated until 2015 based on IPCC (2006) methodology as described in Janssens-Maenhout et al. (2019) by using updated statistics from FAO (2019) for production of meat, pulp, sugar and for average protein supply, and from UN (2019) and RFA (2019) for alcohol production. Urban and rural population data are from UNDP (2019). GHGs emissions from waste incineration without energy recovery have been updated for the following categories: biogenic, clinical, sewage sludge, industrial solid waste, municipal solid waste and other (non-specified) waste with data from UNFCCC (2019a) complemented by the approach recommended in IPCC (2006). The amount of landfilled waste has been updated by considering the latest data presented in UNFCCC (2019a) for Annex I countries, with data from UN statistics UN (2019) for some developing economies and by using the 2000 per capita value suggested in IPCC (2016) when no up to date information was available.

For agriculture: agricultural activities comprise the application of urea and agricultural lime, enteric fermentation, rice cultivation, manure management, fertiliser use (synthetic and manure), agricultural waste burning (in field). Large-scale biomass burning from savannah is not included in the current work. Emissions from the agricultural sector are estimated using activity data for from FAOSTAT (2018) together with emission factors from IPCC Guidelines (2006). CH_4 emission factors for enteric fermentation of dairy and non-dairy cattle have been updated including the IPCC 2006 Tier 2 methodology.

For the countries belonging to "Other Africa" ([17]), "Other Non-OECD Asia" ([18]) and "Other Non-OECD Americas" ([19]) in the IEA classification: the share of CO_2 emissions from all these countries in global total is very small e.g. in 2015, according to IEA, this was about 0.25%. IEA provides only aggregated activity data for these three groups of countries. Compared to the previous EDGAR version (v4.3.2), in EDGARv5.0 a new methodology was developed to allocate the activity data from IEA (2017) to each single country by using splitting factors derived from US EIA (2018) country specific data on fuel consumption of coal, oil and natural gas. Together with the IEA (2017) updates, this newly developed methodology mostly explains the differences between CO_2 time series for these countries in EDGAR v4.3.2 and v5.0 versions. Consequently, the uncertainties in CO_2 emission estimations for these countries are larger than for other countries, in particular for the sectorial subdivision; additional reliable data and information are needed to improve the activity data allocation for them.

([17]) Includes Botswana (until 1980); Burkina Faso; Burundi; Cape Verde; Central African Republic; Chad; Comoros; Djibouti; Equatorial Guinea; Eswatini; Gambia; Guinea; Guinea-Bissau; Lesotho; Liberia; Madagascar; Malawi; Mali; Mauritania; Namibia (until 1990); Niger (until 1999) Réunion; Rwanda; Sao Tome and Principe; Seychelles; Sierra Leone; Somalia and Uganda.

([18]) Includes Afghanistan; Bhutan; Cambodia (until 1994); Cook Islands; East Timor; Fiji; French Polynesia; Kiribati; Lao People's Democratic Republic; Macau, China; Maldives; Mongolia (until 1984); New Caledonia; Palau (from 1994); Papua New Guinea; Samoa; Solomon Islands; Toga and Vanuatu.

([19]) Includes Antigua and Barbuda; Aruba; Bahamas; Barbados; Belize; Bermuda; British Virgin Islands; Cayman Islands; Dominica; Falk-land Islands (Malvinas); French Guiana; Grenada; Guadeloupe; Guyana; Martinique; Montserrat; Puerto Rico (for natural gas and electricity); Saba (from 2012); Saint Eustatius (from 2012); Saint Kitts and Nevis; Saint Lucia; Saint Pierre and Miquelon; Saint Vincent and the Grenadines; Sint Maarten (from 2012); Suriname (until 1999) and the Turks and Caicos Islands.

Annex 2: Fluorinated gases (F-gases)

EDGARv5.0_FT2018 includes, among other substances, the fluorinated gases (F-gases), a class of man-made chemicals used in a wide range of industrial applications. The F-gases play an important role in some key sectors of the economy, such as the production of magnesium and aluminium or the semiconductor manufacturing. Fluorinated greenhouse gases (F-gases) represent a set of powerful greenhouse gases which is significantly contributing to climate change.

F-gases include three main groups : (1) Hydrofluorocarbons (HFCs) mainly used as refrigerants, blowing agents for foams and solvents; (2) Perfluorocarbons (PFCs) used in the electronics sector (3) sulphur hexafluoride (SF6) used mainly as insulating gas, in high voltage switchgear and in the production of magnesium and aluminium (refer to Table 2). Emissions from less known sources like military use and accelerators are also included based on Oliver et al. (2018).

Table 2. Overview on F-gases by sector included in EDGARv5.0_FT2018.

Reference	**General Category**	**Substances**	**Industrial Processes**
		SF6	Non-ferrous Metal Production
			Chemical Industry
			Electronic Industry
			Electrical Equipment
Lo Vullo et al. (2019)		NF3	Electronic Industry
	PFCs	CF4 and C2F6	Non-ferrous Metal Production
		HFC-23	Chemical Industry
			Electronic industry
	PFCs	C_3F_8; c-C_4F_8; CF_4; C_2F_6	Electronic industry
	General Category	**Substances**	**Fluorinated Substitutes for Ozone Depleting Substances**
		HFC-125	
		HFC-152a	
		HFC-134a	
		HFC143a	
Olivier et al. (2018)	HFCs	HFC-227ea	Refrigeration and air conditioning, aerosols, foam blowing, other application
		HFC-23	
		HFC-236	
		HFC-245	
		HFC-32	
		HFC-365mfc	
		HFC43-10-mee	

The methodology applied to calculate F-gas emissions in EDGAR is described in detail in Lo Vullo et al. (2019) and Olivier et al. (2018). The activity data included in EDGARv5.0_FT2018 for the F-gases are gathered from public activity data collected in the national statistics and reports of national environmental agencies or trade associations. From 1990 activity data are available in the context of UNFCCC national submissions.

The main source of information for the emission factors is the IPCC emission factor database (EFDB, 2006) ([20]), that provides default emission factors for each emitting category, based on scientific literature. EDGARv5.0 includes for some industrial sectors, specific emission factors provided by the producer's association, like the aluminium producers, better representing the real conditions of the production processes. For the aluminium production, since the mid-2000s, the technological landscape has been changing. The technology update in EDGAR is still in progress and for this reason the PFC emissions could be overestimated for the time period 2006-2015 (Lo Vullo et al., 2019). Country specific emission factors are also provided by the National Inventory Report (NIR) in the UNFCCC submissions.

Non-ferrous Metal Production: The main data sources used for updating the activity data are the United Framework on Climate Change national submissions (UNFCCC, 2017) and the primary aluminium production data from the United States Geological Survey Minerals Yearbook (USGS, 2016). Information from the International Aluminium Institute (IAI, 2016) is included for PFC emission factors.

Electronics Industry: The main data sources used for updating the activity data are the United Framework on Climate Change national submissions (UNFCCC, 2017) and the World Semiconductor Council (WSC, 2016) reports.

Chemical Industry: The main data sources used for updating the activity data are the United Framework on Climate Change national submissions (UNFCCC, 2017) and the United Nations Environment Programme report on HFC-23 production (UNEP, 2017).

Electrical Equipment: The data sources used for updating the activity data are mainly from the United Framework on Climate Change national submissions (UNFCCC, 2017).

([20]) In May 2019 a refinement of emissive categories was adopted by the IPCC 49th Session.

Annex 3: Construction of country fact-sheets

For each country, a fact sheet is provided with time series of fossil CO_2 and GHG emissions from all anthropogenic activities except land use, land-use change, forestry and large scale biomass burning.

The upper panel of the fact sheet includes the fossil CO_2 annual totals from 1990 until 2018 per sector, the fossil CO_2 per capita and per GDP (GDP is Gross Domestic Product in US Dollar expressed in 2011 Purchasing Power Parity). An overview table with total emissions by country for the years 1990, 2005, 2015 and 2018 is reported, together with per capita, per GDP emissions and population data. The bottom panel of each fact sheet shows the changes in emissions by sector in 2018 for CO_2 and in 2015 for GHGs compared to 1990 or 2005 levels. Along with the summary of the CO_2 and GHGs emission time series for each country, a graphical visualisation aids the interpretation of the CO_2 emissions change over time at the bottom of each page). The graphs compare CO_2 emissions for 2018 and 2015 for GHGs with the emission levels of two key years: 1990 (base year for national green-house gases inventory) and 2005, when the Kyoto Protocol came into effect. Emissions stalling, rising or dampening for the year 2018 are expressed in term of % change with respect to these two years, for sectors specified as follow:

Legend of the sectors:

Power Industry - Power and heat generation plants (public & autoproducers)

Other industrial combustion - Combustion for industrial manufacturing and fuel production

Buildings – Small scale non-industrial stationary combustion

Transport – Mobile combustion (road & rail & ship & aviation)

Other sectors – Industrial process emissions & agriculture & waste

↘ indicates a reduction in 2018 (for CO_2) or in 2015 (for GHG) emissions by the amount expressed by the percentage value (in green)

↗ indicates growth in 2018 (for CO_2) or in 2015 (for GHG) emissions by the amount expressed by the percentage value (in red)

→ In the cases where 2018 (for CO_2) or 2015 (for GHG) emissions have reduced or have grown by less than 5% with respect to the reference year, or have stalled, a horizontal orange arrow is shown. Also in this case the amount is expressed by the percentage value (in orange)

An "n/a" is used to indicate either a sector missing throughout the time series (meaning that no data are reported for that sector) or that no data are available for both the reference year and for 2018. Finally, in the instances when emissions from a specific sector have been reported for the reference year but not for 2018 a decreasing green arrow is shown without the associated percentage value (as for example [Power industry, Albania]; on the opposite, when emissions from a specific sector have been reported for 2018 year but not for the reference year, a rising red arrow is shown without the associated percentage value (as for example [Other industrial combustion, Malta]). Country-specific fossil CO_2 emission time series can be downloaded at the following website: https://edgar.jrc.ec.europa.eu/overview.php?v=booklet2019.

Annex 4: Fossil CO_2 and GHG emissions for the world and the EU28

Global totals for all countries, including international shipping and aviation, followed by the international transport sector (shipping and aviation).

Total EU28 emissions from Member States: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

WORLD

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	37887.224	n/a	4.968	n/a	0.314
2015	36311.982	49113.311	4.922	6.657	0.334
2005	29911.661	41163.349	4.576	6.297	0.390
1990	22637.134	32772.532	4.249	6.151	0.475

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +82%	↗ +78%	↗ +22%
Other industrial combustion	↗ +60%	↗ +56%	↗ +26%
Buildings	↗ +6%	→ -2%	→ +1%
Transport	↗ +77%	↗ +67%	↗ +19%
Other sectors	↗ +110%	↗ +39%	↗ +20%

International Shipping

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	697.490	n/a	n/a	n/a	n/a
2015	657.324	697.085	n/a	n/a	n/a
2005	572.169	608.438	n/a	n/a	n/a
1990	371.804	396.025	n/a	n/a	n/a

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	n/a	n/a	n/a
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	n/a	n/a
Transport	↗ +88%	↗ +77%	↗ +15%
Other sectors	n/a	↗ +62%	↗ +9%

International Aviation

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	564.612	n/a	n/a	n/a	n/a
2015	529.687	537.489	n/a	n/a	n/a
2005	422.777	429.004	n/a	n/a	n/a
1990	258.941	262.863	n/a	n/a	n/a

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	n/a	n/a	n/a
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	n/a	n/a
Transport	↗ +118%	↗ +105%	↗ +25%
Other sectors	n/a	↗ +92%	↗ +25%

EU28

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	3457.285	n/a	6.783	n/a	0.177
2015	3492.038	4499.851	6.881	8.867	0.191
2005	4250.760	5334.405	8.580	10.767	0.260
1990	4408.526	5743.609	9.235	12.031	0.371

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -30%	↘ -24%	↘ -22%
Other industrial combustion	↘ -40%	↘ -39%	↘ -22%
Buildings	↘ -24%	↘ -26%	↘ -21%
Transport	↗ +21%	↗ +16%	↘ -7%
Other sectors	↘ -20%	↘ -25%	↘ -8%

Annex 5: Fossil CO_2 and GHG emissions by country

The following countries are presented:

Fossil CO_2 and GHG emissions by country: Afghanistan; Albania; Algeria; Angola; Anguilla; Antigua and Barbuda; Argentina; Armenia; Aruba; Australia; Austria; Azerbaijan; Bahamas; Bahrain; Bangladesh; Barbados; Belarus; Belgium; Belize; Benin; Bermuda; Bhutan; Bolivia; Bosnia and Herzegovina; Botswana; Brazil; British Virgin Islands; Brunei; Bulgaria; Burkina Faso; Burundi; Cambodia; Cameroon; Canada; Cape Verde; Cayman Islands; Central African Republic; Chad; Chile; China; Colombia; Comoros; Congo; Cook Islands; Costa Rica; Côte d'Ivoire; Croatia; Cuba; Curaçao; Cyprus; Czechia; Democratic Republic of the Congo; Denmark; Djibouti; Dominica; Dominican Republic; Ecuador; Egypt; El Salvador; Equatorial Guinea; Eritrea; Estonia; Eswatini; Ethiopia; Falkland Islands; Faroes; Fiji; Finland; France and Monaco; French Guiana; French Polynesia; Gabon; Georgia; Germany; Ghana; Gibraltar; Greece; Greenland; Grenada; Guadeloupe; Guatemala; Guinea; Guinea-Bissau; Guyana; Haiti; Honduras; Hong Kong; Hungary; Iceland; India; Indonesia; Iran; Iraq; Ireland; Israel and Palestine, State of; Italy, San Marino and the Holy See; Jamaica; Japan; Jordan; Kazakhstan; Kenya; Kiribati; Kuwait; Kyrgyzstan; Laos; Latvia; Lebanon; Lesotho; Liberia; Libya; Lithuania; Luxembourg; Macao; Madagascar; Malawi; Malaysia; Maldives; Mali; Malta; Martinique; Mauritania; Mauritius; Mexico; Moldova; Mongolia; Morocco; Mozambique; Myanmar/Burma; Namibia; Nepal; Netherlands; New Caledonia; New Zealand; Nicaragua; Niger; Nigeria; North Korea; North Macedonia; Norway; Oman; Pakistan; Palau; Panama; Papua New Guinea; Paraguay; Peru; Philippines; Poland; Portugal; Puerto Rico; Qatar; Réunion; Romania; Russia; Rwanda; Saint Helena, Ascension and Tristan da Cunha; Saint Kitts and Nevis; Saint Lucia; Saint Pierre and Miquelon; Saint Vincent and the Grenadines; Samoa; São Tomé and Príncipe; Saudi Arabia; Senegal; Serbia and Montenegro; Seychelles; Sierra Leone; Singapore; Slovakia; Slovenia; Solomon Islands; Somalia; South Africa; South Korea; Spain and Andorra; Sri Lanka; Sudan and South Sudan; Suriname; Sweden; Switzerland and Liechtenstein; Syria; Taiwan; Tajikistan; Tanzania; Thailand; The Gambia; Timor-Leste; Togo; Tonga; Trinidad and Tobago; Tunisia; Turkey; Turkmenistan; Turks and Caicos Islands; Uganda; Ukraine; United Arab Emirates; United Kingdom; United States; Uruguay; Uzbekistan; Vanuatu; Venezuela; Vietnam; Western Sahara; Yemen; Zambia; Zimbabwe.

Afghanistan

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	10.477	n/a	0.288	n/a	0.162
2015	9.800	31.146	0.290	0.923	0.161
2005	1.063	16.298	0.042	0.650	0.038
1990	2.546	12.626	0.208	1.031	0.202

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +480%	↗ +449%	↗ +690%
Other industrial combustion	↗ +671%	↗ +607%	↗ +401%
Buildings	↘ -13%	↘ -10%	↗ +467%
Transport	↗ +819%	↗ +755%	↗ +1831%
Other sectors	↗ +30%	↗ +108%	↗ +40%

Albania

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	4.802	n/a	1.637	n/a	0.136
2015	4.709	8.868	1.611	3.034	0.149
2005	4.197	8.121	1.363	2.637	0.188
1990	6.583	10.869	2.006	3.312	0.449

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘		↘		↘	
Other industrial combustion	↘	-71%	↘	-68%	↗	+25%
Buildings	↘	-70%	↘	-70%	↘	-11%
Transport	↗	+232%	↗	+244%	→	+2%
Other sectors	↗	+26%	→	+1%	↗	+18%

Algeria

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	165.332	n/a	3.936	n/a	0.282
2015	156.269	239.422	3.919	6.005	0.286
2005	98.768	178.073	2.967	5.349	0.241
1990	67.970	150.889	2.623	5.823	0.256

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+290%	+260%	+78%
Other industrial combustion	+36%	+27%	+17%
Buildings	+289%	+257%	+88%
Transport	+184%	+194%	+93%
Other sectors	+77%	+9%	+8%

Angola

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	30.047	n/a	0.976	n/a	0.170
2015	32.738	81.033	1.175	2.909	0.177
2005	16.217	58.520	0.829	2.993	0.163
1990	11.296	52.296	0.928	4.297	0.200

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+1295%	+1195%	+392%
Other industrial combustion	+40%	+26%	+27%
Buildings	+586%	+298%	+178%
Transport	+800%	+800%	+272%
Other sectors	+29%	+24%	+15%

Anguilla

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.029	n/a	1.897	n/a	0.087
2015	0.028	0.032	1.917	2.208	0.091
2005	0.014	0.017	1.081	1.354	0.041
1990	0.006	0.008	0.734	1.007	0.032

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +151%	↗ +144%	↗ +32%
Other industrial combustion	↗ +62%	↗ +59%	→ +3%
Buildings	↘ -16%	↘ -14%	→ -3%
Transport	↗ +433%	↗ +414%	↗ +130%
Other sectors	↗ +79%	↗ +96%	↗ +8%

Antigua and Barbuda

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.642	n/a	6.228	n/a	0.280
2015	0.624	0.739	6.246	7.395	0.311
2005	0.283	0.413	3.168	4.630	0.156
1990	0.223	0.331	3.350	4.959	0.204

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +255%	↗ +245%	↗ +131%
Other industrial combustion	↗ +222%	↗ +214%	↗ +74%
Buildings	↘ -14%	↘ -14%	↗ +95%
Transport	↗ +543%	↗ +521%	↗ +124%
Other sectors	↗ +51%	→ +4%	↘ -13%

Argentina

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	210.162	n/a	4.703	n/a	0.258
2015	211.998	385.223	4.883	8.872	0.255
2005	165.479	347.513	4.227	8.877	0.272
1990	112.442	285.649	3.435	8.728	0.303

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +177%	↗ +175%	↗ +70%
Other industrial combustion	↗ +66%	↗ +73%	↗ +8%
Buildings	↗ +79%	↗ +80%	↗ +25%
Transport	↗ +54%	↗ +65%	↗ +18%
Other sectors	↗ +77%	→ +3%	→ -2%

Armenia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	5.788	n/a	1.972	n/a	0.214
2015	5.006	8.565	1.716	2.936	0.209
2005	4.542	7.716	1.523	2.588	0.284
1990	20.699	24.128	5.850	6.819	1.563

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-79%	↘	-79%	↗	+35%
Other industrial combustion	↘	-88%	↘	-89%	↘	-70%
Buildings	↘	-71%	↘	-78%	↗	+42%
Transport	↘	-42%	↘	-49%	↗	+122%
Other sectors	↘	-70%	→	-4%	→	+4%

Aruba

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.987	n/a	9.339	n/a	0.258
2015	0.960	0.999	9.197	9.574	0.257
2005	0.470	0.504	4.700	5.037	0.119
1990	0.297	0.318	4.784	5.119	0.129

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +309%	↗ +298%	↗ +113%
Other industrial combustion	↗ +272%	↗ +262%	↗ +61%
Buildings	→ -1%	→ 0%	↗ +80%
Transport	↗ +642%	↗ +617%	↗ +107%
Other sectors	↗ +83%	↗ +64%	↗ +14%

Australia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	415.310	n/a	16.765	n/a	0.366
2015	401.950	658.586	16.889	27.672	0.383
2005	391.568	642.120	19.347	31.727	0.493
1990	277.447	467.984	16.281	27.462	0.567

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +45%	↗ +48%	↘ -6%
Other industrial combustion	↗ +43%	↗ +33%	→ +3%
Buildings	↗ +85%	↗ +70%	↗ +16%
Transport	↗ +65%	↗ +52%	↗ +19%
Other sectors	↗ +29%	↗ +33%	→ +3%

Austria

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	71.444	n/a	8.163	n/a	0.174
2015	69.061	86.439	7.958	9.960	0.181
2005	81.008	98.598	9.815	11.946	0.238
1990	62.927	81.990	8.147	10.615	0.261

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	→	-4%	→	-3%	↘	-24%
Other industrial combustion	↗	+13%	↗	+15%	↘	-6%
Buildings	↘	-33%	↘	-35%	↘	-34%
Transport	↗	+79%	↗	+65%	↘	-7%
Other sectors	↗	+11%	↘	-6%	→	-1%

Azerbaijan

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	34.704	n/a	3.497	n/a	0.218
2015	32.702	54.178	3.400	5.633	0.201
2005	30.488	44.656	3.571	5.230	0.444
1990	58.077	85.458	8.019	11.799	0.923

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-32%	↘	-37%	↘	-11%
Other industrial combustion	↘	-73%	↘	-76%	→	+1%
Buildings	↘	-8%	↘	-24%	↗	+7%
Transport	→	-5%	↗	+12%	↗	+66%
Other sectors	↘	-59%	↘	-27%	↗	+50%

Bahamas

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	3.083	n/a	7.720	n/a	0.275
2015	2.998	3.219	7.749	8.320	0.273
2005	2.069	2.259	6.283	6.860	0.194
1990	1.524	1.647	5.947	6.426	0.192

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+149%	+143%	+51%
Other industrial combustion	+126%	+122%	+14%
Buildings	-40%	-39%	+28%
Transport	+352%	+337%	+47%
Other sectors	+17%	+63%	+19%

Bahrain

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	34.232	n/a	21.846	n/a	0.520
2015	33.759	39.947	24.609	29.119	0.560
2005	23.370	28.025	26.283	31.518	0.608
1990	11.988	17.975	24.173	36.245	0.688

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+199%	+203%	+37%
Other industrial combustion	+92%	+104%	+100%
Buildings	+130%	+117%	+17%
Transport	+259%	+252%	+41%
Other sectors	+266%	+35%	+33%

Bangladesh

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	92.888	n/a	0.558	n/a	0.148
2015	80.091	221.476	0.497	1.374	0.159
2005	38.836	160.496	0.271	1.119	0.140
1990	13.868	125.877	0.131	1.185	0.101

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+822%	+676%	+128%
Other industrial combustion	+602%	+585%	+252%
Buildings	+355%	+138%	+33%
Transport	+614%	+461%	+85%
Other sectors	+325%	+31%	+17%

Barbados

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	3.316	n/a	11.580	n/a	0.692
2015	3.170	3.347	11.155	11.774	0.678
2005	2.162	2.312	7.890	8.438	0.488
1990	0.776	0.954	2.982	3.665	0.211

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +793%	↗ +754%	↗ +39%
Other industrial combustion	↗ +152%	↗ +135%	↗ +45%
Buildings	↘ -24%	↘ -24%	↗ +100%
Transport	↗ +455%	↗ +436%	↗ +135%
Other sectors	↘ -9%	↘ -16%	↘ -16%

Belarus

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	64.263	n/a	6.799	n/a	0.382
2015	60.449	144.577	6.373	15.241	0.370
2005	61.418	120.031	6.383	12.475	0.566
1990	109.016	162.880	10.670	15.942	1.279

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -47%	↘ -52%	↘ -17%
Other industrial combustion	↘ -37%	↘ -38%	↗ +16%
Buildings	↘ -56%	↘ -59%	→ -2%
Transport	→ -4%	↘ -10%	↗ +34%
Other sectors	↘ -24%	↗ +47%	↗ +41%

Belgium

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	105.752	n/a	9.197	n/a	0.214
2015	103.972	133.450	9.211	11.822	0.221
2005	118.703	147.174	11.255	13.954	0.285
1990	116.003	142.040	11.593	14.195	0.380

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-36%	↘	-32%	↘	-31%
Other industrial combustion	↘	-24%	↘	-28%	→	-2%
Buildings	↘	-6%	↘	-7%	↘	-21%
Transport	↗	+29%	↗	+29%	→	+1%
Other sectors	↗	+30%	↗	+15%	→	+3%

Belize

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.451	n/a	1.178	n/a	0.151
2015	0.440	0.887	1.225	2.470	0.153
2005	0.440	0.780	1.554	2.753	0.198
1990	0.188	0.487	1.000	2.595	0.196

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +198%	↗ +191%	→ +4%
Other industrial combustion	↗ +171%	↗ +95%	↘ -21%
Buildings	↘ -28%	↘ -30%	↘ -11%
Transport	↗ +441%	↗ +425%	→ +2%
Other sectors	↘ -7%	↗ +54%	↗ +34%

Benin

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	7.536	n/a	0.656	n/a	0.305
2015	5.985	13.885	0.566	1.313	0.285
2005	2.839	8.204	0.356	1.028	0.205
1990	0.415	3.949	0.083	0.793	0.057

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +951%	↗ +808%	↗ +201%
Other industrial combustion	↗ +2165%	↗ +1225%	↗ +202%
Buildings	↗ +146%	↗ +34%	↘ -51%
Transport	↗ +3252%	↗ +2684%	↗ +196%
Other sectors	↗ +493%	↗ +146%	↗ +58%

Bermuda

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.440	n/a	7.210	n/a	0.132
2015	0.428	0.464	6.908	7.486	0.129
2005	0.284	0.318	4.355	4.876	0.079
1990	0.335	0.367	5.505	6.023	0.139

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +62%	↗ +57%	↗ +58%
Other industrial combustion	↗ +47%	↗ +43%	↗ +19%
Buildings	↘ -61%	↘ -61%	↗ +34%
Transport	↗ +193%	↗ +183%	↗ +53%
Other sectors	→ +4%	↗ +9%	↗ +7%

Bhutan

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.546	n/a	1.893	n/a	0.219
2015	1.238	2.407	1.573	3.057	0.203
2005	0.515	1.666	0.784	2.537	0.173
1990	0.208	1.126	0.388	2.095	0.167

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+1209%	+517%	+20%
Other industrial combustion	+229%	+191%	+17%
Buildings	-17%	+140%	+18%
Transport	+523%	+479%	+204%
Other sectors	+1206%	+81%	+57%

Bolivia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	22.811	n/a	2.034	n/a	0.288
2015	19.665	51.828	1.834	4.833	0.281
2005	9.986	34.815	1.094	3.815	0.233
1990	6.534	25.959	0.953	3.786	0.257

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+509%	+371%	+108%
Other industrial combustion	+97%	+76%	+44%
Buildings	+666%	+471%	+120%
Transport	+282%	+247%	+118%
Other sectors	+42%	+60%	+29%

Bosnia and Herzegovina

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	27.436	n/a	7.831	n/a	0.647
2015	23.957	30.824	6.775	8.717	0.620
2005	16.892	23.307	4.467	6.163	0.537
1990	24.559	31.775	5.502	7.119	25.163

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +62%	↗ +38%	↗ +43%
Other industrial combustion	↘ -51%	↘ -50%	↗ +132%
Buildings	↘ -69%	↘ -66%	↘ -7%
Transport	↗ +65%	↗ +41%	↗ +34%
Other sectors	↗ +227%	↗ +9%	↗ +9%

Botswana

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	7.432	n/a	3.185	n/a	0.200
2015	7.170	89.280	3.245	40.413	0.216
2005	4.465	62.889	2.406	33.887	0.212
1990	2.818	35.122	2.045	25.489	0.258

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +163%	↗ +151%	↗ +127%
Other industrial combustion	↗ +30%	↗ +43%	↘ -22%
Buildings	↗ +19%	↗ +24%	→ +2%
Transport	↗ +286%	↗ +262%	↗ +57%
Other sectors	↗ +754%	↗ +155%	↗ +40%

Brazil

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	500.088	n/a	2.372	n/a	0.167
2015	529.666	1229.246	2.572	5.968	0.175
2005	381.161	1005.098	2.039	5.377	0.166
1990	228.626	652.758	1.531	4.371	0.148

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+442%	+617%	+166%
Other industrial combustion	+80%	+96%	+16%
Buildings	+36%	+40%	+14%
Transport	+146%	+140%	+44%
Other sectors	+80%	+66%	+12%

British Virgin Islands

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.153	n/a	4.822	n/a	0.283
2015	0.149	0.166	4.939	5.510	0.225
2005	0.032	0.047	1.364	2.047	0.044
1990	0.026	0.039	1.601	2.393	0.190

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +620%	↗ +600%	↗ +395%
Other industrial combustion	↗ +554%	↗ +537%	↗ +274%
Buildings	↗ +74%	↗ +76%	↗ +319%
Transport	↗ +1206%	↗ +1156%	↗ +382%
Other sectors	↗ +81%	↗ +24%	→ +4%

Brunei

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	6.926	n/a	15.957	n/a	0.225
2015	6.510	12.039	15.590	28.832	0.209
2005	5.185	10.560	14.198	28.920	0.171
1990	3.397	7.227	13.126	27.925	0.155

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+131%	+119%	-9%
Other industrial combustion	+43%	+35%	+77%
Buildings	+184%	+165%	+141%
Transport	+163%	+144%	+42%
Other sectors	+323%	+53%	+6%

Bulgaria

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	44.590	n/a	6.337	n/a	0.329
2015	48.471	61.475	6.753	8.565	0.397
2005	52.031	65.470	6.772	8.521	0.547
1990	82.270	105.567	9.305	11.940	1.015

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-49%	↘	-40%	→	+5%
Other industrial combustion	↘	-63%	↘	-63%	↘	-49%
Buildings	↘	-79%	↘	-76%	↘	-23%
Transport	↗	+45%	↗	+38%	↗	+18%
Other sectors	↘	-40%	↘	-43%	↘	-7%

Burkina Faso

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	3.710	n/a	0.188	n/a	0.107
2015	3.120	26.289	0.172	1.452	0.108
2005	1.038	18.852	0.077	1.405	0.061
1990	0.380	10.473	0.043	1.189	0.051

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+1637%	+1366%	+232%
Other industrial combustion	+559%	+335%	+348%
Buildings	+489%	+52%	+42%
Transport	+1169%	+969%	+210%
Other sectors	+381%	+143%	+30%

Burundi

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.322	n/a	0.029	n/a	0.044
2015	0.288	4.648	0.028	0.456	0.040
2005	0.307	3.609	0.041	0.486	0.060
1990	0.210	2.828	0.039	0.522	0.038

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +91%	↗ +87%	↘ -19%
Other industrial combustion	↘ -28%	↘ -39%	→ +5%
Buildings	↘ -35%	→ 0%	↘ -41%
Transport	↗ +40%	↗ +33%	↘ -25%
Other sectors	↗ +418%	↗ +90%	↗ +70%

Cambodia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	10.846	n/a	0.668	n/a	0.172
2015	8.668	35.822	0.559	2.308	0.170
2005	2.686	26.338	0.202	1.985	0.103
1990	0.407	18.152	0.045	2.023	0.012

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+2538%	+1878%	+224%
Other industrial combustion	+3258%	+1250%	+67%
Buildings	+481%	+293%	+157%
Transport	+4329%	+3460%	+184%
Other sectors	+3703%	+54%	+16%

Cameroon

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	14.478	n/a	0.587	n/a	0.171
2015	13.474	48.440	0.590	2.121	0.179
2005	9.266	40.281	0.532	2.312	0.188
1990	4.806	25.936	0.410	2.214	0.136

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +3245%	↗ +3182%	↗ +607%
Other industrial combustion	↗ +432%	↗ +398%	↗ +362%
Buildings	↘ -23%	↗ +13%	↘ -10%
Transport	↗ +108%	↗ +98%	↗ +65%
Other sectors	↗ +280%	↗ +85%	↗ +15%

Canada

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	594.198	n/a	16.080	n/a	0.364
2015	589.780	779.870	16.406	21.693	0.383
2005	579.614	755.185	17.951	23.389	0.443
1990	454.698	612.804	16.419	22.129	0.523

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	-8%	+6%	-18%
Other industrial combustion	+67%	+53%	+13%
Buildings	+18%	+15%	-6%
Transport	+41%	+37%	+10%
Other sectors	+12%	+20%	+8%

Cape Verde

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.035	n/a	1.871	n/a	0.286
2015	0.877	1.199	1.645	2.249	0.278
2005	0.227	0.508	0.479	1.069	0.103
1990	0.049	0.213	0.143	0.624	0.086

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+3503%	+2952%	+319%
Other industrial combustion	+1267%	+1052%	+491%
Buildings	+1121%	+772%	+152%
Transport	+2533%	+2121%	+291%
Other sectors	+125%	+95%	+13%

Cayman Islands

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.507	n/a	8.135	n/a	0.118
2015	0.493	0.529	8.225	8.820	0.125
2005	0.188	0.215	3.870	4.422	0.051
1990	0.148	0.164	5.937	6.573	0.071

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +321%	↗ +309%	↗ +174%
Other industrial combustion	↗ +282%	↗ +272%	↗ +107%
Buildings	→ +2%	→ +3%	↗ +132%
Transport	↗ +663%	↗ +637%	↗ +166%
Other sectors	↗ +108%	↗ +107%	↗ +29%

Central African Republic

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.467	n/a	0.099	n/a	0.129
2015	0.449	10.027	0.099	2.206	0.142
2005	0.246	7.544	0.060	1.828	0.072
1990	0.159	4.848	0.054	1.649	0.058

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +419%	↗ +395%	↗ +104%
Other industrial combustion	↗ +97%	↗ +52%	↗ +175%
Buildings	↗ +76%	↘ -63%	↘ -45%
Transport	↗ +279%	↗ +261%	↗ +91%
Other sectors	↗ +34%	↗ +120%	↗ +34%

Chad

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.697	n/a	0.045	n/a	0.026
2015	0.683	20.763	0.049	1.482	0.024
2005	0.384	15.509	0.038	1.541	0.021
1990	0.268	9.995	0.045	1.678	0.041

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +131%	↗ +125%	↗ +102%
Other industrial combustion	↘ -12%	↘ -20%	↗ +157%
Buildings	↘ -22%	↗ +61%	↗ +21%
Transport	↗ +69%	↗ +61%	↗ +89%
Other sectors	↗ +1092%	↗ +111%	↗ +34%

Chile

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	91.140	n/a	5.008	n/a	0.213
2015	84.573	117.188	4.761	6.597	0.211
2005	58.682	90.976	3.634	5.634	0.214
1990	32.898	58.051	2.484	4.384	0.276

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +339%	↗ +301%	↗ +98%
Other industrial combustion	↗ +104%	↗ +105%	↗ +22%
Buildings	↗ +106%	↗ +52%	↗ +14%
Transport	↗ +189%	↗ +177%	↗ +36%
Other sectors	↗ +10%	↗ +23%	→ -3%

China

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	11255.878	n/a	7.954	n/a	0.499
2015	10820.801	13067.691	7.746	9.354	0.583
2005	6264.757	8136.080	4.740	6.156	0.843
1990	2397.508	3859.073	2.045	3.291	1.388

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+617%	+590%	+75%
Other industrial combustion	+266%	+273%	+61%
Buildings	+56%	+17%	+27%
Transport	+780%	+686%	+102%
Other sectors	+494%	+143%	+48%

Colombia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	90.045	n/a	1.820	n/a	0.136
2015	79.533	168.374	1.649	3.491	0.128
2005	60.668	148.132	1.402	3.422	0.152
1990	52.311	131.692	1.526	3.843	0.204

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +74%	↗ +79%	↗ +106%
Other industrial combustion	↗ +70%	↗ +20%	→ -2%
Buildings	↗ +77%	↗ +43%	↗ +43%
Transport	↗ +87%	↗ +82%	↗ +45%
Other sectors	↗ +33%	↗ +13%	→ +1%

Comoros

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.209	n/a	0.251	n/a	0.100
2015	0.189	0.593	0.243	0.763	0.097
2005	0.115	0.425	0.188	0.695	0.079
1990	0.049	0.274	0.119	0.667	0.046

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+619%	+551%	+79%
Other industrial combustion	+173%	+145%	+152%
Buildings	+144%	+123%	+11%
Transport	+426%	+374%	+67%
Other sectors	+52%	+78%	+30%

Congo

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	7.063	n/a	1.308	n/a	0.268
2015	5.888	15.534	1.179	3.109	0.213
2005	4.450	14.268	1.197	3.837	0.252
1990	2.403	10.918	0.985	4.474	0.192

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +14898%	↗ +14791%	↗ +956%
Other industrial combustion	↗ +69%	↗ +64%	↗ +225%
Buildings	↗ +14%	↗ +155%	↗ +155%
Transport	↗ +292%	↗ +308%	↗ +191%
Other sectors	↗ +150%	↗ +22%	↘ -7%

Cook Islands

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.042	n/a	2.412	n/a	n/a
2015	0.039	0.048	2.259	2.754	n/a
2005	0.058	0.069	2.967	3.481	n/a
1990	0.043	0.052	2.334	2.837	n/a

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	→ -2%	↘ -7%	↘ -53%
Other industrial combustion	↗ +40%	↗ +29%	↘ -71%
Buildings	↘ -78%	↘ -78%	→ -5%
Transport	↗ +67%	↗ +55%	↗ +11%
Other sectors	↘ -86%	↘ -6%	↘ -16%

Costa Rica

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	8.825	n/a	1.782	n/a	0.113
2015	7.682	12.758	1.598	2.654	0.108
2005	6.308	10.800	1.485	2.542	0.135
1990	2.913	8.963	0.941	2.895	0.121

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+3%	+6%	-68%
Other industrial combustion	+74%	+34%	+4%
Buildings	+332%	+161%	+2%
Transport	+264%	+236%	+41%
Other sectors	+206%	-10%	+9%

Côte d'Ivoire

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	14.021	n/a	0.563	n/a	0.150
2015	11.593	26.327	0.502	1.139	0.155
2005	6.537	18.030	0.356	0.983	0.133
1990	3.020	10.189	0.246	0.831	0.077

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+819%	+822%	+45%
Other industrial combustion	+224%	+177%	+75%
Buildings	+191%	+109%	+6%
Transport	+246%	+164%	+158%
Other sectors	+764%	+124%	+40%

Croatia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	19.444	n/a	4.669	n/a	0.201
2015	18.553	25.831	4.380	6.098	0.210
2005	23.639	30.508	5.400	6.968	0.273
1990	25.176	34.036	5.271	7.126	0.413

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -38%	↘ -25%	↘ -35%
Other industrial combustion	↘ -59%	↘ -59%	↘ -34%
Buildings	↘ -13%	↘ -20%	↘ -26%
Transport	↗ +88%	↗ +63%	↗ +8%
Other sectors	↘ -32%	↘ -26%	→ -2%

Cuba

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	27.549	n/a	2.398	n/a	0.095
2015	30.994	51.543	2.704	4.497	0.120
2005	26.167	45.511	2.319	4.033	0.152
1990	37.110	60.887	3.507	5.754	0.238

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +14%	↗ +34%	↗ +22%
Other industrial combustion	↘ -34%	↘ -26%	↗ +38%
Buildings	↘ -30%	↘ -33%	→ -2%
Transport	↘ -72%	↘ -73%	↘ -28%
Other sectors	↘ -60%	↘ -17%	↗ +6%

Curaçao

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	8.425	n/a	52.143	n/a	2.040
2015	7.377	7.582	46.685	47.981	1.784
2005	4.776	4.945	36.909	38.220	1.209
1990	5.474	5.614	37.321	38.277	1.260

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+110%	+66%	+61%
Other industrial combustion	+55%	+51%	+21%
Buildings	-59%	-58%	+36%
Transport	+204%	+197%	+57%
Other sectors	-12%	+35%	+35%

Cyprus

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	7.463	n/a	6.276	n/a	0.252
2015	6.371	7.876	5.487	6.784	0.245
2005	7.881	9.160	7.669	8.913	0.317
1990	4.540	5.384	5.922	7.023	0.348

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +97%	↗ +76%	↘ -16%
Other industrial combustion	↘ -30%	↘ -34%	↘ -41%
Buildings	↗ +281%	↗ +215%	→ +2%
Transport	↗ +67%	↗ +56%	↘ -10%
Other sectors	↗ +43%	↗ +32%	↘ -6%

Czechia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	110.944	n/a	10.442	n/a	0.312
2015	107.604	128.877	10.148	12.154	0.333
2005	127.134	148.874	12.393	14.513	0.483
1990	162.835	192.380	15.746	18.603	0.787

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-17%	↘	-15%	↘	-16%
Other industrial combustion	↘	-69%	↘	-68%	↘	-31%
Buildings	↘	-58%	↘	-58%	↘	-9%
Transport	↗	+212%	↗	+149%	→	+1%
Other sectors	↘	-34%	↘	-31%	→	-5%

Democratic Republic of the Congo

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	2.894	n/a	0.034	n/a	0.042
2015	3.835	40.483	0.050	0.531	0.062
2005	2.589	24.965	0.047	0.456	0.080
1990	3.441	18.947	0.099	0.547	0.072

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -52%	↘ -30%	↗ +176%
Other industrial combustion	↘ -95%	↘ -73%	↘ -24%
Buildings	↘ -100%	↗ +37%	↗ +30%
Transport	↗ +240%	↗ +367%	↗ +140%
Other sectors	↗ +98%	↗ +143%	↗ +67%

Denmark

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	33.131	n/a	5.758	n/a	0.120
2015	34.044	50.531	5.984	8.883	0.131
2005	51.481	68.231	9.495	12.585	0.213
1990	53.645	70.660	10.435	13.744	0.309

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -61%	↘ -58%	↘ -50%
Other industrial combustion	↘ -25%	↘ -18%	↘ -25%
Buildings	↘ -52%	↘ -46%	↘ -29%
Transport	↗ +15%	↗ +11%	↘ -14%
Other sectors	↘ -20%	↘ -7%	↘ -7%

Djibouti

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.046	n/a	1.076	n/a	0.296
2015	0.930	1.993	1.003	2.149	0.359
2005	1.469	2.559	1.876	3.267	0.744
1990	1.101	1.810	1.865	3.065	0.832

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↗	+45%	↗	+31%	↘	-36%
Other industrial combustion	↘	-45%	↘	-50%	↘	-10%
Buildings	↘	-51%	↘	-53%	↘	-60%
Transport	↗	+6%	→	-5%	↘	-41%
Other sectors	↗	+1009%	↗	+59%	→	+4%

Dominica

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.129	n/a	1.735	n/a	0.190
2015	0.126	0.194	1.716	2.654	0.173
2005	0.054	0.116	0.762	1.645	0.088
1990	0.033	0.095	0.459	1.344	0.069

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +391%	↗ +376%	↗ +303%
Other industrial combustion	↗ +345%	↗ +279%	↗ +174%
Buildings	↗ +19%	↗ +15%	↗ +214%
Transport	↗ +789%	↗ +759%	↗ +294%
Other sectors	↗ +230%	↗ +14%	↘ -15%

Dominican Republic

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	25.177	n/a	2.313	n/a	0.150
2015	23.443	34.968	2.227	3.321	0.166
2005	19.404	28.751	2.101	3.112	0.233
1990	8.018	16.603	1.116	2.311	0.204

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +258%	↗ +241%	↗ +31%
Other industrial combustion	↗ +307%	↗ +268%	↗ +8%
Buildings	↗ +61%	↗ +51%	↗ +19%
Transport	↗ +149%	↗ +141%	→ +1%
Other sectors	↗ +356%	↗ +48%	↗ +30%

Ecuador

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	44.386	n/a	2.632	n/a	0.250
2015	44.085	70.623	2.731	4.374	0.254
2005	28.332	52.748	2.063	3.840	0.240
1990	17.557	45.502	1.718	4.453	0.230

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +537%	↗ +622%	↗ +96%
Other industrial combustion	↗ +76%	↗ +104%	↗ +7%
Buildings	↗ +334%	↗ +264%	↗ +39%
Transport	↗ +137%	↗ +116%	↗ +74%
Other sectors	↗ +60%	→ +3%	↗ +15%

Egypt

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	250.658	n/a	2.522	n/a	0.231
2015	238.039	322.743	2.538	3.442	0.251
2005	176.441	258.324	2.298	3.365	0.287
1990	90.783	146.055	1.581	2.544	0.274

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +333%	↗ +284%	↗ +65%
Other industrial combustion	↗ +40%	↗ +30%	↘ -13%
Buildings	↗ +89%	↗ +98%	↗ +8%
Transport	↗ +204%	↗ +241%	↗ +79%
Other sectors	↗ +246%	↗ +81%	↗ +9%

El Salvador

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	7.900	n/a	1.232	n/a	0.166
2015	7.404	11.655	1.173	1.846	0.168
2005	6.940	11.774	1.151	1.953	0.195
1990	2.633	6.922	0.501	1.317	0.111

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +972%	↗ +975%	↗ +8%
Other industrial combustion	↗ +68%	↗ +41%	↘ -37%
Buildings	↗ +341%	↗ +70%	↘ -8%
Transport	↗ +177%	↗ +166%	↗ +10%
Other sectors	↗ +123%	↗ +13%	→ 0%

Equatorial Guinea

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	3.312	n/a	2.520	n/a	0.121
2015	3.481	7.483	2.962	6.367	0.108
2005	3.371	9.606	4.451	12.684	0.142
1990	0.097	0.243	0.228	0.569	0.228

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +2150%	↗ +2088%	↗ +279%
Other industrial combustion	↗ +4022%	↗ +4187%	↗ +7999%
Buildings	↗ +348%	↗ +99%	↗ +97%
Transport	↗ +867%	↗ +823%	↗ +550%
Other sectors	↗ +69868%	↗ +5994%	↘ -39%

Eritrea

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.857	n/a	0.165	n/a	0.127
2015	0.694	6.029	0.143	1.244	0.103
2005	0.688	5.484	0.173	1.382	0.106
1990	0.214	3.547	0.069	1.139	0.084

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+2031%	+1376%	+16%
Other industrial combustion	-62%	-66%	-50%
Buildings	+1340%	+38%	+4%
Transport	+73%	+59%	-28%
Other sectors	+378%	+65%	+12%

Estonia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	24.326	n/a	18.615	n/a	0.594
2015	19.818	24.393	15.067	18.545	0.546
2005	19.643	22.826	14.490	16.838	0.636
1990	38.468	43.457	24.576	27.764	2.309

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -42%	↘ -55%	↘ -8%
Other industrial combustion	↘ -81%	↘ -84%	↘ -40%
Buildings	↘ -69%	↘ -65%	↗ +6%
Transport	→ +5%	→ -4%	↗ +7%
Other sectors	↗ +103%	↗ +21%	↗ +49%

Eswatini

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.230	n/a	0.884	n/a	0.114
2015	1.143	2.847	0.866	2.158	0.112
2005	1.541	3.531	1.394	3.193	0.207
1990	0.602	2.468	0.699	2.866	0.130

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +93%	↗ +72%	↘ -48%
Other industrial combustion	↗ +58%	↗ +50%	↘ -22%
Buildings	↗ +55%	↗ +18%	↘ -24%
Transport	↗ +222%	↗ +209%	↗ +78%
Other sectors	↘ -40%	↘ -9%	↘ -13%

Ethiopia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	16.802	n/a	0.156	n/a	0.086
2015	13.467	150.843	0.135	1.510	0.088
2005	5.329	99.574	0.069	1.298	0.095
1990	2.390	64.018	0.050	1.331	0.076

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	-98%	-98%	-67%
Other industrial combustion	+492%	+403%	+200%
Buildings	+428%	+158%	+33%
Transport	+524%	+430%	+126%
Other sectors	+2123%	+125%	+50%

Falkland Islands

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.040	n/a	13.591	n/a	n/a
2015	0.038	0.182	13.016	62.704	n/a
2005	0.016	0.158	5.603	53.862	n/a
1990	0.013	0.169	6.553	85.087	n/a

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+276%	+257%	+140%
Other industrial combustion	+241%	+224%	+81%
Buildings	-9%	-10%	+102%
Transport	+582%	+541%	+133%
Other sectors	+65%	-8%	+1%

Faroes

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.002	n/a	0.039	n/a	0.001
2015	0.002	0.027	0.039	0.561	0.001
2005	0.002	0.028	0.038	0.589	0.001
1990	0.001	0.028	0.031	0.593	0.001

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	n/a	n/a	n/a
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	→ 0%	→ 0%
Transport	n/a	n/a	n/a
Other sectors	↗ +29%	→ -3%	→ -3%

Fiji

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.316	n/a	1.442	n/a	0.152
2015	1.221	2.510	1.368	2.813	0.160
2005	2.174	3.490	2.645	4.247	0.356
1990	1.028	2.175	1.412	2.985	0.240

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +34%	↗ +26%	↘ -62%
Other industrial combustion	↘ -34%	↘ -40%	↘ -76%
Buildings	↘ -70%	↘ -70%	↘ -24%
Transport	↗ +127%	↗ +111%	↘ -11%
Other sectors	↗ +129%	↗ +16%	→ -1%

Finland

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	48.797	n/a	8.804	n/a	0.211
2015	45.832	76.146	8.360	13.890	0.214
2005	58.361	86.481	11.098	16.445	0.284
1990	57.242	83.023	11.457	16.617	0.397

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	→	0%	↘	-6%	↘	-27%
Other industrial combustion	↘	-32%	↘	-30%	↘	-20%
Buildings	↘	-55%	↘	-51%	↘	-29%
Transport	↗	+6%	↘	-8%	↘	-14%
Other sectors	↗	+15%	↗	+17%	↗	+9%

France and Monaco

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	323.279	n/a	4.956	n/a	0.122
2015	323.363	449.738	5.017	6.977	0.128
2005	408.428	541.319	6.670	8.840	0.178
1990	386.327	543.162	6.782	9.536	0.225

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -27%	↘ -30%	↘ -44%
Other industrial combustion	↘ -38%	↘ -35%	↘ -18%
Buildings	↘ -19%	↘ -19%	↘ -30%
Transport	↗ +8%	↗ +7%	↘ -6%
Other sectors	↘ -15%	↘ -19%	↘ -6%

French Guiana

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.766	n/a	2.645	n/a	n/a
2015	0.719	0.888	2.675	3.303	n/a
2005	0.491	0.637	2.410	3.123	n/a
1990	0.371	0.474	3.201	4.094	n/a

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +142%	↗ +130%	↗ +54%
Other industrial combustion	↗ +120%	↗ +117%	↗ +16%
Buildings	↘ -41%	↘ -38%	↗ +30%
Transport	↗ +339%	↗ +312%	↗ +50%
Other sectors	↗ +2192%	↗ +85%	↗ +17%

French Polynesia

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.574	n/a	2.008	n/a	0.068
2015	0.539	0.726	1.942	2.615	0.068
2005	0.785	0.972	3.080	3.815	0.141
1990	0.839	1.006	4.229	5.072	0.175

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-32%	↘	-36%	↘	-52%
Other industrial combustion	→	-3%	↘	-11%	↘	-71%
Buildings	↘	-84%	↘	-85%	→	-4%
Transport	↗	+16%	↗	+8%	↗	+13%
Other sectors	→	+4%	↗	+15%	→	0%

Gabon

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	6.594	n/a	3.189	n/a	0.195
2015	6.492	15.334	3.363	7.944	0.200
2005	6.550	18.064	4.668	12.874	0.278
1990	6.172	28.871	6.481	30.320	0.332

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +268%	↗ +228%	↗ +46%
Other industrial combustion	↗ +601%	↗ +648%	↗ +107%
Buildings	↗ +154%	↗ +106%	↗ +48%
Transport	↗ +154%	↗ +148%	↗ +118%
Other sectors	↘ -39%	↘ -59%	↘ -28%

Georgia

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	10.890	n/a	2.787	n/a	0.288
2015	10.141	15.941	2.566	4.034	0.302
2005	4.979	11.386	1.110	2.538	0.243
1990	34.745	42.801	6.422	7.911	0.906

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -93%	↘ -93%	↗ +44%
Other industrial combustion	↘ -77%	↘ -78%	↗ +146%
Buildings	↘ -58%	↘ -63%	↗ +76%
Transport	↗ +10%	→ -3%	↗ +139%
Other sectors	↗ +42%	↘ -19%	→ +2%

Germany

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	752.655	n/a	9.146	n/a	0.197
2015	786.436	928.691	9.625	11.366	0.219
2005	837.327	993.712	10.252	12.167	0.269
1990	1018.059	1241.599	12.868	15.693	0.410

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -24%	↘ -15%	↘ -8%
Other industrial combustion	↘ -41%	↘ -37%	→ -2%
Buildings	↘ -36%	↘ -39%	↘ -17%
Transport	→ -2%	→ -2%	→ +1%
Other sectors	↘ -23%	↘ -34%	→ -4%

Ghana

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	20.085	n/a	0.682	n/a	0.160
2015	17.051	35.575	0.618	1.290	0.162
2005	7.329	18.221	0.340	0.846	0.134
1990	3.195	10.975	0.218	0.750	0.114

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗	↗ +328%	↗ +225%
Other industrial combustion	↗ +443%	↗ +370%	↗ +57%
Buildings	↗ +127%	↗ +13%	↗ +31%
Transport	↗ +422%	↗ +387%	↗ +119%
Other sectors	↗ +759%	↗ +180%	↗ +87%

Gibraltar

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.681	n/a	19.618	n/a	0.490
2015	0.575	0.596	16.789	17.403	0.512
2005	0.406	0.423	12.662	13.194	0.406
1990	0.144	0.156	4.930	5.345	0.221

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +169%	↗ +168%	↗ +46%
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	→ 0%	→ 0%
Transport	↗ +522%	↗ +394%	↗ +40%
Other sectors	↘ -40%	↗ +39%	↗ +17%

Greece

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	72.404	n/a	6.498	n/a	0.268
2015	70.785	88.714	6.310	7.908	0.271
2005	104.850	128.055	9.278	11.331	0.323
1990	79.201	102.230	7.728	9.975	0.375

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-11%	↘	-13%	↘	-36%
Other industrial combustion	→	-1%	↘	-11%	↘	-13%
Buildings	↘	-14%	↘	-15%	↘	-50%
Transport	↗	+18%	↗	+11%	↘	-24%
Other sectors	↘	-46%	↘	-26%	↘	-26%

Greenland

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.529	n/a	9.351	n/a	0.172
2015	0.518	0.548	9.182	9.715	0.188
2005	0.631	0.662	11.078	11.625	0.283
1990	0.003	0.025	0.055	0.446	0.002

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↗		↗	+10%	↘	-24%
Other industrial combustion	↗		→	+3%	↘	-55%
Buildings	↗		↗	+30%	↘	-13%
Transport	↗		↗	+9%	→	-4%
Other sectors	↗	+18%	↗	+22%	→	-2%

Grenada

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.288	n/a	2.656	n/a	0.185
2015	0.280	0.329	2.620	3.076	0.205
2005	0.125	0.168	1.219	1.634	0.102
1990	0.075	0.110	0.775	1.145	0.107

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+378%	+364%	+133%
Other industrial combustion	+333%	+310%	+66%
Buildings	+16%	+18%	+88%
Transport	+765%	+736%	+127%
Other sectors	+38%	+29%	+14%

Guadeloupe

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	2.350	n/a	5.232	n/a	n/a
2015	2.252	2.765	4.999	6.139	n/a
2005	1.035	1.526	2.354	3.471	n/a
1990	0.875	1.290	2.267	3.344	n/a

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +265%	↗ +254%	↗ +137%
Other industrial combustion	↗ +231%	↗ +216%	↗ +79%
Buildings	↘ -12%	↘ -11%	↗ +100%
Transport	↗ +561%	↗ +536%	↗ +131%
Other sectors	↗ +18%	↗ +13%	↗ +7%

Guatemala

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	20.508	n/a	1.189	n/a	0.158
2015	16.884	33.154	1.039	2.040	0.142
2005	11.698	23.467	0.893	1.792	0.142
1990	3.874	11.854	0.418	1.280	0.082

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+4234%	+2651%	+50%
Other industrial combustion	+169%	+155%	+19%
Buildings	+66%	+103%	+74%
Transport	+376%	+335%	+45%
Other sectors	+235%	+105%	+36%

Guinea

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	3.003	n/a	0.230	n/a	0.103
2015	2.518	20.121	0.208	1.664	0.118
2005	1.119	11.676	0.116	1.206	0.077
1990	1.074	7.079	0.178	1.172	0.126

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+372%	+300%	+130%
Other industrial combustion	+79%	+40%	+212%
Buildings	+60%	+25%	+13%
Transport	+245%	+191%	+115%
Other sectors	+144%	+232%	+76%

Guinea-Bissau

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.442	n/a	0.232	n/a	0.148
2015	0.376	2.775	0.212	1.568	0.147
2005	0.289	2.023	0.210	1.465	0.157
1990	0.196	1.531	0.193	1.512	0.123

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+279%	+223%	+41%
Other industrial combustion	+44%	+14%	+96%
Buildings	+28%	+51%	+16%
Transport	+177%	+133%	+31%
Other sectors	+43%	+84%	+41%

Guyana

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.918	n/a	2.453	n/a	0.323
2015	1.666	4.933	2.168	6.420	0.306
2005	0.725	3.378	0.966	4.498	0.206
1990	0.337	2.634	0.454	3.544	0.158

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+535%	+500%	+136%
Other industrial combustion	+477%	+288%	+52%
Buildings	+54%	+38%	+85%
Transport	+1051%	+982%	+130%
Other sectors	+3716%	+44%	+25%

Haiti

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	3.650	n/a	0.328	n/a	0.198
2015	3.451	13.831	0.322	1.291	0.195
2005	2.234	11.057	0.241	1.194	0.154
1990	1.147	6.111	0.161	0.861	0.077

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+334%	+283%	+448%
Other industrial combustion	+229%	+215%	+53%
Buildings	+248%	+167%	+16%
Transport	+234%	+229%	+22%
Other sectors	+33%	+103%	+17%

Honduras

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	10.353	n/a	1.099	n/a	0.237
2015	9.974	19.822	1.113	2.212	0.258
2005	7.848	15.811	1.064	2.144	0.288
1990	2.373	8.909	0.479	1.798	0.149

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+15288%	+15360%	+50%
Other industrial combustion	+79%	+63%	-32%
Buildings	+19%	+46%	-5%
Transport	+297%	+292%	+82%
Other sectors	+390%	+56%	+20%

Hong Kong

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	45.313	n/a	6.100	n/a	0.106
2015	44.629	49.744	6.159	6.865	0.114
2005	41.918	46.746	6.139	6.846	0.150
1990	34.182	38.540	5.912	6.666	0.222

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +9%	↗ +14%	↘ -6%
Other industrial combustion	↗ +144%	↗ +138%	↗ +81%
Buildings	↗ +23%	↗ +24%	↘ -9%
Transport	↗ +91%	↗ +59%	↗ +19%
Other sectors	↗ +27%	↗ +11%	↗ +8%

Hungary

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	52.145	n/a	5.382	n/a	0.189
2015	47.238	66.342	4.828	6.781	0.191
2005	59.957	81.305	5.944	8.061	0.265
1990	71.999	114.471	6.938	11.030	0.444

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-42%	↘	-43%	↘	-35%
Other industrial combustion	↘	-49%	↘	-54%	→	+5%
Buildings	↘	-39%	↘	-42%	↘	-32%
Transport	↗	+63%	↗	+40%	→	+1%
Other sectors	↘	-11%	↘	-52%	↘	-12%

Iceland

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	4.088	n/a	12.102	n/a	0.238
2015	3.831	4.976	11.602	15.067	0.262
2005	3.174	4.275	10.759	14.494	0.263
1990	2.352	4.416	9.221	17.313	0.307

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +7%	→ 0%	↘ -51%
Other industrial combustion	→ -4%	→ -5%	↘ -37%
Buildings	→ +2%	→ -4%	↘ -6%
Transport	↗ +62%	↗ +34%	↗ +26%
Other sectors	↗ +297%	↗ +16%	↗ +44%

India

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	2621.919	n/a	1.936	n/a	0.281
2015	2286.821	3346.954	1.747	2.557	0.304
2005	1210.757	2128.191	1.058	1.860	0.309
1990	594.848	1363.604	0.684	1.567	0.357

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+462%	+396%	+90%
Other industrial combustion	+309%	+246%	+111%
Buildings	+127%	+81%	+26%
Transport	+348%	+293%	+122%
Other sectors	+293%	+53%	+22%

Indonesia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	557.528	n/a	2.090	n/a	0.179
2015	489.337	897.159	1.895	3.475	0.183
2005	360.193	651.495	1.589	2.874	0.233
1990	162.749	425.285	0.897	2.344	0.194

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +804%	↗ +664%	↗ +85%
Other industrial combustion	↗ +93%	↗ +104%	→ +2%
Buildings	↗ +32%	↗ +25%	↘ -23%
Transport	↗ +374%	↗ +300%	↗ +82%
Other sectors	↗ +119%	↗ +56%	↗ +38%

Iran

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	727.810	n/a	8.874	n/a	0.492
2015	623.255	815.652	7.853	10.278	0.476
2005	468.251	645.283	6.649	9.163	0.426
1990	204.514	371.023	3.637	6.599	0.319

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+383%	+331%	+59%
Other industrial combustion	+246%	+190%	+37%
Buildings	+212%	+152%	+9%
Transport	+256%	+250%	+31%
Other sectors	+202%	+31%	+16%

Iraq

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	188.097	n/a	4.781	n/a	0.314
2015	160.504	238.146	4.444	6.594	0.302
2005	89.462	137.579	3.312	5.094	0.304
1990	69.261	126.173	3.965	7.223	0.344

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +591%	↗ +470%	↗ +225%
Other industrial combustion	↗ +125%	↗ +86%	↗ +91%
Buildings	↗ +74%	↗ +34%	↘ -34%
Transport	↗ +23%	↗ +16%	→ -3%
Other sectors	↗ +86%	↗ +44%	↗ +65%

Ireland

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	37.206	n/a	7.745	n/a	0.109
2015	37.845	65.403	8.052	13.915	0.133
2005	47.278	75.468	11.222	17.913	0.244
1990	32.851	57.500	9.204	16.110	0.432

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	0%	+10%	-22%
Other industrial combustion	+6%	+3%	-28%
Buildings	-25%	-23%	-22%
Transport	+148%	+124%	-13%
Other sectors	-20%	+12%	-3%

Israel and Palestine, State of

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	67.056	n/a	7.933	n/a	0.224
2015	66.894	82.243	8.295	10.198	0.249
2005	62.148	73.425	9.412	11.120	0.337
1990	35.291	42.366	7.842	9.414	0.365

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+109%	+122%	+2%
Other industrial combustion	-6%	-11%	+65%
Buildings	-8%	-12%	-61%
Transport	+128%	+109%	+25%
Other sectors	+111%	+111%	+38%

Italy, San Marino and the Holy See

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	344.814	n/a	5.816	n/a	0.160
2015	354.378	427.521	5.956	7.185	0.170
2005	497.694	584.385	8.463	9.937	0.228
1990	430.581	518.639	7.537	9.079	0.244

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -18%	↘ -12%	↘ -31%
Other industrial combustion	↘ -51%	↘ -49%	↘ -44%
Buildings	→ -5%	→ -4%	↘ -19%
Transport	→ +5%	↗ +7%	↘ -16%
Other sectors	↘ -39%	↘ -28%	↘ -26%

Jamaica

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	7.947	n/a	2.742	n/a	0.328
2015	7.396	10.343	2.575	3.601	0.318
2005	10.631	13.916	3.873	5.070	0.460
1990	7.525	10.077	3.104	4.157	0.426

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+49%	+40%	-38%
Other industrial combustion	-37%	-40%	-29%
Buildings	-16%	-16%	-37%
Transport	+69%	+56%	-23%
Other sectors	+99%	+19%	-7%

Japan

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1198.546	n/a	9.424	n/a	0.241
2015	1227.729	1359.553	9.594	10.624	0.255
2005	1276.866	1409.082	9.949	10.980	0.280
1990	1149.375	1296.356	9.231	10.411	0.304

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +40%	↗ +42%	↗ +11%
Other industrial combustion	↘ -24%	↘ -20%	↘ -11%
Buildings	↘ -11%	↘ -7%	↘ -21%
Transport	→ -1%	→ +4%	↘ -11%
Other sectors	↘ -16%	↘ -16%	↘ -6%

Jordan

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	26.044	n/a	2.630	n/a	0.315
2015	25.823	33.027	2.819	3.606	0.331
2005	19.782	24.233	3.462	4.241	0.393
1990	10.208	12.721	2.867	3.573	0.455

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+221%	+273%	+74%
Other industrial combustion	+73%	+30%	-29%
Buildings	+43%	+37%	-28%
Transport	+203%	+185%	+61%
Other sectors	+174%	+173%	+47%

Kazakhstan

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	309.255	n/a	16.804	n/a	0.684
2015	258.830	360.129	14.582	20.289	0.627
2005	172.767	233.121	11.117	15.000	0.712
1990	253.449	352.032	15.323	21.283	1.188

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+1%	-21%	+9%
Other industrial combustion	+46%	+15%	+72%
Buildings	-20%	-9%	+146%
Transport	+19%	+2%	+54%
Other sectors	+109%	+18%	+77%

Kenya

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	20.957	n/a	0.411	n/a	0.133
2015	16.963	85.572	0.359	1.812	0.127
2005	8.854	55.694	0.246	1.545	0.110
1990	6.468	40.611	0.276	1.735	0.116

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+1070%	+544%	-27%
Other industrial combustion	+139%	+105%	+66%
Buildings	+50%	+79%	+33%
Transport	+259%	+200%	+184%
Other sectors	+309%	+104%	+49%

Kiribati

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.032	n/a	0.272	n/a	0.136
2015	0.030	0.072	0.269	0.644	0.138
2005	0.033	0.065	0.353	0.705	0.180
1990	0.020	0.043	0.278	0.587	0.143

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+60%	+52%	-35%
Other industrial combustion	+129%	+110%	-60%
Buildings	-63%	-64%	+30%
Transport	+173%	+154%	+53%
Other sectors	+33%	+88%	+29%

Kuwait

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	100.342	n/a	23.907	n/a	0.370
2015	95.516	129.778	24.269	32.974	0.354
2005	75.379	108.200	33.110	47.527	0.354
1990	32.609	54.491	15.531	25.953	1.189

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +142%	↗ +157%	↗ +20%
Other industrial combustion	↗ +292%	↗ +259%	↗ +41%
Buildings	↗ +296%	↗ +257%	↗ +37%
Transport	↗ +344%	↗ +344%	↗ +55%
Other sectors	↗ +207%	↗ +65%	→ +2%

Kyrgyzstan

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	10.133	n/a	1.652	n/a	0.465
2015	10.682	19.658	1.821	3.351	0.555
2005	5.475	11.853	1.079	2.335	0.447
1990	23.696	33.420	5.419	7.643	1.553

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -42%	↘ -26%	↗ +39%
Other industrial combustion	↘ -88%	↘ -78%	↗ +153%
Buildings	↘ -30%	↘ -41%	↗ +147%
Transport	↘ -51%	↘ -56%	↗ +145%
Other sectors	↘ -14%	↘ -9%	↗ +39%

Laos

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	3.613	n/a	0.519	n/a	0.077
2015	2.499	14.931	0.375	2.241	0.065
2005	1.047	10.537	0.182	1.831	0.058
1990	0.215	7.705	0.050	1.809	0.030

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+1619%	+488%	+29%
Other industrial combustion	+9860%	+7351%	+137%
Buildings	-69%	+65%	+1%
Transport	+135%	+119%	+15%
Other sectors	+5534%	+76%	+40%

Latvia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	7.824	n/a	4.054	n/a	0.154
2015	7.696	13.452	3.862	6.751	0.169
2005	8.242	13.081	3.660	5.809	0.210
1990	20.141	27.567	7.559	10.346	0.896

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -80%	↘ -81%	↘ -15%
Other industrial combustion	↘ -65%	↘ -70%	↘ -31%
Buildings	↘ -67%	↘ -61%	↘ -12%
Transport	↘ -8%	→ -2%	→ +1%
Other sectors	↘ -22%	↘ -25%	↗ +24%

Lebanon

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	25.593	n/a	4.200	n/a	0.322
2015	25.135	29.284	4.295	5.005	0.324
2005	16.514	19.399	4.142	4.866	0.334
1990	5.977	7.868	2.211	2.911	0.382

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+368%	+365%	+76%
Other industrial combustion	+201%	+222%	-37%
Buildings	+507%	+465%	+132%
Transport	+202%	+196%	+37%
Other sectors	+485%	+182%	+34%

Lesotho

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.719	n/a	0.318	n/a	0.119
2015	0.693	2.856	0.319	1.313	0.117
2005	0.175	2.445	0.090	1.254	0.046
1990	0.100	1.970	0.062	1.228	0.045

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +1144%	↗ +1099%	↗ +336%
Other industrial combustion	↗ +372%	↗ +312%	↗ +488%
Buildings	↗ +322%	↗ +76%	↗ +23%
Transport	↗ +809%	↗ +772%	↗ +309%
Other sectors	↗ +14%	↗ +10%	↘ -7%

Liberia

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.245	n/a	0.256	n/a	0.222
2015	1.061	3.800	0.236	0.844	0.194
2005	0.473	2.270	0.145	0.696	0.156
1990	0.416	1.545	0.198	0.737	0.152

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+382%	+311%	+156%
Other industrial combustion	+83%	+49%	+248%
Buildings	+64%	+145%	+55%
Transport	+253%	+197%	+139%
Other sectors	+292%	+136%	+51%

Libya

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	56.483	n/a	8.729	n/a	0.460
2015	51.777	68.534	8.304	10.992	0.559
2005	56.934	89.328	9.829	15.421	0.377
1990	37.143	80.956	8.372	18.247	0.390

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +168%	↗ +211%	↗ +21%
Other industrial combustion	↘ -83%	↘ -86%	↘ -80%
Buildings	→ -3%	↘ -10%	↘ -52%
Transport	↗ +345%	↗ +189%	↗ +40%
Other sectors	↘ -60%	↘ -58%	↘ -50%

Lithuania

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	14.415	n/a	5.011	n/a	0.166
2015	13.416	24.292	4.576	8.285	0.171
2005	14.079	23.668	4.210	7.077	0.229
1990	35.317	47.618	9.555	12.883	1.020

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -88%	↘ -86%	↘ -56%
Other industrial combustion	↘ -62%	↘ -64%	↘ -17%
Buildings	↘ -79%	↘ -82%	↘ -7%
Transport	→ +4%	↘ -9%	↗ +24%
Other sectors	↘ -7%	↘ -10%	↗ +23%

Luxembourg

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	9.954	n/a	16.862	n/a	0.175
2015	9.340	10.384	16.481	18.322	0.175
2005	12.156	13.166	26.550	28.757	0.295
1990	11.750	12.647	30.777	33.126	0.534

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-84%	↘	-72%	↘	-64%
Other industrial combustion	↘	-82%	↘	-81%	↘	-23%
Buildings	↗	+44%	↗	+22%	→	-5%
Transport	↗	+135%	↗	+119%	↘	-20%
Other sectors	↘	-28%	↘	-19%	↘	-6%

Macao

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.289	n/a	2.039	n/a	0.019
2015	1.104	1.291	1.838	2.149	0.018
2005	1.624	1.807	3.365	3.744	0.052
1990	0.982	1.120	2.856	3.257	0.071

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+3%	-3%	-60%
Other industrial combustion	+34%	+23%	-73%
Buildings	-77%	-78%	-20%
Transport	+73%	+61%	-6%
Other sectors	+1995%	+156%	+98%

Madagascar

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	4.431	n/a	0.169	n/a	0.116
2015	3.823	29.045	0.158	1.199	0.115
2005	2.220	26.268	0.121	1.433	0.087
1990	0.700	23.471	0.060	2.024	0.037

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +1824%	↗ +1497%	↗ +226%
Other industrial combustion	↗ +258%	↗ +188%	↗ +124%
Buildings	↗ +235%	↗ +42%	↘ -15%
Transport	↗ +369%	↗ +323%	↗ +11%
Other sectors	↗ +237%	↗ +11%	↗ +6%

Malawi

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.669	n/a	0.087	n/a	0.079
2015	1.443	10.772	0.082	0.613	0.075
2005	1.437	6.988	0.110	0.536	0.131
1990	0.457	4.582	0.048	0.486	0.065

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+597%	+493%	-16%
Other industrial combustion	+136%	+92%	+26%
Buildings	+117%	+13%	-1%
Transport	+296%	+257%	+27%
Other sectors	+164%	+140%	+70%

Malaysia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	257.844	n/a	8.047	n/a	0.290
2015	249.584	318.519	8.124	10.367	0.325
2005	182.502	241.904	7.112	9.427	0.383
1990	57.840	95.642	3.207	5.302	0.304

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+582%	+542%	+89%
Other industrial combustion	+171%	+190%	-12%
Buildings	+174%	+195%	+42%
Transport	+337%	+322%	+51%
Other sectors	+301%	+112%	+14%

Maldives

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.874	n/a	1.966	n/a	0.124
2015	0.820	0.916	1.959	2.190	0.142
2005	0.481	0.549	1.509	1.721	0.163
1990	0.066	0.099	0.294	0.445	0.038

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+1255%	+1185%	+20%
Other industrial combustion	+1839%	+1676%	-27%
Buildings	+209%	+198%	+134%
Transport	+2212%	+2050%	+182%
Other sectors	+186%	+166%	+36%

Mali

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.099	n/a	0.058	n/a	0.028
2015	0.901	30.010	0.052	1.718	0.027
2005	0.547	20.445	0.043	1.597	0.024
1990	0.385	12.550	0.046	1.483	0.036

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +114%	↗ +84%	↗ +27%
Other industrial combustion	↗ +28%	→ +1%	↗ +26%
Buildings	↗ +113%	↗ +32%	→ +5%
Transport	↗ +154%	↗ +114%	↗ +27%
Other sectors	↗ +655%	↗ +146%	↗ +49%

Malta

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.506	n/a	3.485	n/a	0.082
2015	1.704	2.082	3.986	4.869	0.111
2005	2.769	3.135	6.808	7.707	0.261
1990	2.352	2.520	6.453	6.916	0.411

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -64%	↘ -52%	↘ -64%
Other industrial combustion	↗	→ +3%	→ +3%
Buildings	↗ +98%	↗ +99%	↗ +201%
Transport	↗ +30%	↗ +29%	↗ +79%
Other sectors	↗ +81%	↗ +120%	↗ +7%

Martinique

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	2.456	n/a	6.377	n/a	n/a
2015	2.371	2.606	6.146	6.753	n/a
2005	1.120	1.349	2.821	3.398	n/a
1990	0.944	1.191	2.633	3.323	n/a

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +259%	↗ +249%	↗ +133%
Other industrial combustion	↗ +226%	↗ +217%	↗ +76%
Buildings	↘ -13%	↘ -13%	↗ +97%
Transport	↗ +550%	↗ +525%	↗ +127%
Other sectors	↘ -34%	↘ -25%	↘ -8%

Mauritania

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	3.239	n/a	0.714	n/a	0.198
2015	2.685	11.993	0.642	2.868	0.178
2005	2.911	11.144	0.930	3.560	0.311
1990	0.684	6.163	0.337	3.036	0.120

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +564%	↗ +462%	↘ -9%
Other industrial combustion	↗ +177%	↗ +131%	↗ +28%
Buildings	↗ +148%	↗ +85%	↘ -35%
Transport	↗ +438%	↗ +354%	↘ -15%
Other sectors	↗ +831%	↗ +75%	↗ +15%

Mauritius

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	4.384	n/a	3.456	n/a	0.164
2015	3.990	4.664	3.168	3.703	0.167
2005	2.983	3.660	2.441	2.995	0.189
1990	1.191	1.844	1.128	1.746	0.148

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +525%	↗ +445%	↗ +52%
Other industrial combustion	↗ +72%	↗ +82%	→ -3%
Buildings	↗ +80%	↗ +52%	→ +5%
Transport	↗ +154%	↗ +134%	↗ +21%
Other sectors	→ -4%	→ +3%	→ -1%

Mexico

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	495.778	n/a	3.792	n/a	0.217
2015	487.734	770.319	3.874	6.119	0.229
2005	448.583	699.923	4.135	6.453	0.262
1990	290.472	459.249	3.403	5.380	0.255

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +137%	↗ +124%	↗ +6%
Other industrial combustion	↗ +32%	↗ +39%	→ +1%
Buildings	↗ +15%	↗ +23%	→ +2%
Transport	↗ +73%	↗ +80%	↗ +16%
Other sectors	↗ +75%	↗ +63%	↗ +14%

Moldova

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	8.620	n/a	2.133	n/a	0.375
2015	8.240	13.087	2.027	3.219	0.407
2005	8.139	13.020	1.957	3.132	0.565
1990	31.957	40.116	7.323	9.192	2.131

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-71%	↘	-73%	→	-4%
Other industrial combustion	↘	-57%	↘	-63%	↘	-23%
Buildings	↘	-90%	↘	-89%	↘	-22%
Transport	↘	-27%	↘	-21%	↗	+61%
Other sectors	↘	-44%	↘	-42%	→	+2%

Mongolia

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	19.534	n/a	6.257	n/a	0.505
2015	17.380	45.393	5.838	15.248	0.512
2005	11.083	24.206	4.387	9.581	0.725
1990	13.151	25.351	6.021	11.607	1.175

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +100%	↗ +78%	↗ +54%
Other industrial combustion	↘ -48%	↘ -48%	↗ +97%
Buildings	↗ +39%	↗ +11%	↗ +21%
Transport	↗ +23%	↗ +30%	↗ +94%
Other sectors	↗ +7%	↗ +127%	↗ +116%

Morocco

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	68.308	n/a	1.887	n/a	0.245
2015	61.534	84.102	1.768	2.417	0.239
2005	44.368	63.878	1.454	2.093	0.267
1990	22.386	39.175	0.900	1.575	0.228

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+189%	+183%	+33%
Other industrial combustion	+50%	+48%	+18%
Buildings	+322%	+238%	+48%
Transport	+368%	+307%	+56%
Other sectors	+235%	+49%	+20%

Mozambique

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	9.884	n/a	0.324	n/a	0.284
2015	6.592	25.966	0.235	0.927	0.210
2005	2.703	15.543	0.129	0.743	0.174
1990	1.183	8.377	0.089	0.632	0.236

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+1130%	+1056%	+7085%
Other industrial combustion	+547%	+402%	+167%
Buildings	+506%	+80%	+29%
Transport	+607%	+319%	+146%
Other sectors	+1885%	+213%	+54%

Myanmar/Burma

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	32.654	n/a	0.606	n/a	0.103
2015	25.181	129.734	0.481	2.476	0.095
2005	11.180	102.152	0.231	2.107	0.101
1990	4.859	68.690	0.120	1.691	0.161

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+447%	+283%	+103%
Other industrial combustion	+317%	+370%	+121%
Buildings	+58092%	+127%	+58%
Transport	+756%	+675%	+122%
Other sectors	+89%	+64%	+15%

Namibia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	4.508	n/a	1.742	n/a	0.186
2015	4.120	11.385	1.699	4.694	0.170
2005	2.504	10.111	1.232	4.975	0.168
1990	1.542	6.640	1.090	4.694	0.188

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -81%	↘ -82%	↘ -9%
Other industrial combustion	→ +1%	→ -1%	↗ +57%
Buildings	↗ +332%	↗ +262%	↗ +89%
Transport	↗ +258%	↗ +235%	↗ +36%
Other sectors	↗ +1818%	↗ +47%	→ -2%

Nepal

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	10.309	n/a	0.348	n/a	0.135
2015	6.542	41.807	0.228	1.459	0.099
2005	3.298	34.826	0.129	1.358	0.076
1990	1.066	28.944	0.057	1.544	0.047

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	n/a	n/a	↘
Other industrial combustion	↗ +1399%	↗ +989%	↗ +117%
Buildings	↗ +466%	↗ +82%	↗ +9%
Transport	↗ +1098%	↗ +571%	↗ +171%
Other sectors	↗ +603%	↗ +26%	↗ +14%

Netherlands

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	162.292	n/a	9.499	n/a	0.189
2015	168.998	207.933	9.977	12.276	0.213
2005	181.425	225.725	11.085	13.791	0.254
1990	161.282	220.479	10.777	14.733	0.334

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +28%	↗ +48%	→ +4%
Other industrial combustion	↘ -16%	↘ -18%	↘ -8%
Buildings	↘ -16%	↘ -20%	↘ -16%
Transport	↗ +10%	↗ +11%	↘ -13%
Other sectors	↘ -10%	↘ -29%	↘ -12%

New Caledonia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	7.337	n/a	26.221	n/a	1.169
2015	5.029	5.822	18.687	21.635	0.855
2005	2.453	2.912	10.543	12.517	0.593
1990	1.623	2.030	9.558	11.958	0.556

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+789%	+248%	+30%
Other industrial combustion	+442%	+375%	+212%
Buildings	-69%	-70%	+24%
Transport	+134%	+117%	+46%
Other sectors	+382%	+115%	+81%

New Zealand

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	36.411	n/a	7.666	n/a	0.205
2015	35.846	84.376	7.768	18.285	0.222
2005	36.686	85.054	8.871	20.568	0.278
1990	23.894	68.208	7.031	20.072	0.299

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +26%	↗ +55%	↘ -47%
Other industrial combustion	↗ +18%	↗ +18%	↗ +26%
Buildings	↗ +22%	↗ +20%	↘ -6%
Transport	↗ +78%	↗ +65%	↗ +6%
Other sectors	↗ +139%	↗ +14%	→ +4%

Nicaragua

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	6.251	n/a	0.995	n/a	0.197
2015	5.528	18.671	0.909	3.070	0.183
2005	4.311	14.102	0.801	2.622	0.213
1990	1.945	9.983	0.469	2.409	0.157

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+227%	+227%	+12%
Other industrial combustion	+108%	+75%	-9%
Buildings	+318%	+87%	+39%
Transport	+230%	+198%	+53%
Other sectors	+356%	+68%	+35%

Niger

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	2.266	n/a	0.102	n/a	0.108
2015	2.048	31.995	0.103	1.608	0.113
2005	0.796	21.732	0.058	1.596	0.077
1990	0.875	12.432	0.109	1.552	0.122

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +36%	↗ +41%	↗ +112%
Other industrial combustion	↗ +65%	↗ +34%	↗ +243%
Buildings	↘ -49%	↗ +12%	↗ +55%
Transport	↗ +620%	↗ +522%	↗ +200%
Other sectors	↗ +109%	↗ +167%	↗ +43%

Nigeria

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	110.686	n/a	0.565	n/a	0.106
2015	96.592	309.906	0.533	1.710	0.094
2005	101.276	311.705	0.729	2.243	0.177
1990	74.719	330.453	0.784	3.469	0.234

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +122%	↗ +128%	↗ +63%
Other industrial combustion	↗ +223%	↗ +194%	↗ +33%
Buildings	↗ +126%	↗ +92%	↗ +35%
Transport	↗ +177%	↗ +110%	↘ -14%
Other sectors	↘ -24%	↘ -26%	↘ -8%

North Korea

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	31.591	n/a	1.234	n/a	0.271
2015	25.756	52.864	1.020	2.094	0.228
2005	79.572	109.461	3.329	4.579	0.654
1990	131.367	161.403	6.473	7.954	0.730

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -72%	↘ -77%	↘ -70%
Other industrial combustion	↘ -79%	↘ -83%	↘ -72%
Buildings	↘ -73%	↘ -74%	↘ -70%
Transport	↘ -68%	↘ -70%	↗ +8%
Other sectors	↘ -73%	↘ -30%	↘ -8%

North Macedonia

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	8.074	n/a	3.872	n/a	0.287
2015	7.937	10.404	3.817	5.004	0.299
2005	9.711	12.245	4.714	5.944	0.502
1990	11.202	14.173	5.611	7.100	0.583

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-29%	↘	-28%	↘	-31%
Other industrial combustion	↘	-39%	↘	-34%	↘	-24%
Buildings	↘	-54%	↘	-37%	↘	-48%
Transport	↗	+150%	↗	+139%	↗	+81%
Other sectors	↘	-65%	↘	-45%	→	-5%

Norway

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	50.465	n/a	9.427	n/a	0.145
2015	45.821	71.856	8.812	13.819	0.138
2005	44.166	72.578	9.534	15.668	0.152
1990	37.324	62.772	8.788	14.779	0.206

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +450%	↗ +423%	↗ +195%
Other industrial combustion	↗ +37%	↗ +35%	→ +4%
Buildings	↘ -15%	↘ -35%	↘ -29%
Transport	↗ +42%	↗ +41%	↗ +9%
Other sectors	↗ +30%	→ 0%	↘ -8%

Oman

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	85.210	n/a	17.642	n/a	0.479
2015	78.796	104.501	18.762	24.882	0.471
2005	33.126	55.334	13.191	22.034	0.318
1990	15.578	41.221	8.597	22.747	0.245

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+409%	+383%	+89%
Other industrial combustion	+689%	+605%	+183%
Buildings	+447%	+424%	+85%
Transport	+632%	+674%	+261%
Other sectors	+215%	+29%	+33%

Pakistan

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	196.181	n/a	0.977	n/a	0.188
2015	168.181	405.400	0.888	2.141	0.189
2005	130.354	310.853	0.847	2.020	0.211
1990	64.307	190.308	0.597	1.767	0.195

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+187%	+194%	+27%
Other industrial combustion	+279%	+135%	+5%
Buildings	+113%	+91%	+35%
Transport	+173%	+196%	+50%
Other sectors	+244%	+94%	+33%

Palau

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.273	n/a	57.955	n/a	4.133
2015	1.195	1.238	56.144	58.148	3.945
2005	1.734	1.811	87.114	90.966	6.260
1990	2.155	2.275	142.826	150.776	11.586

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -9%	↘ -14%	↘ -51%
Other industrial combustion	↘ -53%	↘ -57%	↘ -70%
Buildings	↘ -88%	↘ -88%	→ -3%
Transport	↘ -12%	↘ -18%	↗ +14%
Other sectors	↘ -95%	↘ -68%	↘ -52%

Panama

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	11.747	n/a	2.822	n/a	0.124
2015	11.532	16.702	2.905	4.208	0.140
2005	7.204	12.226	2.163	3.671	0.181
1990	2.735	7.003	1.107	2.834	0.141

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+548%	+601%	+99%
Other industrial combustion	+247%	+284%	+27%
Buildings	+243%	+145%	+53%
Transport	+275%	+239%	+51%
Other sectors	+554%	+37%	+11%

Papua New Guinea

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	3.920	n/a	0.466	n/a	0.119
2015	3.698	7.454	0.467	0.941	0.119
2005	4.379	8.065	0.693	1.277	0.257
1990	2.307	3.858	0.535	0.894	0.225

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +75%	↗ +66%	↘ -32%
Other industrial combustion	↗ +121%	↗ +105%	↘ -55%
Buildings	↘ -53%	↘ -20%	→ -3%
Transport	↗ +168%	↗ +149%	↗ +64%
Other sectors	↗ +505%	↗ +164%	↘ -11%

Paraguay

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	7.528	n/a	1.091	n/a	0.090
2015	6.350	40.011	0.956	6.027	0.086
2005	3.937	26.422	0.679	4.559	0.084
1990	2.263	20.997	0.537	4.983	0.068

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-48%	↘	-68%	→	0%
Other industrial combustion	↘	-9%	→	-1%	↘	-24%
Buildings	↗	+75%	↘	-11%	↘	-8%
Transport	↗	+286%	↗	+227%	↗	+74%
Other sectors	↗	+166%	↗	+83%	↗	+51%

Peru

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	57.383	n/a	1.763	n/a	0.140
2015	53.704	87.741	1.712	2.796	0.145
2005	31.644	59.296	1.146	2.148	0.151
1990	21.044	43.229	0.964	1.981	0.181

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +400%	↗ +360%	↗ +119%
Other industrial combustion	↗ +104%	↗ +131%	↗ +26%
Buildings	→ +1%	↘ -6%	↗ +20%
Transport	↗ +227%	↗ +192%	↗ +107%
Other sectors	↗ +220%	↗ +63%	↗ +26%

Philippines

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	147.856	n/a	1.388	n/a	0.175
2015	119.262	208.424	1.173	2.049	0.171
2005	81.781	159.382	0.948	1.847	0.198
1990	43.701	106.322	0.705	1.716	0.176

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+634%	+457%	+79%
Other industrial combustion	+76%	+29%	+19%
Buildings	+178%	+39%	+24%
Transport	+160%	+124%	+22%
Other sectors	+171%	+57%	+19%

Poland

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	333.862	n/a	8.762	n/a	0.306
2015	304.536	397.267	7.959	10.382	0.317
2005	316.575	412.938	8.252	10.764	0.482
1990	371.395	513.608	9.785	13.532	0.948

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -31%	↘ -32%	↘ -10%
Other industrial combustion	↘ -22%	↘ -27%	↘ -12%
Buildings	↗ +7%	→ -3%	↘ -8%
Transport	↗ +194%	↗ +127%	↗ +34%
Other sectors	→ -2%	↘ -34%	→ -1%

Portugal

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	52.612	n/a	5.112	n/a	0.178
2015	52.358	70.705	5.026	6.786	0.190
2005	68.092	86.734	6.445	8.209	0.244
1990	43.679	60.356	4.388	6.064	0.217

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +23%	↗ +27%	↘ -25%
Other industrial combustion	→ +1%	↘ -13%	↘ -20%
Buildings	↗ +12%	→ +4%	↘ -39%
Transport	↗ +64%	↗ +62%	↘ -17%
Other sectors	↘ -22%	↗ +6%	↘ -6%

Puerto Rico

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	3.176	n/a	0.868	n/a	0.028
2015	2.790	4.828	0.759	1.314	0.023
2005	2.271	4.331	0.603	1.150	0.017
1990	2.064	4.517	0.587	1.284	0.026

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +43%	↗ +33%	↗ +22%
Other industrial combustion	↘ -89%	↘ -90%	↘ -67%
Buildings	↗ +29%	↗ +40%	→ -2%
Transport	↗ +46%	↗ +43%	↗ +7%
Other sectors	↗ +87%	→ -4%	↗ +9%

Qatar

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	102.907	n/a	38.187	n/a	0.329
2015	97.834	164.117	39.425	66.135	0.329
2005	43.165	71.227	49.910	82.357	0.455
1990	17.005	31.447	35.691	66.003	0.330

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+309%	+287%	+126%
Other industrial combustion	+723%	+686%	+129%
Buildings	+251%	+268%	+111%
Transport	+900%	+908%	+215%
Other sectors	+338%	+343%	+121%

Réunion

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	2.980	n/a	3.374	n/a	n/a
2015	2.676	3.350	3.099	3.880	n/a
2005	2.367	3.060	2.990	3.865	n/a
1990	1.010	1.318	1.655	2.158	n/a

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +452%	↗ +400%	↗ +27%
Other industrial combustion	↗ +110%	↗ +85%	↗ +79%
Buildings	↗ +87%	↗ +68%	↘ -23%
Transport	↗ +304%	↗ +264%	↗ +18%
Other sectors	↘ -15%	↗ +68%	↘ -11%

Romania

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	80.172	n/a	4.094	n/a	0.168
2015	79.236	112.787	3.986	5.674	0.193
2005	104.513	139.219	4.877	6.496	0.340
1990	187.177	241.567	7.969	10.284	0.705

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -64%	↘ -61%	↘ -29%
Other industrial combustion	↘ -77%	↘ -76%	↘ -47%
Buildings	↘ -39%	↘ -38%	↘ -10%
Transport	↗ +48%	↗ +31%	↗ +28%
Other sectors	↘ -43%	↘ -42%	↘ -8%

Russia

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1748.350	n/a	12.144	n/a	0.465
2015	1694.498	2233.876	11.777	15.525	0.469
2005	1622.998	2105.278	11.301	14.659	0.580
1990	2355.385	2996.881	15.962	20.309	0.761

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-31%	↘	-31%	↘	-9%
Other industrial combustion	↘	-14%	↘	-17%	↗	+18%
Buildings	↘	-53%	↘	-58%	→	+3%
Transport	↘	-18%	↘	-20%	↗	+9%
Other sectors	↗	+29%	↘	-6%	↗	+23%

Rwanda

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.118	n/a	0.089	n/a	0.045
2015	0.954	6.405	0.082	0.551	0.047
2005	0.748	4.878	0.083	0.542	0.080
1990	0.525	3.257	0.073	0.450	0.083

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +211%	↗ +200%	↗ +37%
Other industrial combustion	↗ +18%	↗ +9%	↗ +90%
Buildings	→ +5%	↗ +91%	↗ +23%
Transport	↗ +127%	↗ +117%	↗ +27%
Other sectors	↗ +355%	↗ +97%	↗ +32%

Saint Helena, Ascension and Tristan

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.018	n/a	4.358	n/a	n/a
2015	0.015	0.018	3.708	4.360	n/a
2005	0.010	0.013	2.270	3.080	n/a
1990	0.010	0.014	1.722	2.505	n/a

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +168%	↗ +124%	↗ +72%
Other industrial combustion	↘ -95%	↘ -96%	↗ +95%
Buildings	↘ -91%	↘ -92%	↗ +6%
Transport	↗ +143%	↗ +105%	↗ +47%
Other sectors	↘ -30%	↘ -41%	↘ -26%

Saint Kitts and Nevis

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.244	n/a	4.370	n/a	0.164
2015	0.237	0.265	4.372	4.877	0.170
2005	0.063	0.099	1.297	2.032	0.055
1990	0.034	0.060	0.844	1.474	0.055

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +777%	↗ +753%	↗ +295%
Other industrial combustion	↗ +696%	↗ +479%	↗ +170%
Buildings	↗ +112%	↗ +114%	↗ +235%
Transport	↗ +1490%	↗ +1430%	↗ +285%
Other sectors	↗ +74%	→ +2%	↘ -27%

Saint Lucia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.374	n/a	2.080	n/a	0.167
2015	0.364	0.481	2.051	2.714	0.175
2005	0.158	0.267	0.966	1.632	0.088
1990	0.076	0.186	0.549	1.348	0.057

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+519%	+501%	+141%
Other industrial combustion	+462%	+413%	+78%
Buildings	+50%	+48%	+101%
Transport	+1022%	+980%	+135%
Other sectors	+2%	+4%	+7%

Saint Pierre and Miquelon

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.079	n/a	12.492	n/a	n/a
2015	0.075	0.083	11.958	13.153	n/a
2005	0.031	0.037	4.985	5.975	n/a
1990	0.148	0.157	23.556	24.959	n/a

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-34%	↘	-37%	↗	+151%
Other industrial combustion	↘	-40%	↘	-42%	↗	+104%
Buildings	↘	-84%	↘	-84%	↗	+111%
Transport	↗	+19%	↗	+11%	↗	+143%
Other sectors	↘	-49%	↘	-10%	↗	+16%

Saint Vincent and the Grenadines

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.184	n/a	1.667	n/a	0.152
2015	0.179	0.243	1.632	2.222	0.156
2005	0.095	0.158	0.872	1.455	0.094
1990	0.038	0.095	0.355	0.886	0.064

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+508%	+490%	+98%
Other industrial combustion	+452%	+372%	+46%
Buildings	+47%	+42%	+64%
Transport	+1002%	+961%	+92%
Other sectors	-2%	+12%	+1%

Samoa

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.133	n/a	0.674	n/a	0.112
2015	0.125	0.359	0.645	1.853	0.116
2005	0.121	0.315	0.671	1.753	0.126
1990	0.129	0.300	0.794	1.839	0.218

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+3%	-2%	-27%
Other industrial combustion	+47%	+35%	-55%
Buildings	-77%	-66%	+23%
Transport	+76%	+63%	+71%
Other sectors	-6%	+37%	+21%

São Tomé and Príncipe

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.150	n/a	0.720	n/a	0.235
2015	0.144	0.241	0.737	1.234	0.250
2005	0.057	0.130	0.367	0.838	0.165
1990	0.047	0.092	0.410	0.805	0.199

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+440%	+418%	+174%
Other industrial combustion	+105%	+94%	+286%
Buildings	+83%	+60%	+44%
Transport	+295%	+277%	+156%
Other sectors	+9%	+127%	+34%

Saudi Arabia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	624.987	n/a	18.626	n/a	0.379
2015	608.804	709.787	19.292	22.492	0.380
2005	339.633	420.277	14.207	17.581	0.312
1990	172.847	243.544	10.587	14.917	0.249

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+326%	+324%	+87%
Other industrial combustion	+233%	+235%	+59%
Buildings	+84%	+82%	+15%
Transport	+163%	+186%	+87%
Other sectors	+388%	+93%	+46%

Senegal

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	10.700	n/a	0.657	n/a	0.201
2015	8.384	22.473	0.560	1.501	0.192
2005	5.799	15.850	0.515	1.409	0.195
1990	2.397	9.869	0.317	1.306	0.137

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+231%	+186%	+28%
Other industrial combustion	+535%	+393%	+55%
Buildings	+77%	+43%	+7%
Transport	+361%	+254%	+77%
Other sectors	+799%	+105%	+41%

Serbia and Montenegro

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	58.973	n/a	6.280	n/a	0.417
2015	57.070	76.754	6.020	8.097	0.447
2005	61.499	82.106	6.255	8.351	0.619
1990	66.388	83.146	6.552	8.206	0.982

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	→ -3%	→ -2%	→ +1%
Other industrial combustion	↘ -37%	↘ -43%	↘ -28%
Buildings	↘ -53%	↘ -57%	↘ -15%
Transport	↗ +78%	↗ +68%	→ -4%
Other sectors	↘ -52%	→ +1%	↘ -11%

Seychelles

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.980	n/a	10.291	n/a	0.373
2015	0.888	0.978	9.468	10.429	0.382
2005	0.678	0.782	7.642	8.808	0.459
1990	0.288	0.330	4.072	4.668	0.291

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +469%	↗ +415%	↗ +41%
Other industrial combustion	↗ +116%	↗ +95%	↗ +100%
Buildings	↗ +93%	↗ +73%	↘ -14%
Transport	↗ +316%	↗ +275%	↗ +32%
Other sectors	↘ -39%	↗ +109%	↘ -15%

Sierra Leone

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	1.448	n/a	0.188	n/a	0.133
2015	1.211	6.176	0.167	0.853	0.127
2005	0.493	4.453	0.087	0.787	0.082
1990	0.741	3.692	0.172	0.856	0.137

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +193%	↗ +148%	↗ +190%
Other industrial combustion	↗ +11%	↘ -10%	↗ +293%
Buildings	→ -1%	→ +3%	↗ +15%
Transport	↗ +114%	↗ +80%	↗ +172%
Other sectors	↗ +569%	↗ +83%	↗ +29%

Singapore

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	55.912	n/a	9.653	n/a	0.110
2015	51.339	58.366	9.275	10.544	0.111
2005	42.944	49.036	9.562	10.919	0.161
1990	31.607	33.617	10.490	11.157	0.297

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+68%	+52%	+12%
Other industrial combustion	+89%	+65%	+25%
Buildings	-52%	-53%	+18%
Transport	+65%	+63%	+19%
Other sectors	+166%	+214%	+26%

Slovakia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	38.088	n/a	6.989	n/a	0.223
2015	34.605	43.838	6.362	8.059	0.225
2005	42.171	49.748	7.811	9.214	0.392
1990	60.545	71.031	11.449	13.431	1.020

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -48%	↘ -49%	↘ -37%
Other industrial combustion	↘ -33%	↘ -40%	↘ -12%
Buildings	↘ -73%	↘ -73%	↘ -27%
Transport	↗ +78%	↗ +46%	↘ -8%
Other sectors	→ 0%	↘ -9%	↗ +17%

Slovenia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	15.550	n/a	7.472	n/a	0.230
2015	14.359	19.245	6.921	9.276	0.240
2005	18.299	24.096	9.167	12.070	0.339
1990	16.623	22.339	8.285	11.133	0.440

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -22%	↘ -26%	↘ -27%
Other industrial combustion	↘ -32%	↘ -39%	↘ -32%
Buildings	↘ -18%	↘ -27%	↘ -42%
Transport	↗ +118%	↗ +100%	↗ +22%
Other sectors	↘ -49%	↘ -29%	↘ -27%

Solomon Islands

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.133	n/a	0.213	n/a	0.095
2015	0.125	0.297	0.213	0.506	0.099
2005	0.187	0.329	0.398	0.700	0.237
1990	0.133	0.234	0.428	0.751	0.227

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	→ -3%	↘ -8%	↘ -54%
Other industrial combustion	↗ +39%	↗ +29%	↘ -71%
Buildings	↘ -78%	↘ -58%	→ -5%
Transport	↗ +66%	↗ +54%	↗ +8%
Other sectors	↗ +54%	↗ +69%	↗ +22%

Somalia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.943	n/a	0.062	n/a	0.134
2015	0.857	27.721	0.062	1.993	0.137
2005	0.765	27.543	0.073	2.646	0.151
1990	0.695	23.466	0.094	3.172	0.198

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +126%	↗ +107%	↗ +22%
Other industrial combustion	↘ -14%	↘ -24%	↗ +69%
Buildings	↘ -23%	↗ +77%	↗ +18%
Transport	↗ +65%	↗ +49%	↗ +13%
Other sectors	↗ +21%	↗ +16%	→ -1%

South Africa

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	477.248	n/a	8.315	n/a	0.680
2015	477.514	581.471	8.636	10.517	0.698
2005	433.192	532.182	8.873	10.901	0.823
1990	312.463	394.075	8.319	10.492	0.858

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +73%	↗ +70%	↗ +16%
Other industrial combustion	↗ +74%	↗ +76%	↗ +6%
Buildings	↗ +89%	↗ +102%	↗ +20%
Transport	↗ +75%	↗ +81%	↗ +24%
Other sectors	↘ -24%	→ 0%	→ -4%

South Korea

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	695.357	n/a	13.591	n/a	0.366
2015	638.776	704.272	12.626	13.920	0.366
2005	516.316	573.265	10.600	11.769	0.420
1990	270.448	320.585	6.301	7.469	0.542

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +492%	↗ +438%	↗ +48%
Other industrial combustion	↗ +125%	↗ +114%	↗ +32%
Buildings	↘ -10%	↘ -23%	↘ -17%
Transport	↗ +129%	↗ +122%	↗ +13%
Other sectors	↗ +53%	↗ +33%	→ +1%

Spain and Andorra

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	276.047	n/a	5.950	n/a	0.169
2015	274.815	349.438	5.923	7.531	0.183
2005	372.653	449.751	8.461	10.212	0.259
1990	233.798	299.287	5.948	7.614	0.253

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +7%	↗ +23%	↘ -30%
Other industrial combustion	→ -3%	↘ -10%	↘ -32%
Buildings	↗ +77%	↗ +56%	↘ -13%
Transport	↗ +45%	↗ +35%	↘ -22%
Other sectors	↘ -16%	↗ +6%	↘ -12%

Sri Lanka

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	23.809	n/a	1.136	n/a	0.092
2015	21.406	35.467	1.033	1.712	0.092
2005	14.421	27.382	0.739	1.402	0.114
1990	4.187	19.036	0.242	1.098	0.067

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +132938%	↗ +109458%	↗ +51%
Other industrial combustion	↗ +219%	↗ +420%	↗ +111%
Buildings	↗ +114%	↗ +16%	↘ -11%
Transport	↗ +296%	↗ +248%	↗ +38%
Other sectors	↗ +409%	→ +3%	↗ +16%

Sudan and South Sudan

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	21.093	n/a	0.388	n/a	0.119
2015	18.920	119.563	0.374	2.366	0.114
2005	10.778	106.434	0.276	2.728	0.102
1990	5.536	56.503	0.214	2.180	0.123

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +840%	↗ +751%	↗ +78%
Other industrial combustion	↗ +230%	↗ +183%	↗ +63%
Buildings	↗ +1076%	↗ +158%	→ +1%
Transport	↗ +140%	↗ +118%	↗ +75%
Other sectors	↗ +1099%	↗ +102%	↗ +7%

Suriname

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	2.250	n/a	3.959	n/a	0.284
2015	2.122	3.002	3.837	5.426	0.262
2005	1.686	2.413	3.378	4.837	0.283
1990	0.908	1.990	2.228	4.885	0.215

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +187%	↗ +172%	↗ +32%
Other industrial combustion	↗ +204%	↗ +160%	→ +3%
Buildings	↗ +23%	↗ +23%	→ +4%
Transport	↗ +477%	↗ +445%	↗ +34%
Other sectors	→ -3%	↘ -23%	↗ +25%

Sweden

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	44.599	n/a	4.468	n/a	0.093
2015	44.180	67.357	4.525	6.899	0.099
2005	55.886	83.601	6.183	9.249	0.150
1990	58.121	81.222	6.784	9.480	0.219

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-8%	↘	-21%	↘	-31%
Other industrial combustion	↘	-35%	↘	-27%	↘	-24%
Buildings	↘	-85%	↘	-83%	↘	-62%
Transport	→	-3%	→	-2%	↘	-12%
Other sectors	↗	+25%	→	+4%	↘	-13%

Switzerland and Liechtenstein

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	40.940	n/a	4.792	n/a	0.081
2015	40.223	52.113	4.835	6.264	0.085
2005	47.161	57.580	6.364	7.770	0.120
1990	44.955	55.238	6.735	8.275	0.139

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +33%	↗ +24%	↘ -15%
Other industrial combustion	↘ -18%	↘ -20%	↘ -17%
Buildings	↘ -24%	↘ -24%	↘ -26%
Transport	↗ +10%	↗ +10%	→ -3%
Other sectors	↘ -19%	→ +3%	↗ +10%

Syria

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	28.938	n/a	1.583	n/a	1.599
2015	29.345	45.121	1.566	2.408	0.316
2005	58.483	79.624	3.197	4.352	0.593
1990	32.882	58.475	2.642	4.698	2.018

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +71%	↗ +72%	↘ -48%
Other industrial combustion	↘ -10%	↘ -8%	↘ -50%
Buildings	↘ -50%	↘ -49%	↘ -56%
Transport	↘ -11%	↘ -12%	↘ -53%
Other sectors	↘ -50%	↘ -40%	↘ -27%

Taiwan

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	284.550	n/a	12.009	n/a	0.274
2015	264.841	304.488	11.277	12.965	0.271
2005	269.625	298.732	11.929	13.217	0.331
1990	124.230	141.997	6.116	6.991	0.310

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +283%	↗ +258%	→ +1%
Other industrial combustion	↗ +46%	↗ +38%	→ -5%
Buildings	→ -3%	↘ -8%	↘ -17%
Transport	↗ +97%	↗ +87%	→ -3%
Other sectors	↗ +42%	↗ +77%	↗ +24%

Tajikistan

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	5.927	n/a	0.651	n/a	0.213
2015	5.383	15.428	0.630	1.805	0.238
2005	3.263	12.189	0.476	1.778	0.279
1990	12.267	22.104	2.322	4.183	0.634

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	-61%	-81%	-51%
Other industrial combustion		+2941%	+26208%
Buildings	-76%	-80%	+11%
Transport	+187%	+214%	+1741%
Other sectors	-8%	+1%	+11%

Tanzania

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	13.430	n/a	0.227	n/a	0.086
2015	12.896	76.974	0.239	1.429	0.099
2005	5.872	49.447	0.149	1.255	0.082
1990	2.096	30.661	0.082	1.204	0.055

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+661%	+1006%	+105%
Other industrial combustion	+301%	+271%	+190%
Buildings	+80%	+105%	+29%
Transport	+991%	+905%	+161%
Other sectors	+314%	+126%	+48%

Thailand

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	281.041	n/a	4.062	n/a	0.239
2015	271.650	397.109	3.957	5.784	0.259
2005	225.586	345.113	3.448	5.275	0.299
1990	92.977	205.560	1.643	3.633	0.247

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +230%	↗ +235%	↗ +31%
Other industrial combustion	↗ +301%	↗ +321%	↗ +26%
Buildings	↗ +102%	↗ +106%	↗ +21%
Transport	↗ +164%	↗ +137%	↗ +18%
Other sectors	↗ +150%	↗ +16%	→ 0%

The Gambia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.599	n/a	0.277	n/a	0.173
2015	0.509	2.043	0.257	1.033	0.165
2005	0.235	1.359	0.163	0.941	0.106
1990	0.149	0.912	0.162	0.995	0.108

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+585%	+481%	+139%
Other industrial combustion	+160%	+115%	+235%
Buildings	+132%	+75%	+30%
Transport	+401%	+323%	+123%
Other sectors	+60%	+103%	+37%

Timor-Leste

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.289	n/a	0.218	n/a	0.034
2015	0.288	1.342	0.232	1.082	0.031
2005	0.273	1.627	0.266	1.585	0.042
1990	0.130	0.720	0.173	0.958	0.054

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +93%	↗ +83%	↗ +37%
Other industrial combustion	↗ +176%	↗ +153%	↘ -16%
Buildings	↘ -56%	↘ -45%	↗ +42%
Transport	↗ +229%	↗ +206%	↗ +221%
Other sectors	↗ +1707%	↗ +88%	↘ -26%

Togo

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	2.941	n/a	0.368	n/a	0.238
2015	2.433	8.194	0.328	1.105	0.226
2005	1.328	5.365	0.234	0.944	0.206
1990	0.765	3.315	0.202	0.875	0.156

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	-67%	-71%	-71%
Other industrial combustion	+697%	+586%	+83%
Buildings	+343%	+154%	+29%
Transport	+298%	+243%	+138%
Other sectors	+306%	+132%	+44%

Tonga

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.123	n/a	1.124	n/a	0.208
2015	0.115	0.208	1.082	1.953	0.208
2005	0.120	0.211	1.188	2.087	0.240
1990	0.064	0.150	0.678	1.577	0.190

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +90%	↗ +81%	↘ -33%
Other industrial combustion	↗ +172%	↗ +150%	↘ -59%
Buildings	↘ -57%	↘ -58%	↗ +31%
Transport	↗ +225%	↗ +202%	↗ +58%
Other sectors	↘ -16%	↗ +8%	→ +2%

Trinidad and Tobago

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	35.951	n/a	26.192	n/a	0.903
2015	36.357	50.839	26.731	37.379	0.843
2005	31.029	43.741	23.925	33.727	0.905
1990	12.656	18.253	10.357	14.938	0.950

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +119%	↗ +136%	↗ +12%
Other industrial combustion	↗ +224%	↗ +234%	↗ +35%
Buildings	↗ +176%	↗ +189%	→ 0%
Transport	↗ +137%	↗ +149%	↗ +57%
Other sectors	↗ +200%	↗ +172%	↗ +7%

Tunisia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	32.926	n/a	2.824	n/a	0.257
2015	30.155	41.236	2.675	3.658	0.248
2005	23.388	33.848	2.315	3.350	0.263
1990	14.774	21.737	1.795	2.640	0.320

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +151%	↗ +142%	↗ +55%
Other industrial combustion	↗ +72%	↗ +63%	↗ +23%
Buildings	↗ +81%	↗ +65%	↘ -8%
Transport	↗ +210%	↗ +169%	↗ +46%
Other sectors	↗ +105%	↗ +63%	↗ +9%

Turkey

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	417.049	n/a	5.091	n/a	0.200
2015	365.160	510.286	4.665	6.519	0.199
2005	246.004	334.545	3.623	4.927	0.222
1990	149.955	221.116	2.781	4.101	0.244

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+337%	+270%	+65%
Other industrial combustion	+71%	+53%	-5%
Buildings	+142%	+102%	+39%
Transport	+191%	+160%	+96%
Other sectors	+154%	+113%	+67%

Turkmenistan

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	84.142	n/a	14.380	n/a	0.840
2015	74.576	123.704	13.400	22.228	0.894
2005	52.986	94.978	11.144	19.976	1.716
1990	45.628	78.491	12.386	21.306	1.489

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +142%	↗ +106%	↗ +78%
Other industrial combustion	↗ +136%	↗ +104%	→ -3%
Buildings	↗ +56%	↗ +37%	↗ +45%
Transport	↗ +31%	↗ +20%	↗ +36%
Other sectors	↗ +430%	↗ +62%	↗ +16%

Turks and Caicos Islands

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.170	n/a	4.727	n/a	3.617
2015	0.165	0.178	4.814	5.197	1.323
2005	0.005	0.014	0.206	0.515	0.016
1990	0.007	0.010	0.605	0.882	0.005

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+2892%	+2808%	+3049%
Other industrial combustion	+2616%	+2508%	+2227%
Buildings	+625%	+626%	+2475%
Transport	+5322%	+5118%	+2967%
Other sectors	+1533%	+277%	+47%

Uganda

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	5.492	n/a	0.124	n/a	0.071
2015	4.693	44.303	0.117	1.104	0.070
2005	1.682	24.901	0.059	0.872	0.048
1990	0.644	16.059	0.037	0.921	0.048

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+1081%	+972%	+204%
Other industrial combustion	+348%	+188%	+282%
Buildings	+300%	+99%	+46%
Transport	+763%	+679%	+186%
Other sectors	+1827%	+183%	+79%

Ukraine

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	196.839	n/a	4.473	n/a	0.567
2015	213.269	294.193	4.776	6.588	0.667
2005	354.463	447.540	7.559	9.544	1.034
1990	783.230	948.420	15.219	18.429	1.442

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	-74%	-72%	-28%
Other industrial combustion	-84%	-79%	-45%
Buildings	-65%	-66%	-43%
Transport	-57%	-58%	-24%
Other sectors	-77%	-59%	-32%

United Arab Emirates

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	214.108	n/a	22.439	n/a	0.334
2015	202.345	246.609	22.104	26.939	0.332
2005	122.401	155.440	26.728	33.942	0.291
1990	56.922	80.988	30.601	43.538	0.277

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+605%	+467%	+41%
Other industrial combustion	+137%	+177%	+107%
Buildings	+147%	+223%	+609%
Transport	+196%	+173%	+35%
Other sectors	+391%	+127%	+50%

United Kingdom

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	371.970	n/a	5.587	n/a	0.139
2015	413.024	559.645	6.316	8.558	0.163
2005	558.482	727.978	9.264	12.075	0.249
1990	584.221	807.230	10.217	14.117	0.383

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -60%	↘ -44%	↘ -40%
Other industrial combustion	↘ -47%	↘ -39%	↘ -32%
Buildings	↘ -22%	↘ -23%	↘ -19%
Transport	→ +4%	→ +2%	↘ -7%
Other sectors	↘ -33%	↘ -34%	↘ -14%

United States

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	5275.478	n/a	16.144	n/a	0.290
2015	5225.394	6444.396	16.333	20.143	0.306
2005	5946.607	7096.982	20.149	24.047	0.406
1990	5063.855	6117.771	20.052	24.226	0.551

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	→ -2%	→ +4%	↘ -21%
Other industrial combustion	↘ -15%	↘ -21%	↘ -8%
Buildings	→ -2%	↘ -6%	↘ -8%
Transport	↗ +28%	↗ +21%	→ -3%
Other sectors	→ +1%	↗ +12%	→ +5%

Uruguay

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	6.935	n/a	1.999	n/a	0.096
2015	6.742	39.964	1.965	11.646	0.099
2005	5.499	36.800	1.654	11.066	0.127
1990	3.894	28.697	1.252	9.227	0.127

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	→ -2%	↗ +127%	↘ -9%
Other industrial combustion	↗ +80%	↗ +70%	↗ +35%
Buildings	→ 0%	→ -2%	↘ -10%
Transport	↗ +147%	↗ +131%	↗ +53%
Other sectors	↗ +71%	↗ +33%	↗ +6%

Uzbekistan

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	101.897	n/a	3.148	n/a	0.495
2015	104.913	173.536	3.387	5.602	0.594
2005	116.380	171.729	4.390	6.477	1.444
1990	123.376	166.624	6.029	8.143	1.947

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↘ -16%	↘ -9%	↗ +10%
Other industrial combustion	↗ +353%	↗ +350%	↘ -20%
Buildings	↘ -46%	↘ -46%	↘ -21%
Transport	↗ +13%	↗ +12%	↘ -26%
Other sectors	↗ +13%	↗ +52%	↗ +21%

Vanuatu

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.082	n/a	0.292	n/a	0.099
2015	0.078	0.598	0.293	2.261	0.104
2005	0.063	0.497	0.299	2.375	0.115
1990	0.130	0.491	0.888	3.348	0.348

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	↘	-38%	↘	-41%	↘	-12%
Other industrial combustion	↘	-11%	↘	-17%	↘	-45%
Buildings	↘	-86%	↘	-69%	↗	+25%
Transport	↗	+6%	→	-2%	↗	+106%
Other sectors	↗	+30%	↗	+43%	↗	+20%

Venezuela

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	120.211	n/a	3.712	n/a	0.434
2015	158.539	254.401	5.089	8.166	0.328
2005	152.478	235.976	5.693	8.810	0.381
1990	102.462	165.548	5.159	8.335	0.357

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+50%	+98%	+51%
Other industrial combustion	-9%	+21%	-19%
Buildings	-14%	+16%	-31%
Transport	+6%	+59%	+8%
Other sectors	+139%	+64%	+19%

Vietnam

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	271.474	n/a	2.813	n/a	0.430
2015	202.770	335.553	2.167	3.586	0.390
2005	99.241	216.955	1.177	2.573	0.346
1990	20.187	99.909	0.296	1.465	0.204

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +1639%	↗ +1407%	↗ +203%
Other industrial combustion	↗ +1206%	↗ +765%	↗ +110%
Buildings	↗ +497%	↗ +177%	→ +5%
Transport	↗ +878%	↗ +669%	↗ +67%
Other sectors	↗ +1897%	↗ +105%	↗ +21%

Western Sahara

Fossil CO_2 emissions by sector

Greenhouse gas emissions

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	0.284	n/a	0.500	n/a	n/a
2015	0.254	0.831	0.482	1.579	n/a
2005	0.227	0.787	0.518	1.800	n/a
1990	0.144	0.605	0.663	2.785	n/a

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	↗ +229%	↗ +194%	↗ +21%
Other industrial combustion	↗ +25%	↗ +11%	↗ +71%
Buildings	↗ +11%	→ -1%	↘ -27%
Transport	↗ +140%	↗ +114%	↗ +13%
Other sectors	↘ -20%	↗ +25%	→ +3%

Yemen

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	11.768	n/a	0.407	n/a	0.181
2015	14.287	32.392	0.531	1.203	0.173
2005	21.777	38.367	1.058	1.864	0.255
1990	6.887	14.463	0.571	1.200	0.172

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+149%	+212%	-3%
Other industrial combustion	+361%	+412%	-53%
Buildings	+164%	+229%	-58%
Transport	-33%	-24%	-45%
Other sectors	+336%	+162%	+11%

Zambia

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	5.166	n/a	0.293	n/a	0.079
2015	4.442	23.765	0.274	1.466	0.076
2005	2.458	17.012	0.204	1.413	0.082
1990	2.955	15.859	0.363	1.947	0.157

	2018 vs 1990 (CO2)	2015 vs 1990 (GHG)	2015 vs 2005 (GHG)
Power Industry	+123%	+209%	+401%
Other industrial combustion	+20%	+23%	+82%
Buildings	-7%	+53%	+28%
Transport	+61%	+49%	+16%
Other sectors	+349%	+52%	+38%

Zimbabwe

Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2018	13.045	n/a	0.771	n/a	0.336
2015	12.777	29.298	0.810	1.857	0.369
2005	11.390	27.309	0.880	2.110	0.478
1990	17.178	33.924	1.687	3.331	0.584

	2018 vs 1990 (CO2)		2015 vs 1990 (GHG)		2015 vs 2005 (GHG)	
Power Industry	→	+5%	→	+5%	↗	+19%
Other industrial combustion	↘	-74%	↘	-77%	↘	-34%
Buildings	↘	-59%	↘	-12%	↗	+7%
Transport	↗	+10%	↗	+19%	↗	+90%
Other sectors	↗	+40%	↘	-6%	→	0%

Disclaimer

This publication presents the fossil CO_2 and other GHG emissions from all countries without any prejudice to the status or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory. Country names are consistent with the Interinstitutional Style Guide of the European Commission available at http://publications.europa.eu/code/en/en-370100.htm, the "Short name" definition listed in the "List of countries, territories and currencies" table at http://publications.europa.eu/code/en/en-5000500.htm has been used (updated at 16/07/2019).

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