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GHG emissions of all world countries

2021 Report

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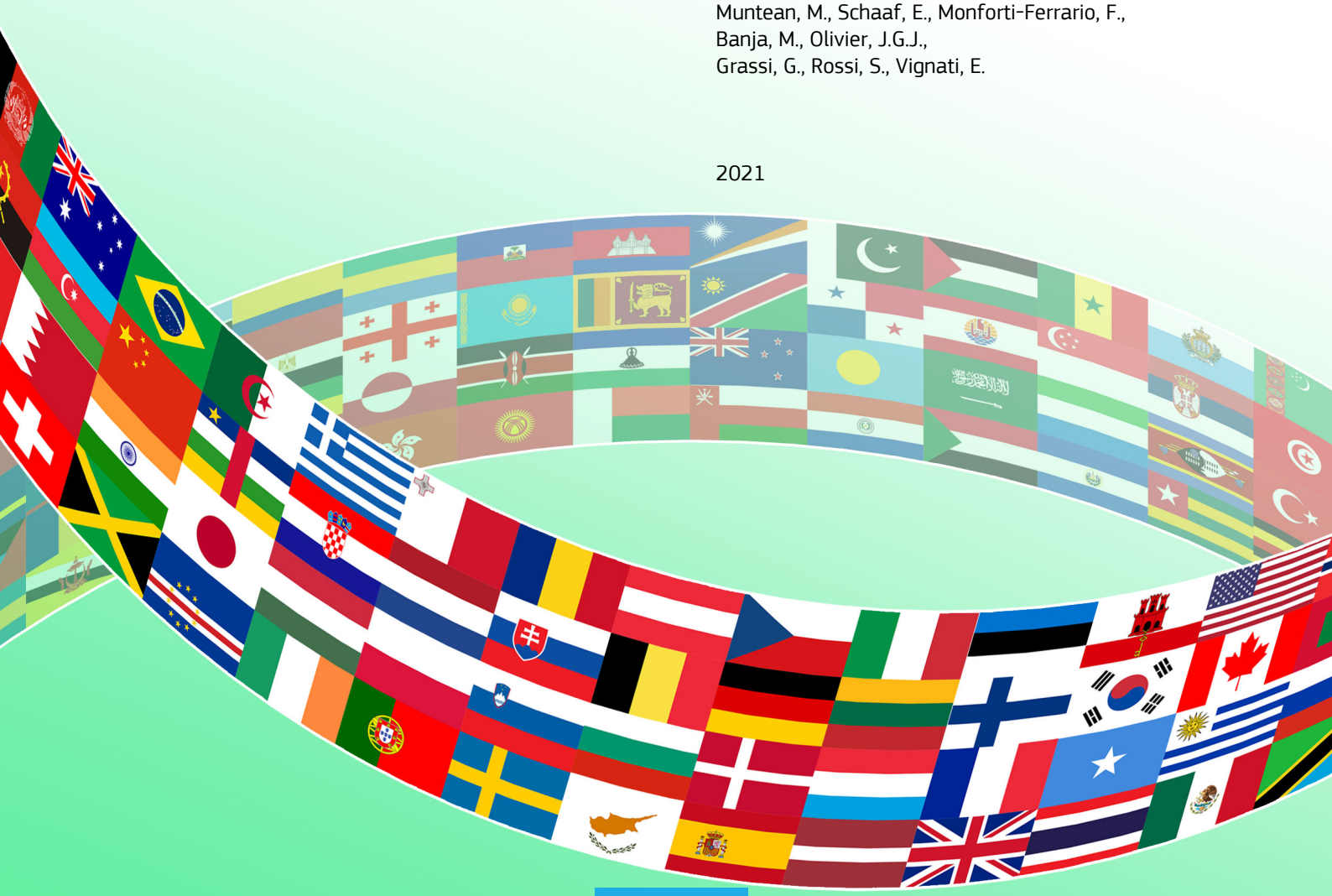

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Contents

Abstract

The Emissions Database for Global Atmospheric Research provides emission time series from 1970 until 2020 for fossil CO_2 and until 2018 for non-CO_2 GHGs for all countries, and covers the emissions and removals from land use and forestry for the years 2000 to 2015. This report is contributing to the Paris Agreement process with an independent and quantitative view of global GHG emissions.

Acknowledgements

This booklet was produced with input from many colleagues, gathered over several years. The International Energy Agency (IEA) energy use statistics are fundamental to the EDGAR database and the authors would like to thank IEA (R. Quadrelli) for the continuing collaboration. The authors would also like to thank United States Geological Survey (USGS) (R. Schulte, L. Apodaca, A. Hatfield), the International Fertiliser Association (IFA) (L. Cross), World Steel Association (worldsteel), BP plc and the Global Gas Flaring Reduction Partnership (GGFR)/U.S. National Oceanic and Atmospheric Administration (NOAA), for the provision of data. The authors are grateful to the Directorate-General for Climate Action (DG CLIMA) (T. van Ierland, C. Hanoune, M. Perry, A. Pilzecker, R. Colditz, S. Kay) for their reviews and guidance. An extra thanks to the colleagues, J. Wilson, and Anonymous reviewers for their thorough reviews and proof-reading.

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Executive summary

Policy context

The European Union has set ambitious objectives as far as climate change is concerned. In the context of the 2030 Energy and Climate framework, the European Union currently has a target of reducing its net domestic greenhouse gas emissions by at least 55% compared to 1990 levels, becoming a climate neutral EU (net zero greenhouse gas emissions) by 2050. Pursuing the European Green Deal[1] objectives, on 14th of July 2021, the European Commission adopted the "Fit for 55" package of European policy proposals covering climate, energy, land use, transport and taxation that together, if adopted and implemented, should achieve the 2030 target.

All Parties to the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) are required to prepare emissions reduction pledges, known as Nationally Determined Contributions (NDCs). Under the transparency framework of the Paris Agreement, all Parties are required to report bottom-up inventories of national greenhouse gas emissions and track progress towards the implementation and achievement of their NDCs. This reporting is to be contained in Biennial Transparency Reports (BTRs), which are first due in 2024. Parties may submit their inventory reports as part of the BTR or separately, and developed countries are required to continue submitting inventories annually. Bottom-up national emission inventories are an essential component of reporting and tracking progress towards the goals of the Agreement . However, national inventory reports are not yet available for all countries and years. In addition, they are dependent on individual national reporting processes and methodological choices in over 190 countries, can have data gaps for specific sectors and are not currently obliged to include long-term series of emissions up to the most recent year.

The European Commission's in-house Emissions Database for Global Atmospheric Research (EDGAR) offers an alternative that complements national inventories and has advantages in terms of producing timely emissions estimates that are comparable across countries. EDGAR completes the global picture with a time-series for each country, contributing to enhanced transparency and providing an additional source with which national and global estimates can be compared. The current version of the EDGAR database (EDGARv6.0), presented and discussed in this booklet, contains estimates of fossil CO_2 emissions from 1970 to 2020 and non-CO_2 GHGs until 2018. For all countries, including the EU27 and its Member States, EDGAR emissions may differ from official national inventories due to differences in data sources, methodologies and approaches, although both are, in principle, based on the IPCC guidelines for GHG reporting.

Key conclusions

This booklet includes time series of anthropogenic fossil CO_2[2] from 1970 to 2020, time series of CH_4 and N_2O from 1970 to 2018, and time series of F-gases from 1990 to 2018. For the first time, the EDGAR database encompasses estimates of CO_2 emissions and removals stemming from the Land Use, Land-Use Change and Forestry (LULUCF) sectors, which are discussed at macro-regional levels for the years from 2000 to 2015.

The most recent data for CO_2 in 2020 clearly show that the COVID-19 pandemic had an impact on human activities: globally, CO_2 emissions in 2020 decreased by 5.1% interrupting the increasing trend observed in the previous four years. The EDGAR time series show that fossil CO_2 emissions fell in all major industrialised economies except China.

[1] See the European Commission's European Green Deal Communication. COM(2019) 640 final

[2] In this booklet, 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.

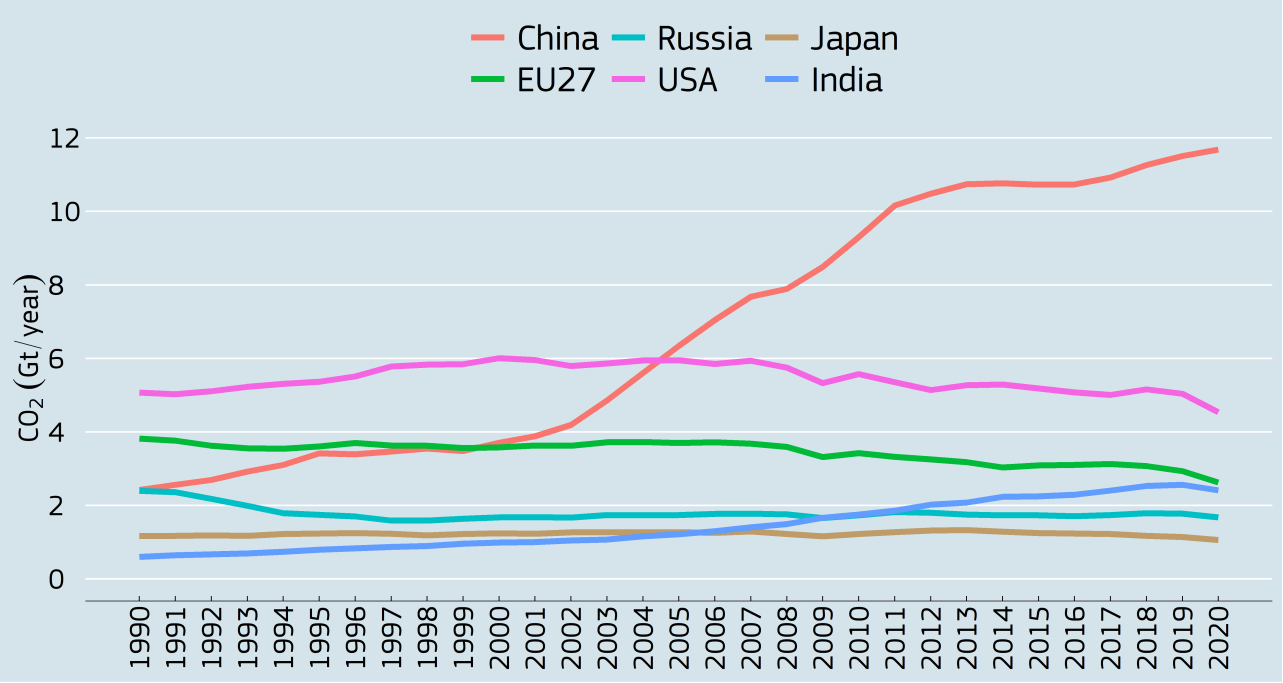
From a longer-term perspective, fossil CO_2 emissions in the 27 states of the European Union were 31.3% lower in 2020 than in 1990. Russian CO_2 emissions were also well below their 1990 levels in 2020 (30.1%). Among the big emitters also the United States and Japan, showed in 2020 fossil CO_2 emissions below the levels of 1990, although by a lesser extent (by 10.5% and 8.5% respectively). Conversely, fossil CO_2 emissions of the emerging economies of China and India remained well above their 1990 levels being respectively 4.8 and 4 times larger in 2020 than in 1990.

Globally, LULUCF has acted as a fairly stable net sink for CO_2 emissions since 2000. For 2015, this sink was about 5 Gt CO_2, equivalent to 14% of global fossil CO_2 emissions and 10.5% of total anthropogenic GHG emissions in 2015. The large difference between the estimates from global models, as reflected in the IPCC Reports (net emissions of about 5 Gt CO_2/yr), can be largely explained by different approaches in assessing the "anthropogenic" CO_2 removals. Global deforestation was responsible for net CO_2 emissions of 4.5 Gt CO_2 in 2015, equivalent to 12% of the total anthropogenic CO_2 emissions. In the EU27, LULUCF in 2015 was a net sink of about 0.26 Gt CO_2 emissions, reducing its magnitude by about one third with respect to 2000.

Main findings

Since the beginning of the 21st century, global anthropogenic GHG emissions have grown steadily in comparison to the three previous decades, mainly due to the growth in fossil CO_2 emissions by China, India, and other emerging economies. The global COVID-19 crisis slowed down the world economy and global human activities, especially in the first half of 2020, resulting in an interruption to this global growth in GHG emissions. Indeed, the 2020 estimates from EDGAR show a decline, with global anthropogenic fossil CO_2 emissions 5.1% lower than in 2019, at 36.0 Gt CO_2, just below the 36.2 Gt CO_2 emission level registered in 2013.

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



Source: JRC, 2021.

In 2020, China, the United States, the EU27, India, Russia and Japan remained the world's largest CO_2 emitters - together they account for 49.5% of the population, 61.8% of global Gross Domestic Product (World Bank, 2021), 65.2% of total global fossil fuel consumption (BP, 2021([3])) and 66.7% of total global fossil CO_2. Among these top six world emitters, only China has an increase in emissions in 2020 (+1.5%) while all others have decreased their emissions by different amounts: EU27 by 10.6%, United States by 9.9%, Japan by 6.8%, India by 5.9% and Russia by 5.8% (see Figure 1).

([3]) Defined as the sum of all coal, liquid fossil fuel and natural gas primary energy consumption.

Compared to 1990, EU27 fossil CO_2 emissions were 31.3% lower in 2020 at 2.6 Gt CO_2, representing 7.3% of the global share and equivalent to 4.6 t CO_2/cap/yr in per-capita terms.

The 11 other countries that count for more than 1% of the total CO_2 emissions, have all shown a decreasing trend, with the exception of Iran (+0.6%), Mexico (-16.4%), Indonesia (-12.0%), Germany (-9.3%), Canada (-8.8%), South Africa (-7.0%), Australia (-6.6%), South Korea (-6.3%), Brazil (-5.3%), Turkey (-2.0%) and Saudi Arabia (-0.8%). In 2020, emissions from international aviation and shipping, that together represent 3% of total global fossil CO_2 emissions, also decreased by -45.3% and -1.2 %, respectively.

Table 1 shows emission and GDP changes in 2020 in comparison with 2019 for the whole world and the largest economies, including EU27. All the reported economies had reductions in GDP, except China and Turkey. It can be noticed that in all countries where GDP has decreased except India, emissions decreased by a higher relative amount, leading to a decrease of the economy CO_2 intensity, defined as CO_2 emissions per unit of GDP. Furthermore, in China and Turkey CO_2 emissions have either decreased (Turkey) or increased by less than the increase in GDP (China), also leading to CO_2 intensity decreases.

Table 1. GDP in 2020 (in billions of USD, PPP constant 2017 international $), CO_2 economy intensity (t CO_2/kUSD) in 2020, GDP change and CO_2 emissions change in 2020 compared to 2019 (countries ranked by their GDP).

Country	GDP (2020)	Emissions/GDP (2020)	GDP change (2020-2019)	Emission change (2020-2019)
World	126635	0.284	-2.8%	-5.1%
China	23010	0.507	2.3%	1.5%
United States	19847	0.228	-3.5%	-9.9%
EU27	18563	0.141	-6.1%	-10.6%
India	8443	0.285	-8.0%	-5.9%
Japan	4972	0.213	-4.8%	-6.8%
Russia	3876	0.432	-3.0%	-5.8%
Indonesia	3130	0.181	-2.1%	-12.0%
Brazil	2989	0.151	-4.1%	-5.3%
United Kingdom	2798	0.112	-9.8%	-12.7%
Turkey	2394	0.169	1.8%	-2.0%
Mexico	2306	0.177	-8.2%	-16.4%
Germany	4239	0.150	-4.9%	-9.3%
France	2832	0.099	-8.1%	-12.4%
Italy	2324	0.128	-8.9%	-10.7%

Source: JRC, 2021.

It should be noted that emission changes are estimated to be accurate to within ±0.5% (Olivier et al., 2016) when based on robust statistical activity data (e.g. IEA energy balance data for 1970-2017) and up to 2% for the data for 2018-2020 (based on a Fast-Track([4]) approach), depending on regional, sectorial and fuel contributions. At the same time, emission magnitudes are accurate within the ranges discussed by Solazzo et al. (2021), which are highly dependent on the level and type of aggregation (country and/or gas). For example, global CO_2 emissions are estimated with a ±6.5% uncertainty (95% confidence interval). These uncertainties should be considered when using these data for any kind of analysis by readers of this booklet and policy makers.

([4]) International activity data, mainly energy balance statistics of IEA (2019) for 1970-2017 were used to estimate CO_2 from fossil fuel consumption. These emissions are extended until 2020 using a fuel dependent Fast-Track approach based on IEA and BP trends. 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 estimates of GHG emissions make them a valuable quantitative contribution in support of 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 statistics 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.

The goals 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 upcoming UNFCCC Global Stocktake foreseen under the Paris Agreement, underpin analyses of the co-benefits of air pollution and GHG emission mitigation strategies, interpret satellite data and understand emission uncertainties.

EDGAR depends on a number of sources of international statistics for the underpinning data. Foremost among these is the International Energy Agency (IEA). IEA and JRC are committed to the future co-production of consistent fossil CO_2 emissions estimates directly using IEA CO_2 emissions from fossil fuel combustion and JRC computations of CO_2 process emissions every year.

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) where EDGAR is represented on the Scientific Steering Committee.

While this booklet summarises data for CO_2 emissions for 1970-2020 and for GHG for 1970-2018, it should be noted that EDGAR is a comprehensive global emission database, including also air pollutant emissions for all countries. The Intergovernmental Panel on Climate Change (IPCC) Working Group III uses the EDGAR CO_2 and GHG emissions reported in this booklet on mitigation of the next Sixth Assessment Report (AR6), as well as in the upcoming UNEP Emission Gap Report (2021).

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 supporting the Arctic Monitoring and Assessment Programme (AMAP) of the Arctic Council by providing CH_4 and mercury emission data. Thanks to their transparency and completeness, EDGAR data are also being used by an ever-increasing pool of researchers and policy makers.

Quick guide

The main sections of this booklet present an overview of the global and regional trends of fossil CO_2 and GHG emissions. Through a short and representative analysis, the role of top emitters (country/sector) in the evolution of fossil CO_2 and GHG emissions over a 50-year time framework is shown. A Section is devoted to a first estimation of LULUCF CO_2 emissions and removals; annex 7 presents CO_2 emissions and removals from LULUCF sector by macro-region. For each country, a fact sheet is provided with time-series of fossil CO_2 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 2020 by sector, together with emissions per capita and per GDP([5]). The second panel shows GHG emissions from 1990 to 2018 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)([6]). An overview table with total emissions by country for the years 1990, 2005, 2019 and 2020 is also reported, together with per capita and per GDP emission data. Finally, the bottom panel of each fact sheet shows the changes in fossil CO_2 and GHG emissions by sector for the last available year (2020 or 2018) compared to 1990 and 2005.

All data presented in this booklet are available for download and further analysis from the EDGAR website https://edgar.jrc.ec.europa.eu/report_2021.

([5]) GDP: Gross Domestic Product GDP, expressed in PPP (constant 2017 international $, USD) (World Bank, 2021).

([6]) 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.

1 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 provides estimates of country and sector-specific emissions of GHGs, including CO_2, and air pollutants implementing a transparent state-of-the-art methodology. As such, it supports efforts to provide consistent and transparent emissions estimates that are 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. EDGAR estimates of greenhouse gas emissions use global statistics and state-of-the-art scientific knowledge of emission mechanisms for a wide range of anthropogenic activities. The methodology used is transparent and in line with the most recent scientific literature and Intergovernmental Panel on Climate Change (IPCC) recommendations. For 2018, 2019 and 2020, an experimental Fast-Track([7]) (FT) methodology is applied. For the first time, this edition of the booklet includes also macro-regional estimates of CO_2 emissions from Land Use, Land Use Change and Forestry (LULUCF) sector up to 2015, as part of the continuous improvement and expanding outreach of the EDGAR database.

A combination of reliability, independence and completeness makes EDGAR a valuable quantitative tool to support the complex international scientific and political discussions on climate mitigation. EDGAR data can contribute to provide a comprehensive picture needed for the UNFCCC's Global Stocktake envisaged from 2023 onwards. Previous editions of this booklet (2017, 2018, 2019, 2020) have been presented to the annual Conference of Parties (COP) under UNFCCC.

Overview

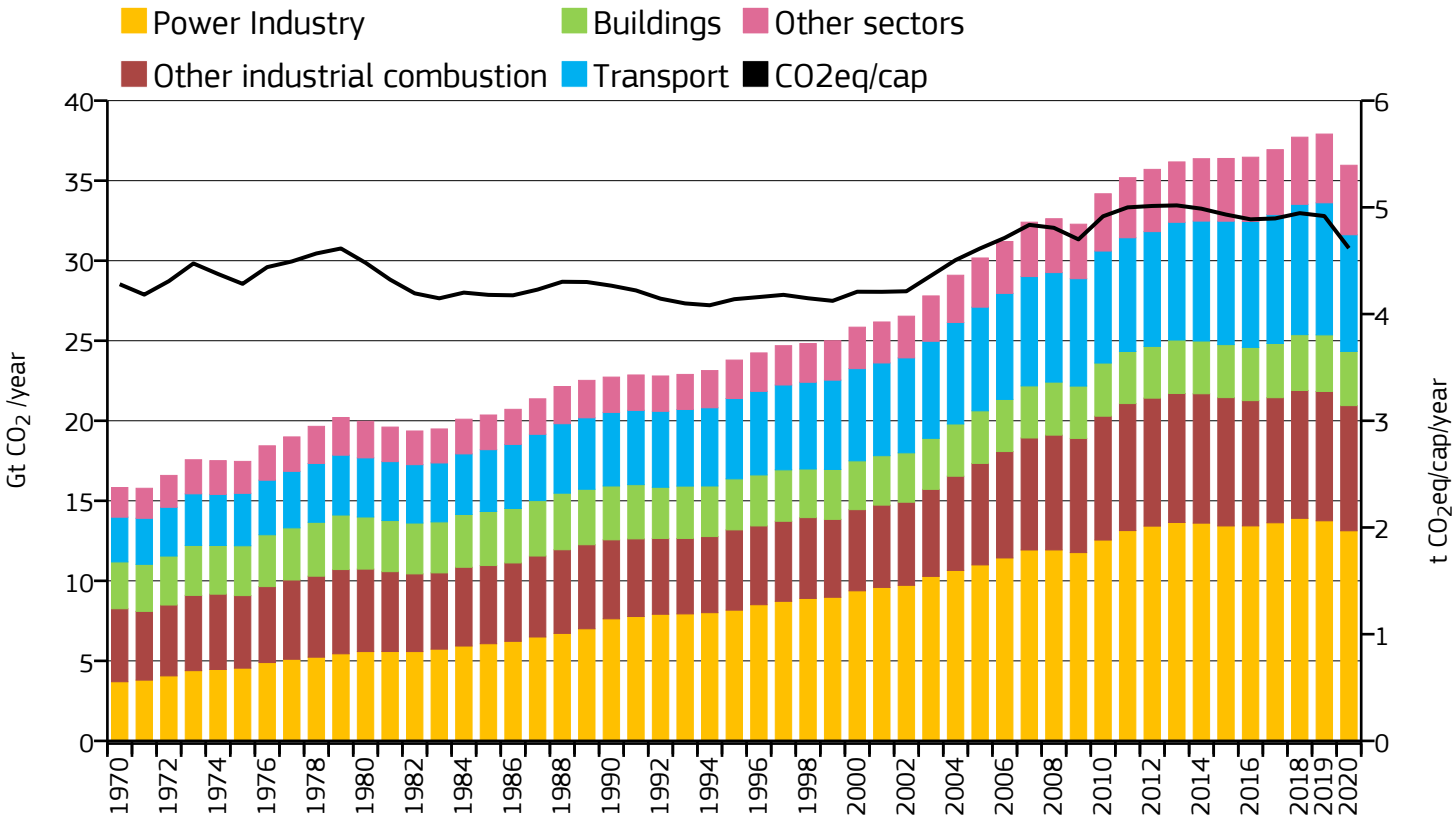
This booklet presents the trends of global fossil CO_2 emissions from 1990 to 2020 and the GHGs emissions from 1970 to 2018 together with emissions and removals from LULUCF from 2000 to 2015. For each country as well as for world and EU27 emissions a factsheet is created including time series of both fossil CO_2 and GHG emission, also in per capita and per GDP, including also sector-specific trends. EDGAR applies a bottom-up methodology a summary of which is available in the Annex 1 of this booklet, together with data sources and references. Additional analyses can be found in the companion publication "Trends in Global CO_2 and Total Greenhouse Gas Emissions – 2021 Report" by Olivier et al. (2021).

([7]) The Fast-Track methodology is based on indicators of volume trends for estimating the emissions in the last years (four years at maximum) of the period under analysis.

2 Global Fossil CO_2 Emissions from 1970 until 2020

The 50-year evolution of the global fossil CO_2 emissions as estimated by EDGARv6.0 is illustrated in Figure 2. Emission trends for the main activity sectors (namely power industry[8], other industrial combustion[9], transport[10], buildings[11], and other sectors[12]) are also shown. In 2020 global fossil CO_2 emissions fell to 36 Gt, 5.1% below the 2019 total. The biggest reduction in fossil CO_2 emissions was observed in transport sector with nearly 12%. Global per capita fossil CO_2 emissions in 2020 returned to the level they were in 2005, 4.6 tCO_2/capita.

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



Source: JRC, 2021.

(8) Power industry includes power and heat generation plants (public and auto-producers).

(9) Other industrial combustion includes combustion for industrial manufacturing and fuel production.

(10) Transport 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.

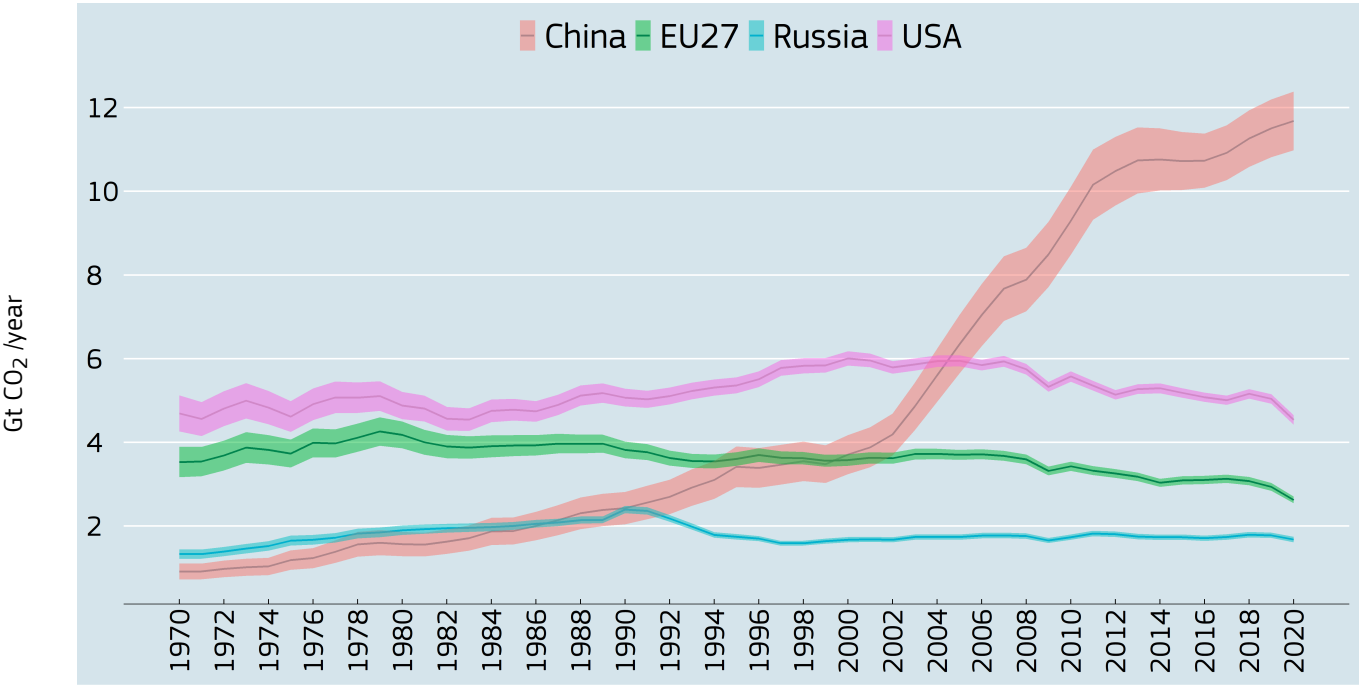
(11) Buildings includes small scale non-industrial stationary combustion.

(12) Other sectors include industrial process emissions (non-metallic minerals, non-ferrous metals, solvents and other product use, chemicals), agricultural soils (urea fertilisation and lime application) and waste.

Figure 3 shows the total annual fossil CO_2 emissions for the EU27 and the three largest emitting countries (China, Russia and United States) while per capita CO_2 emissions (in tCO_2/cap/yr) for the EU27 and the same top emitting countries and the world are represented in Fig. 4.

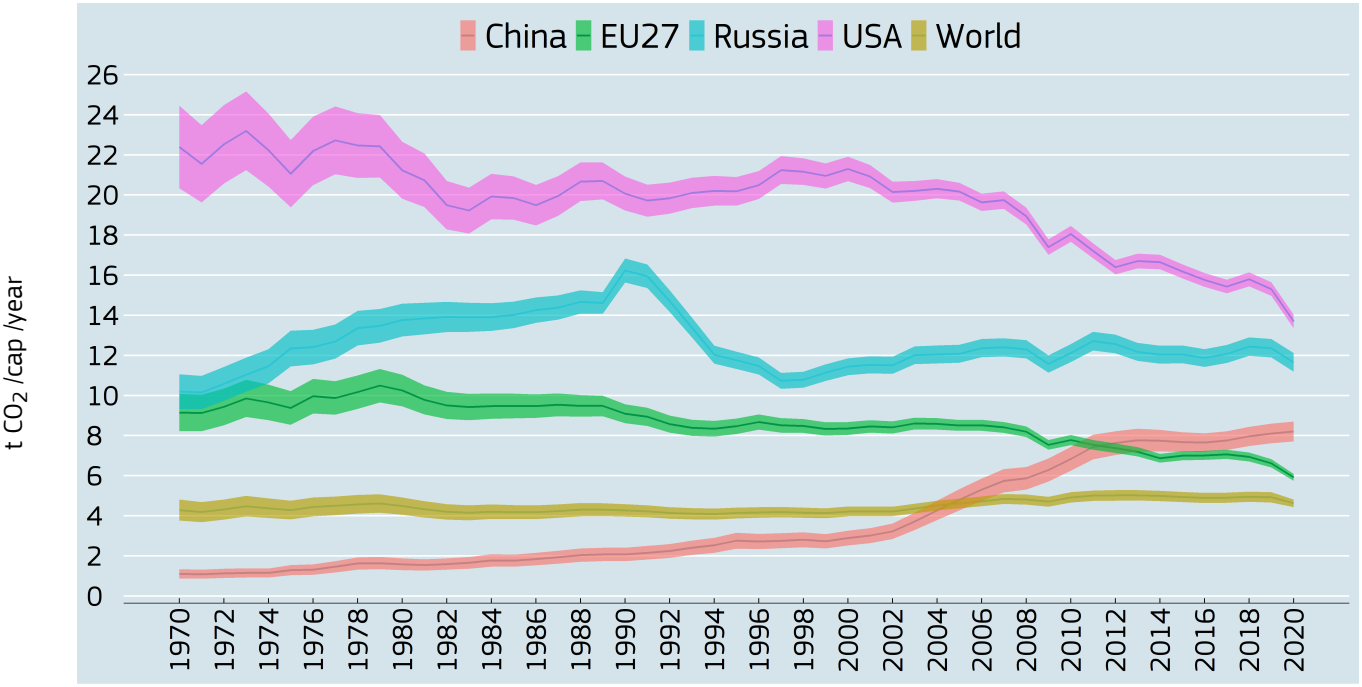
Both figures also include uncertainty bands that estimate the 95% confidence interval of the emission estimates. The estimated uncertainty considers the accuracy of both activity data and emission factor statistics per type of fuel. The tiered model of IPCC (IPCC, 2006a) is used to estimate the uncertainty (Solazzo et al., 2021). To calculate the historic uncertainty, it is assumed that the activity data statistics were less accurate in past decades. An additional uncertainty of 0.1% to 0.4% is added due to the Fast-Track approach, varying with country and year. Overall, we estimate that emission changes are accurate to within ±0.5% (Olivier et al., 2016) for 1970- 2017 increasing to up to 2% for the Fast-Track period 2018-2020, depending on regional, sectorial and fuel contributions.

Figure 3. Annual CO_2 emissions in top emitting countries and the estimated uncertainty (coloured bands), 1970-2020 (Gt CO_2/yr).



Source: JRC, 2021.

Figure 4. Annual per capita CO_2 emissions in top emitting countries and the estimated uncertainty (coloured bands), 1970-2020 (t CO_2/cap/yr).



Source: JRC, 2021.

In comparison with 2019, **global** fossil CO_2 emissions in 2020 decreased by 5.1% [5.4%]([13]) to a total of 36.0 Gt CO_2, just below the 2013 total (36.2 Gt CO_2). The COVID-19 pandemic has thus interrupted the trend observed between 2015 and 2019 when global emissions grew on average by 1.1% every year. Table 2 provides a global overview of the CO_2 emission change between 2020 and 2019 for top emitting countries. With the exception of China (1.5% [1.3%]) the major CO_2 emitting economies reduced their emissions in 2020 compared to 2019, including the EU27 (by 10.6% [10.8%]), United States (by 9.9% [10.2%]), Japan (by 6.8% [7.1%]), Russia (by 5.8% [6.1%]) and India (by 5.9% [6.2%]). Even outside these larger emitting countries, decreases are observed in all countries responsible for a share of global CO_2 emissions larger than 1% with the exception of Iran (0.6% [0.4%]). The largest decreases are observed for Mexico by 16.4% [16.6%] (1.1% share), Indonesia by 12% [12.2%] (1.6% share), Canada by 8.8% [9.1%] (1.5% share) and South Africa by 7.0% [7.3%] (1.2% share). Among the EU Member States, Germany is responsible for 1.8% of the global emissions and had a reduction of 9.3% [9.6%] in 2020. Global CO_2 per capita emissions have increased by about 15% from 4.26 t CO_2/cap/yr to 4.92 t CO_2/cap/yr between 1990 and 2019, to decrease to 4.62 t CO_2/cap/yr in 2020).

([13]) In this paragraph changes reported in square brackets refer to changes normalised to take into consideration the fact that 2020 was a leap year.

Table 2. Share in global emissions (2020) for countries contributing more than 1% to global fossil CO_2 emissions and annual emission change (2019-2020). The average annual change in the 2015-2019 period (%) representing the recent trend before COVID-19 crisis is also reported (countries ranked by their emissions share in global).

Top emitters	Share in global	Change between 2019 and 2020	Average year-to-year change, 2015-2019
China	32.5%	1.5%	1.8%
United States	12.6%	-9.9%	-0.7%
EU27	7.3%	-10.6%	-1.3%
India	6.7%	-5.9%	3.4%
Russia	4.7%	-5.8%	0.7%
Japan	3.0%	-6.8%	-2.2%
Iran	1.9%	0.6%	2.3%
South Korea	1.7%	-6.3%	0.8%
Indonesia	1.6%	-12.0%	5.9%
Saudi Arabia	1.6%	-0.8%	-0.8%
Canada	1.5%	-8.8%	0.0%
Brazil	1.3%	-5.3%	-2.3%
South Africa	1.2%	-7.0%	0.6%
Mexico	1.1%	-16.4%	-0.2%
Australia	1.1%	-6.6%	1.0%
Turkey	1.1%	-2.0%	3.3%
International aviation	0.9%	-45.3%	3.8%
International shipping	2.1%	-1.2%	4.1%

Source: JRC, 2021.

EU27 total fossil CO_2 emissions had already decreased over the past two decades and emissions in 2019 were 23.2% lower than in 1990 and 20.7% lower than in 2005([14]). The COVID-19 pandemic brought the EU27 CO_2 emissions to decline by 31.3% [31.5%] in comparison with 1990 and by 29.1% [29.3%] in comparison with 2005. The EU27 share of the global total emissions decreased from 8.5% to 7.8% between 2015 and 2019 to fall to 7.3% in 2020. In 2020, the EU27 emitted 2.6 Gt CO_2, corresponding to 5.9 t CO_2 per person. A closer look at the most recent years shows that the decrease of 1.7% between 2017 and 2018 more than doubled in 2019 to 4.5% and reached 10.6% [10.8%] in 2020. Among the EU27 countries the largest fall in CO_2 emissions was observed in Greece by nearly 23% followed by Luxembourg (17% less) and Spain (16% less). In 2020, the largest contributor to the EU27 total CO_2 emissions was Germany with a 24.3%, share followed by, Italy (11.3%), Poland (11.2%), France (10.7%) and Spain (8.2%).

In 2020, all EU27 sectors reduced their CO_2 emissions, in particular the Power industry (13.9%) and transport (12.9%). A more detailed analysis of COVID-19 impact and the consequent reduction in emissions in the EU27 is presented in Section 5 of this booklet.

([14]) As mentioned in the executive summary, EDGAR emission estimates are provided for the upcoming UNFCCC Global Stocktakes, complementing officially reported national emission inventories which are also based on IPCC reporting guidelines and reviewed by UNFCCC. The EDGAR data are different from those used to track the accomplishment of EU reduction policies and officially submitted to UNFCCC.

China's fossil CO_2 emissions have continued to increase in recent years after staying relatively flat from 2014-2016. In 2017 they rose by 1.8%, in 2018 by 3.1%, in 2019 by 2.2%; and in 2020 by 1.5% [1.3%], to reach 11.7 Gt CO_2. The per capita CO_2 emissions (8.2 t CO_2/cap/yr) in 2020 were 1.2%% [0.9%] higher than in 2019 (8.1 t CO_2/cap/yr), while CO_2 emissions per $1000 GDP, amount to about 508 kg CO_2/$1000 (PPP)/yr, the most of the top-6 emitting economies. The increase in Chinese emissions in 2020 is mainly due to increases in oil and gas consumption by 1.7% and 6.9%, respectively. Coal consumption increased by only 0.3% but it continued to have the highest share of fossil fuel consumption with 67.1%. The shares of oil and gas in country's fossil fuel consumption were 23.2% and 9.7% respectively. The sectors contributing the most to the fossil CO_2 emissions in China are power generation (41%) and other industrial combustion (28%). In 2020 the emissions from these sectors increased by 0.8% and 1.2%, respectively.

Emissions of fossil CO_2 in the **United States** decreased by 1.1% in 2017; in 2018 they increased by 3.1% but fell again in 2019 by 2.4% followed by a decrease of 9.9% [10.2%] in 2020. Total fossil CO_2 emissions in 2020 accounted for approximately 4.5 Gt, with 94% emitted by combustion sources. The fall in CO_2 emissions in 2020 was driven by substantial falls in coal (19.1%) and oil (12,6%) consumption. Compared to peak emissions in 2005, 2020 emissions were 24% lower (and 11% lower compared to the 1990 levels), whereas the population has increased by over 12% over the same period. Total CO_2 emissions have fallen since 2005, primarily because of reduced (-5%/yr on average) coal consumption (BP, 2021). In 2020, emissions per unit of GDP were 229 kg CO_2/1000 USD(PPP)/yr, 6.7% lower compared to 2019 continuing the reduction of the previous year. Emissions per capita have decreased by 10.6% [10.8%] in 2020 compared to 2019 to reach 13.7 t CO_2/cap/yr, the highest of the top 6 emitting economies.

India's fossil CO_2 emissions decreased by 0.15 Gt CO_2 in 2020, to approximately the level of 2017, halting the continual CO_2 emission increases since 1990. With a share of approximately 6.7% of total global CO_2 emissions in 2020, India is the fourth largest emitting economy after China, the United States and the EU27. However, India's per capita emissions of 1.7 t CO_2/cap/yr are more than four times lower than China and the EU27, about eight times lower than United States and below the average per capita emissions of many developing countries. The largest contribution to emissions comes from the energy sector, which decreased by 5.6% with respect to 2019 and which is mostly supplied by coal. Annual coal consumption, mostly domestically produced, decreased by 5.7%, whereas annual oil and gas consumption decreased by 9.7% and 0.6% respectively according to BP (2021).

Russia's fossil CO_2 emissions fell by about 5.8% [6.1%] in 2020, just below 1.7 Gt, at approximately the same level of the beginning of the century, accompanied by a GDP drop of about 3% compared to 2019. With a share in global CO_2 emissions of 4.7% in 2020, Russia is the fifth largest emitter after China, the United States, EU27 and India. Russian per capita emissions of 11.6 t CO_2/cap/yr are higher than those of China (by 42%), EU27 (by 97%) and Japan (by 39%), but 15% lower than those of the United States.

Japan saw fossil CO_2 emissions fall by 6.8% [7.1%] in 2020, continuing the recent decreasing trend (-20% in 2020 compared to 2013 when emissions peaked) aligned with a sharp decrease in GDP (-4.8% in 2020 compared to 2019). Japanese fossil CO_2 emissions accounted for 1.06 Gt CO_2 in 2020, representing approximately 3% of global CO_2 emissions. Japan's per capita emissions in 2020 (8.4 t CO_2/cap/yr) were of the same level of those of the Netherlands (8.4 tCO_2/cap/yr) and slightly higher than those of Germany (7.7 tCO_2/cap/year).

3 Global CO_2 from LULUCF from 2000 until 2015

For the first time, this edition of the EDGAR booklet includes estimates of CO_2([15]) emissions and removals from Land Use, Land-Use Change and Forestry (LULUCF), identified as one of the key sectors for tackling climate change and for compliance with emission reduction strategies (Grassi et al. 2017, IPCC 2019a). Including LULUCF estimates helps to have a more complete overview of global anthropogenic CO_2 fluxes. However, LULUCF is an extremely complex sector to account for in terms of carbon emissions and removals, due to the inherent complexity of terrestrial ecosystems and the difficulty of disentangling anthropogenic and natural fluxes.

In this first version of the EDGAR LULUCF dataset, only the "Forest Land remaining Forest Land" category has been estimated independently. The CO_2 fluxes from other LULUCF categories are obtained from official country reporting to the UNFCCC.

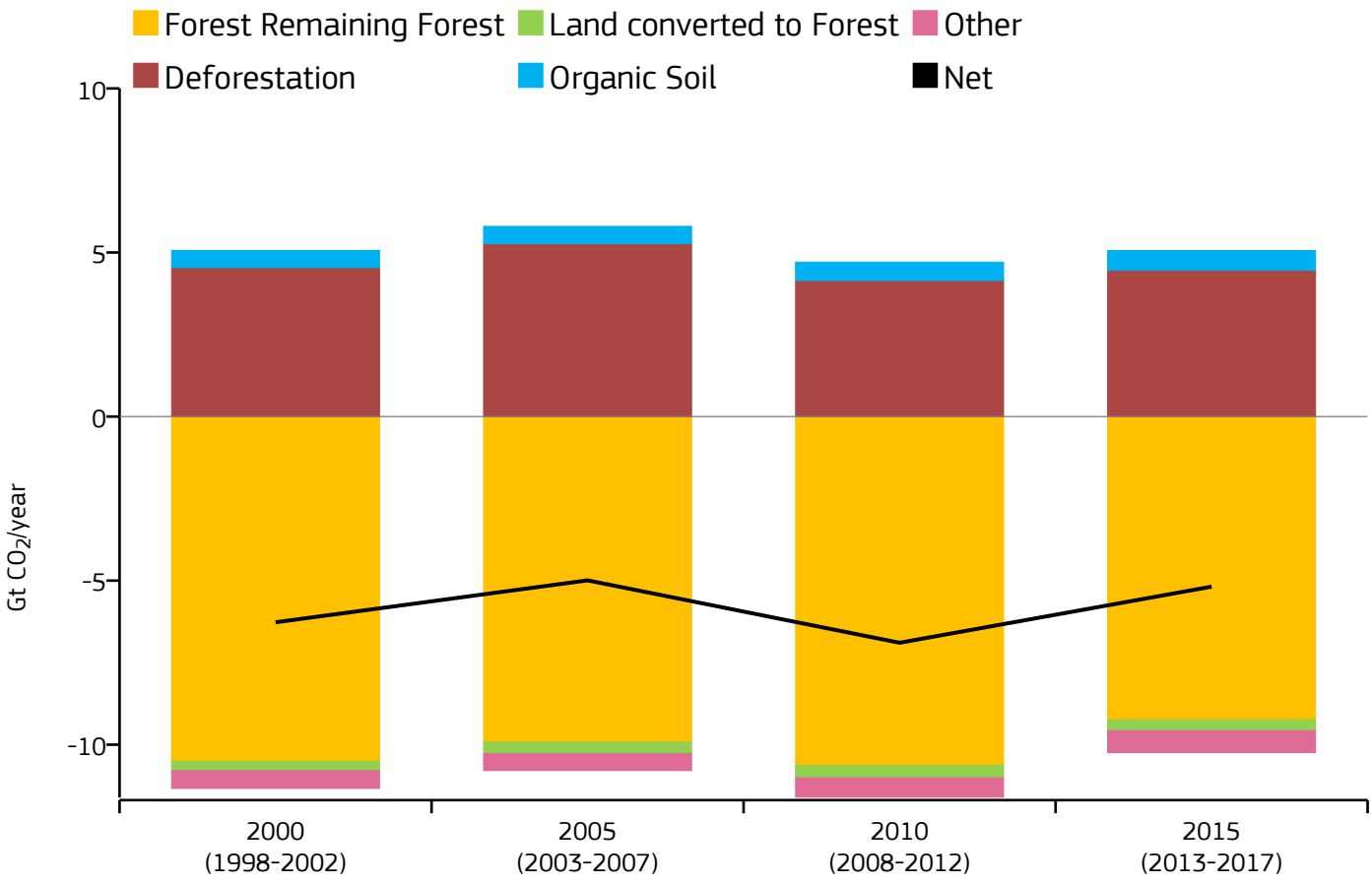
The focus on Forest Land remaining Forest Land (i.e. managed forest existing for at least 20 years) is because this category is very important in terms of absolute CO_2 removals, but its reporting is often incomplete (especially in developing countries) and the attribution of anthropogenic vs natural fluxes is very uncertain. The estimates presented here combine satellite-derived data to track land use (using non-intact forest area as proxy for countries' managed forests, Grassi et al. 2021) with specific default IPCC factors and country statistics (see Annex 3 for details). Since the IPCC factors derived from the literature are often very uncertain and show a high variability across different continents (also for the same tree species or forest types), we used additional literature and expert judgement to obtain a more homogeneous and consistent set of values. In terms of attribution of anthropogenic fluxes, the approach used here is in principle comparable with what most countries include in their GHG reports following the IPCC Guidelines for National GHG inventories (IPCC 2006, IPCC 2019b), but differs from the global models used in the IPCC reports (IPCC AR5, IPCC 2019a). Global models typically consider managed forest as those that are subject to intense harvest, whereas countries may define managed forest more broadly and therefore include a much larger area. In addition, country GHG inventories frequently consider the natural response of land to human-induced environmental changes (e.g. CO_2 fertilisation, etc.) as anthropogenic, while the global model approach treats this response as part of the non-anthropogenic flux (Grassi et al. 2021, IPCC 2019a).

For the other LULUCF categories (here grouped as deforestation, land converted to forest, organic soil, and 'other', which includes cropland, grassland and settlements) this booklet uses a compilation of countries' data officially reported to the UNFCCC within GHG Inventories (for Annex I parties) and other GHG reporting such as National Communications or Biennial Update Reports (for Annex I parties) (see Grassi et al., 2021, for methods and assumptions). The 'deforestation' component incudes the CO_2 emissions reported under IPCC category 'Forest conversion to other land' and partially the CO_2 emissions from 'forest fire' category. In this first release of EDGAR-LULUCF, forest fires have not been explicitly indicated because assumed to be mostly captured under deforestation ('Forest conversion to other land'). An independent methodology for estimating emissions from 'forest fires' in 'forest remaining forest' is under development. For comparison, the global forest fires emissions estimated by FAOSTAT (http://www.fao.org/faostat/en/#data/GT) range between 0.1 and 0.2 Gt CO_2eq/yr in the last 10 years.

The CO_2 emissions and removals from LULUCF are here presented for the world (figure 5) and for EU27 (figure 6) with a five year-averaged interval from 2000 to 2015 (e.g. the 2000 figure is the average of the period 1998-2002), to account for uneven reporting intervals generally adopted by Non-Annex I countries.

([15]) Based on information from Annex-I GHG inventories, non-CO_2 emissions represent about 6% of the CO_2eq. net flux in LULUCF (average period 2014-2018).

Figure 5. Global CO_2 emissions and removals from LULUCF sector. Each year Y represents a 5-year average period from Y-2 to Y+2 (Gt CO_2).



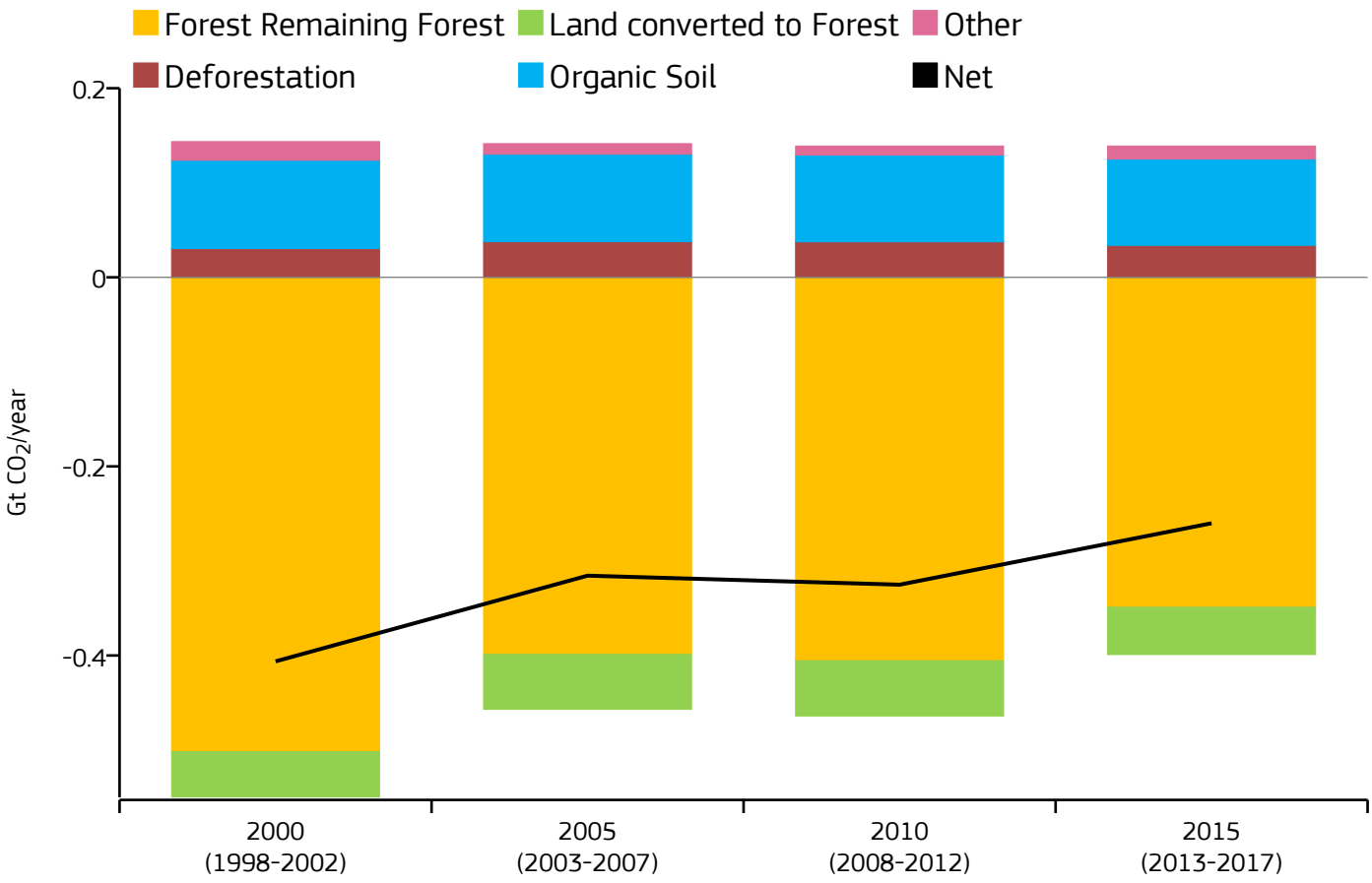
Source: JRC, 2021.

Global. The LULUCF sector was responsible for a net CO_2 removal of about 5 Gt CO_2 in 2015 (in the remaining of this section, a specific year Y refers to the 5-year average Y-2 to Y+2, thus values for 2015 refer to the average over the period 2013-2017), approximately the same level of a decade before, but 25% less than in 2010. This net removal is equivalent to approximately 14% of global anthropogenic (excluding LULUCF) CO_2 emission and 10.5% of total anthropogenic GHG emissions in 2015.

Managed forests (excluding deforestation) are by far the main CO_2 removal, with an estimated 9 Gt CO_2 in 2015, equivalent to about 25% of global anthropogenic (excluding LULUCF) CO_2 emitted in the same period. This independently estimated net removal, is larger than what countries include in their GHG reports (about 5 Gt CO_2/yr, Grassi et al. 2021); the difference may be partly explained by incomplete country reports. In 2015, deforestation (from country reports) was responsible for a CO_2 emission of about 4.5 Gt CO_2, approximately equivalent to 12% of the total anthropogenic (excluding LULUCF) CO_2 emissions in that period. Among the other components (taken from country GHG reports), land converted to forest is a rather stable net removal of 0.3 Gt CO_2/yr, while organic soils are a rather stable emission of about 0.5 GtCO_2/yr. The large difference between the net LULUCF estimates in this booklet and those from the IPCC reports (net emissions of about 5 Gt CO_2/yr, IPCC 2019a) can be to a large extent explained by different approaches in assessing the "anthropogenic" CO_2 removals, i.e. this booklet (consistently with most country GHG reports) consider anthropogenic part of the CO_2 removals that global models (as reflected in the IPCC reports) consider natural.

While reconciling the difference in this attribution (i.e., anthropogenic vs. natural) is crucial for assessing the collective country climate progress against emission pathways by global models (Grassi et al. 2021), this difference does not necessarily indicate a genuine discrepancy in CO_2 fluxes. Considering that the IPCC (2019a) estimates a removal of 6 Gt CO_2/yr for the 'net land-atmosphere flux from all lands' (i.e., managed and unmanaged), and that about 70% of land is subject to some degree of management (IPCC 2019a), the net removal of about 5 Gt CO_2/yr estimated in this booklet from managed land - nearly proportional to the corresponding area – overall appears plausible.

Figure 6. EU27 CO_2 emissions and removals from LULUCF sector. Each year Y represents a 5-year average period from Y-2 to Y+2 (Gt CO_2).



Source: JRC, 2021.

EU27. The LULUCF sector produced a net removal of CO_2 emissions of about 0.26 Gt CO_2 in 2015, approximately 20% less than in 2010 and 36% less than in 2000 (0.41 Gt CO_2). This is equivalent to approximately 8.4% of EU27 anthropogenic (excluding LULUCF) CO_2 emission and 6.6% of anthropogenic GHG emissions in 2015. Managed forests are by far the most important C sink, with an estimated net 0.35 Gt CO_2 in 2015, equivalent to over 11% of anthropogenic (excluding LULUCF) CO_2 emitted in EU27 in the same period (it was 14% in 2000). In 2015, the reporting category forest converted to other land uses in EU27 was responsible for a net CO_2 emission of 0.034 Gt CO_2.

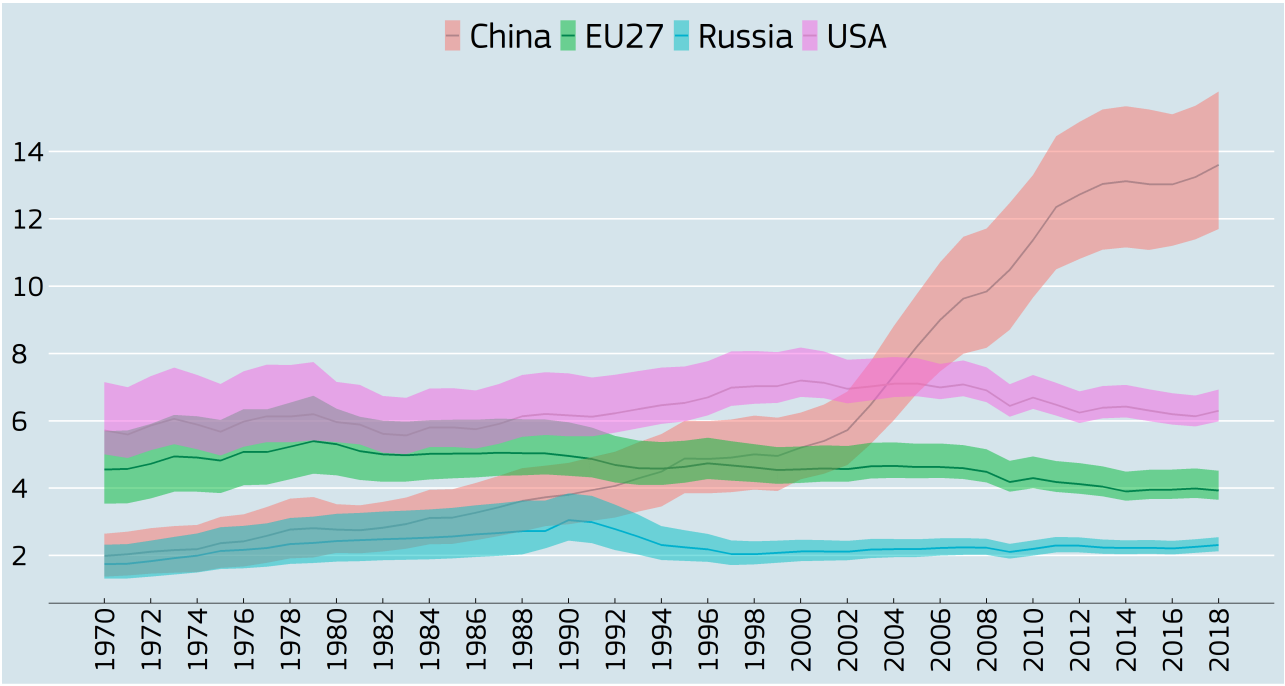
The other components (Land converted to Forest, Organic Soils and 'Other') produced a net emission of 0.05 Gt CO_2 in 2015 (about 11% more than in 2010). In 2015, the CO_2 sink of the 'Land converted to forest' component (0.05 Gt CO_2) has decreased by 14% with respect to the value in 2010.

4 Global anthropogenic Greenhouse Gas Emissions from 1970 until 2018

The non-CO_2 greenhouse gases considered in this study together contribute 26.1% to the 2018 global GHG emissions estimated in this report([16]), an amount comparable to the CO_2 emissions of the anthropogenic 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 discussed in this section is also considerable.

EDGARv6.0 provides emission estimates also for non-CO_2 greenhouse gases, i.e., CH_4, N_2O from 1970 until 2018 and fluorinated gases (F-gases) from 1990 until 2018 entirely based on international statistics. Total GHG emissions are reported 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 (see also Figure 7), as well as the per capita and per GDP trends. For a more detailed description of our findings for the EU27 and the five largest emitting countries, we refer to Olivier et al. (2021). 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; Solazzo et al., 2021).

Figure 7. Annual GHG (CO_2, CH_4, N_2O and F-gases) emissions in top emitting countries and the estimated uncertainty (coloured bands), 1970-2018 (Gt CO_2 eq/yr).



Source: JRC, 2021.

Global GHG emissions are dominated by the fossil CO_2 share and increased steadily over the entire period 1990-2018 from 32.7 to 51.2 Gt CO_2eq/yr, with an overall increase in total GHG emissions of ca 57%. Non-CO_2 GHG emissions continue to increase in absolute terms, though their share in total global emissions has declined from 30.4% in 1990 to 26.3% in 2018. Per capita GHG emissions decreased in the 1980s and 1990s to a minimum of 5.8 t CO_2eq/cap/yr but have since then increased by 13.2% from 2000 to 2018 to reach 6.7 t CO_2eq/cap/yr. In 1990, CH_4 and N_2O emissions accounted for 22.6% (7.4 Gt CO_2eq) and 6.7% (2.2 Gt CO_2eq) of the global total, respectively, but these shares decreased to 18.3% (9.4 Gt CO_2eq) and 5.6% (2.9 Gt CO_2eq) by 2018, 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 increased their share of the global GHG total from 1.1% (0.37 Gt CO_2eq) in 1990 to 2.4% (1.2 Gt CO_2eq) in 2018.

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

In **EU27**, as seen in Figure 7, GHG emissions had increased from 1970 until around 1980 and since then followed a mostly decreasing pattern. In 2018 EU27 GHG emissions amounted to 3.9 Gt CO_2eq/yr, a reduction of 20.4% compared to 1990. GHG emissions from the EU27 are dominated by fossil CO_2 emissions which are more than three quarters of the total GHGs (ranging from 77% to 80% over the 1990-2018 period).

The CH_4 contribution to total GHG emissions varies from 11.5% to 14.0% and it is mainly from the agricultural sector (enteric fermentation and manure management, representing 45.4 % of CH_4 emissions in 2018), waste treatment and disposal (representing 29.7% of CH_4 emissions in 2018) and production of coal and gas (representing 18.3 % of CH_4 emissions in 2018). In 2018, the top five emitting countries, responsible for 58% of EU27 CH_4 emissions are France (14.0%), Germany (13.3%), Poland (12.9%), Spain (9.1%) and Italy (8.5%).

N_2O emissions represent between 5.8% and 6.8% of the total greenhouse gas emissions in the 1990-2018 period and are produced mainly from agricultural soils and the chemicals industry. In 2018, the six top emitting countries were France (15.5%), Germany (14.7%), Poland (11.1%), Spain (9.5%) and Italy (6.9%), responsible for about 58% of N_2O emissions in the EU. In 2018, F-gases contributed with 0.12 Gt CO_2eq representing 3.0% of EU27 GHG emissions. The per capita emission of GHG in the EU27 in 2018 is of 8.7 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 27% in 2018.

China's GHG emissions increased almost 6.8 times between 1970 and 2018, from 2 Gt CO_2eq/yr in 1970 to 13.7 Gt CO_2eq/yr in 2018. The contribution of CH_4 in total CO_2eq declined from 47.3% in 1970, to 29.8% in 1990 and 12% in 2018, whereas for N_2O they were 7.5%, 8.2% and 3.1%, respectively. The contribution of F-gases in total CO_2eq was 0.1% in 1990 and 3% in 2018 reaching 0.4 Gt CO_2eq/y. Overall, the contribution of non-CO_2 GHG to total CO_2eq decreased considerably from 54.9% in 1970 to 38.1% in 1990 and 18% in 2018, showing the relative increase in industrial versus agriculture development on GHG emissions since 1970. Non-CO_2 GHGs add ca 18% to both per capita emissions and per GDP CO_2eq emission in 2018.

In 2018, **United States'** GHG emissions reached 6.3 Gt CO_2eq and were dominated by fossil CO_2 emissions, which contributed 81.9% of the total. CH_4 had the second largest share representing 10.1% of US GHG emissions, while N_2O and F-gases contributed for 4.9% and 3.0%, respectively. CH_4 is mainly emitted by agricultural activities (enteric fermentation and manure management: 36.1% in 2018), fugitive emissions from the production of oil gas and coal (40.1% in 2018), and the waste sector (wastewater treatment and landfills: 19.2% in 2018). 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 2018 is 19.3 t CO_2eq/cap/yr. Non-CO_2 GHGs comprise 18.1% of the per capita CO_2eq emissions in 2018.

India's GHG emissions reached 3.6 Gt CO_2eq/yr in 2018, 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 45% in 1990 and 21% in 2018. Over the same period, the share of N_2O emission went from 10.3% to 11% and then to 7%. India experienced a noticeable shift from 1970, when non-CO_2 GHGs accounted for a 72% share of overall GHG emissions, falling to 37% by 2018, mostly due to a decreasing share of agricultural activities in Indian economy. The per capita emission of GHG in India in 2018 is of 2.6 t CO_2eq/cap/yr. Non-CO_2 GHGs comprise 30% of the per capita CO_2eq emissions in 2018. The same figure was above 41% in 2006. F-gases represent a minor contribution to Indian's GHG, with a 1.5% share in 2018.

Russia's GHG emissions fell by 24% in 2018 with respect to 1990 after a continue increase in GHG emissions started in 1970 and ended in 1990. This corresponds to a change in GHG emissions from 1.7 Gt CO_2eq/yr in 1970 to 3 Gt CO_2eq/yr in 1990, falling back to 2.3 Gt CO_2eq/yr in 2018. The shares of CH_4 for these three years in total CO_2eq emissions in Russia were 18.1%, 15.9% and 17.7%, whereas for N_2O were 5.9%, 3.7% and 3.2%, respectively. The per capita emission of GHG in Russia in 2018 is of 16 t CO_2eq/cap/yr, 22% of which can be attributed to non-CO_2 GHGs emissions. In 2018, F-gases contributed with 0.04 Gt CO_2eq representing 1.6% of Russian GHG emissions.

Japan's GHG emissions have fluctuated around the value of 1.3 Gt CO_2eq/yr (ranging between of 1.26 Gt CO_2eq/yr in 2009 and 1.42 Gt CO_2eq/yr in 2013), and estimated to 1.27 Gt CO_2eq/yr in 2018. The share of CH_4 emissions has decreased from 6% in 1990 to 4.1% in 2018 (corresponding to 0.05 Gt CO_2eq), whereas the share of N_2O emissions decreased from 2.3% in 1990 to 1.6% in 2018 (corresponding to 0.015 Gt CO_2Eq). Per capita GHG emissions in Japan in 2018 are of 9.9 t CO_2eq/cap/yr, 7% of which can be attributed to non-CO_2 GHGs emissions. In 2018, F-gases contributed with 0.023 Gt CO_2eq, representing 1.8% of Japanese GHG emissions (was 1.4% in 1990).

5 COVID-19 impact on the global trends

At the time of the final revision of this booklet (September 2021), the world is undergoing a new stage in the COVID-19 pandemic. Such a global-scale event has had a significant impact on human activities and, consequently, it has influenced anthropogenic GHG emission trends as clearly shown by the CO_2 data reported in this booklet, although of course not all changes from 2019 to 2020 are attributable to the COVID-19 crisis.

A clear picture emerges from the CO_2 emission in 2020 even though they are estimated with the Fast-Track approach: table 3 shows the changes in CO_2 emissions from 2019 to 2020 for both the world and the top emitting countries split by the EDGAR activity macro sectors of Buildings, Power Industry, Transport, Non-Power Industry and Others.

Table 3. Percentage changes of CO_2 emissions between 2020 and 2019 in the world and in the top six emitters, by macro sector. Last row shows the share of global CO_2 emissions attributed to each sector in 2020.

Country	Buildings	Power Industry	Transport	Other industrial combustion	Other sectors
World	-4.3%	-4.5%	-11.7%	-3.2%	1.1%
China	2.2%	0.8%	2.3%	1.2%	3.4%
United States	-4.1%	-12.3%	-12.1%	-6.0%	-4.4%
EU27	-7.4%	-13.9%	-12.9%	-9.6%	-1.0%
India	-8.3%	-5.6%	-9.4%	-6.3%	-0.7%
Russia	-6.8%	-7.4%	-5.6%	-6.5%	1.8%
Japan	-8.5%	-4.9%	-11.3%	-7.5%	-5.0%
Sector Emission Share (2020)	**9.4%**	**36.5%**	**20.3%**	**21.7%**	**12.1%**

Source: JRC, 2021.

Transport, counting for about one fifth of global emissions, has been the sector mostly affected by emission reduction at the global level, following the well-known restrictions and the consequent decrease in transport demand in all major countries. According to (IEA, 2021) oil global demand fell by 9% on average in 2020, but it is expected to grow by 6% in 2021.

The power industry, counting more than one third of emissions, also decreased its emissions by 4.5%, a percentage amount similar to the decrease in primary energy consumption reported in (BP, 2021) The building sector has also seen a reduction in emissions, probably caused by reduced use of commercial buildings and offices during restrictions. Industry, also counting for one fifth of global emissions, reduced its emissions by about 3% following also the economic crisis and the world GDP loss of–2.8%, while other sectors have reacted in a mixed way.

It is worth mentioning that in some cases the reductions seen in 2020 have continued and reinforced pre-existing trends. For instance, emissions from power industry decreased annually between 2015 and 2019 by about 4% in both USA and EU27 and by 2% in Japan. For transport, on the other hand, the COVID-19 pandemic interrupted an increasing emission trend taking place both at the world level (+1.7% annually between 2015 and 2019) and in all top emitters apart from Japan.

Regardless of the pandemic, emission changes for China in 2020 showed relatively small variations from the existing trends. Indeed, annual average changes for the period 2015-19 amounted to +2.4% in Buildings, +3.0% in Power industry, +3.4% in Transport and +3.2% in other sectors. It is also worth noticing that Chinese emissions from non-power industry in 2020 increased by 1.2%, reversing a previously decreasing trend of –1.0% per year, possibly indicating an increase of industrial activity during 2020.

EDGAR data for 2020 broadly confirm earlier estimates: indeed, Tollefson (2021) forecasted a world decrease of 6.4% in CO_2 emissions, while Larsen et al. (2021) estimated a decrease of US emissions, equal to 10.3%. As for Europe, the European Commission had announced that GHG emissions from operators, covered by the EU Emissions Trading System (EU ETS), fell by 13.3% in 2020 compared to 2019 levels (EC, 2021) and Climate Action Tracker (2021) also estimates that GHG emissions in EU27 may have decreased by 10-11%.

In the case of power sector, IEA (2020b), reported that developed countries have had a decrease in electricity demand, in comparison with 2019, ranging from 5% to 25% during spring 2020. For China, IEA (2020b) reported a reduction between January and March, with rebounds occurring thereafter, leading to an overall yearly increase of around 2-3%. Nevertheless, the variation in electricity demand gives only part of the picture, as the energy mix has also been modified by unusual demand patterns and by the fact that in several countries, renewable energies are supported by dispatching priority policies. Colelli et al. (2021) have indeed shown that renewables have provided 60% of power generation in Germany (15% more than a non-COVID counter factual scenario), and 50% in Italy and Spain (+ 5 –10% against non-COVID).

In 2020 the EU27 manage to continue its path towards a cleaner energy mix: in front of a Primary Energy Consumption decrease of 8.2%, consumption of coal and oil, the most emitting fuels, have decreased by 19.2% and 13.2%, respectively making them less important in the EU27 energy mix. Natural gas consumption on the contrary decreased by just 2.9%, while renewables (including hydro) have increased by 7.1% contributing to further decreasing the overall CO_2 emissions of the block.

Discussions are ongoing in the scientific community and among policymakers on the post COVID recovery patterns and how they could become an opportunity for easing the transition to net zero emissions, (Pradhan et al., 2021). Nevertheless, early estimates of the amount of widely expected emissions rebound for 2021 published e.g., by the International Energy Agency (IEA,2021) forecast an increase of CO_2 emissions of 4.8% at the global level, driven by a reprise of the demand for traditional fossil fuels (oil, coal and gas).

Given its detailed granularity in terms of sectors, fuels and geographical entities, EDGAR will be able to follow the development of the later stages of the pandemic and the coming years, as reliable activity data become available.

6 Conclusions

The Emissions Database for Global Atmospheric Research (EDGAR) is a comprehensive inventory of anthropogenic emission time series from 1970 until 2020 for fossil CO_2 and until 2018 for non-CO_2 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 national inventories and reporting prepared by Parties to the Paris Agreement, in particular by producing a timely emissions estimate([17]) that is independent, and based on consistent application information and methodological tools across countries. In particular, the time series of EDGARv6.0 can provide collective emissions trend information for all countries that will be needed for the UNFCCC's Global Stocktake in 2023. EDGARv6.0 provides an important input to the analysis of global fossil CO_2 emission trends with its 50-year time series.

For the first time EDGAR includes estimates for LULUCF, showing how the global CO_2 removals by this sector was approximately 5 Gt in 2015 (average period 2013 to 2017), rather stable compared to the previous 15 years. In the EU27, LULUCF was a removal of about 0.26 Gt CO_2 in 2015, reducing its magnitude by about one third with respect to 2000.

EDGARv6.0 shows that global fossil CO_2 emissions from anthropogenic activities (as defined in footnote 2), have, after remaining broadly constant in 2014-2015, increased by 0.9% from 2018 to 2019, reaching a total of 38.0 Gt CO_2 and fell by 5.1% in 2020 mainly as a consequence of the COVID-19 pandemic and its associated impacts.

During 2020, a very special year, all major economies, except China, have shown important decreases in their CO_2 emissions, in absolute terms and also per capita and per unit of GDP. Such decreases are unlikely to be related to structural changes in any of the sectors. For this reason, the 2020 CO_2 emission decrease is expected to be at least partially compensated by the rebound of the world economy already taking place in several regions of the world. The degree and features of such a rebound will also clarify how much of the emission decreases taking place in 2020 will become permanent advances along the pathway towards a low carbon society and how much they will be postponed in the near future.

In all cases, EDGAR dataset will play a major role among the analysis tools available to the scientific community and the policy makers, thanks to its very detailed granularity in terms of sectors, fuels and geographical entities.

([17]) In official National Inventory Reports, the latest reporting year can be up to two years prior to the submission year.

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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 (population)
BGS	British Geological Society
CCA	China Cement Association
CCRI	China Cement Research Institute
CH_4	Methane, greenhouse gas with GWP-100 = 25 under AR4
CO_2	Carbon dioxide
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.)
EU27	European Union with 27 Member States
FLrFL	Forest Land remaining Forest Land category
GCSA	Global Cement and Concrete Association
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-year period
IBEF	India Brand Equity Foundation
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
yr	Year

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Annexes

Annex 1: Bottom-up methodology for the emissions compilation

The basis for the fossil CO_2 time series presented in this report is EDGARv6.0 (https://edgar.jrc.ec.europa.eu/dataset_ghg60) which covers the period 1970-2018. In EDGAR, the 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.

Regarding fossil CO_2 emissions, all anthropogenic 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.

Table 4. Main activities included in EDGAR emissions estimation.

Fossil CO2	CH4, N2O, F-Gases	CO2 LULUCF
Power Industry: power and heat generation plants (public and auto-producers) **Other industrial combustion:** combustion for industrial manufacturing and fuel production **Buildings:** small scale non-industrial stationary combustion **Transport:** road, non road, domestic and international aviation, inland waterways and international shipping **Other sectors:** industrial processes, agriculture soils (urea fertilization and lime) and waste	**Power Industry:** power and heat generation plants (public and auto-producers) **Other industrial combustion:** combustion for industrial manufacturing and fuel production **Buildings:** small scale non-industrial stationary combustion **Transport:** road, non road, domestic and international aviation, inland waterways and international shipping **Other sectors:** agriculture livestock (enteric fermentation, manure management), agriculture soils (fertilisers, lime application, rice cultivation, bread and paper production), field burning of agricultural residues and waste	**Forest Remaining Forest** **Land converted to Forest** **Deforestation** **Organic Soil** **Other:** cropland, grassland and settlements

Source: JRC, 2021.

EDGARv6.0 uses international activity data, mainly energy balance statistics of IEA (2019) for 1970-2017 to estimate CO_2 from fossil fuel consumption. CO_2 emissions are then extended with a Fast Track approach until 2020 using the publicly available IEA CO_2 emissions by main fuel type (coal, oil and gas) for the year- 2018 (IEA, 2020a) and BP statistics for the years 2019 and 2020 assuming the same sectoral breakdown as in the last year of the IEA energy balance statistics. As a consequence of this approach, the emissions for the Fast Track years (2018-2020) reported in this booklet will be updated in subsequent editions of this booklet, using future releases of the IEA energy balance statistics. Updates for 2016, 2017, 2018, 2019 and 2020 for cement, lime, ammonia and ferroalloys production are based on USGS (2021) and BGS (2021) statistics, urea production and consumption are based on IFA (2020) statistics, associated gas used from flaring from GGFR/NOAA, steel production from worldsteel, and cement clinker production from UNFCCC (2020a). For the other sectors with lower contributions to global CO_2 emissions, the time series have been extended for the period 2019-2020 using proxy data and relative changes in activity data compared to 2018, reported in recent data sources.

For combustion sources: detailed IEA (2019) activity data are used to calculate CO_2 emissions for the period 1970-2017. The recent trends in fossil CO_2 emissions from coal, oil and natural gas consumption reported by IEA (2020a) and trends in fuel consumption reported in the BP Review of World Energy (BP, 2021) are used to calculate the relative changes beyond 2017 for CO_2 from fossil fuel combustion only. For the changes in international maritime and aviation transport, we apply the reported changes in CO_2 emissions according with IEA (2020a) for the year 2018 while for years 2019 and 2020 the International Shipping CO_2 Emissions Growth from Marine Benchmark (Marine Benchmark, 2021) and Industry Statistics from IATA Statistics (IATA, 2021) have been used as Fast Track approach.

For the fugitive emissions: CO_2 emissions from coke production for 2018 to 2020 follow the same relative change as reported for the crude steel production of worldsteel (2021). CO_2 flared at oil and gas extraction for 1994 onwards is based on the total amount of gas flared derived from satellite observation of the intensity of flaring lights per country (GGFR/NOAA, 2020). No further updates are available at the time of production of this work, so the emissions for year 2020 are calculated based on the trends in natural gas flaring reported in BP (2021). CH_4 emissions from venting are estimated based on data and information from UNFCCC (2020a), EPA (2020) and Höglund-Isaksson, L. (2017).

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 for iron and steel production. Here the crude steel production statistics reported by World Steel Association (worldsteel, 2021) are used as input to calculate CO_2 emissions. Ferro-alloys production data from USGS are used to update the activity data in EDGARv6.0 up to 2015 and for more recent years (2016-20120) further updates are performed by using the pig iron production trends and data from BGS.

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, except for China in 2020 (NBSC, 2021) and India (IBEF, 2021). The clinker-to-cement ratio is based on the clinker production data until 2019 from UNFCCC (2021) for the Annex I countries, and for USA up to 2020 using USGS data; for China f from the China Cement Research Institute (CCRI, 2021). For four other countries (Brazil, Egypt, Philippines and Thailand), we used clinker production ratios from the GCSA: Global Cement and Concrete Association (GCSA, 2021) “up to the year 2018 and then applied a constant trend. The changes in the lime production from USGS (2021) are applied to extrapolate CO_2 emissions from all other carbonate uses (glass production etc.). Concerning the feedstock use for chemicals production, the ammonia production from USGS (2021) is used, except for urea consumption and production, where data are provided by the International Fertiliser Industry Association (IFA, 2021). 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 2019 based on IPCC (2006c) methodology as described in Janssens-Maenhout et al. (2019) by using updated statistics from FAO (2021) for production of meat, pulp, sugar and for average protein supply, and from UN (2021) and RFA (2021) 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 (including cremation from https://www.cremation.org.uk/), clinical, sewage sludge, industrial solid waste, municipal solid waste and other (non-specified) waste with data from UNFCCC (2020) complemented by the approach recommended in IPCC (2006c). Landfills emissions are calculated using the first order exponential decay method, following 2006 IPCC Guidelines (IPCC,2006c). This approach reflects time variation of solid waste disposal and the associated degradation process. For Annex I countries, the amount of landfilled waste is based on the information reported by the parties and available via the UNFCCC Locator tool (UNFCCC, 2020b). To complete the global domain, two other sources are considered: i) UN statistics reporting municipal solid waste (MSW) collected and fraction disposed in landfills (UN, 2020), ii) the per capita MSW generation rate (for 2000) and the fraction MSW disposed, incinerated and composted, presented in IPCC Guidelines (IPCC, 2006b). For non-Annex I countries, the amount of landfilled waste per capita is kept constant using the latest available year along the time series, as suggested in the IPCC Guidelines. It is also assumed that in the developing countries, municipal waste collection only takes place in urban areas thus for these countries, urban population from UN statistics (UNDP, 2019) are used in the calculations (Janssens-Maenhout et al., 2019). More details can be found in Oreggioni et al. (2021).

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 (2021) together with emission factors from IPCC Guidelines (2006b). 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"([18]), "Other Non-OECD Asia"([19]) and "Other Non-OECD Americas"([20]) 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. To allocate the activity data from IEA (2019) to each single country we used splitting factors derived from US EIA (2020) country specific data on fuel consumption of coal, oil and natural gas. Consequently, the uncertainties in CO_2 emission estimations for these countries are larger than the ones for other countries, in particular for the sectorial subdivision; additional reliable data and information are needed to improve the activity data allocation for them.

([18]) 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 (until 2010); Rwanda; Sao Tome and Principe; Seychelles; Sierra Leone; Somalia and Uganda.

([19]) Includes Afghanistan; Bhutan; Cambodia (until 1994); Cook Islands; Fiji; French Polynesia; Kiribati; Lao People's Democratic Republic; Macao; Maldives; Mongolia (until 1984); New Caledonia; Palau (from 1994); Papua New Guinea; Samoa; Solomon Islands; Timor-Leste Tonga and Vanuatu.

([20]) Includes Anguilla, Antigua and Barbuda; Aruba; Bahamas; Barbados; Belize; Bermuda; British Virgin Islands; Cayman Islands; Dominica; Falkland Islands (Malvinas); French Guiana (until 2010); Grenada; Guadeloupe (until 2010); Guyana; Martinique (until 2010); Montserrat; Puerto Rico (for natural gas); 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)

EDGARv6.0 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 5). Details on the methodology and data sources used are provided in Oliver et al. (2021).

Table 5. Overview on F-gases by sector included in EDGARv6.0.

General Category	Substances	Industrial Processes
		Non-ferrous Metal Production
	SF6	Chemical Industry
		Electronic Industry
		Electrical Equipment
	NF3	Electronic Industry
	C2F6	
	C3F8	
	C4F10	Non-ferrous Metal Production
PFCs	C5F12	Electronic Industry, PFC use in fire
	C6F14	extinguishers, other applications
	c-C4F8	
	CF4	
	HFC-23	
	HFC-32	
	HFC-41	
	HFC-125	
	HFC-134	
	HFC-134a	
	HFC-143	Refrigeration and air conditioning,
HFCs	HFC-143a	fire estinguishers, solvents,
	HFC-152a	aerosols, foam blowing, other
	HFC-227ea	applications
	HFC-236fa	
	HFC-245fa	
	HFC-365mfc	
	HFC-43-10-mee	
	HCFC-141b	
	HCFC-142b	

Source: JRC, 2021.

Annex 3: Methodology for the estimation of emissions from Land Use, Land-Use Change and Forestry (LULUCF)

The EDGAR LULUCF component is the first release of a dataset developed by the JRC. It includes new estimates of emissions and the removals from the Forest Land remaining Forest Land category (FLrFL, i.e. managed forest existing from at least 20 years). The net fluxes from the other land use categories (forest conversions and all the other land uses) are from a dataset based on the official country GHG reports submitted to UNFCCC (see Grassi et al. 2021). The resulting dataset is mostly complete on all land uses for developed countries, while many developing countries do non report on non-forest land uses. An inventory of non- CO_2 emissions from forest fires is currently under development, and therefore the current verson of the EDGAR-LULUCF does not include these components.

The dataset for FLrFL is produced through a geographically explicit global scale implementation of the IPCC Tier 1 approach for Greenhouse Gas Inventories (GHGI), as outlined in the IPCC Guidelines (IPCC, 2006 and 2019 Refinement), that combines activity data and various default factors and country statistics to estimate separately the carbon removals (gains) and emissions (losses) (Rossi et al., in preparation).

The activity data for the gains consist in the areas of the different land use categories, which we assessed by means of one of the most widely used recent spatial land cover datasets, the ESA Climate Change Initiative Land Cover Dataset. This dataset furnishes annual global land cover maps for the period 1992-2015 at approximately 300m spatial resolution at the equator. New global data for the years 2016-2018, consistent with the ESA CCI Dataset, were released in 2019 in the framework of the Copernicus Climate Change Service (C3S). The legend follows the FAO Land Cover Classification System (LCCS). The Land Cover maps were converted to IPCC land use classes by means of a conversion table which considers the shares of the different land use categories in the definitions of the LCCS classes. These were then converted in areas belonging to the various categories for each pixel of the map.

In the estimates reported here, the area of FLrFL was identified in each pixel as the minimum area remaining forest in a period of 20 years. In addition, an Intact Forest layer was used to distinguish managed from unmanaged forest, assuming intact forests to be a good proxy for unmanaged (see Grassi et al. 2021). The activity data for the losses consist in country harvest production statistics (industrial roundwood and fuelwood) from the FAOSTAT database.

In the Tier 1 approach, activities data are then combined with a series of default emission factors and parameters s. (forest growth rate, Biomass Conversion and Expansion Factors, wood density, carbon density, root-to-shoot ratio etc.). The IPCC Guidelines contain tables with default values compiled from existing literature, varying by geographical area (continents) and vegetation characteristics. In our geographically explicit modelling approach, parameters were assigned to each pixel according to vegetation/climate/management characteristics identified through ancillary spatial and statistical datasets. This allowed the assessment of characteristics essential to select the correct parameters in each context, such as the tree type (broadleaf or needleleaf), the type of forest (e.g., Tropical Rainforest, Temperate Continental Forest, etc., from FAO/GEZ), the vegetation characteristics (planted trees or natural grown forest, from FAO-FRA), and the forest age class (less or equal 20 years old, more than 20 years old from GFAD complemented by ancillary information from country documents).The default parameters come from the IPCC Guidelines (2006 and 2019 Refinement). These values are compiled from a wide range of literature and present a high degree of heterogeneity among the different continents (also for the same tree species or forest type), reflecting the difficulty of identifying specific parameters which are truly representative for the IPCC forest species/types or climate zone.

According to some analysis (e.g. Cook-Patton et al. 2020) in some cases these IPCC values are systematically under or overestimated. Given the high uncertainty in the IPCC factors, we selected them also using expert judgement and additional literature analysis. The selection of a more reliable set of default parameters is a field with much room for future improvement.

The results for FLrFL were evaluated in comparison with the official country GHG reports. When possible, we compared both the results in terms of emissions and removals, as well as the areas. While for most developed geographic units (e.g. EU, USA) the match was fairly good, the differences observed for some other countries (e.g. Canada, several African and south-Asian countries) deserve further analyses, e.g. on the assumptions made and methods used by the specific countries.

It is important to highlight that the tier 1 estimates produced here are aimed to provide a globally-consistent overview for LULUCF using IPCC default methodologies. These estimates may provide useful information on areas for which no or little official estimations are available (e.g. several African countries) but are certainly not aimed at challenging the estimates produced by individual countries, using locally available data and parameters or advanced Tier 3 modelling approaches.

To date, the database provides georeferenced information on the following items:

1. Land Use Area subdivided by

a. Tree type: Broadleaf, Needleleaf

b. Age Class: <=20 years, >20 years

c. System: Planted, Naturally growing

2. C GAINS (Removals from the atmosphere) subdivided as the Land use areas above

3. C LOSSES (Emissions in the atmosphere) subdivided by

a. Plant type: Broadleaf, Needleleaf

b. Harvest type: Fuelwood, Industrial roundwood

Annex 4: Construction of country fact-sheets

For each country, a fact sheet is provided with time series of fossil CO_2 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 2020 per sector, the fossil CO_2 per capita and per GDP (PPP constant 2017 international $, USD). An overview table with total emissions by country for the years 1990, 2005, 2018, and 2020 is reported, together with per capita, per GDP emissions, and population data (15). The bottom panel of each fact sheet shows the changes in emissions by sector in 2020 for fossil CO_2 compared to the 1990 and in 2018 for GHGs compared to 1990 and 2005 levels. Along with the summary of the fossil CO_2 and GHGs emission time series for each country, a graphical visualisation aids the interpretation of the emissions change over time at the bottom of each page. The graphs compare fossil CO_2 emissions for 2020 and 2018 for GHGs with the emission levels of two key years: 1990 (base year for national greenhouse gases inventory) and 2005, when the Kyoto Protocol came into effect. Emissions stalling, rising or dampening for the year 2020 (and 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


All sectors – Sum of all sectors. The pie chart represents the fossil CO_2 sectorial share in 2020.


indicates a reduction in 2020 (for CO_2) or 2018 (for GHG) emissions by the amount expressed by the percentage value (in green)


indicates growth in 2020 (for CO_2) or 2018 (for GHG) emissions by the amount expressed by the percentage value (in red)


In the cases where 2020 (for CO_2) or 2018 (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 2020 (or 2018). Finally, in the instances when emissions from a specific sector have been reported for the reference year, but not for 2020 (or 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 the 2020 (or 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]). When computing the emission trend for the sum of all sectors, no value is reported in the case of incomplete statistics for the year 1990 (as for example Greenland). Country-specific fossil CO_2 and GHG emission time series can be downloaded at the following website: https://edgar.jrc.ec.europa.eu/report_2021.

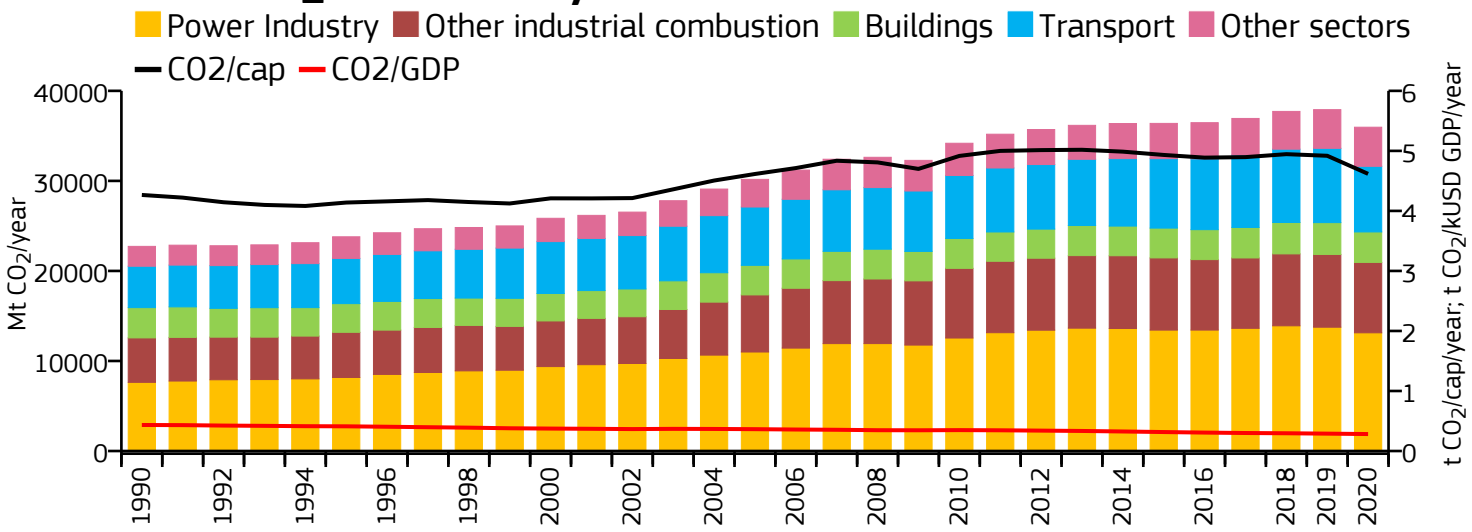
Annex 5: Fossil CO_2 and GHG emissions for the world, international transport and the EU27

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

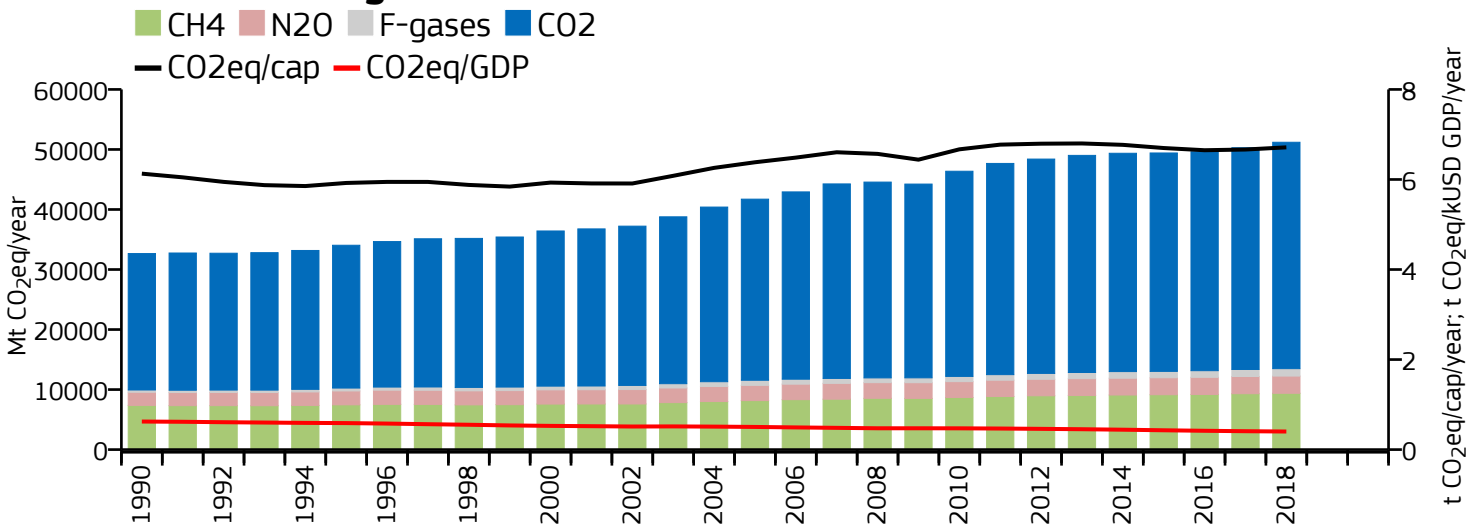
Total EU27 emissions from Member States: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

WORLD

Fossil CO_2 emissions by sector



Greenhouse gas emissions

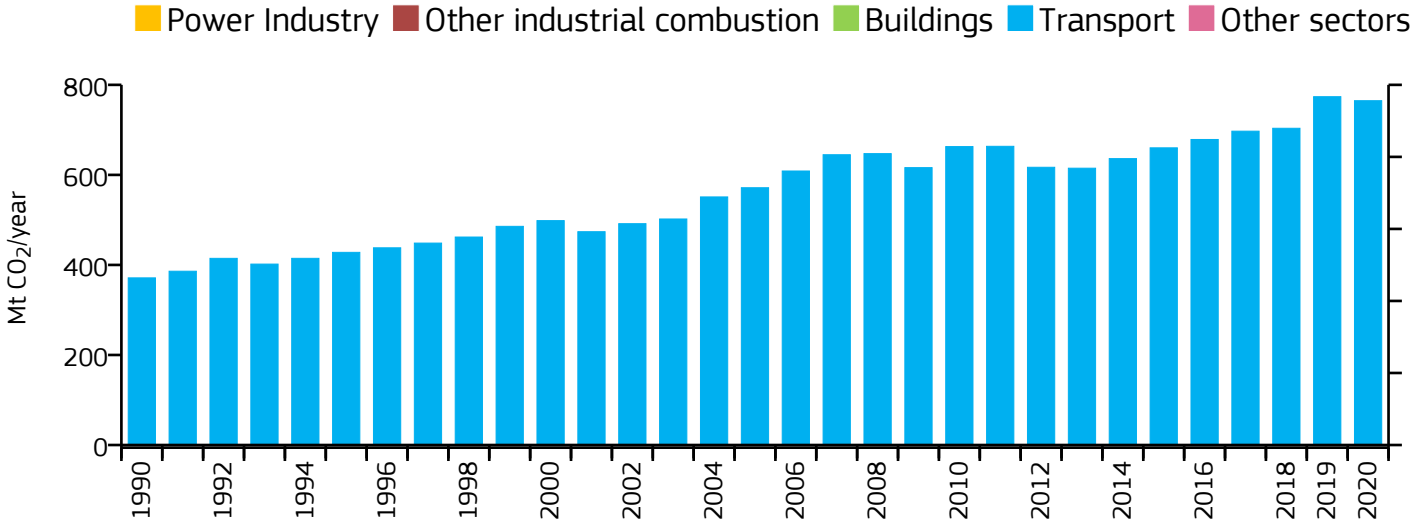


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	35962.871	n/a	4.617	n/a	0.282
2018	37716.181	51199.869	4.945	6.713	0.296
2005	30170.025	41721.874	4.615	6.382	0.364
1990	22727.883	32656.752	4.266	6.129	0.434

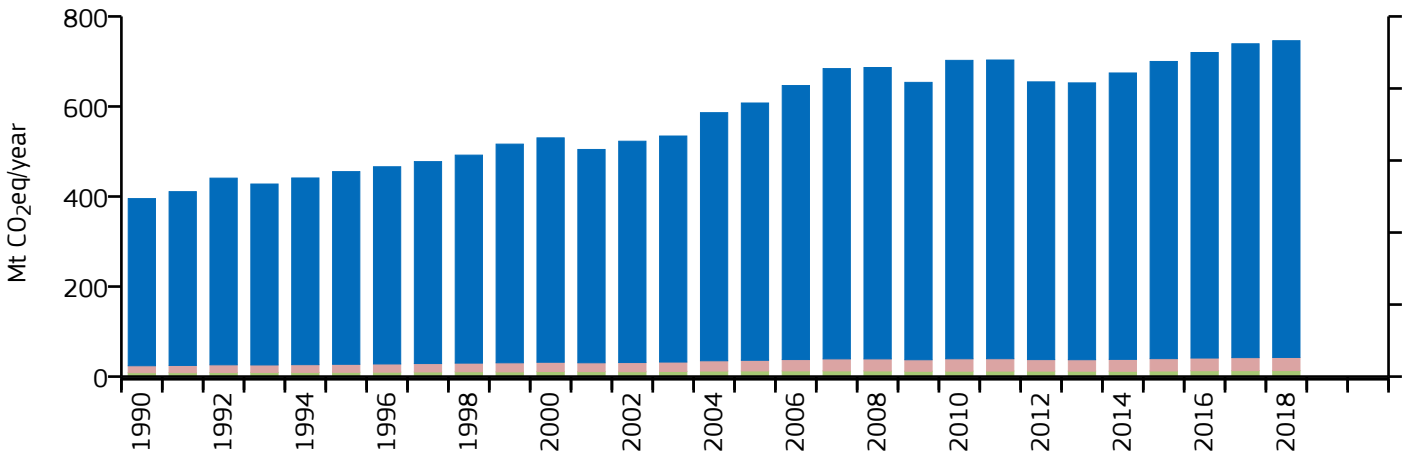
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +72%	↗ +83%	↗ +27%
Other industrial combustion	↗ +58%	↗ +62%	↗ +26%
Buildings	→ +1%	→ +2%	→ +5%
Transport	↗ +59%	↗ +76%	↗ +26%
Other sectors	↗ +97%	↗ +48%	↗ +21%
All sectors	↗ +58%	↗ +57%	↗ +23%

International Shipping

Fossil CO_2 emissions by sector



Greenhouse gas emissions

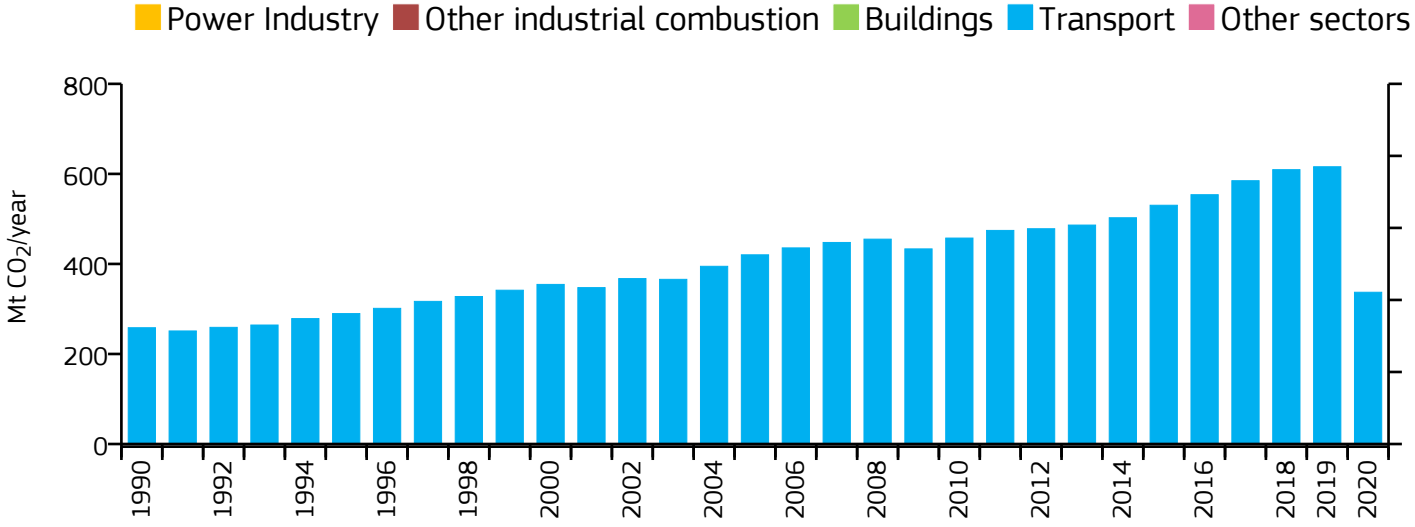


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	764.817	n/a	n/a	n/a	n/a
2018	703.569	746.083	n/a	n/a	n/a
2005	571.500	607.717	n/a	n/a	n/a
1990	371.276	395.354	n/a	n/a	n/a

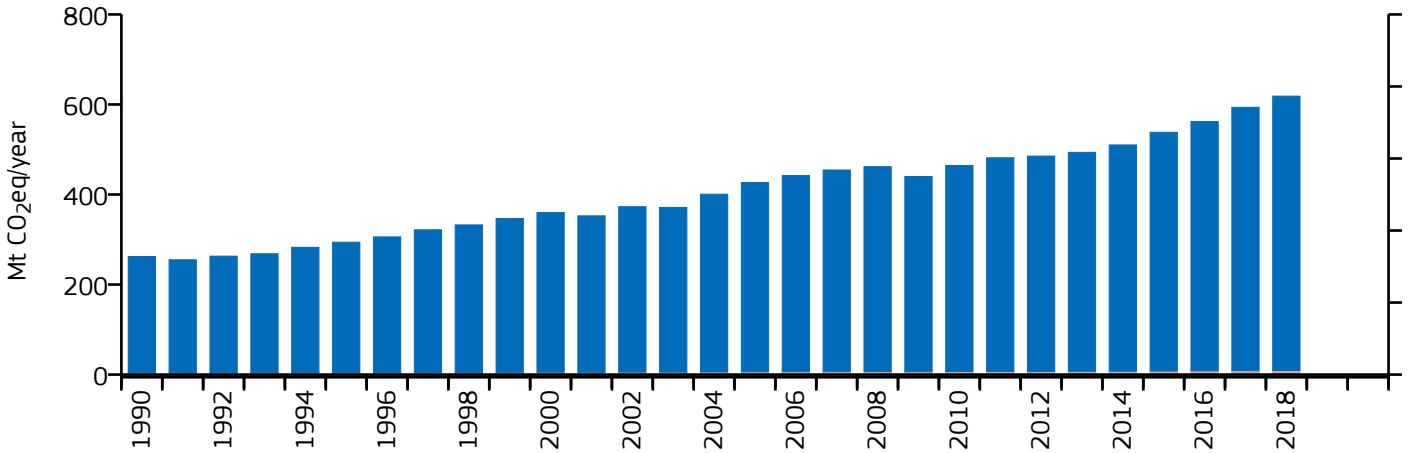
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	n/a	n/a	n/a
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	n/a	n/a
Transport	↗ +106%	↗ +90%	↗ +23%
Other sectors	n/a	↗ +74%	↗ +16%
All sectors	↗ +106%	↗ +89%	↗ +23%

International Aviation

Fossil CO_2 emissions by sector



Greenhouse gas emissions

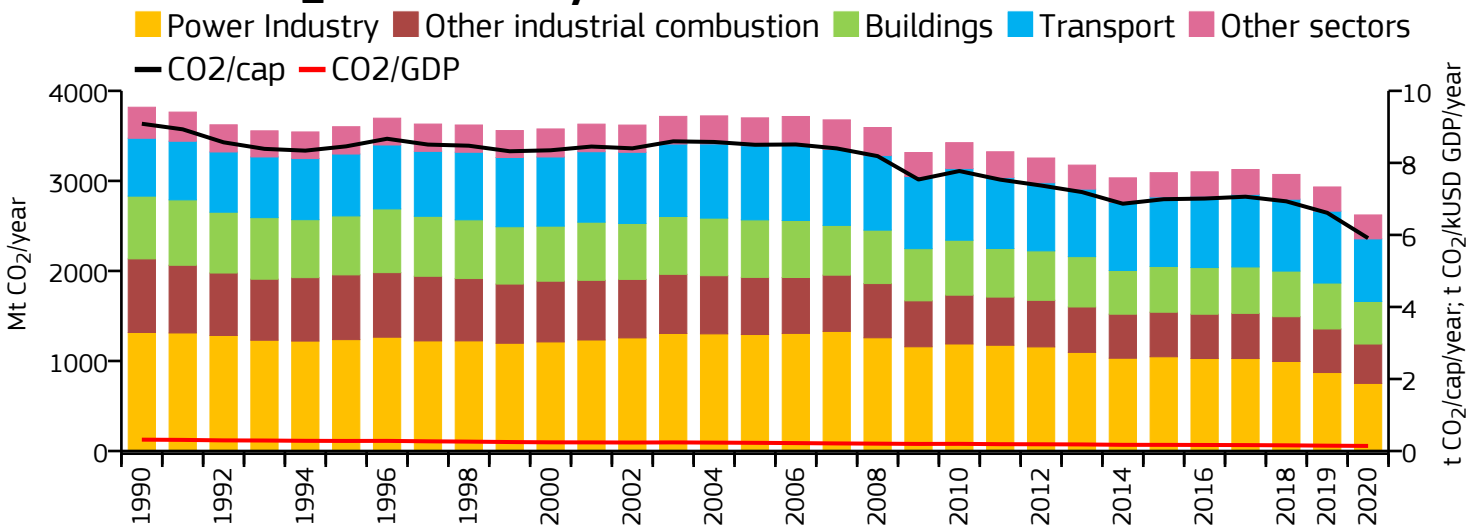


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	337.116	n/a	n/a	n/a	n/a
2018	609.402	618.491	n/a	n/a	n/a
2005	420.261	426.535	n/a	n/a	n/a
1990	258.314	262.278	n/a	n/a	n/a

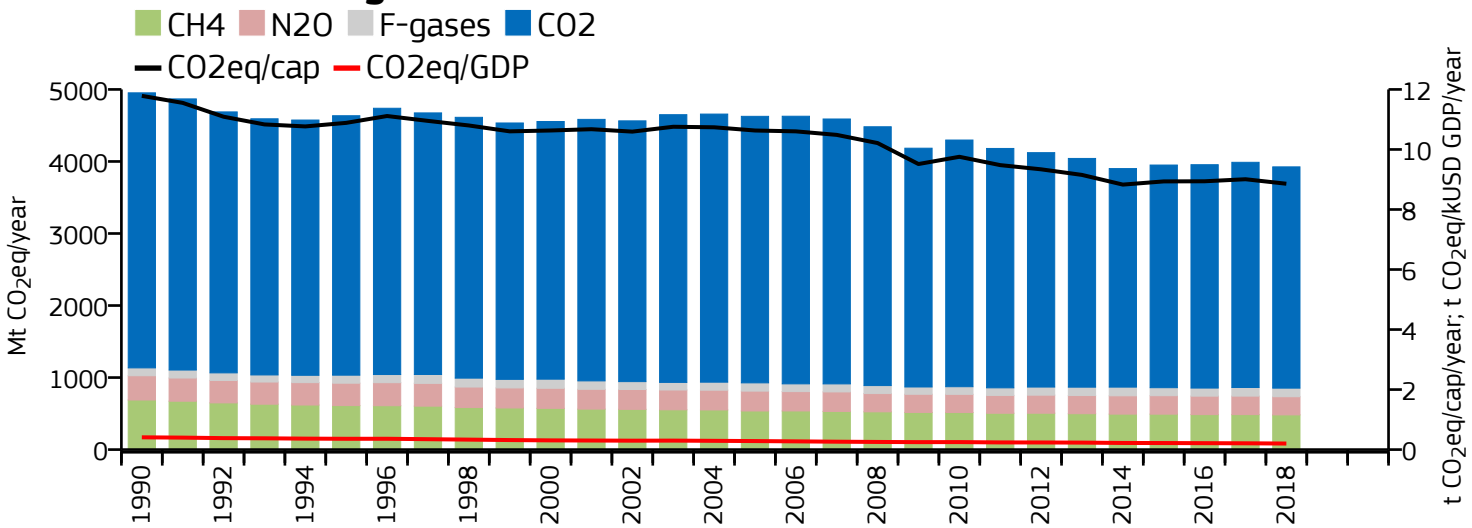
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	n/a	n/a	n/a
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	n/a	n/a
Transport	↗ +31%	↗ +136%	↗ +45%
Other sectors	n/a	↗ +121%	↗ +45%
All sectors	↗ +31%	↗ +136%	↗ +45%

EU27

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
2020	2621.851	n/a	5.910	n/a	0.141
2018	3071.707	3924.946	6.932	8.857	0.158
2005	3700.068	4626.500	8.503	10.632	0.227
1990	3818.268	4952.641	9.087	11.786	0.315

	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↘ -43%	↘ -24%	↘ -23%
Other industrial combustion	↘ -46%	↘ -39%	↘ -21%
Buildings	↘ -32%	↘ -26%	↘ -20%
Transport	↗ +8%	↗ +23%	→ -3%
Other sectors	↘ -23%	↘ -24%	↘ -9%
All sectors	↘ -31%	↘ -21%	↘ -15%

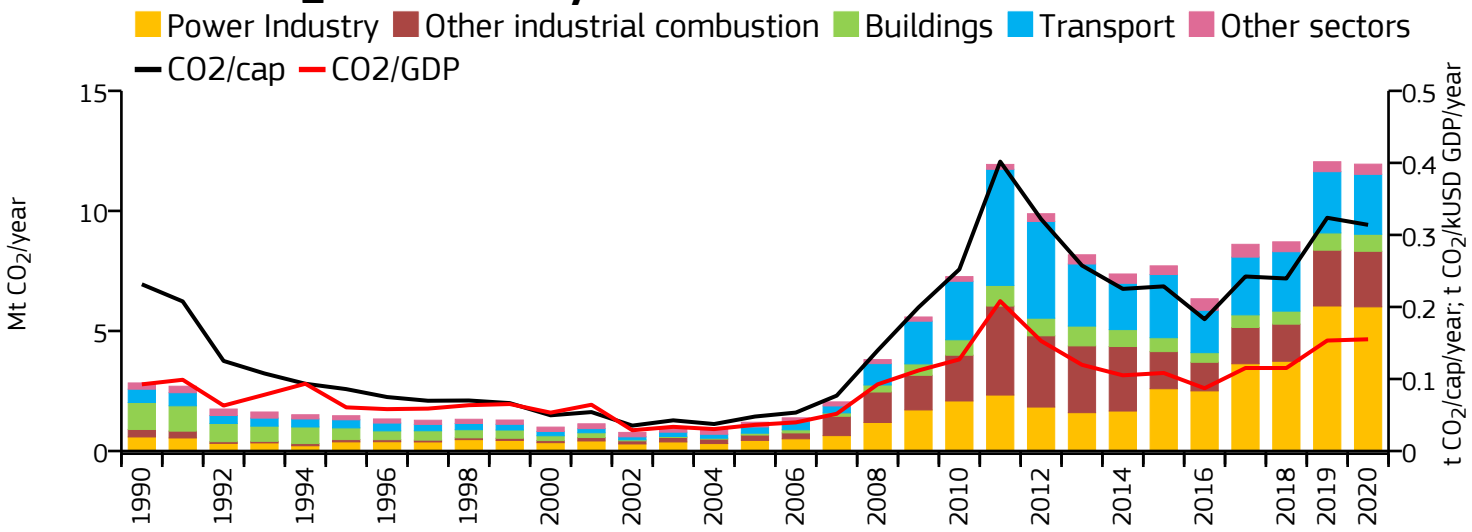
Annex 6: Fossil CO_2 and GHG emissions by country

The following countries are presented:

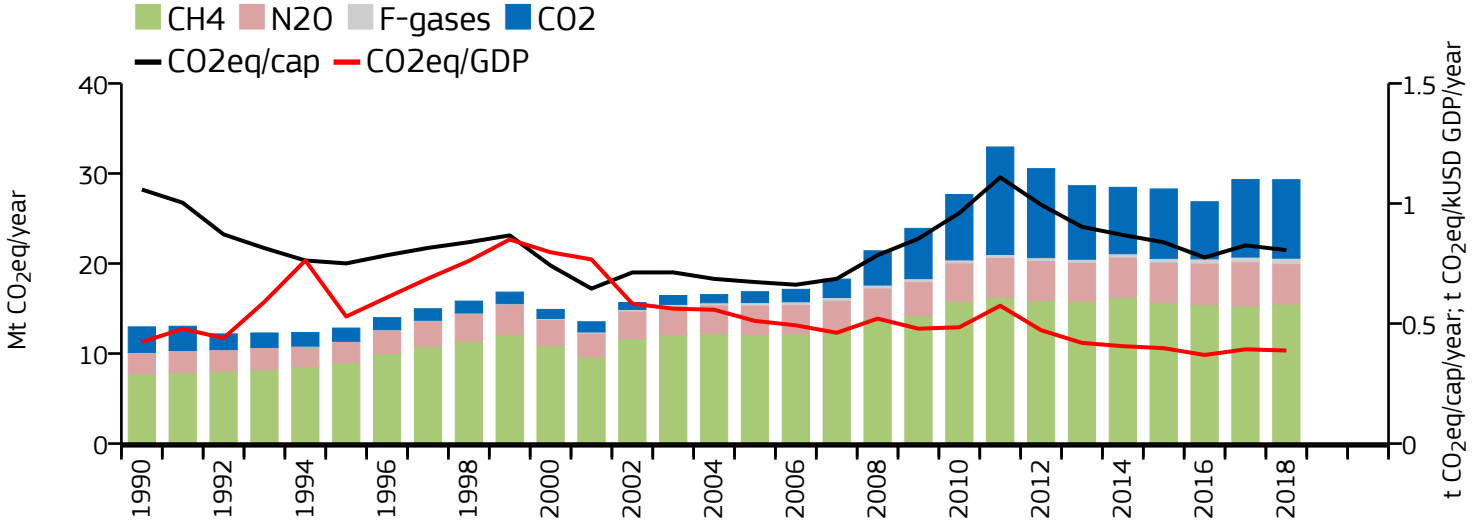
Fossil CO_2 emissions by country: Afghanistan; Albania; Algeria; Angola; Anguilla; Antigua and Barbuda; Argentina; Armenia; Aruba; Australia; Austria; Azerbaijan; Bahamas; Bahrain; Bangladesh; Barbados; Belarus; Belgium; Belize; Benin; Bermuda; Bhutan; Bolivia; Bosnia and Herzegovina; Botswana; Brazil; British Virgin Islands; Brunei; Bulgaria; Burkina Faso; Burundi; Cabo Verde; Cambodia; Cameroon; Canada; 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

Fossil CO_2 emissions by sector



Greenhouse gas emissions

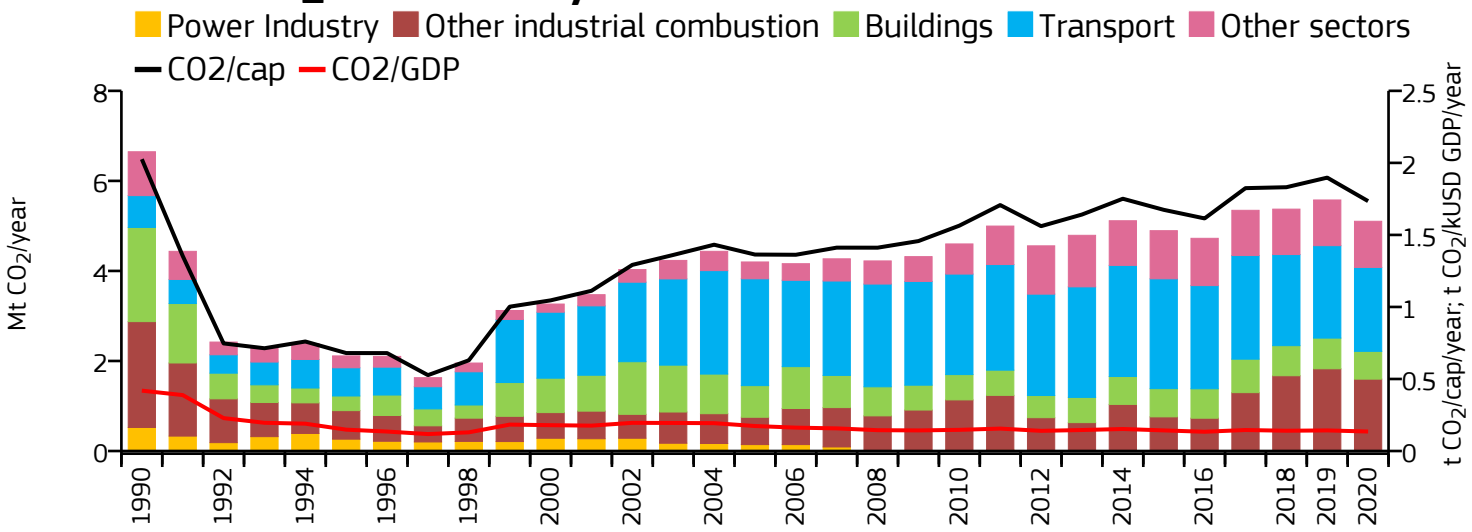


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	11.948	n/a	0.314	n/a	0.155
2018	8.712	29.306	0.240	0.806	0.115
2005	1.200	16.866	0.048	0.673	0.036
1990	2.835	12.963	0.231	1.058	0.093

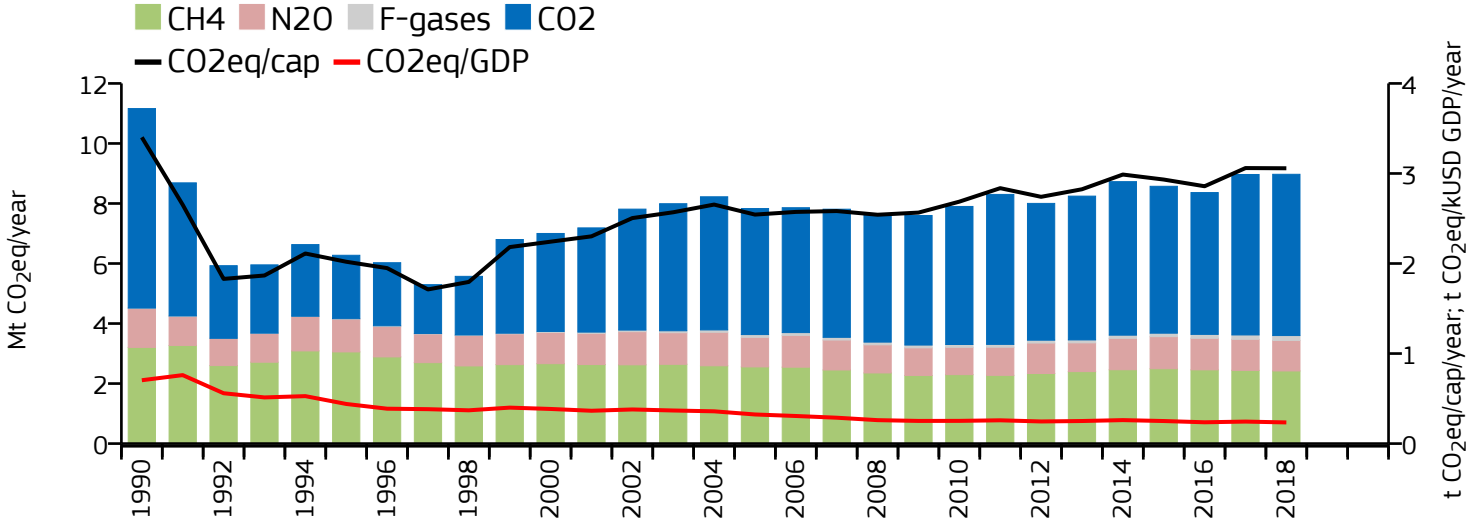
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+926%	+539%	+745%
Other industrial combustion	+642%	+395%	+593%
Buildings	-37%	-37%	+231%
Transport	+349%	+344%	+853%
Other sectors	+63%	+101%	+32%
All sectors	+321%	+126%	+74%

Albania

Fossil CO_2 emissions by sector



Greenhouse gas emissions

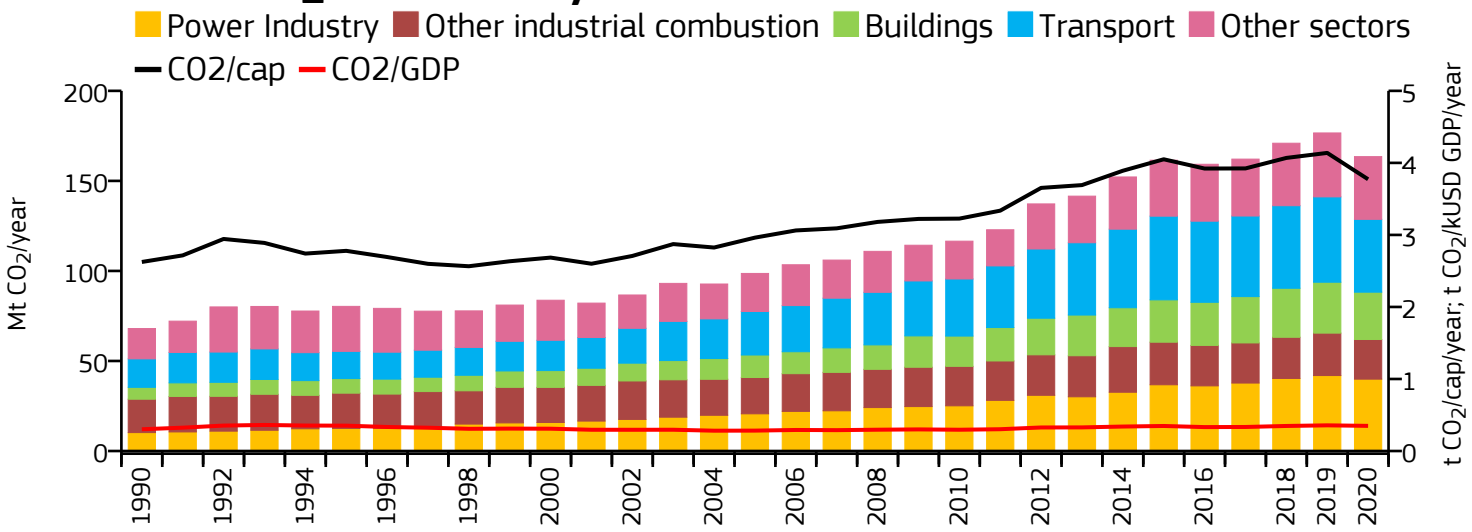


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	5.103	n/a	1.735	n/a	0.135
2018	5.373	8.973	1.831	3.058	0.141
2005	4.199	7.832	1.364	2.543	0.173
1990	6.647	11.162	2.026	3.402	0.419

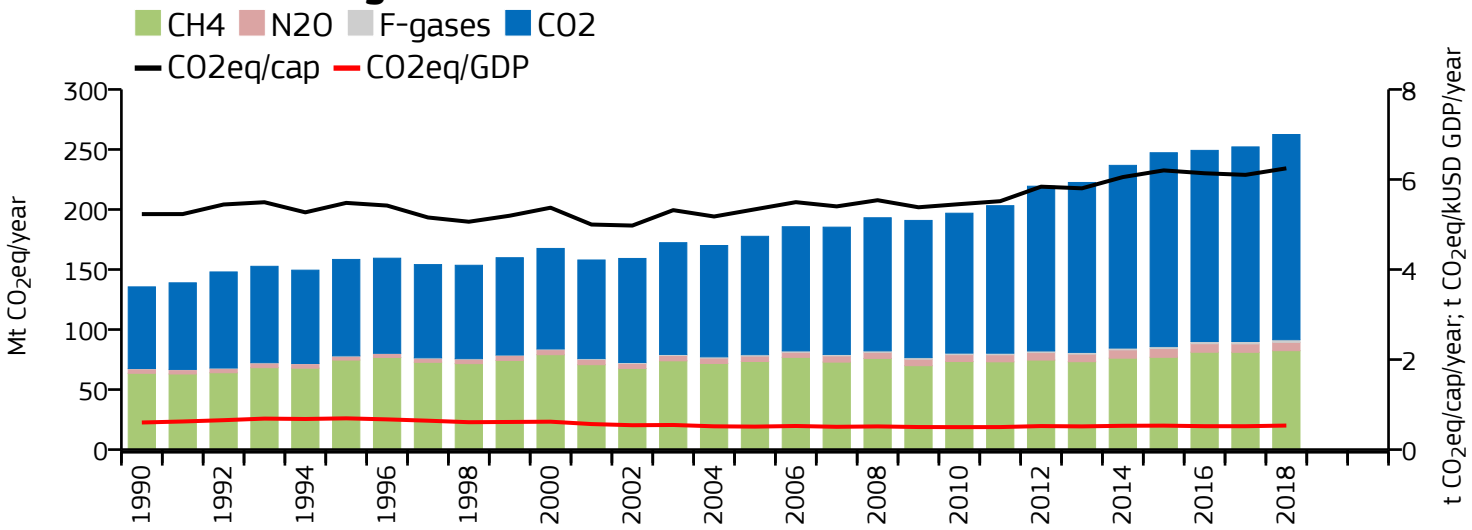
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry		-100%	-100%
Other industrial combustion	-32%	-29%	+175%
Buildings	-71%	-69%	-8%
Transport	+164%	+186%	-15%
Other sectors	+5%	-13%	+16%
All sectors	-23%	-20%	+15%

Algeria

Fossil CO_2 emissions by sector



Greenhouse gas emissions

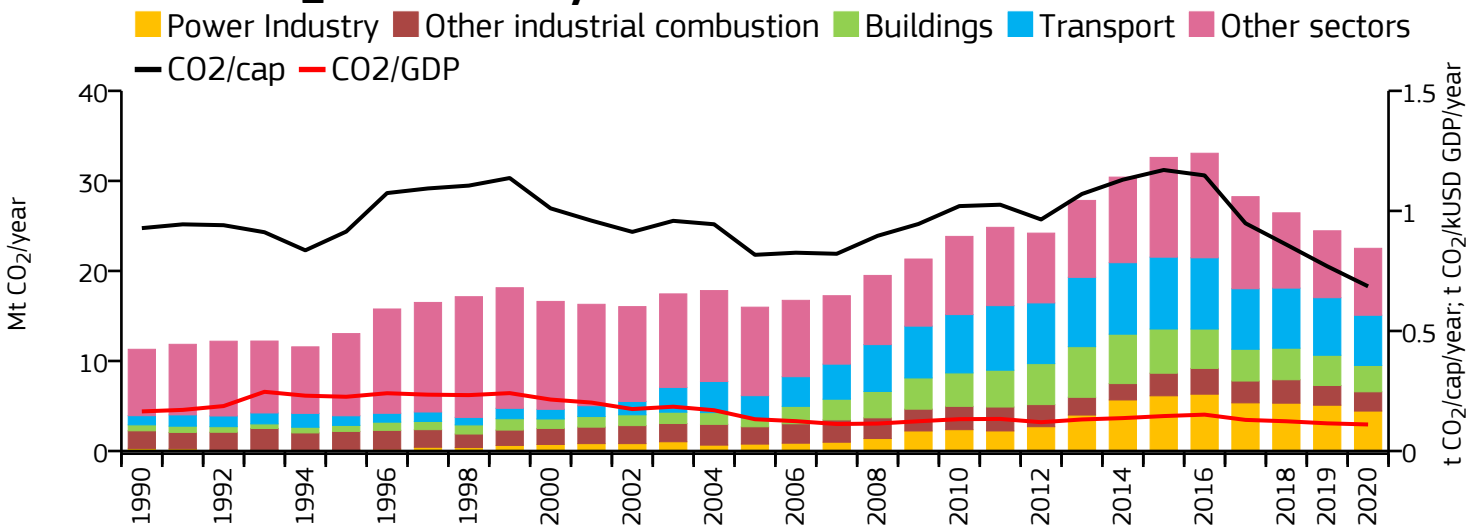


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	163.473	n/a	3.772	n/a	0.349
2018	170.925	262.450	4.069	6.248	0.348
2005	98.609	177.662	2.962	5.337	0.283
1990	68.004	135.538	2.624	5.231	0.302

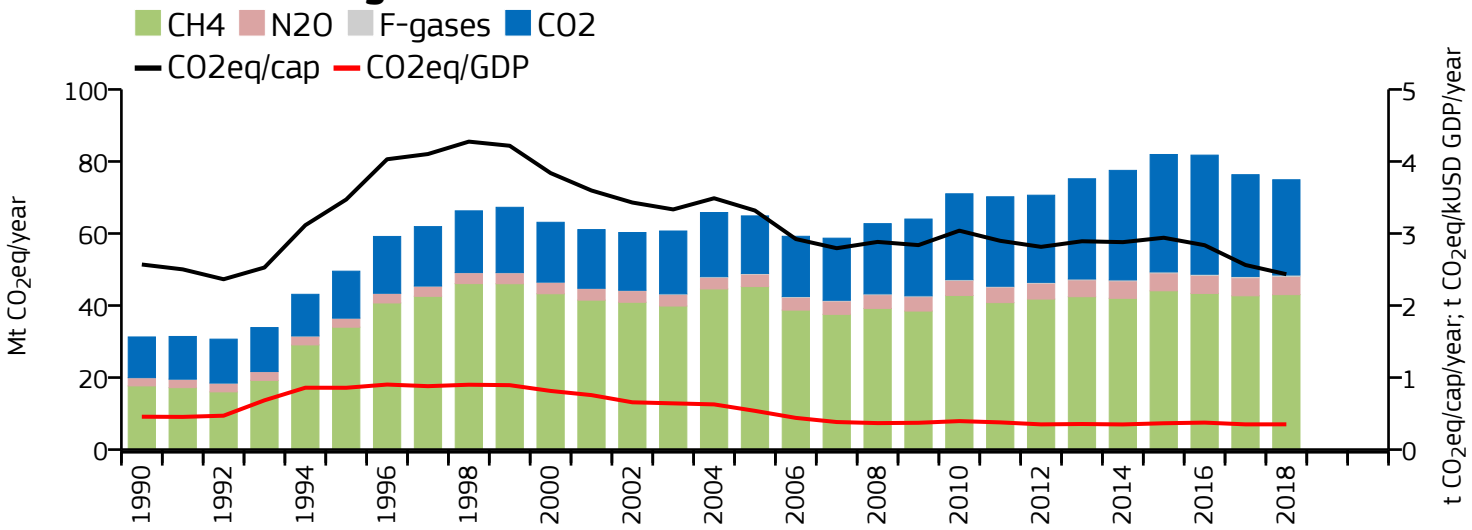
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+290%	+294%	+95%
Other industrial combustion	+19%	+23%	+14%
Buildings	+299%	+313%	+118%
Transport	+156%	+189%	+90%
Other sectors	+107%	+49%	+26%
All sectors	+140%	+94%	+48%

Angola

Fossil CO_2 emissions by sector



Greenhouse gas emissions

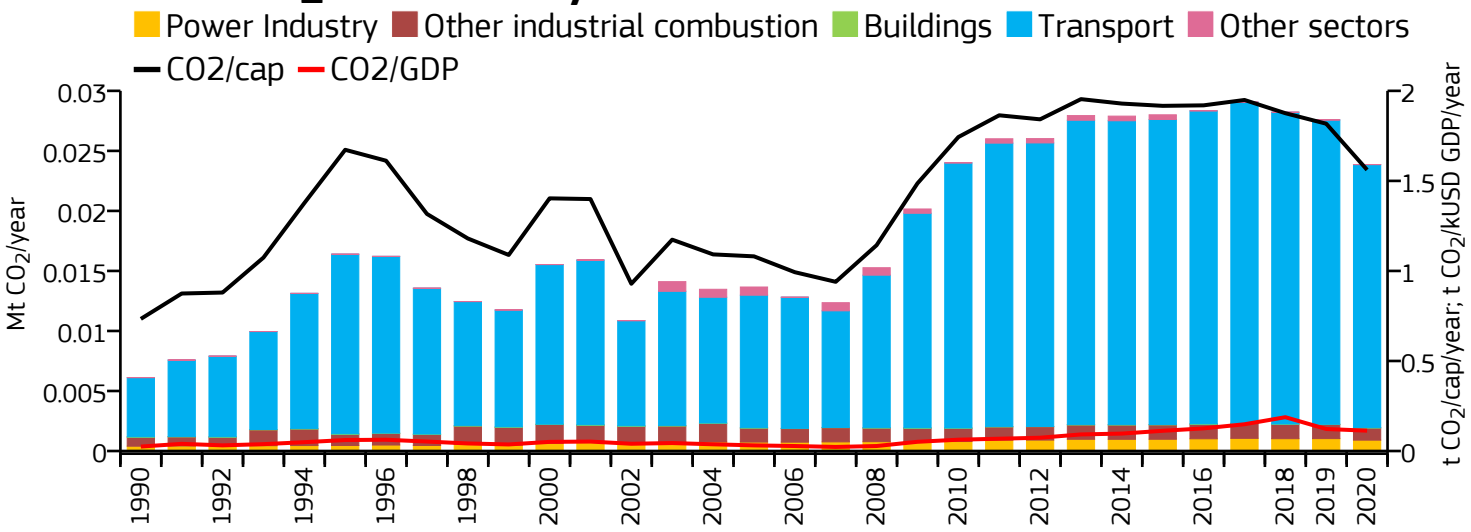


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	22.514	n/a	0.686	n/a	0.111
2018	26.454	74.923	0.860	2.435	0.124
2005	15.976	64.886	0.817	3.319	0.132
1990	11.298	31.274	0.928	2.569	0.165

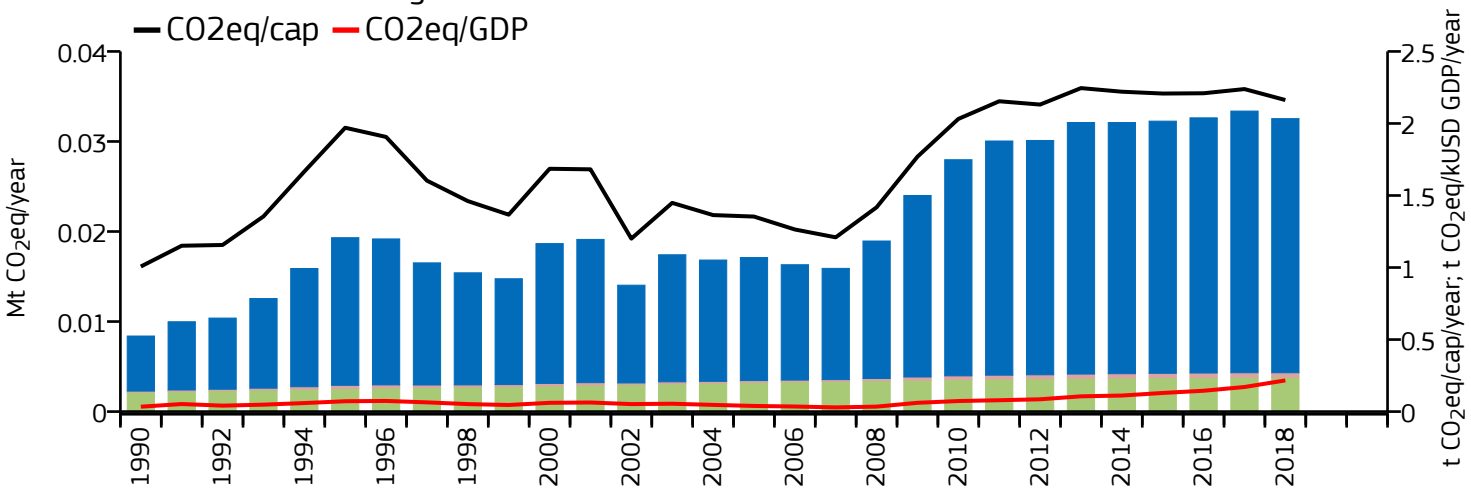
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +1421%	↗ +1722%	↗ +593%
Other industrial combustion	↗ +10%	↗ +33%	↗ +35%
Buildings	↗ +341%	↗ +202%	↗ +131%
Transport	↗ +449%	↗ +556%	↗ +169%
Other sectors	→ +1%	↗ +110%	→ -4%
All sectors	↗ +99%	↗ +140%	↗ +15%

Anguilla

Fossil CO_2 emissions by sector



Greenhouse gas emissions

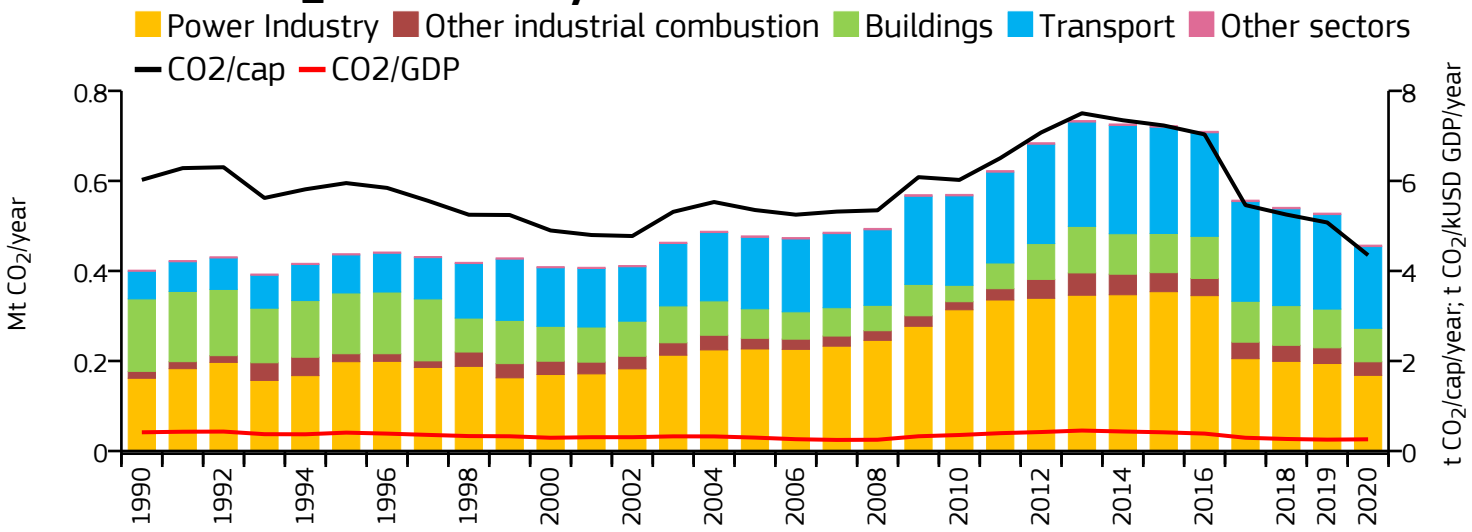


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.024	n/a	1.561	n/a	0.113
2018	0.028	0.033	1.876	2.163	0.188
2005	0.014	0.017	1.081	1.354	0.031
1990	0.006	0.008	0.734	1.007	0.025

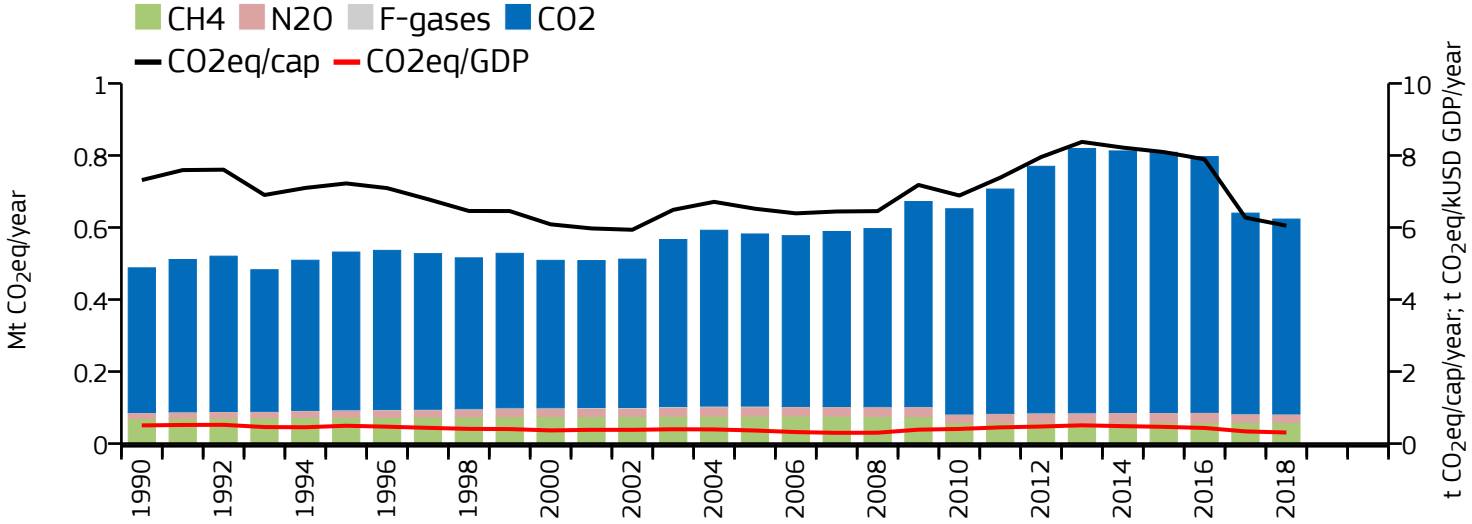
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+125%	+155%	+38%
Other industrial combustion	+35%	+60%	+3%
Buildings	-39%	-25%	-16%
Transport	+344%	+425%	+135%
Other sectors	+83%	+80%	-1%
All sectors	+290%	+288%	+90%

Antigua and Barbuda

Fossil CO_2 emissions by sector



Greenhouse gas emissions

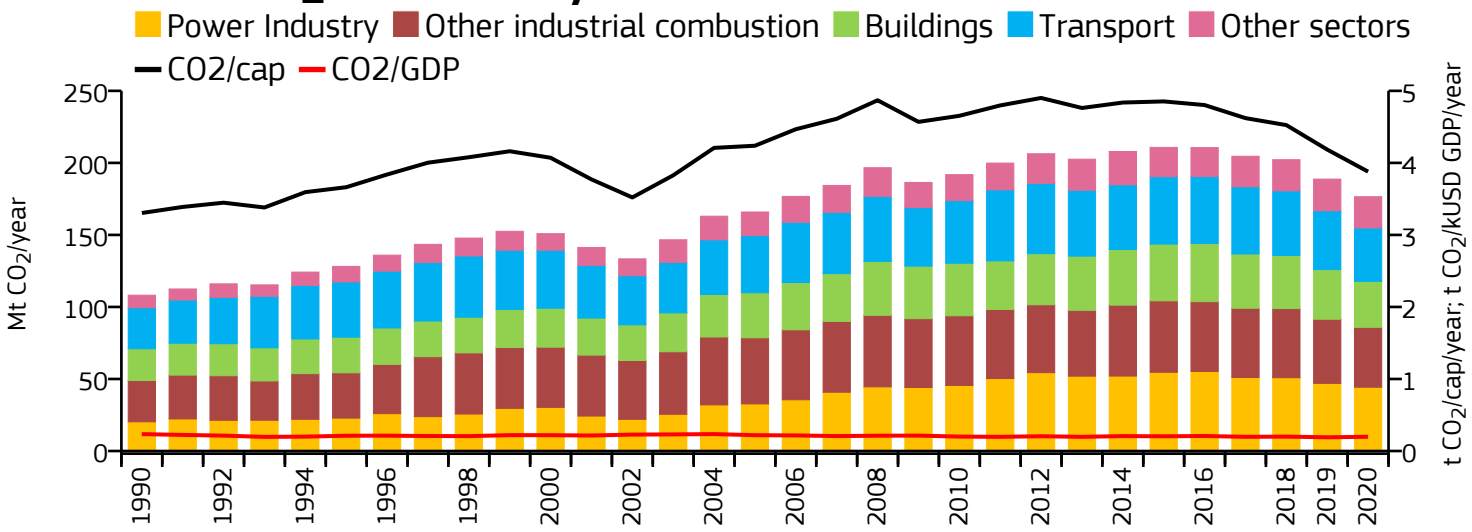


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.457	n/a	4.350	n/a	0.260
2018	0.541	0.623	5.252	6.050	0.267
2005	0.478	0.582	5.353	6.521	0.298
1990	0.402	0.488	6.023	7.317	0.416

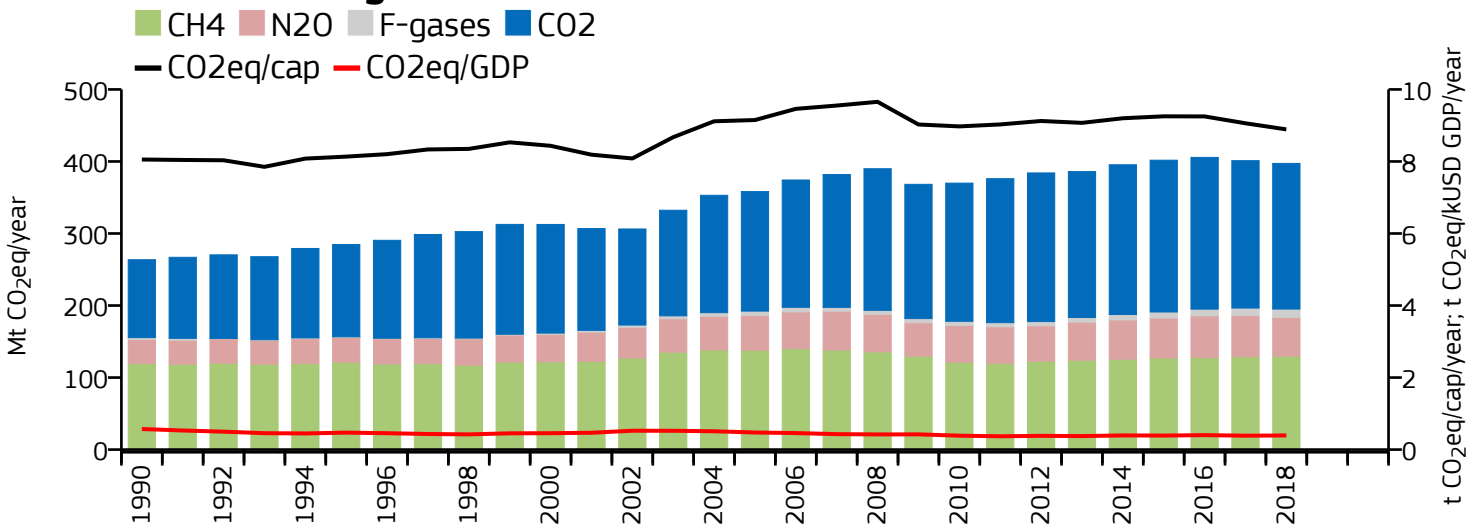
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+4%	+23%	-12%
Other industrial combustion	+96%	+132%	+50%
Buildings	-54%	-44%	+36%
Transport	+195%	+249%	+35%
Other sectors	+35%	-9%	-23%
All sectors	+14%	+28%	+7%

Argentina

Fossil CO_2 emissions by sector



Greenhouse gas emissions

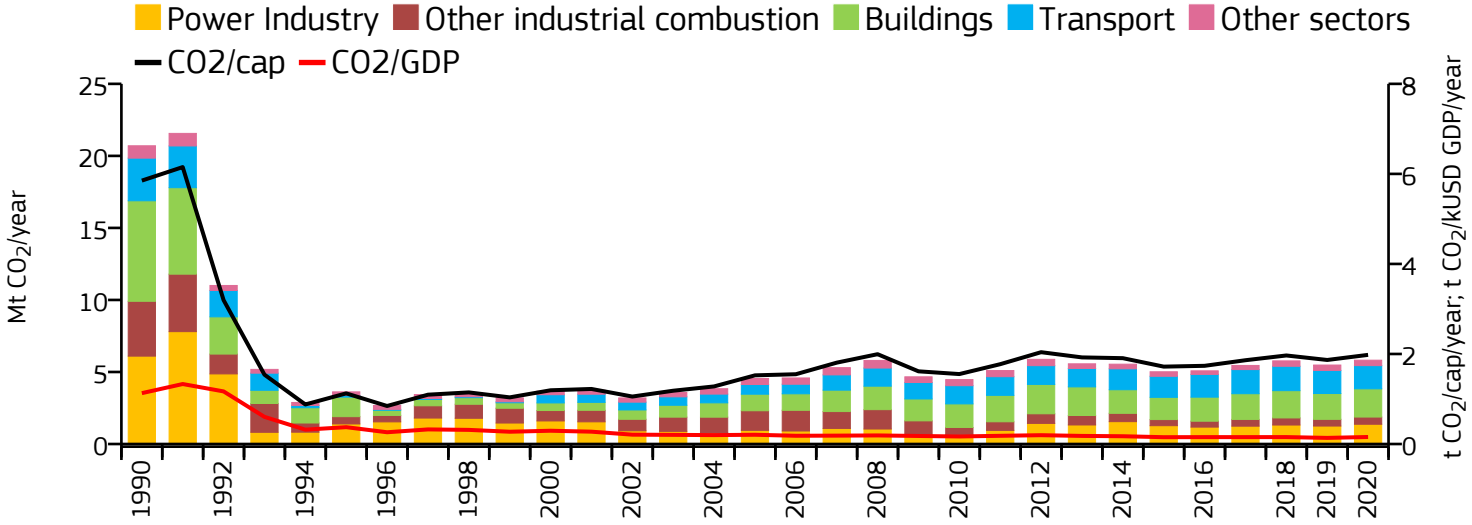


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	176.510	n/a	3.878	n/a	0.198
2018	202.199	397.306	4.525	8.890	0.200
2005	165.903	358.185	4.238	9.150	0.220
1990	108.145	263.607	3.304	8.054	0.234

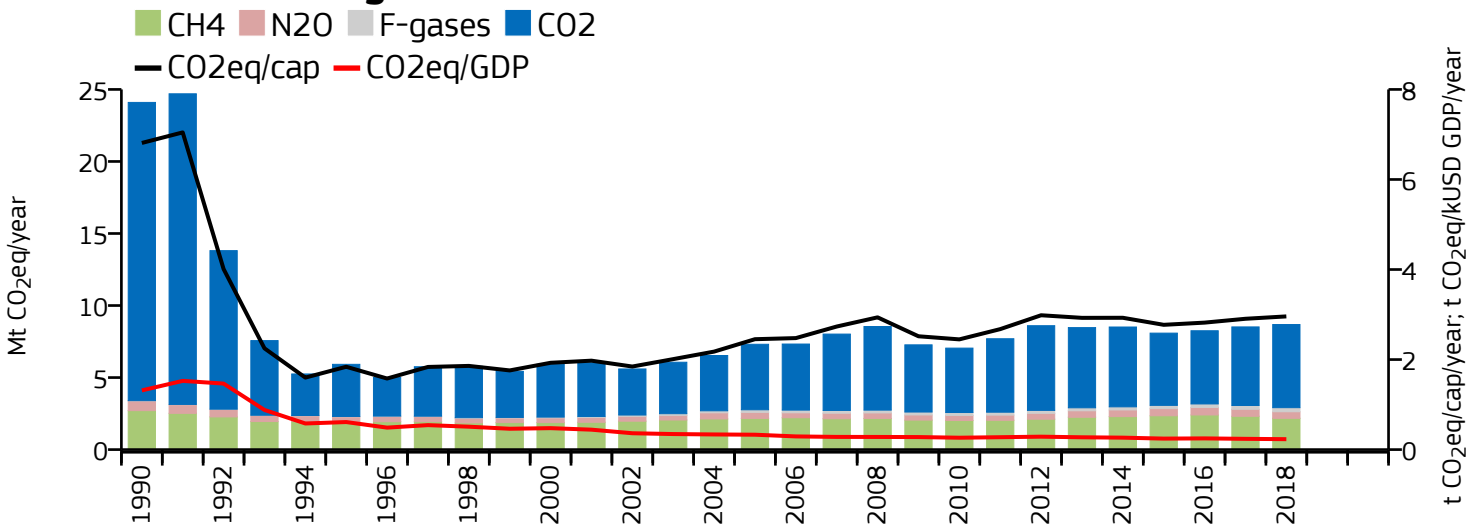
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +118%	↗ +151%	↗ +56%
Other industrial combustion	↗ +45%	↗ +67%	→ +5%
Buildings	↗ +45%	↗ +69%	↗ +18%
Transport	↗ +30%	↗ +58%	↗ +13%
Other sectors	↗ +148%	↗ +31%	→ +4%
All sectors	↗ +63%	↗ +51%	↗ +11%

Armenia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

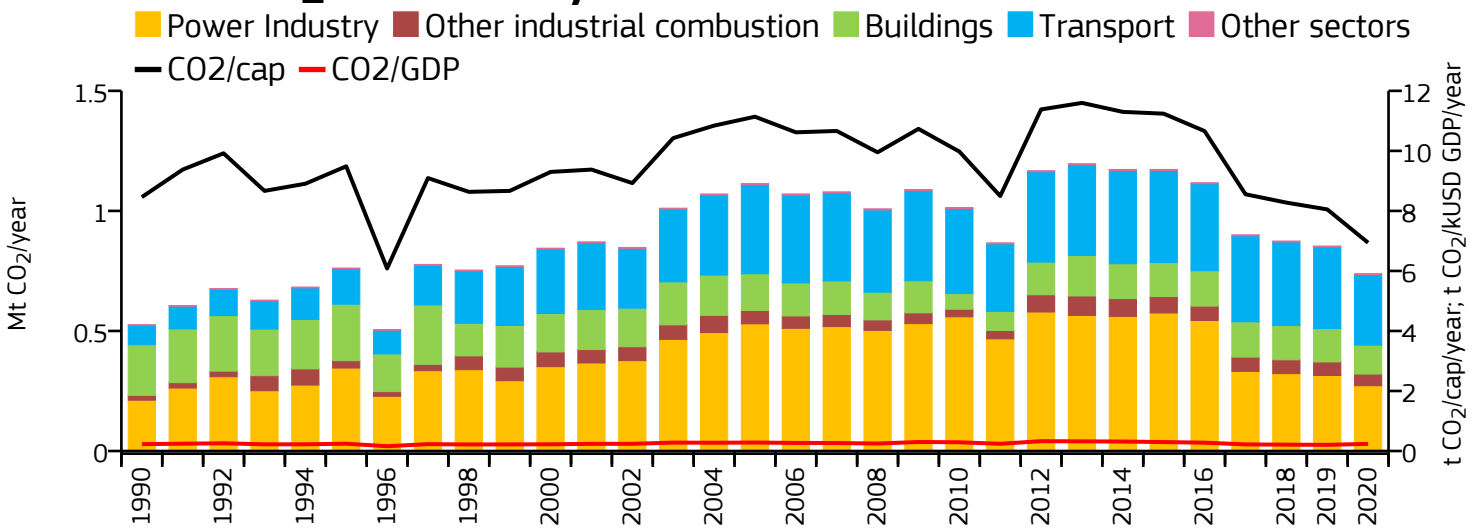


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	5.819	n/a	1.980	n/a	0.156
2018	5.771	8.680	1.967	2.958	0.154
2005	4.547	7.310	1.525	2.452	0.206
1990	20.701	24.099	5.851	6.811	1.130

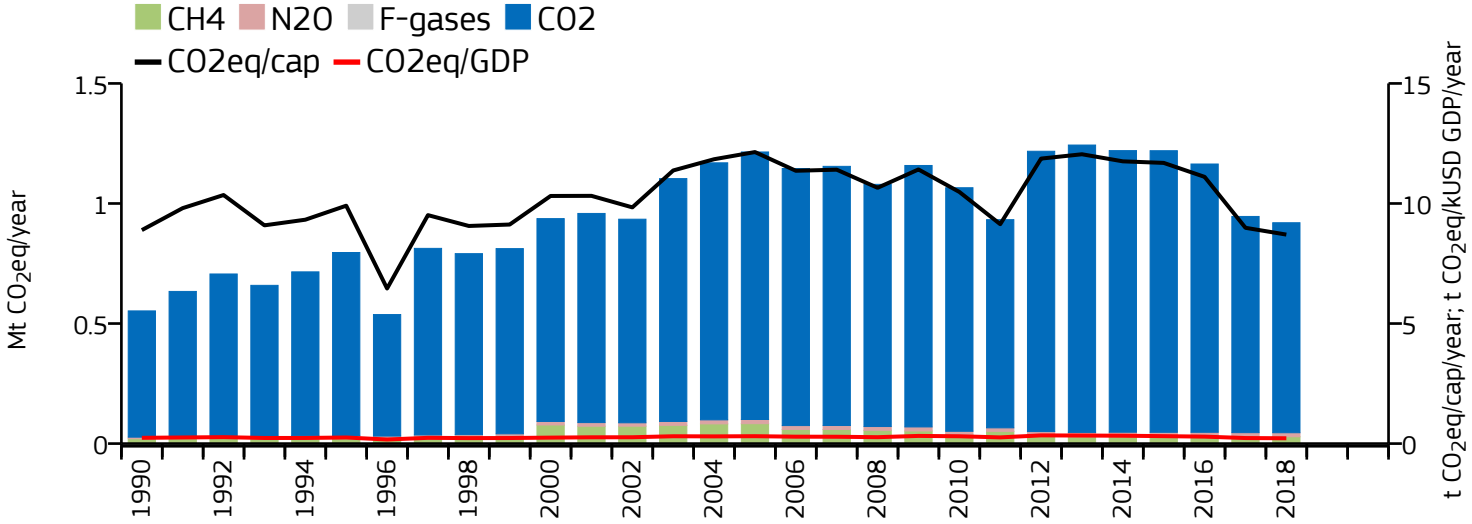
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-78%	-78%	+39%
Other industrial combustion	-87%	-87%	-64%
Buildings	-72%	-73%	+70%
Transport	-46%	-41%	+157%
Other sectors	-56%	-18%	-1%
All sectors	-72%	-64%	+19%

Aruba

Fossil CO_2 emissions by sector



Greenhouse gas emissions

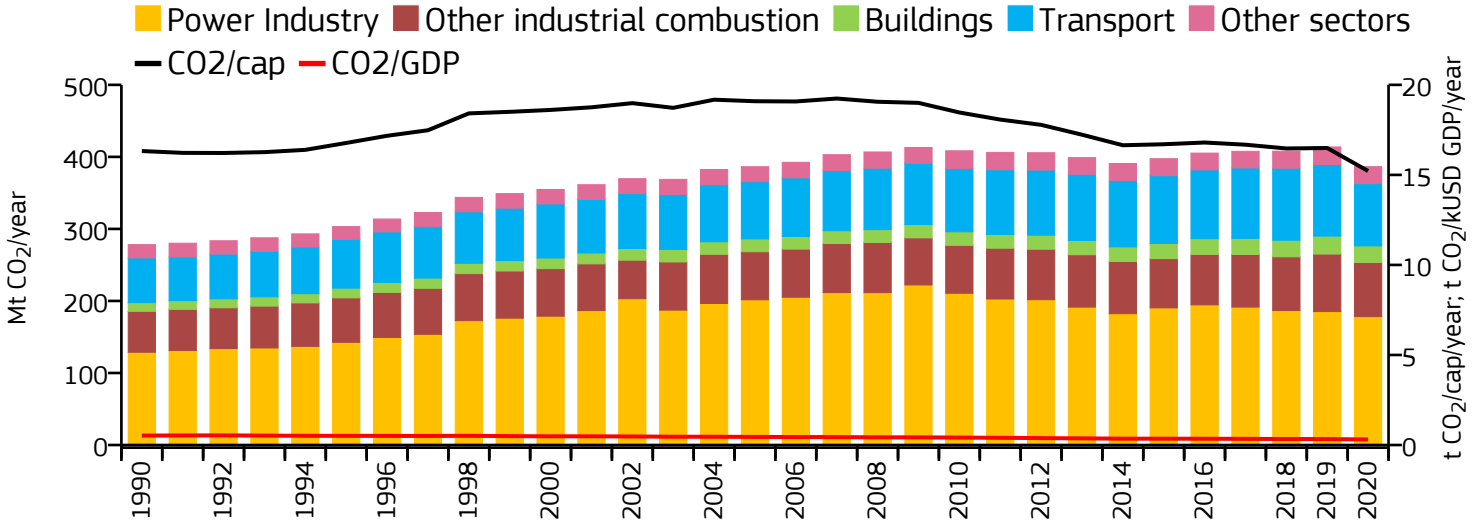


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.739	n/a	6.940	n/a	0.238
2018	0.875	0.920	8.277	8.704	0.211
2005	1.114	1.215	11.139	12.142	0.283
1990	0.526	0.553	8.461	8.892	0.228

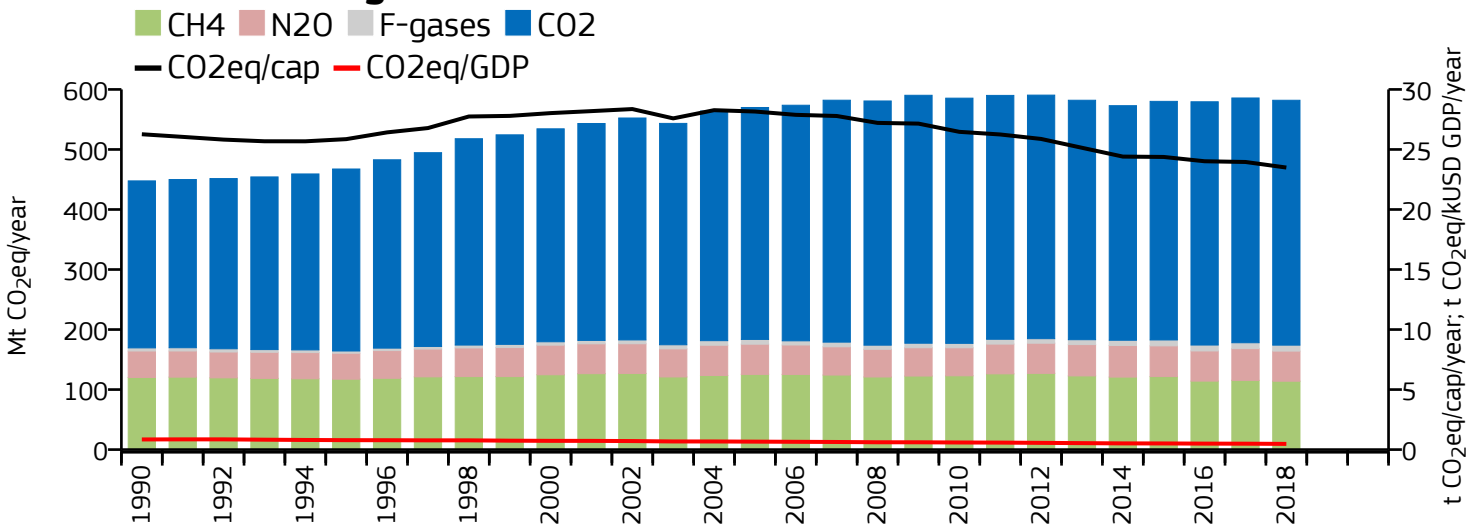
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+28%	+52%	-39%
Other industrial combustion	+142%	+185%	-45%
Buildings	-43%	-30%	-6%
Transport	+265%	+331%	-6%
Other sectors	+56%	+48%	-13%
All sectors	+40%	+66%	-24%

Australia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

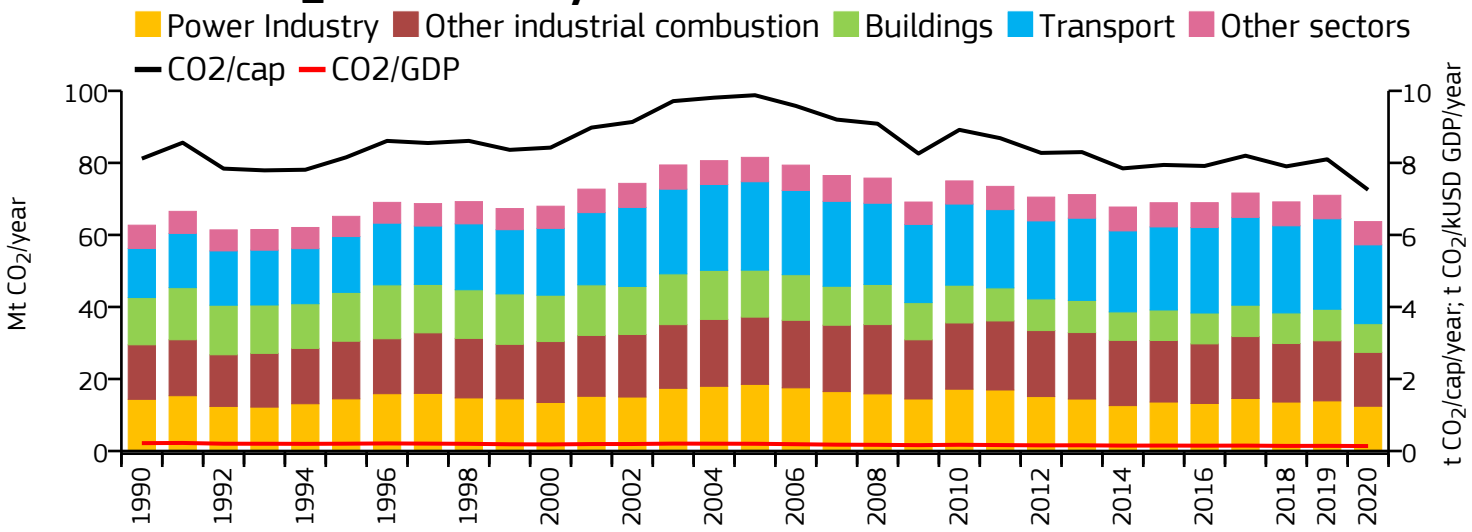


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	386.439	n/a	15.215	n/a	0.309
2018	407.956	581.968	16.468	23.493	0.332
2005	386.367	569.914	19.090	28.159	0.449
1990	278.198	447.633	16.325	26.267	0.525

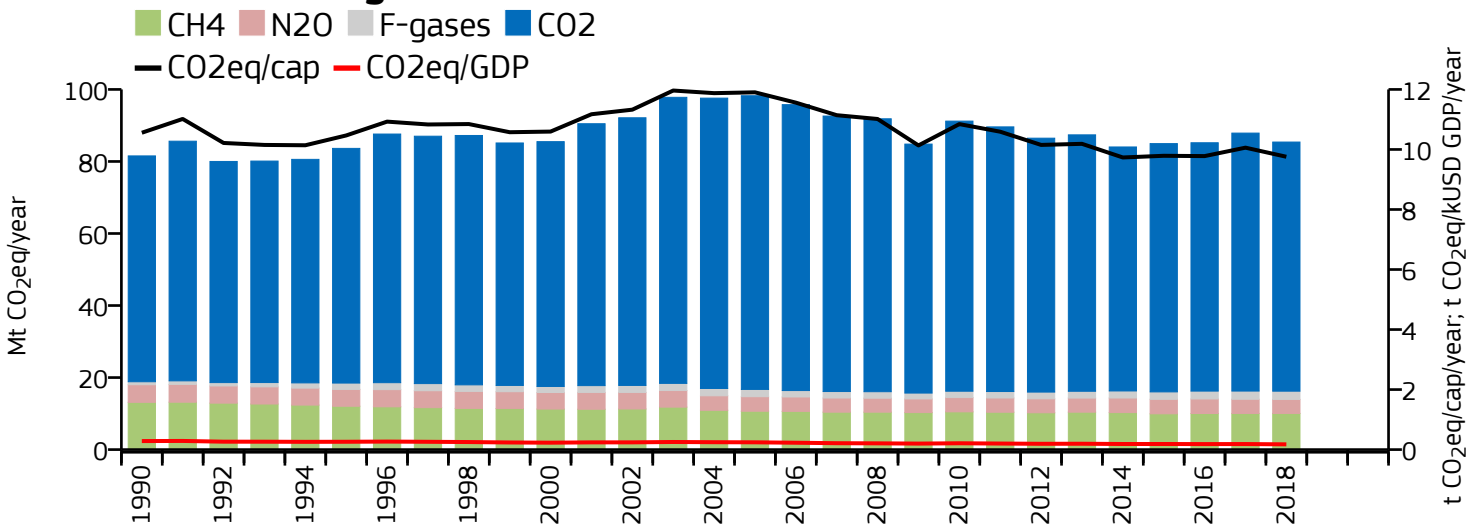
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+38%	+45%	-7%
Other industrial combustion	+32%	+33%	+12%
Buildings	+92%	+86%	+27%
Transport	+39%	+60%	+26%
Other sectors	+28%	+4%	-4%
All sectors	+39%	+30%	+2%

Austria

Fossil CO_2 emissions by sector



Greenhouse gas emissions

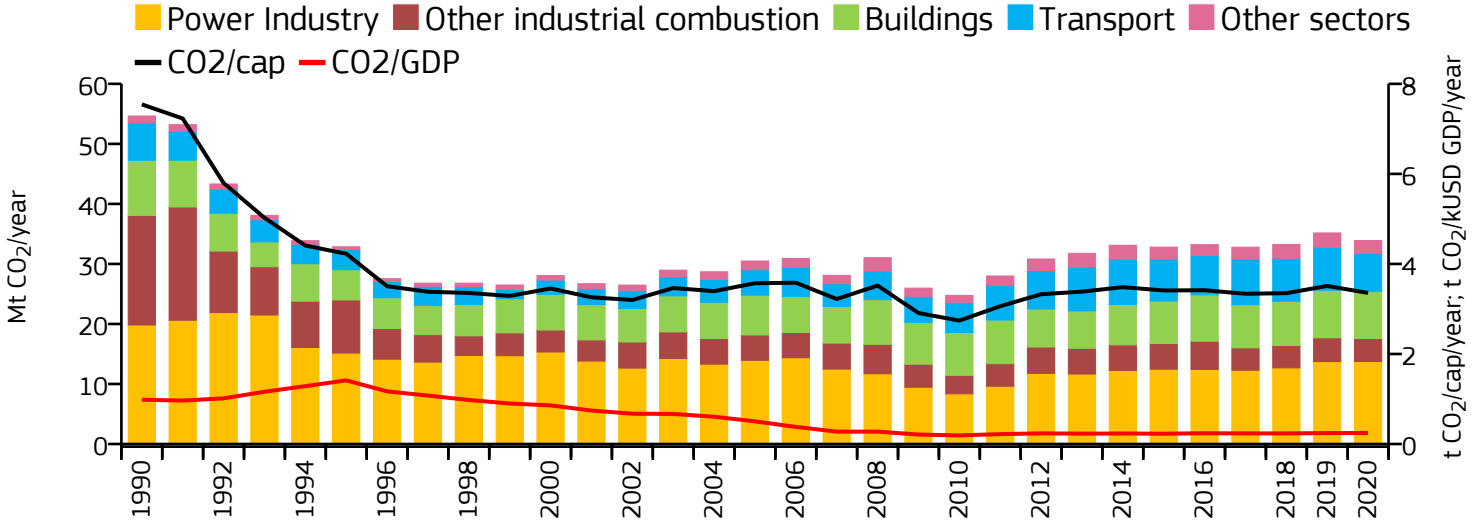


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	63.691	n/a	7.252	n/a	0.138
2018	69.170	85.391	7.904	9.757	0.141
2005	81.538	98.247	9.879	11.904	0.201
1990	62.707	81.542	8.119	10.557	0.218

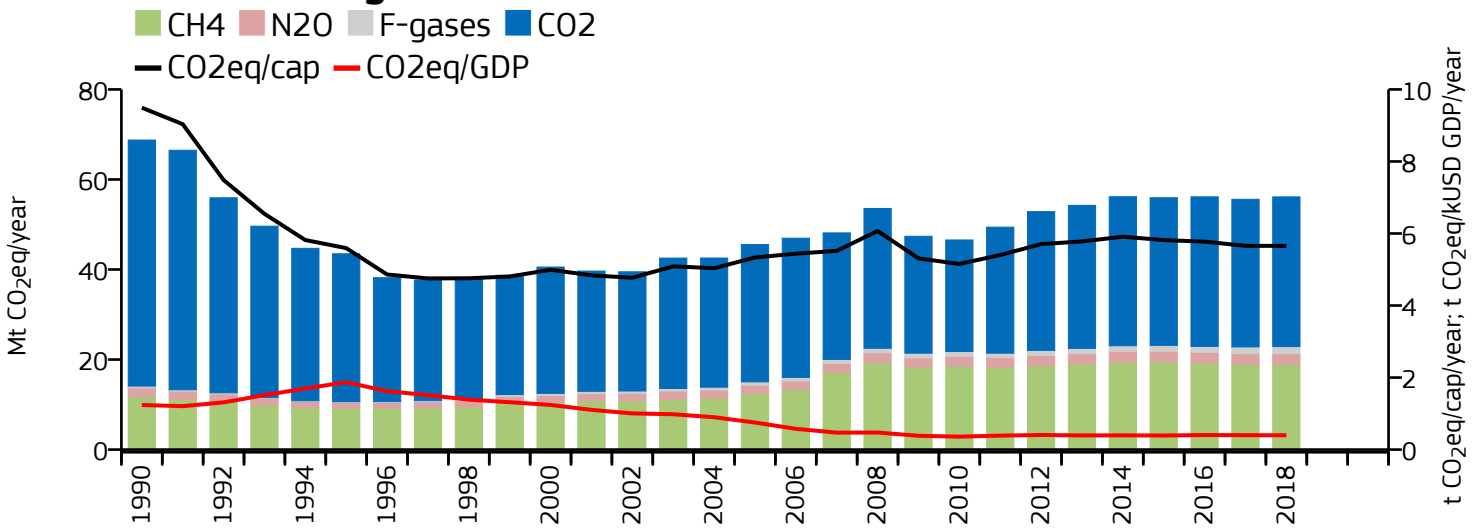
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-13%	-4%	-26%
Other industrial combustion	-1%	+8%	-13%
Buildings	-39%	-34%	-33%
Transport	+61%	+76%	-1%
Other sectors	0%	-10%	-3%
All sectors	+2%	+5%	-13%

Azerbaijan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

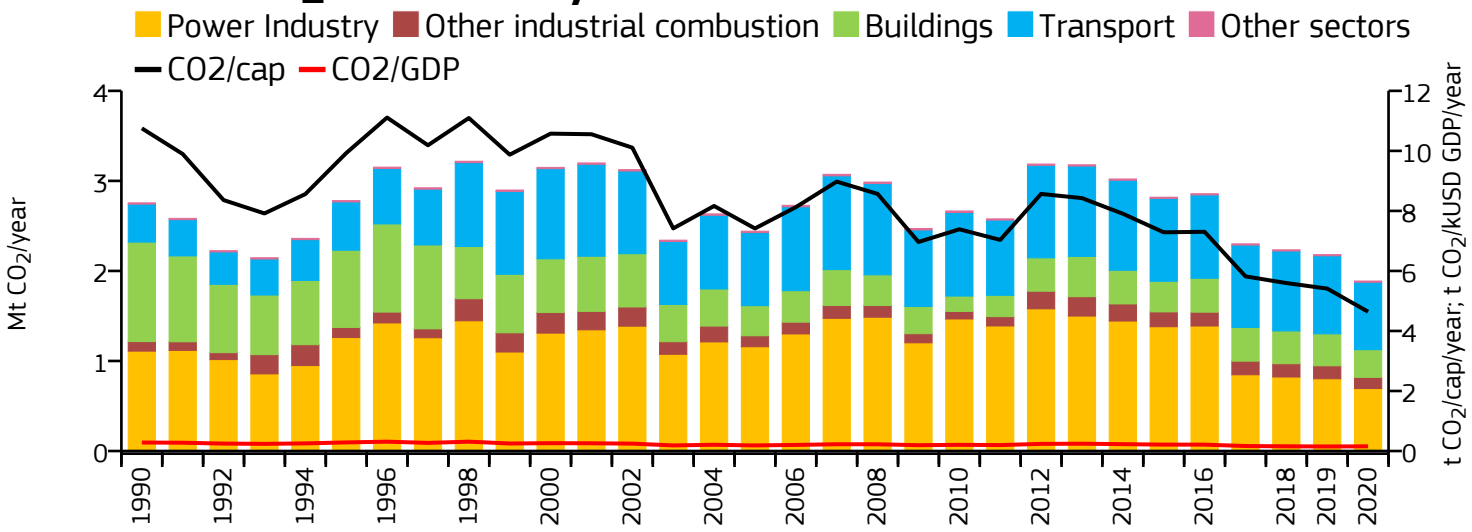


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	33.895	n/a	3.356	n/a	0.245
2018	33.250	56.130	3.351	5.656	0.235
2005	30.491	45.539	3.571	5.333	0.503
1990	54.642	68.755	7.544	9.493	0.984

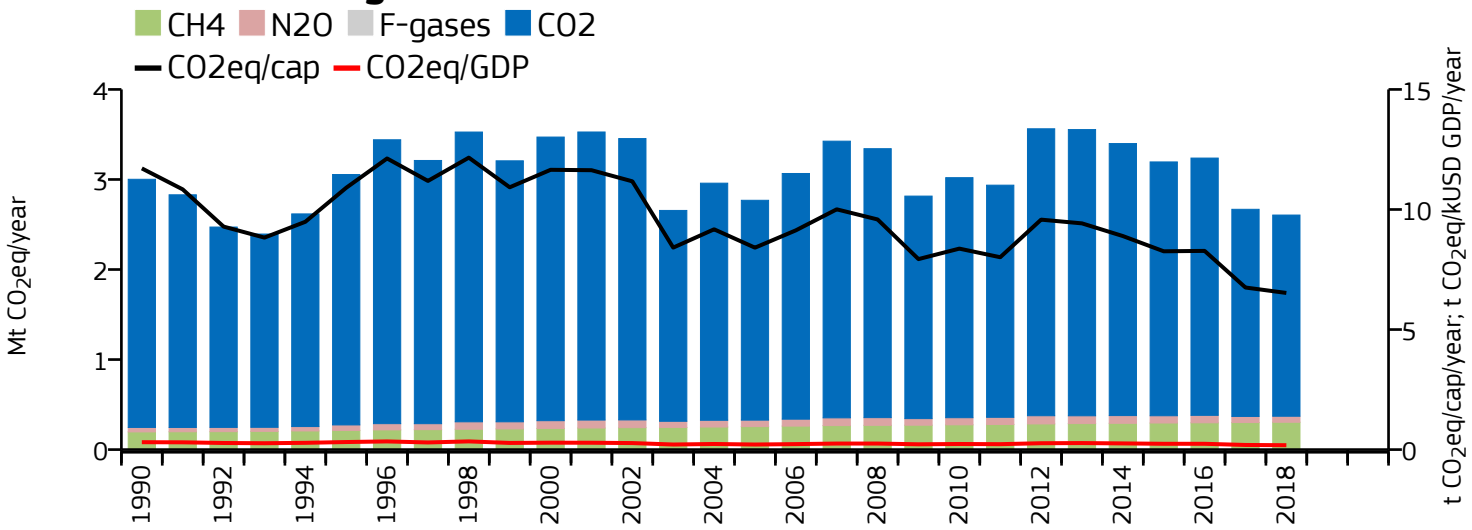
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-31%	-36%	-9%
Other industrial combustion	-79%	-79%	-12%
Buildings	-14%	-21%	+11%
Transport	+1%	+15%	+70%
Other sectors	+88%	+69%	+53%
All sectors	-38%	-18%	+23%

Bahamas

Fossil CO_2 emissions by sector



Greenhouse gas emissions

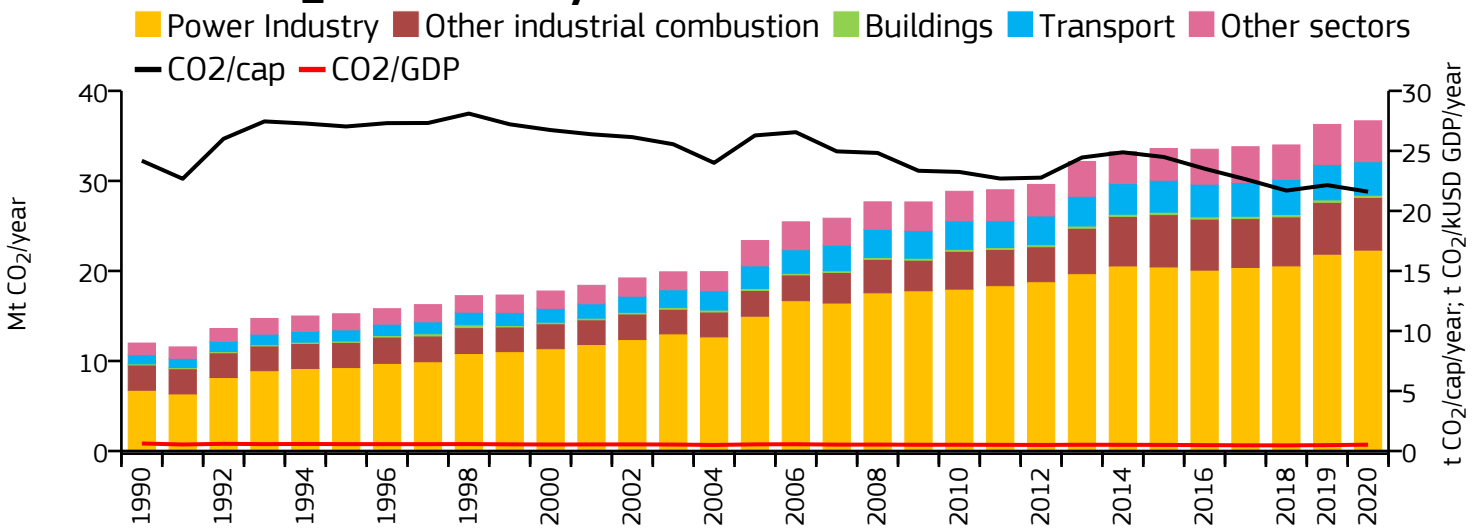


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.888	n/a	4.640	n/a	0.156
2018	2.234	2.605	5.596	6.524	0.157
2005	2.442	2.769	7.416	8.409	0.186
1990	2.756	3.002	10.752	11.712	0.282

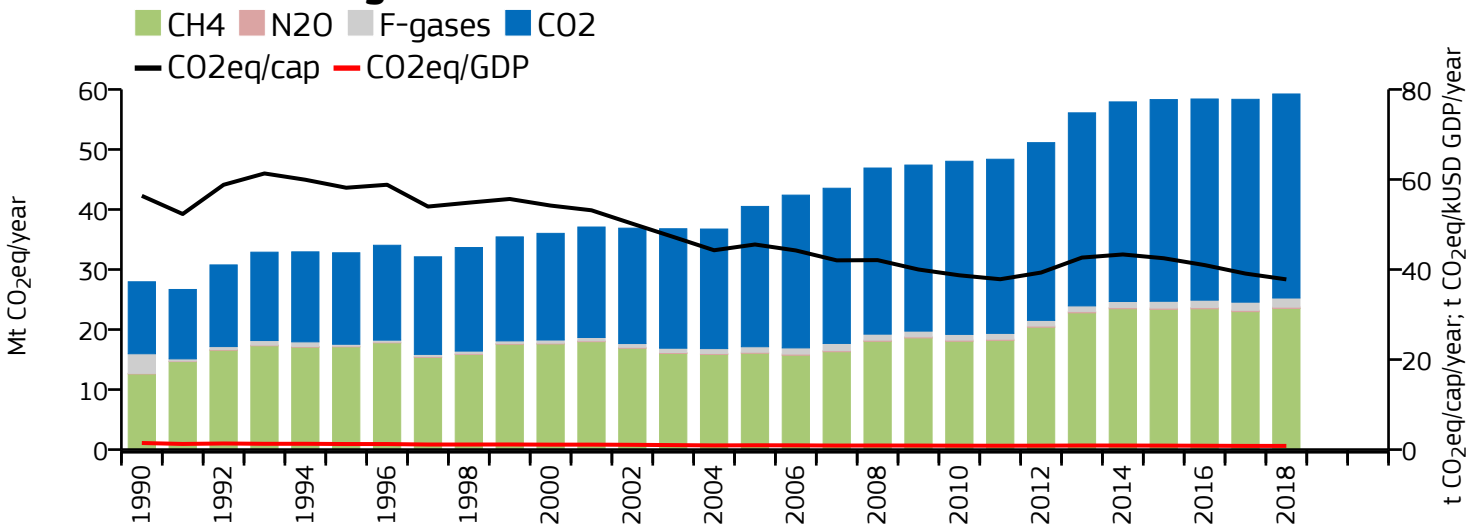
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-37%	-26%	-29%
Other industrial combustion	+18%	+40%	+21%
Buildings	-72%	-66%	+9%
Transport	+77%	+110%	+9%
Other sectors	-3%	+48%	+12%
All sectors	-32%	-13%	-6%

Bahrain

Fossil CO_2 emissions by sector



Greenhouse gas emissions

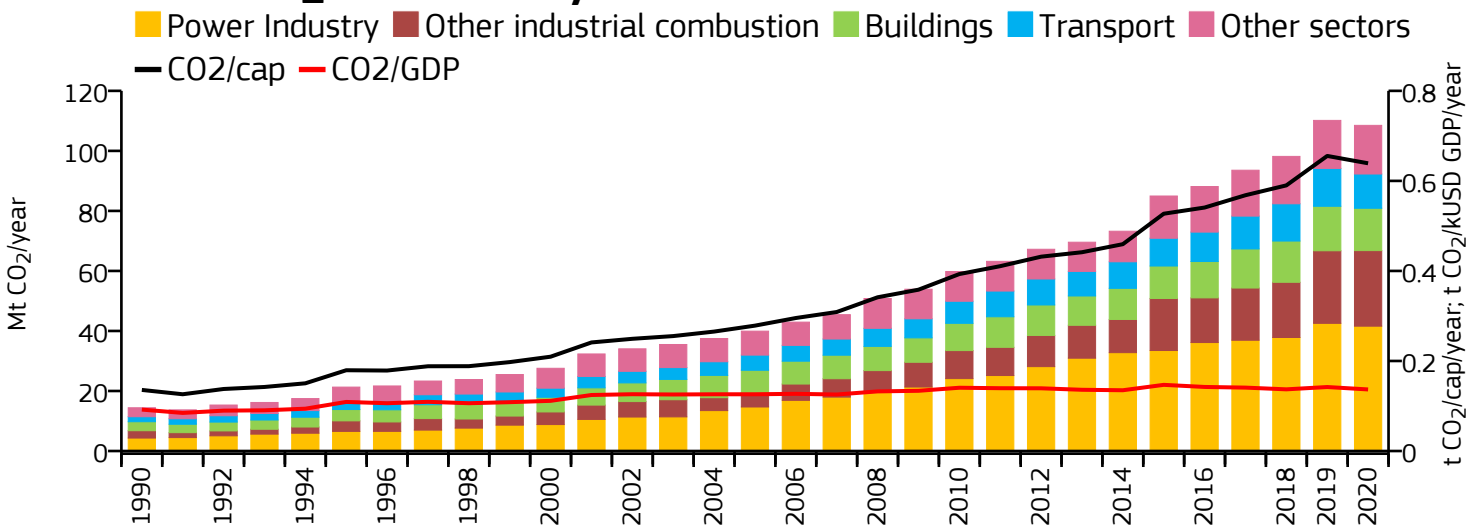


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	36.672	n/a	21.600	n/a	0.527
2018	33.992	59.244	21.692	37.807	0.469
2005	23.374	40.509	26.287	45.558	0.553
1990	11.991	27.956	24.178	56.371	0.626

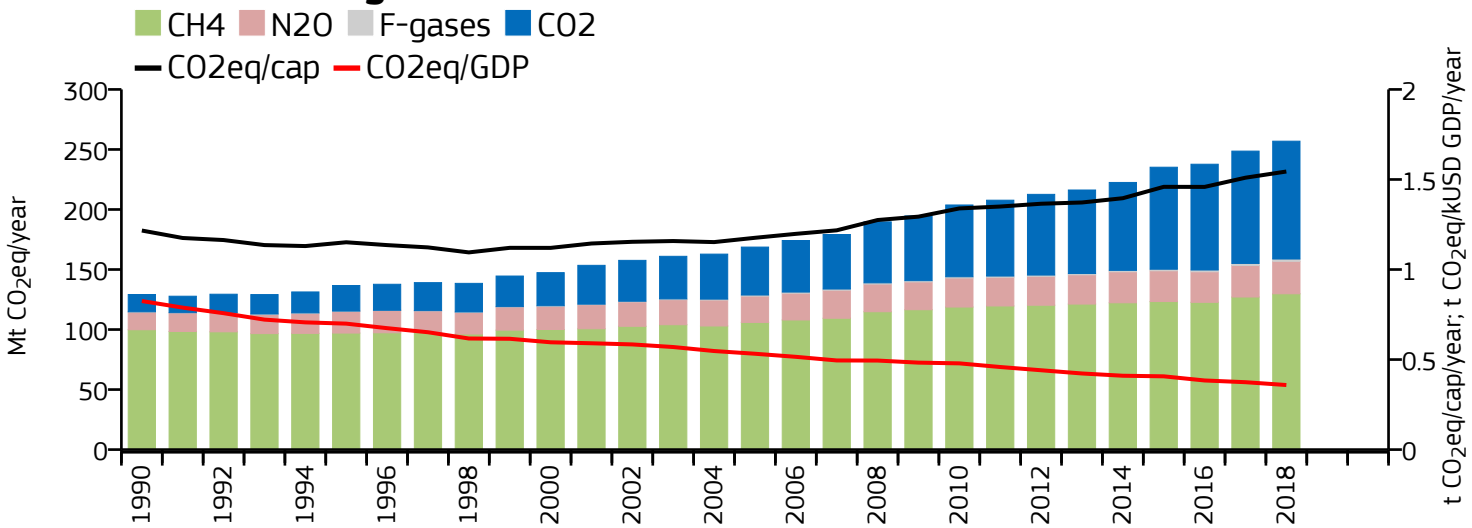
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+231%	+205%	+37%
Other industrial combustion	+108%	+92%	+88%
Buildings	+109%	+118%	+18%
Transport	+271%	+284%	+54%
Other sectors	+246%	+69%	+46%
All sectors	+206%	+112%	+46%

Bangladesh

Fossil CO_2 emissions by sector



Greenhouse gas emissions

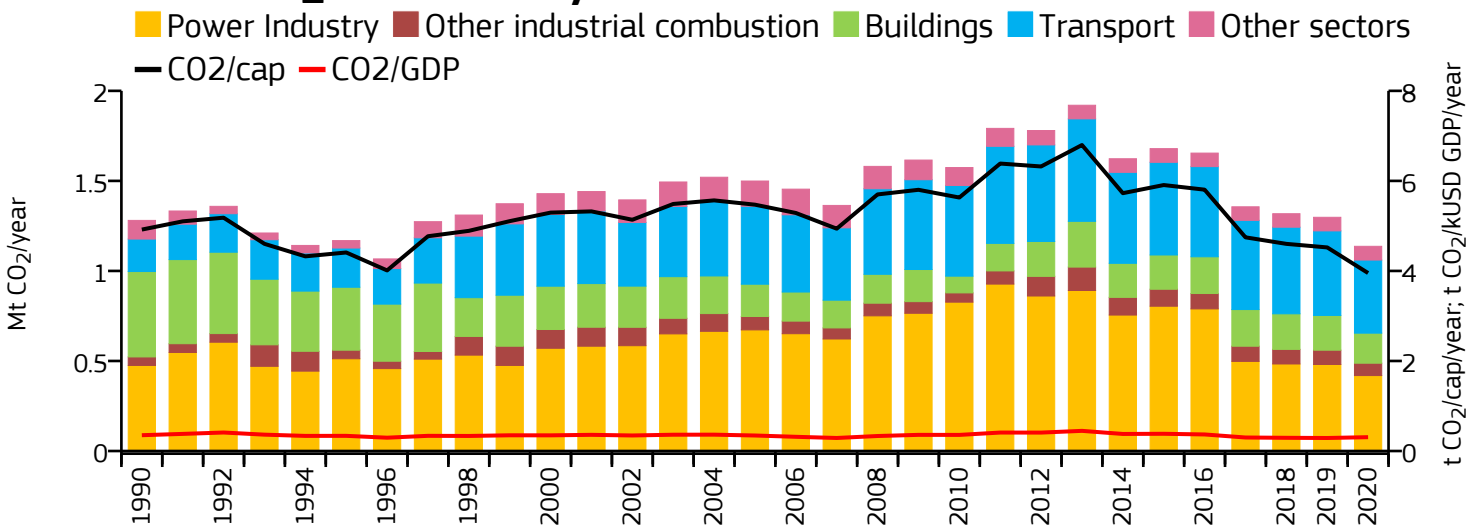


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	108.504	n/a	0.639	n/a	0.137
2018	98.163	256.898	0.590	1.544	0.137
2005	39.943	168.687	0.278	1.176	0.126
1990	14.408	129.172	0.136	1.216	0.092

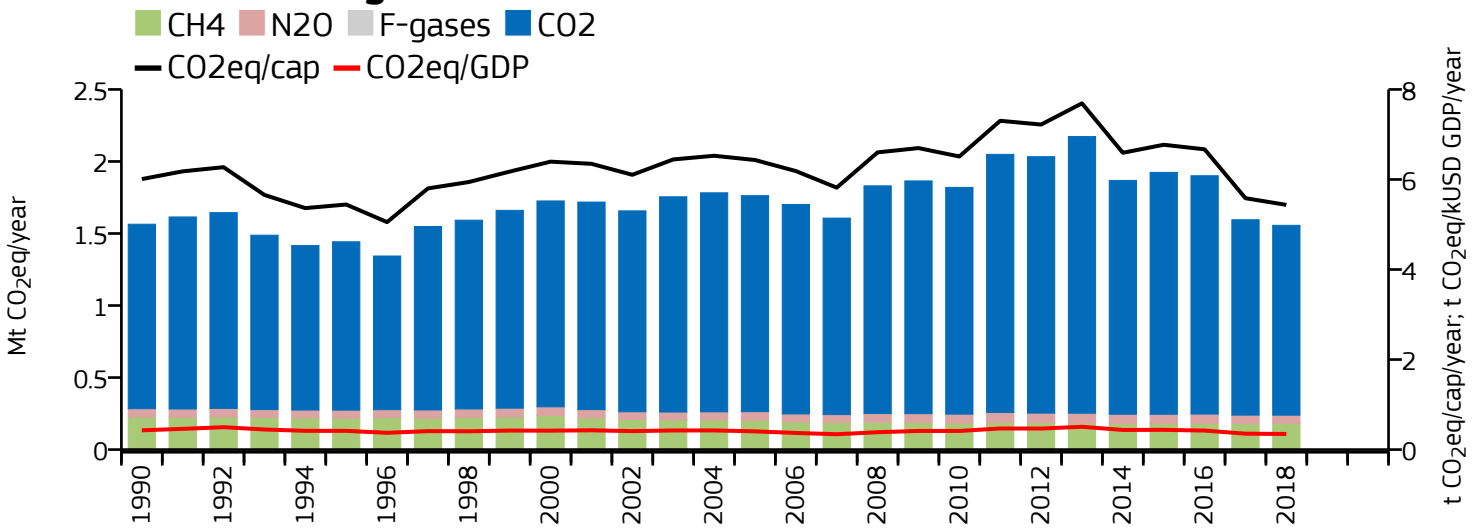
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+864%	+777%	+158%
Other industrial combustion	+929%	+645%	+282%
Buildings	+371%	+185%	+59%
Transport	+584%	+651%	+147%
Other sectors	+443%	+48%	+28%
All sectors	+653%	+99%	+52%

Barbados

Fossil CO_2 emissions by sector



Greenhouse gas emissions

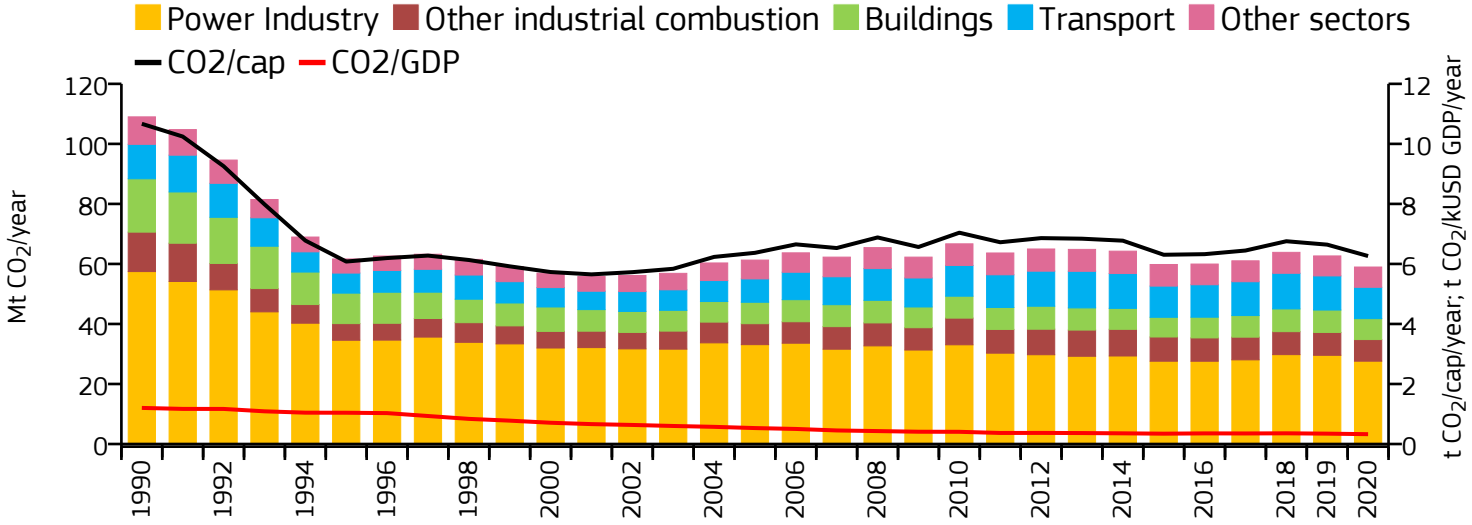


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.137	n/a	3.953	n/a	0.307
2018	1.318	1.557	4.601	5.436	0.293
2005	1.499	1.763	5.472	6.432	0.344
1990	1.281	1.565	4.918	6.009	0.351

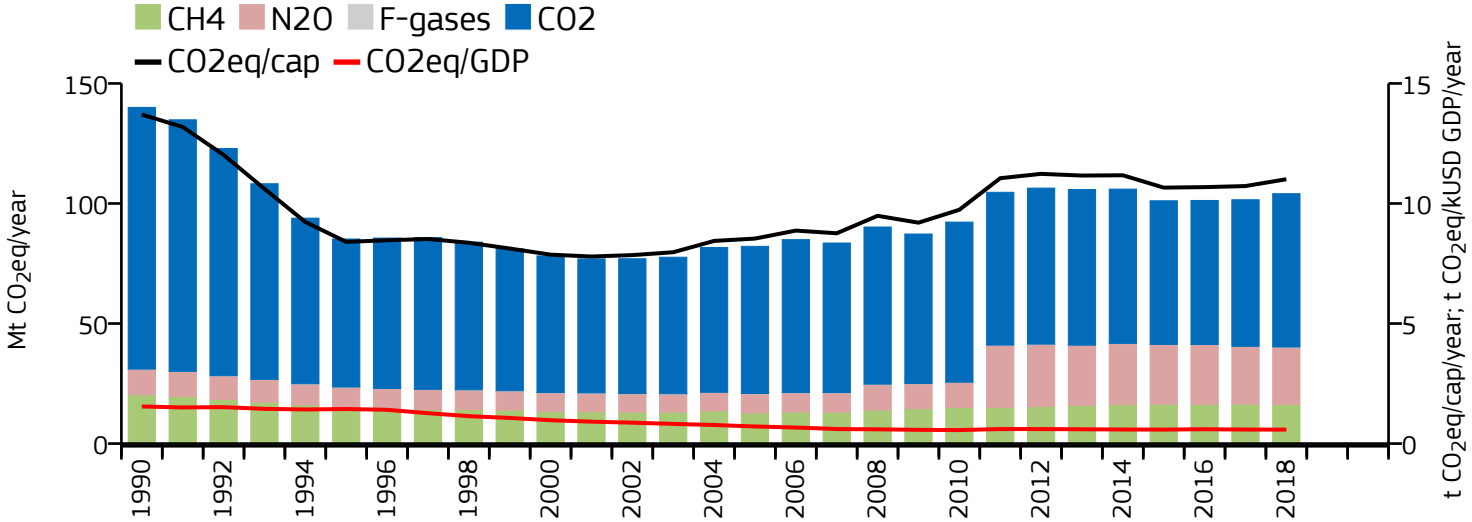
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-12%	+2%	-28%
Other industrial combustion	+46%	+62%	-16%
Buildings	-65%	-57%	+11%
Transport	+125%	+166%	+11%
Other sectors	-26%	-21%	-19%
All sectors	-11%	-1%	-12%

Belarus

Fossil CO_2 emissions by sector



Greenhouse gas emissions

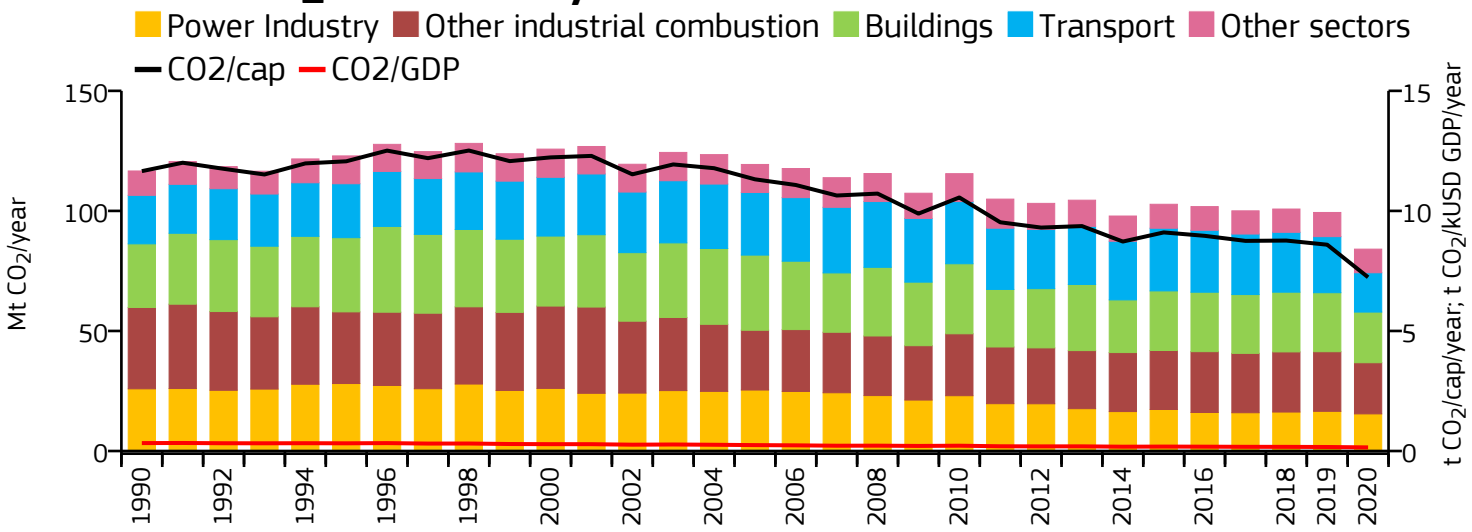


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	58.969	n/a	6.263	n/a	0.328
2018	63.860	104.078	6.756	11.011	0.357
2005	61.290	82.151	6.370	8.538	0.531
1990	109.004	140.023	10.669	13.705	1.203

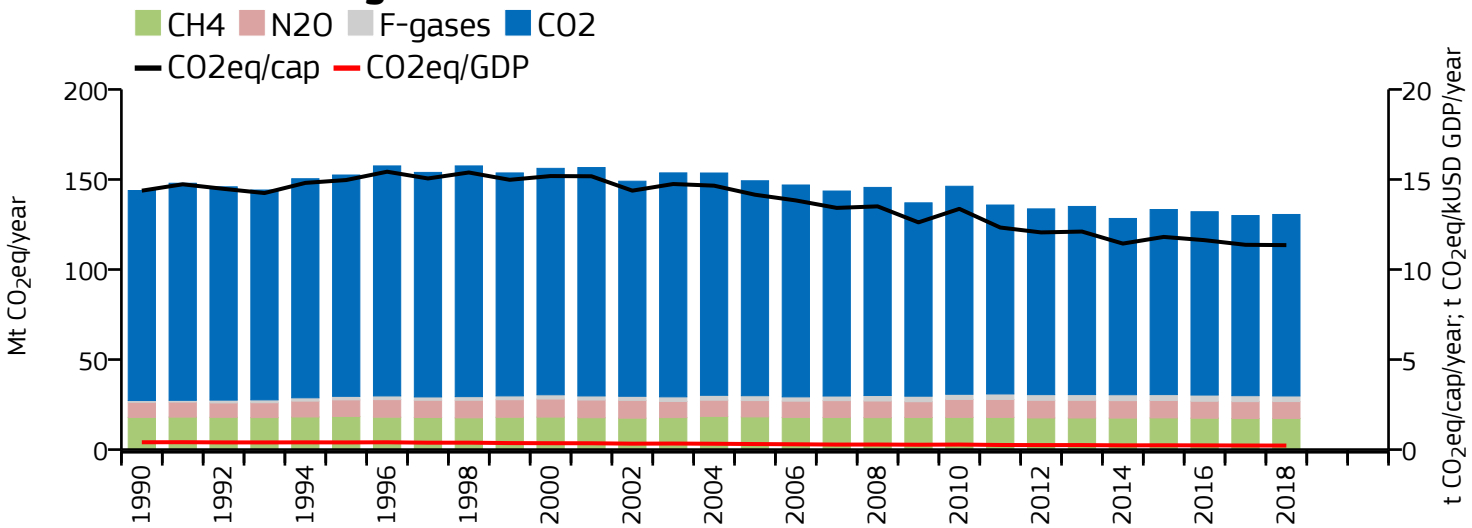
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-52%	-48%	-10%
Other industrial combustion	-45%	-42%	+9%
Buildings	-61%	-56%	+5%
Transport	-9%	+2%	+51%
Other sectors	-26%	+19%	+77%
All sectors	-46%	-26%	+27%

Belgium

Fossil CO_2 emissions by sector



Greenhouse gas emissions

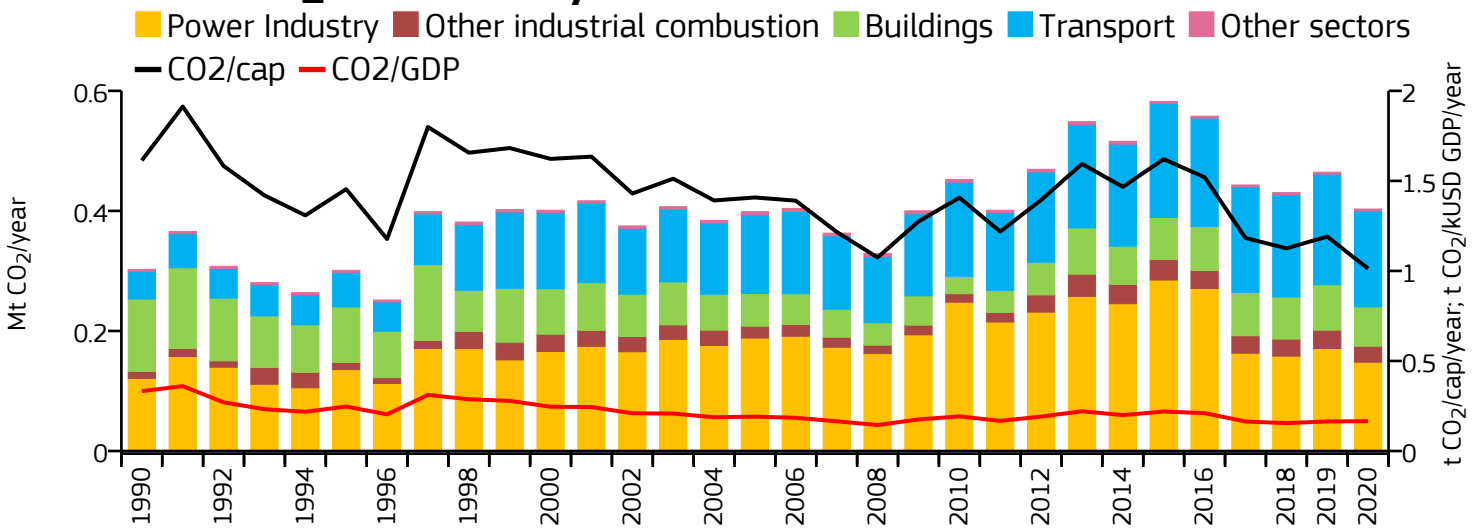


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	84.080	n/a	7.236	n/a	0.151
2018	100.781	130.564	8.765	11.355	0.173
2005	119.344	149.275	11.316	14.153	0.246
1990	116.633	143.872	11.656	14.378	0.330

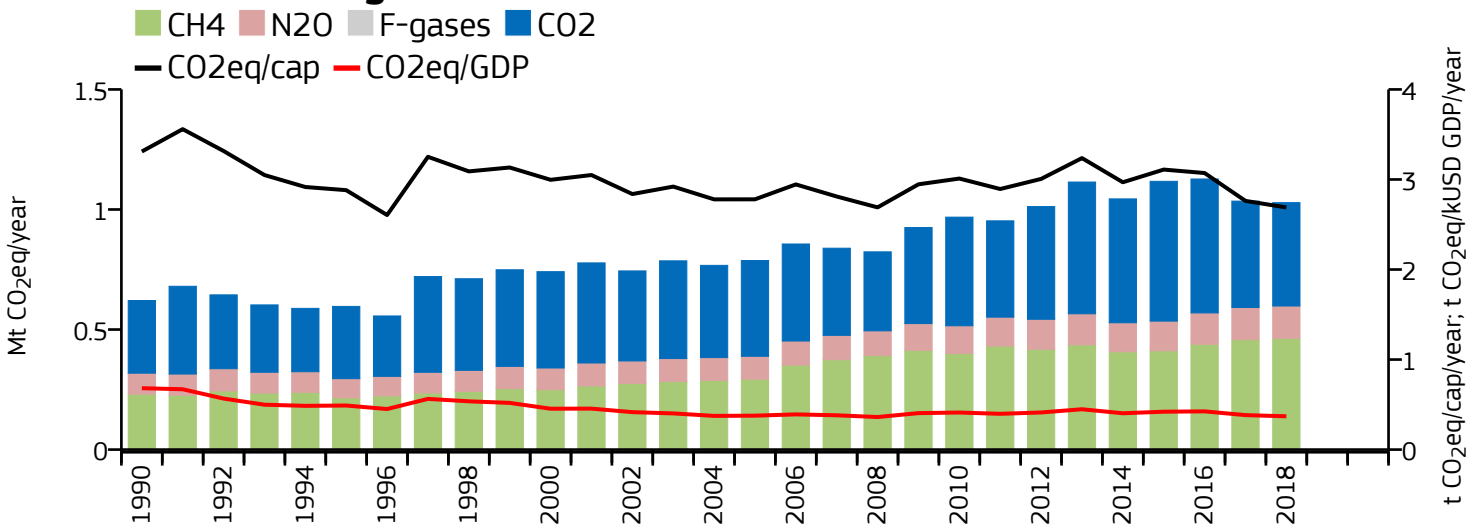
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↘ -40%	↘ -37%	↘ -36%
Other industrial combustion	↘ -37%	↘ -26%	→ +1%
Buildings	↘ -20%	↘ -6%	↘ -20%
Transport	↘ -19%	↗ +23%	→ -4%
Other sectors	→ -3%	↗ +6%	→ -5%
All sectors	↘ -28%	↘ -9%	↘ -13%

Belize

Fossil CO_2 emissions by sector



Greenhouse gas emissions

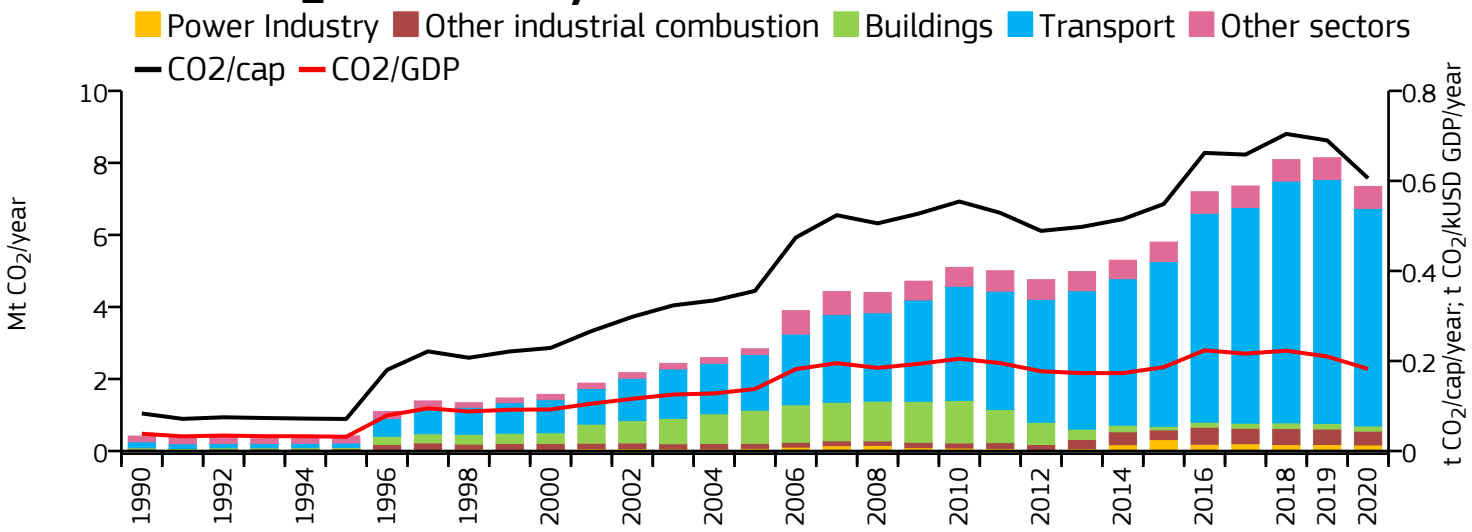


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.403	n/a	1.013	n/a	0.166
2018	0.430	1.028	1.126	2.689	0.155
2005	0.399	0.787	1.408	2.780	0.191
1990	0.303	0.621	1.614	3.310	0.332

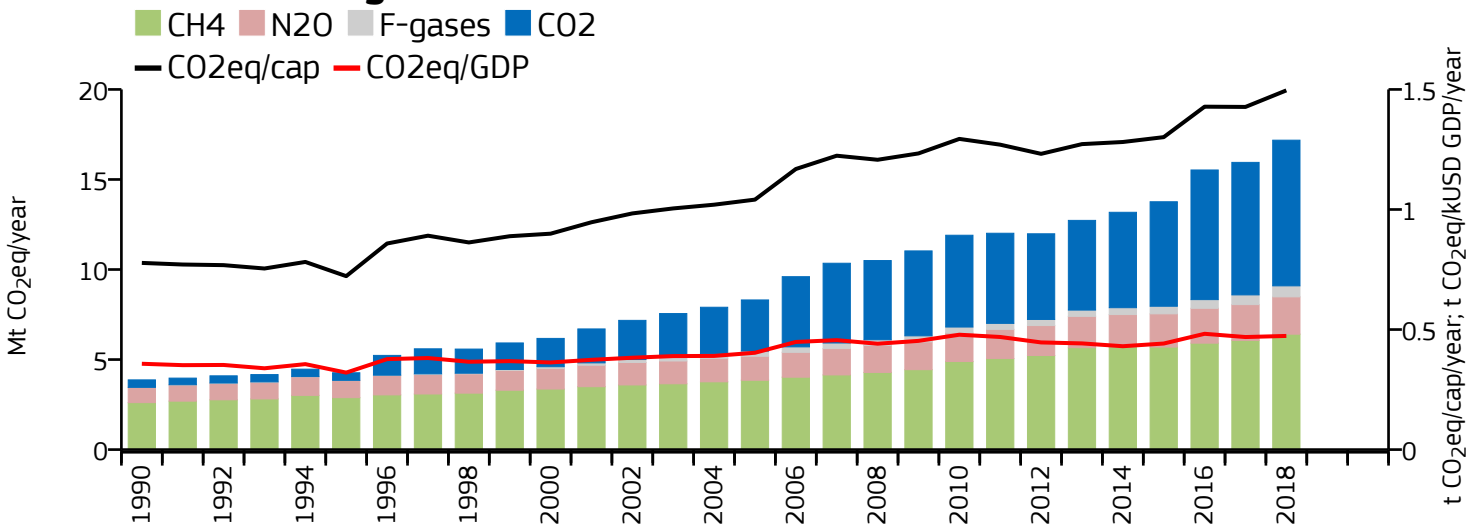
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+22%	+31%	-16%
Other industrial combustion	+130%	+136%	+45%
Buildings	-46%	-40%	+29%
Transport	+247%	+270%	+29%
Other sectors	-3%	+87%	+53%
All sectors	+33%	+66%	+31%

Benin

Fossil CO_2 emissions by sector



Greenhouse gas emissions

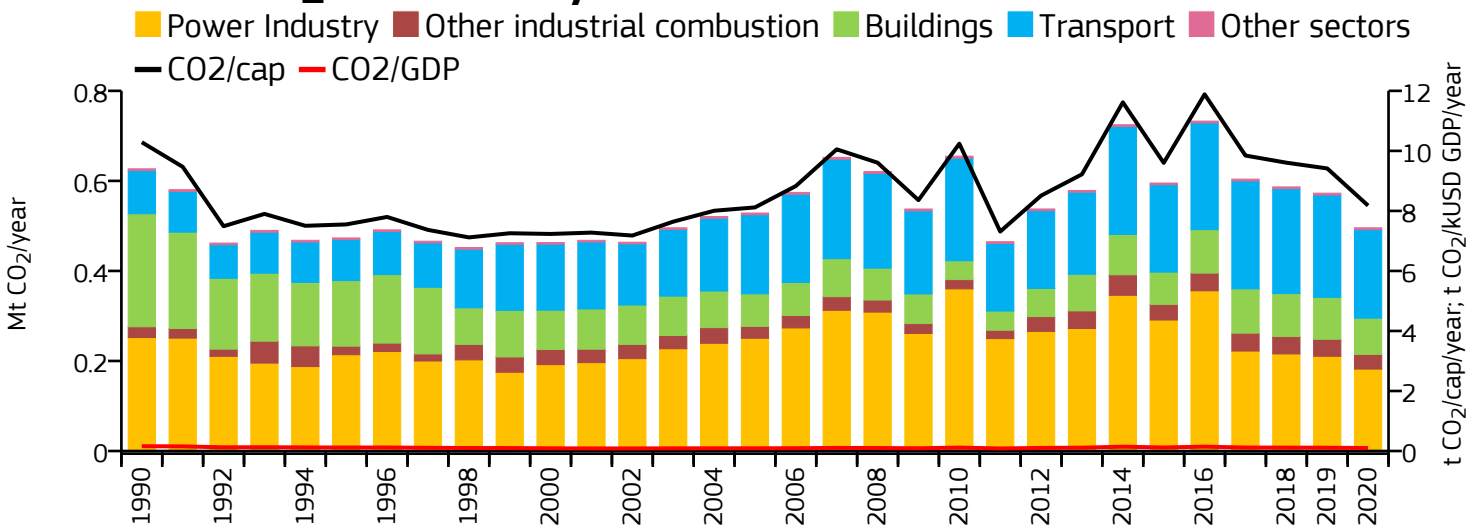


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.346	n/a	0.606	n/a	0.182
2018	8.090	17.183	0.704	1.496	0.223
2005	2.839	8.310	0.356	1.041	0.138
1990	0.415	3.871	0.083	0.777	0.038

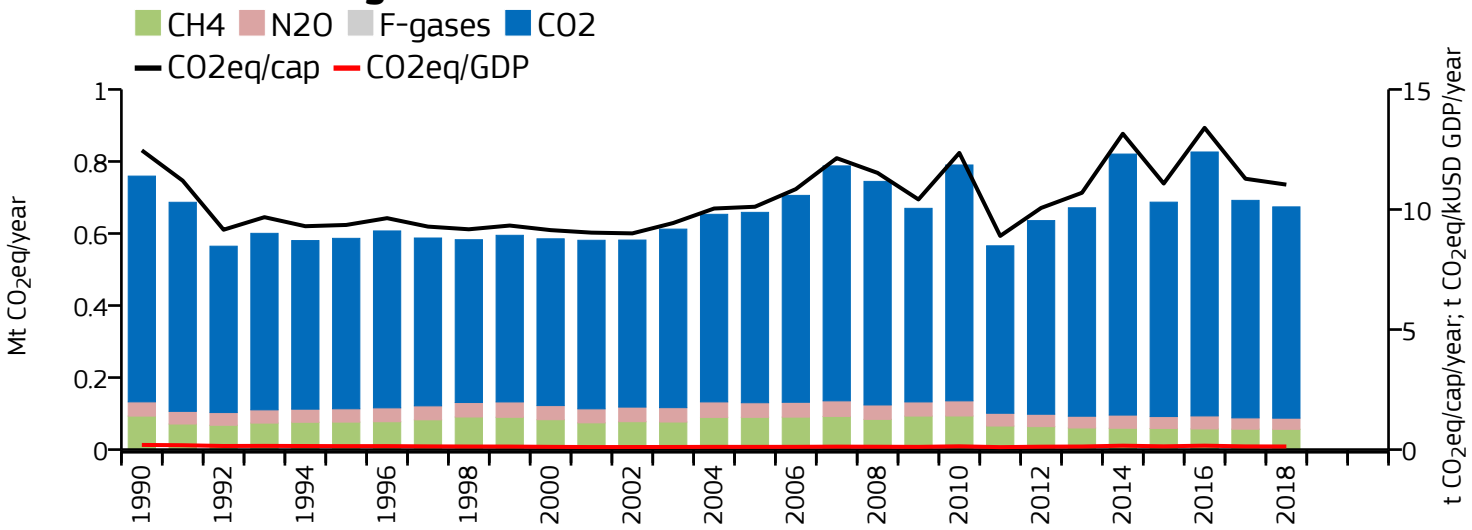
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +561%	↗ +604%	↗ +134%
Other industrial combustion	↗ +1136%	↗ +1328%	↗ +225%
Buildings	↗ +308%	↗ +49%	↘ -46%
Transport	↗ +3556%	↗ +3988%	↗ +334%
Other sectors	↗ +285%	↗ +186%	↗ +75%
All sectors	↗ +1669%	↗ +344%	↗ +107%

Bermuda

Fossil CO_2 emissions by sector



Greenhouse gas emissions

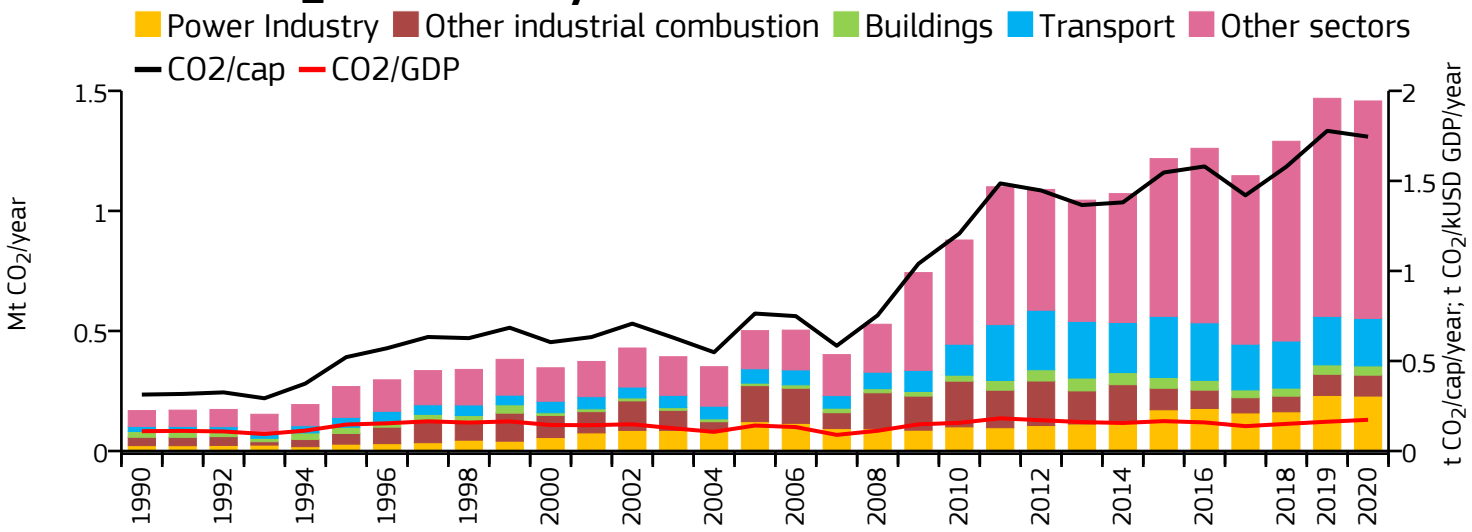


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.496	n/a	8.176	n/a	0.098
2018	0.587	0.674	9.607	11.035	0.113
2005	0.529	0.659	8.117	10.114	0.090
1990	0.627	0.759	10.288	12.463	0.160

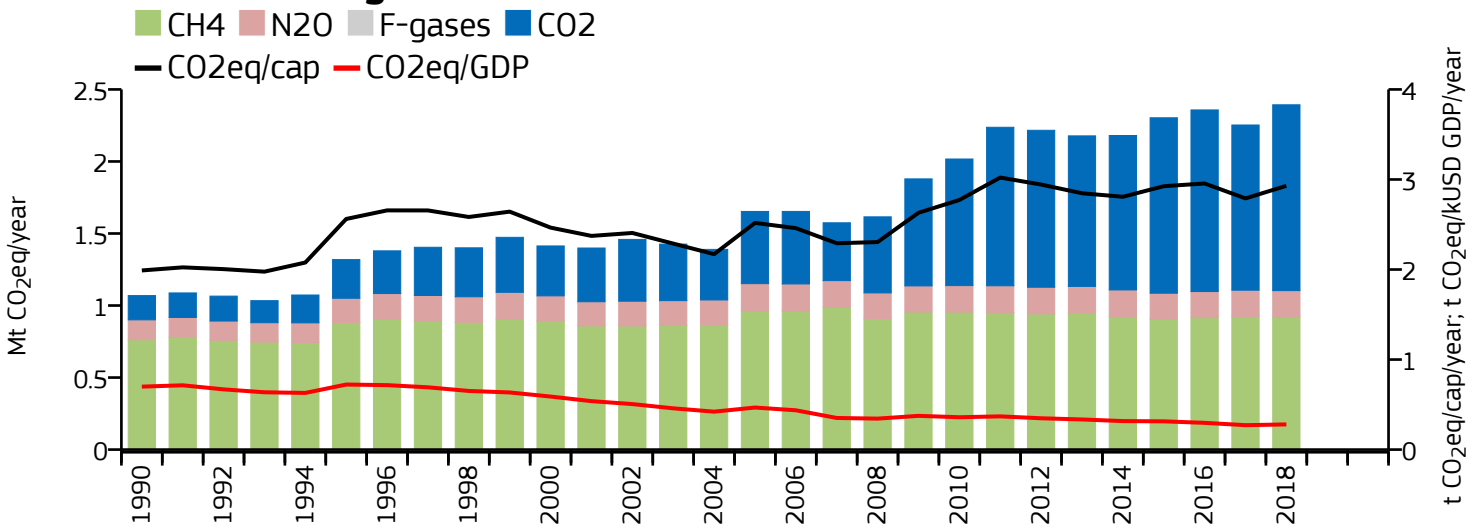
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-28%	-14%	-14%
Other industrial combustion	+36%	+27%	+13%
Buildings	-68%	-61%	+13%
Transport	+105%	+143%	+33%
Other sectors	+7%	-19%	-35%
All sectors	-21%	-11%	+2%

Bhutan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

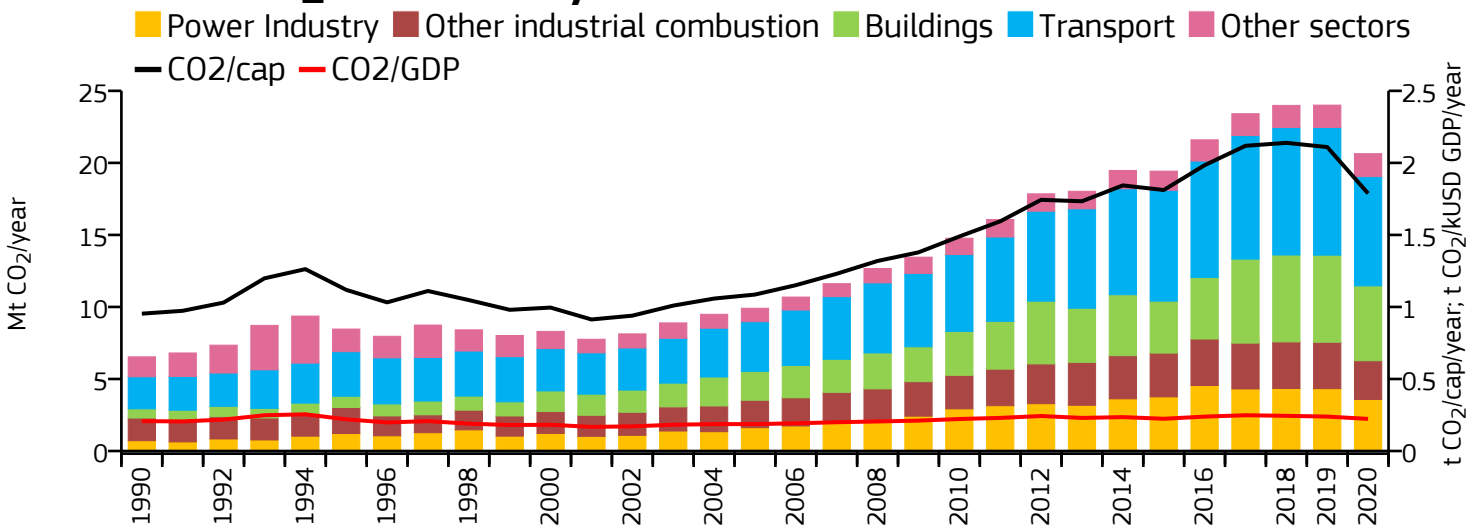


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.458	n/a	1.745	n/a	0.173
2018	1.290	2.393	1.579	2.929	0.151
2005	0.501	1.653	0.763	2.518	0.142
1990	0.168	1.069	0.313	1.990	0.110

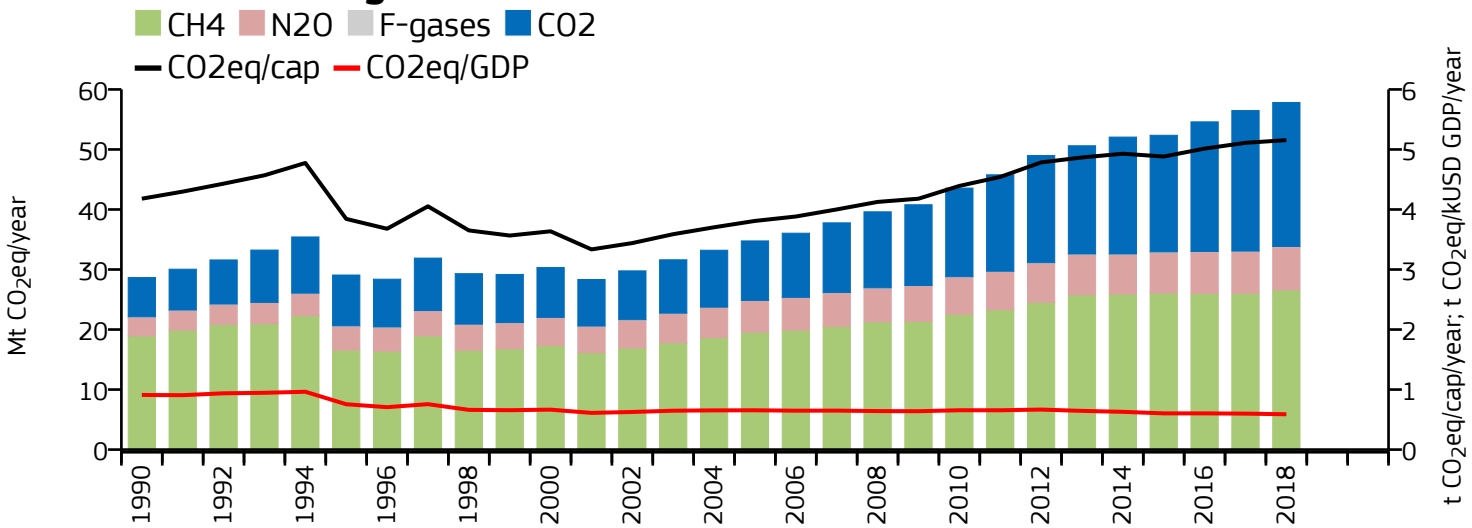
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+926%	+630%	+34%
Other industrial combustion	+150%	+100%	-53%
Buildings	+60%	+125%	+10%
Transport	+834%	+821%	+228%
Other sectors	+1274%	+92%	+63%
All sectors	+766%	+124%	+45%

Bolivia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

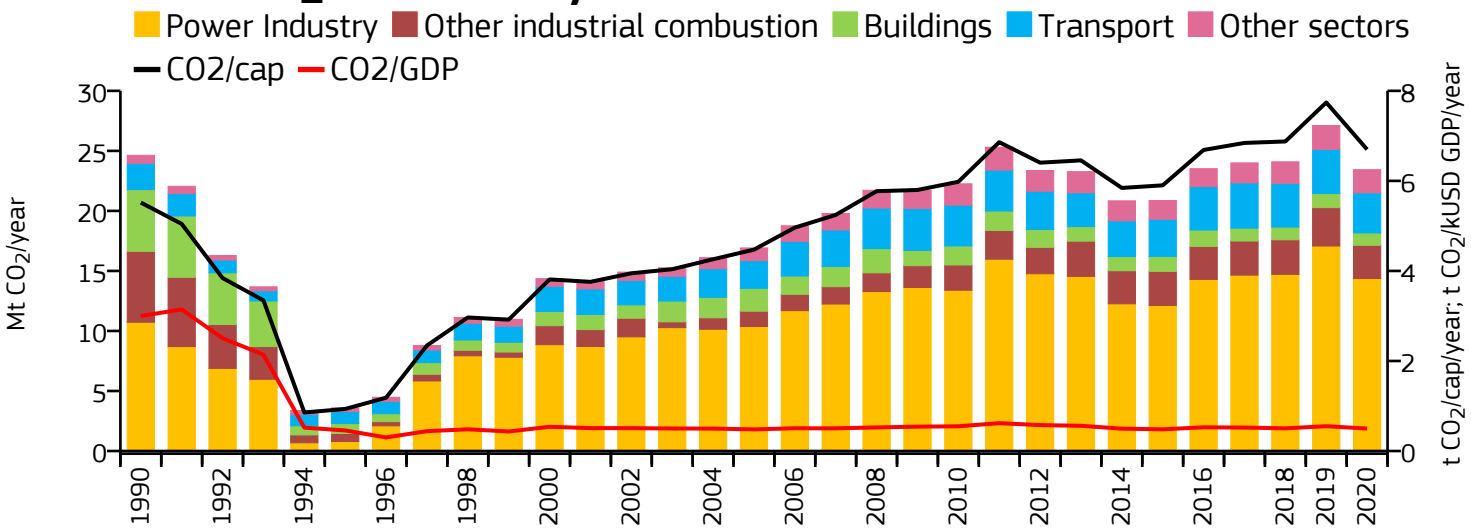


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	20.640	n/a	1.788	n/a	0.223
2018	23.991	57.819	2.139	5.155	0.244
2005	9.910	34.763	1.086	3.809	0.187
1990	6.537	28.659	0.953	4.180	0.208

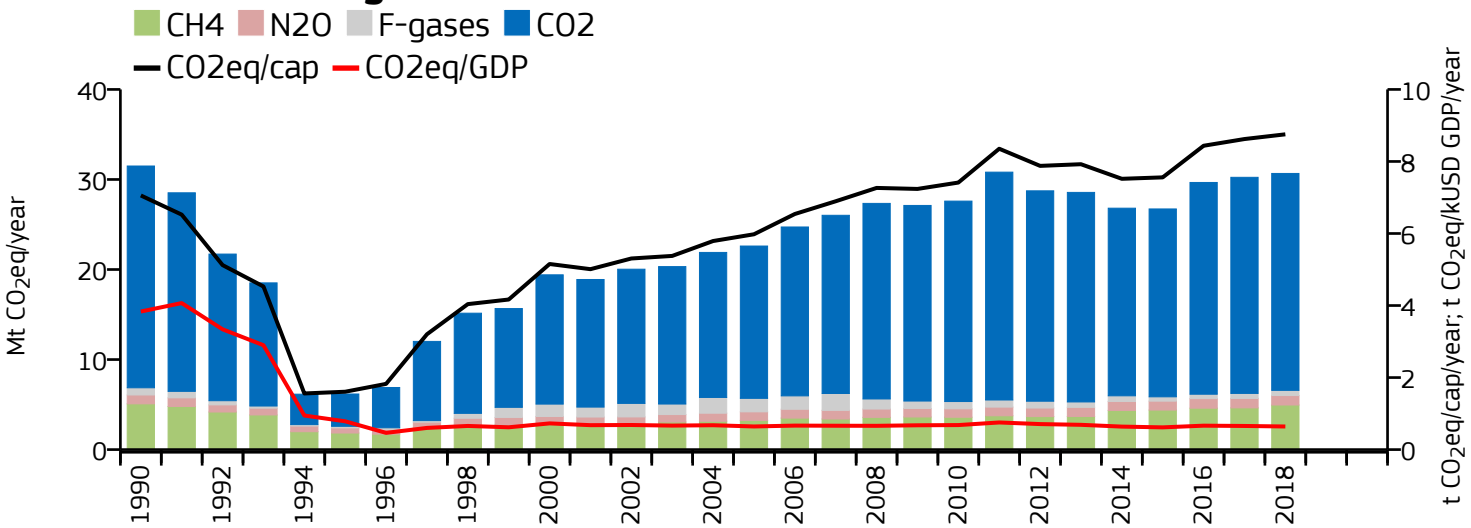
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+400%	+507%	+168%
Other industrial combustion	+71%	+108%	+69%
Buildings	+715%	+649%	+192%
Transport	+241%	+299%	+158%
Other sectors	+15%	+50%	+36%
All sectors	+216%	+102%	+66%

Bosnia and Herzegovina

Fossil CO_2 emissions by sector



Greenhouse gas emissions

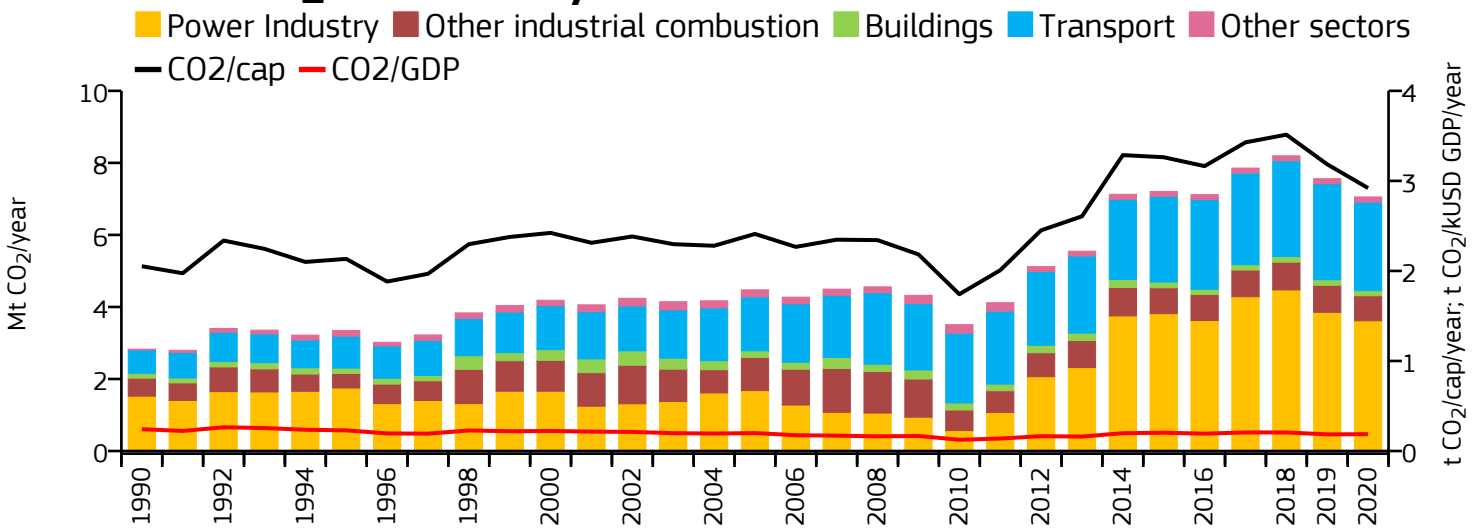


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	23.432	n/a	6.698	n/a	0.498
2018	24.090	30.669	6.876	8.754	0.504
2005	16.915	22.607	4.473	5.978	0.480
1990	24.631	31.495	5.518	7.056	2.998

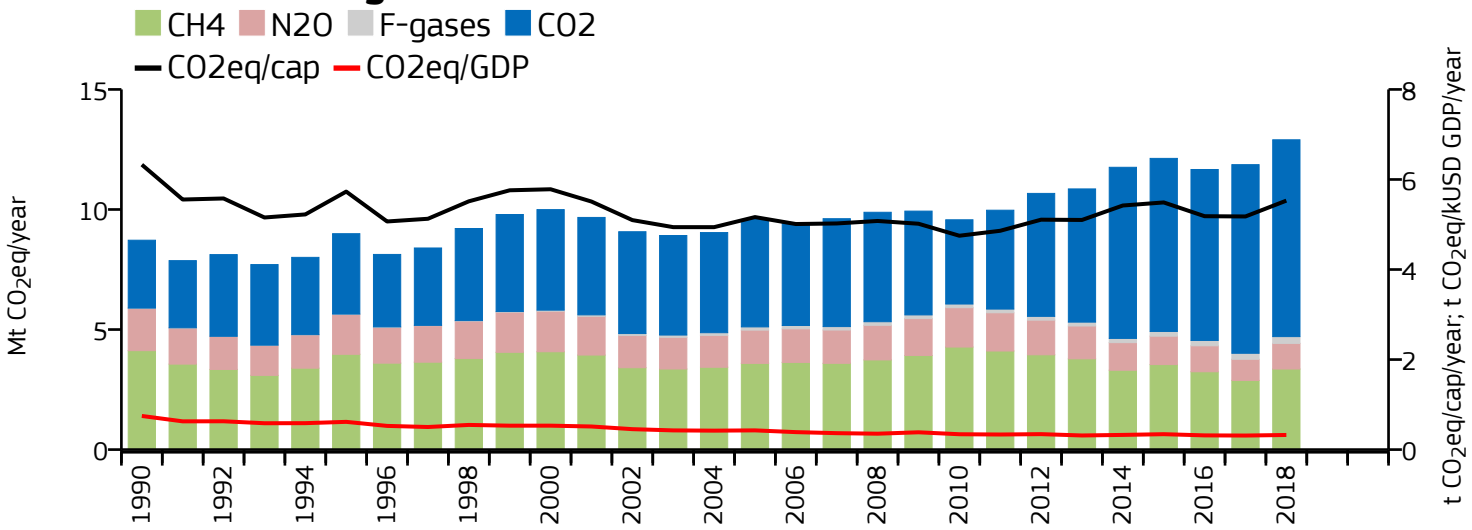
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +34%	↗ +37%	↗ +42%
Other industrial combustion	↘ -53%	↘ -51%	↗ +125%
Buildings	↘ -80%	↘ -78%	↘ -40%
Transport	↗ +52%	↗ +65%	↗ +57%
Other sectors	↗ +190%	↗ +16%	↗ +24%
All sectors	→ -5%	→ -3%	↗ +36%

Botswana

Fossil CO_2 emissions by sector



Greenhouse gas emissions

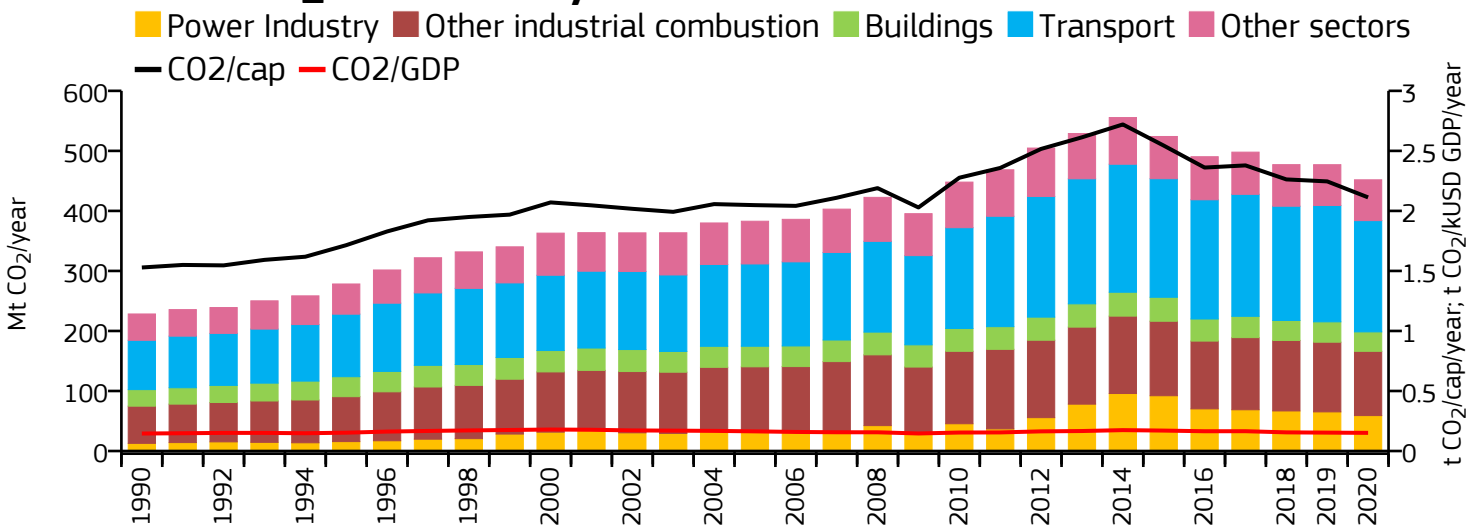


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.055	n/a	2.920	n/a	0.187
2018	8.197	12.903	3.513	5.530	0.206
2005	4.474	9.584	2.411	5.164	0.199
1990	2.828	8.721	2.052	6.329	0.242

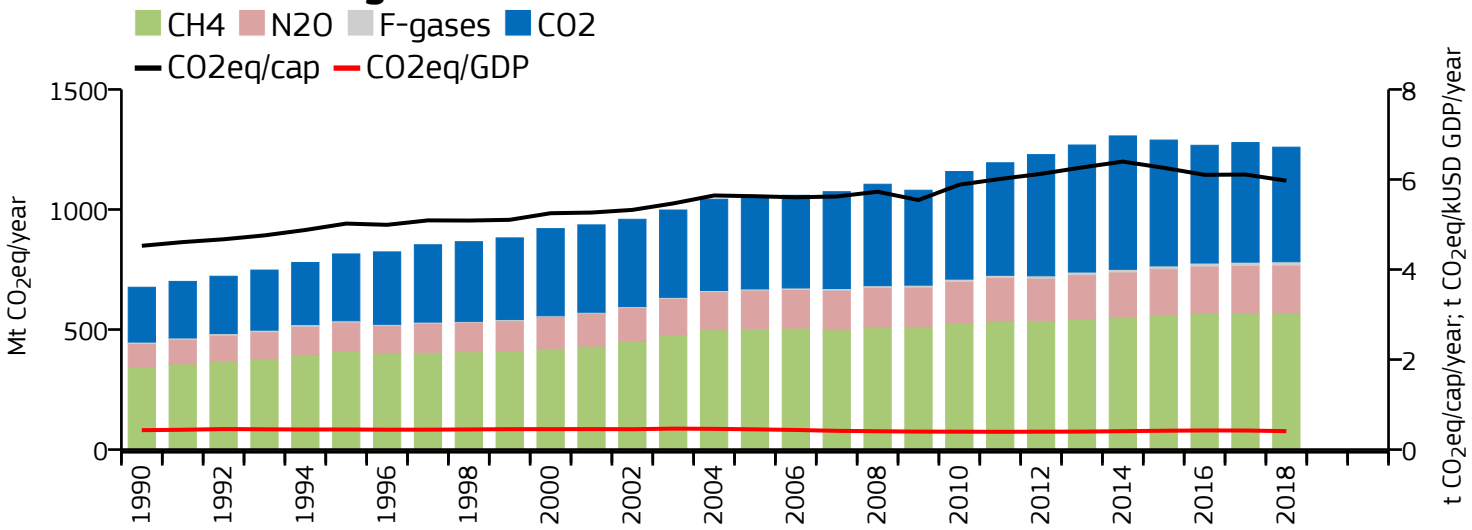
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +137%	↗ +194%	↗ +166%
Other industrial combustion	↗ +39%	↗ +54%	↘ -16%
Buildings	→ +5%	↗ +25%	→ +3%
Transport	↗ +279%	↗ +308%	↗ +77%
Other sectors	↗ +605%	↘ -20%	↘ -10%
All sectors	↗ +149%	↗ +48%	↗ +35%

Brazil

Fossil CO_2 emissions by sector



Greenhouse gas emissions

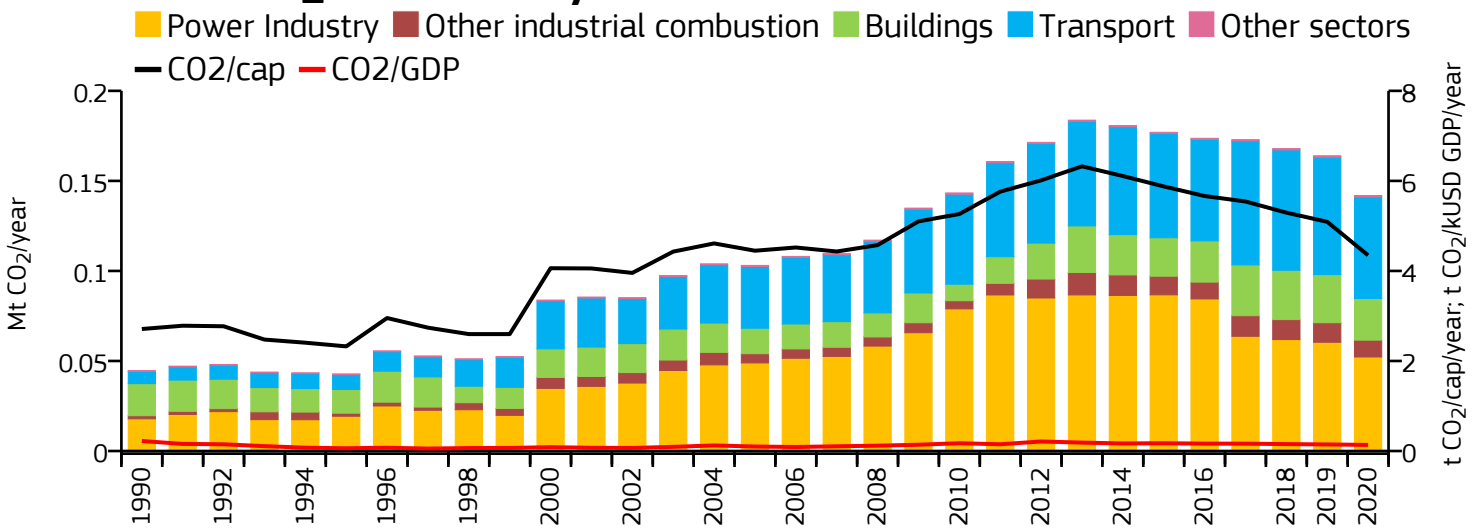


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	451.801	n/a	2.113	n/a	0.151
2018	477.054	1259.512	2.262	5.973	0.155
2005	382.819	1051.933	2.048	5.628	0.164
1990	228.304	676.110	1.529	4.527	0.146

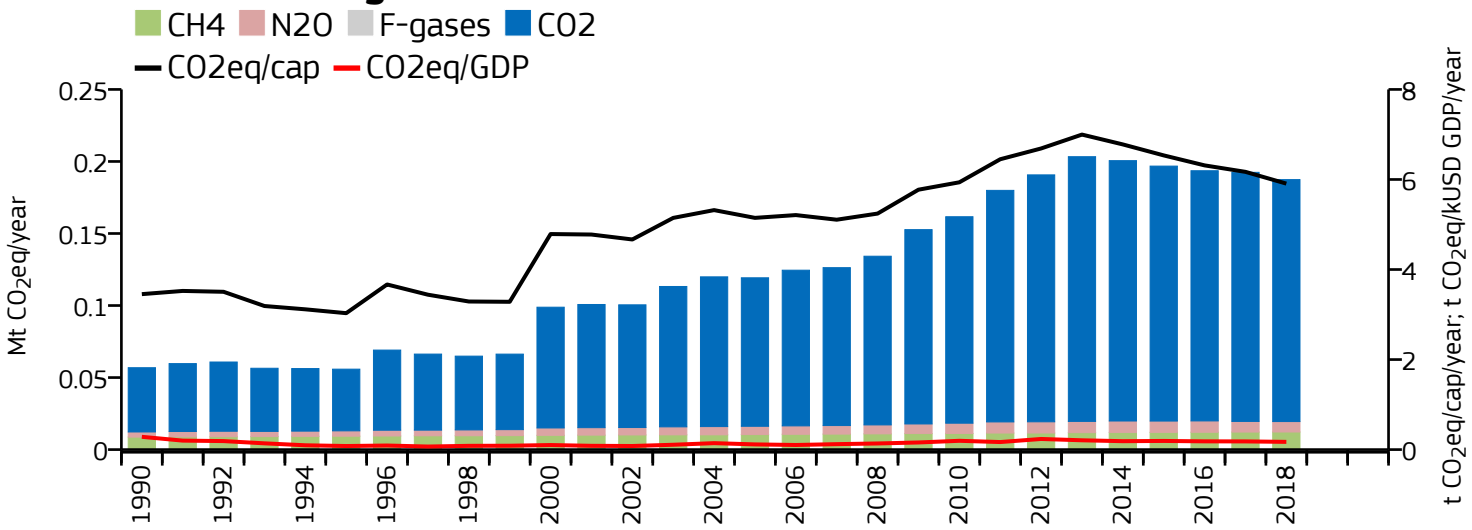
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+362%	+426%	+95%
Other industrial combustion	+73%	+88%	+11%
Buildings	+18%	+18%	-4%
Transport	+126%	+132%	+39%
Other sectors	+55%	+74%	+15%
All sectors	+98%	+86%	+20%

British Virgin Islands

Fossil CO_2 emissions by sector



Greenhouse gas emissions

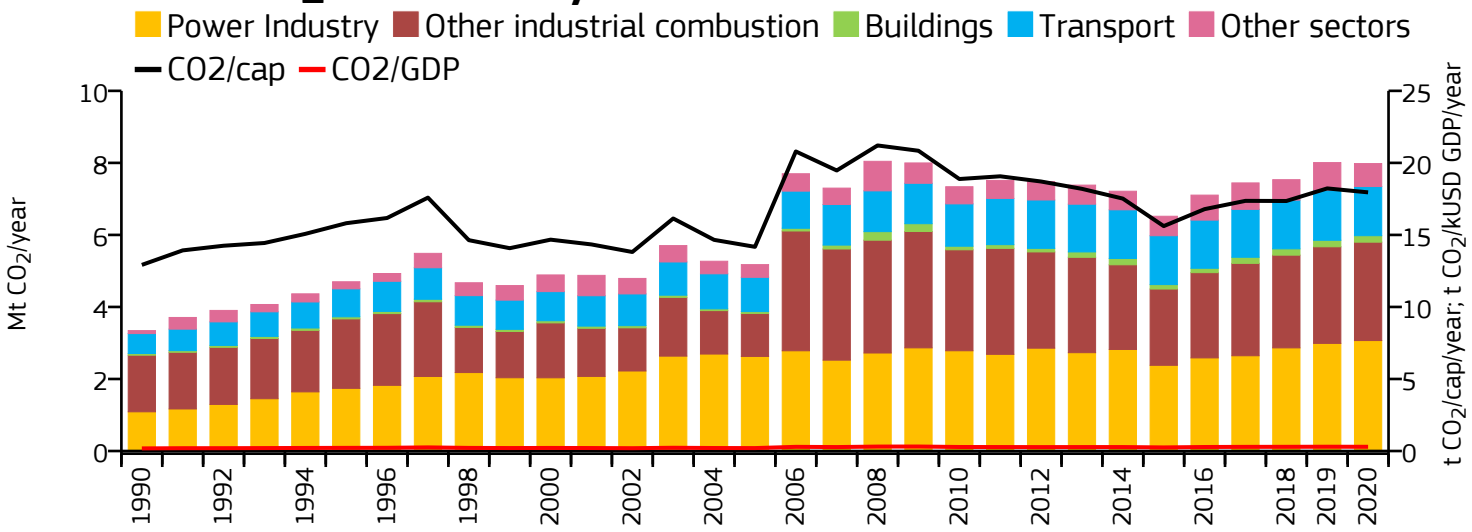


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.142	n/a	4.348	n/a	0.135
2018	0.168	0.187	5.295	5.908	0.154
2005	0.103	0.119	4.449	5.147	0.100
1990	0.045	0.057	2.710	3.453	0.222

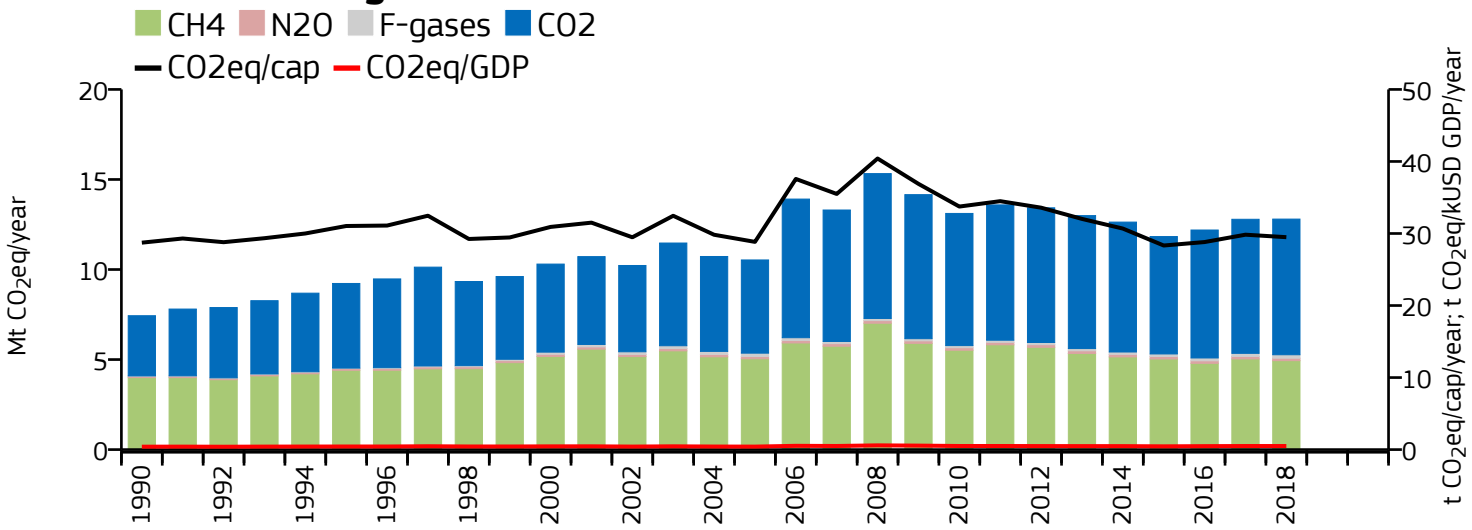
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+192%	+246%	+26%
Other industrial combustion	+450%	+551%	+116%
Buildings	+30%	+59%	+95%
Transport	+729%	+877%	+95%
Other sectors	+95%	+48%	+15%
All sectors	+218%	+230%	+57%

Brunei

Fossil CO_2 emissions by sector



Greenhouse gas emissions

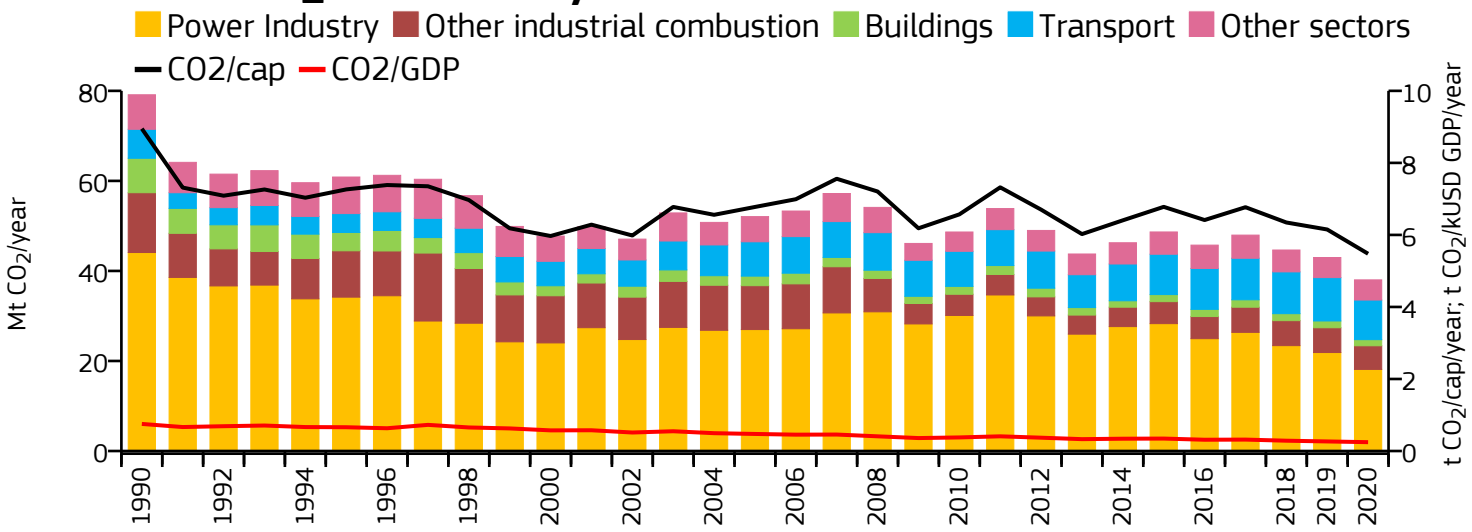


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.981	n/a	17.954	n/a	0.293
2018	7.534	12.800	17.355	29.488	0.291
2005	5.175	10.531	14.173	28.839	0.203
1990	3.343	7.434	12.919	28.727	0.181

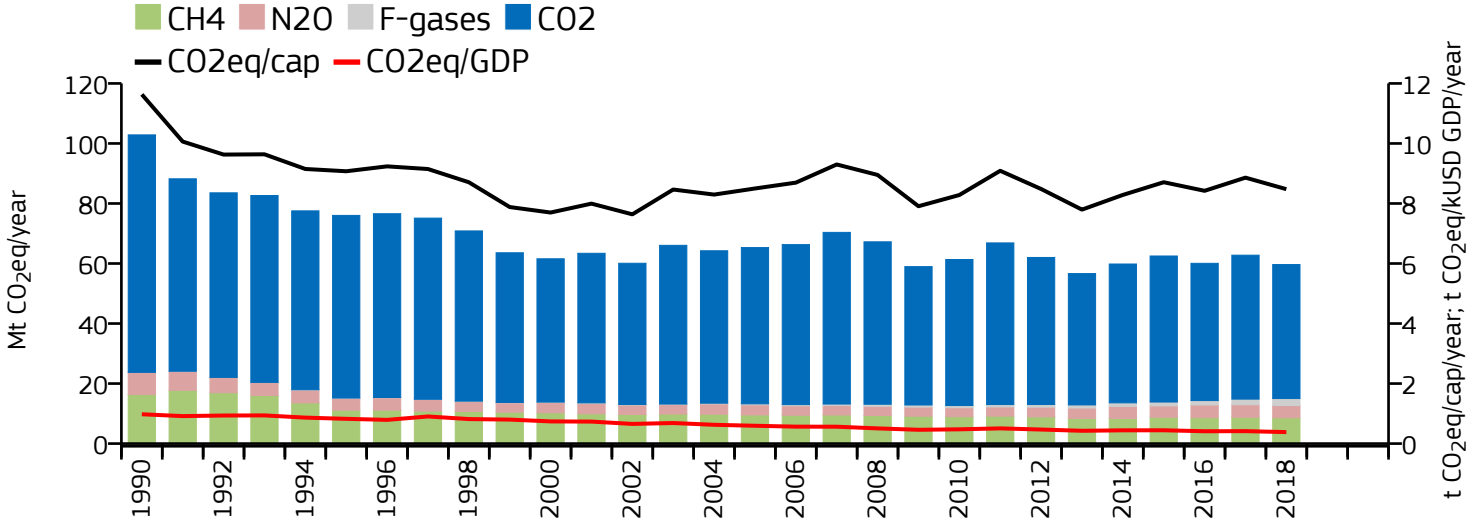
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+182%	+163%	+9%
Other industrial combustion	+74%	+64%	+115%
Buildings	+291%	+275%	+242%
Transport	+147%	+143%	+42%
Other sectors	+671%	+40%	+2%
All sectors	+139%	+72%	+22%

Bulgaria

Fossil CO_2 emissions by sector



Greenhouse gas emissions

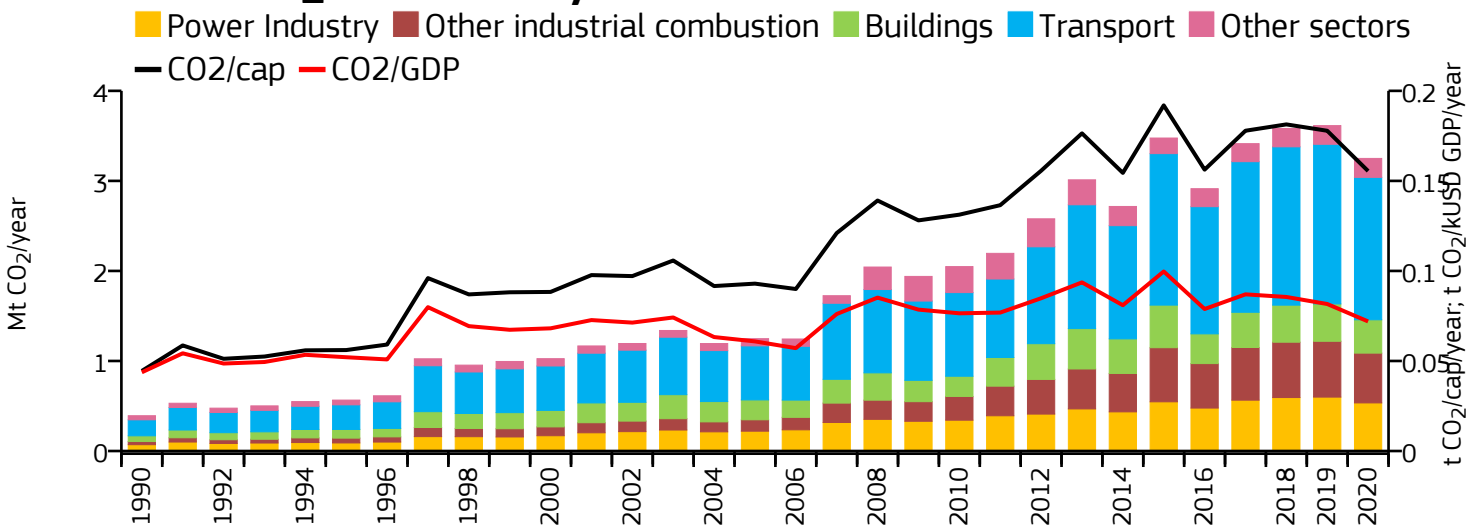


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	38.012	n/a	5.477	n/a	0.245
2018	44.648	59.654	6.345	8.477	0.286
2005	52.066	65.309	6.776	8.500	0.474
1990	79.129	102.857	8.950	11.634	0.752

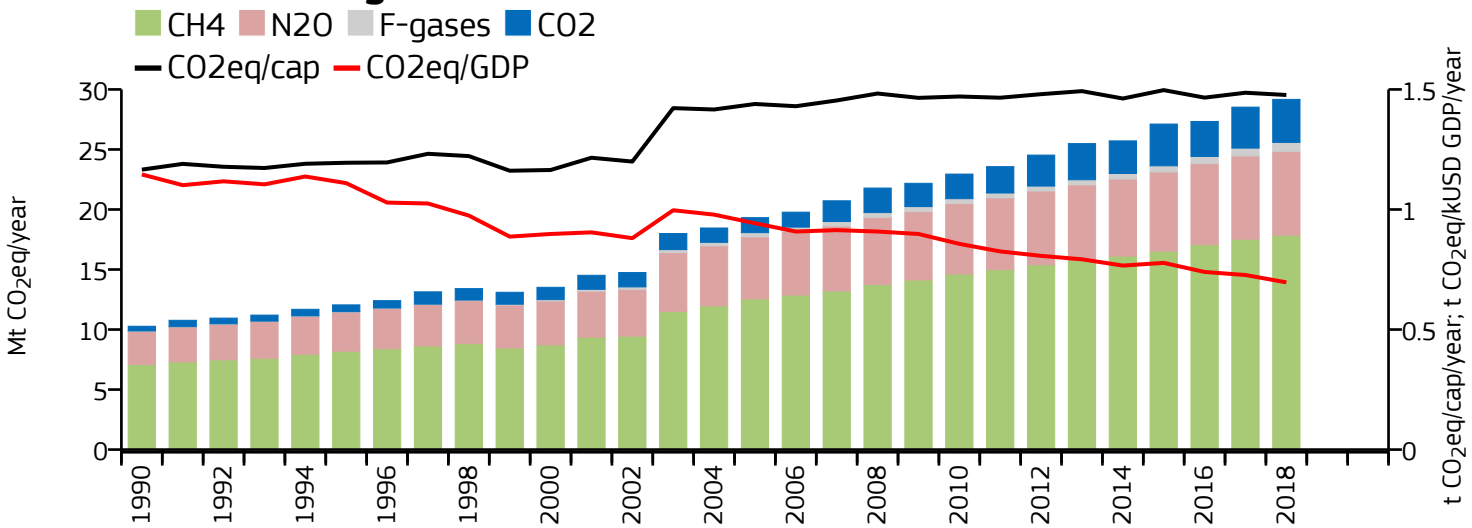
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-59%	-47%	-13%
Other industrial combustion	-61%	-58%	-43%
Buildings	-82%	-76%	-22%
Transport	+37%	+43%	+22%
Other sectors	-42%	-37%	+6%
All sectors	-52%	-42%	-9%

Burkina Faso

Fossil CO_2 emissions by sector



Greenhouse gas emissions

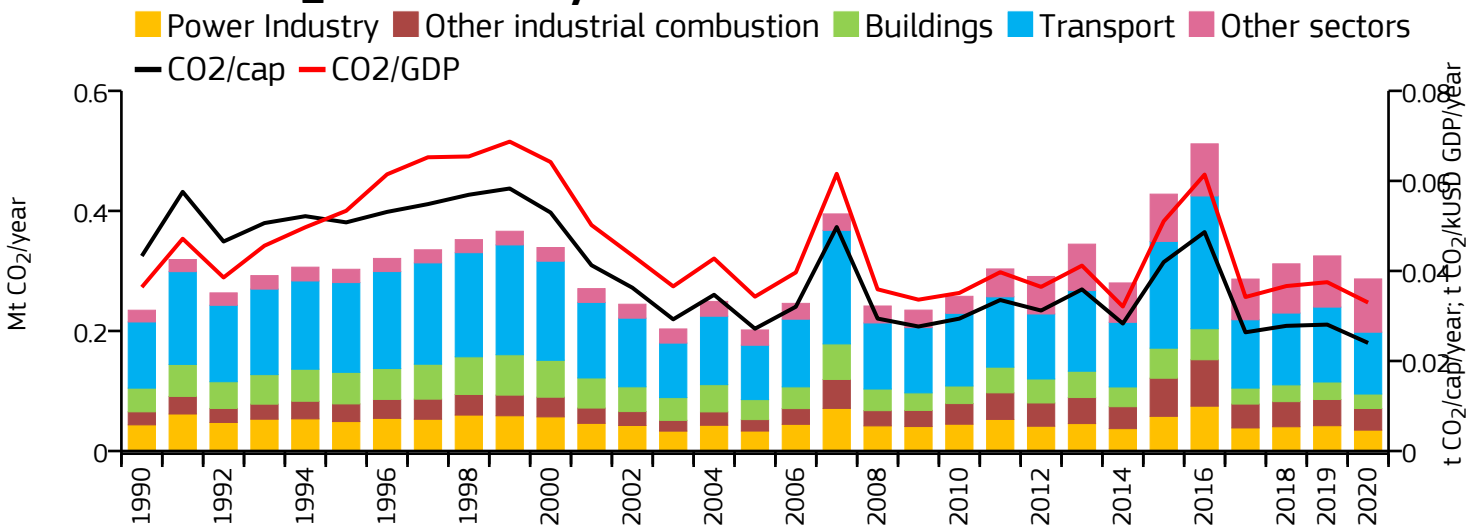


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	3.250	n/a	0.155	n/a	0.072
2018	3.582	29.171	0.181	1.477	0.086
2005	1.248	19.319	0.093	1.439	0.061
1990	0.392	10.274	0.044	1.166	0.044

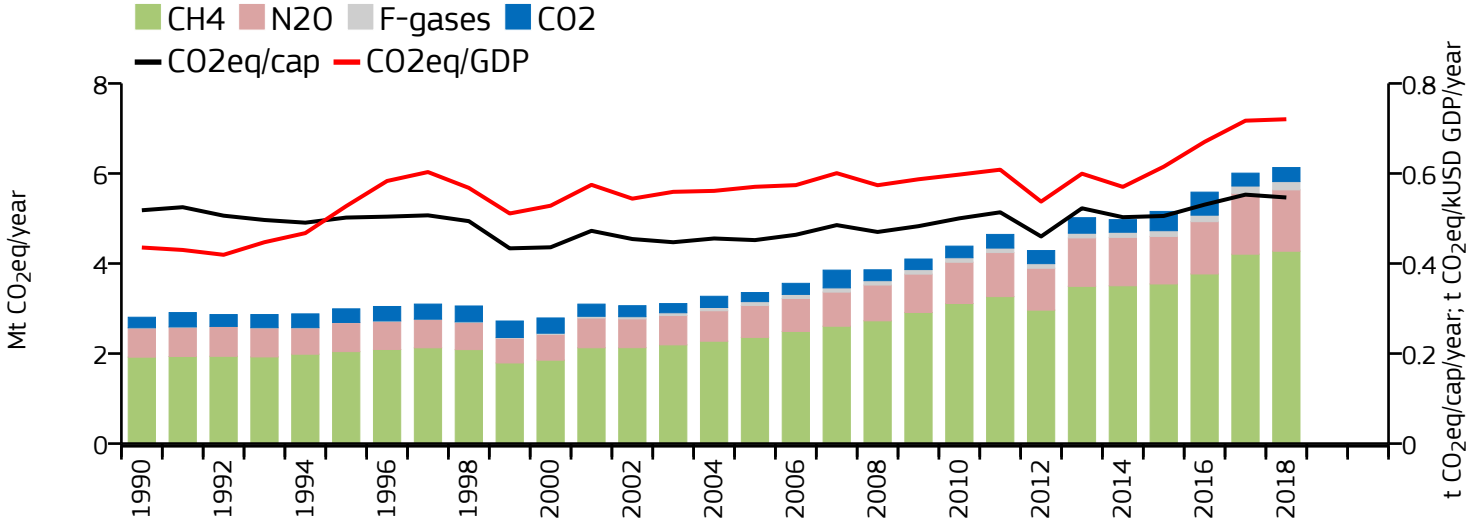
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+661%	+751%	+171%
Other industrial combustion	+1482%	+1425%	+369%
Buildings	+482%	+100%	+47%
Transport	+791%	+890%	+194%
Other sectors	+361%	+169%	+42%
All sectors	+729%	+184%	+51%

Burundi

Fossil CO_2 emissions by sector



Greenhouse gas emissions

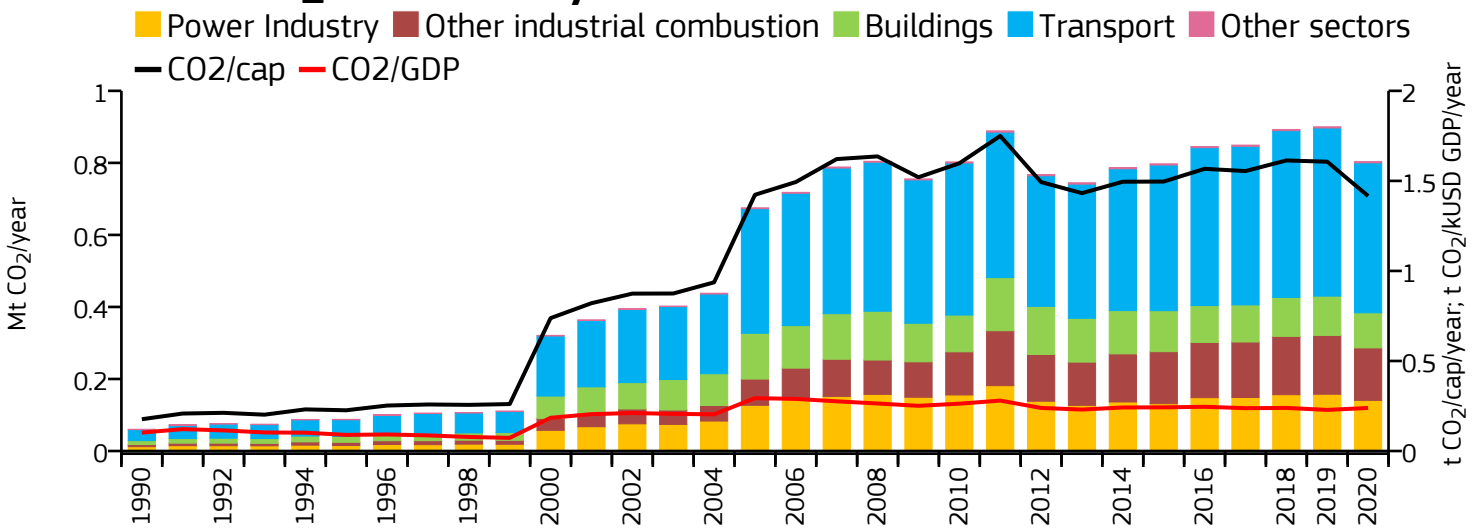


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.287	n/a	0.024	n/a	0.033
2018	0.312	6.131	0.028	0.547	0.037
2005	0.202	3.355	0.027	0.452	0.034
1990	0.235	2.807	0.043	0.518	0.036

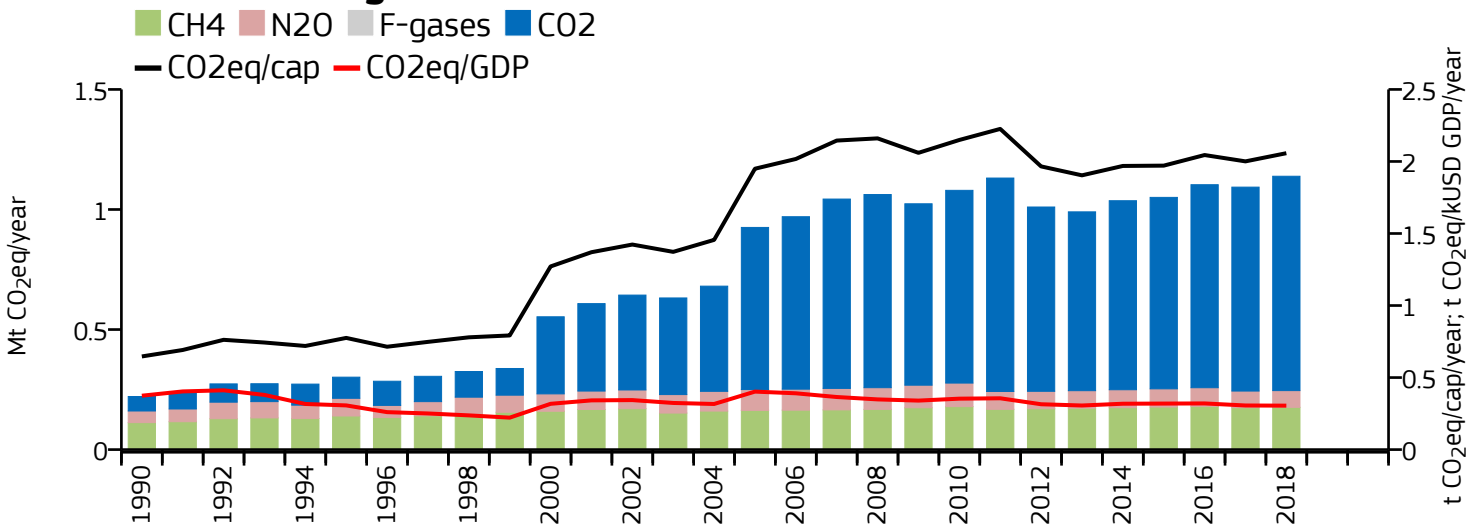
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-20%	-5%	+25%
Other industrial combustion	+66%	+88%	+90%
Buildings	-39%	+11%	-26%
Transport	-7%	+8%	+32%
Other sectors	+353%	+161%	+130%
All sectors	+22%	+118%	+83%

Cabo Verde

Fossil CO_2 emissions by sector



Greenhouse gas emissions

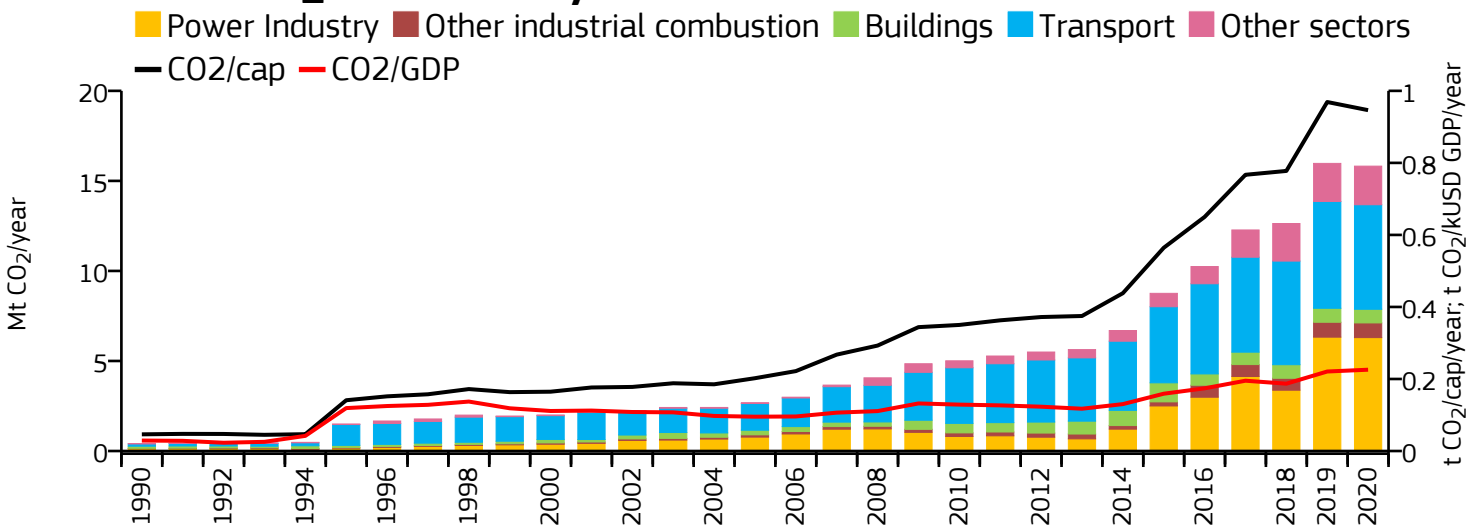


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.803	n/a	1.416	n/a	0.239
2018	0.893	1.138	1.613	2.057	0.239
2005	0.675	0.925	1.423	1.950	0.294
1990	0.060	0.221	0.176	0.647	0.102

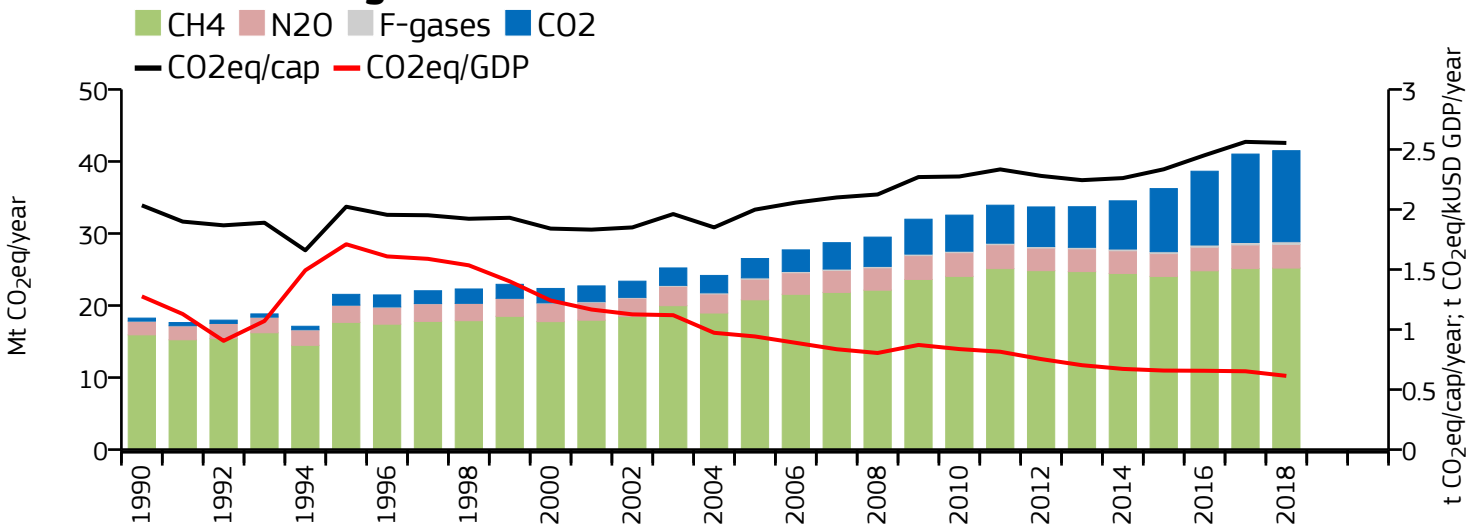
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+1073%	+1204%	+23%
Other industrial combustion	+2336%	+2583%	+122%
Buildings	+796%	+465%	-13%
Transport	+1272%	+1426%	+34%
Other sectors	+180%	+47%	-3%
All sectors	+1231%	+415%	+23%

Cambodia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

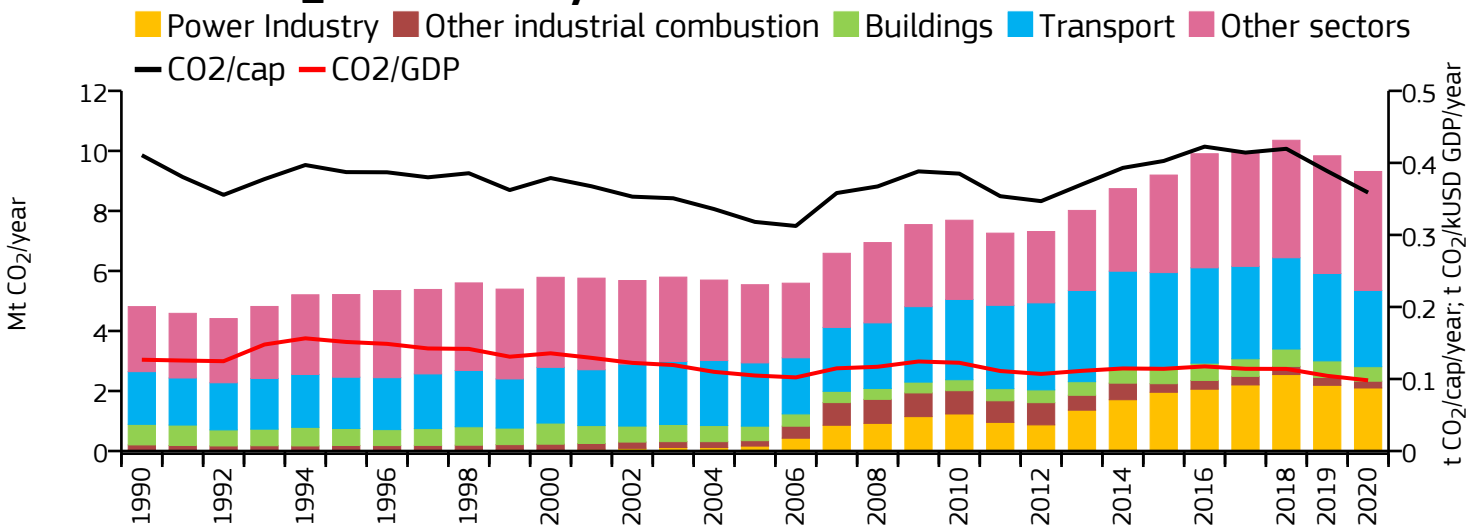


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	15.820	n/a	0.946	n/a	0.226
2018	12.633	41.496	0.778	2.554	0.187
2005	2.682	26.524	0.202	1.999	0.095
1990	0.415	18.254	0.046	2.034	0.029

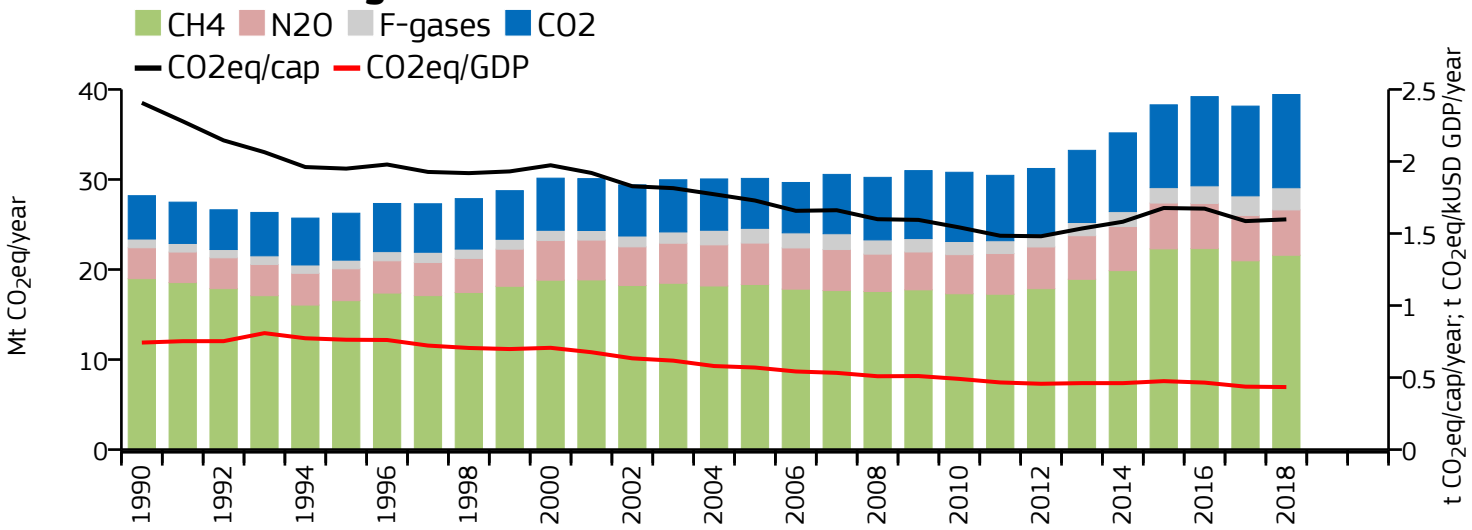
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+4684%	+2467%	+338%
Other industrial combustion	+4049%	+3025%	+320%
Buildings	+554%	+185%	+124%
Transport	+4546%	+4552%	+287%
Other sectors	+9183%	+72%	+28%
All sectors	+3709%	+127%	+56%

Cameroon

Fossil CO_2 emissions by sector



Greenhouse gas emissions

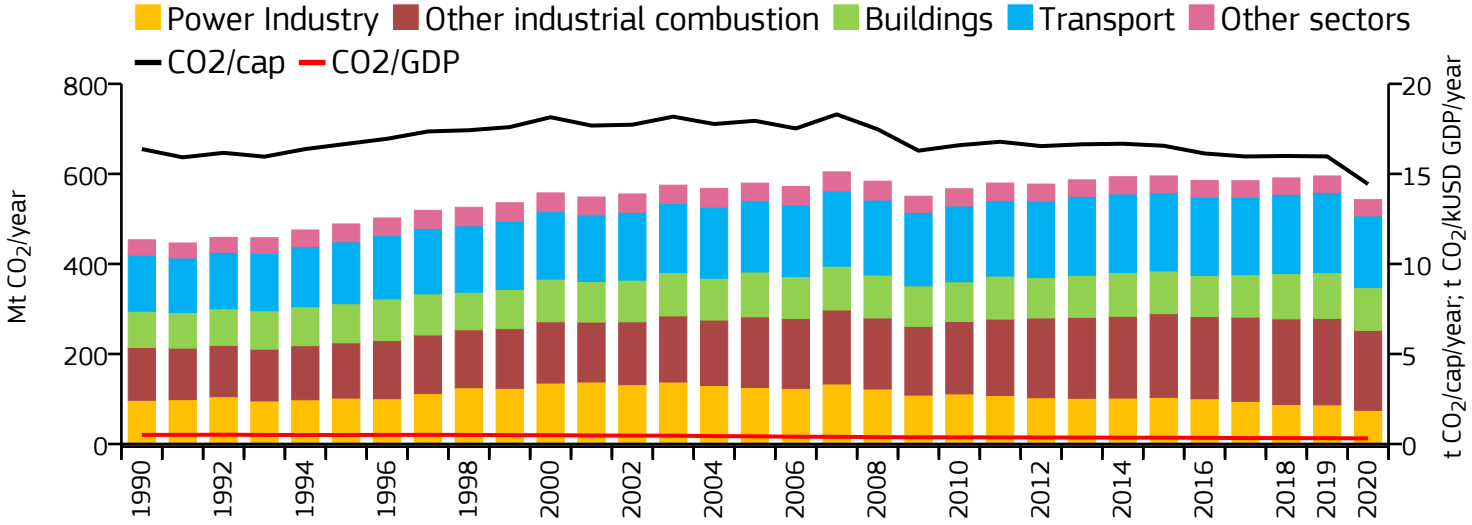


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	9.314	n/a	0.359	n/a	0.098
2018	10.354	39.436	0.420	1.598	0.114
2005	5.541	30.119	0.318	1.729	0.105
1990	4.811	28.198	0.411	2.407	0.127

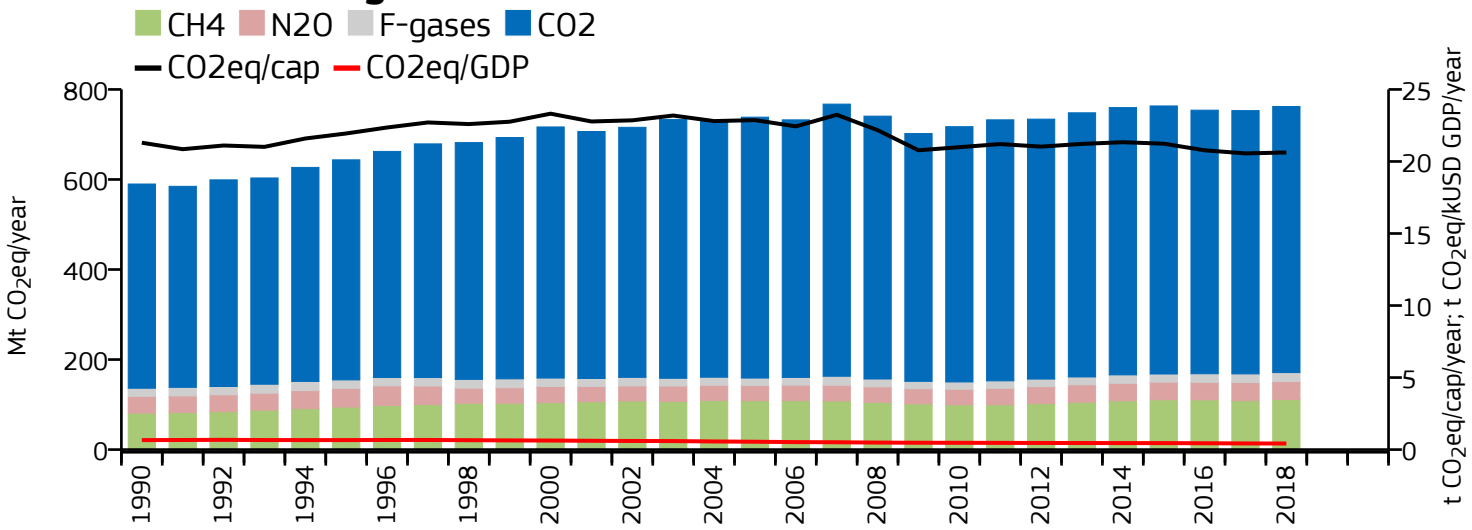
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +5853%	↗ +7114%	↗ +1454%
Other industrial combustion	↗ +35%	↗ +58%	↗ +46%
Buildings	↘ -30%	↗ +29%	→ +2%
Transport	↗ +45%	↗ +74%	↗ +44%
Other sectors	↗ +83%	↗ +28%	↗ +23%
All sectors	↗ +94%	↗ +40%	↗ +31%

Canada

Fossil CO_2 emissions by sector



Greenhouse gas emissions

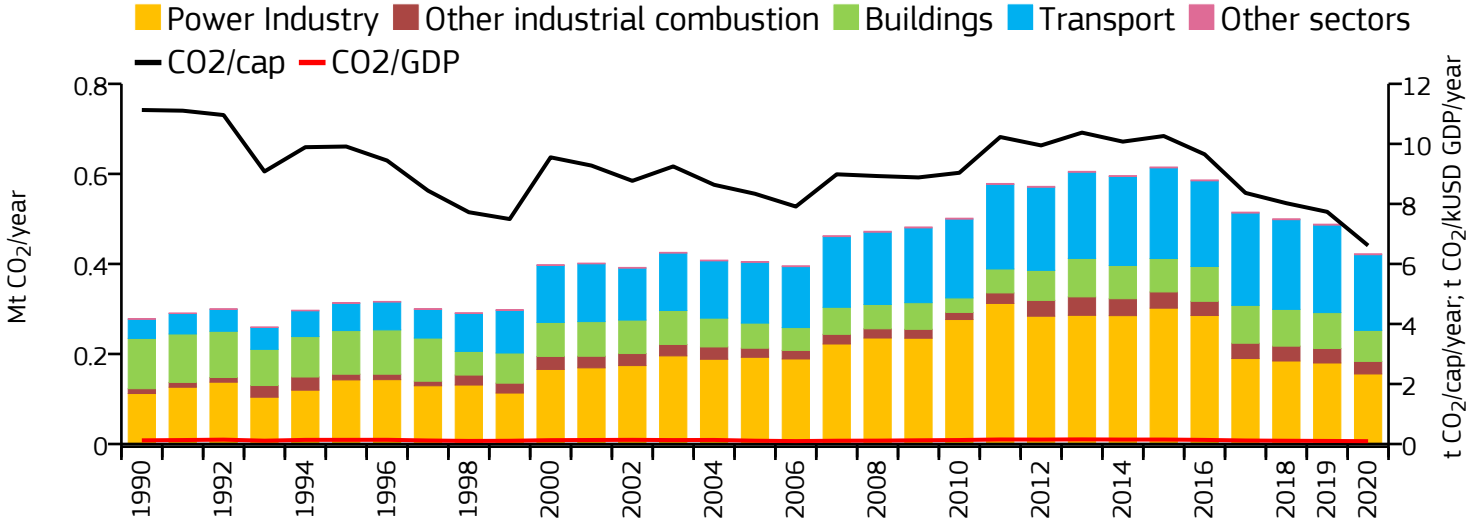


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	542.787	n/a	14.435	n/a	0.311
2018	591.071	762.139	15.995	20.624	0.327
2005	579.495	738.413	17.948	22.870	0.427
1990	453.596	589.896	16.380	21.301	0.505

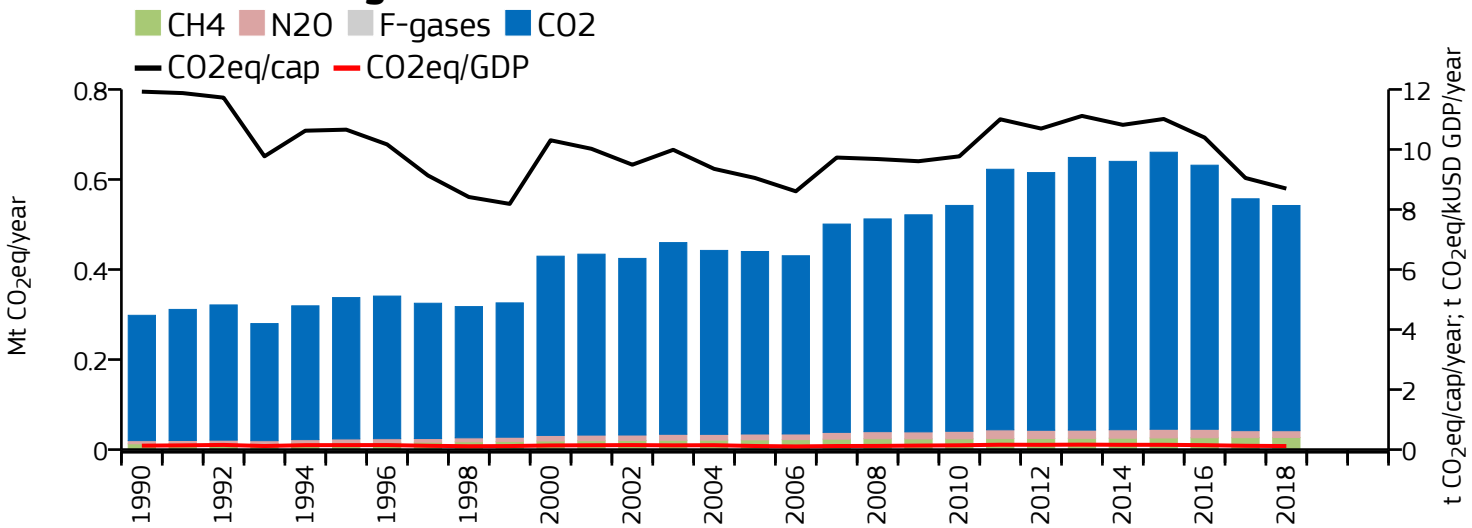
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-23%	-10%	-30%
Other industrial combustion	+51%	+62%	+21%
Buildings	+18%	+24%	+1%
Transport	+28%	+39%	+11%
Other sectors	+7%	+23%	+5%
All sectors	+20%	+29%	+3%

Cayman Islands

Fossil CO_2 emissions by sector



Greenhouse gas emissions

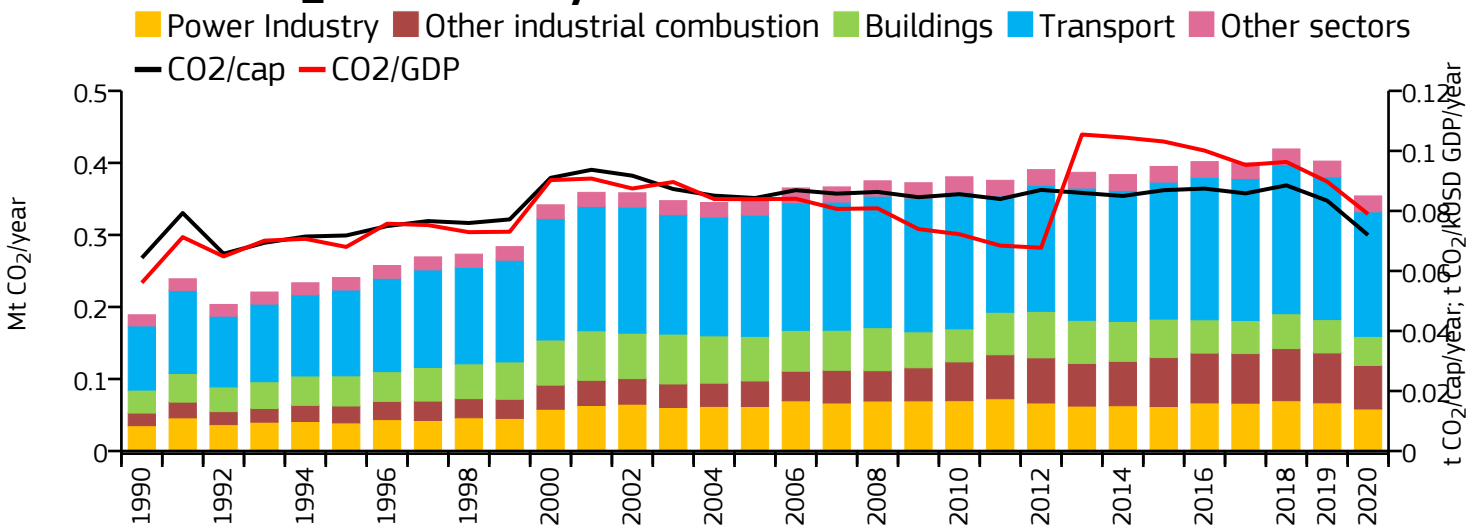


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.423	n/a	6.613	n/a	0.094
2018	0.500	0.542	8.023	8.696	0.109
2005	0.405	0.440	8.338	9.050	0.110
1990	0.278	0.298	11.129	11.926	0.122

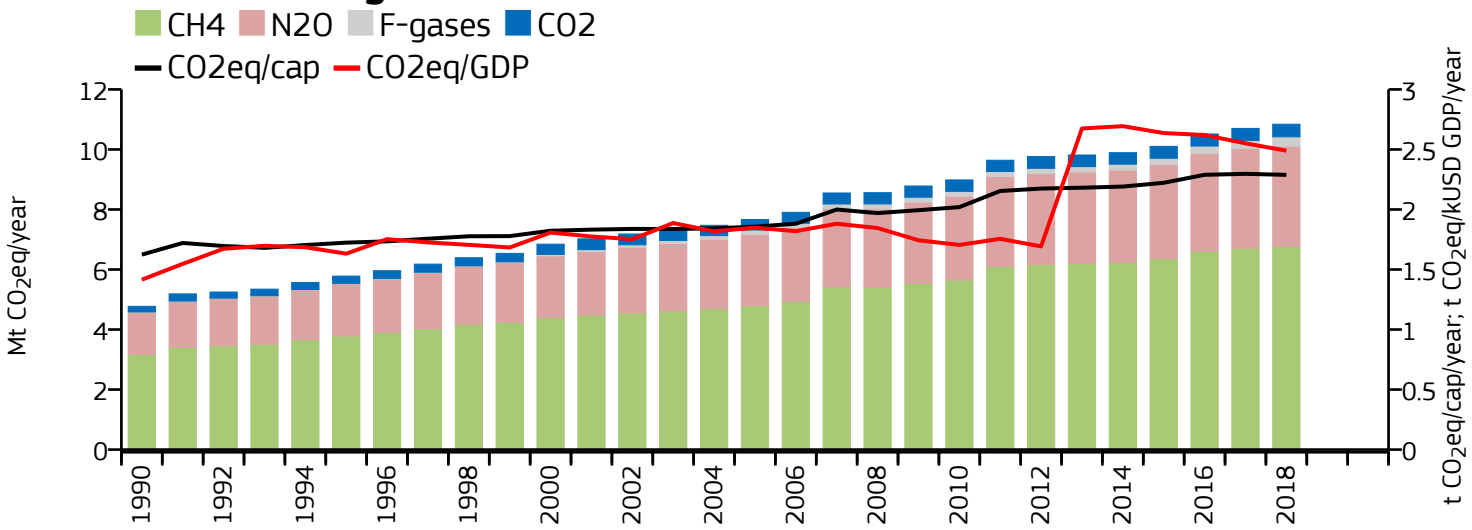
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+39%	+64%	-4%
Other industrial combustion	+161%	+210%	+64%
Buildings	-38%	-25%	+48%
Transport	+294%	+366%	+47%
Other sectors	+87%	+97%	+17%
All sectors	+52%	+82%	+23%

Central African Republic

Fossil CO_2 emissions by sector



Greenhouse gas emissions

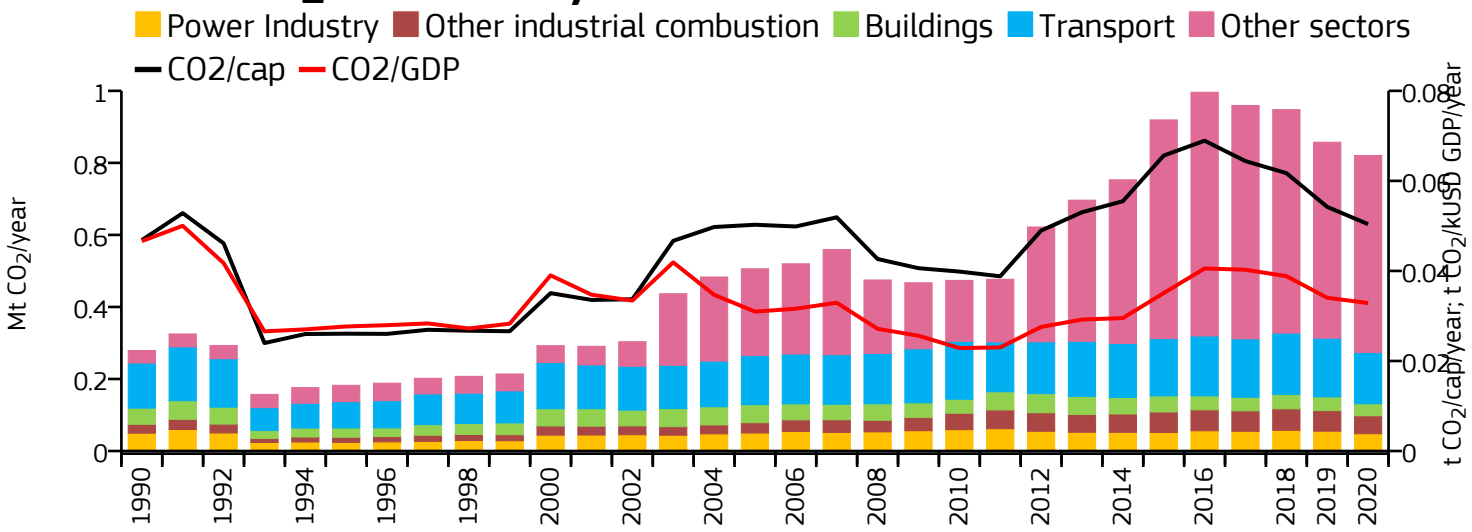


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.354	n/a	0.072	n/a	0.079
2018	0.419	10.841	0.089	2.288	0.096
2005	0.348	7.665	0.084	1.857	0.084
1990	0.189	4.774	0.064	1.624	0.056

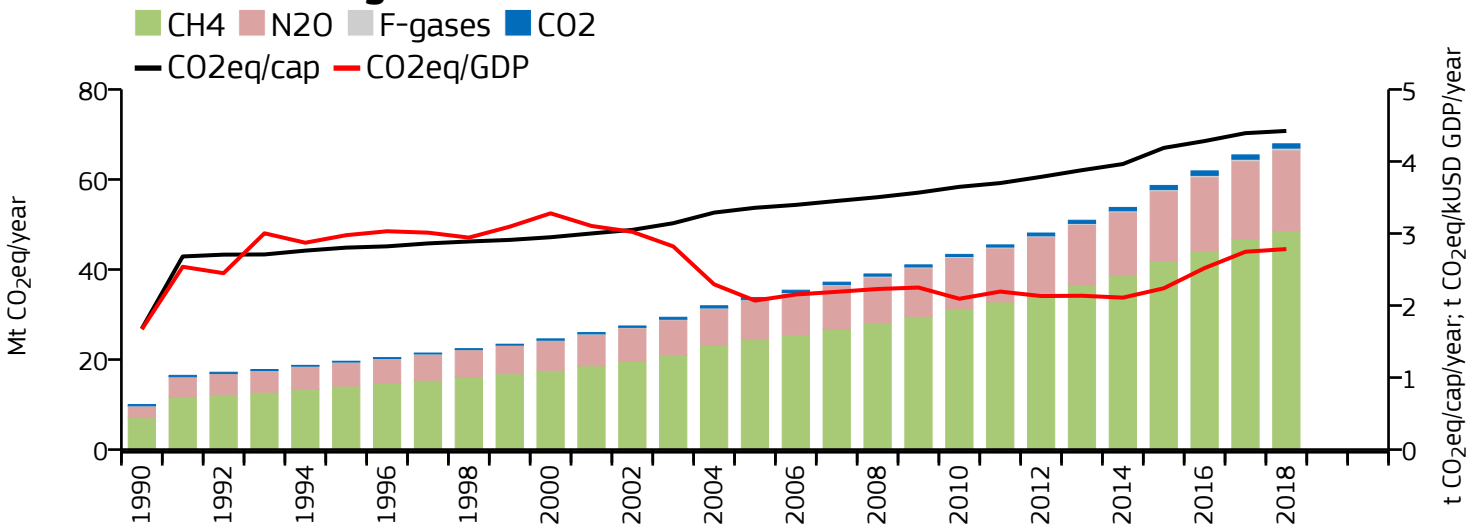
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+66%	+100%	+14%
Other industrial combustion	+245%	+282%	+102%
Buildings	+27%	-20%	-1%
Transport	+94%	+132%	+23%
Other sectors	+43%	+138%	+43%
All sectors	+87%	+127%	+41%

Chad

Fossil CO_2 emissions by sector



Greenhouse gas emissions

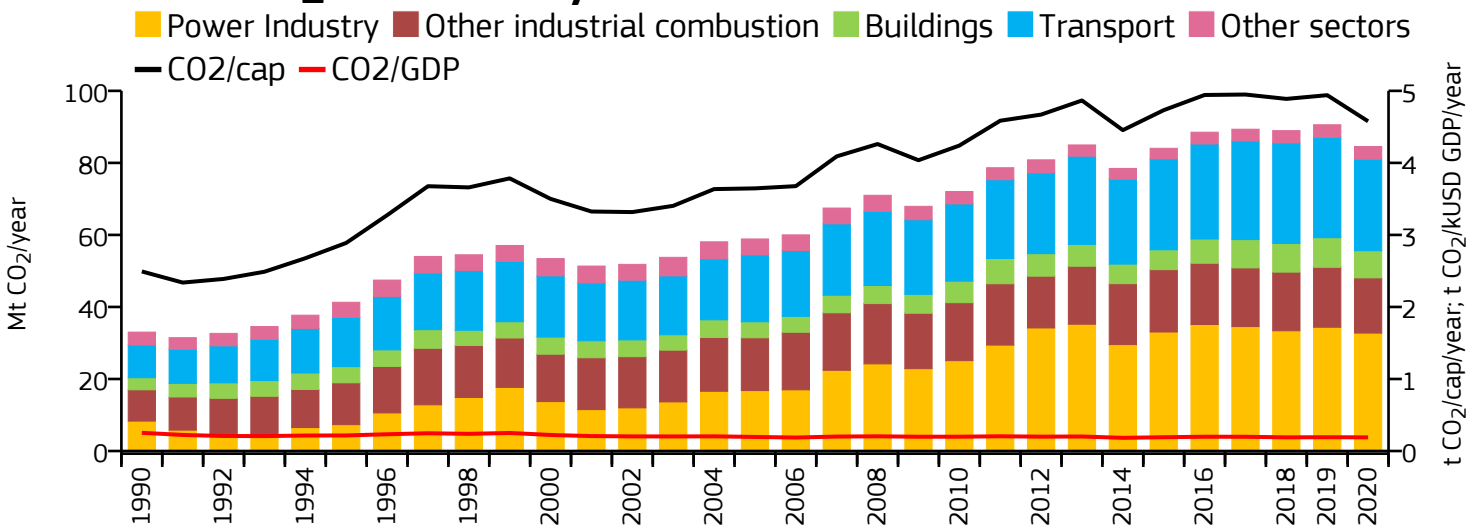


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.821	n/a	0.050	n/a	0.033
2018	0.948	67.919	0.062	4.424	0.039
2005	0.506	33.793	0.050	3.357	0.031
1990	0.279	10.001	0.047	1.679	0.047

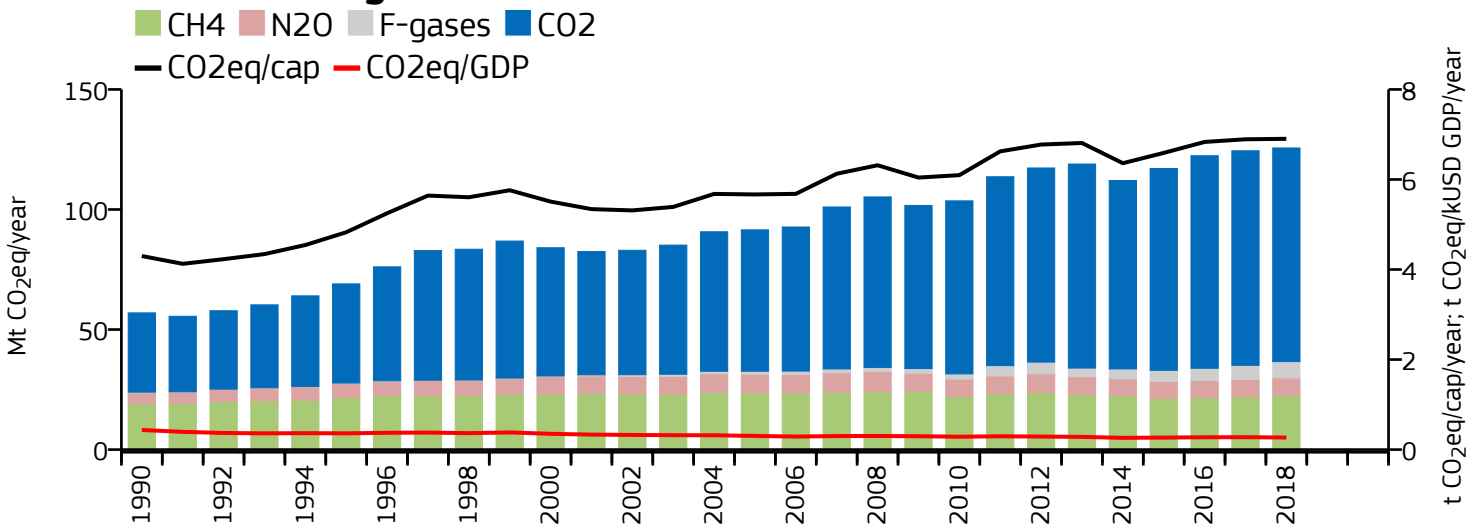
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-3%	+19%	+18%
Other industrial combustion	+102%	+149%	+104%
Buildings	-26%	+80%	+24%
Transport	+14%	+36%	+25%
Other sectors	+1476%	+618%	+103%
All sectors	+194%	+579%	+101%

Chile

Fossil CO_2 emissions by sector



Greenhouse gas emissions

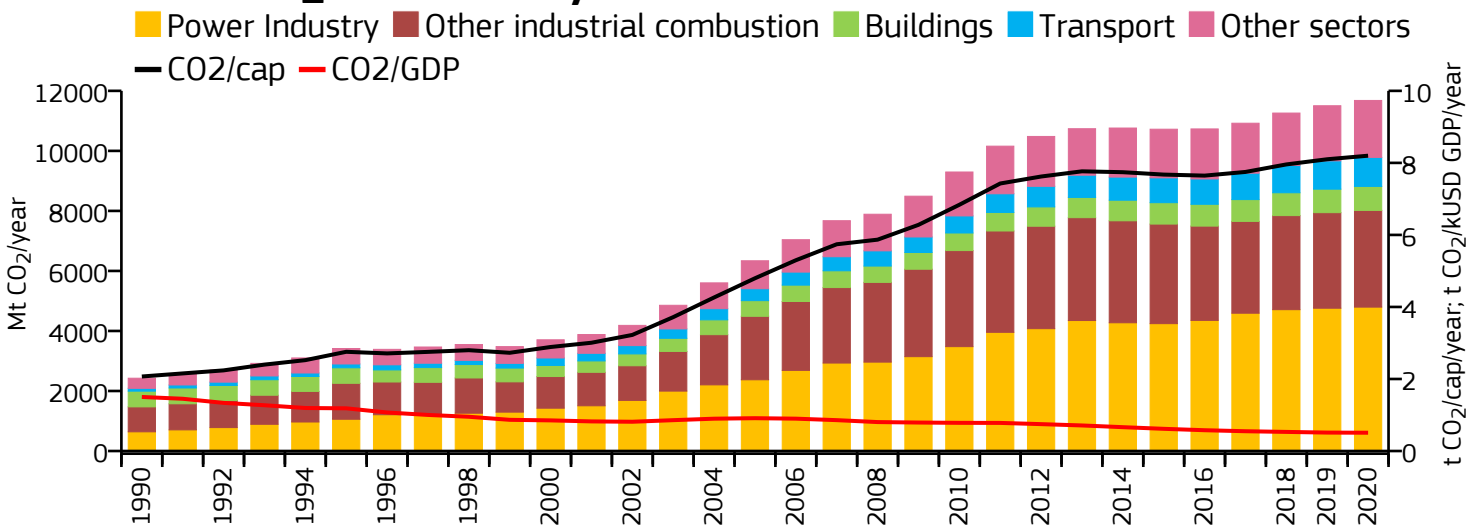


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	84.556	n/a	4.577	n/a	0.190
2018	88.955	125.617	4.888	6.903	0.190
2005	58.875	91.516	3.646	5.668	0.195
1990	33.013	56.938	2.493	4.300	0.252

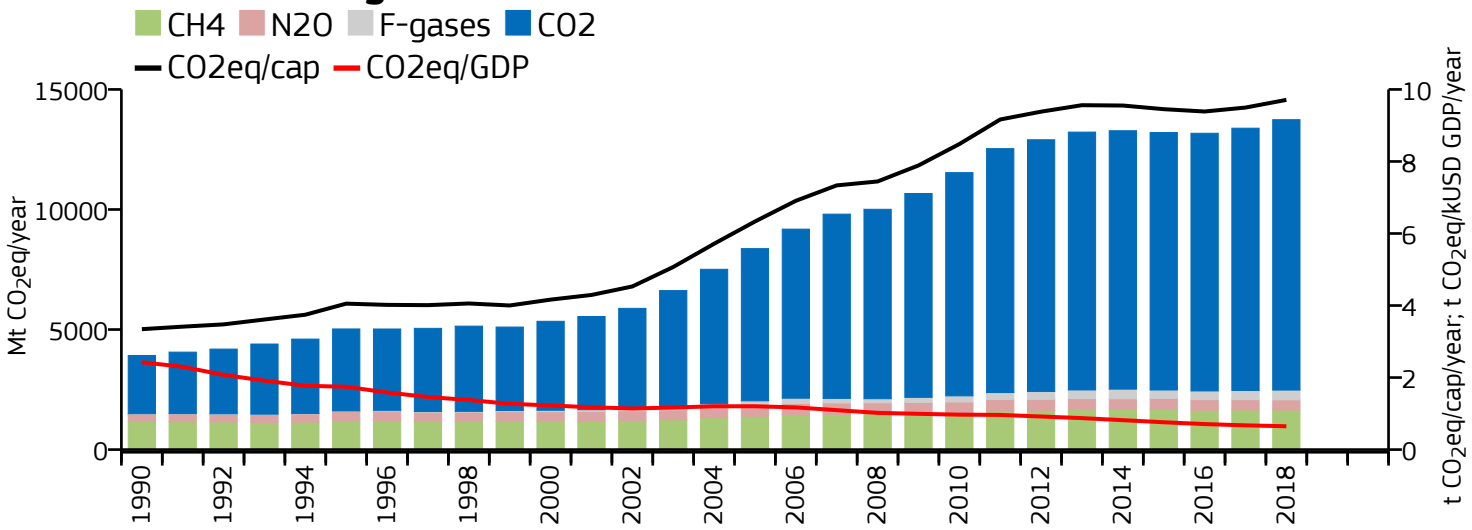
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+294%	+306%	+101%
Other industrial combustion	+76%	+88%	+11%
Buildings	+125%	+113%	+59%
Transport	+180%	+207%	+50%
Other sectors	-1%	+45%	+8%
All sectors	+156%	+121%	+37%

China

Fossil CO_2 emissions by sector



Greenhouse gas emissions

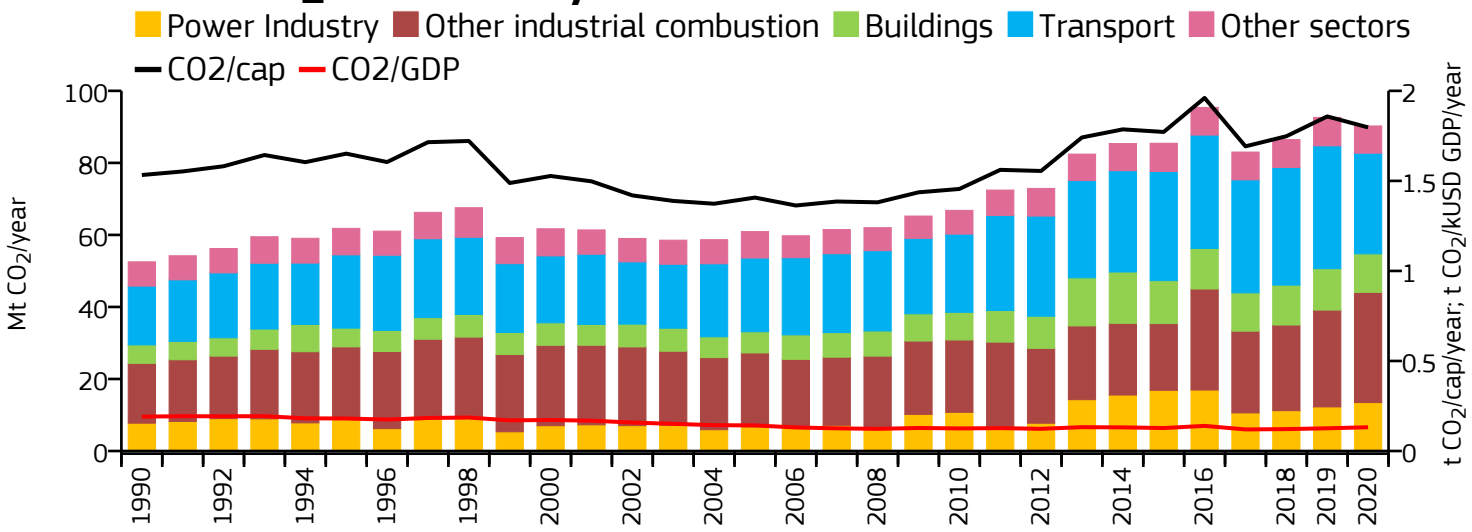


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	11680.416	n/a	8.199	n/a	0.508
2018	11260.010	13739.791	7.957	9.710	0.530
2005	6338.561	8369.768	4.796	6.333	0.911
1990	2425.646	3920.186	2.069	3.344	1.501

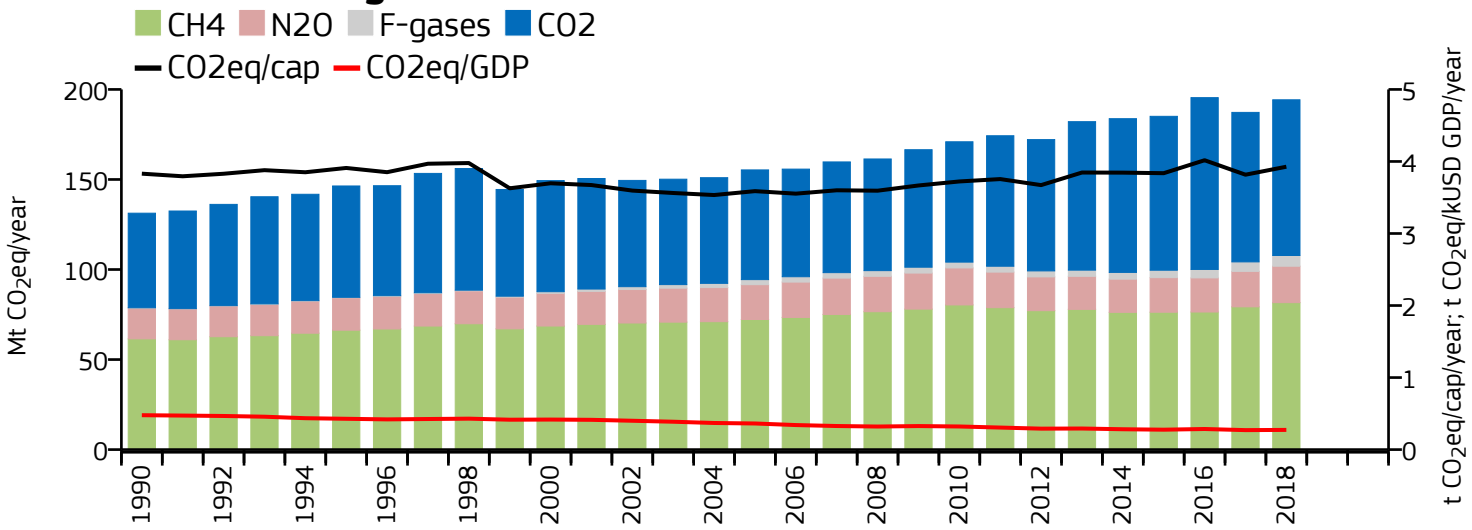
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+650%	+639%	+99%
Other industrial combustion	+288%	+276%	+48%
Buildings	+53%	+21%	+32%
Transport	+926%	+873%	+130%
Other sectors	+463%	+148%	+45%
All sectors	+382%	+250%	+64%

Colombia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

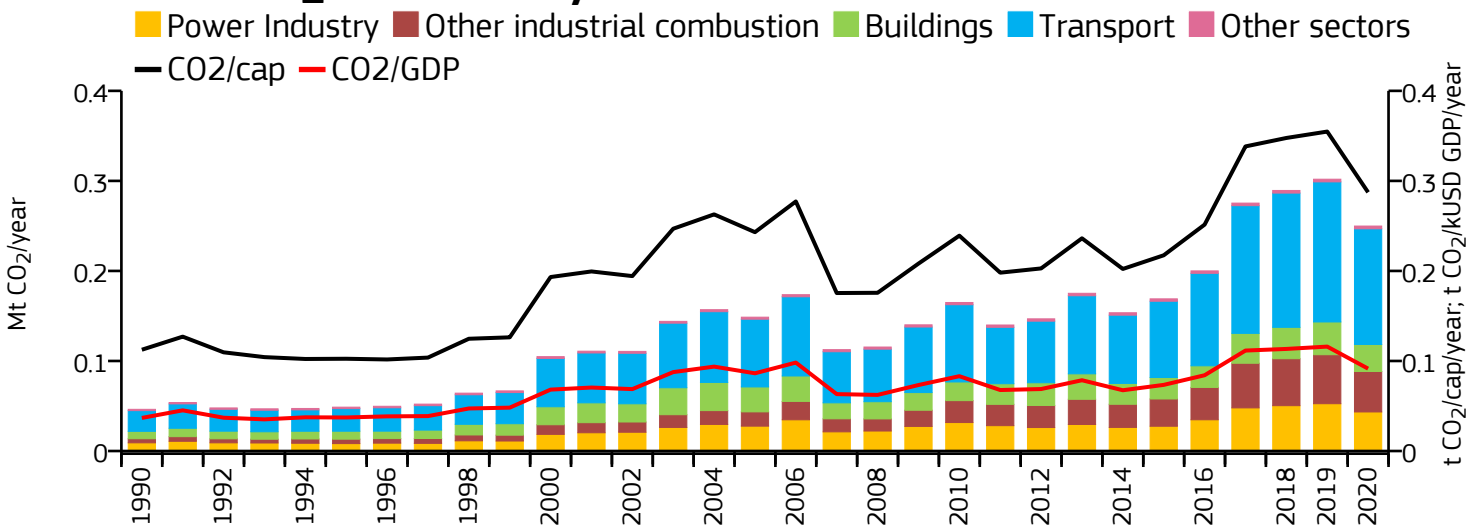


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	90.252	n/a	1.797	n/a	0.132
2018	86.459	194.242	1.748	3.927	0.122
2005	60.917	155.308	1.407	3.588	0.142
1990	52.525	131.279	1.533	3.831	0.191

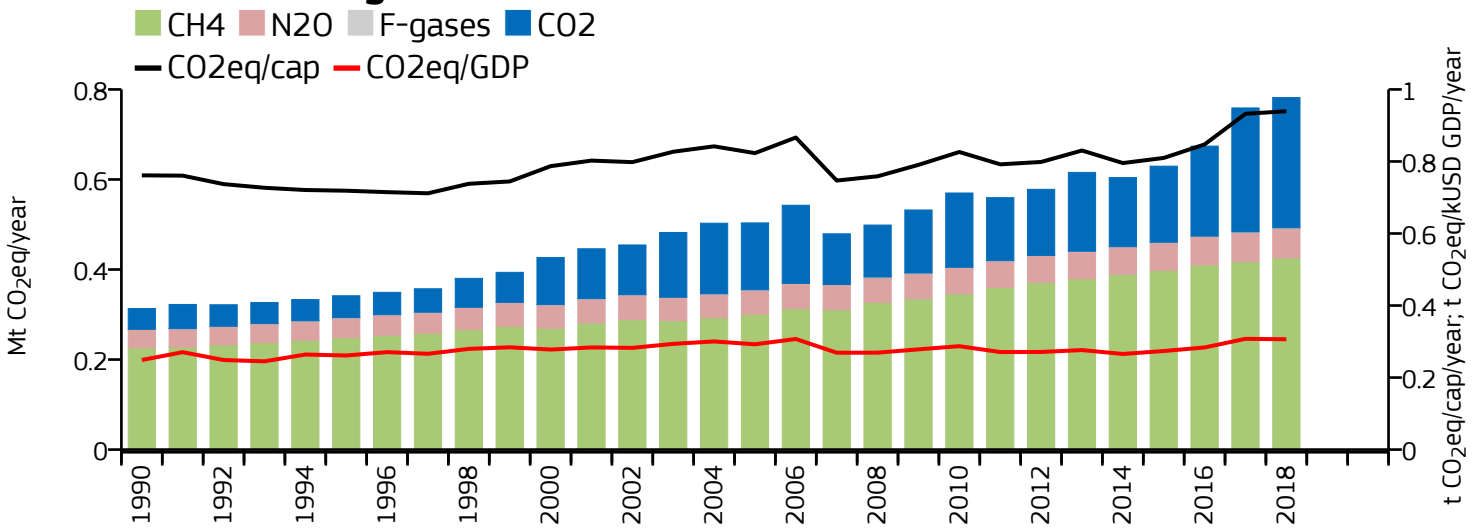
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+74%	+45%	+67%
Other industrial combustion	+84%	+43%	+16%
Buildings	+109%	+76%	+78%
Transport	+71%	+99%	+59%
Other sectors	+12%	+37%	+13%
All sectors	+72%	+48%	+25%

Comoros

Fossil CO_2 emissions by sector



Greenhouse gas emissions

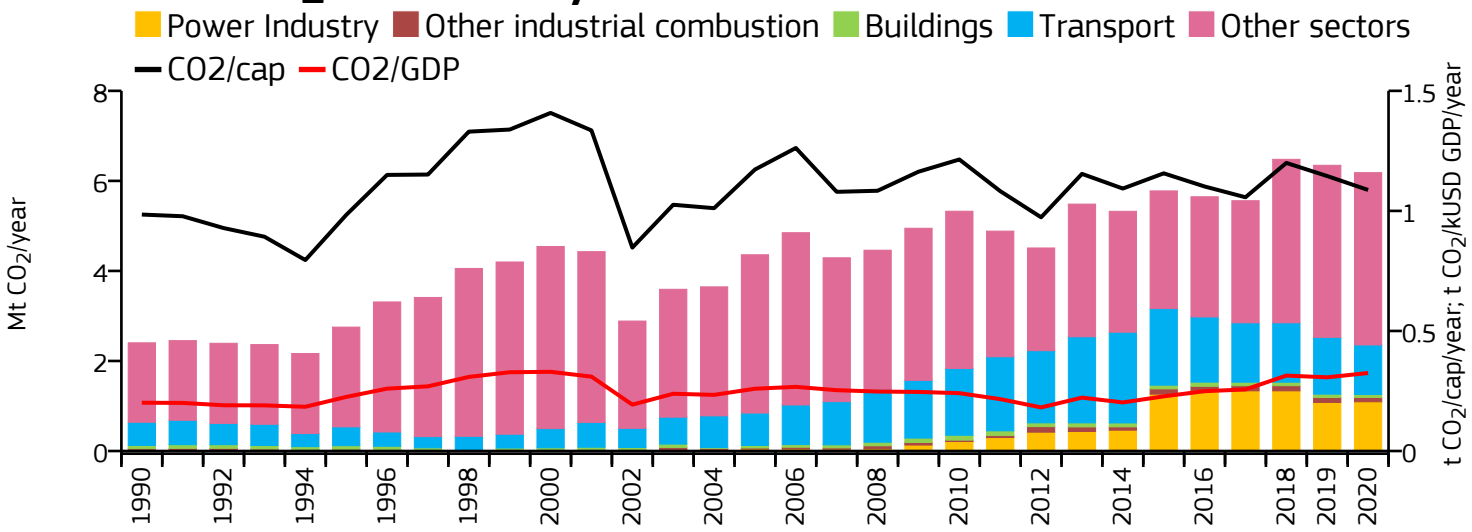


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.250	n/a	0.287	n/a	0.091
2018	0.289	0.782	0.348	0.939	0.113
2005	0.149	0.503	0.243	0.823	0.086
1990	0.046	0.313	0.112	0.761	0.037

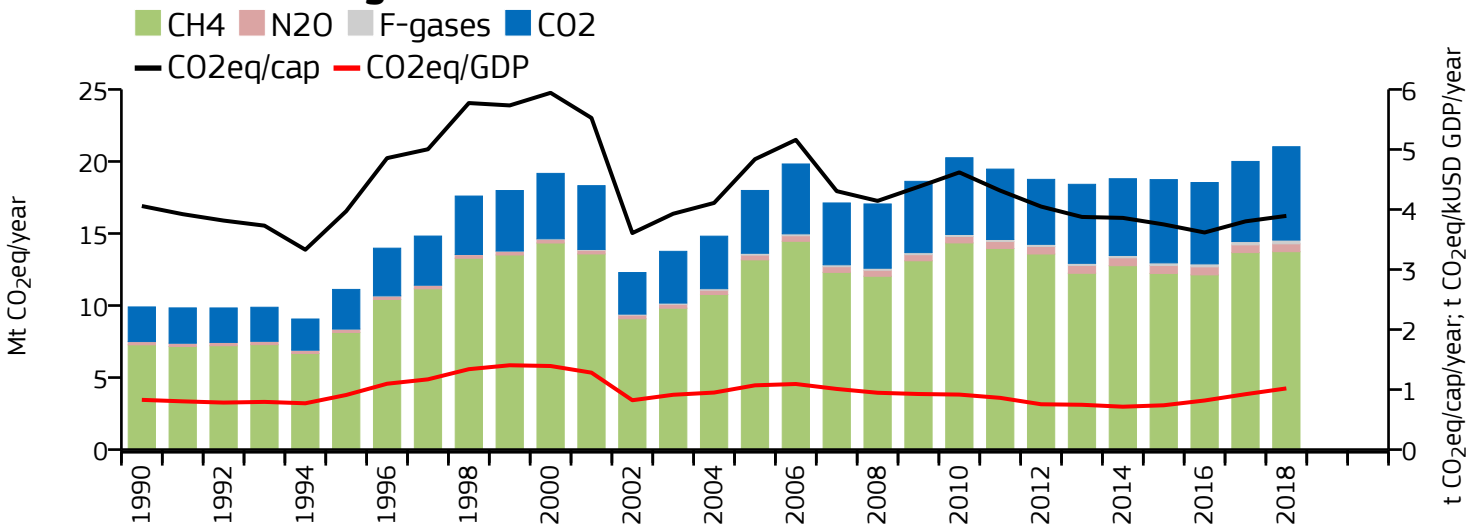
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+377%	+455%	+83%
Other industrial combustion	+892%	+1037%	+228%
Buildings	+265%	+217%	+33%
Transport	+459%	+549%	+98%
Other sectors	+111%	+80%	+38%
All sectors	+440%	+149%	+55%

Congo

Fossil CO_2 emissions by sector



Greenhouse gas emissions

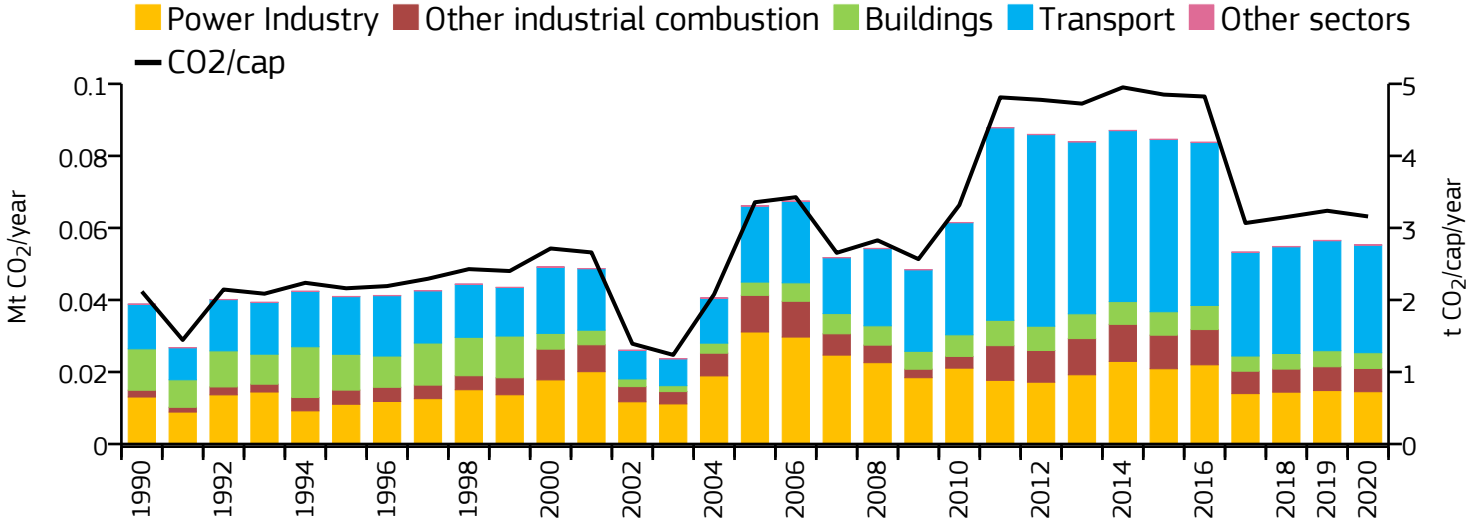


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	6.183	n/a	1.087	n/a	0.325
2018	6.479	21.023	1.200	3.893	0.314
2005	4.359	17.987	1.172	4.837	0.259
1990	2.403	9.902	0.985	4.058	0.201

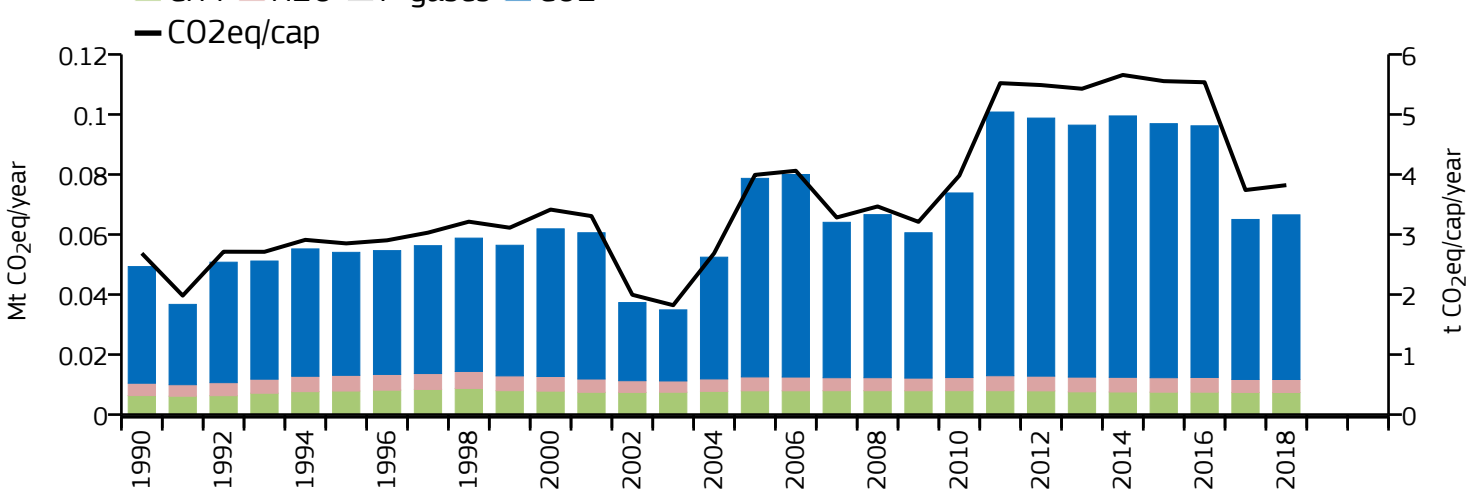
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +34240%	↗ +41811%	↗ +2871%
Other industrial combustion	↗ +104%	↗ +143%	↗ +383%
Buildings	↘ -13%	↗ +154%	↗ +178%
Transport	↗ +114%	↗ +158%	↗ +84%
Other sectors	↗ +117%	↗ +94%	→ +4%
All sectors	↗ +157%	↗ +112%	↗ +17%

Cook Islands

Fossil CO_2 emissions by sector



Greenhouse gas emissions

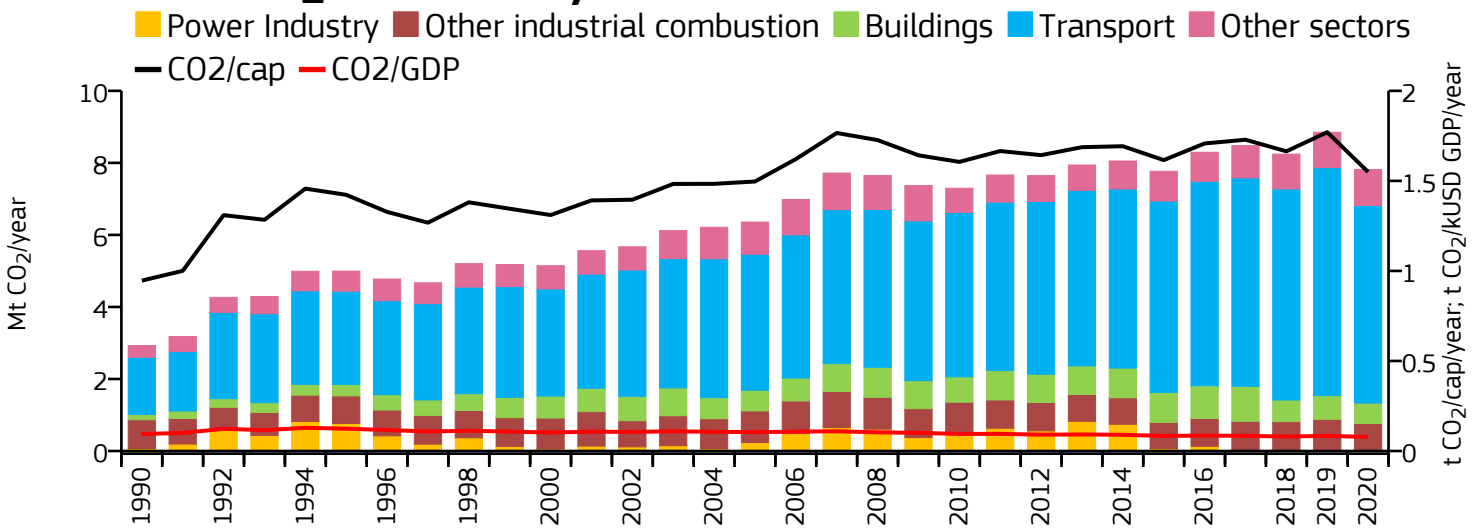


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.055	n/a	3.159	n/a	n/a
2018	0.055	0.067	3.151	3.822	n/a
2005	0.066	0.079	3.356	3.993	n/a
1990	0.039	0.049	2.117	2.686	n/a

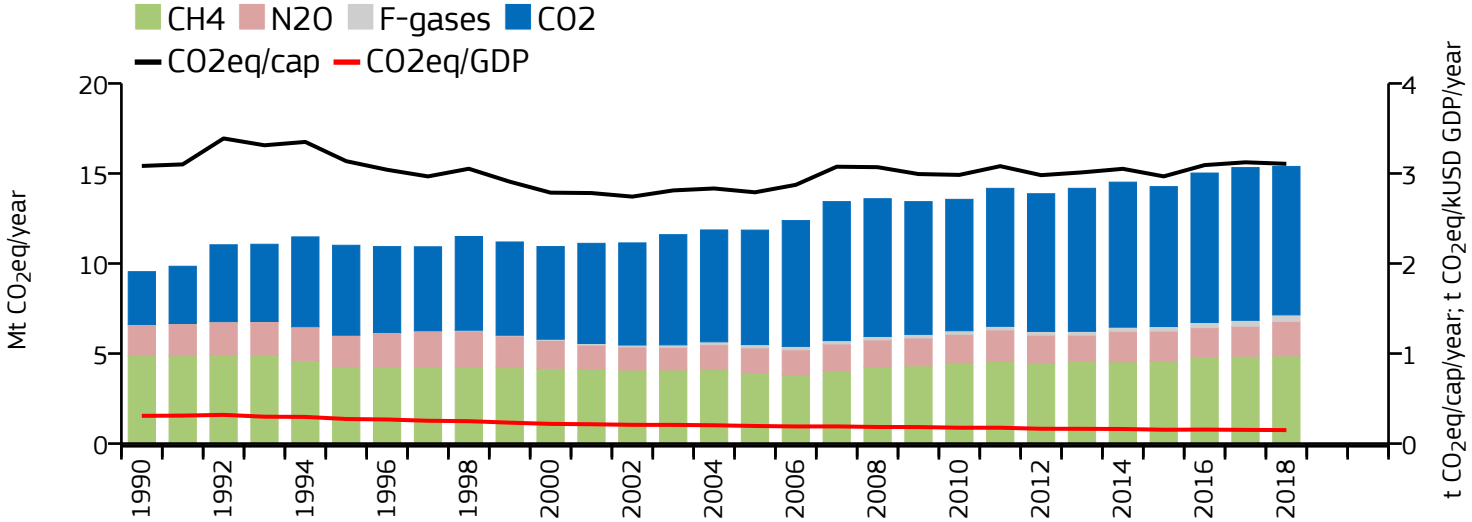
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+11%	+10%	-54%
Other industrial combustion	+242%	+239%	-37%
Buildings	-62%	-62%	+21%
Transport	+141%	+138%	+40%
Other sectors	+100%	+12%	-8%
All sectors	+42%	+35%	-15%

Costa Rica

Fossil CO_2 emissions by sector



Greenhouse gas emissions

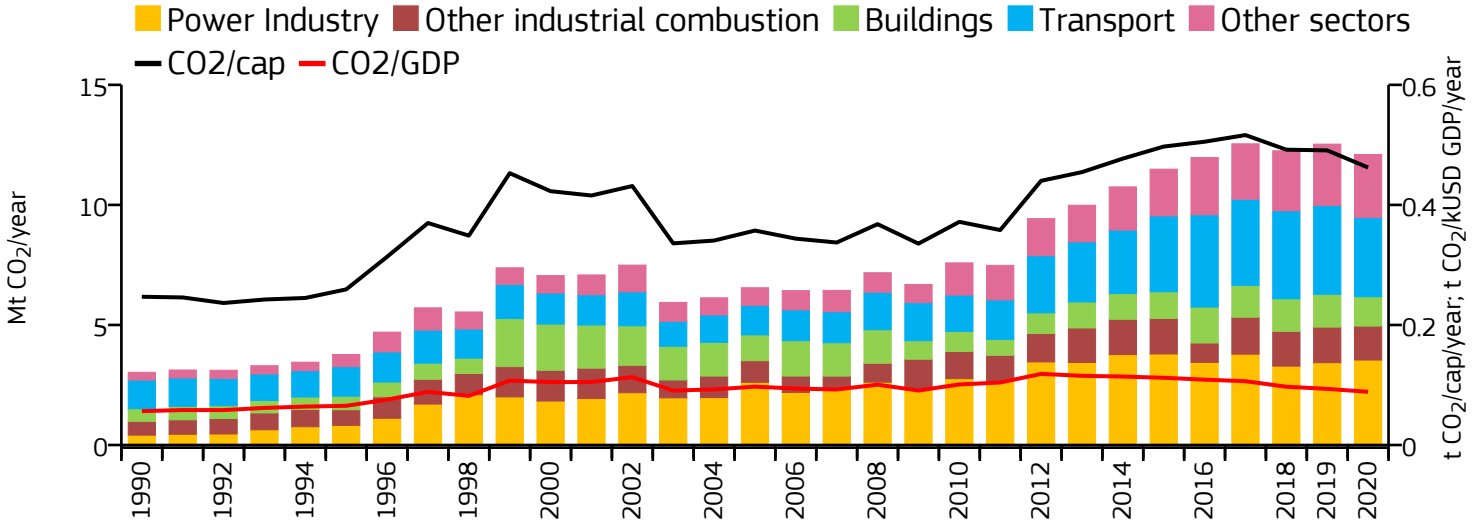


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.818	n/a	1.550	n/a	0.078
2018	8.243	15.391	1.664	3.107	0.080
2005	6.357	11.855	1.497	2.791	0.105
1990	2.930	9.547	0.946	3.084	0.095

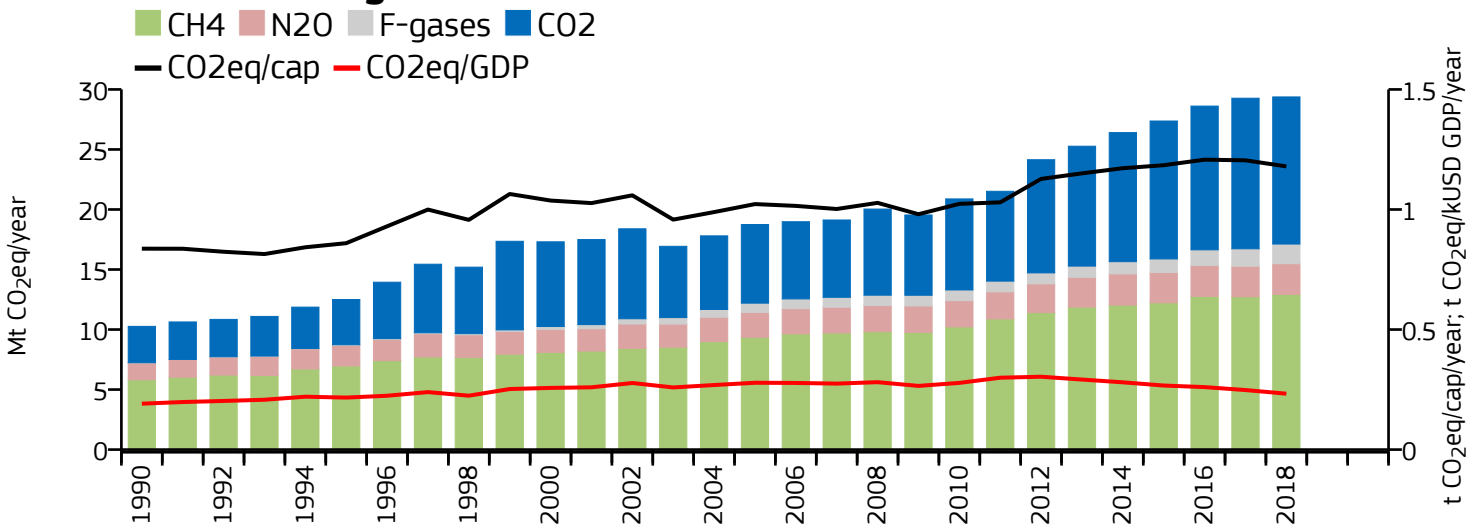
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-63%	-57%	-87%
Other industrial combustion	-8%	+1%	-9%
Buildings	+282%	+212%	-5%
Transport	+246%	+270%	+55%
Other sectors	+207%	+16%	+28%
All sectors	+167%	+61%	+30%

Côte d'Ivoire

Fossil CO_2 emissions by sector



Greenhouse gas emissions

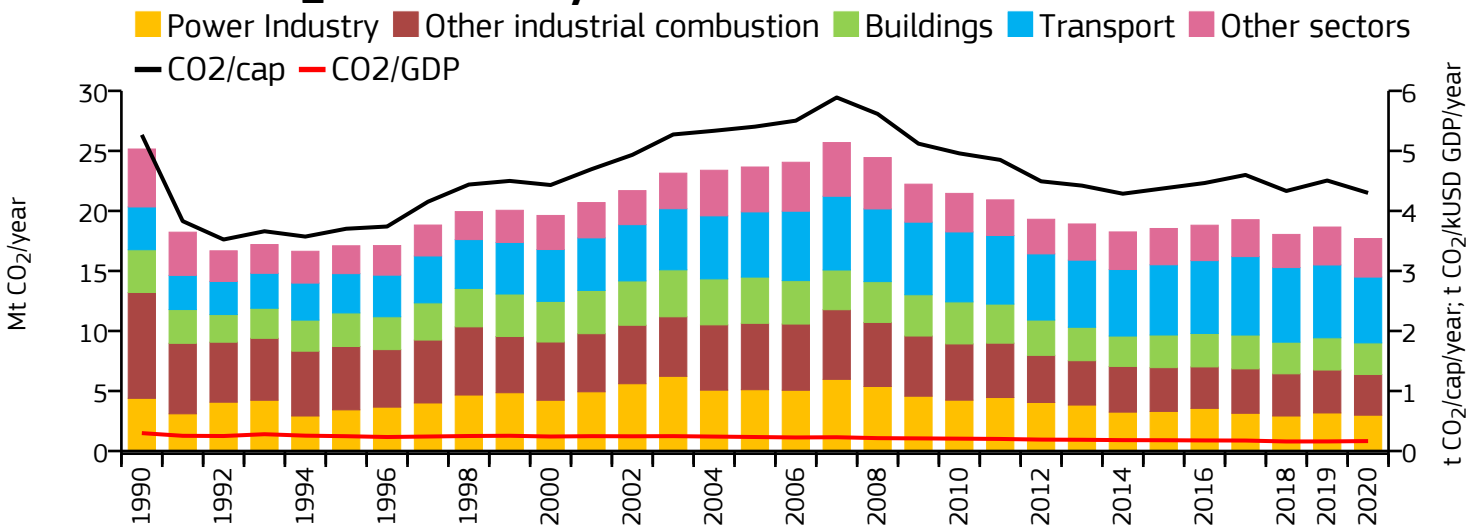


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	12.098	n/a	0.462	n/a	0.089
2018	12.253	29.376	0.492	1.179	0.097
2005	6.551	18.749	0.357	1.022	0.097
1990	3.030	10.265	0.247	0.837	0.056

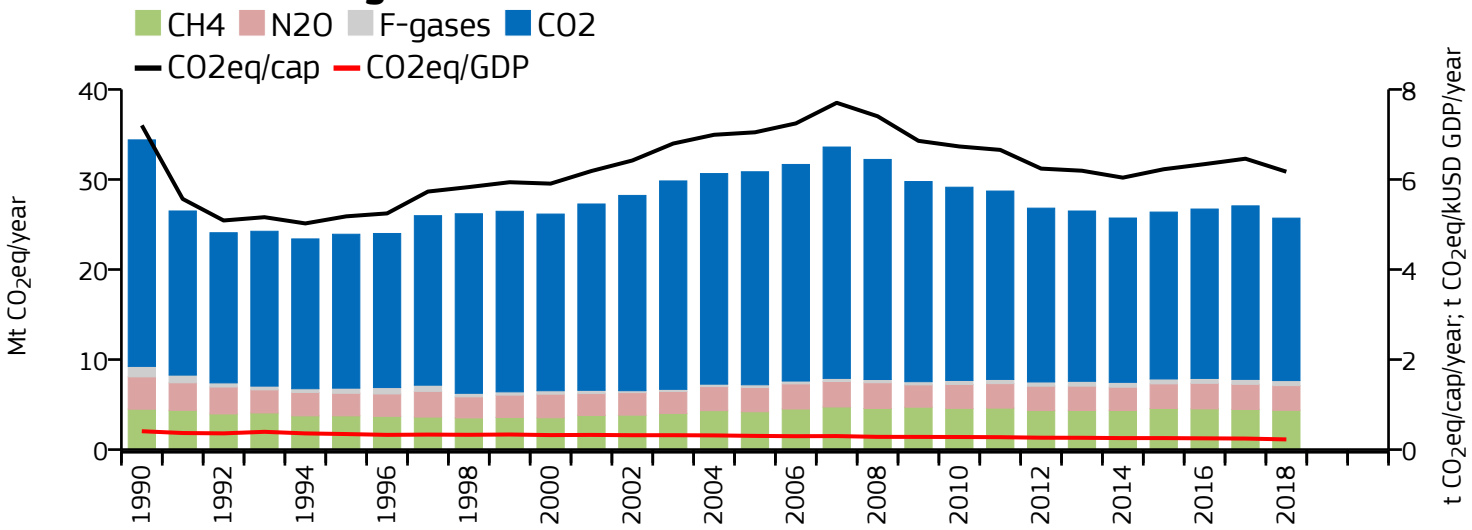
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+760%	+699%	+26%
Other industrial combustion	+148%	+151%	+59%
Buildings	+130%	+133%	+18%
Transport	+177%	+206%	+199%
Other sectors	+710%	+164%	+56%
All sectors	+299%	+186%	+57%

Croatia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

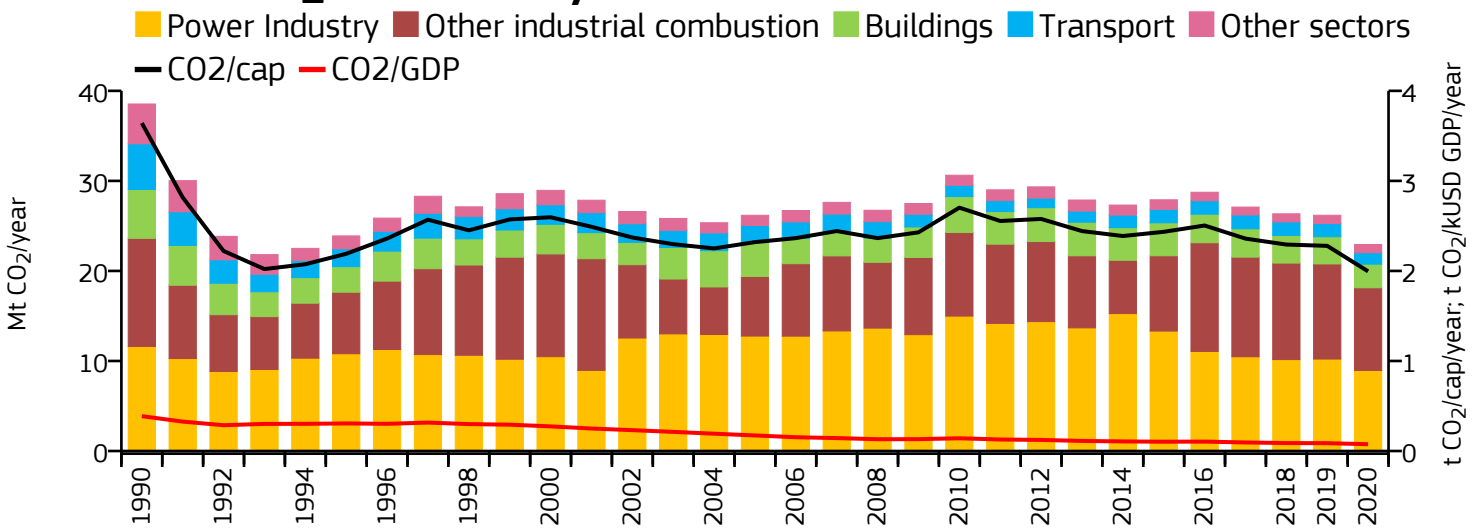


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	17.697	n/a	4.300	n/a	0.165
2018	18.042	25.707	4.332	6.172	0.159
2005	23.657	30.855	5.404	7.048	0.233
1990	25.156	34.397	5.267	7.202	0.298

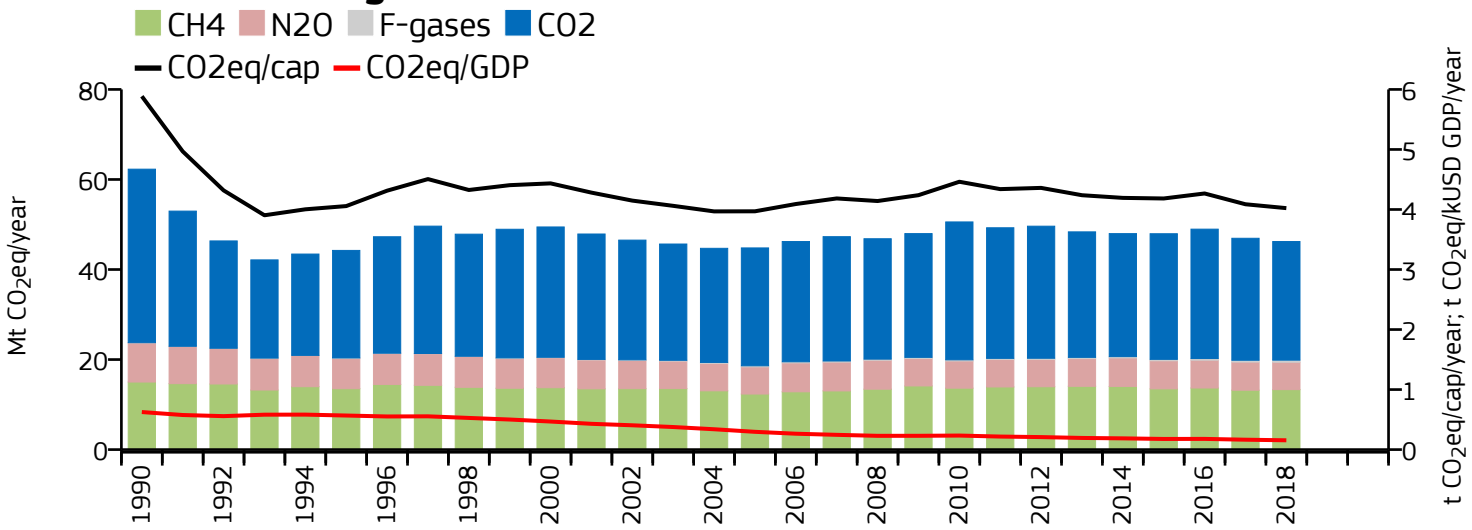
		2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
	Power Industry	-32%	-33%	-43%
	Other industrial combustion	-62%	-60%	-36%
	Buildings	-26%	-23%	-29%
	Transport	+54%	+73%	+14%
	Other sectors	-34%	-27%	-4%
	All sectors	-30%	-25%	-17%

Cuba

Fossil CO_2 emissions by sector



Greenhouse gas emissions

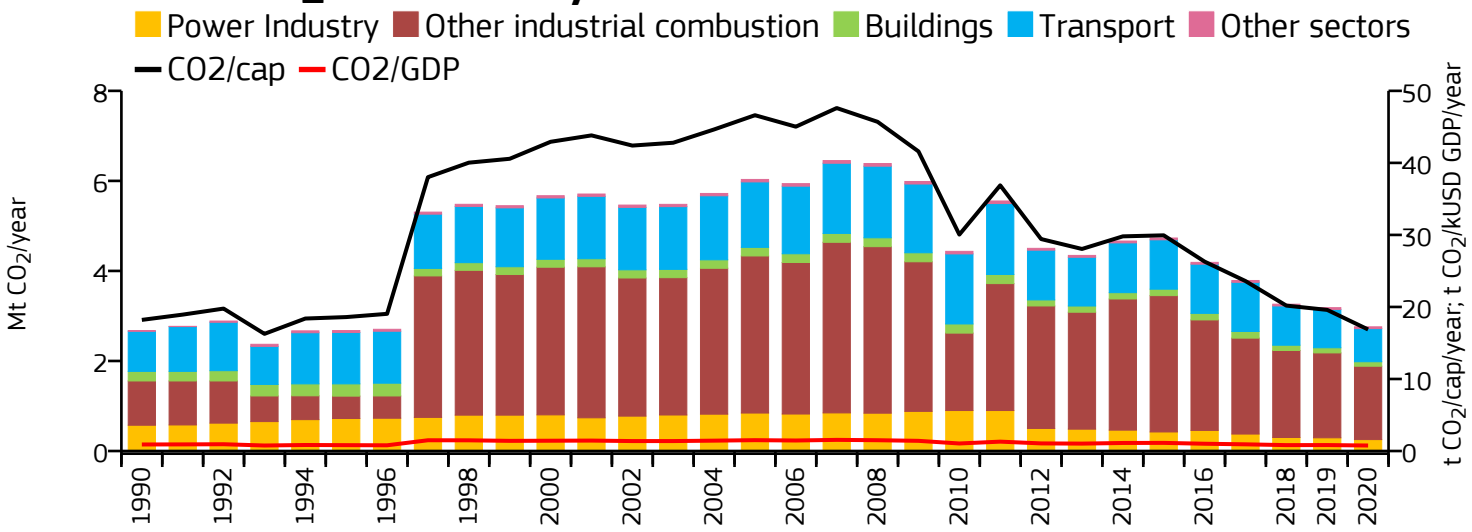


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	22.938	n/a	1.995	n/a	0.075
2018	26.344	46.213	2.293	4.022	0.088
2005	26.181	44.795	2.320	3.970	0.173
1990	38.541	62.288	3.642	5.886	0.387

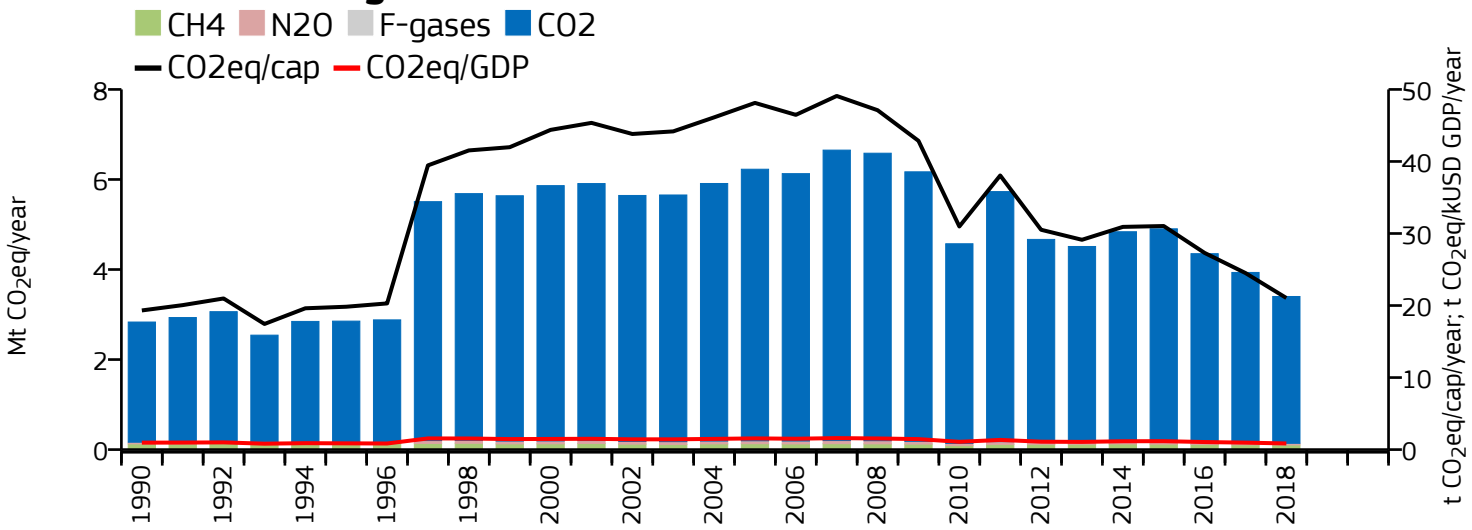
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-23%	-13%	-20%
Other industrial combustion	-24%	-13%	+61%
Buildings	-52%	-44%	-19%
Transport	-75%	-71%	-22%
Other sectors	-79%	-25%	+5%
All sectors	-40%	-26%	+3%

Curaçao

Fossil CO_2 emissions by sector



Greenhouse gas emissions

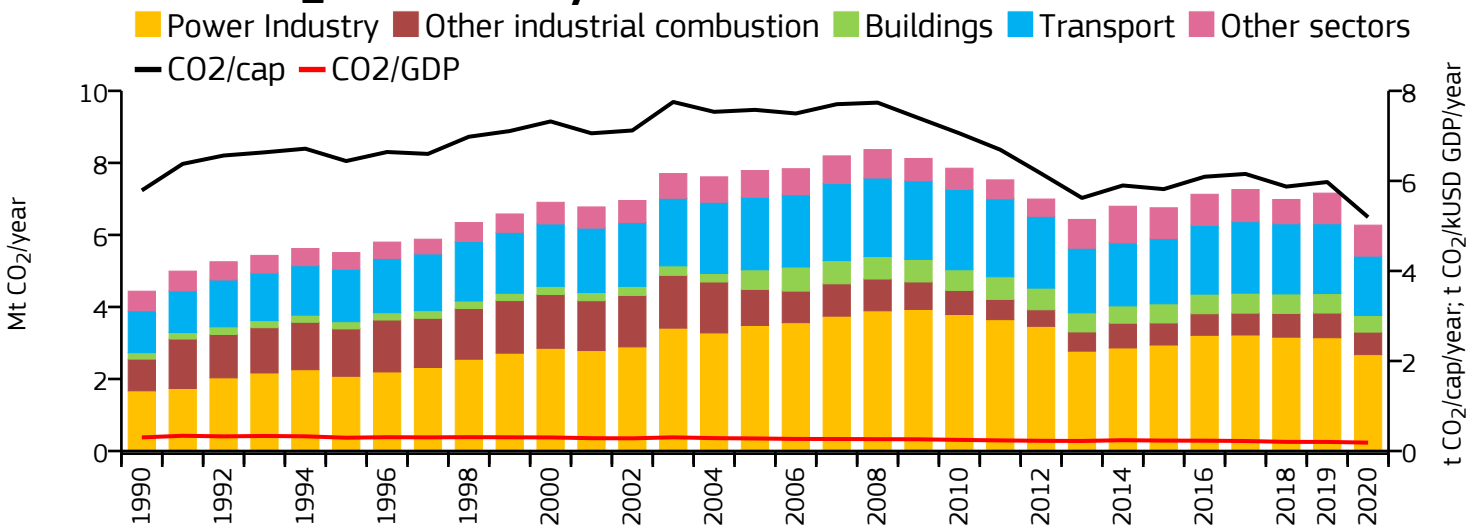


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	2.758	n/a	16.871	n/a	0.763
2018	3.261	3.401	20.185	21.047	0.817
2005	6.032	6.228	46.618	48.130	1.506
1990	2.670	2.833	18.202	19.318	0.907

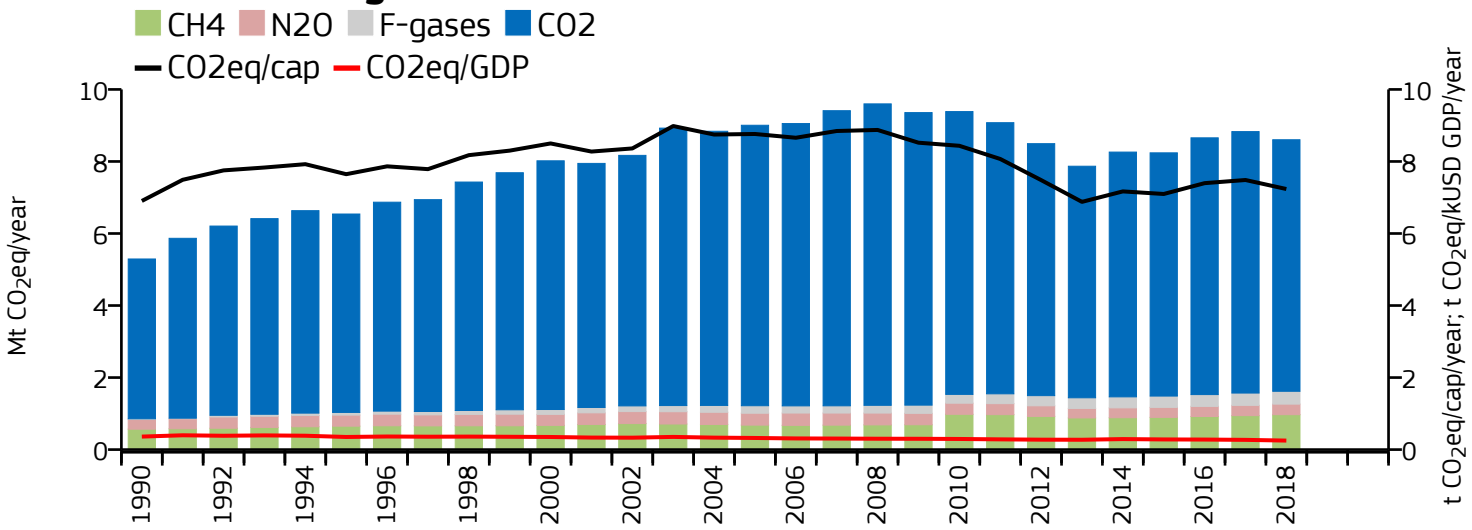
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-56%	-48%	-64%
Other industrial combustion	+66%	+88%	-45%
Buildings	-53%	-45%	-39%
Transport	-18%	-3%	-40%
Other sectors	+688%	+38%	-18%
All sectors	+3%	+20%	-45%

Cyprus

Fossil CO_2 emissions by sector



Greenhouse gas emissions

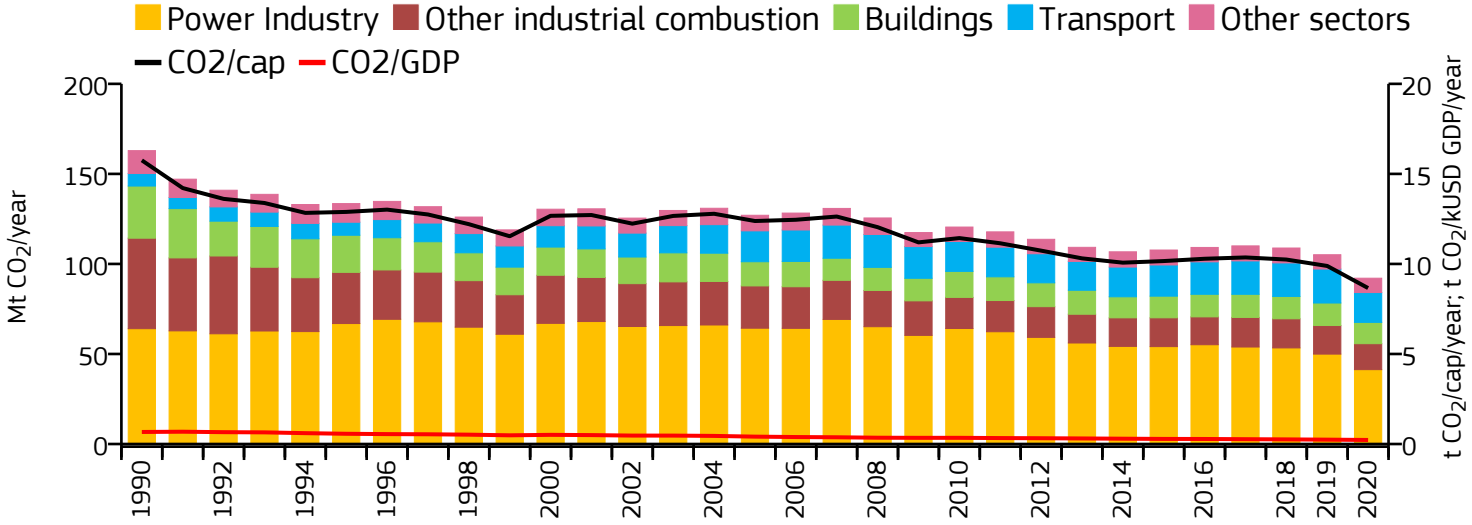


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	6.272	n/a	5.195	n/a	0.186
2018	6.984	8.603	5.874	7.235	0.203
2005	7.788	9.005	7.578	8.763	0.279
1990	4.438	5.292	5.789	6.904	0.303

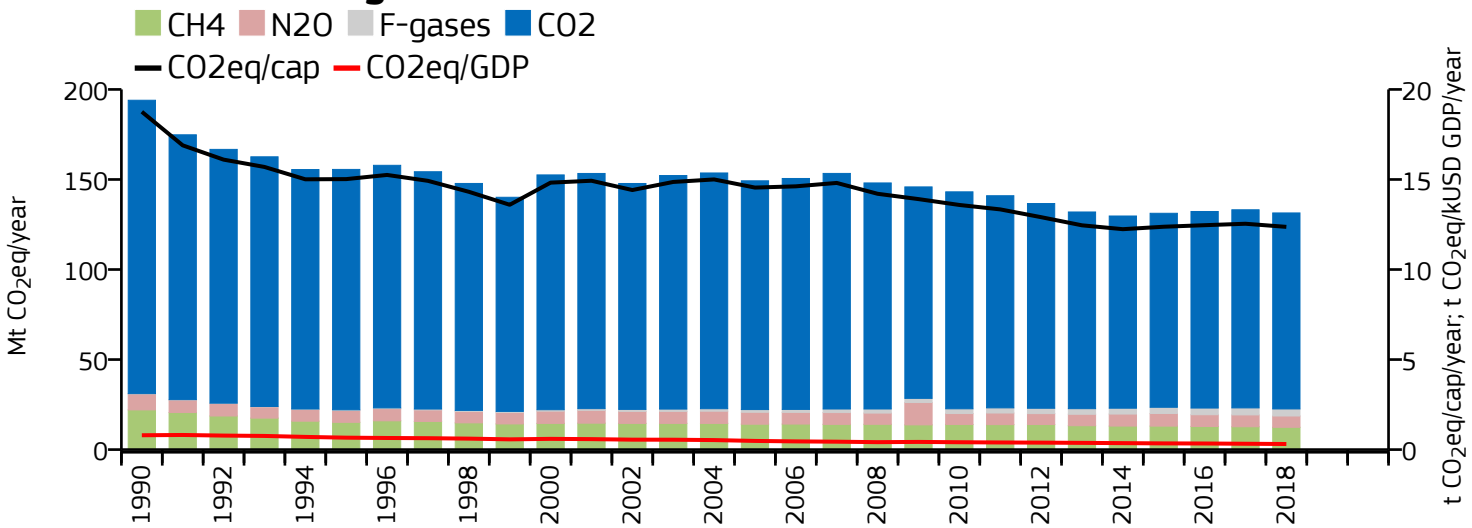
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +60%	↗ +89%	↘ -9%
Other industrial combustion	↘ -29%	↘ -25%	↘ -34%
Buildings	↗ +157%	↗ +207%	→ 0%
Transport	↗ +42%	↗ +67%	→ -4%
Other sectors	↗ +57%	↗ +64%	↗ +18%
All sectors	↗ +41%	↗ +63%	→ -4%

Czechia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

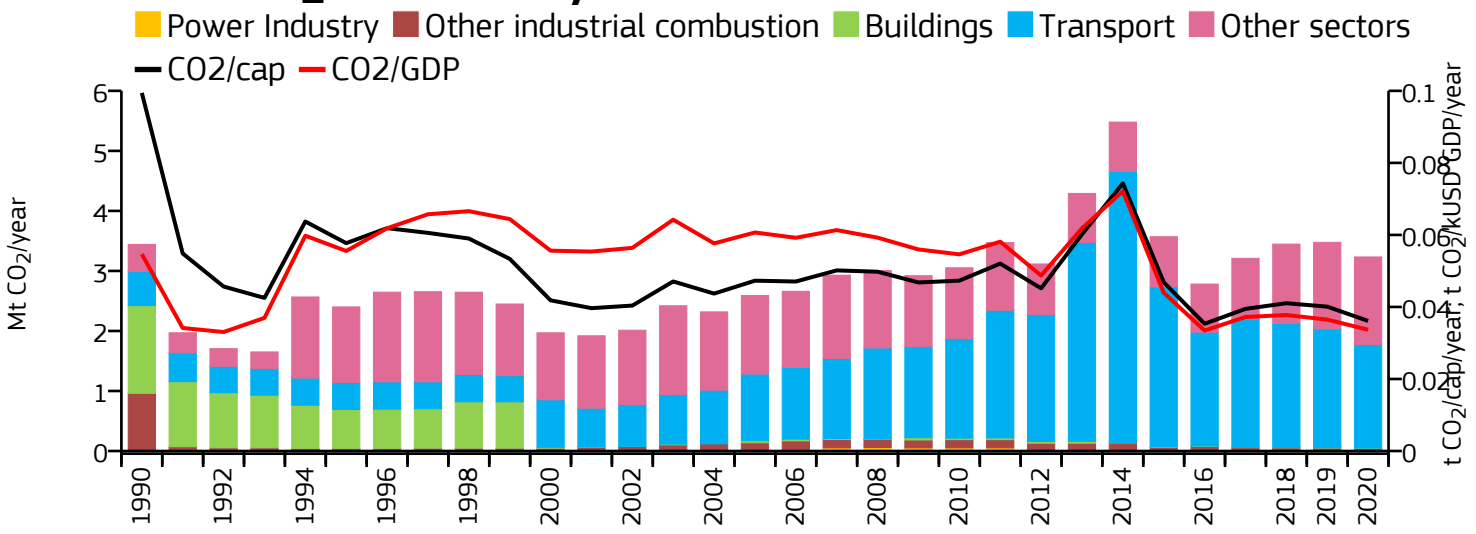


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	92.082	n/a	8.660	n/a	0.225
2018	108.840	131.414	10.244	12.368	0.256
2005	127.031	149.254	12.383	14.550	0.409
1990	162.918	194.000	15.754	18.760	0.668

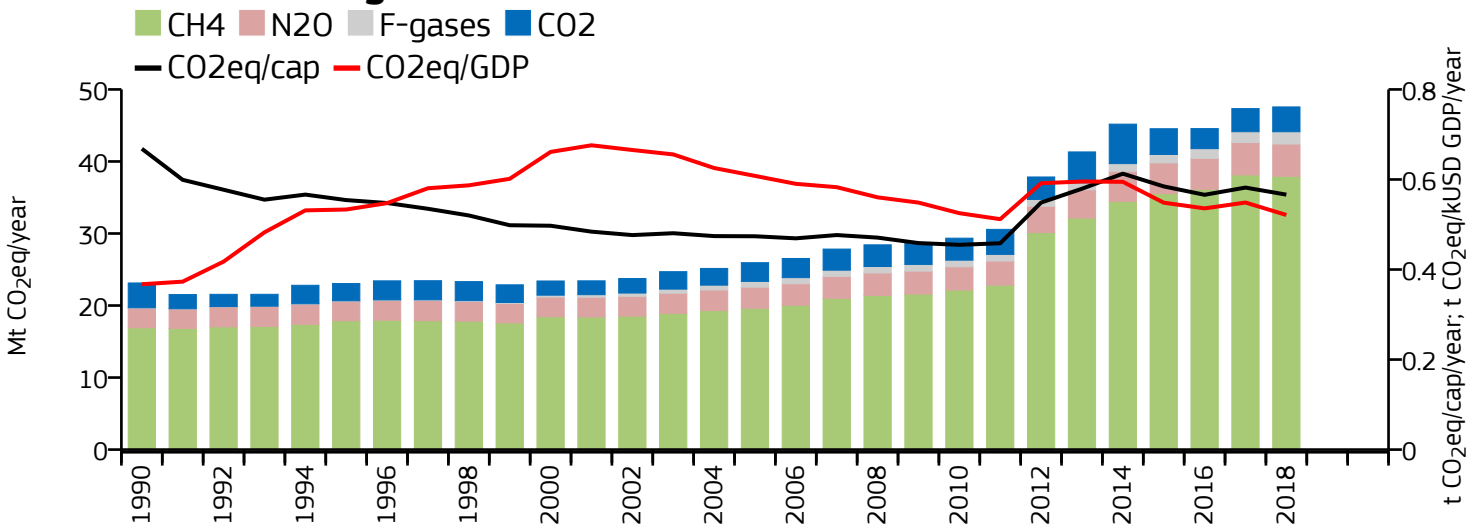
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↘ -36%	↘ -16%	↘ -17%
Other industrial combustion	↘ -71%	↘ -68%	↘ -31%
Buildings	↘ -59%	↘ -56%	→ -5%
Transport	↗ +138%	↗ +167%	↗ +8%
Other sectors	↘ -37%	↘ -30%	→ -1%
All sectors	↘ -43%	↘ -32%	↘ -12%

Democratic Republic of the Congo

Fossil CO_2 emissions by sector



Greenhouse gas emissions

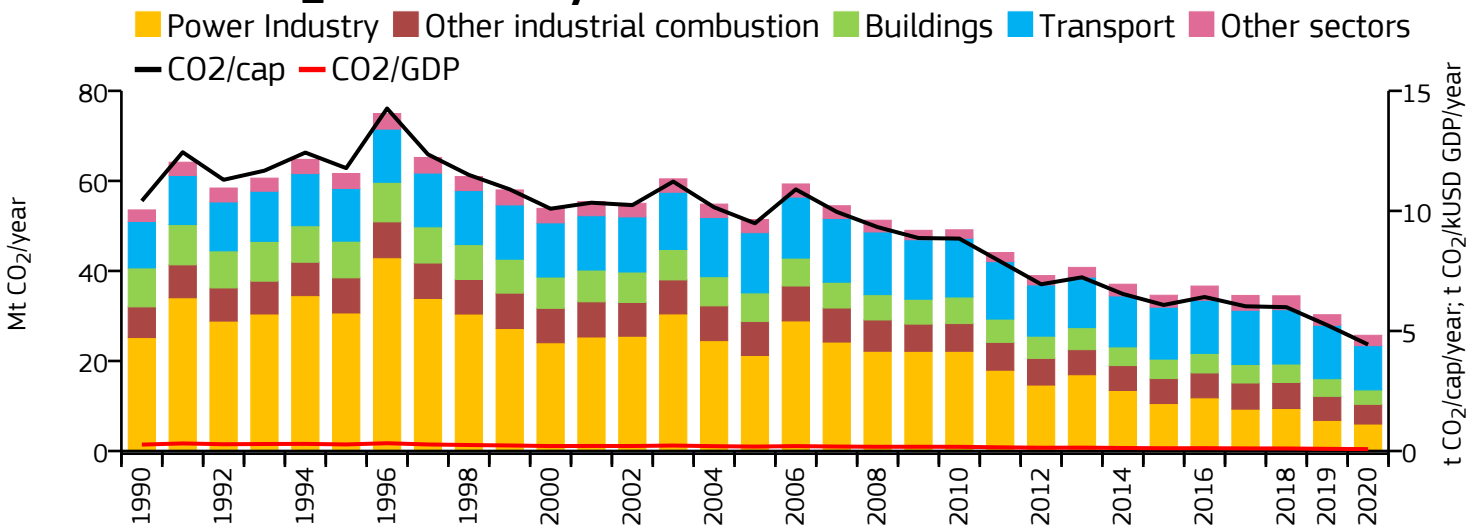


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	3.233	n/a	0.036	n/a	0.034
2018	3.447	47.573	0.041	0.566	0.038
2005	2.589	25.945	0.047	0.474	0.061
1990	3.442	23.131	0.099	0.668	0.055

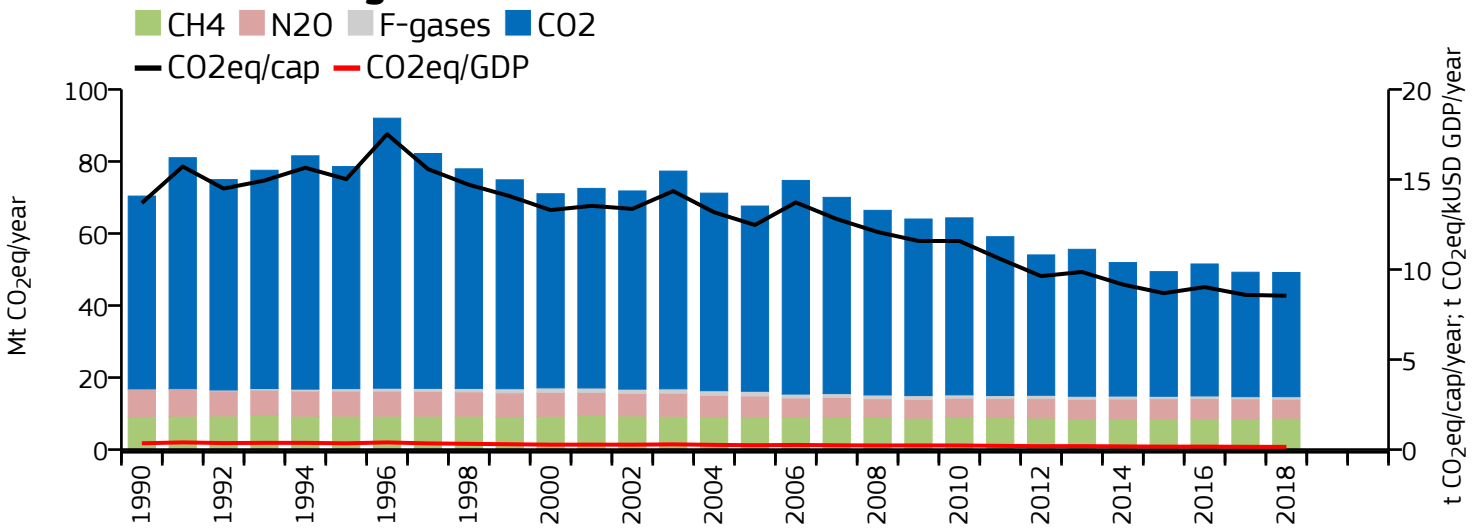
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-80%	-53%	+85%
Other industrial combustion	-96%	-69%	-14%
Buildings	-100%	+51%	+45%
Transport	+204%	+262%	+86%
Other sectors	+223%	+125%	+93%
All sectors	-6%	+106%	+83%

Denmark

Fossil CO_2 emissions by sector



Greenhouse gas emissions

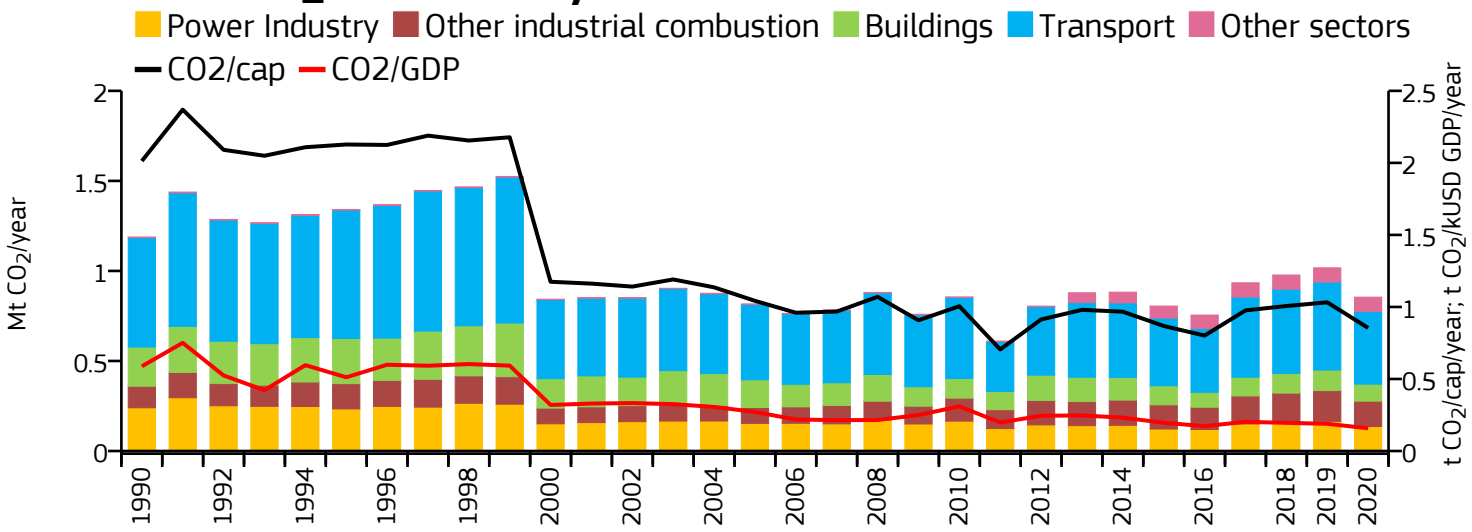


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	25.708	n/a	4.435	n/a	0.079
2018	34.473	49.167	5.991	8.544	0.106
2005	51.421	67.621	9.484	12.472	0.184
1990	53.552	70.390	10.416	13.692	0.267

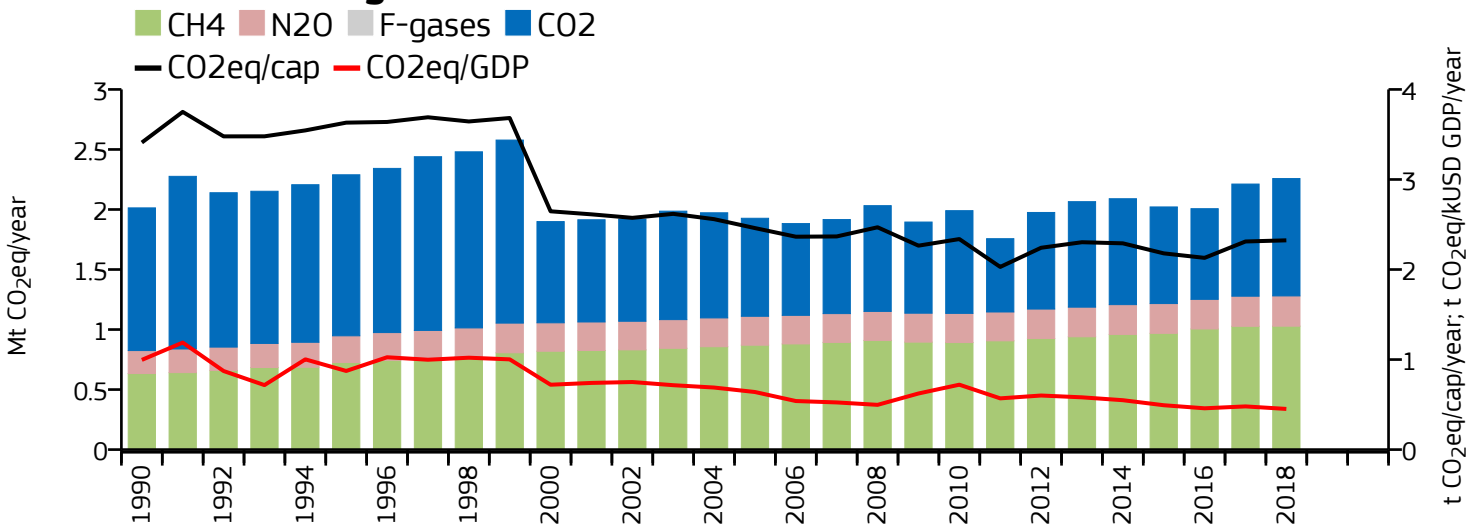
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-76%	-62%	-55%
Other industrial combustion	-36%	-15%	-23%
Buildings	-63%	-48%	-32%
Transport	-5%	+16%	-10%
Other sectors	-10%	-10%	-8%
All sectors	-52%	-30%	-27%

Djibouti

Fossil CO_2 emissions by sector



Greenhouse gas emissions

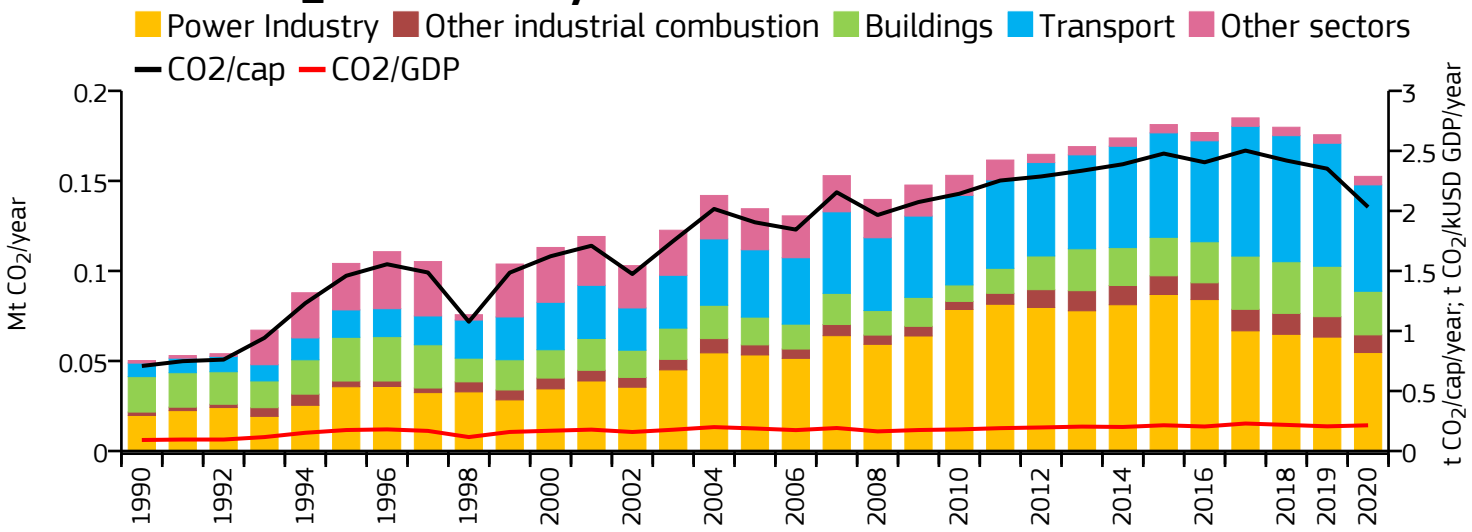


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.855	n/a	0.855	n/a	0.158
2018	0.977	2.258	1.006	2.324	0.196
2005	0.816	1.927	1.042	2.460	0.271
1990	1.189	2.013	2.013	3.410	0.588

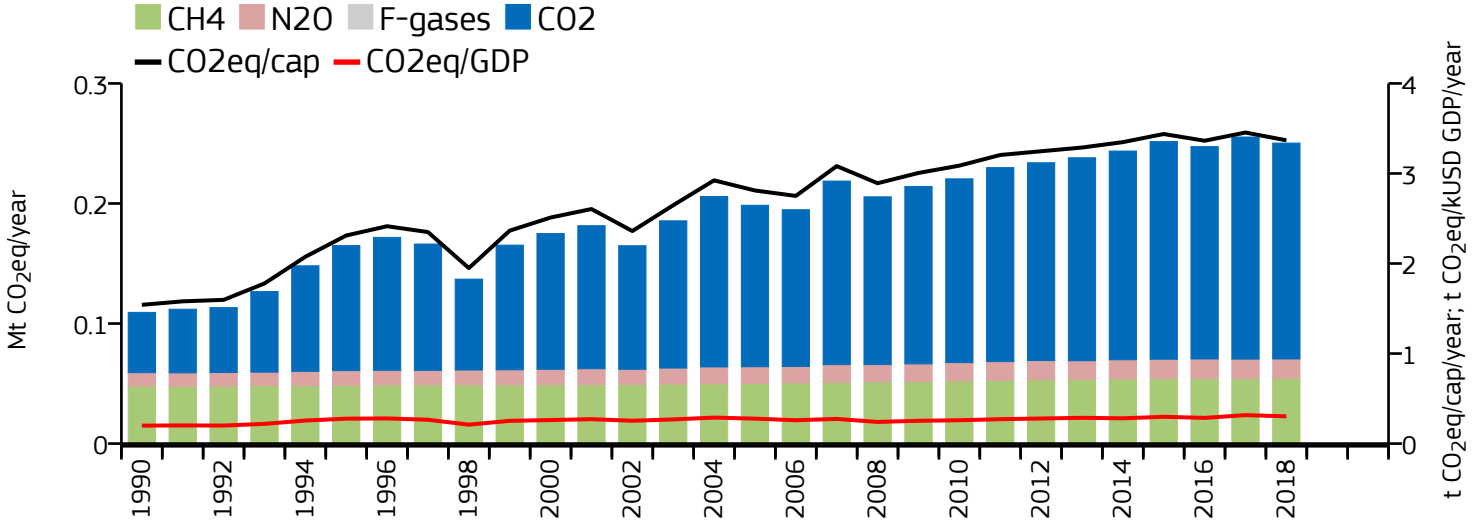
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-43%	-34%	+3%
Other industrial combustion	+18%	+37%	+86%
Buildings	-57%	-36%	-19%
Transport	-34%	-23%	+12%
Other sectors	+2123%	+64%	+22%
All sectors	-28%	+12%	+17%

Dominica

Fossil CO_2 emissions by sector



Greenhouse gas emissions

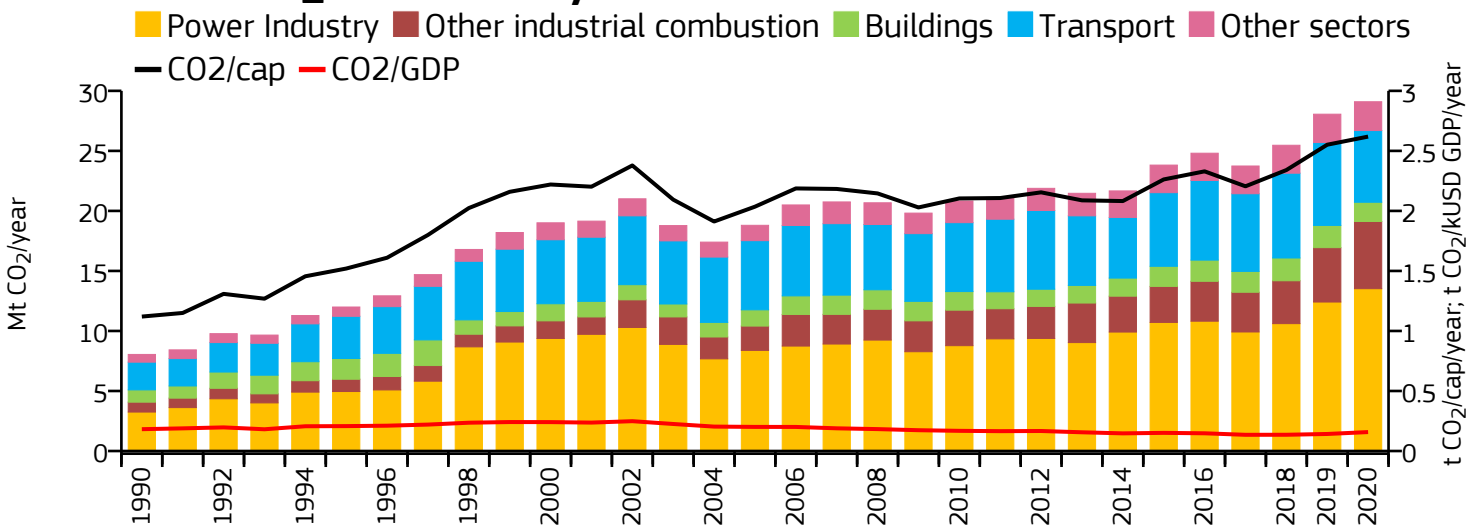


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.153	n/a	2.032	n/a	0.214
2018	0.180	0.250	2.420	3.368	0.218
2005	0.135	0.199	1.905	2.811	0.188
1990	0.050	0.109	0.708	1.541	0.092

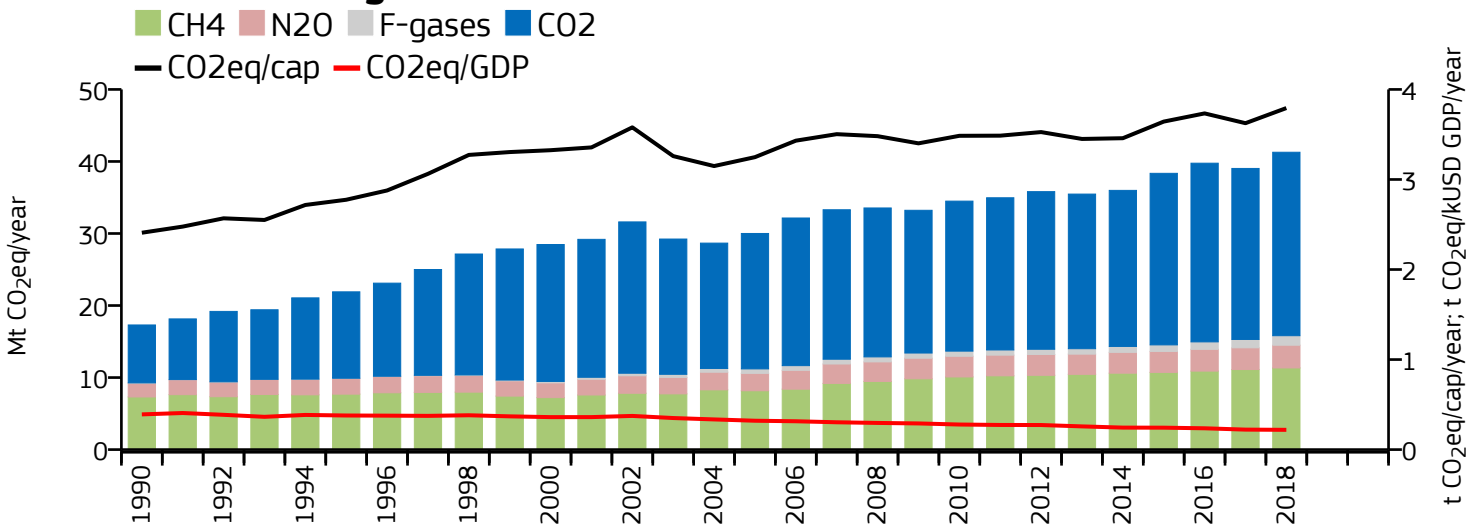
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+177%	+228%	+21%
Other industrial combustion	+422%	+512%	+107%
Buildings	+23%	+50%	+87%
Transport	+686%	+830%	+87%
Other sectors	+235%	+22%	-15%
All sectors	+204%	+129%	+26%

Dominican Republic

Fossil CO_2 emissions by sector



Greenhouse gas emissions

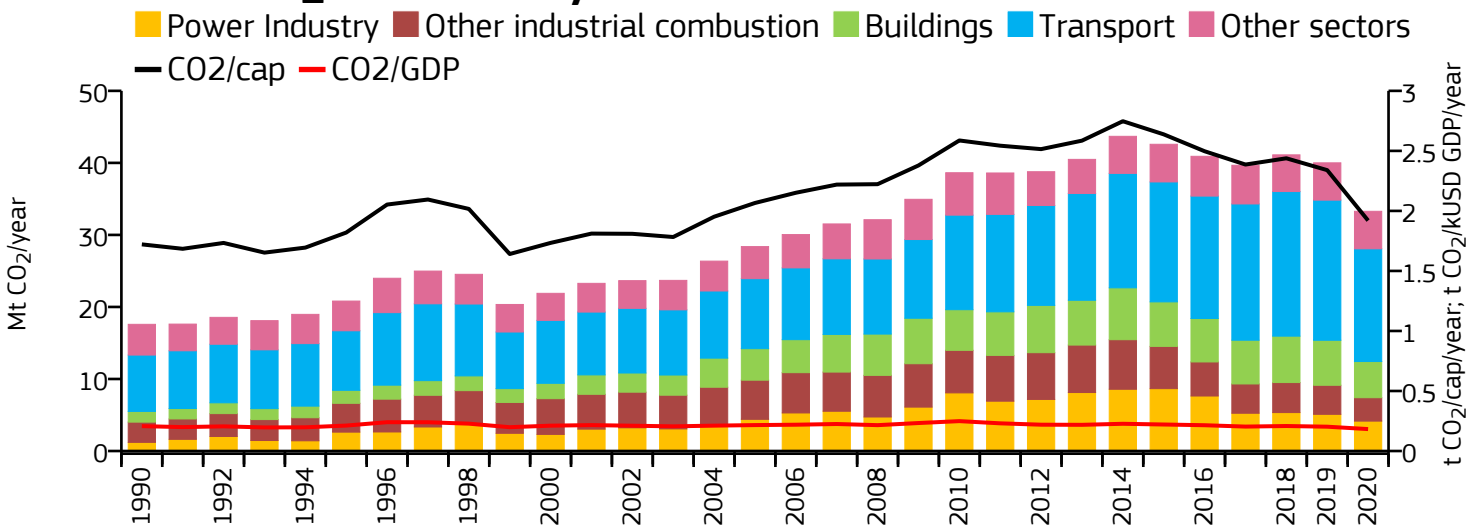


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	29.093	n/a	2.619	n/a	0.158
2018	25.469	41.280	2.340	3.793	0.135
2005	18.800	30.003	2.035	3.248	0.201
1990	8.044	17.302	1.120	2.408	0.182

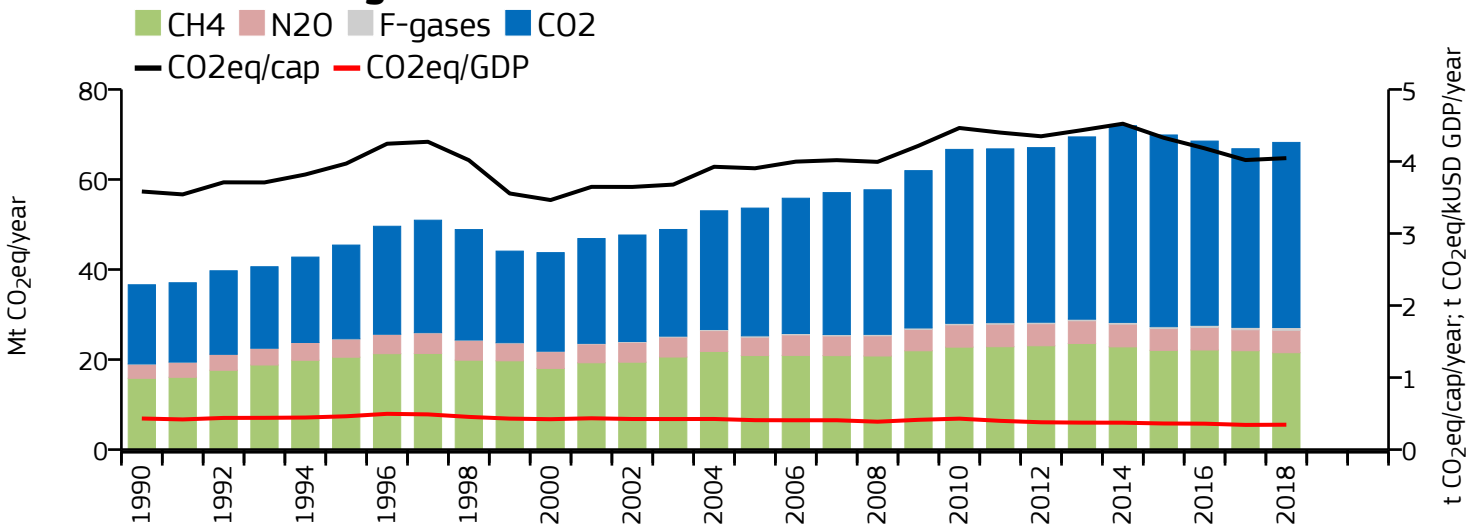
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+317%	+227%	+27%
Other industrial combustion	+577%	+321%	+74%
Buildings	+57%	+77%	+36%
Transport	+158%	+206%	+23%
Other sectors	+274%	+84%	+46%
All sectors	+262%	+139%	+38%

Ecuador

Fossil CO_2 emissions by sector



Greenhouse gas emissions

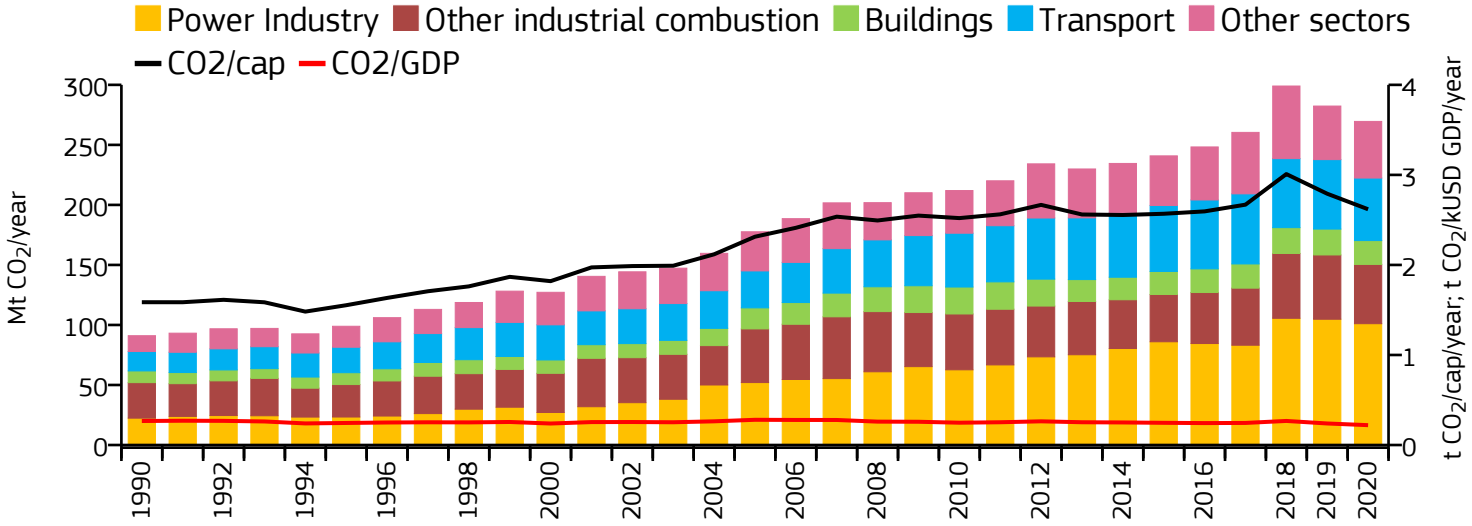


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	33.279	n/a	1.920	n/a	0.183
2018	41.116	68.232	2.438	4.046	0.208
2005	28.378	53.643	2.066	3.906	0.216
1990	17.587	36.612	1.721	3.583	0.207

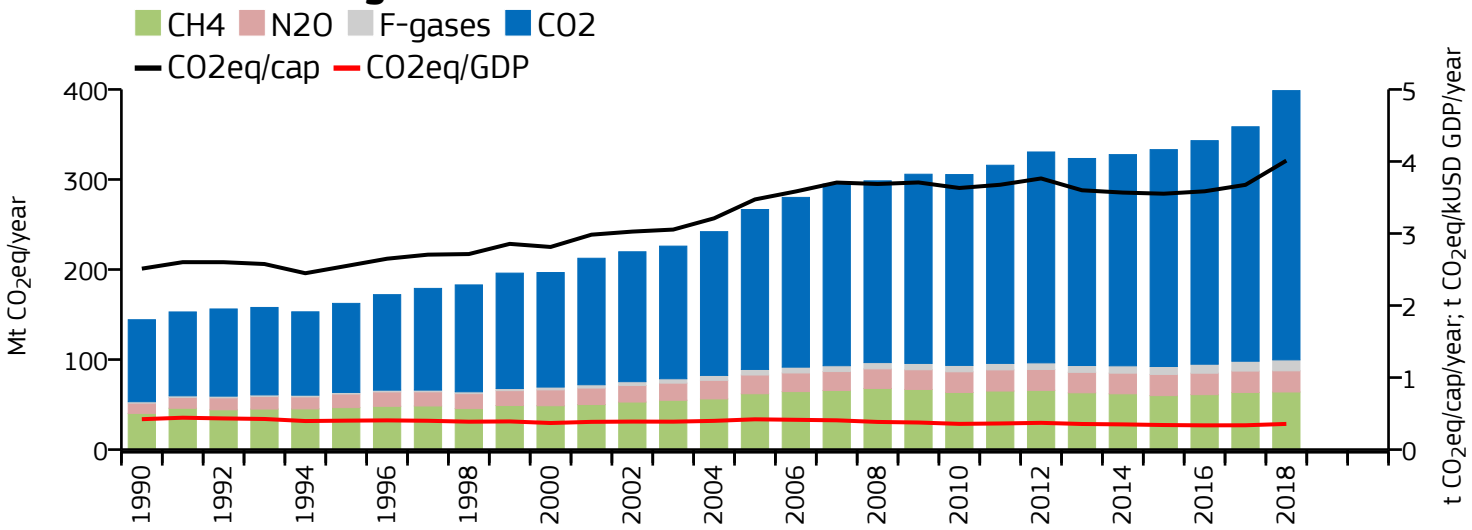
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+245%	+345%	+21%
Other industrial combustion	+16%	+47%	-23%
Buildings	+239%	+279%	+45%
Transport	+100%	+156%	+107%
Other sectors	+22%	+39%	+8%
All sectors	+89%	+86%	+27%

Egypt

Fossil CO_2 emissions by sector



Greenhouse gas emissions

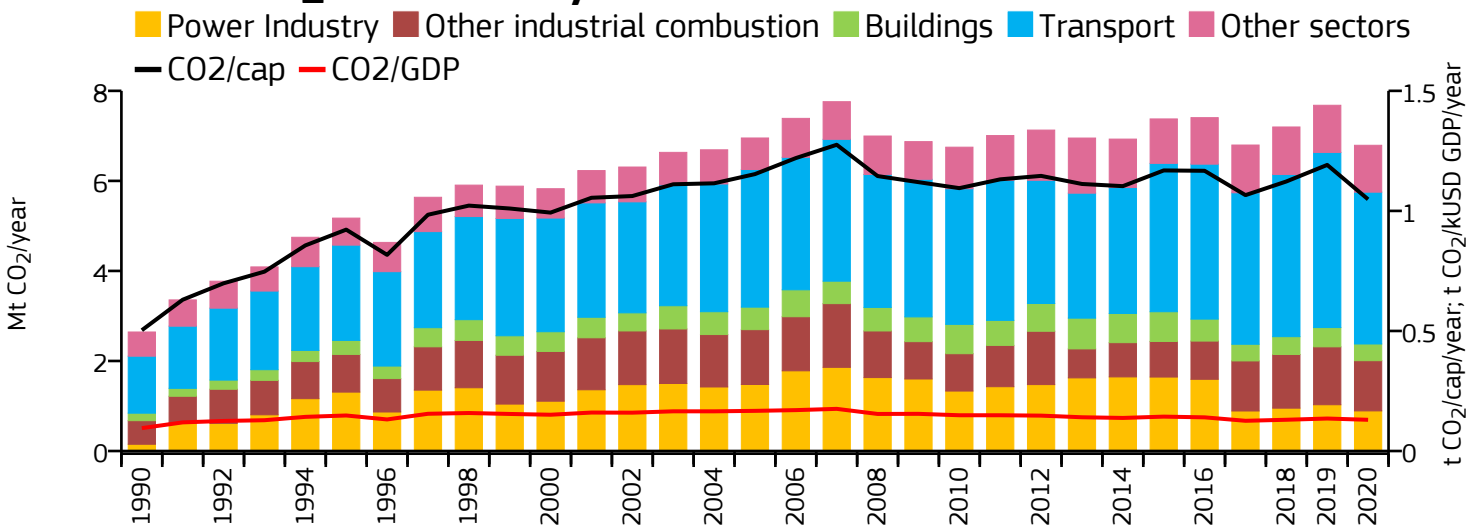


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	269.545	n/a	2.618	n/a	0.220
2018	299.032	398.679	3.009	4.012	0.267
2005	177.619	266.639	2.313	3.473	0.280
1990	91.053	144.218	1.586	2.512	0.266

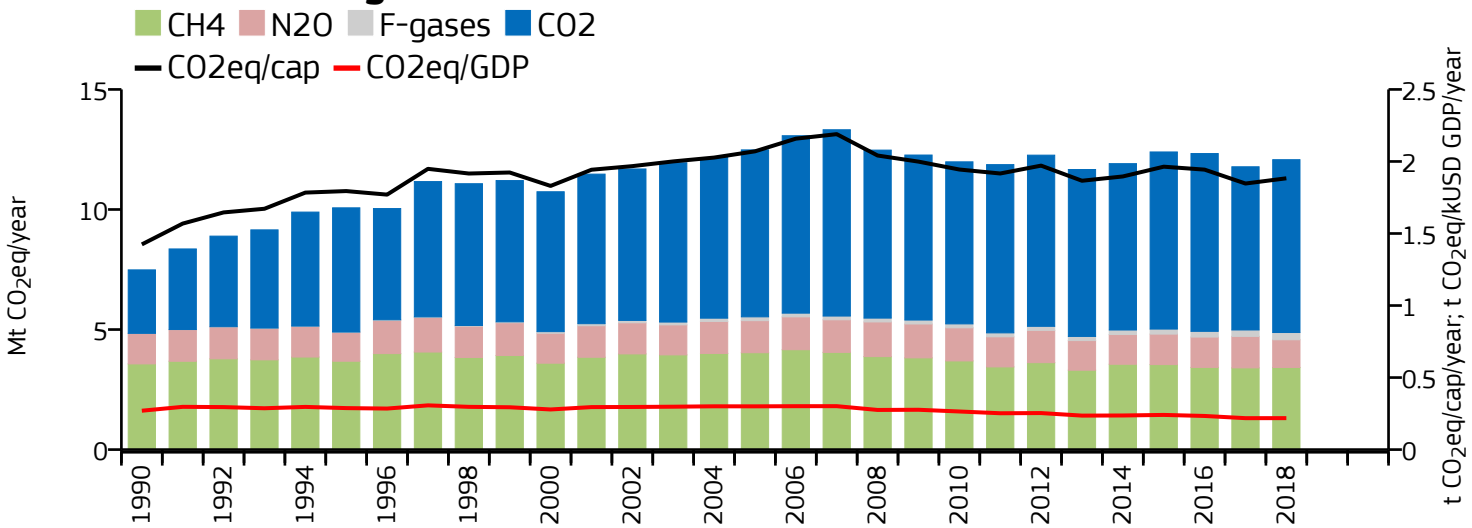
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+352%	+372%	+103%
Other industrial combustion	+67%	+82%	+21%
Buildings	+104%	+121%	+21%
Transport	+222%	+256%	+87%
Other sectors	+258%	+141%	+32%
All sectors	+196%	+176%	+50%

El Salvador

Fossil CO_2 emissions by sector



Greenhouse gas emissions

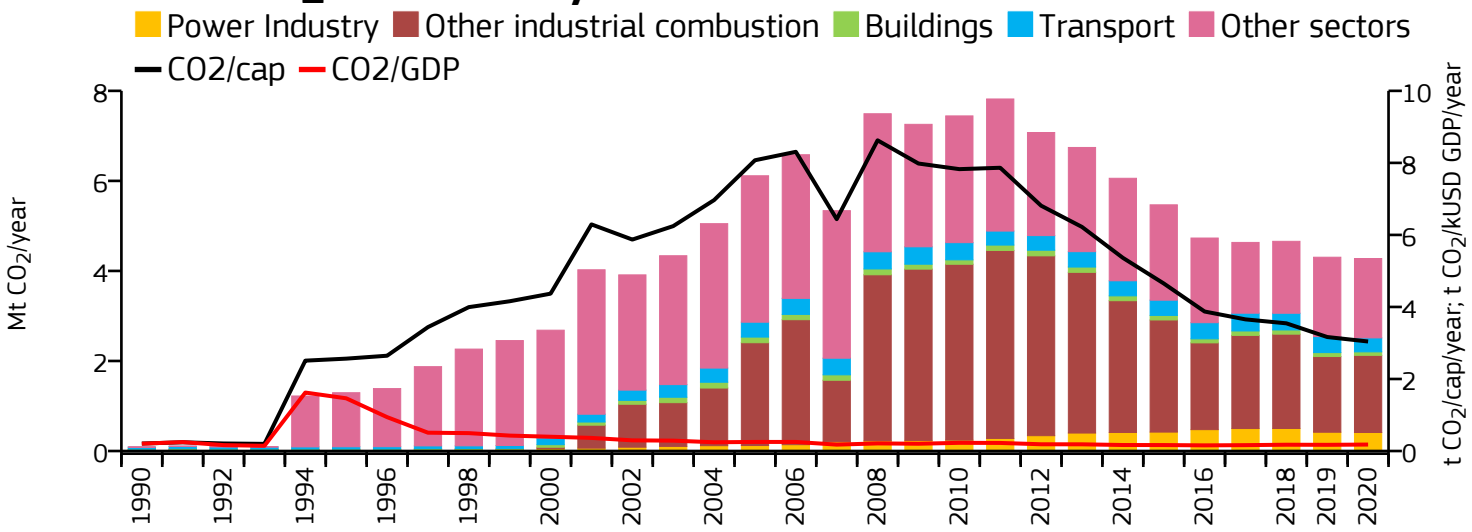


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	6.791	n/a	1.048	n/a	0.130
2018	7.198	12.074	1.123	1.883	0.130
2005	6.953	12.482	1.153	2.070	0.167
1990	2.644	7.485	0.503	1.424	0.095

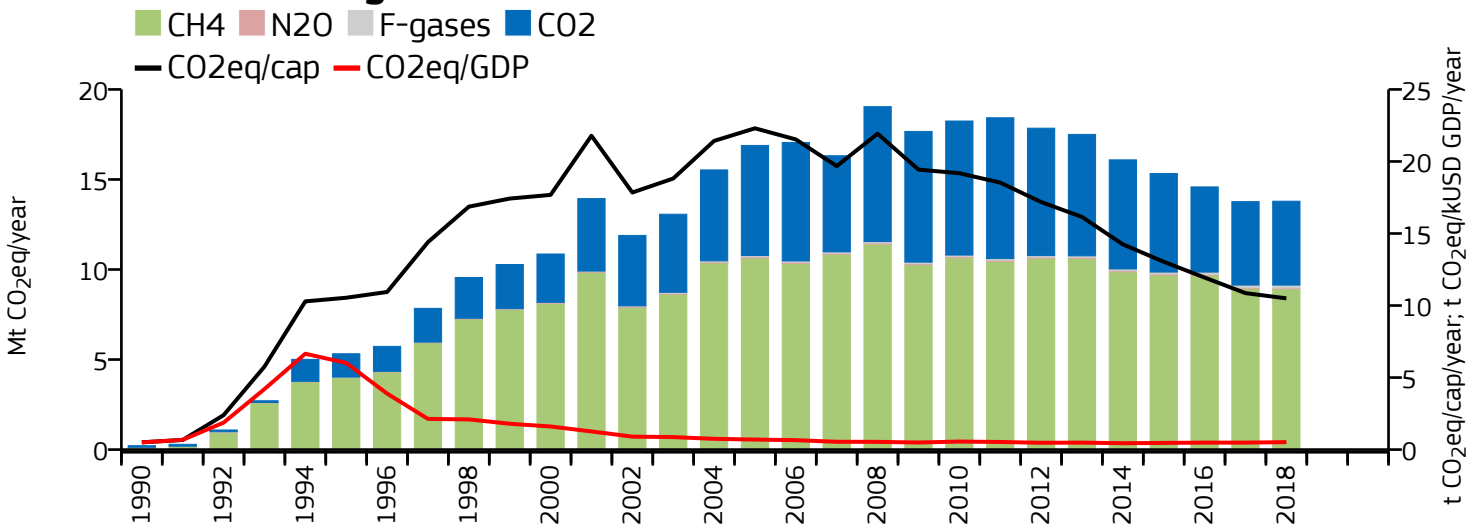
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+494%	+553%	-35%
Other industrial combustion	+113%	+114%	-4%
Buildings	+123%	-3%	-27%
Transport	+166%	+185%	+18%
Other sectors	+94%	+15%	-4%
All sectors	+157%	+61%	-3%

Equatorial Guinea

Fossil CO_2 emissions by sector



Greenhouse gas emissions

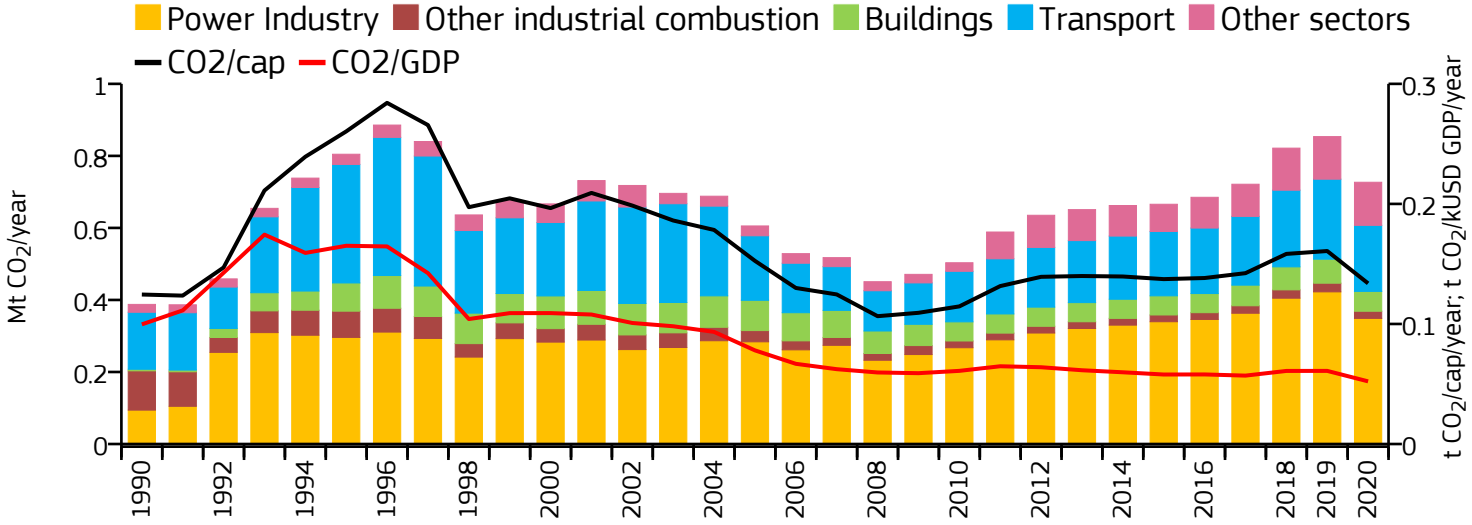


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	4.276	n/a	3.041	n/a	0.179
2018	4.658	13.793	3.545	10.498	0.175
2005	6.114	16.890	8.073	22.302	0.252
1990	0.088	0.217	0.207	0.507	0.203

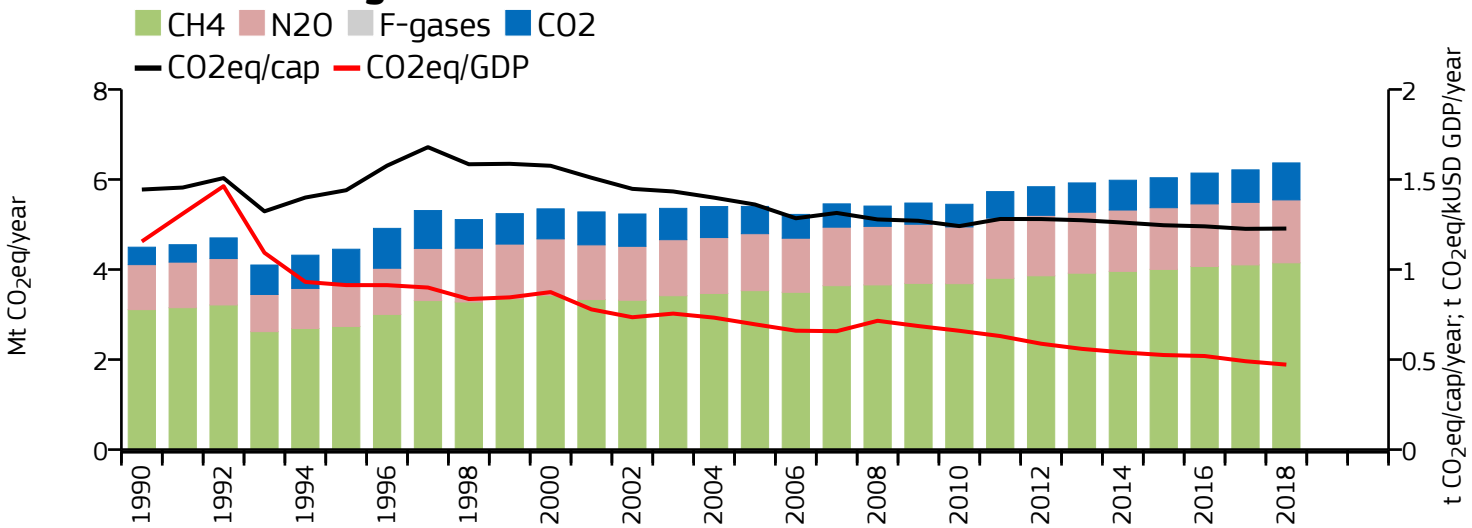
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+2245%	+2756%	+312%
Other industrial combustion	+19519%	+23140%	-8%
Buildings	+386%	+136%	-18%
Transport	+599%	+737%	+12%
Other sectors	+90726%	+12562%	-24%
All sectors	+4733%	+6269%	-18%

Eritrea

Fossil CO_2 emissions by sector



Greenhouse gas emissions

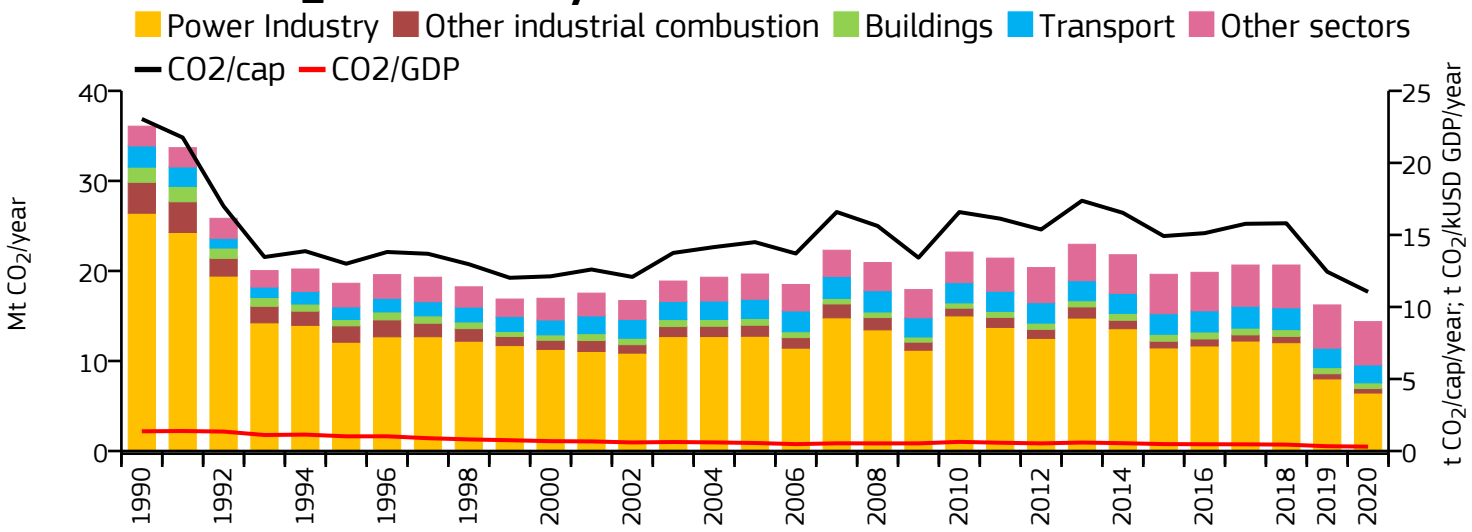


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.727	n/a	0.134	n/a	0.052
2018	0.822	6.368	0.158	1.227	0.061
2005	0.605	5.401	0.153	1.361	0.078
1990	0.388	4.496	0.125	1.444	0.100

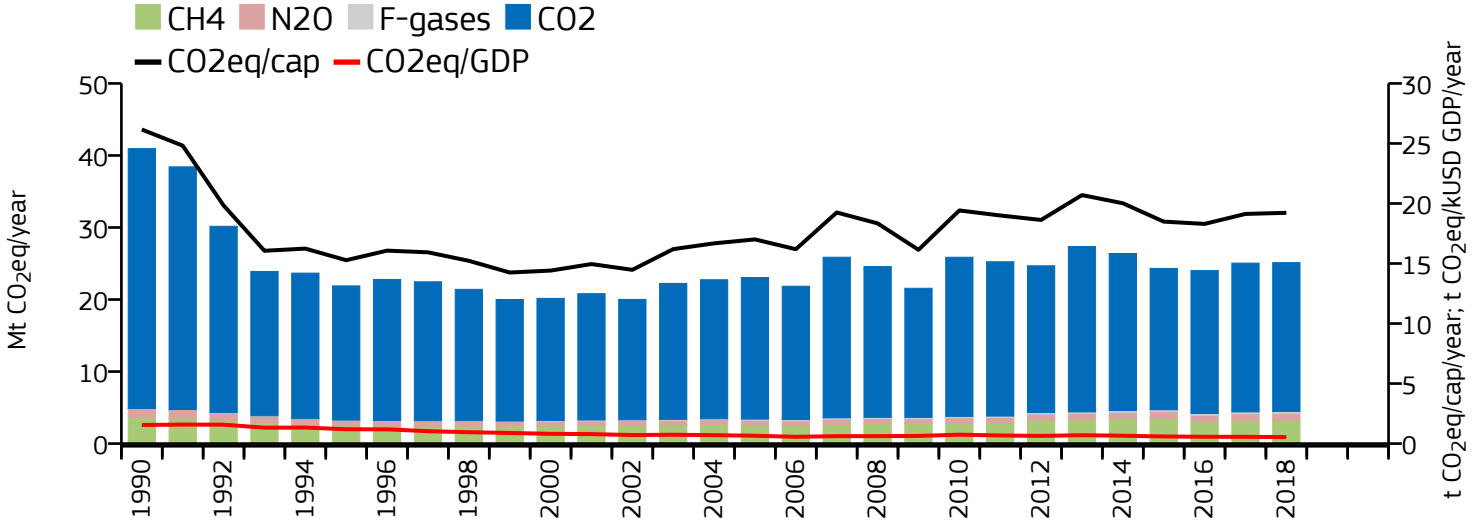
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+271%	+330%	+43%
Other industrial combustion	-82%	-80%	-26%
Buildings	+1138%	+26%	-1%
Transport	+16%	+35%	+19%
Other sectors	+449%	+39%	+18%
All sectors	+87%	+42%	+18%

Estonia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

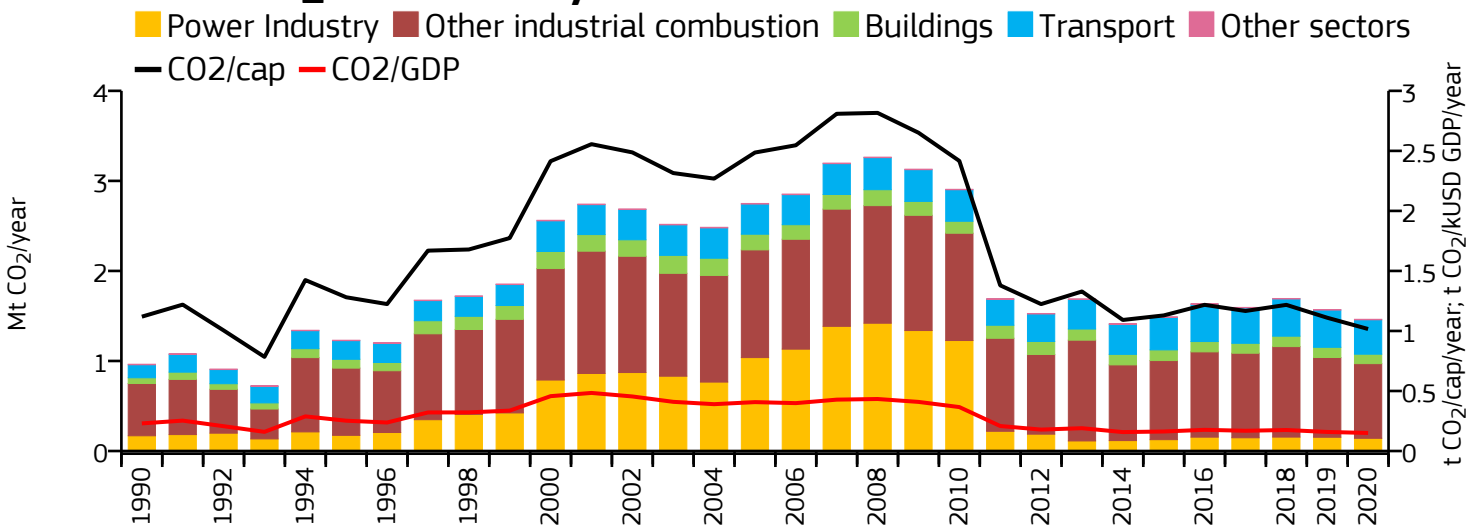


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	14.370	n/a	11.049	n/a	0.303
2018	20.656	25.120	15.807	19.223	0.444
2005	19.655	23.057	14.499	17.008	0.556
1990	36.077	40.949	23.049	26.162	1.367

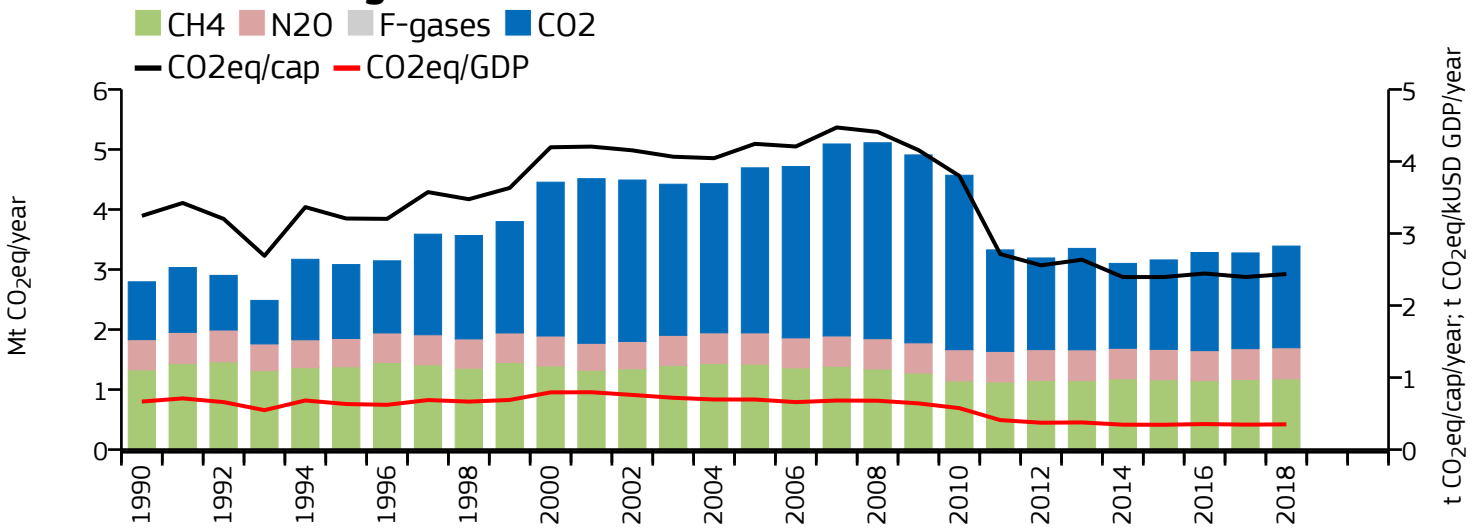
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-76%	-54%	-5%
Other industrial combustion	-85%	-79%	-43%
Buildings	-63%	-48%	+5%
Transport	-15%	+2%	+12%
Other sectors	+119%	+31%	+50%
All sectors	-60%	-39%	+9%

Eswatini

Fossil CO_2 emissions by sector



Greenhouse gas emissions

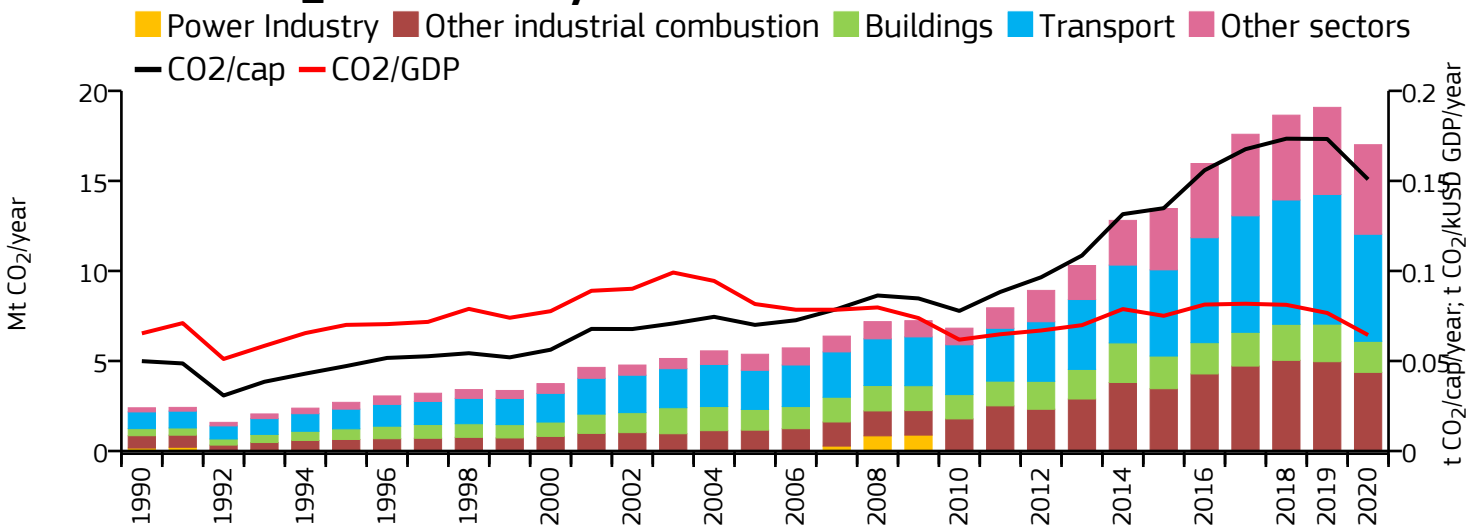


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.463	n/a	1.016	n/a	0.150
2018	1.694	3.390	1.217	2.437	0.175
2005	2.749	4.694	2.486	4.245	0.407
1990	0.964	2.795	1.119	3.245	0.230

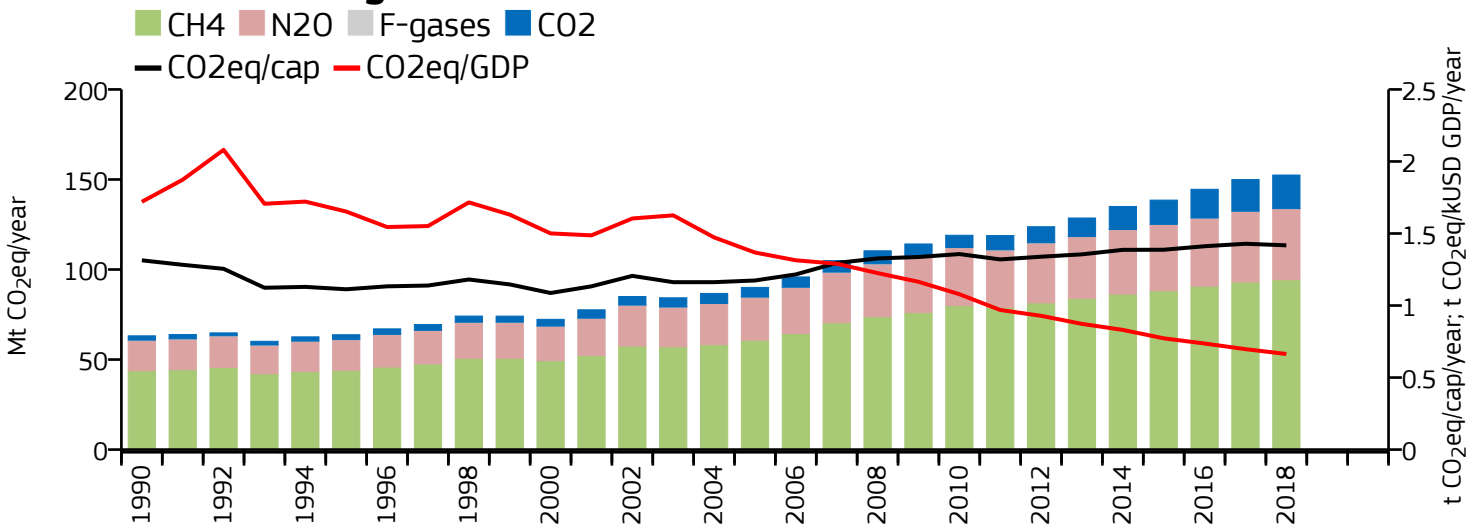
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-17%	-9%	-85%
Other industrial combustion	+43%	+74%	-16%
Buildings	+64%	+10%	-47%
Transport	+165%	+186%	+24%
Other sectors	-8%	-6%	-10%
All sectors	+52%	+21%	-28%

Ethiopia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

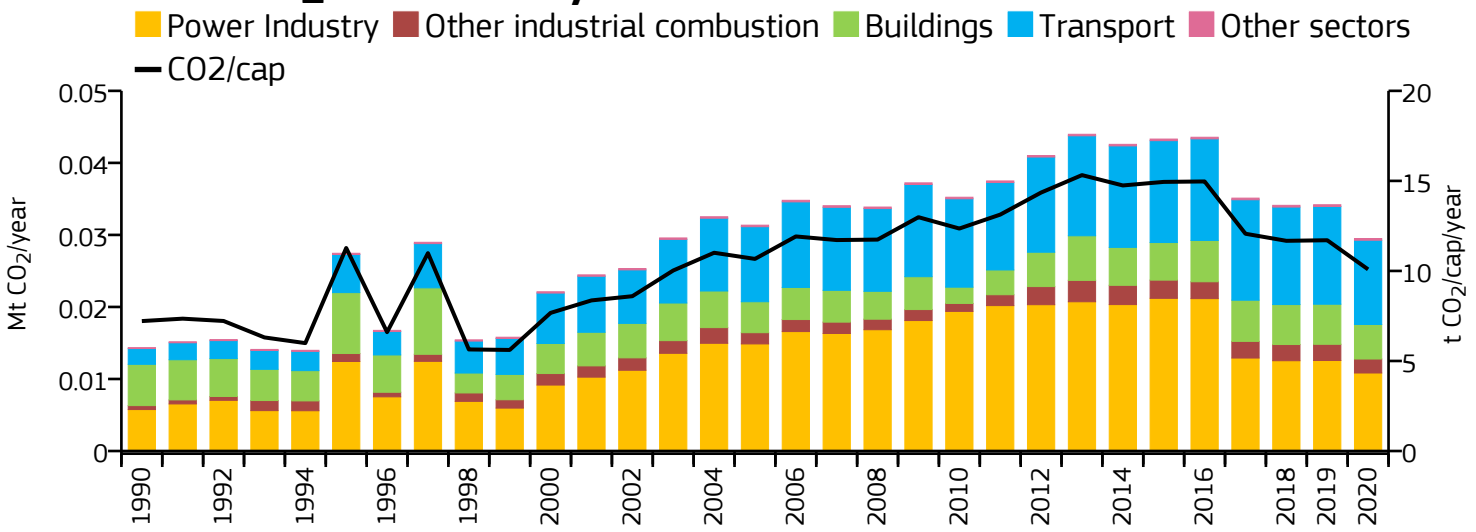


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	17.009	n/a	0.151	n/a	0.064
2018	18.651	152.462	0.173	1.418	0.081
2005	5.374	90.061	0.070	1.174	0.082
1990	2.400	63.172	0.050	1.314	0.065

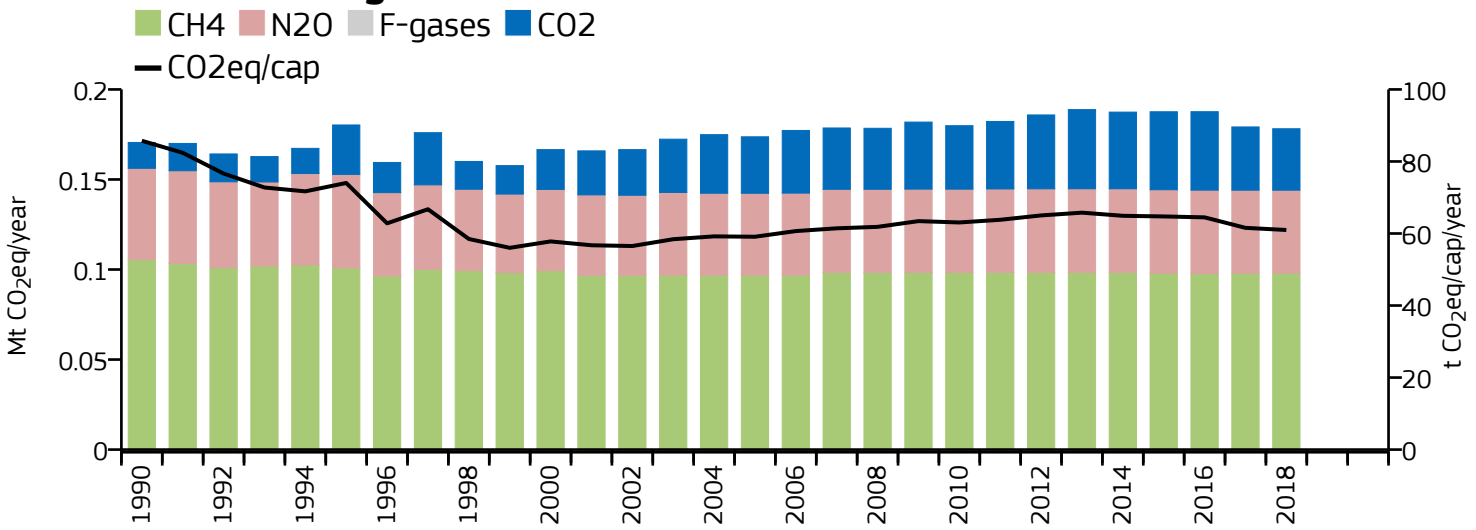
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-98%	-98%	-61%
Other industrial combustion	+538%	+632%	+337%
Buildings	+337%	+178%	+41%
Transport	+541%	+642%	+218%
Other sectors	+2073%	+123%	+65%
All sectors	+609%	+141%	+69%

Falkland Islands

Fossil CO_2 emissions by sector



Greenhouse gas emissions

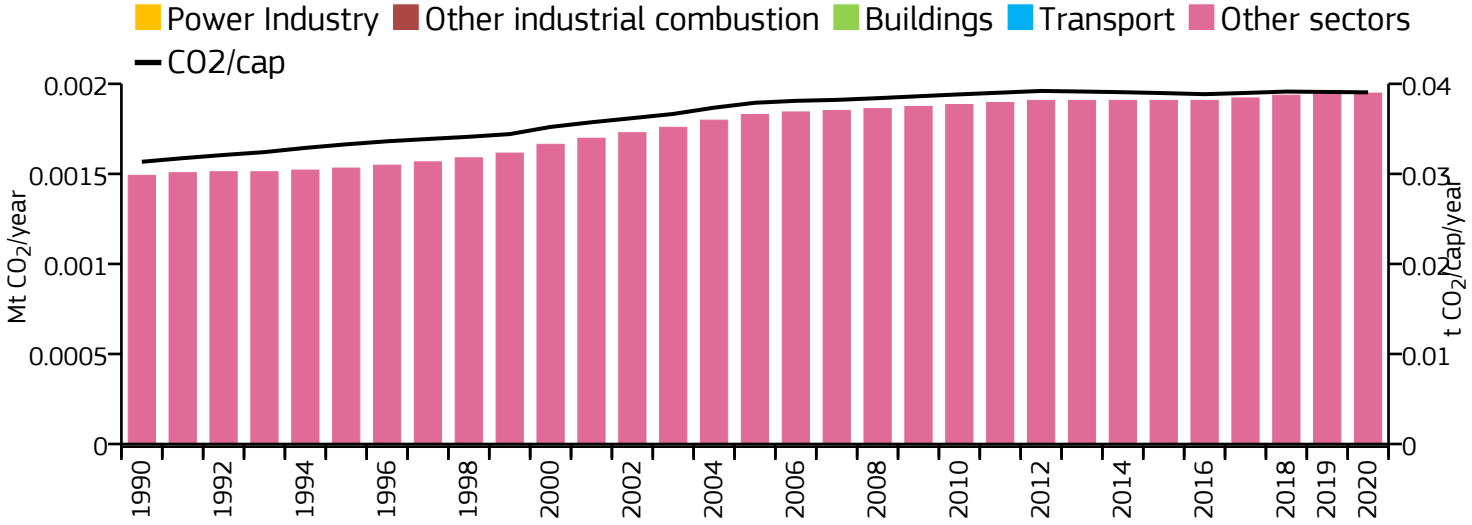


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.030	n/a	10.086	n/a	n/a
2018	0.034	0.178	11.672	60.972	n/a
2005	0.031	0.174	10.668	59.098	n/a
1990	0.014	0.171	7.215	85.747	n/a

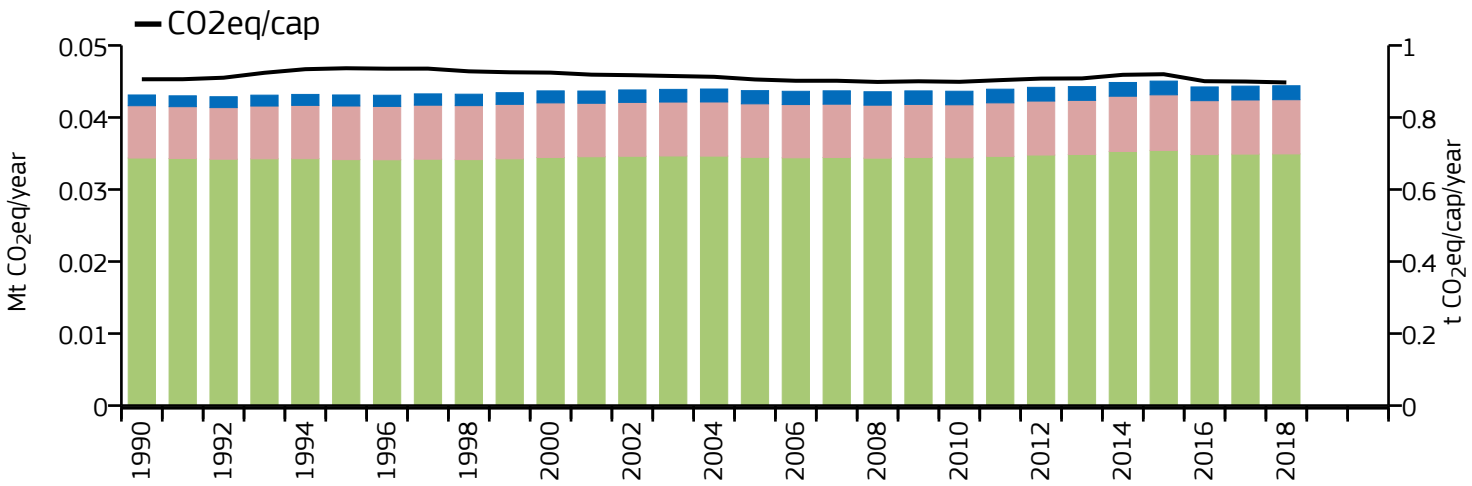
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +88%	↗ +118%	↘ -16%
Other industrial combustion	↗ +255%	↗ +308%	↗ +44%
Buildings	↘ -16%	→ 0%	↗ +30%
Transport	↗ +434%	↗ +515%	↗ +30%
Other sectors	↗ +89%	↘ -8%	→ +1%
All sectors	↗ +106%	→ +4%	→ +3%

Faroes

Fossil CO_2 emissions by sector



Greenhouse gas emissions

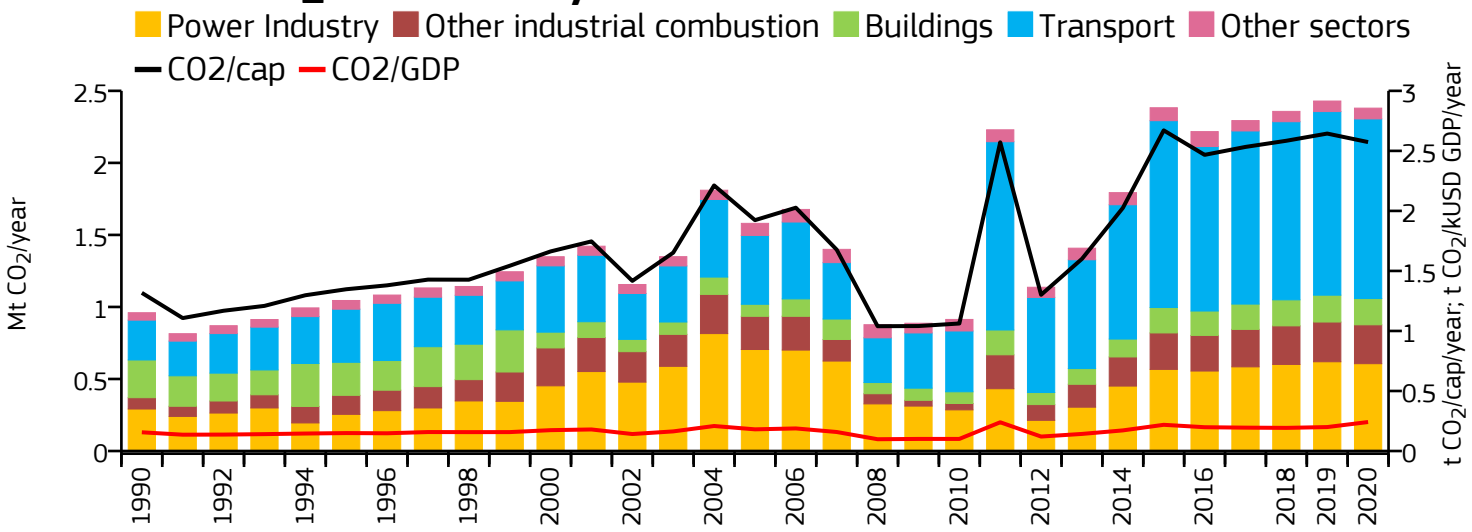


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.002	n/a	0.039	n/a	n/a
2018	0.002	0.044	0.039	0.897	n/a
2005	0.002	0.044	0.038	0.906	n/a
1990	0.001	0.043	0.031	0.906	n/a

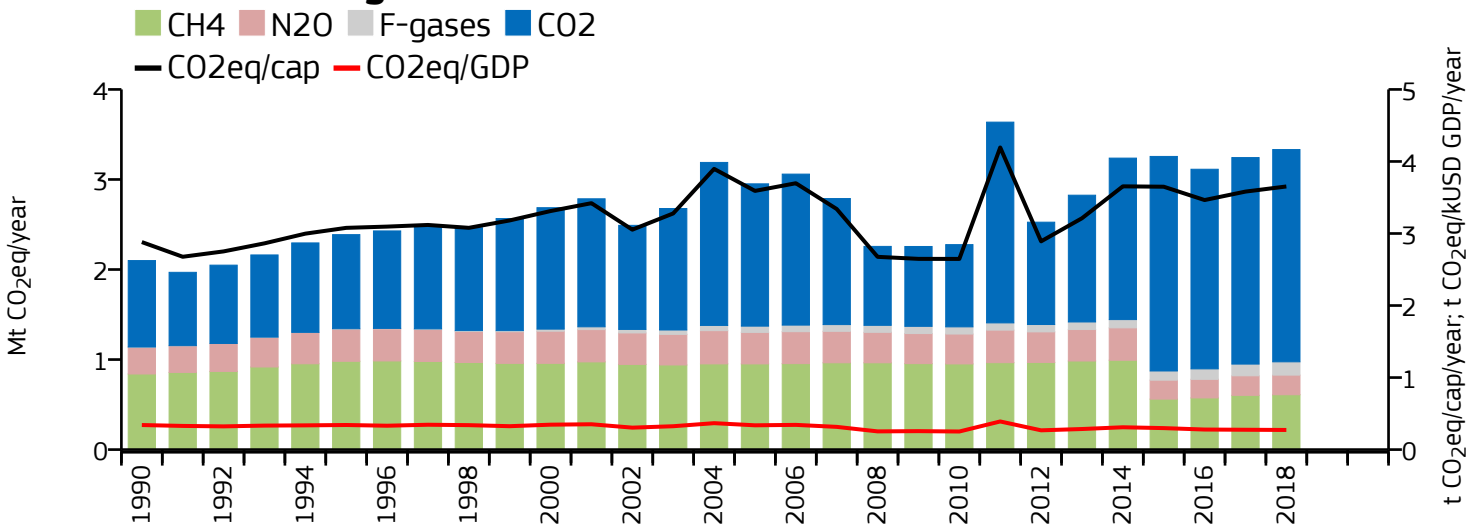
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	n/a	n/a	n/a
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	→ 0%	→ 0%
Transport	n/a	n/a	n/a
Other sectors	↗ +31%	→ +3%	→ +2%
All sectors	↗ +31%	→ +3%	→ +2%

Fiji

Fossil CO_2 emissions by sector



Greenhouse gas emissions

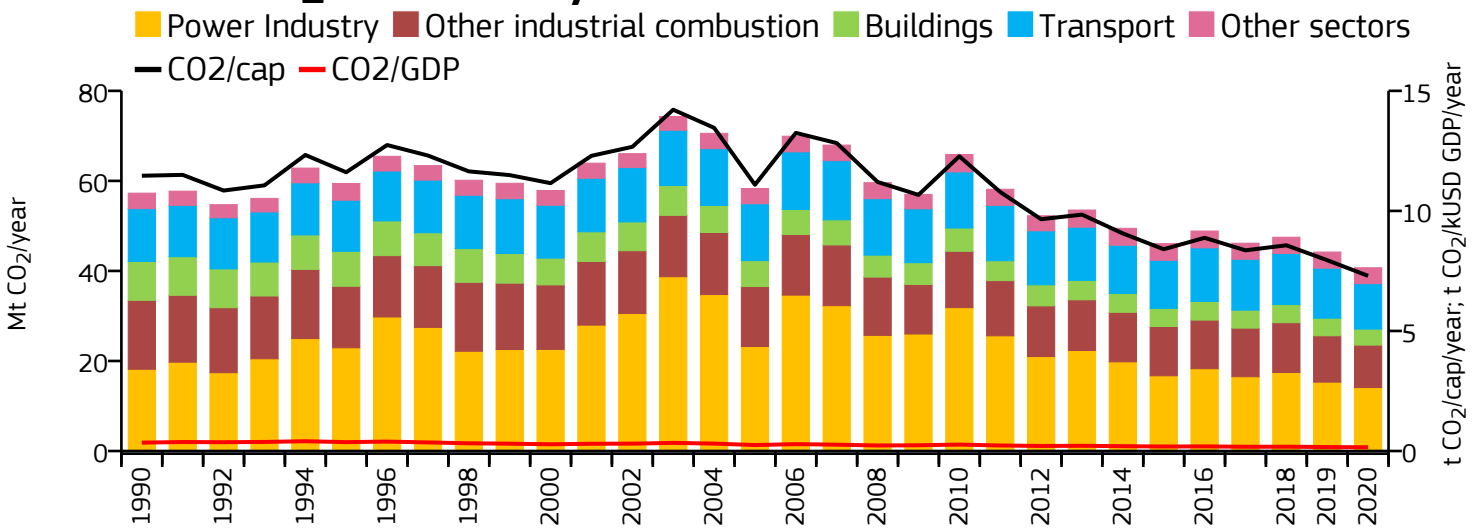


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	2.380	n/a	2.573	n/a	0.241
2018	2.358	3.332	2.584	3.653	0.193
2005	1.580	2.951	1.923	3.591	0.180
1990	0.960	2.099	1.317	2.881	0.156

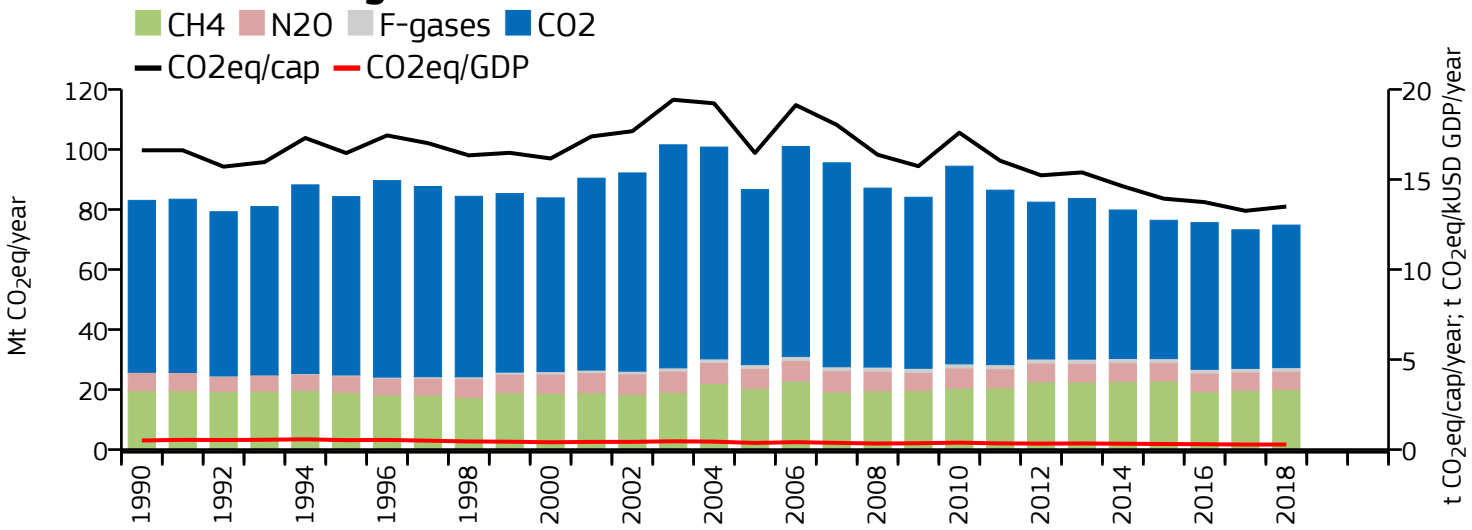
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+108%	+106%	-15%
Other industrial combustion	+243%	+214%	+15%
Buildings	-30%	-29%	+118%
Transport	+351%	+345%	+158%
Other sectors	+46%	-13%	-29%
All sectors	+148%	+59%	+13%

Finland

Fossil CO_2 emissions by sector



Greenhouse gas emissions

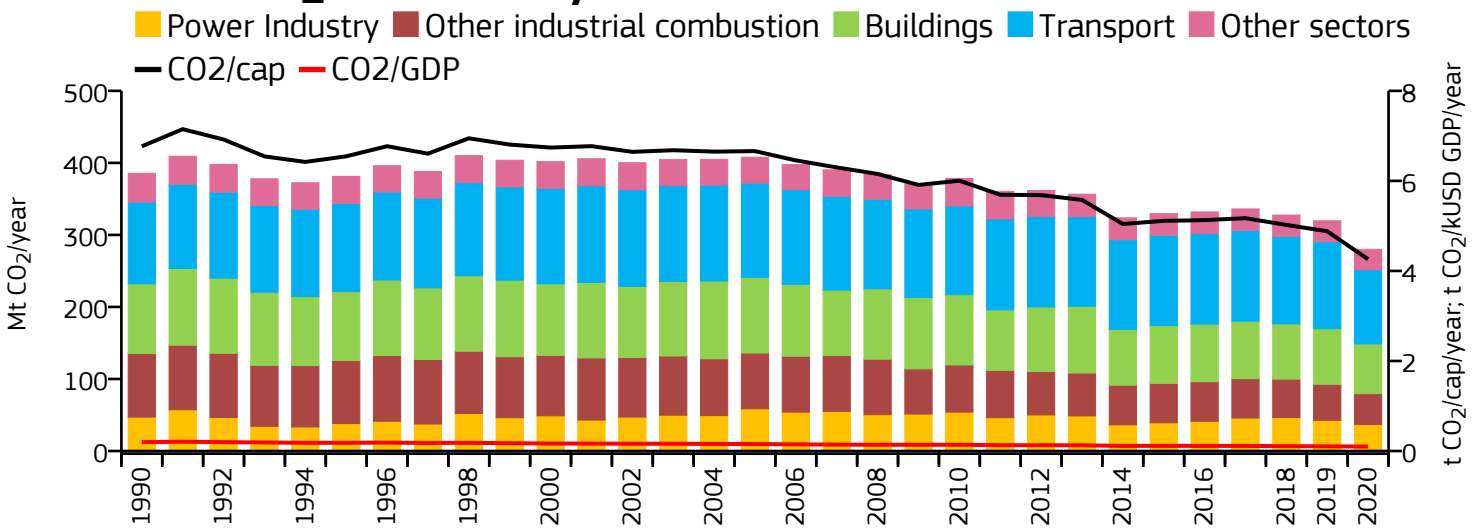


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	40.704	n/a	7.295	n/a	0.156
2018	47.487	74.802	8.568	13.496	0.179
2005	58.315	86.628	11.089	16.473	0.248
1990	57.279	83.040	11.464	16.621	0.349

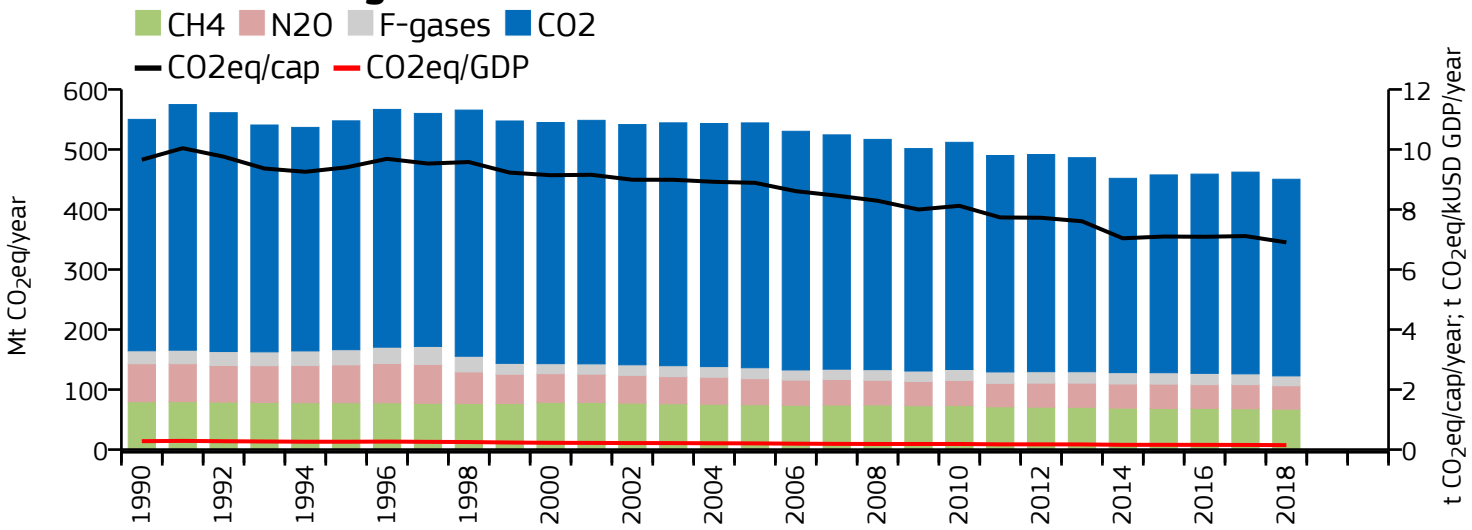
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-22%	-2%	-24%
Other industrial combustion	-38%	-26%	-16%
Buildings	-59%	-49%	-26%
Transport	-14%	-4%	-10%
Other sectors	+3%	+5%	-3%
All sectors	-29%	-10%	-14%

France and Monaco

Fossil CO_2 emissions by sector



Greenhouse gas emissions

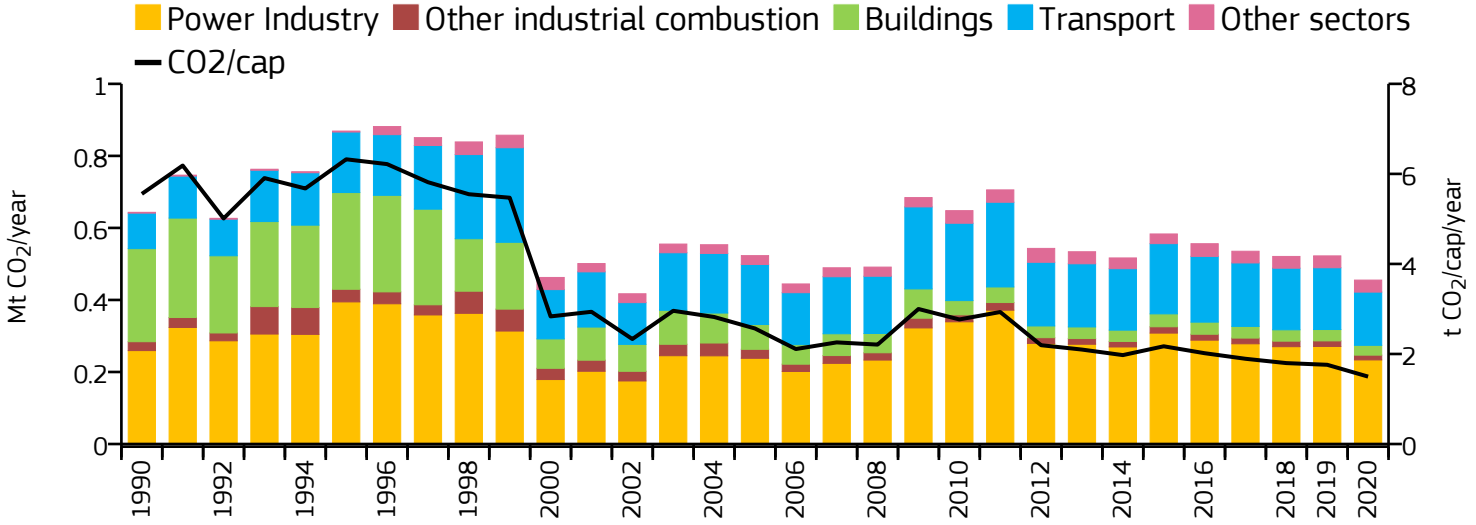


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	279.991	n/a	4.260	n/a	0.099
2018	327.585	450.392	5.022	6.904	0.108
2005	407.886	544.256	6.661	8.888	0.155
1990	385.482	550.125	6.768	9.658	0.196

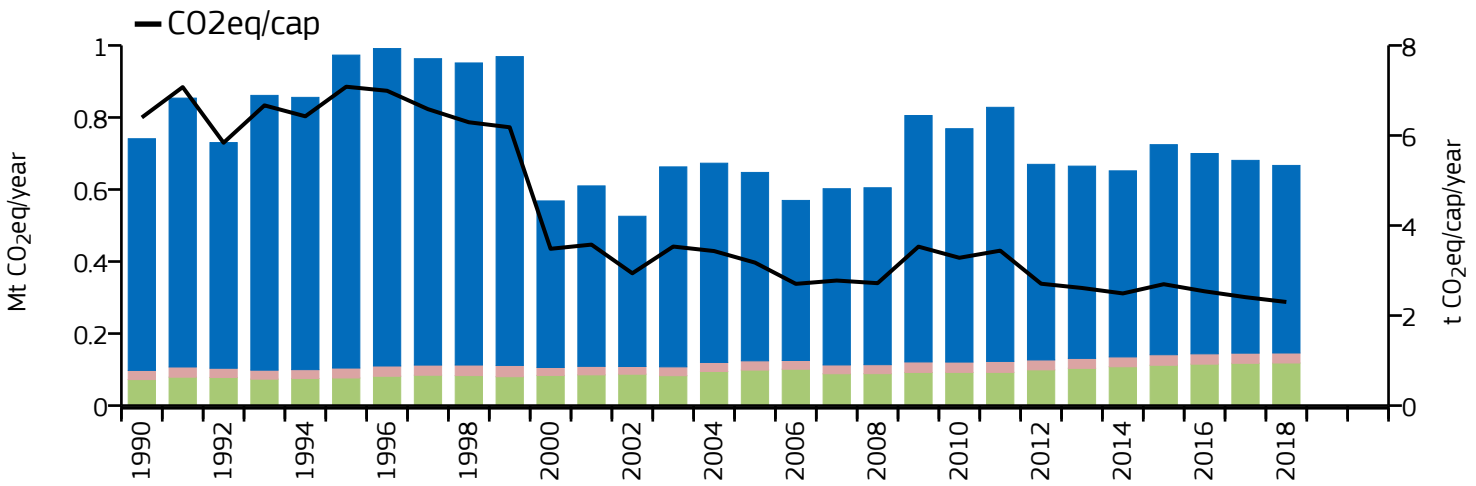
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-22%	-1%	-20%
Other industrial combustion	-51%	-40%	-31%
Buildings	-29%	-21%	-26%
Transport	-9%	+7%	-7%
Other sectors	-29%	-26%	-12%
All sectors	-27%	-18%	-17%

French Guiana

Fossil CO_2 emissions by sector



Greenhouse gas emissions

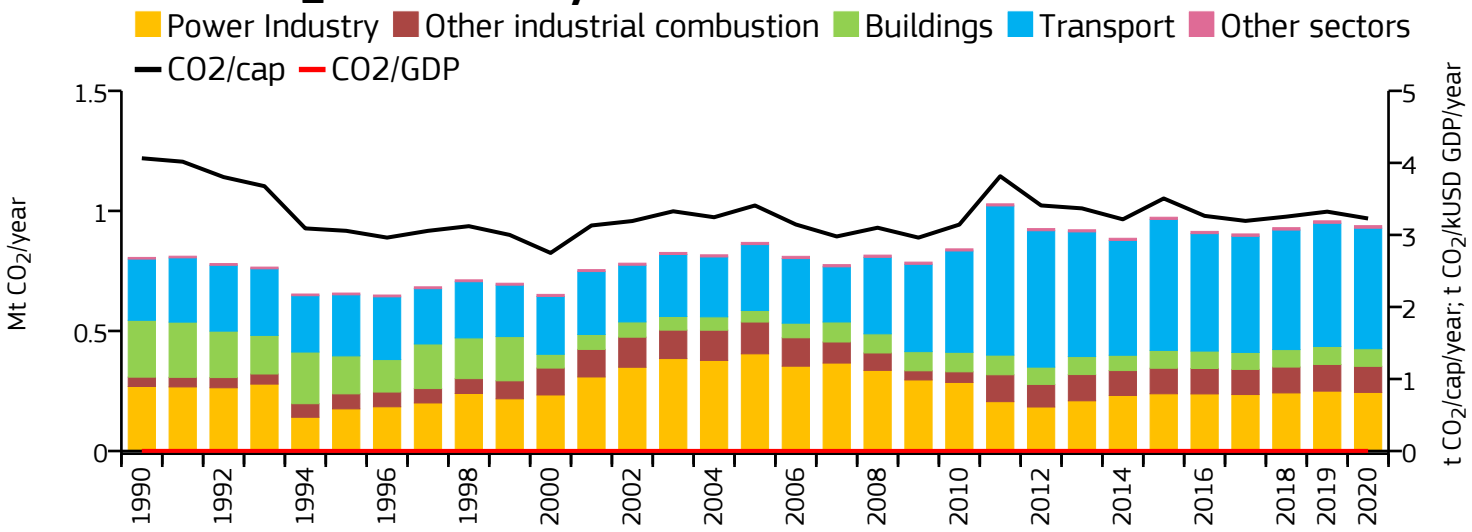


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.455	n/a	1.497	n/a	n/a
2018	0.521	0.667	1.797	2.301	n/a
2005	0.523	0.647	2.566	3.176	n/a
1990	0.643	0.741	5.556	6.399	n/a

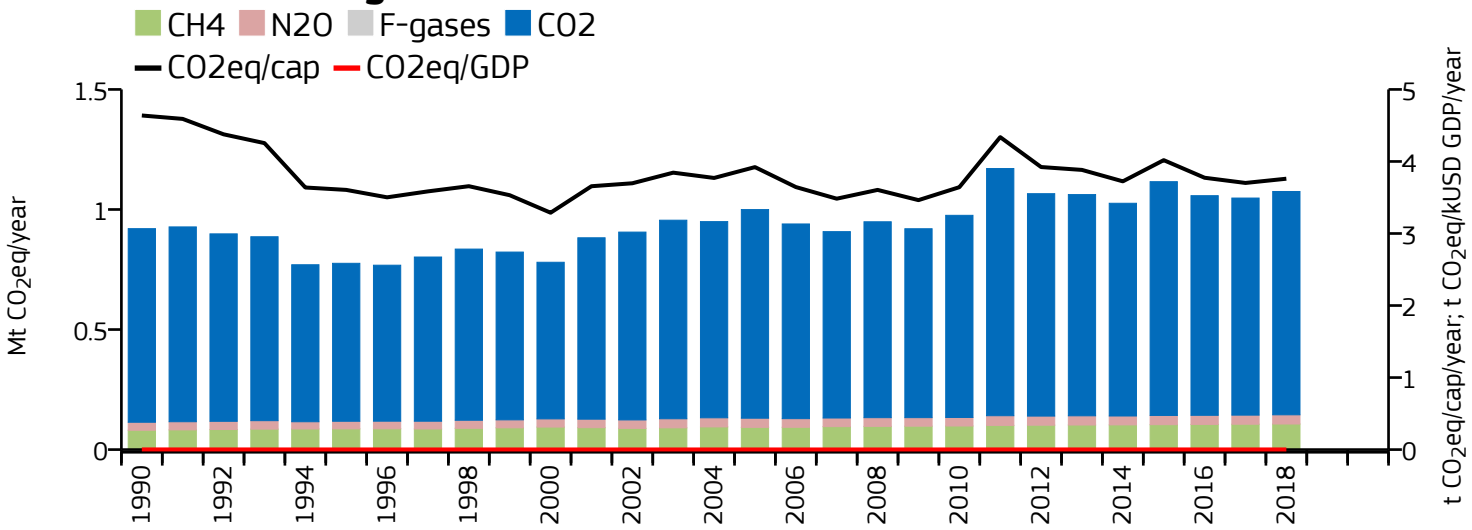
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-10%	+4%	+14%
Other industrial combustion	-46%	-37%	-38%
Buildings	-89%	-87%	-53%
Transport	+50%	+72%	+3%
Other sectors	+1442%	+83%	+21%
All sectors	-29%	-10%	+3%

French Polynesia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

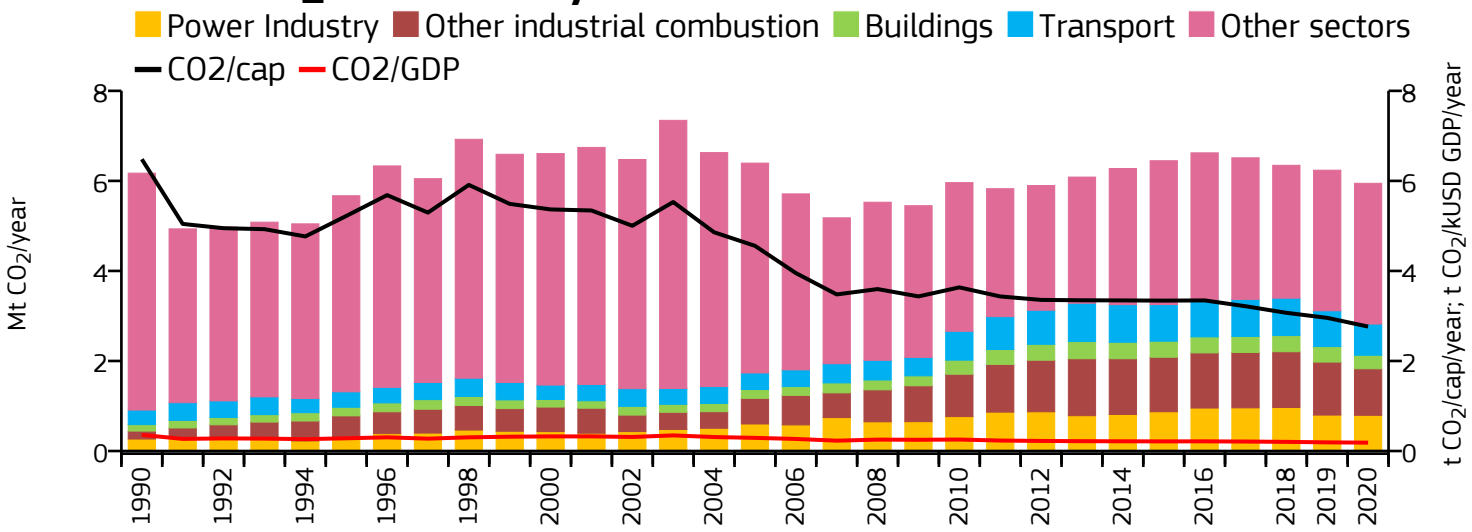


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.939	n/a	3.228	n/a	0.002
2018	0.930	1.075	3.254	3.760	0.002
2005	0.869	1.000	3.409	3.922	0.002
1990	0.806	0.920	4.064	4.638	0.002

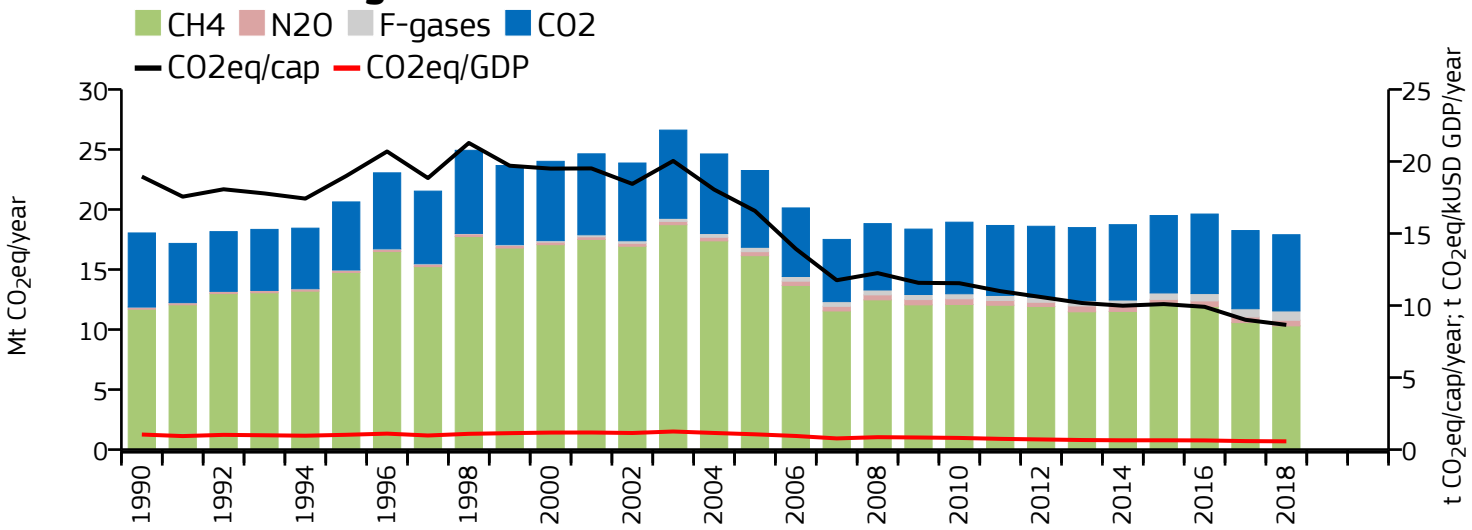
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-9%	-10%	-40%
Other industrial combustion	+179%	+177%	-19%
Buildings	-69%	-69%	+55%
Transport	+97%	+94%	+81%
Other sectors	+53%	+30%	+9%
All sectors	+16%	+17%	+8%

Gabon

Fossil CO_2 emissions by sector



Greenhouse gas emissions

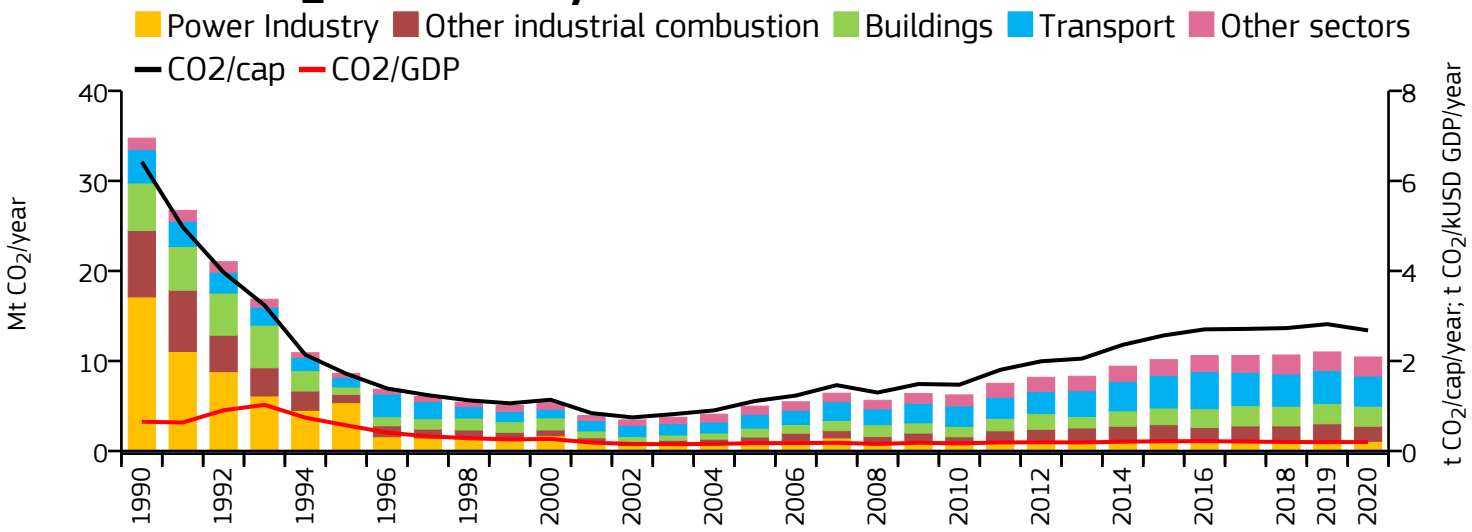


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	5.946	n/a	2.764	n/a	0.186
2018	6.347	17.897	3.070	8.656	0.203
2005	6.395	23.247	4.557	16.568	0.292
1990	6.172	18.046	6.481	18.951	0.358

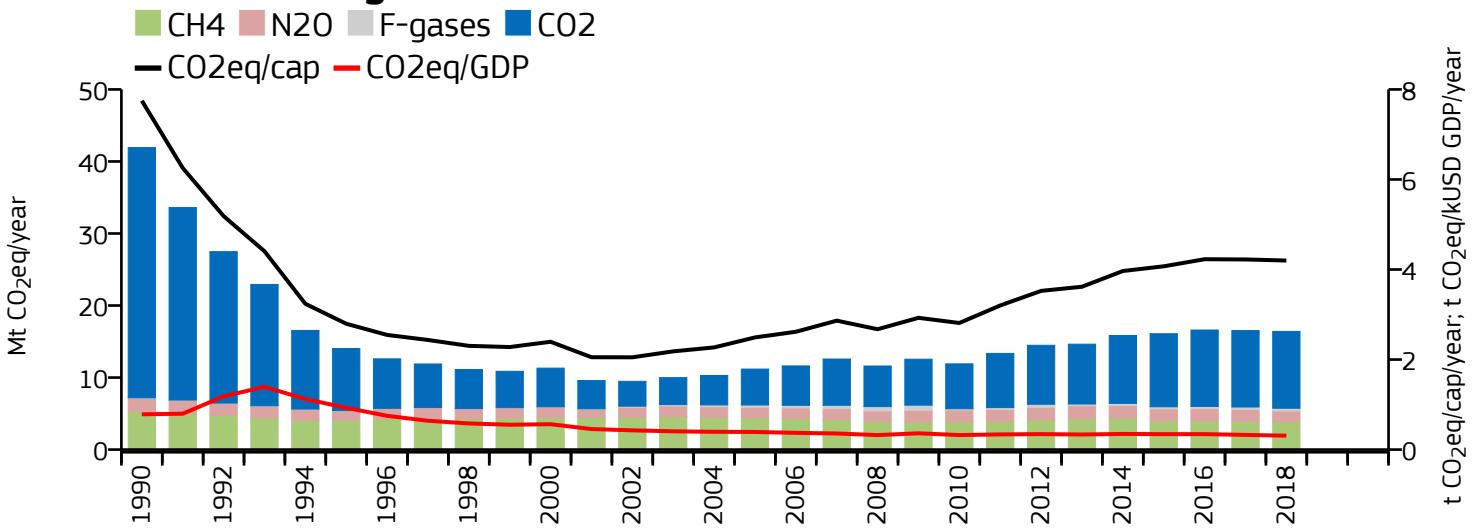
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +198%	↗ +263%	↗ +61%
Other industrial combustion	↗ +485%	↗ +655%	↗ +109%
Buildings	↗ +109%	↗ +117%	↗ +54%
Transport	↗ +115%	↗ +157%	↗ +126%
Other sectors	↘ -41%	↘ -18%	↘ -34%
All sectors	→ -4%	→ -1%	↘ -23%

Georgia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

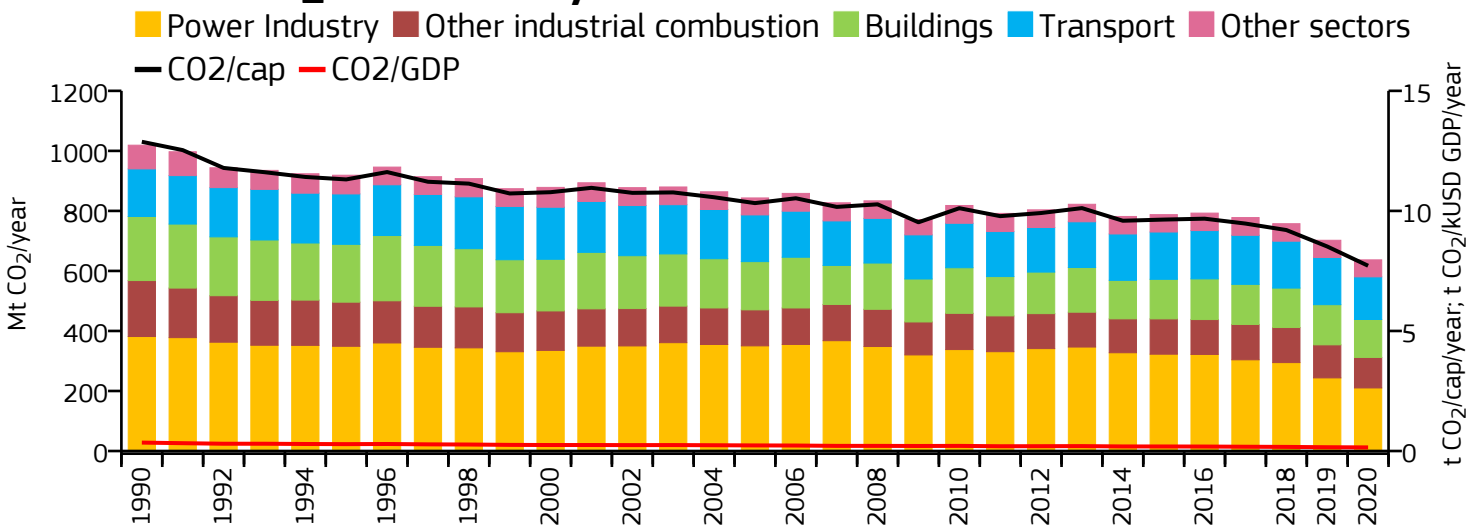


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	10.444	n/a	2.679	n/a	0.200
2018	10.665	16.408	2.730	4.199	0.201
2005	4.985	11.177	1.111	2.491	0.175
1990	34.748	41.927	6.423	7.749	0.650

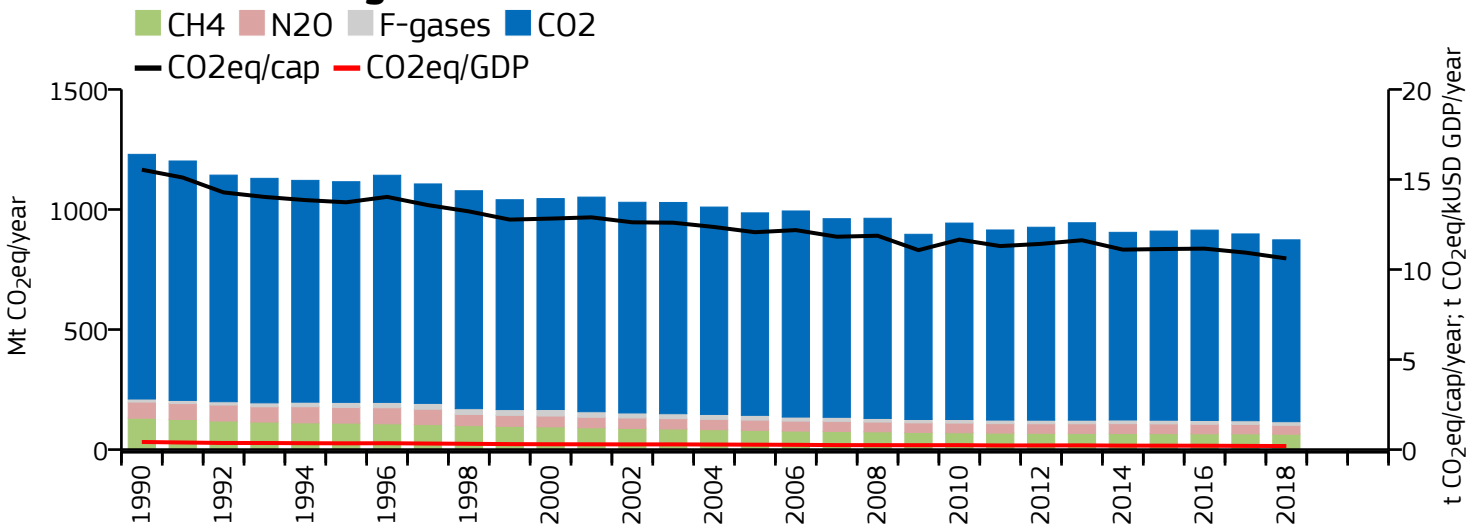
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-94%	-94%	+20%
Other industrial combustion	-77%	-77%	+156%
Buildings	-58%	-57%	+105%
Transport	-10%	-4%	+137%
Other sectors	+68%	-6%	+10%
All sectors	-70%	-61%	+47%

Germany

Fossil CO_2 emissions by sector



Greenhouse gas emissions

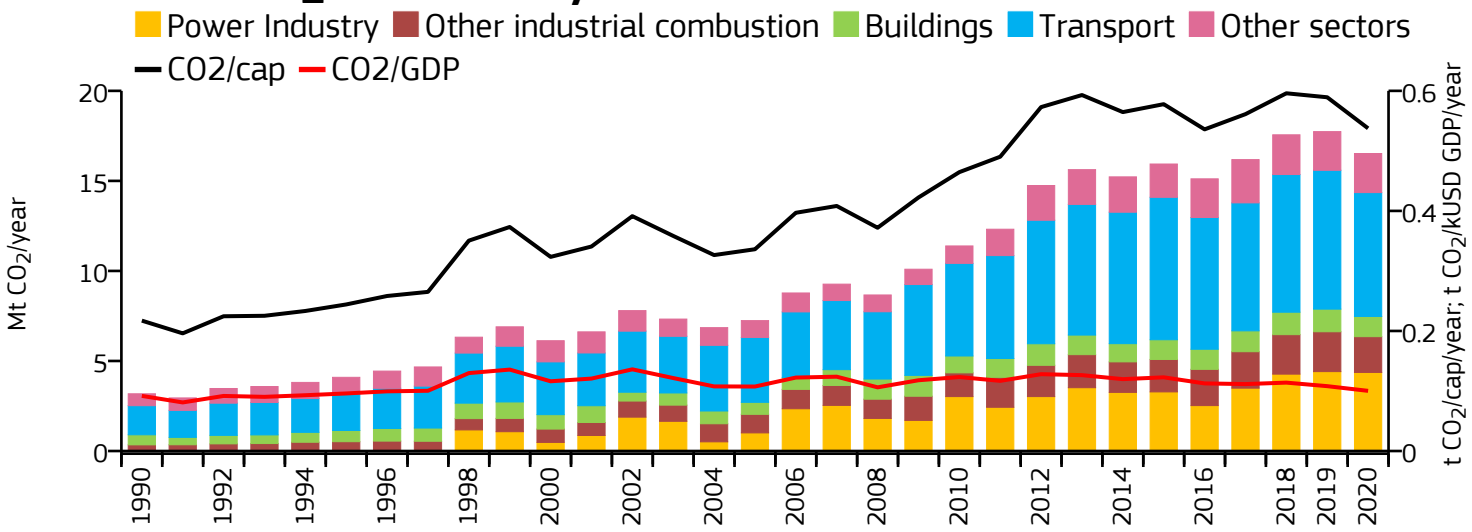


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	636.876	n/a	7.716	n/a	0.150
2018	757.343	873.596	9.203	10.616	0.171
2005	843.211	985.883	10.324	12.071	0.233
1990	1018.992	1229.657	12.879	15.542	0.350

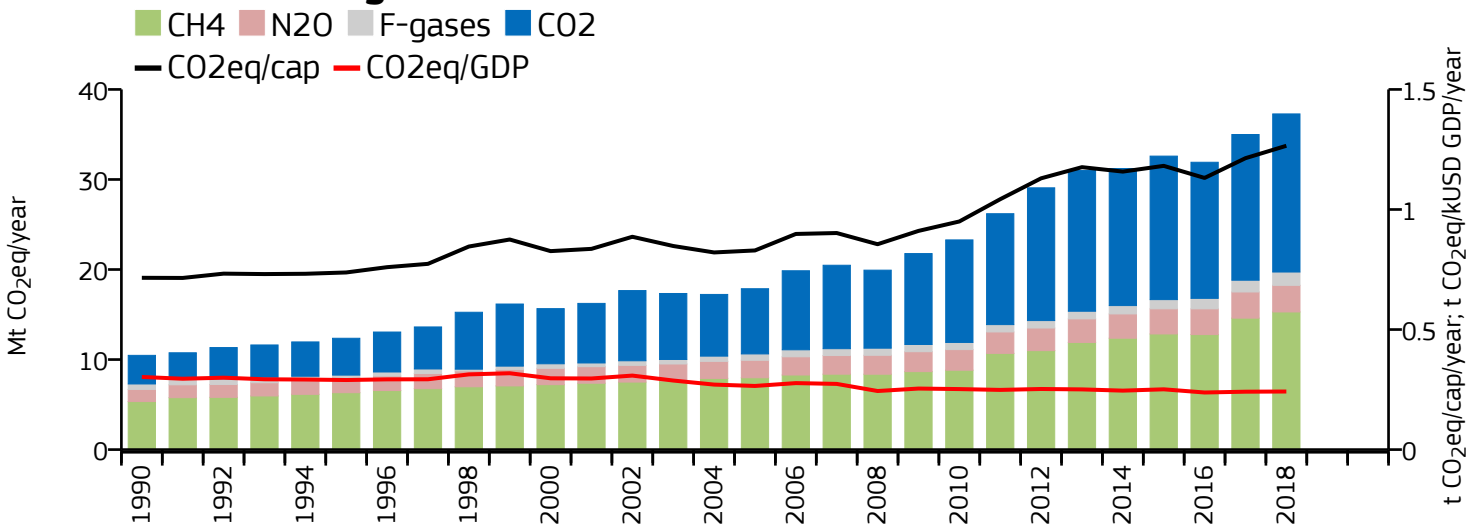
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↘ -45%	↘ -23%	↘ -16%
Other industrial combustion	↘ -45%	↘ -37%	→ -3%
Buildings	↘ -41%	↘ -39%	↘ -17%
Transport	↘ -10%	→ -3%	→ 0%
Other sectors	↘ -28%	↘ -40%	↘ -13%
All sectors	↘ -37%	↘ -29%	↘ -11%

Ghana

Fossil CO_2 emissions by sector



Greenhouse gas emissions

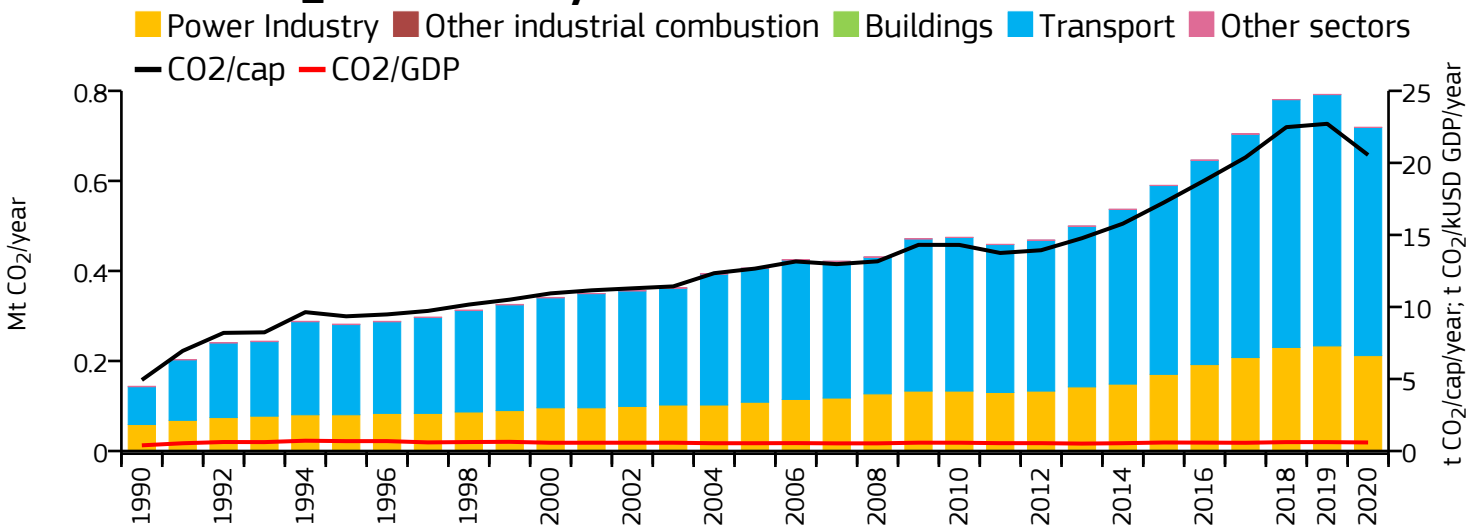


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	16.520	n/a	0.538	n/a	0.100
2018	17.559	37.280	0.596	1.265	0.114
2005	7.241	17.866	0.336	0.829	0.107
1990	3.177	10.466	0.217	0.715	0.092

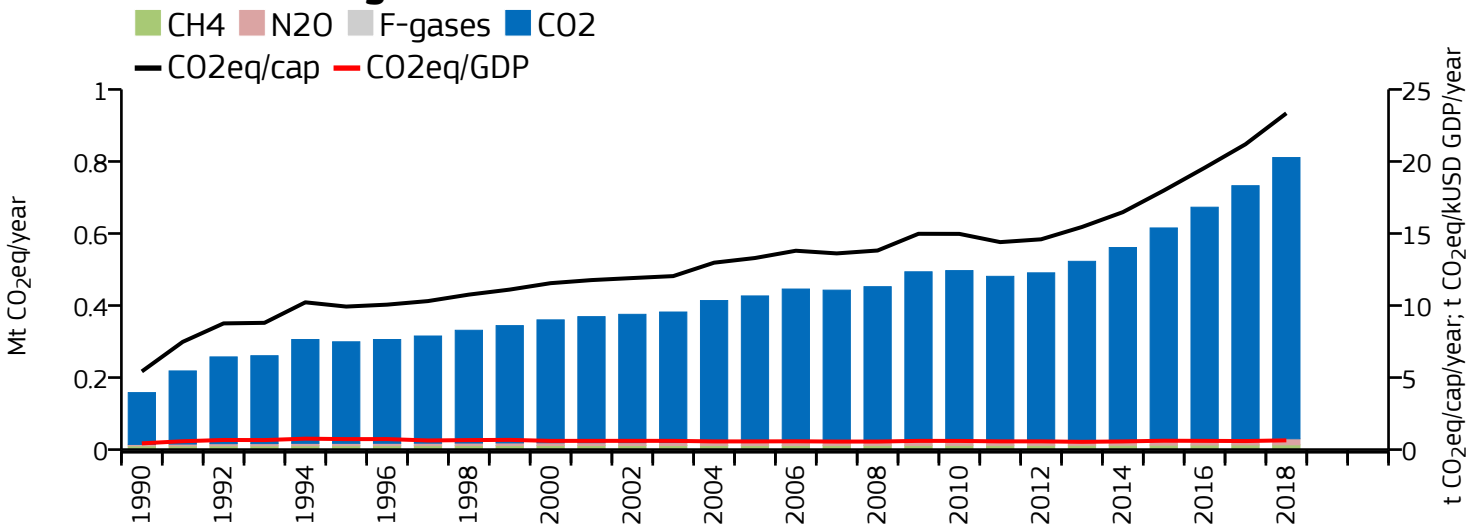
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry		+428%	+324%
Other industrial combustion	+482%	+502%	+106%
Buildings	+100%	+16%	+43%
Transport	+326%	+372%	+112%
Other sectors	+229%	+205%	+95%
All sectors	+420%	+256%	+109%

Gibraltar

Fossil CO_2 emissions by sector



Greenhouse gas emissions

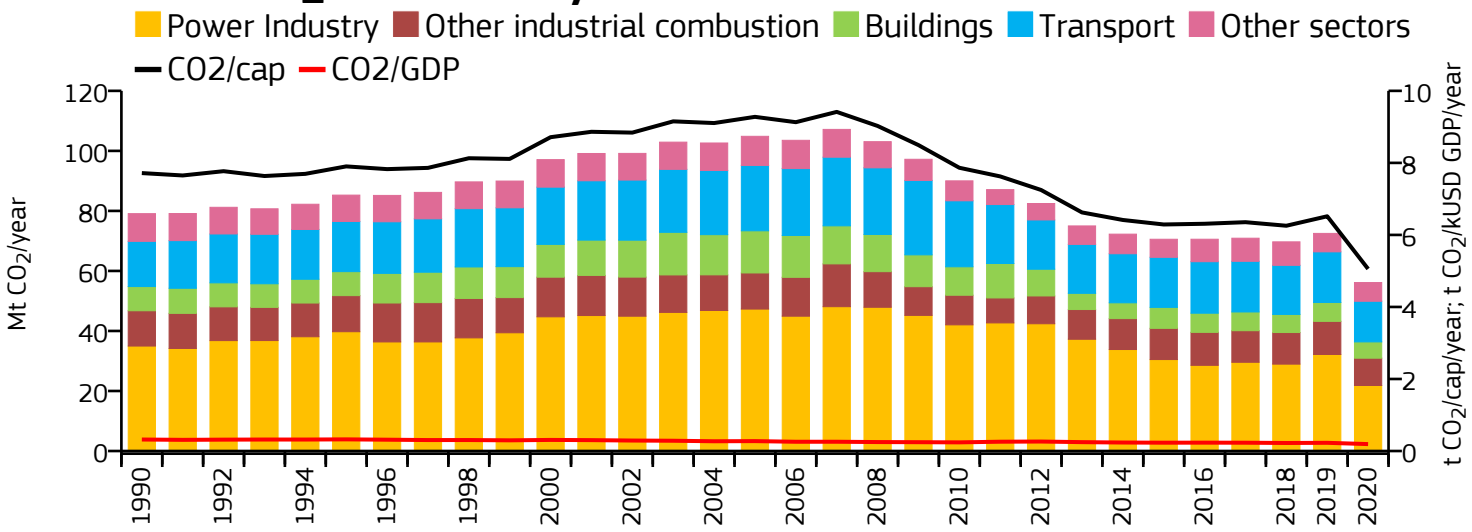


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.719	n/a	20.549	n/a	0.593
2018	0.781	0.811	22.481	23.345	0.617
2005	0.406	0.427	12.662	13.298	0.541
1990	0.144	0.158	4.930	5.424	0.394

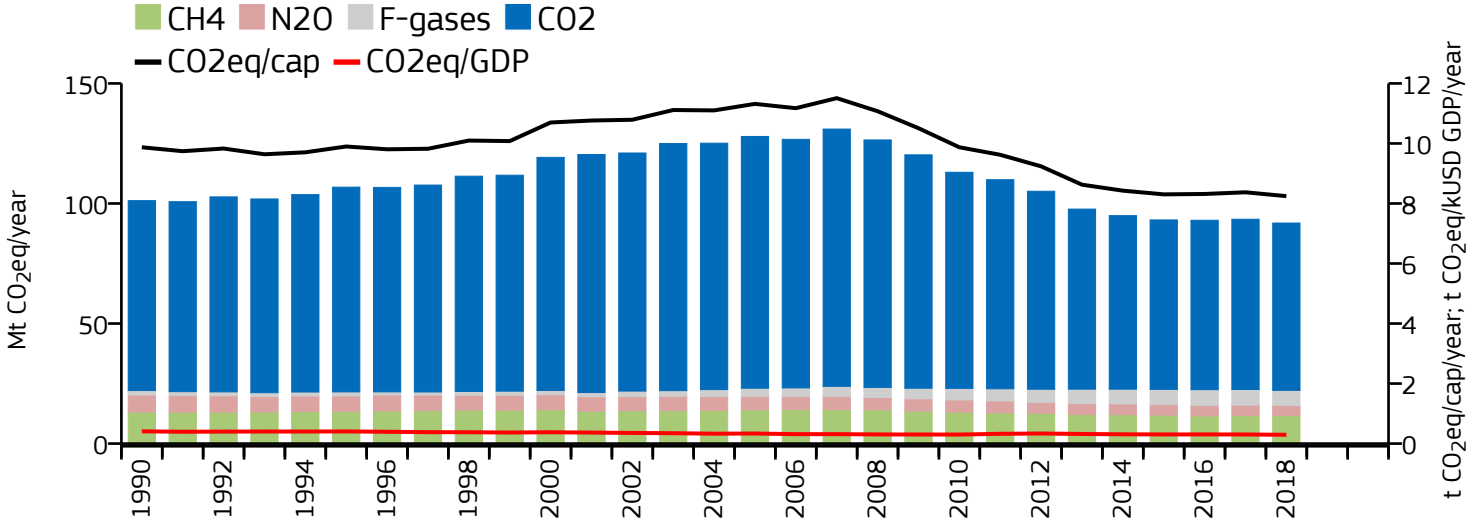
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +260%	↗ +291%	↗ +112%
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	n/a	n/a
Transport	↗ +504%	↗ +553%	↗ +85%
Other sectors	↘ -40%	↗ +68%	↗ +36%
All sectors	↗ +400%	↗ +413%	↗ +90%

Greece

Fossil CO_2 emissions by sector



Greenhouse gas emissions

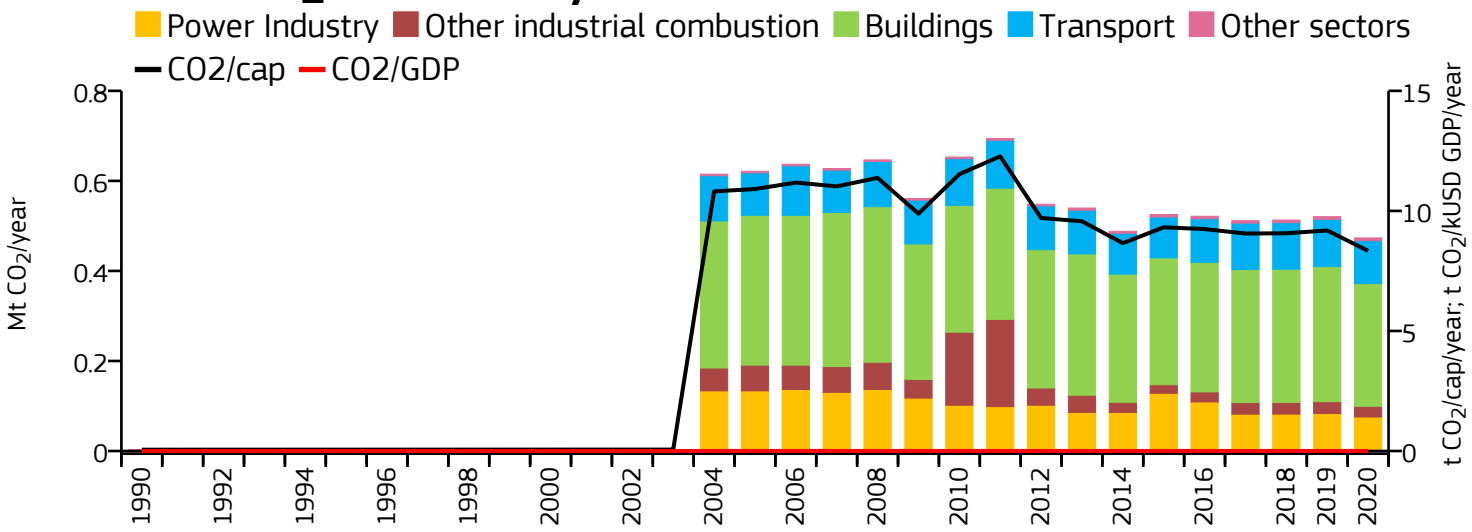


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	56.130	n/a	5.056	n/a	0.192
2018	69.690	91.861	6.255	8.244	0.223
2005	104.855	127.914	9.278	11.319	0.275
1990	79.086	101.182	7.717	9.873	0.319

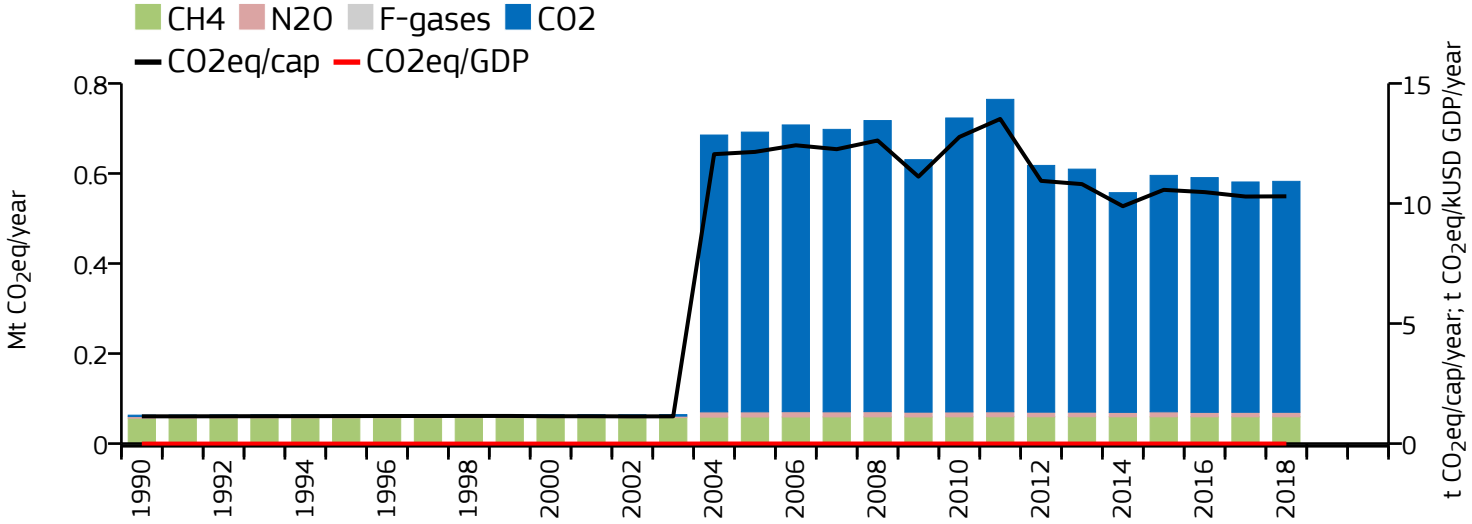
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-38%	-17%	-39%
Other industrial combustion	-23%	-10%	-12%
Buildings	-33%	-27%	-57%
Transport	-10%	+8%	-25%
Other sectors	-32%	-3%	-7%
All sectors	-29%	-9%	-28%

Greenland

Fossil CO_2 emissions by sector



Greenhouse gas emissions

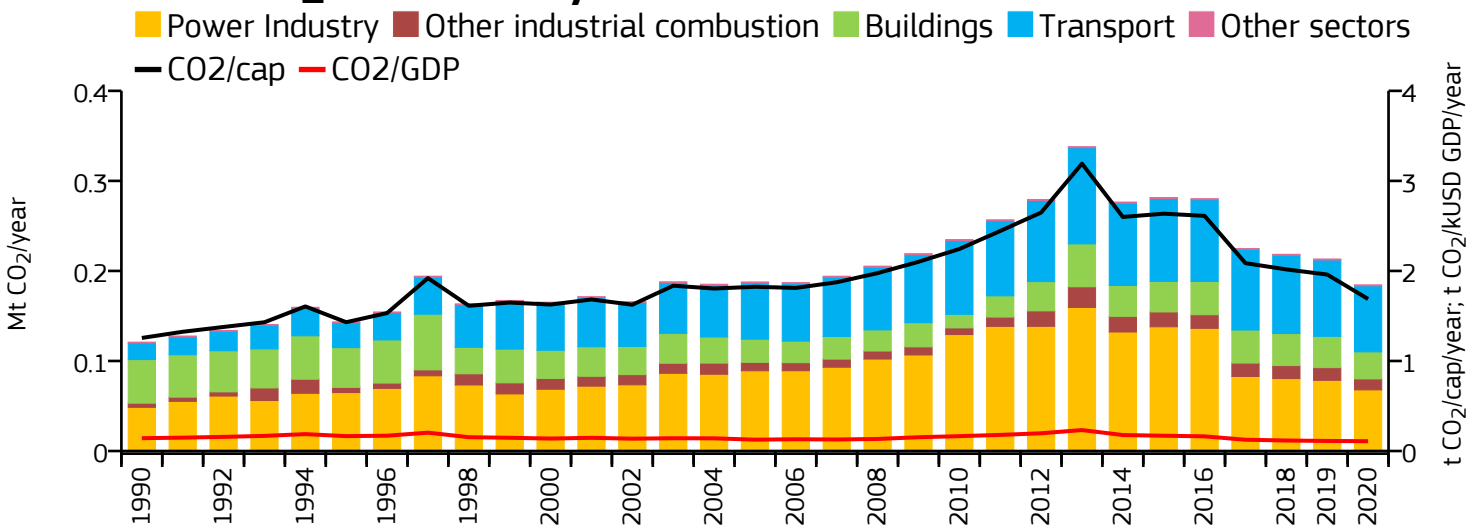


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.473	n/a	8.337	n/a	0.002
2018	0.513	0.583	9.069	10.298	0.002
2005	0.621	0.692	10.910	12.148	0.003
1990	0.003	0.063	0.055	1.135	0.000

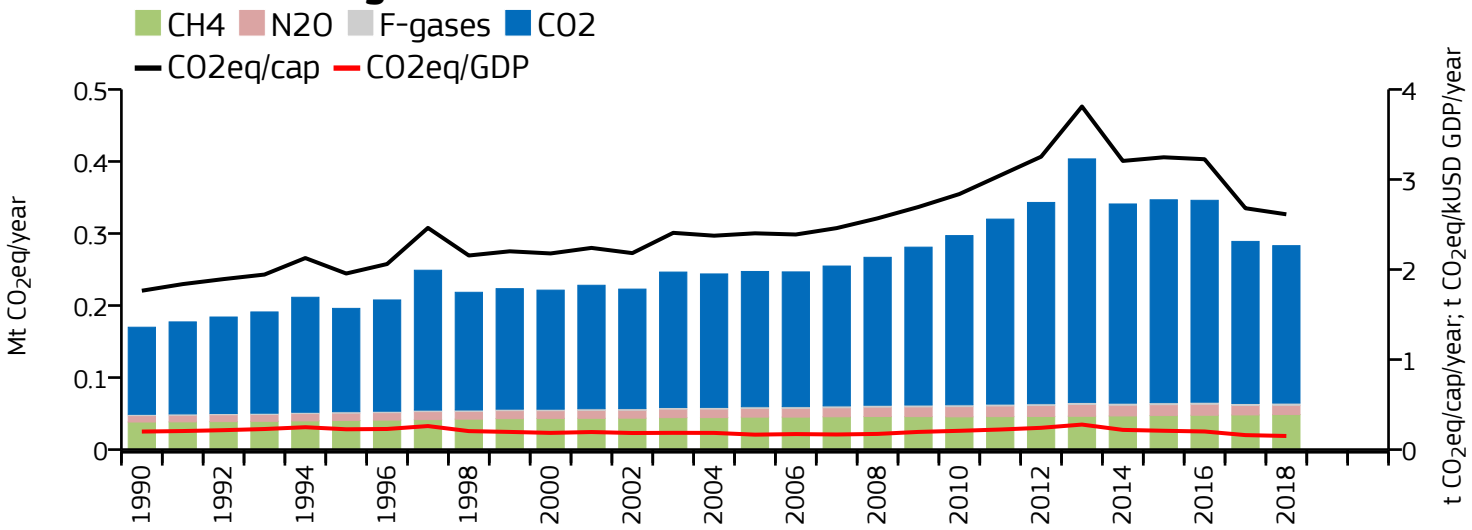
	2020 vs 1990 (CO2)		2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗		↗ +8%	↘ -38%
Other industrial combustion	↗		→ +3%	↘ -55%
Buildings	↗		↗ +30%	↘ -11%
Transport	↗		↗ +10%	↗ +10%
Other sectors	↗	+97%	↗ +14%	→ +2%
All sectors	↗		↗ +823%	↘ -16%

Grenada

Fossil CO_2 emissions by sector



Greenhouse gas emissions

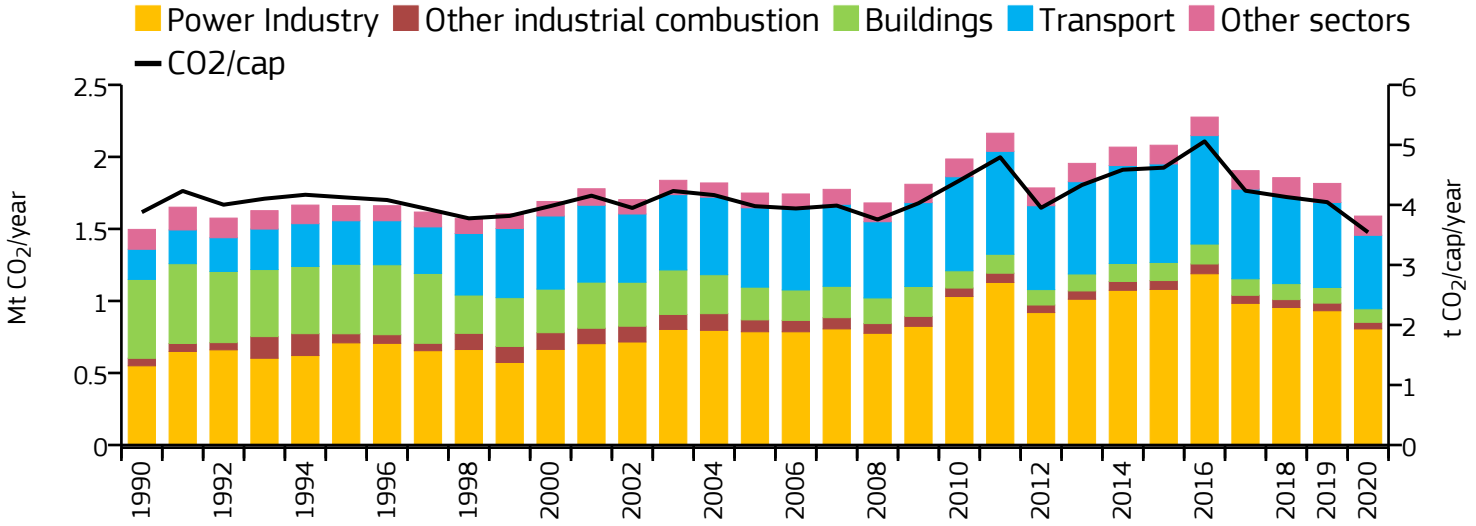


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.185	n/a	1.688	n/a	0.109
2018	0.218	0.283	2.017	2.613	0.117
2005	0.188	0.247	1.824	2.402	0.126
1990	0.121	0.170	1.256	1.764	0.142

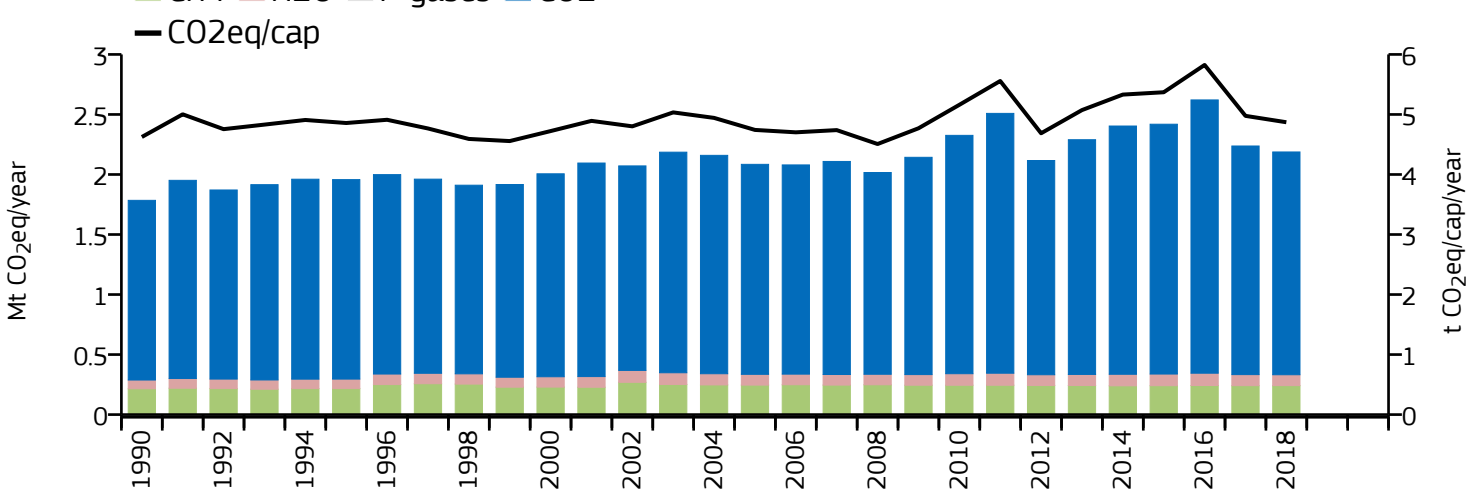
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +40%	↗ +66%	↘ -10%
Other industrial combustion	↗ +164%	↗ +211%	↗ +54%
Buildings	↘ -38%	↘ -24%	↗ +39%
Transport	↗ +297%	↗ +370%	↗ +39%
Other sectors	↗ +21%	↗ +29%	↗ +7%
All sectors	↗ +53%	↗ +67%	↗ +14%

Guadeloupe

Fossil CO_2 emissions by sector



Greenhouse gas emissions

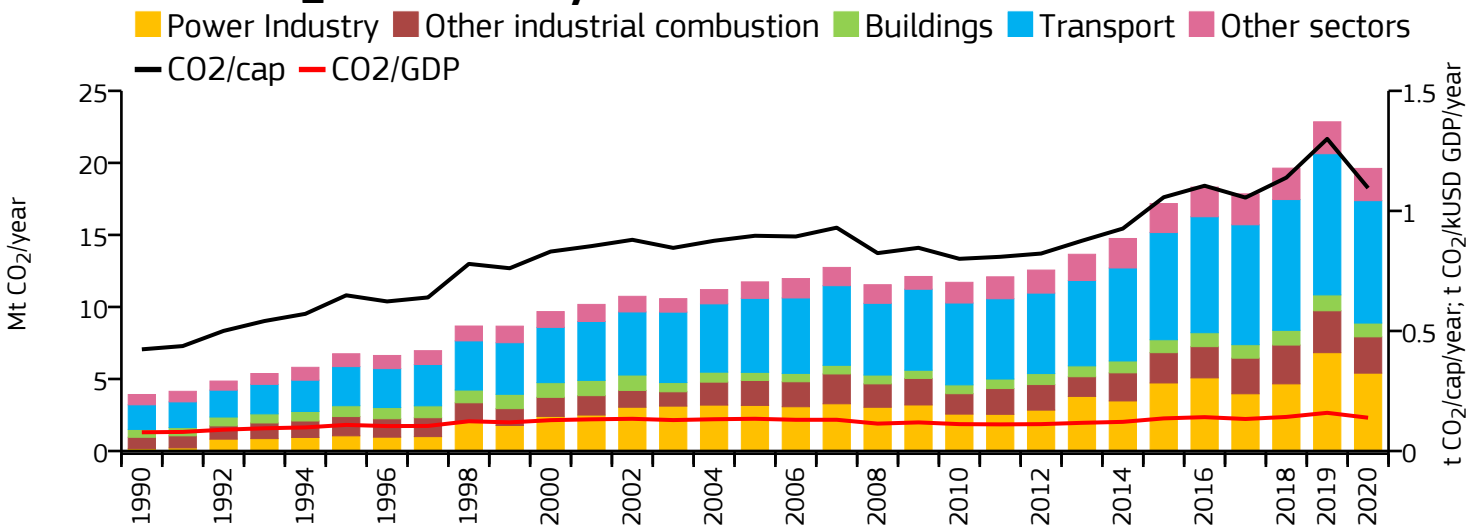


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.589	n/a	3.544	n/a	n/a
2018	1.856	2.188	4.131	4.870	n/a
2005	1.749	2.084	3.979	4.742	n/a
1990	1.497	1.785	3.879	4.625	n/a

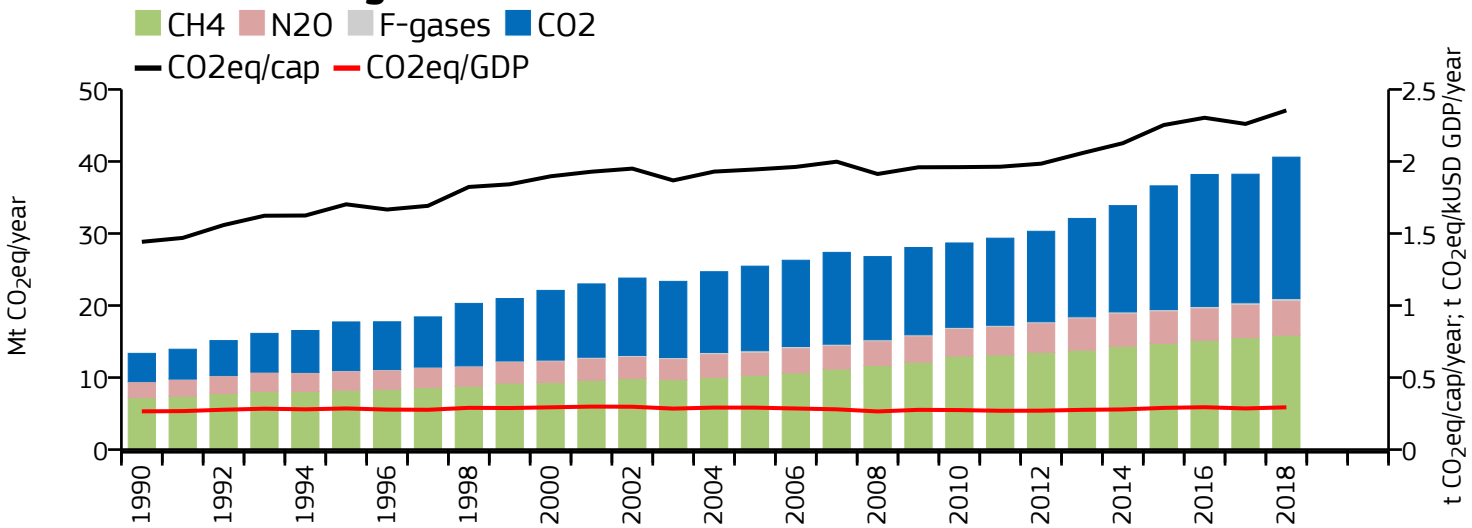
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +47%	↗ +74%	↗ +21%
Other industrial combustion	↘ -12%	→ +2%	↘ -34%
Buildings	↘ -83%	↘ -79%	↘ -50%
Transport	↗ +144%	↗ +188%	↗ +10%
Other sectors	→ -3%	↗ +8%	↗ +6%
All sectors	↗ +6%	↗ +23%	→ +5%

Guatemala

Fossil CO_2 emissions by sector



Greenhouse gas emissions

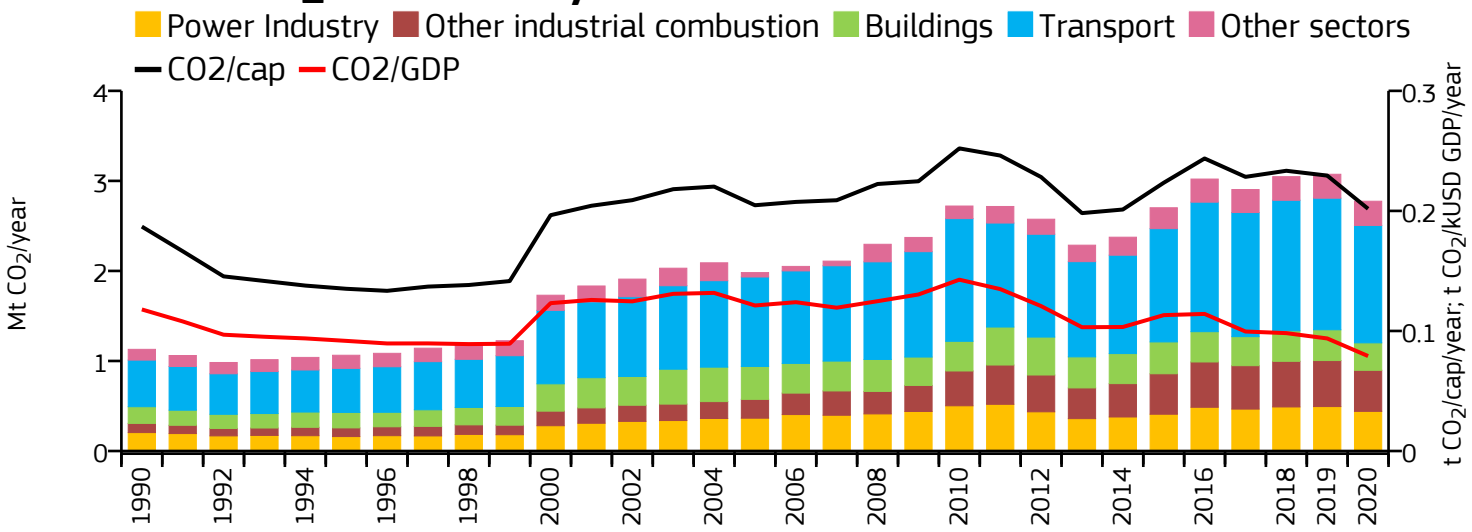


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	19.617	n/a	1.095	n/a	0.139
2018	19.635	40.601	1.139	2.354	0.142
2005	11.740	25.466	0.896	1.945	0.134
1990	3.923	13.361	0.423	1.442	0.078

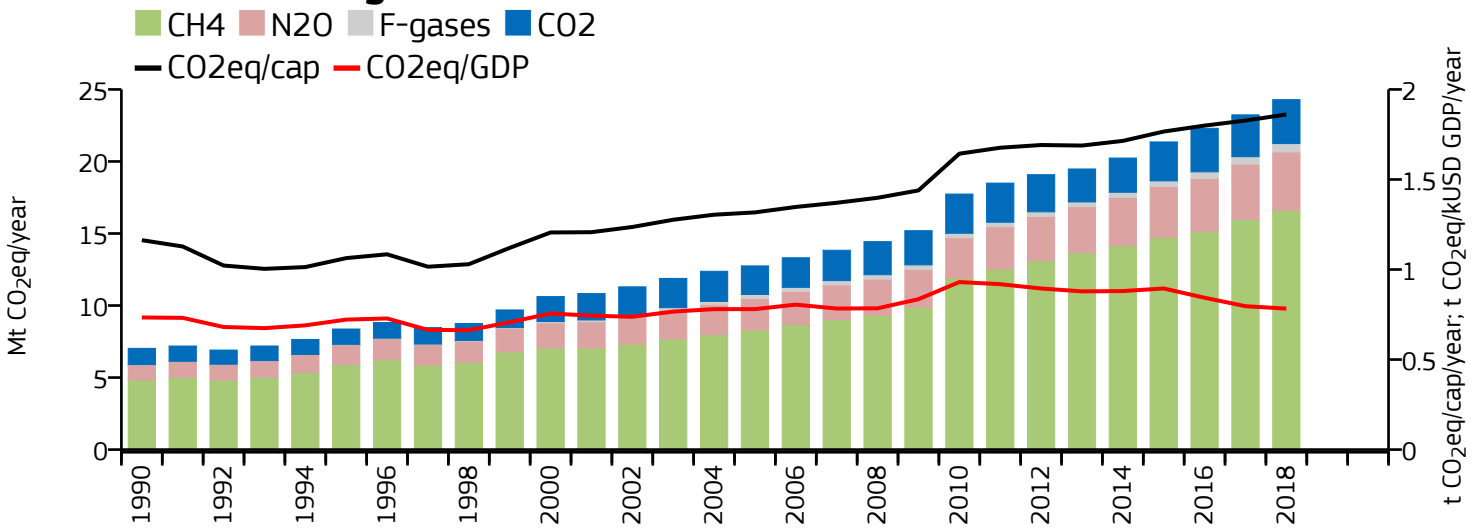
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+3192%	+2624%	+49%
Other industrial combustion	+219%	+226%	+54%
Buildings	+75%	+128%	+94%
Transport	+398%	+432%	+77%
Other sectors	+213%	+125%	+51%
All sectors	+400%	+204%	+59%

Guinea

Fossil CO_2 emissions by sector



Greenhouse gas emissions

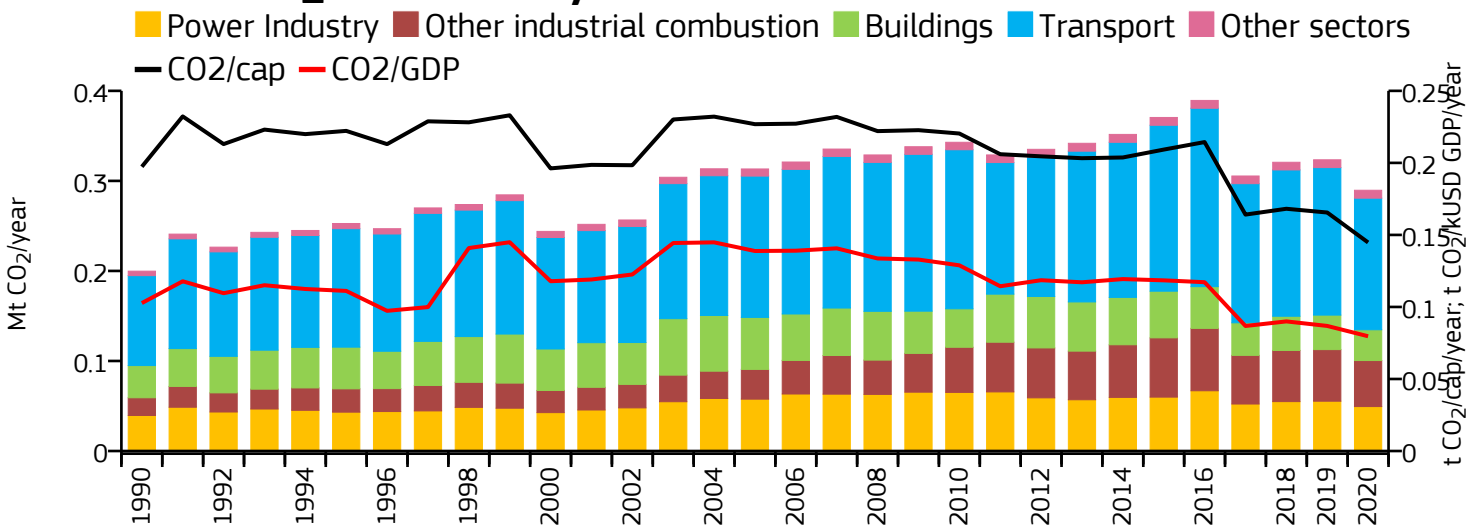


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	2.774	n/a	0.202	n/a	0.079
2018	3.047	24.290	0.233	1.861	0.098
2005	1.982	12.750	0.205	1.317	0.121
1990	1.129	7.026	0.187	1.163	0.118

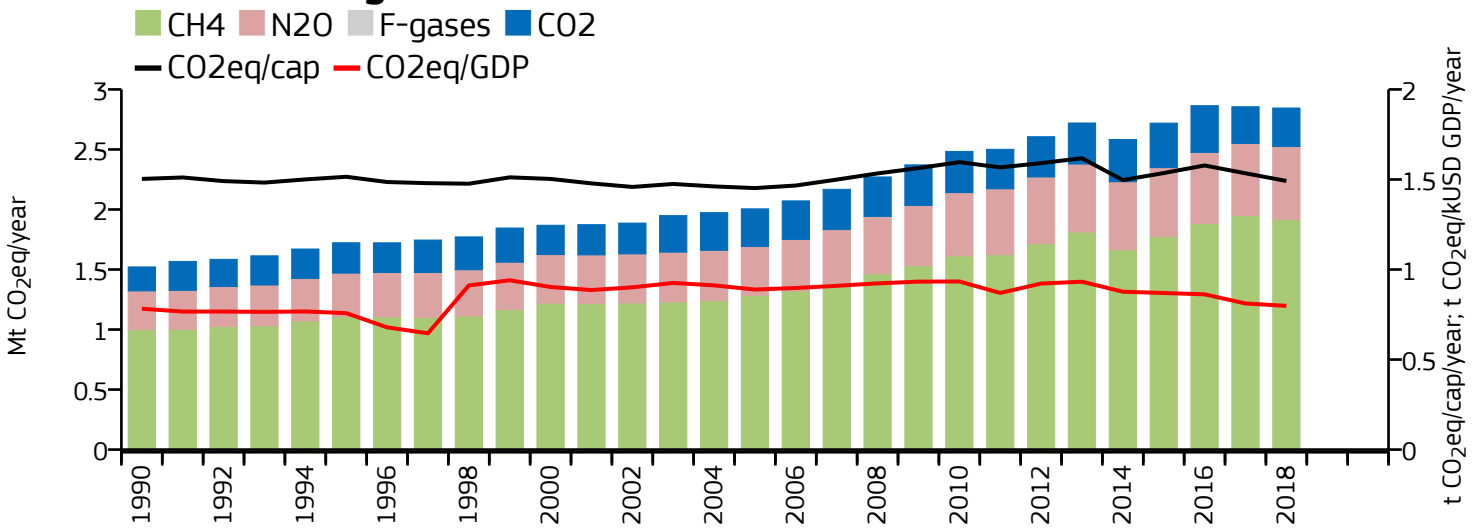
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+115%	+140%	+35%
Other industrial combustion	+347%	+379%	+139%
Buildings	+64%	+45%	+6%
Transport	+152%	+180%	+46%
Other sectors	+125%	+301%	+110%
All sectors	+146%	+246%	+91%

Guinea-Bissau

Fossil CO_2 emissions by sector



Greenhouse gas emissions

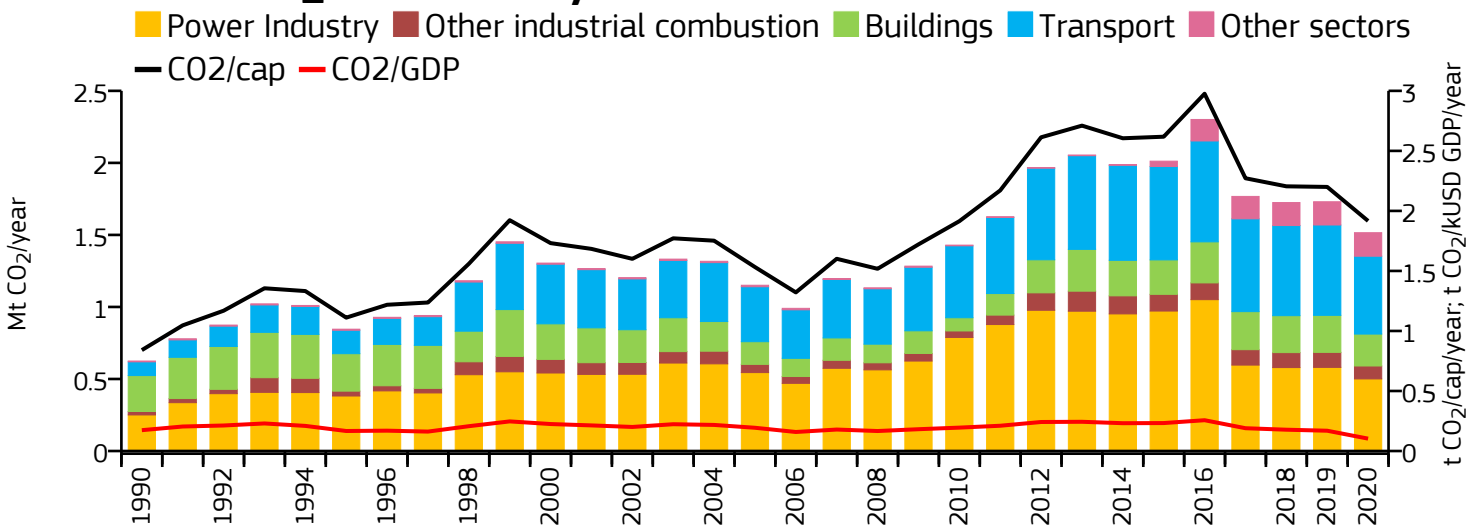


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.290	n/a	0.145	n/a	0.080
2018	0.321	2.845	0.168	1.492	0.090
2005	0.313	2.005	0.227	1.452	0.139
1990	0.200	1.522	0.197	1.503	0.103

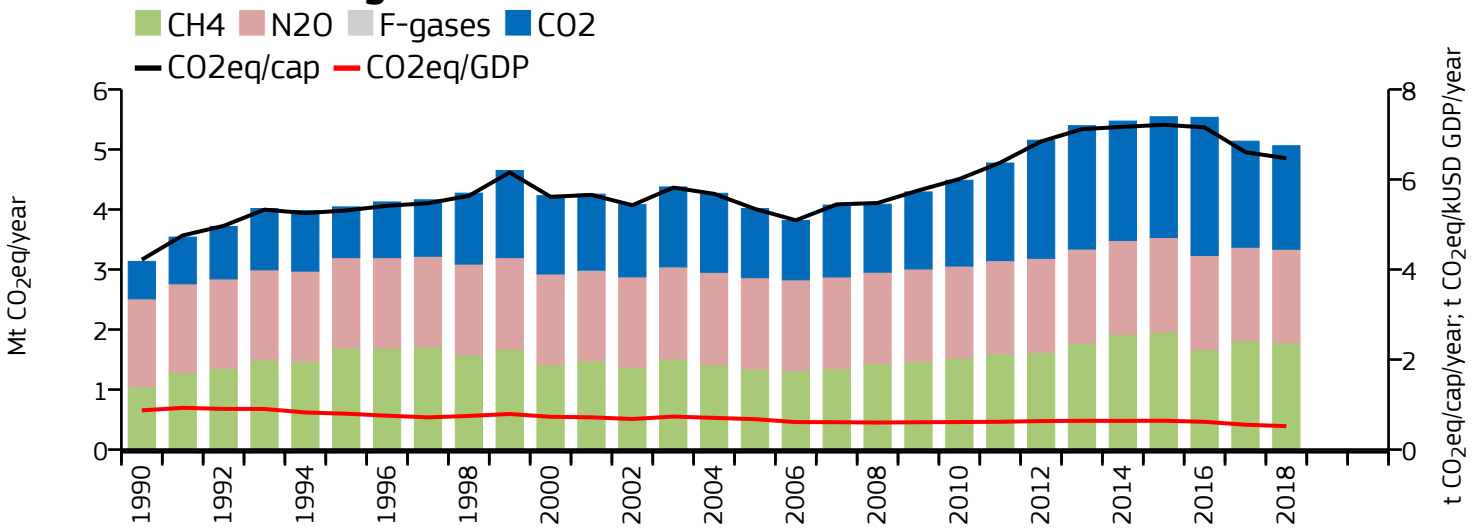
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+25%	+41%	-4%
Other industrial combustion	+160%	+186%	+72%
Buildings	-4%	+59%	+13%
Transport	+46%	+63%	+4%
Other sectors	+76%	+94%	+53%
All sectors	+45%	+87%	+42%

Guyana

Fossil CO_2 emissions by sector



Greenhouse gas emissions

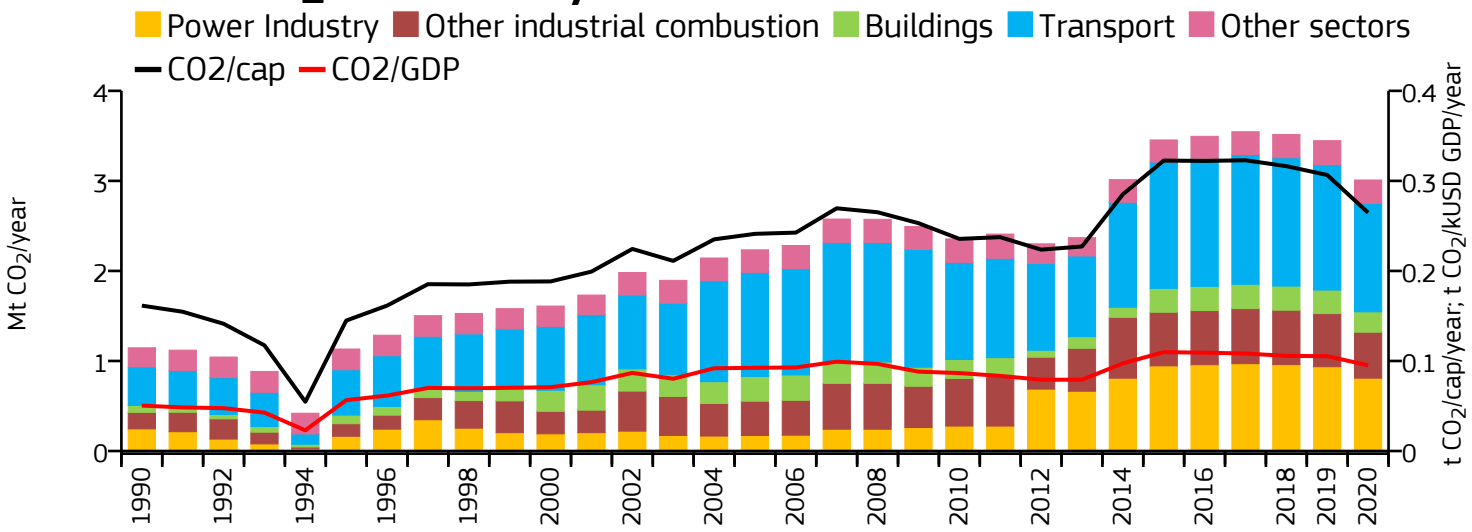


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.515	n/a	1.916	n/a	0.103
2018	1.725	5.062	2.205	6.471	0.177
2005	1.151	4.015	1.532	5.346	0.194
1990	0.625	3.136	0.840	4.219	0.174

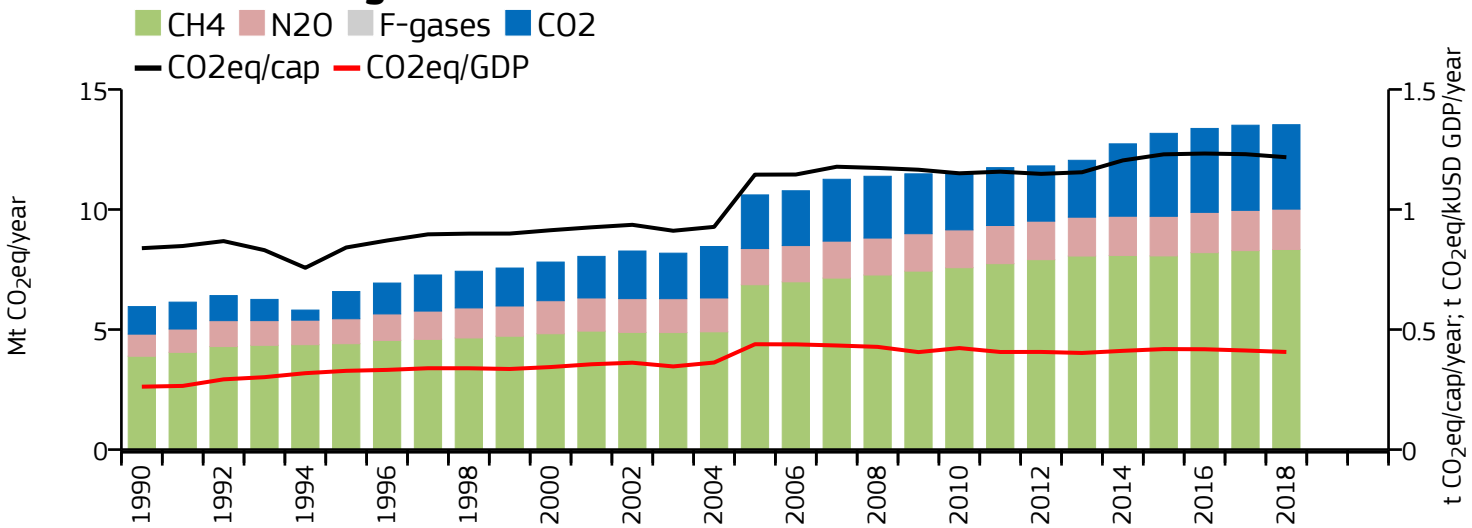
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+100%	+131%	+6%
Other industrial combustion	+277%	+260%	+66%
Buildings	-11%	+3%	+61%
Transport	+467%	+553%	+64%
Other sectors	+2736%	+39%	+22%
All sectors	+143%	+61%	+26%

Haiti

Fossil CO_2 emissions by sector



Greenhouse gas emissions

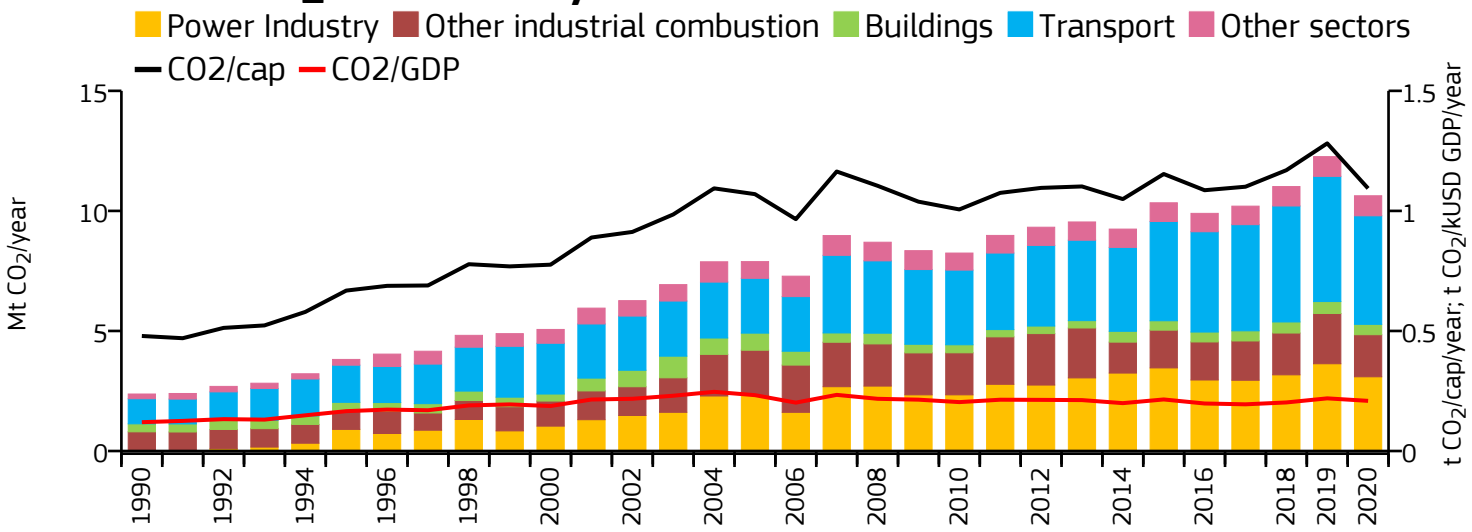


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	3.010	n/a	0.265	n/a	0.095
2018	3.516	13.531	0.316	1.218	0.106
2005	2.234	10.608	0.241	1.145	0.092
1990	1.146	5.955	0.161	0.839	0.050

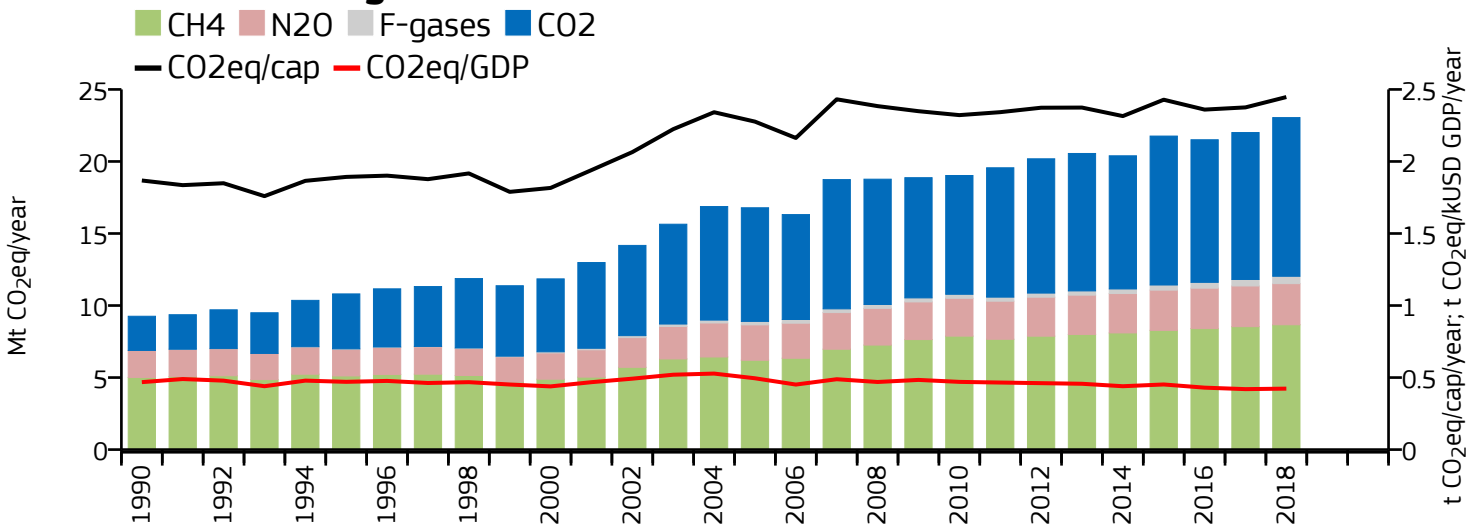
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+229%	+289%	+456%
Other industrial combustion	+178%	+220%	+56%
Buildings	+192%	+143%	+15%
Transport	+182%	+234%	+24%
Other sectors	+23%	+104%	+19%
All sectors	+163%	+127%	+28%

Honduras

Fossil CO_2 emissions by sector



Greenhouse gas emissions

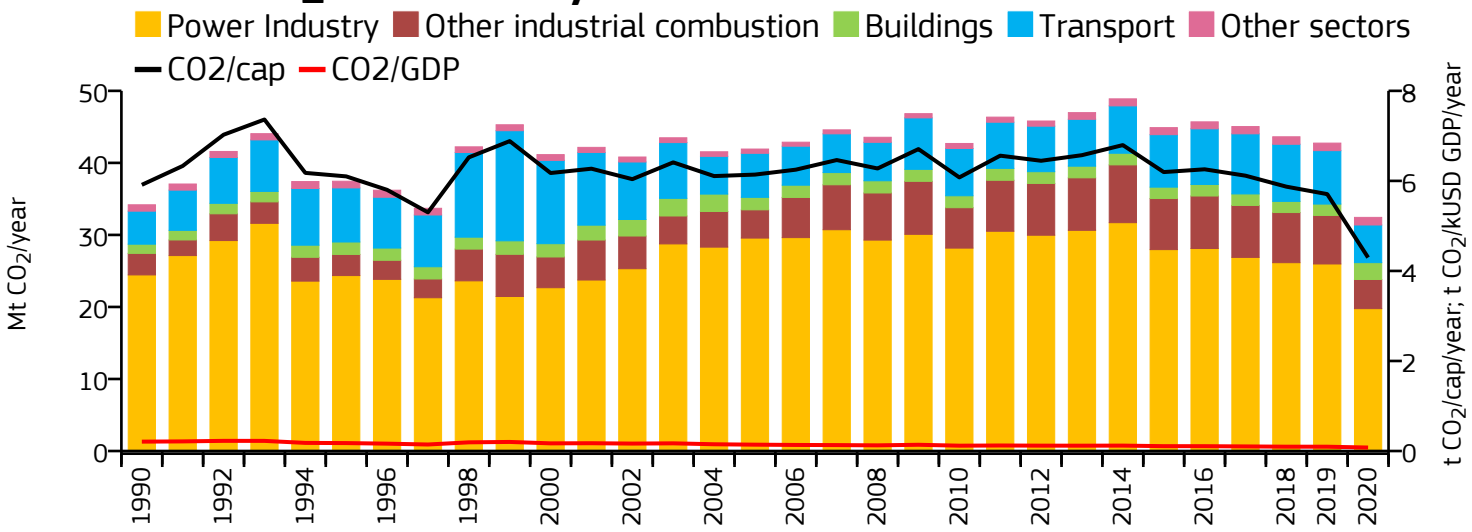


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	10.631	n/a	1.094	n/a	0.209
2018	11.014	23.045	1.170	2.447	0.202
2005	7.888	16.786	1.070	2.277	0.233
1990	2.374	9.256	0.479	1.868	0.120

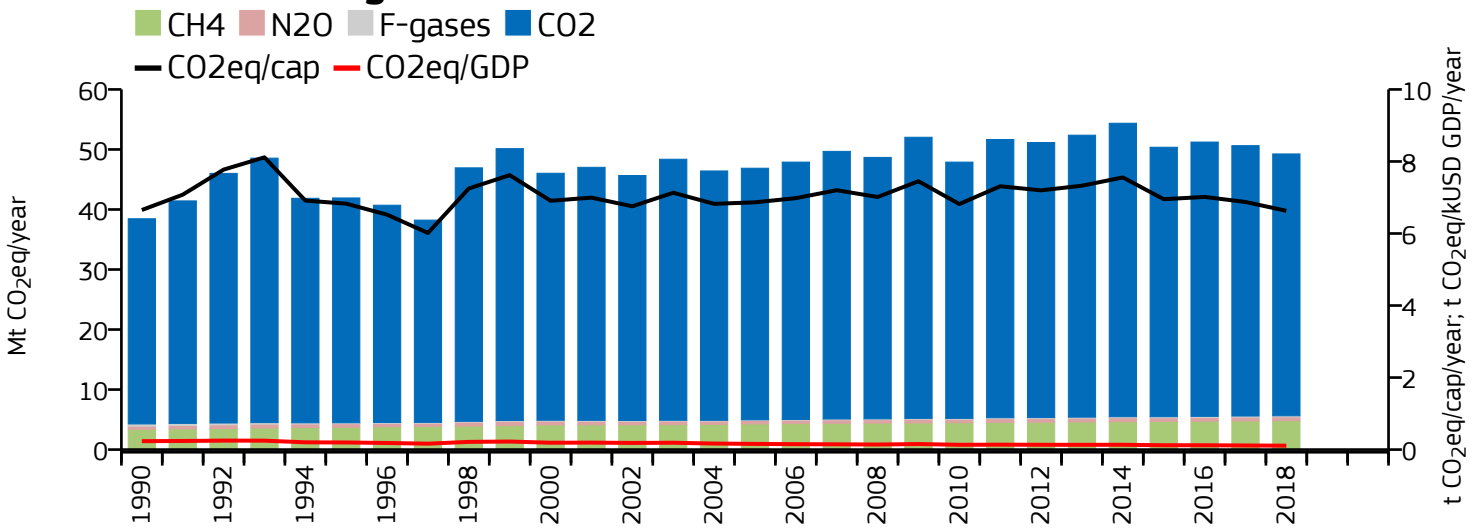
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +13666%	↗ +14101%	↗ +36%
Other industrial combustion	↗ +126%	↗ +121%	↘ -7%
Buildings	↗ +30%	↗ +53%	→ 0%
Transport	↗ +333%	↗ +363%	↗ +112%
Other sectors	↗ +323%	↗ +82%	↗ +33%
All sectors	↗ +348%	↗ +149%	↗ +37%

Hong Kong

Fossil CO_2 emissions by sector



Greenhouse gas emissions

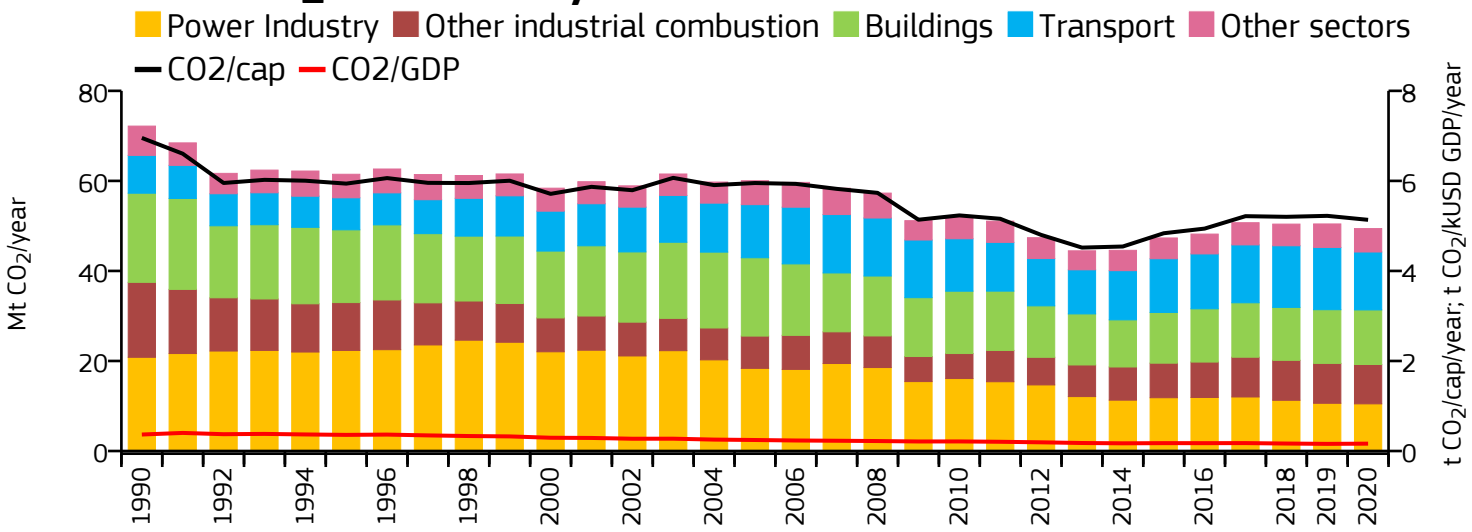


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	32.434	n/a	4.297	n/a	0.077
2018	43.623	49.255	5.872	6.630	0.096
2005	41.921	46.875	6.140	6.865	0.141
1990	34.183	38.458	5.912	6.652	0.208

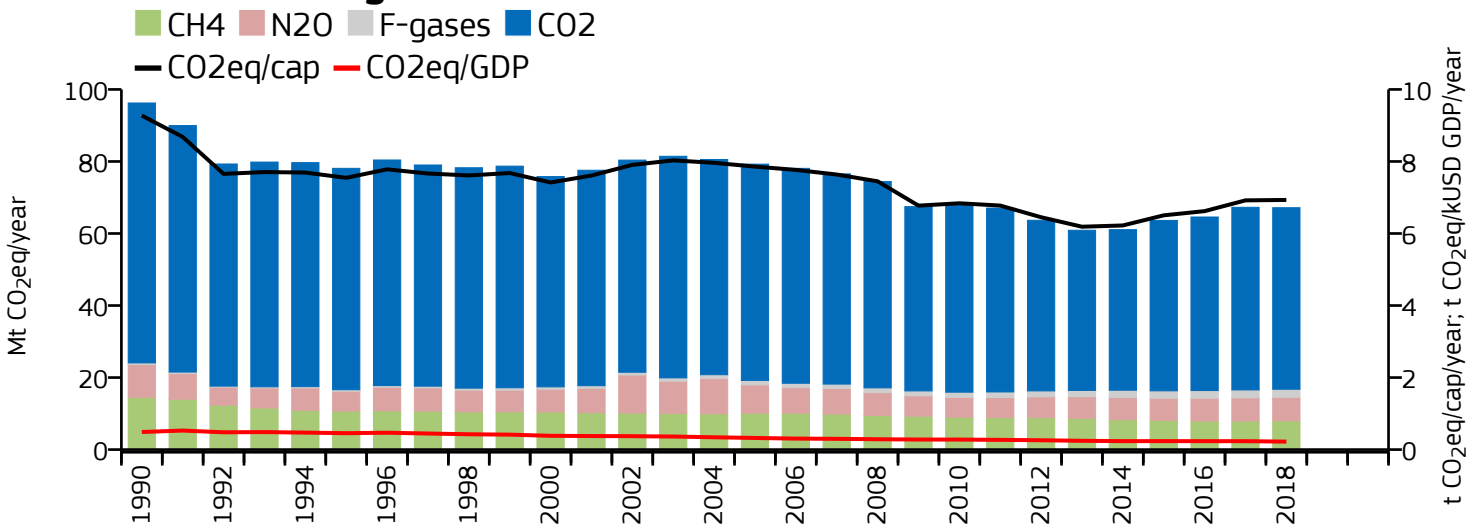
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-19%	+7%	-12%
Other industrial combustion	+35%	+133%	+78%
Buildings	+83%	+21%	-11%
Transport	+14%	+73%	+29%
Other sectors	+20%	+29%	+21%
All sectors	-5%	+28%	+5%

Hungary

Fossil CO_2 emissions by sector



Greenhouse gas emissions

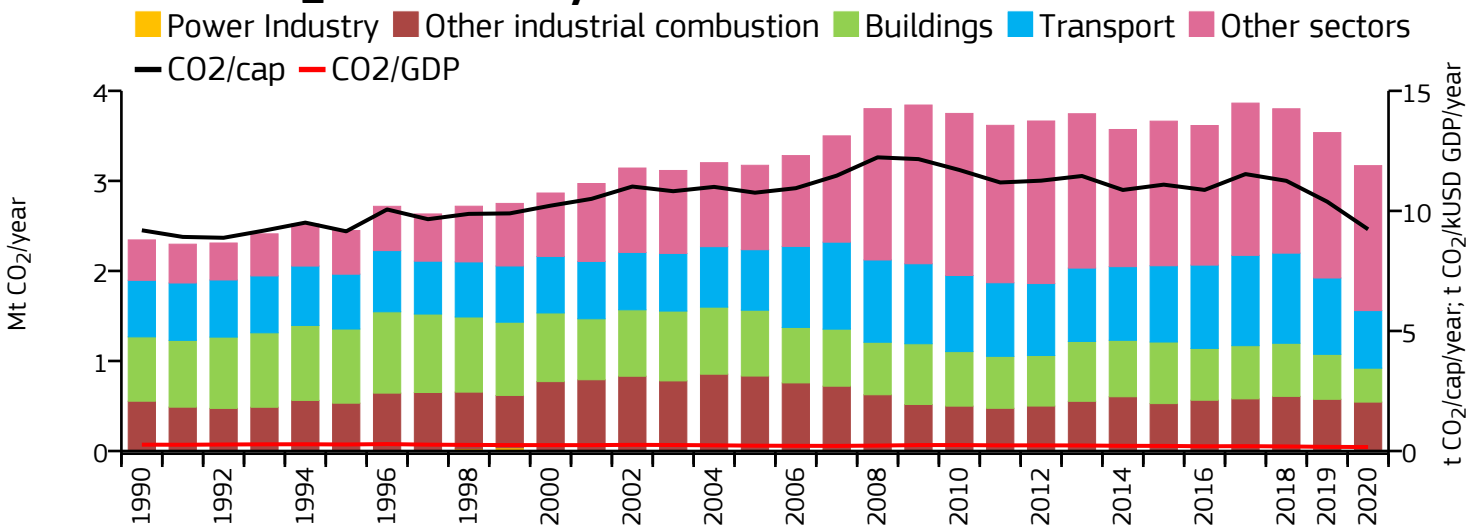


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	49.405	n/a	5.135	n/a	0.163
2018	50.402	67.159	5.202	6.932	0.166
2005	60.043	79.256	5.953	7.858	0.244
1990	72.172	96.238	6.955	9.274	0.366

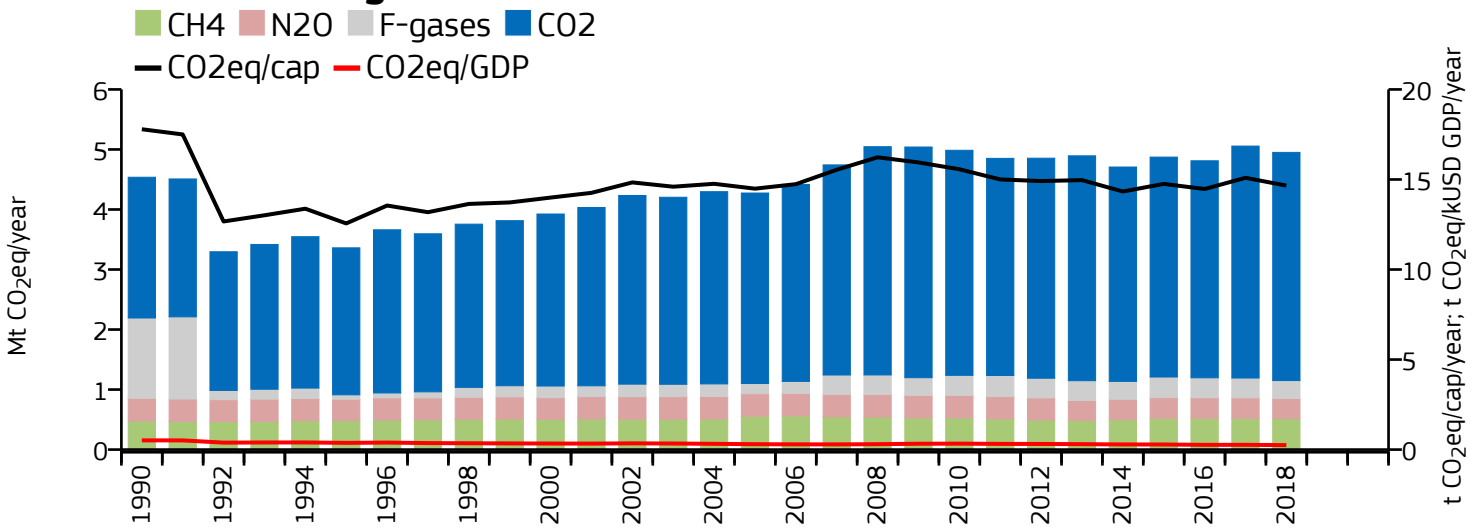
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-50%	-46%	-38%
Other industrial combustion	-48%	-46%	+24%
Buildings	-39%	-40%	-30%
Transport	+53%	+61%	+16%
Other sectors	-20%	-30%	-14%
All sectors	-32%	-30%	-15%

Iceland

Fossil CO_2 emissions by sector



Greenhouse gas emissions

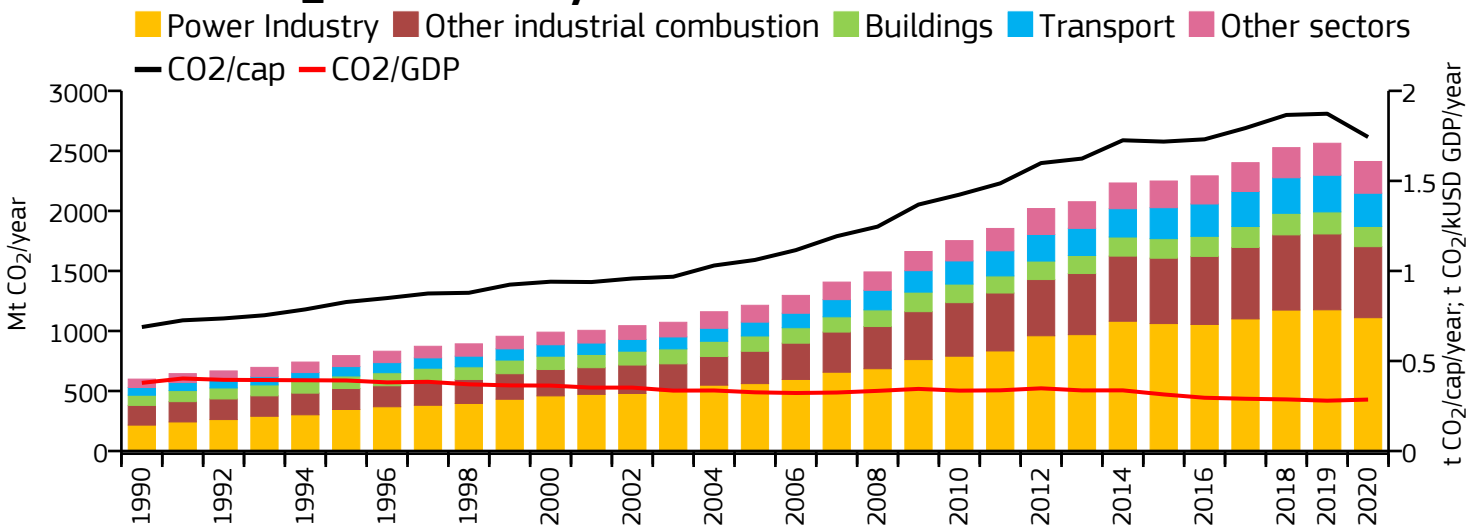


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	3.169	n/a	9.234	n/a	0.165
2018	3.801	4.951	11.253	14.659	0.190
2005	3.173	4.274	10.758	14.490	0.222
1990	2.345	4.537	9.193	17.789	0.265

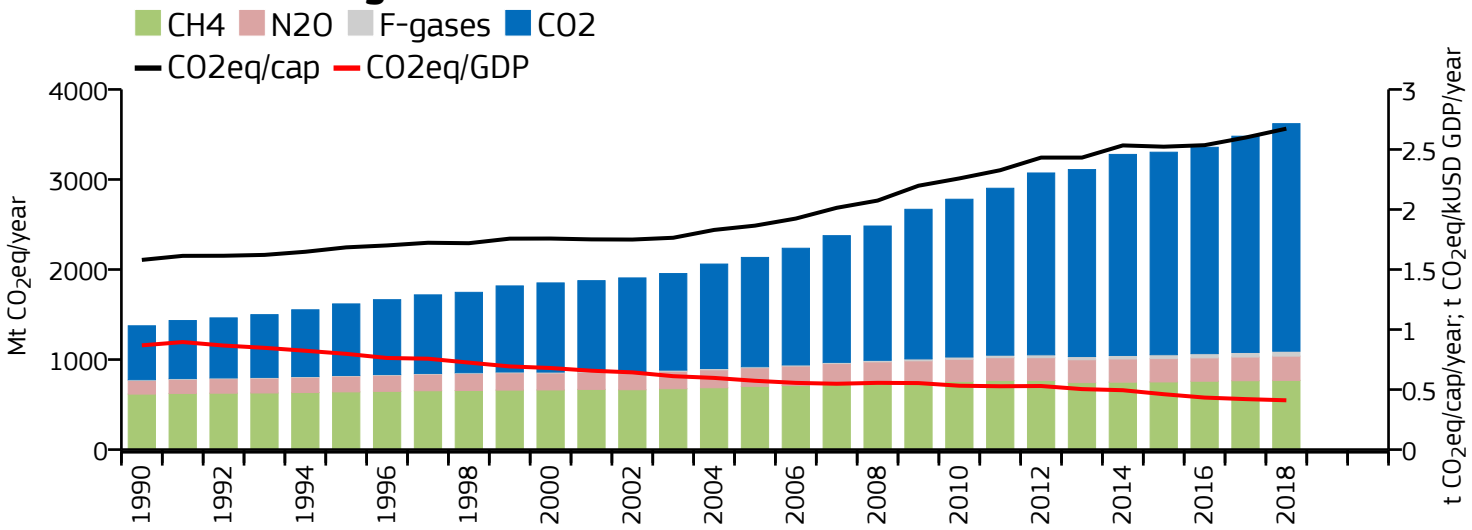
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+35%	+111%	+3%
Other industrial combustion	-2%	+9%	-27%
Buildings	-47%	-17%	-19%
Transport	+2%	+58%	+48%
Other sectors	+259%	+4%	+35%
All sectors	+35%	+9%	+16%

India

Fossil CO_2 emissions by sector



Greenhouse gas emissions

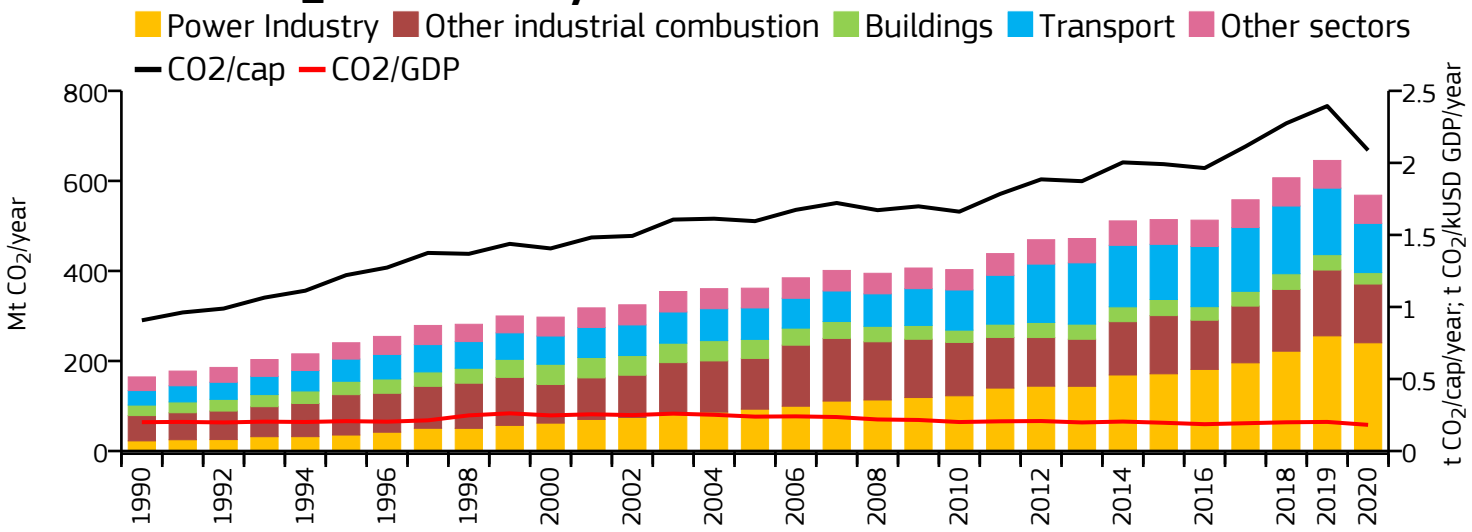


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	2411.733	n/a	1.744	n/a	0.286
2018	2526.925	3619.800	1.866	2.673	0.287
2005	1213.917	2134.232	1.061	1.865	0.326
1990	598.958	1374.869	0.688	1.580	0.378

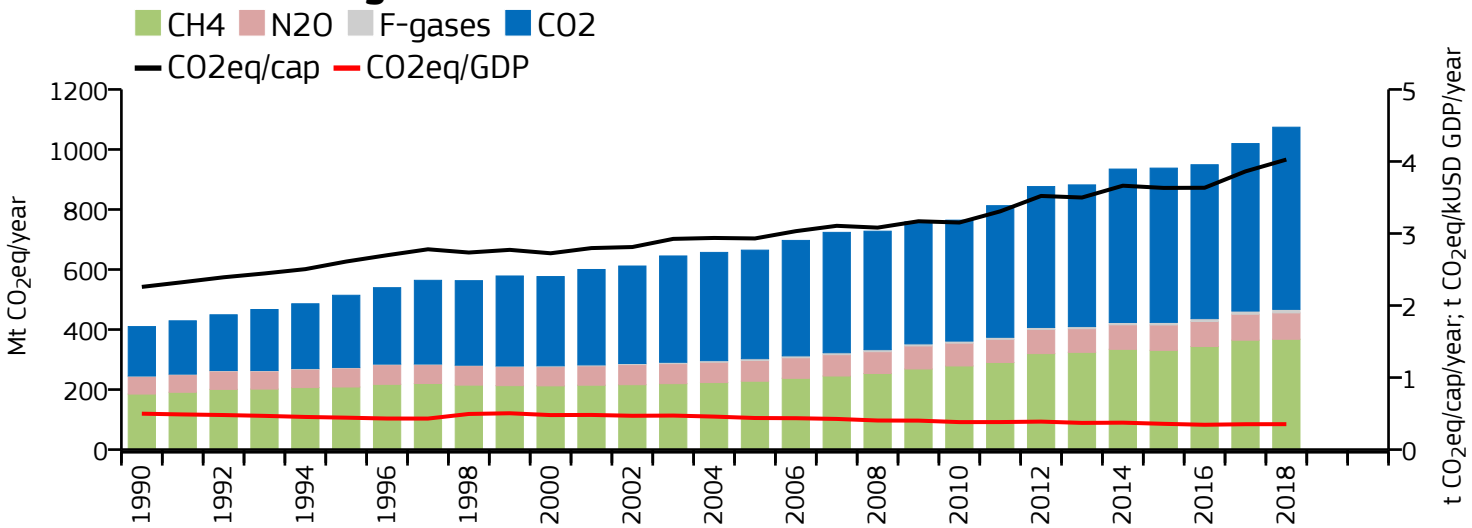
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+415%	+446%	+110%
Other industrial combustion	+260%	+279%	+131%
Buildings	+99%	+82%	+31%
Transport	+330%	+359%	+156%
Other sectors	+278%	+59%	+27%
All sectors	+303%	+163%	+70%

Indonesia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

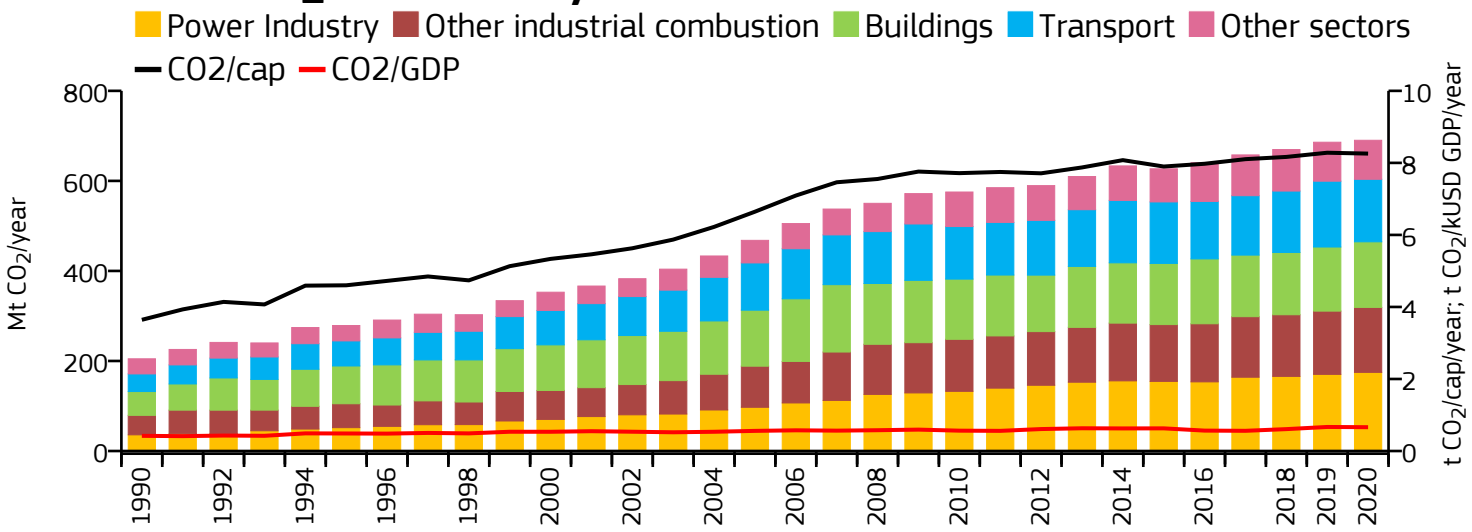


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	568.267	n/a	2.088	n/a	0.182
2018	606.927	1074.191	2.275	4.026	0.199
2005	361.719	664.550	1.595	2.931	0.239
1990	164.579	409.813	0.907	2.259	0.200

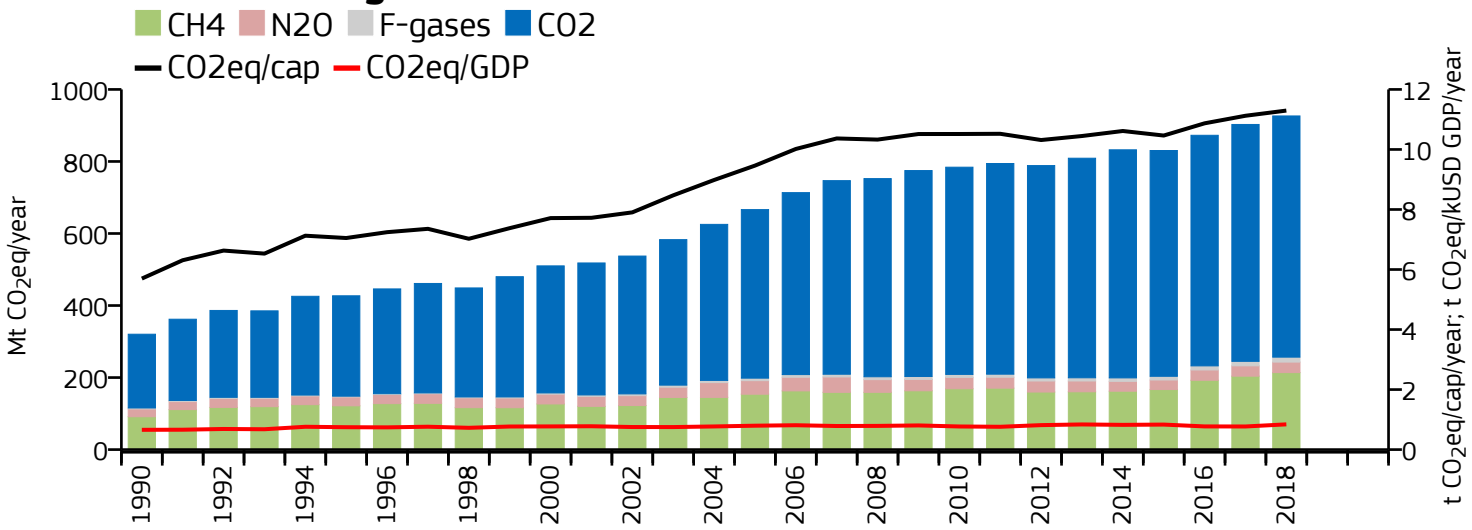
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+969%	+889%	+139%
Other industrial combustion	+132%	+142%	+22%
Buildings	+9%	+47%	-10%
Transport	+239%	+367%	+115%
Other sectors	+106%	+94%	+55%
All sectors	+245%	+162%	+62%

Iran

Fossil CO_2 emissions by sector



Greenhouse gas emissions

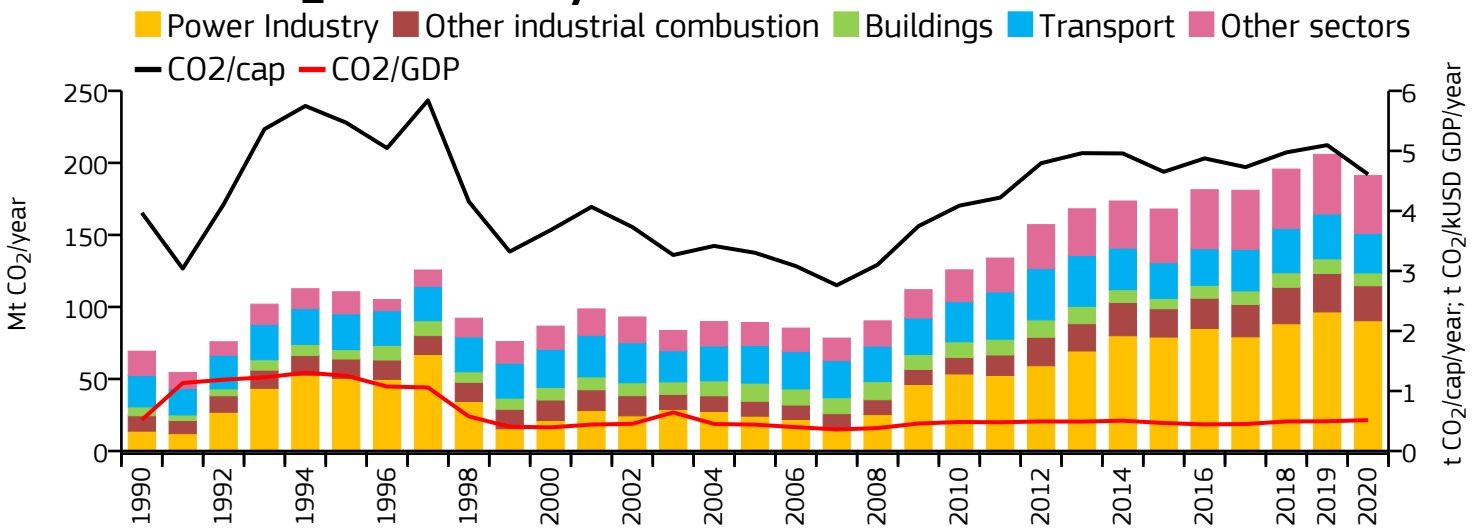


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	690.241	n/a	8.258	n/a	0.661
2018	669.673	926.372	8.166	11.296	0.608
2005	467.951	666.313	6.645	9.462	0.559
1990	204.818	320.338	3.643	5.697	0.421

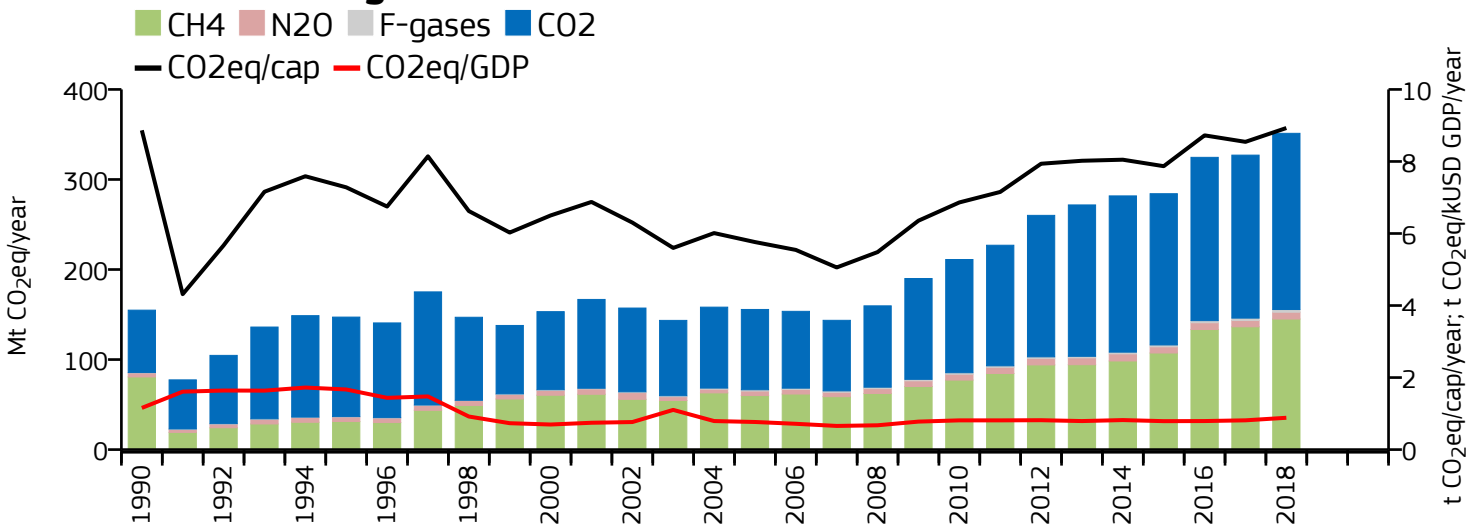
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+386%	+362%	+71%
Other industrial combustion	+233%	+215%	+49%
Buildings	+176%	+157%	+11%
Transport	+255%	+250%	+31%
Other sectors	+158%	+135%	+41%
All sectors	+237%	+189%	+39%

Iraq

Fossil CO_2 emissions by sector



Greenhouse gas emissions

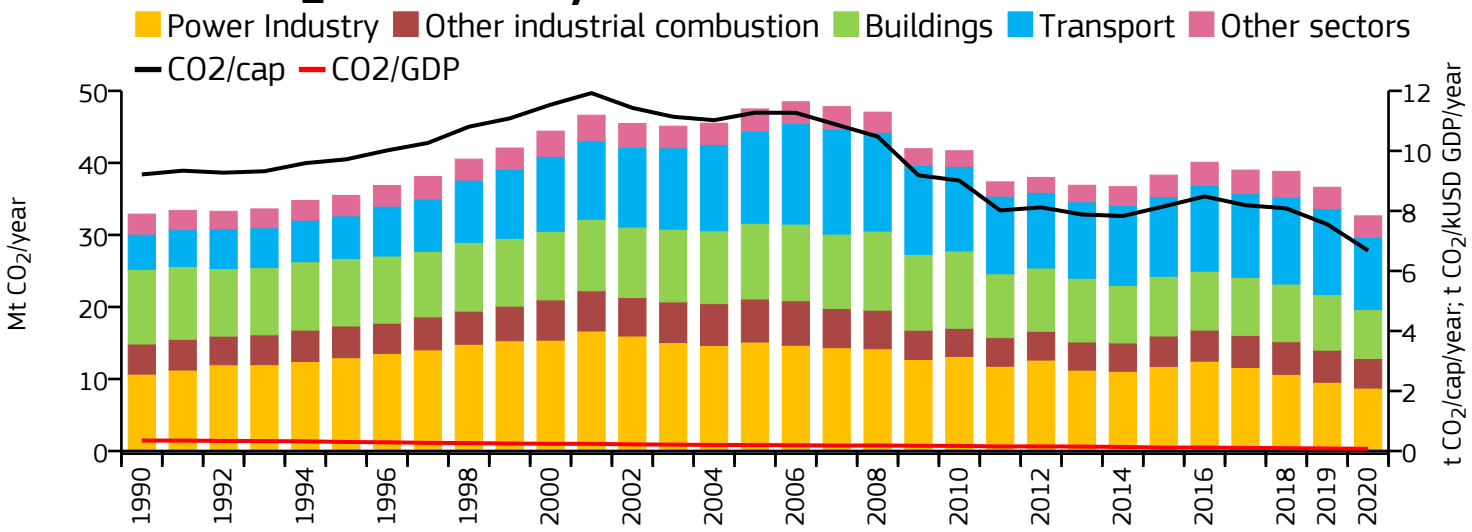


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	191.301	n/a	4.609	n/a	0.514
2018	195.706	351.252	4.975	8.929	0.492
2005	89.193	155.629	3.302	5.762	0.439
1990	69.326	154.864	3.968	8.865	0.518

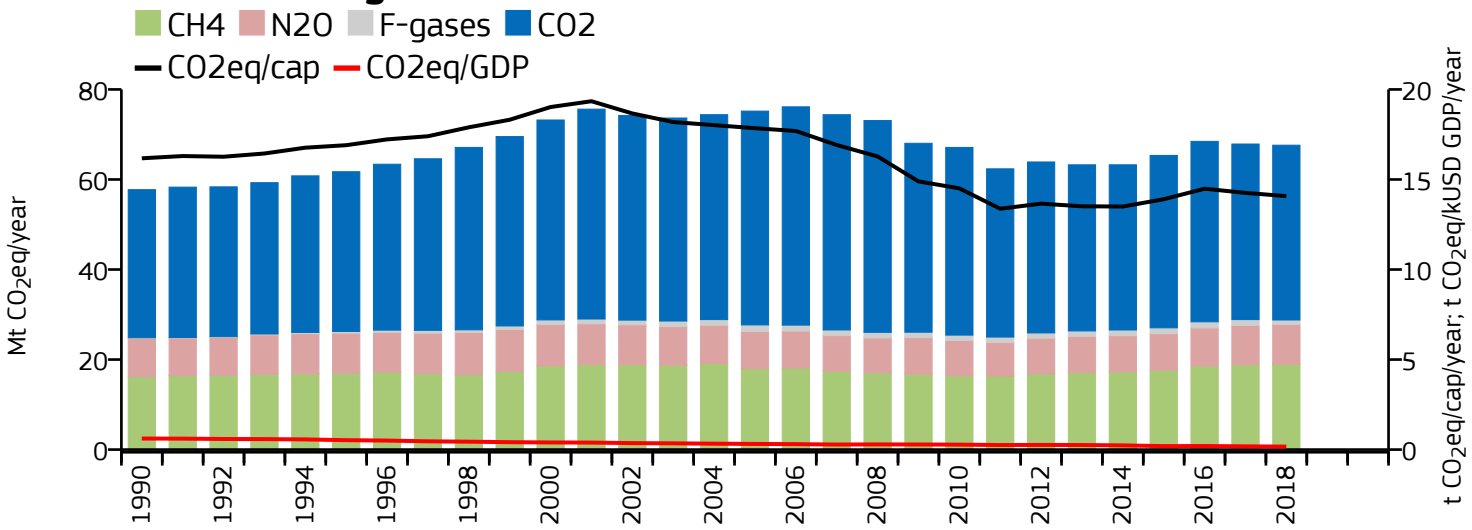
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +555%	↗ +541%	↗ +265%
Other industrial combustion	↗ +128%	↗ +136%	↗ +143%
Buildings	↗ +45%	↗ +63%	↘ -20%
Transport	↗ +25%	↗ +42%	↗ +18%
Other sectors	↗ +139%	↗ +92%	↗ +139%
All sectors	↗ +176%	↗ +127%	↗ +126%

Ireland

Fossil CO_2 emissions by sector



Greenhouse gas emissions

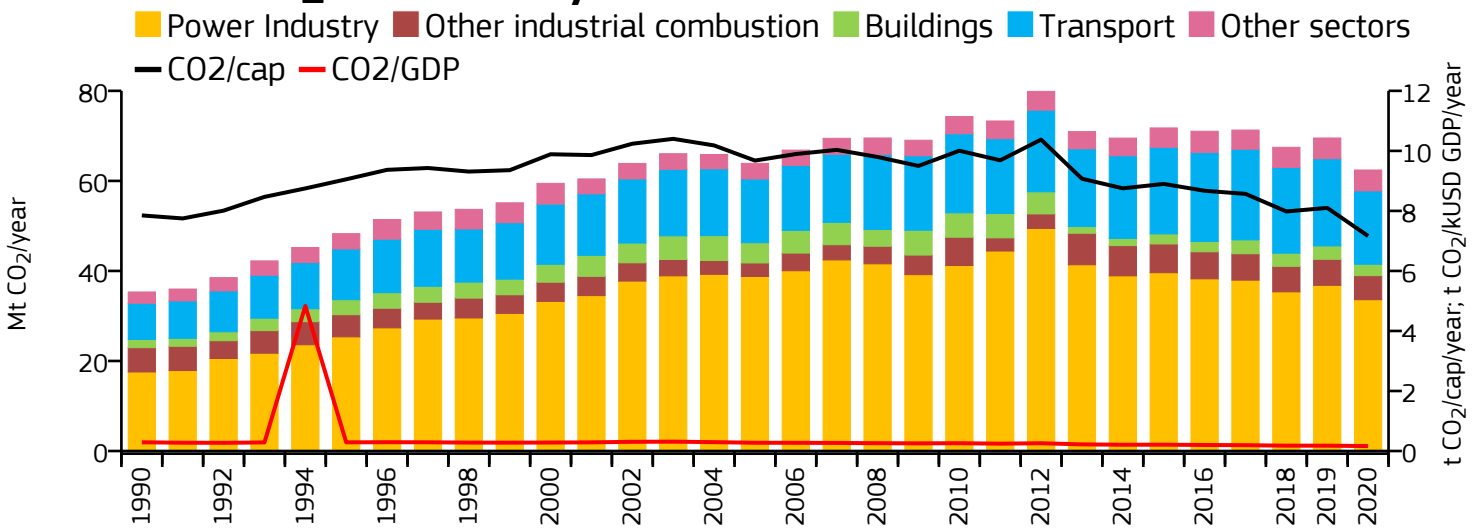


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	32.648	n/a	6.679	n/a	0.073
2018	38.826	67.615	8.082	14.076	0.095
2005	47.492	75.186	11.273	17.846	0.198
1990	32.891	57.737	9.215	16.176	0.349

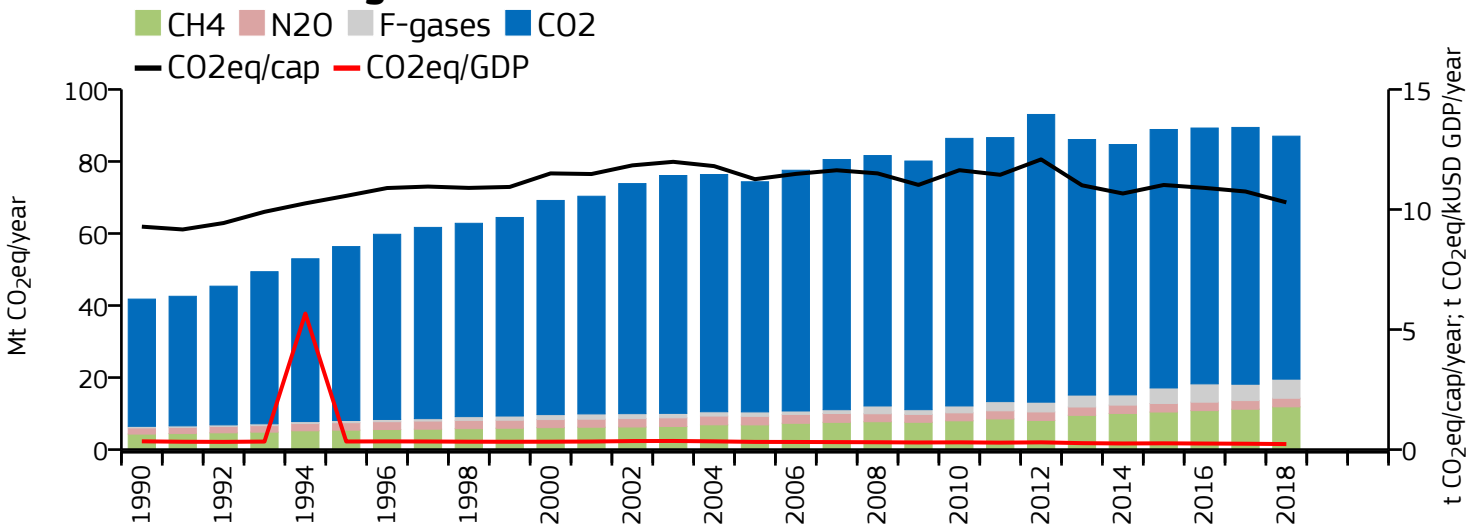
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-18%	0%	-30%
Other industrial combustion	-2%	+8%	-24%
Buildings	-34%	-25%	-24%
Transport	+105%	+144%	-6%
Other sectors	+7%	+19%	+6%
All sectors	-1%	+17%	-10%

Israel and Palestine, State of

Fossil CO_2 emissions by sector



Greenhouse gas emissions

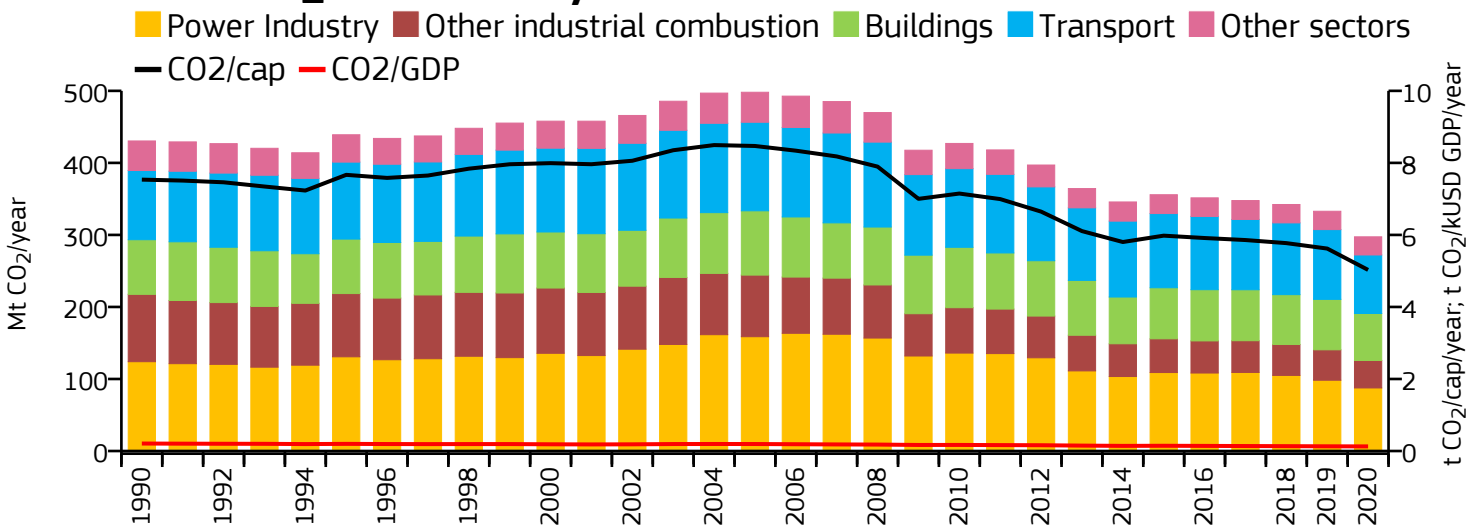


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	62.421	n/a	7.164	n/a	0.165
2018	67.467	87.028	7.982	10.296	0.178
2005	63.896	74.364	9.677	11.262	0.275
1990	35.328	41.786	7.850	9.285	0.290

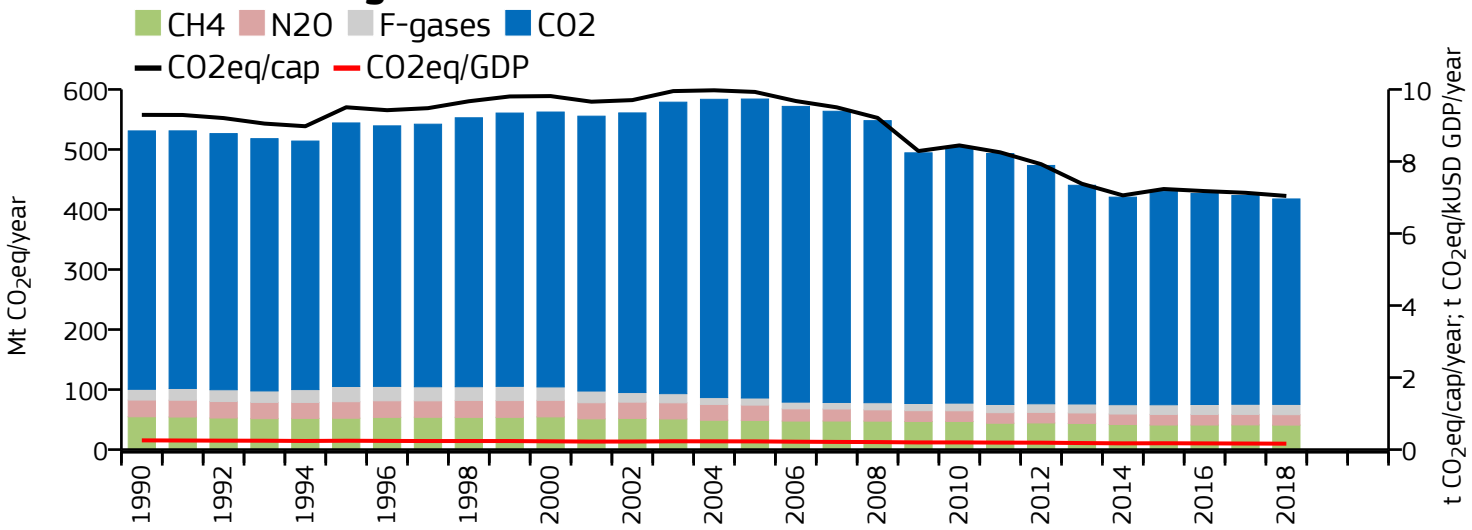
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+91%	+101%	-9%
Other industrial combustion	-1%	+6%	+87%
Buildings	+38%	+61%	-35%
Transport	+103%	+135%	+34%
Other sectors	+85%	+171%	+76%
All sectors	+77%	+108%	+17%

Italy, San Marino and the Holy See

Fossil CO_2 emissions by sector



Greenhouse gas emissions

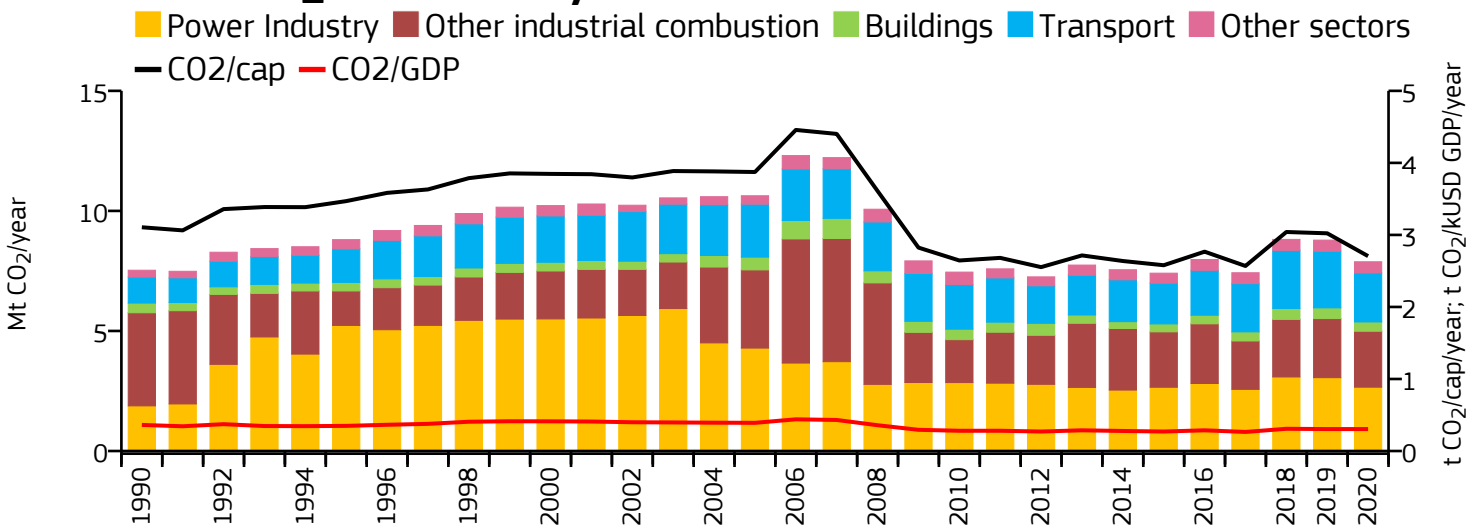


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	297.352	n/a	5.029	n/a	0.128
2018	342.231	417.556	5.772	7.042	0.135
2005	498.068	583.998	8.469	9.931	0.194
1990	430.447	530.913	7.535	9.294	0.207

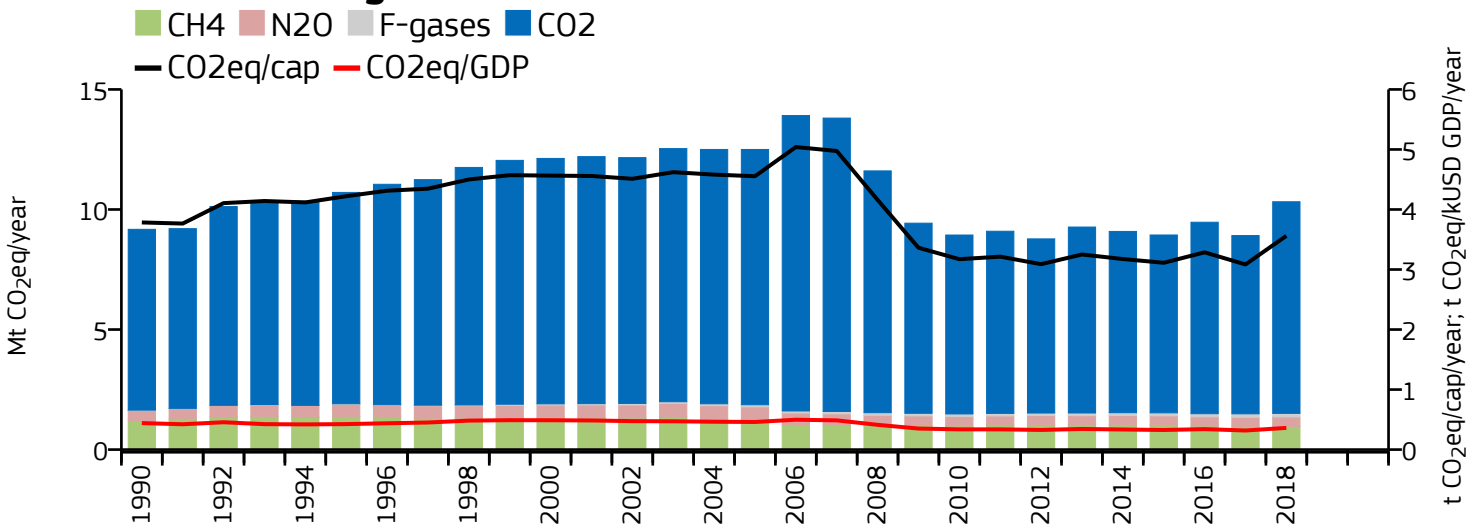
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↘ -29%	↘ -15%	↘ -34%
Other industrial combustion	↘ -59%	↘ -54%	↘ -50%
Buildings	↘ -14%	↘ -6%	↘ -21%
Transport	↘ -15%	→ +3%	↘ -19%
Other sectors	↘ -39%	↘ -31%	↘ -22%
All sectors	↘ -31%	↘ -21%	↘ -29%

Jamaica

Fossil CO_2 emissions by sector



Greenhouse gas emissions

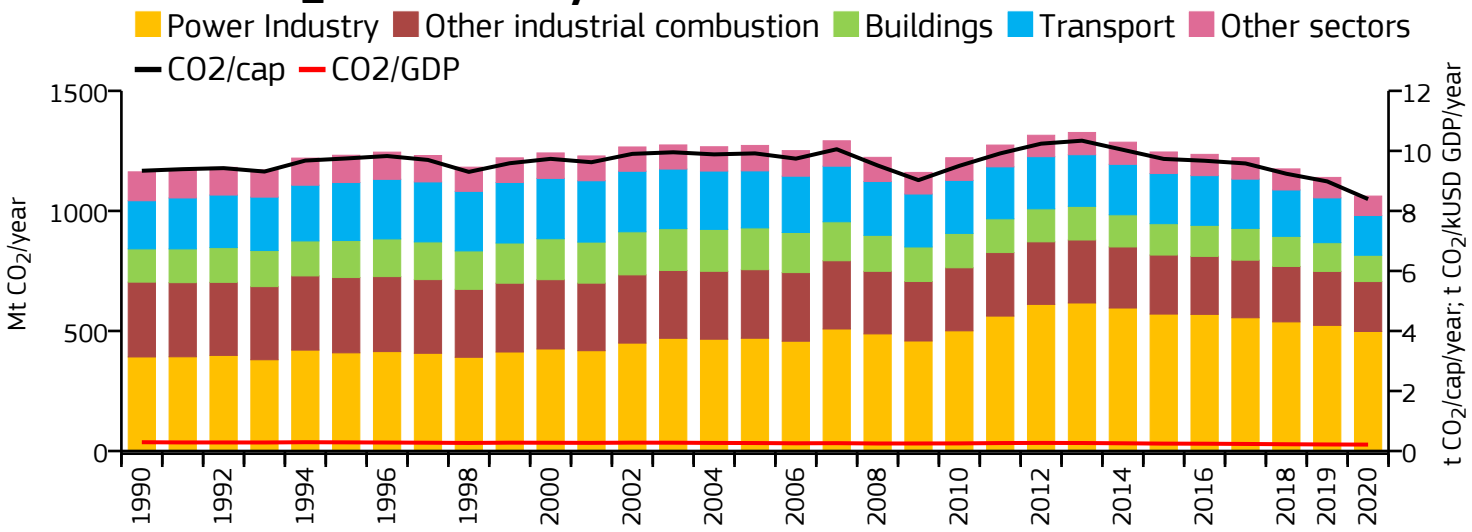


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.882	n/a	2.706	n/a	0.304
2018	8.814	10.322	3.041	3.561	0.308
2005	10.631	12.499	3.873	4.554	0.391
1990	7.530	9.174	3.106	3.784	0.362

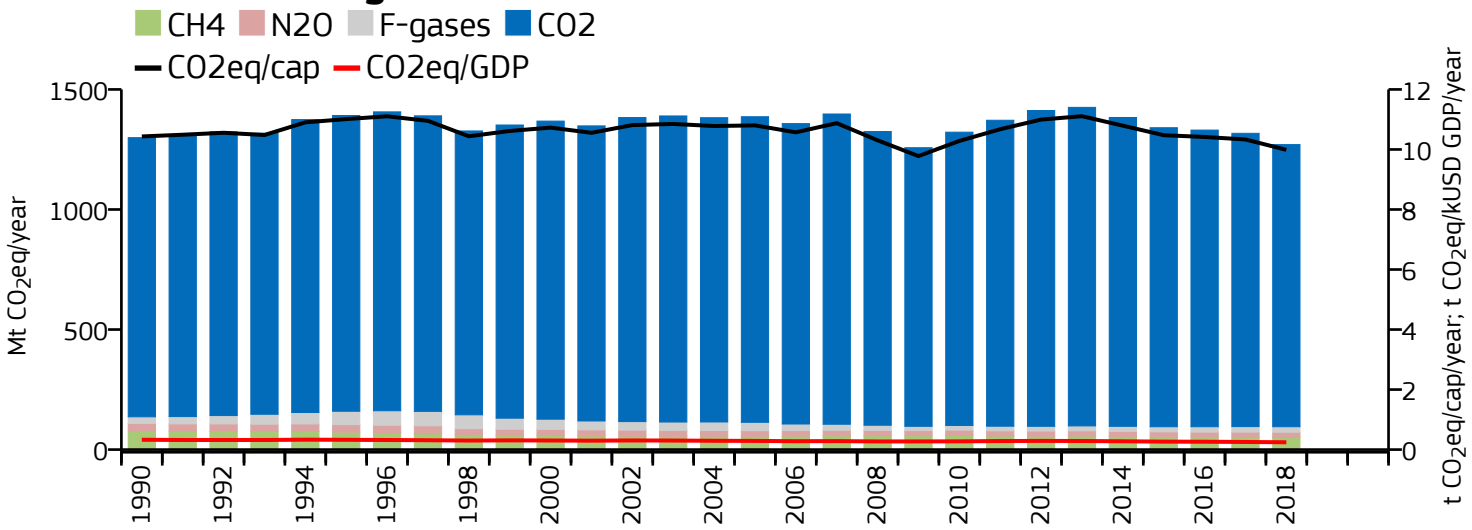
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+41%	+63%	-28%
Other industrial combustion	-40%	-38%	-26%
Buildings	-5%	+12%	-14%
Transport	+88%	+122%	+10%
Other sectors	+64%	+2%	-12%
All sectors	+5%	+13%	-17%

Japan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

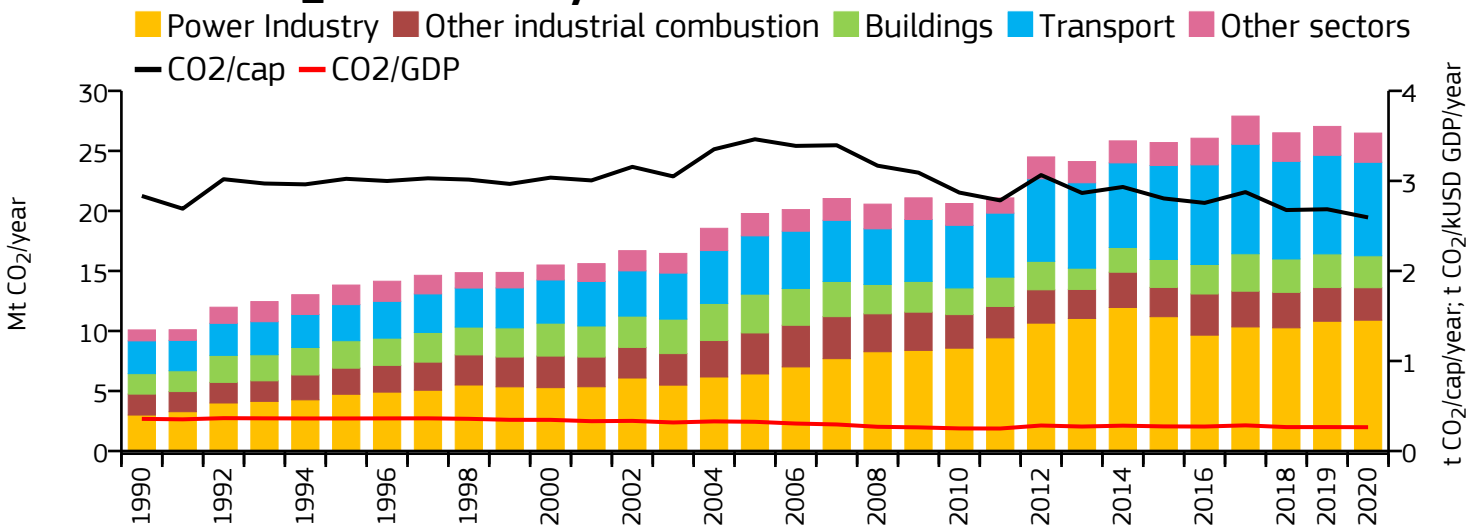


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1061.774	n/a	8.394	n/a	0.214
2018	1174.956	1270.212	9.238	9.987	0.225
2005	1272.653	1386.291	9.917	10.802	0.266
1990	1162.693	1299.158	9.338	10.434	0.293

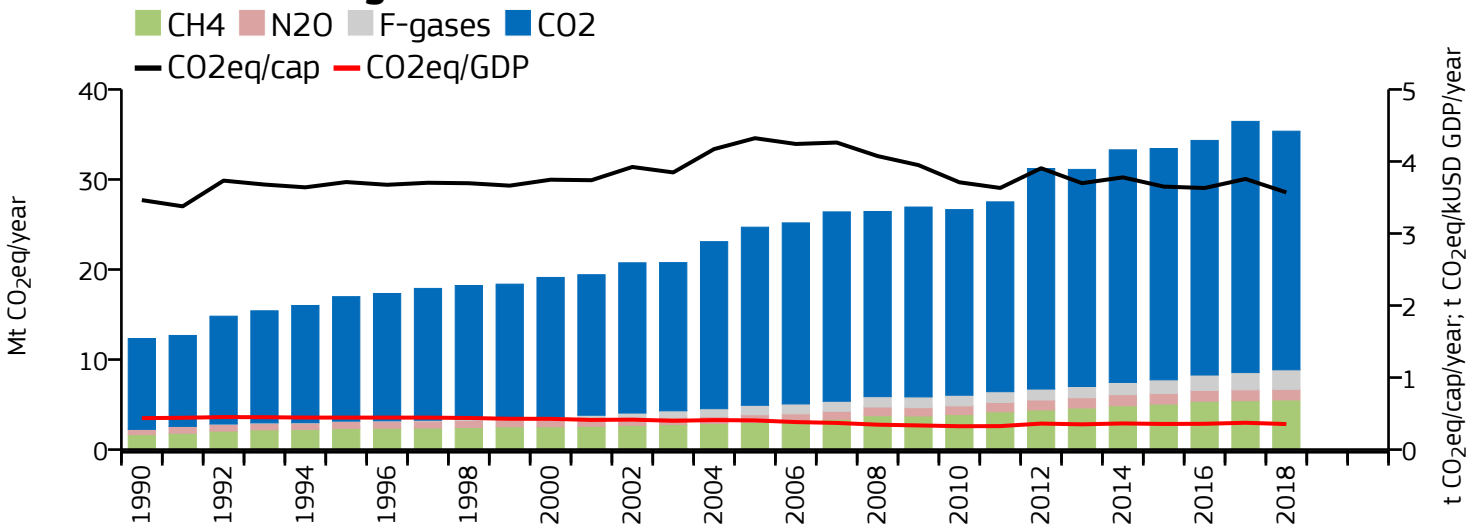
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+27%	+38%	+15%
Other industrial combustion	-33%	-26%	-19%
Buildings	-21%	-9%	-28%
Transport	-18%	-4%	-19%
Other sectors	-33%	-30%	-17%
All sectors	-9%	-2%	-8%

Jordan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

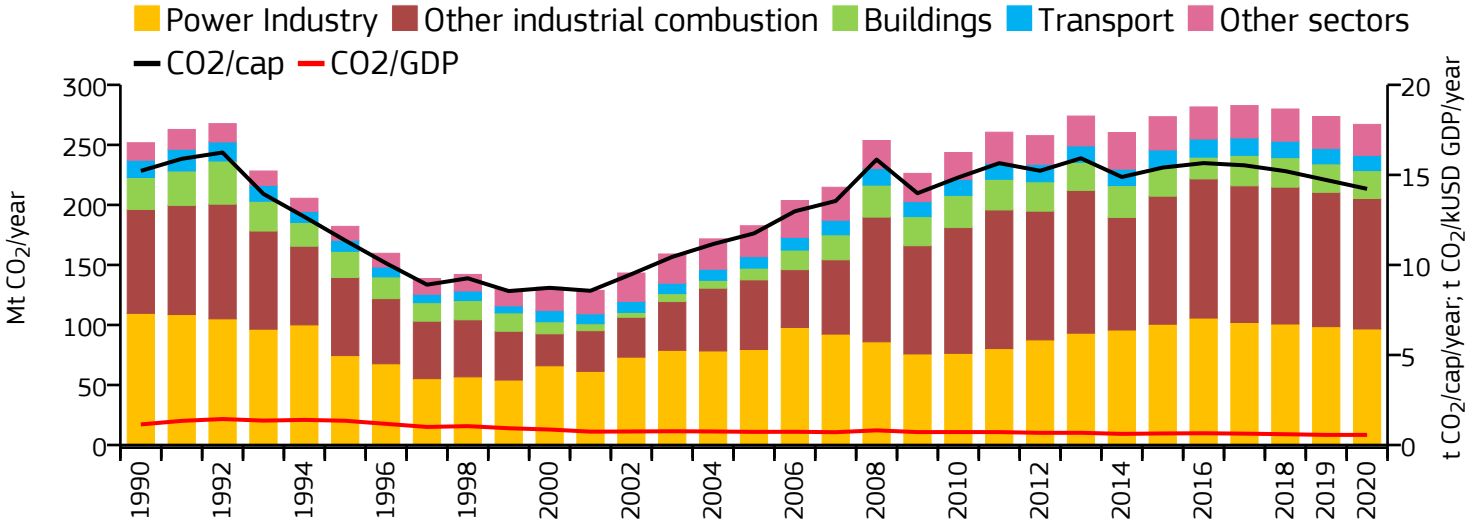


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	26.482	n/a	2.594	n/a	0.264
2018	26.504	35.363	2.676	3.571	0.266
2005	19.784	24.703	3.462	4.323	0.324
1990	10.087	12.332	2.833	3.464	0.357

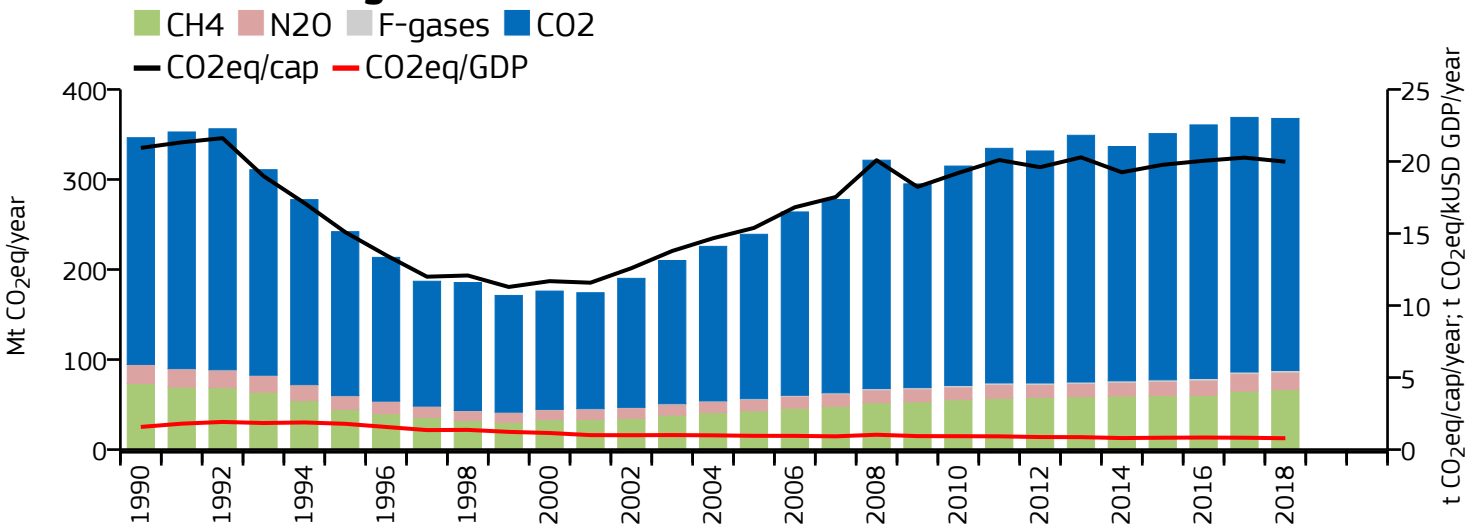
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +264%	↗ +242%	↗ +60%
Other industrial combustion	↗ +55%	↗ +69%	↘ -14%
Buildings	↗ +56%	↗ +64%	↘ -13%
Transport	↗ +185%	↗ +196%	↗ +67%
Other sectors	↗ +167%	↗ +260%	↗ +67%
All sectors	↗ +163%	↗ +187%	↗ +43%

Kazakhstan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

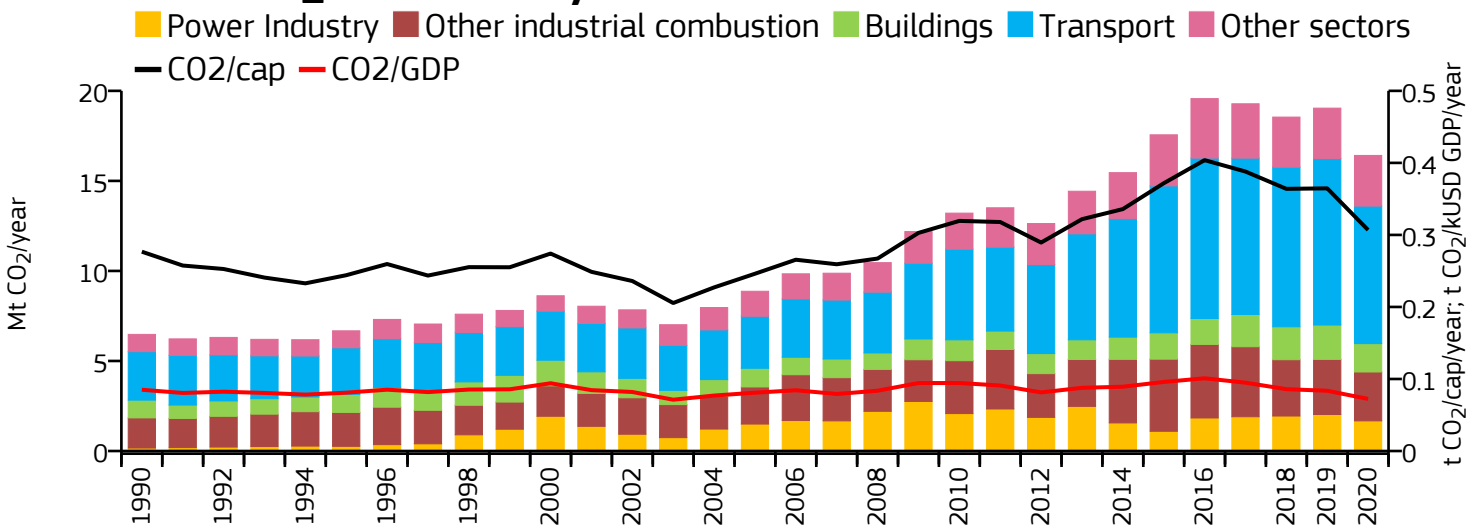


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	267.098	n/a	14.225	n/a	0.562
2018	279.879	367.776	15.208	19.984	0.599
2005	182.625	239.144	11.751	15.387	0.729
1990	251.784	346.386	15.222	20.942	1.143

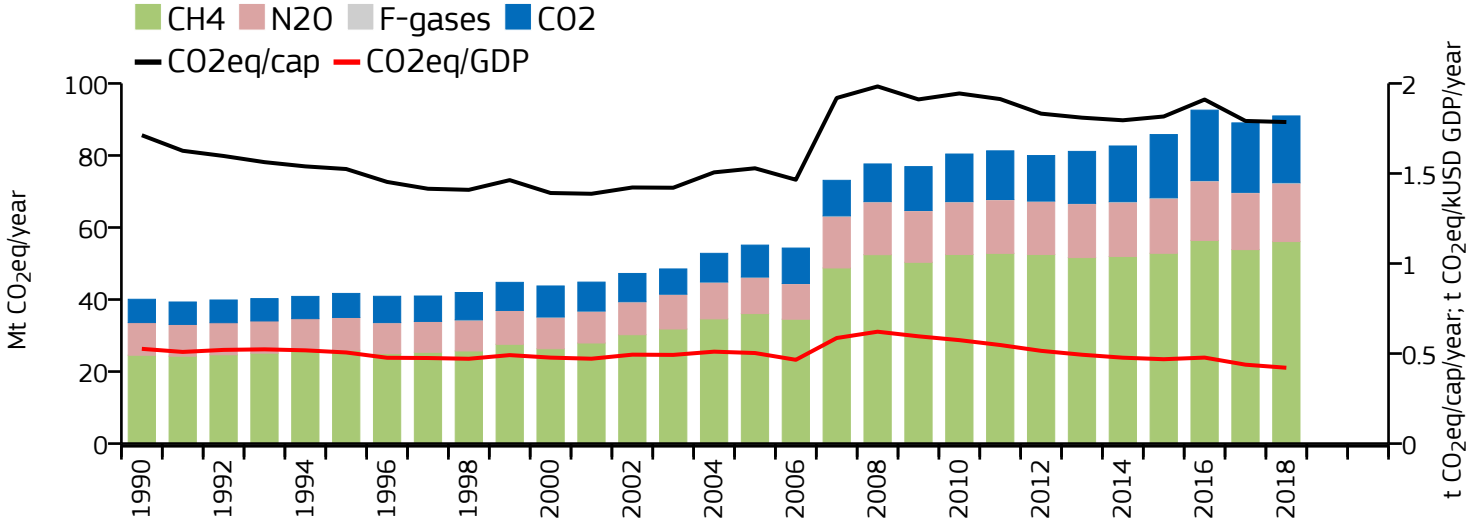
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-12%	-8%	+27%
Other industrial combustion	+26%	+31%	+96%
Buildings	-13%	-6%	+156%
Transport	-12%	-6%	+42%
Other sectors	+78%	+5%	+39%
All sectors	+6%	+6%	+54%

Kenya

Fossil CO_2 emissions by sector



Greenhouse gas emissions

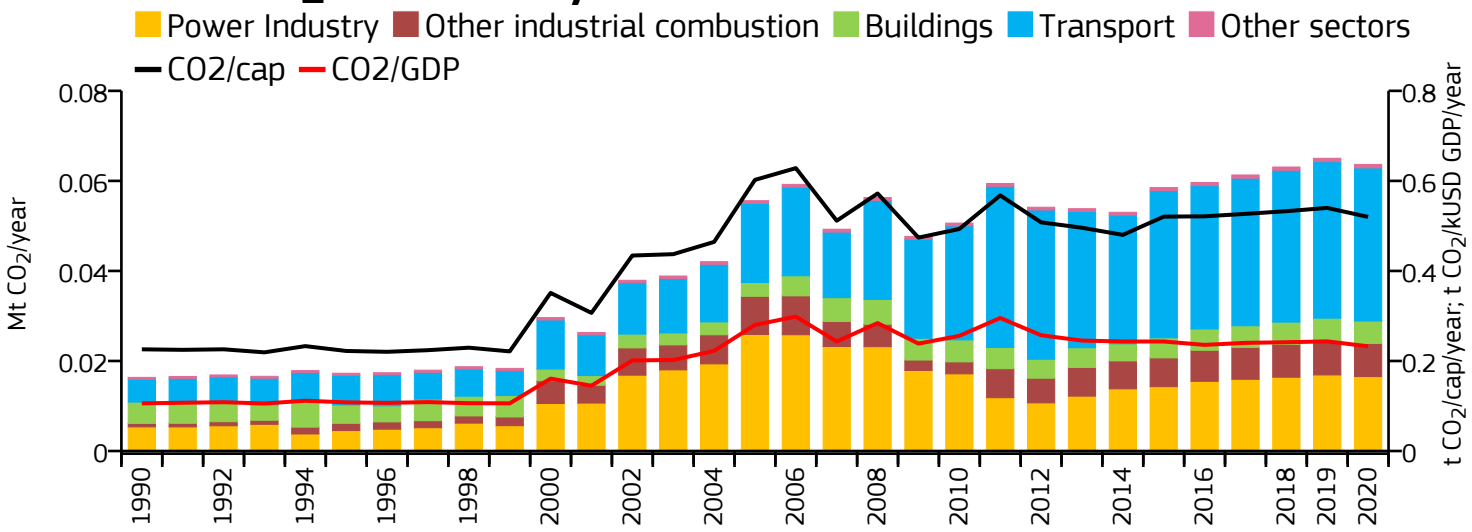


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	16.414	n/a	0.307	n/a	0.072
2018	18.544	90.977	0.364	1.786	0.086
2005	8.872	55.110	0.246	1.529	0.081
1990	6.476	40.073	0.277	1.712	0.085

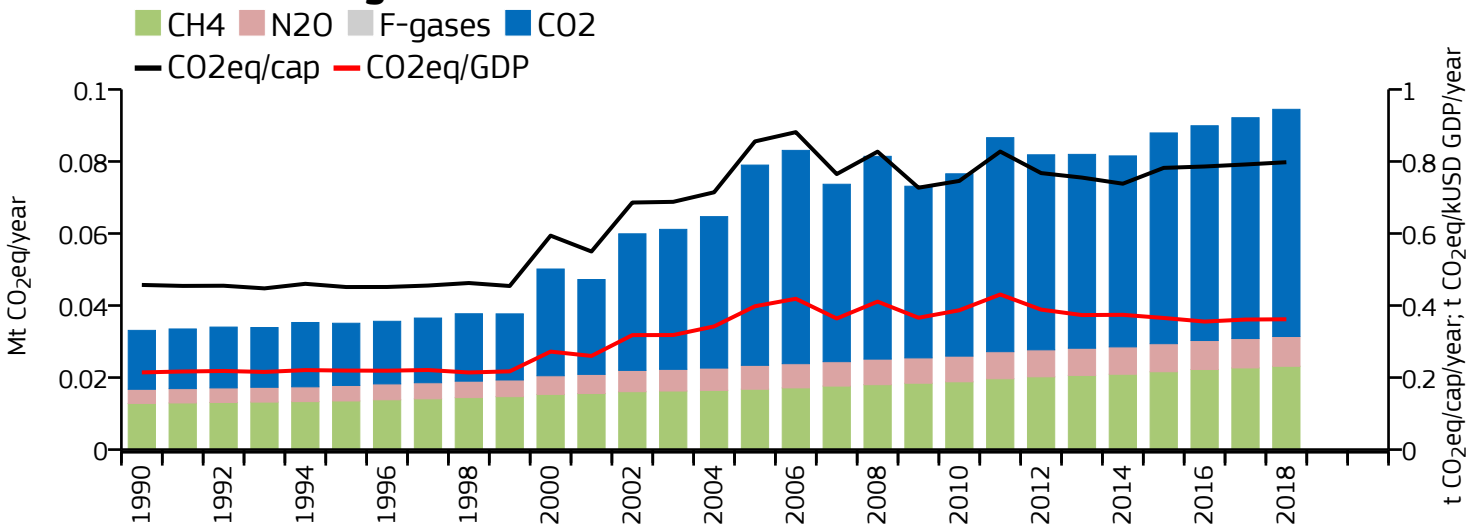
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+907%	+1040%	+30%
Other industrial combustion	+62%	+85%	+51%
Buildings	+60%	+101%	+50%
Transport	+184%	+228%	+207%
Other sectors	+193%	+118%	+59%
All sectors	+153%	+127%	+65%

Kiribati

Fossil CO_2 emissions by sector



Greenhouse gas emissions

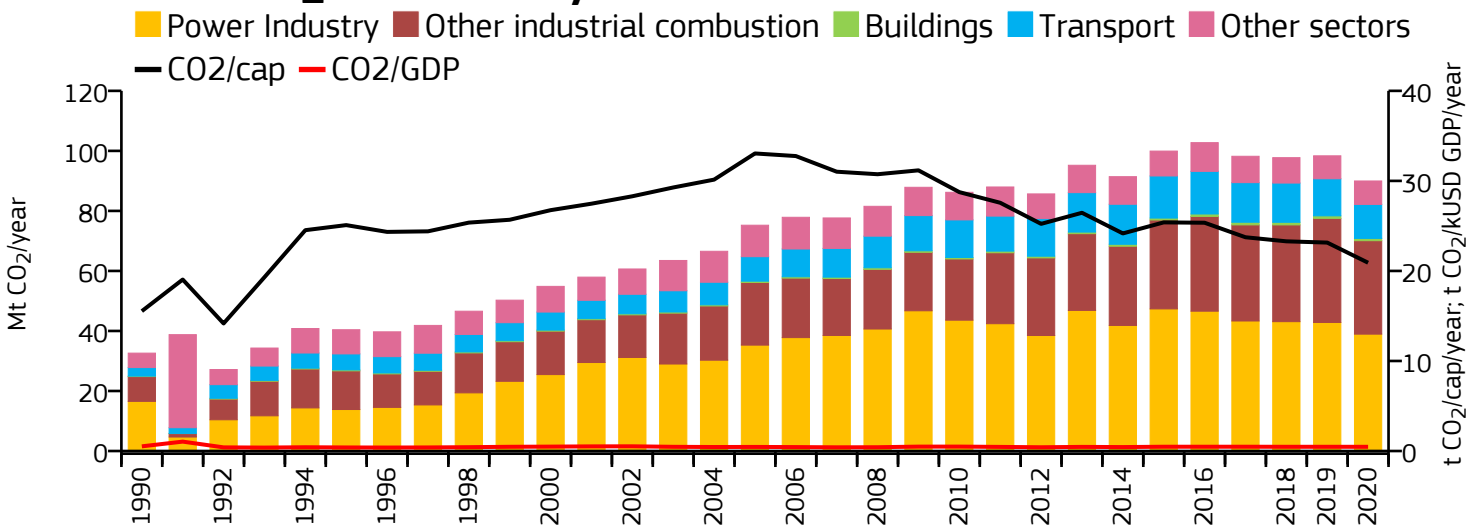


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.064	n/a	0.520	n/a	0.233
2018	0.063	0.094	0.533	0.798	0.242
2005	0.056	0.079	0.602	0.856	0.280
1990	0.016	0.033	0.226	0.457	0.106

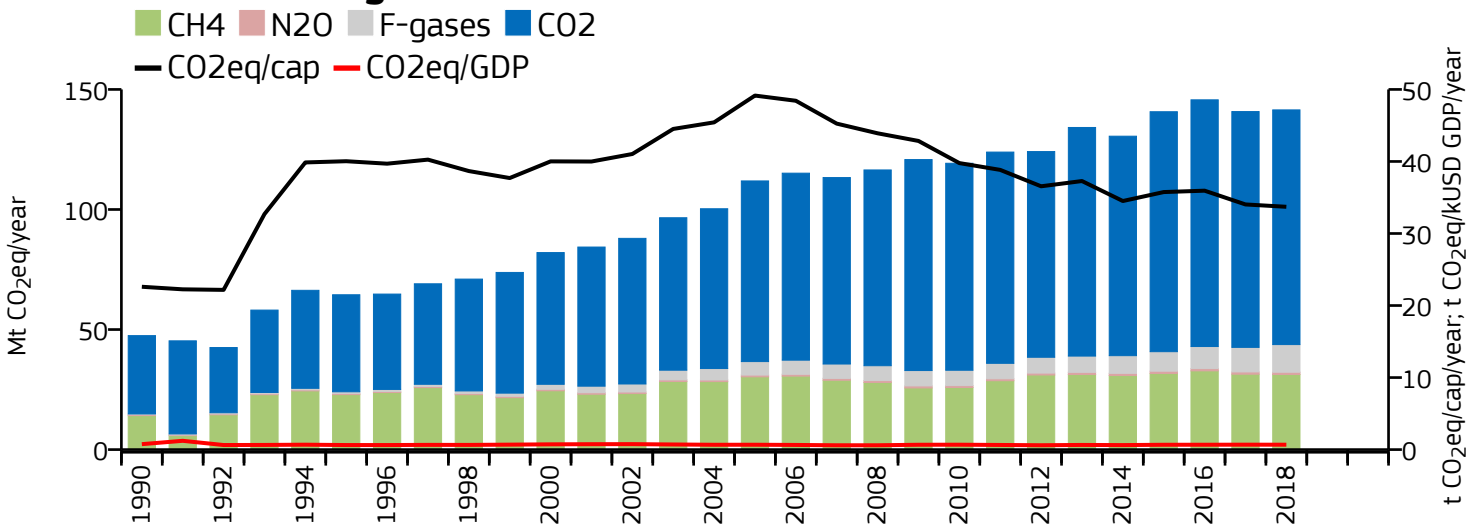
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+208%	+206%	-37%
Other industrial combustion	+848%	+840%	-14%
Buildings	+5%	+10%	+61%
Transport	+568%	+559%	+91%
Other sectors	+93%	+85%	+34%
All sectors	+289%	+185%	+20%

Kuwait

Fossil CO_2 emissions by sector



Greenhouse gas emissions

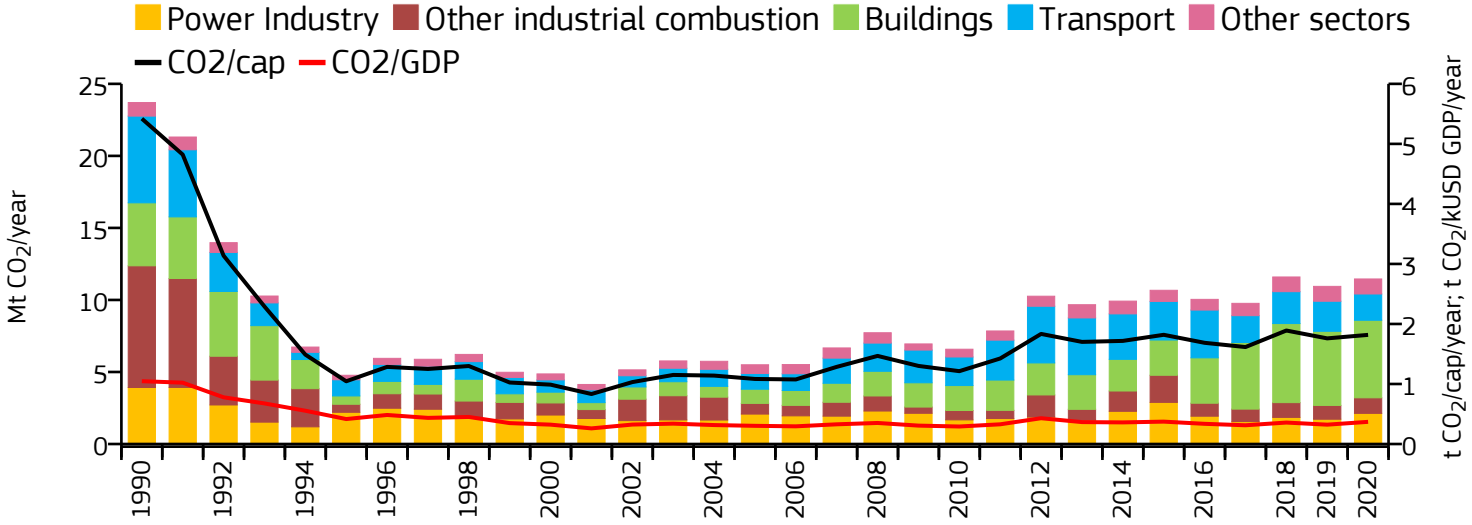


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	89.974	n/a	20.910	n/a	0.467
2018	97.741	141.475	23.288	33.708	0.468
2005	75.237	111.891	33.048	49.148	0.453
1990	32.617	47.461	15.535	22.605	0.518

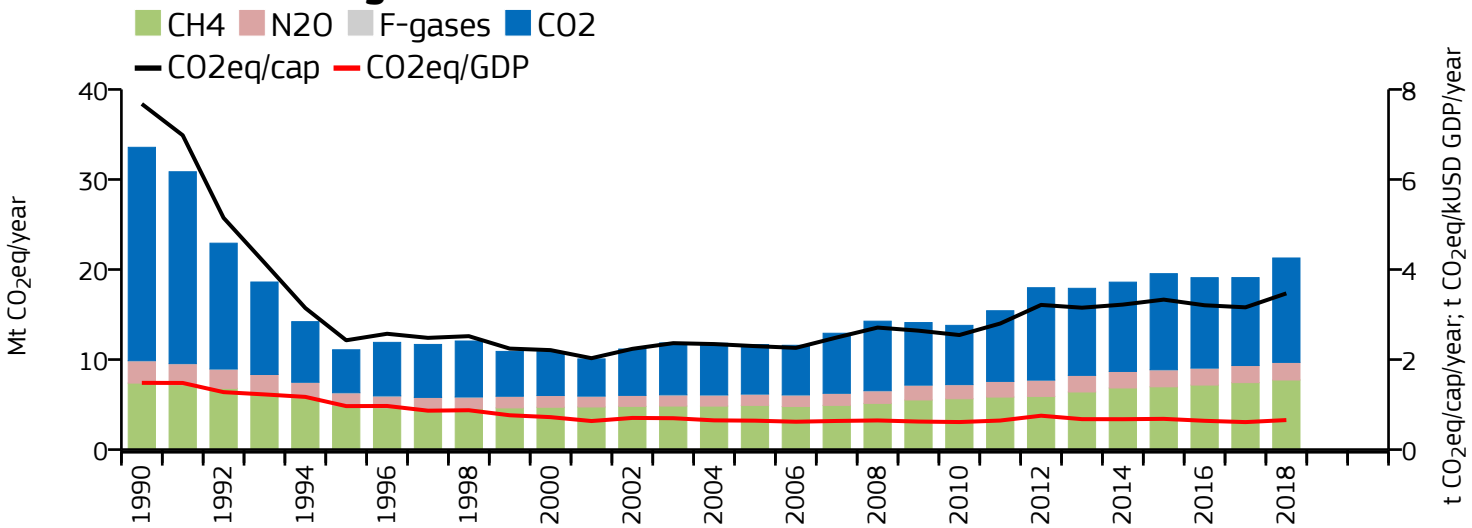
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+135%	+161%	+22%
Other industrial combustion	+277%	+290%	+53%
Buildings	+367%	+439%	+105%
Transport	+299%	+356%	+59%
Other sectors	+62%	+166%	+11%
All sectors	+176%	+198%	+26%

Kyrgyzstan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

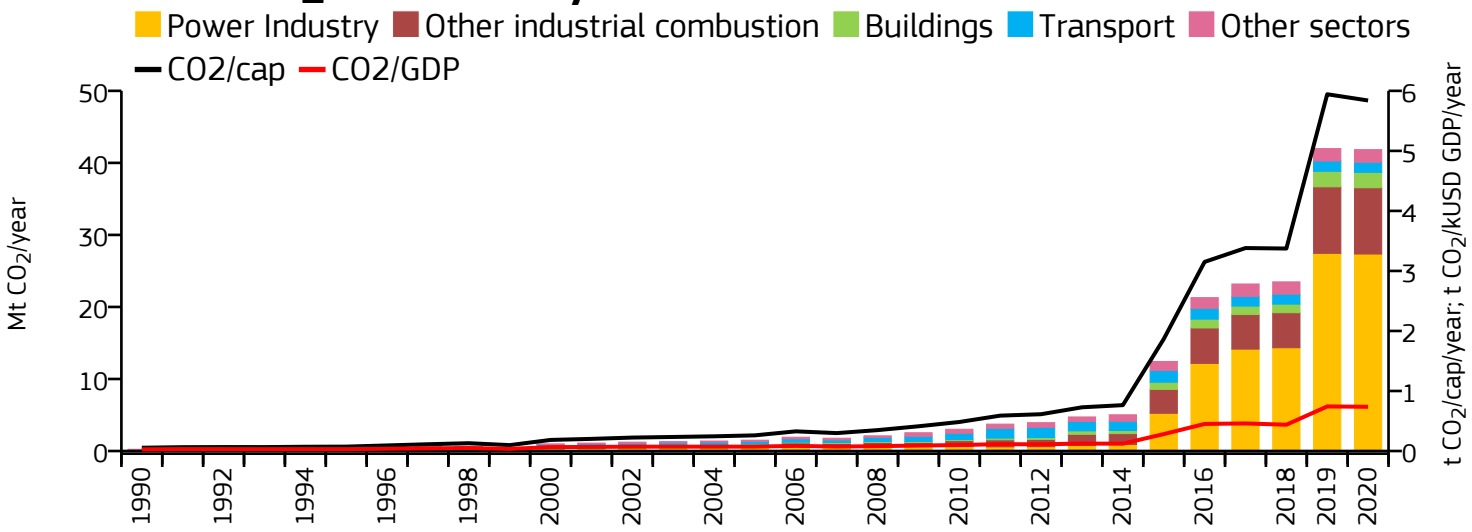


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	11.457	n/a	1.818	n/a	0.369
2018	11.595	21.280	1.891	3.470	0.357
2005	5.500	11.666	1.084	2.298	0.303
1990	23.702	33.573	5.420	7.678	1.046

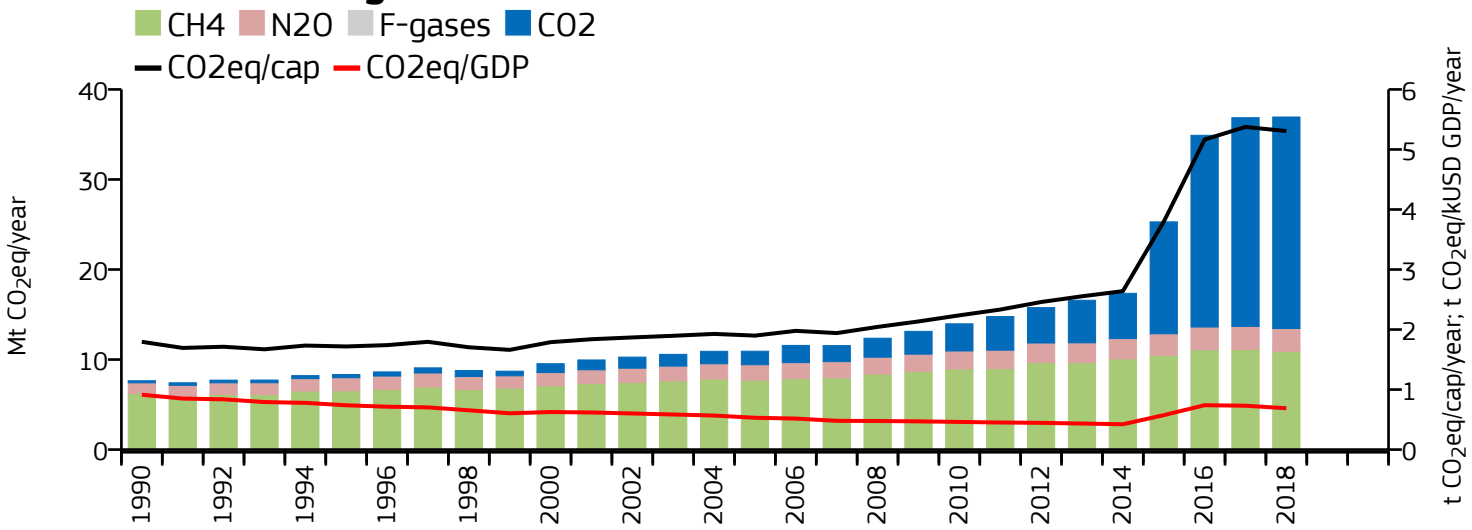
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-46%	-53%	-11%
Other industrial combustion	-87%	-88%	+38%
Buildings	+23%	+29%	+442%
Transport	-70%	-63%	+103%
Other sectors	+11%	-1%	+57%
All sectors	-52%	-37%	+82%

Laos

Fossil CO_2 emissions by sector



Greenhouse gas emissions

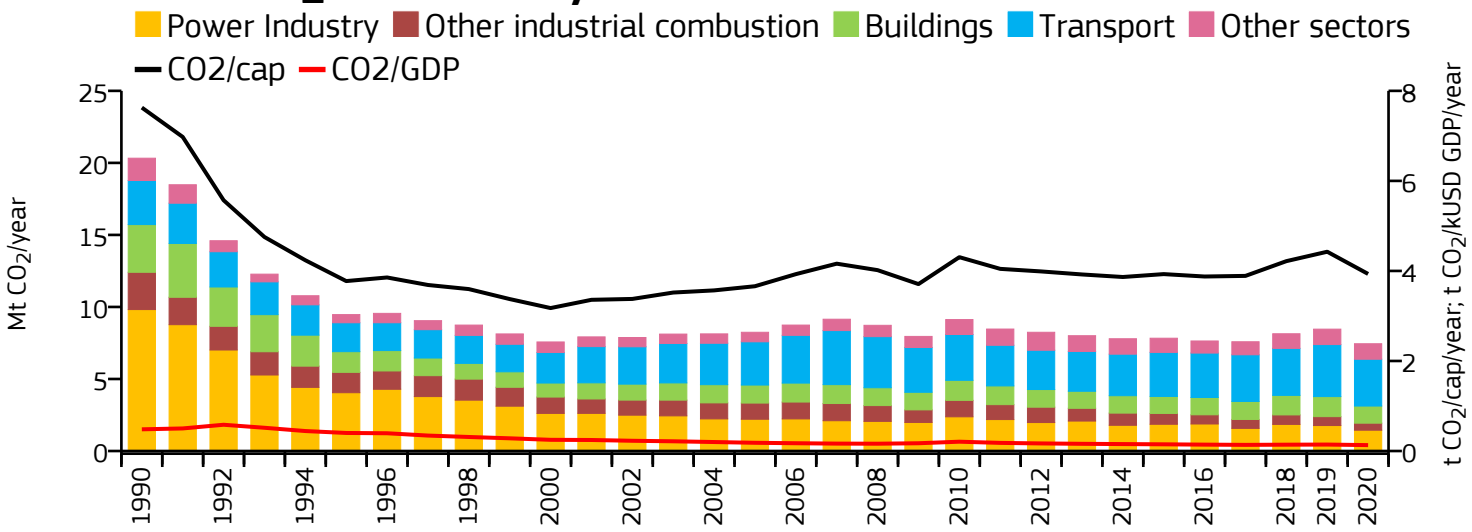


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	41.839	n/a	5.840	n/a	0.737
2018	23.481	36.936	3.373	5.306	0.438
2005	1.501	10.927	0.261	1.899	0.073
1990	0.233	7.646	0.055	1.795	0.028

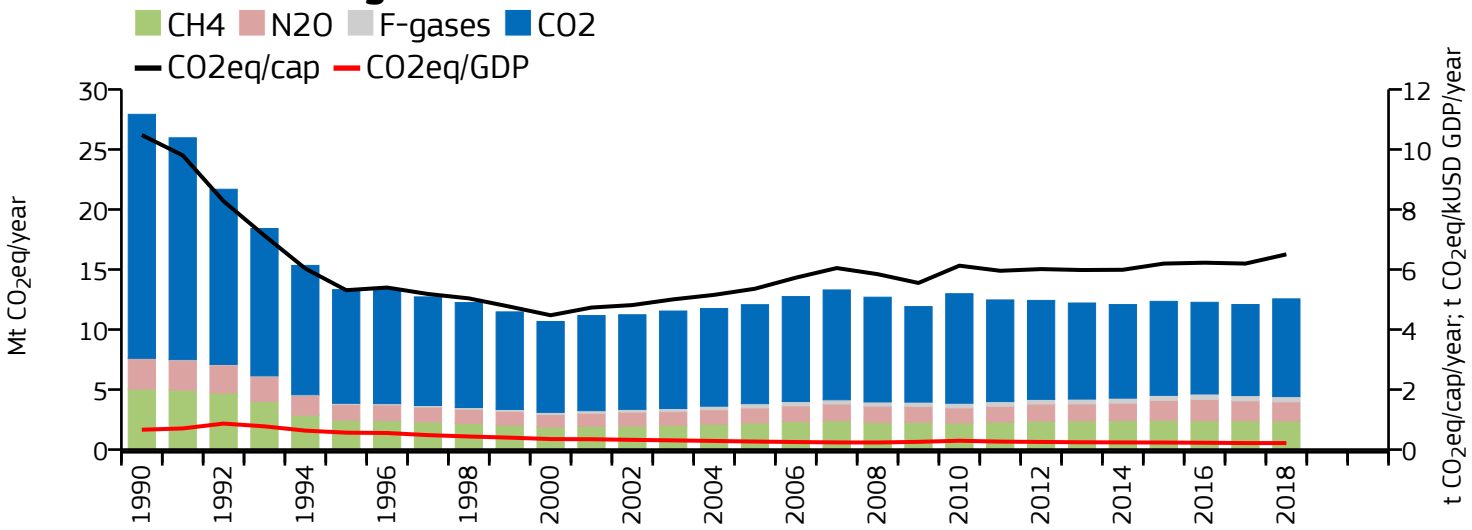
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+39253%	+20531%	+2344%
Other industrial combustion	+55441%	+26019%	+1374%
Buildings	+3355%	+507%	+228%
Transport	+2016%	+1994%	+274%
Other sectors	+9108%	+102%	+60%
All sectors	+17847%	+383%	+238%

Latvia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

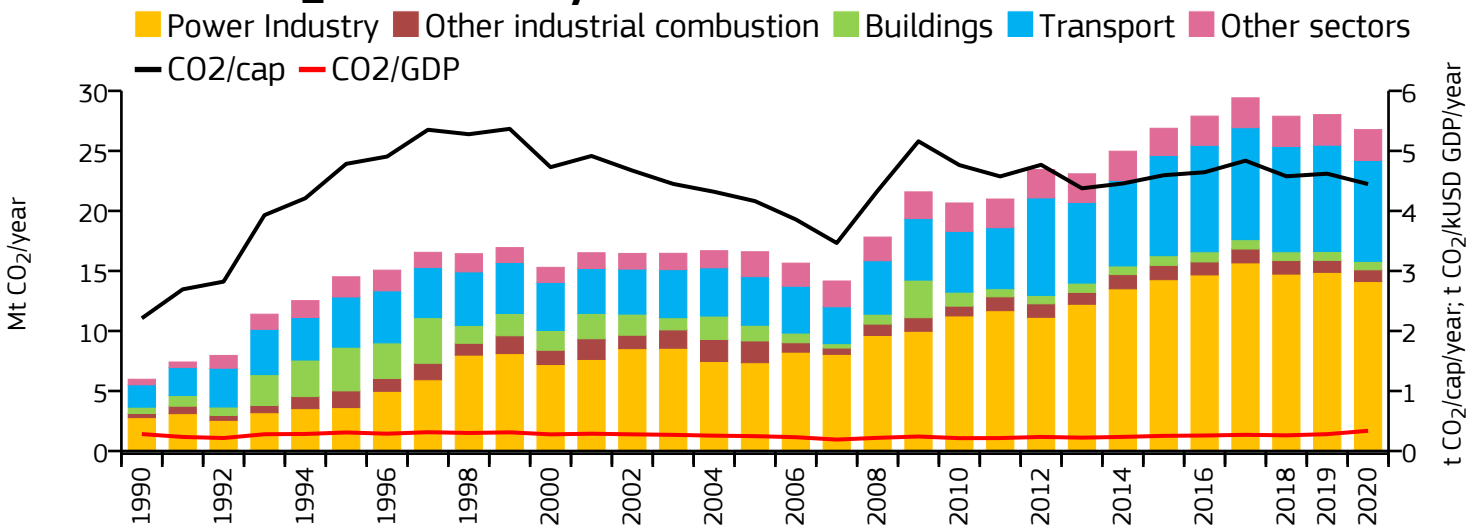


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.446	n/a	3.933	n/a	0.131
2018	8.139	12.555	4.217	6.505	0.141
2005	8.243	12.070	3.660	5.360	0.182
1990	20.326	27.928	7.629	10.482	0.482

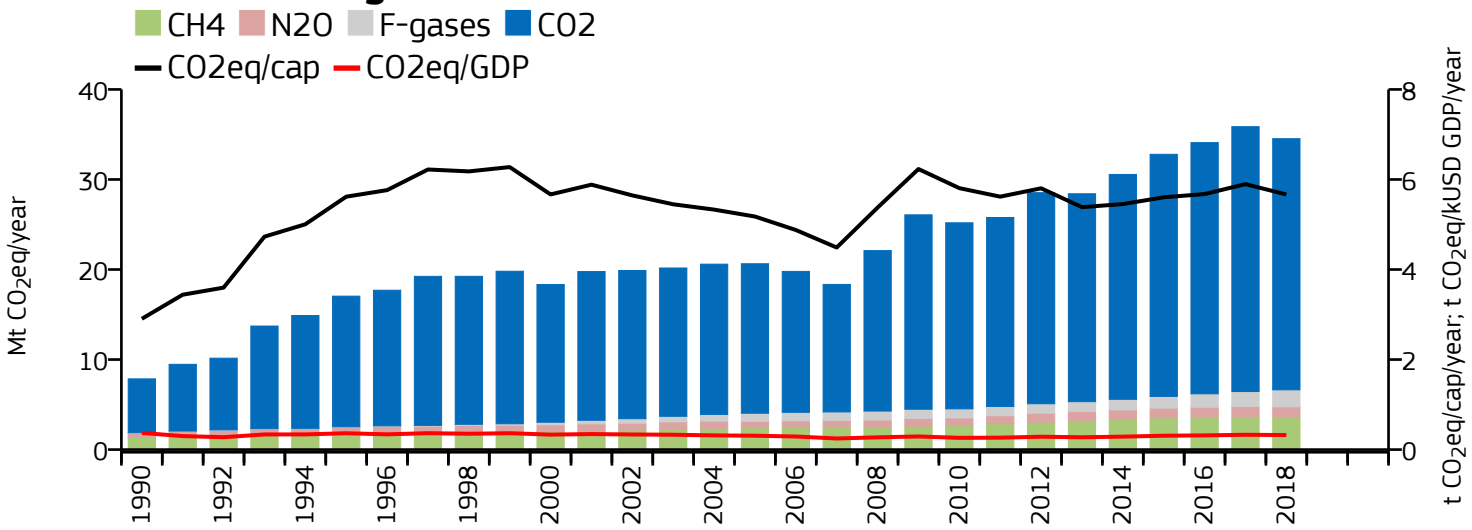
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-85%	-81%	-15%
Other industrial combustion	-81%	-73%	-39%
Buildings	-64%	-56%	+1%
Transport	+6%	+5%	+8%
Other sectors	-31%	-42%	+25%
All sectors	-63%	-55%	+4%

Lebanon

Fossil CO_2 emissions by sector



Greenhouse gas emissions

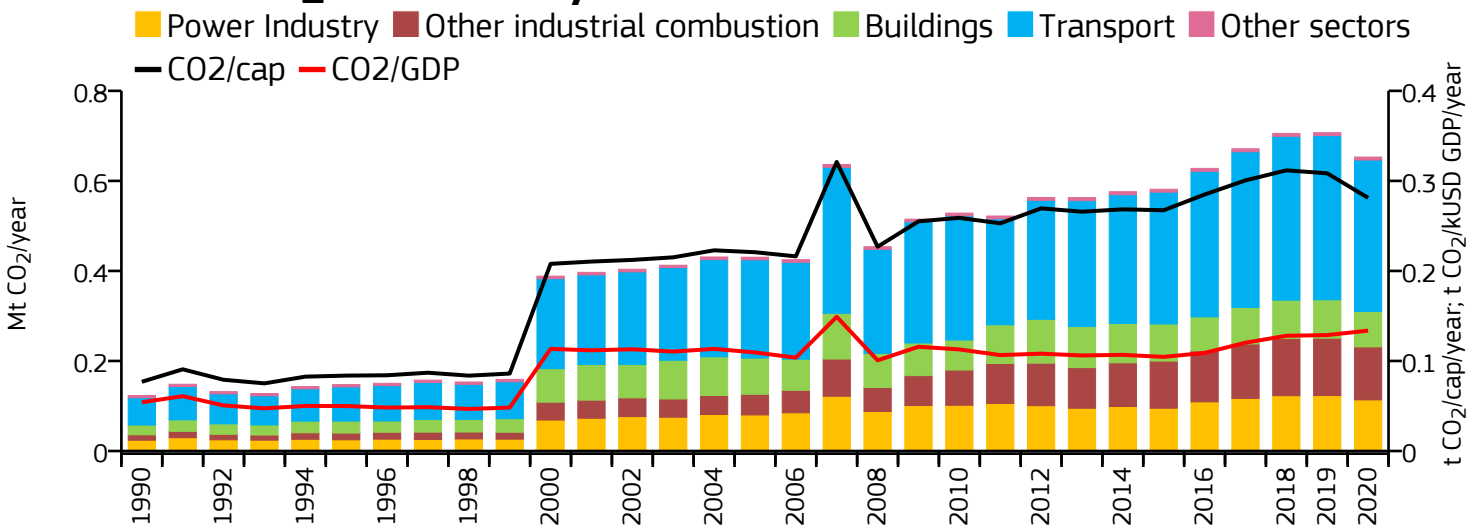


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	26.769	n/a	4.447	n/a	0.337
2018	27.889	34.527	4.577	5.666	0.261
2005	16.597	20.639	4.163	5.177	0.248
1990	5.977	7.853	2.211	2.905	0.282

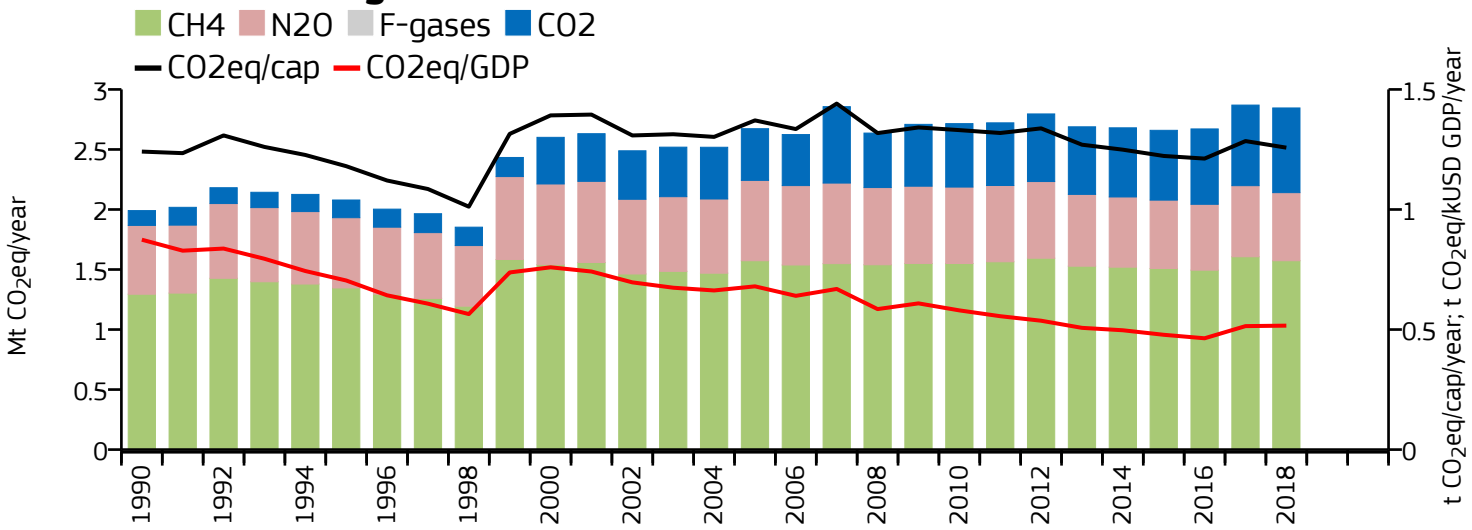
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+407%	+430%	+100%
Other industrial combustion	+186%	+229%	-38%
Buildings	+34%	+39%	-43%
Transport	+351%	+366%	+115%
Other sectors	+455%	+298%	+51%
All sectors	+348%	+340%	+67%

Lesotho

Fossil CO_2 emissions by sector



Greenhouse gas emissions

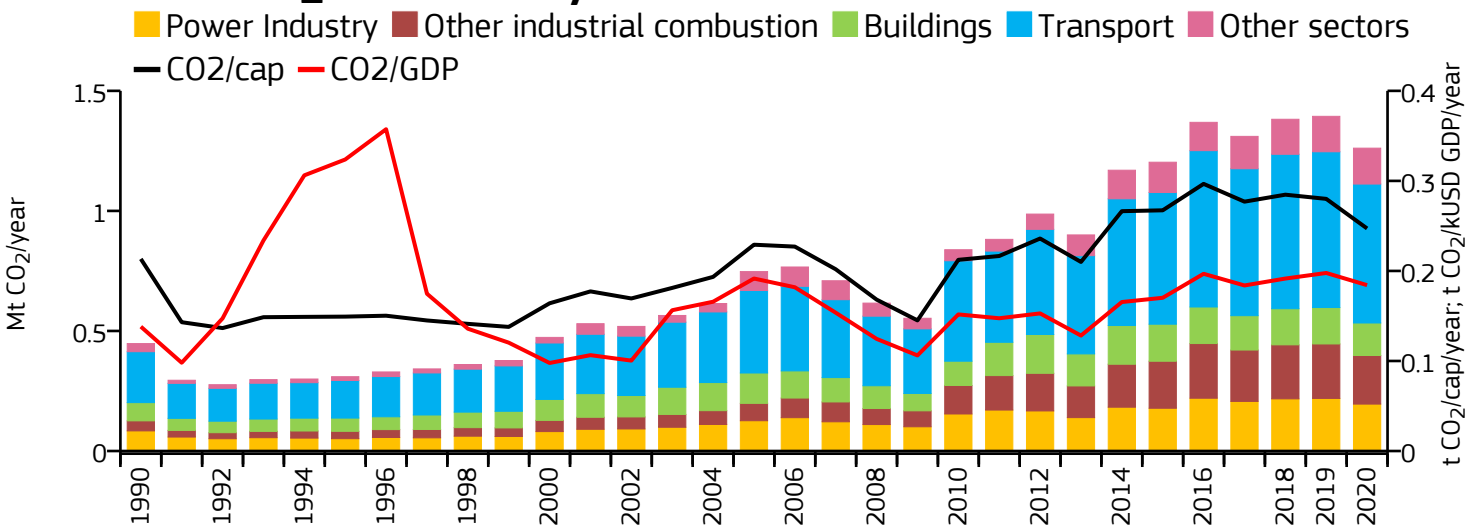


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.653	n/a	0.281	n/a	0.134
2018	0.705	2.846	0.312	1.257	0.128
2005	0.430	2.673	0.221	1.371	0.109
1990	0.123	1.991	0.077	1.241	0.054

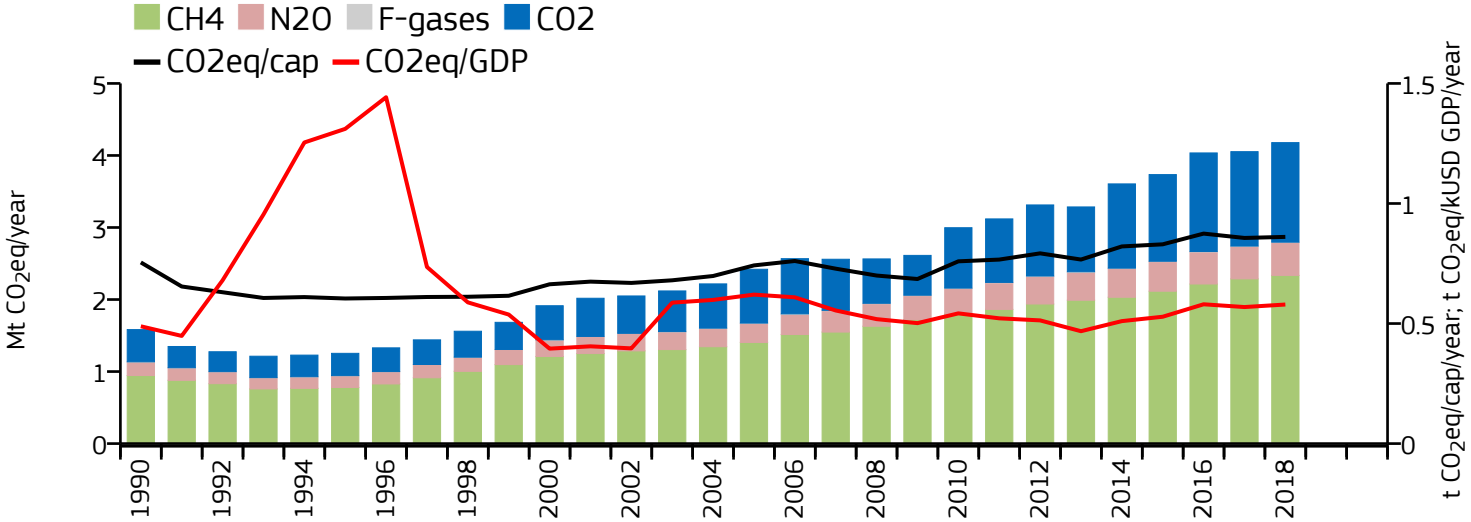
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+373%	+414%	+54%
Other industrial combustion	+884%	+913%	+173%
Buildings	+262%	+47%	-9%
Transport	+454%	+499%	+67%
Other sectors	+35%	+13%	-3%
All sectors	+429%	+43%	+6%

Liberia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

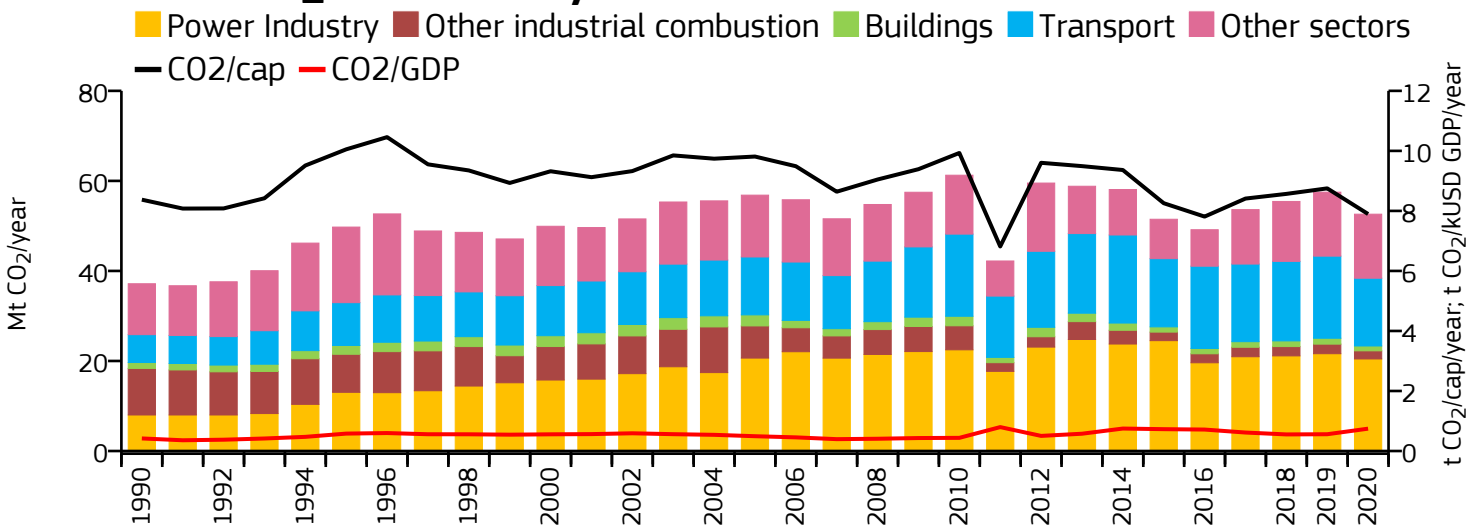


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.261	n/a	0.247	n/a	0.184
2018	1.382	4.178	0.285	0.861	0.192
2005	0.747	2.420	0.229	0.742	0.192
1990	0.447	1.583	0.213	0.755	0.138

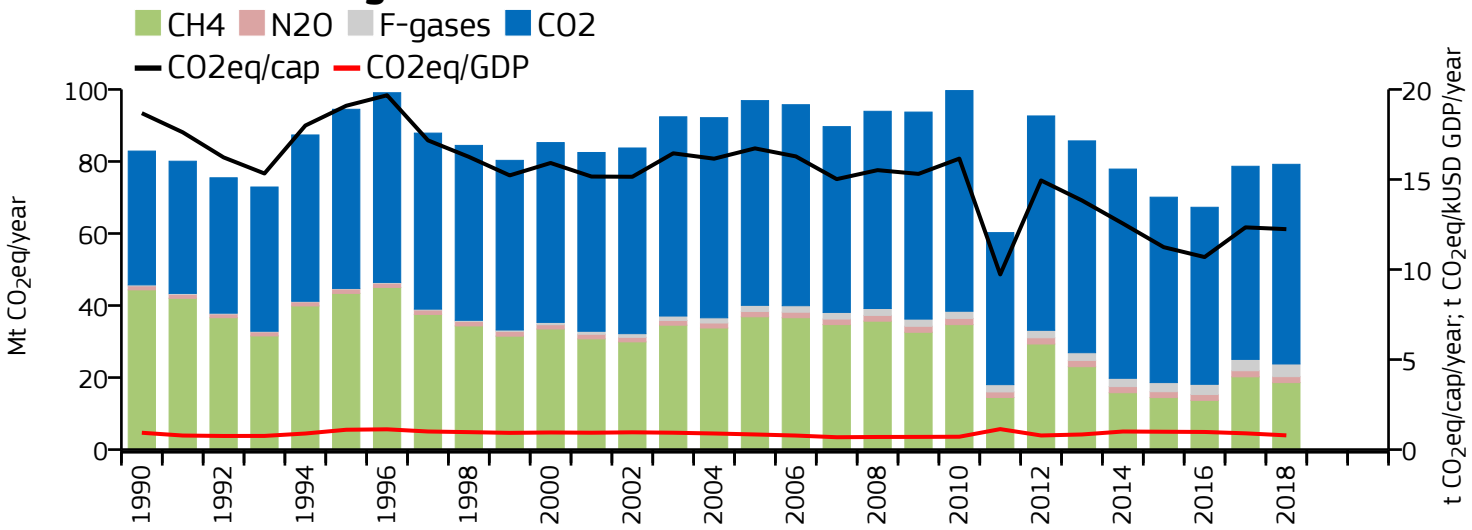
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+133%	+161%	+74%
Other industrial combustion	+385%	+432%	+206%
Buildings	+78%	+169%	+53%
Transport	+173%	+203%	+88%
Other sectors	+342%	+137%	+72%
All sectors	+182%	+164%	+73%

Libya

Fossil CO_2 emissions by sector



Greenhouse gas emissions

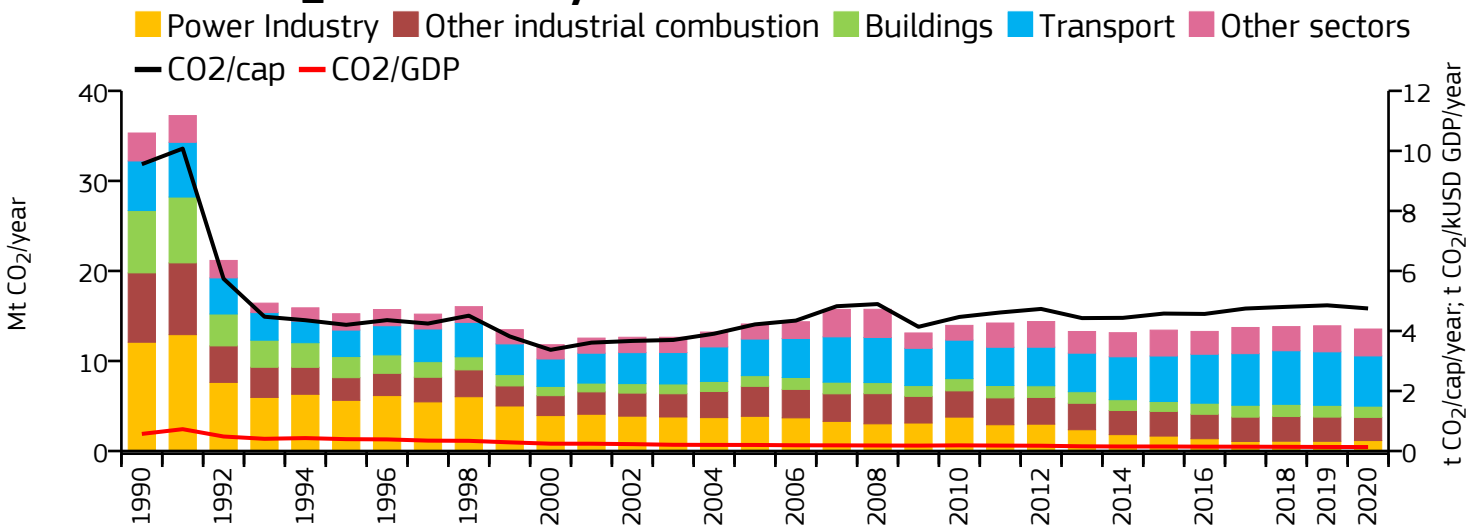


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	52.606	n/a	7.896	n/a	0.745
2018	55.435	79.209	8.567	12.241	0.553
2005	56.835	96.891	9.812	16.727	0.493
1990	37.153	82.885	8.374	18.682	0.419

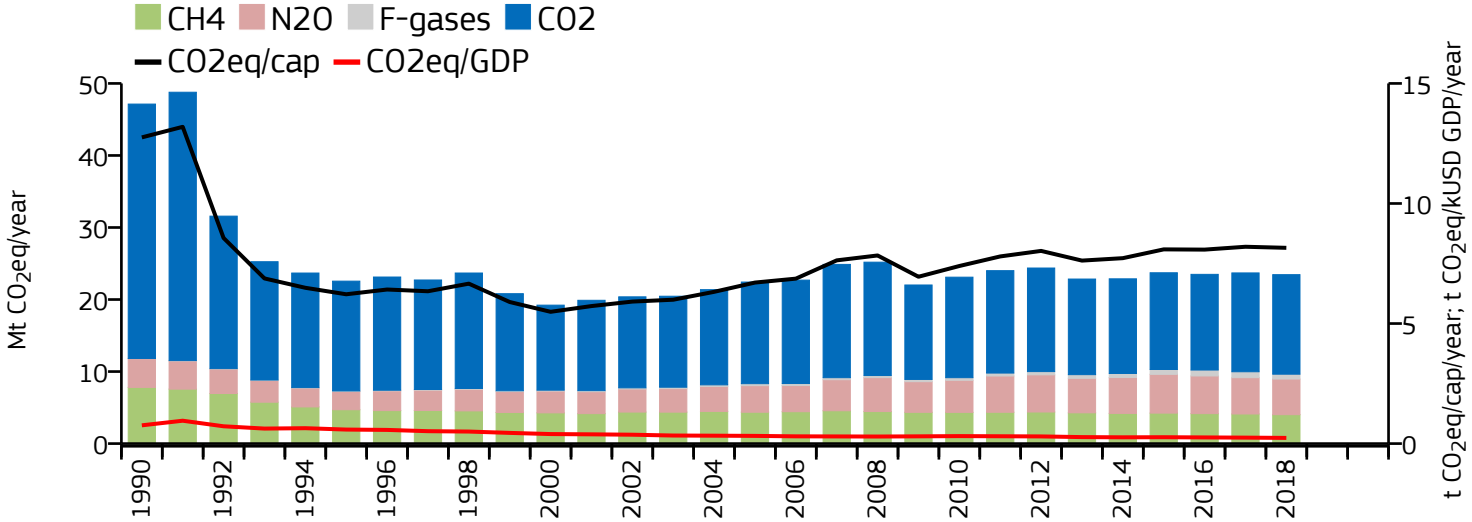
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+156%	+164%	+2%
Other industrial combustion	-83%	-80%	-71%
Buildings	-18%	-3%	-48%
Transport	+143%	+187%	+38%
Other sectors	+26%	-35%	-31%
All sectors	+42%	-4%	-18%

Lithuania

Fossil CO_2 emissions by sector



Greenhouse gas emissions

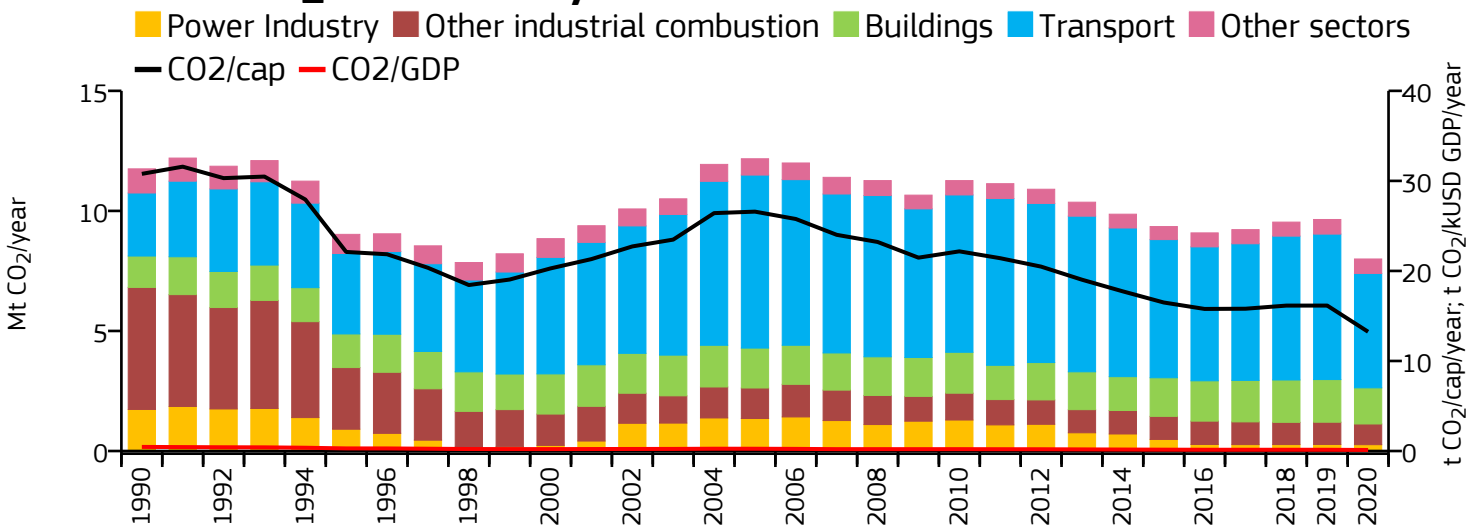


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	13.549	n/a	4.750	n/a	0.132
2018	13.817	23.452	4.803	8.153	0.139
2005	14.109	22.428	4.219	6.706	0.202
1990	35.318	47.135	9.556	12.753	0.570

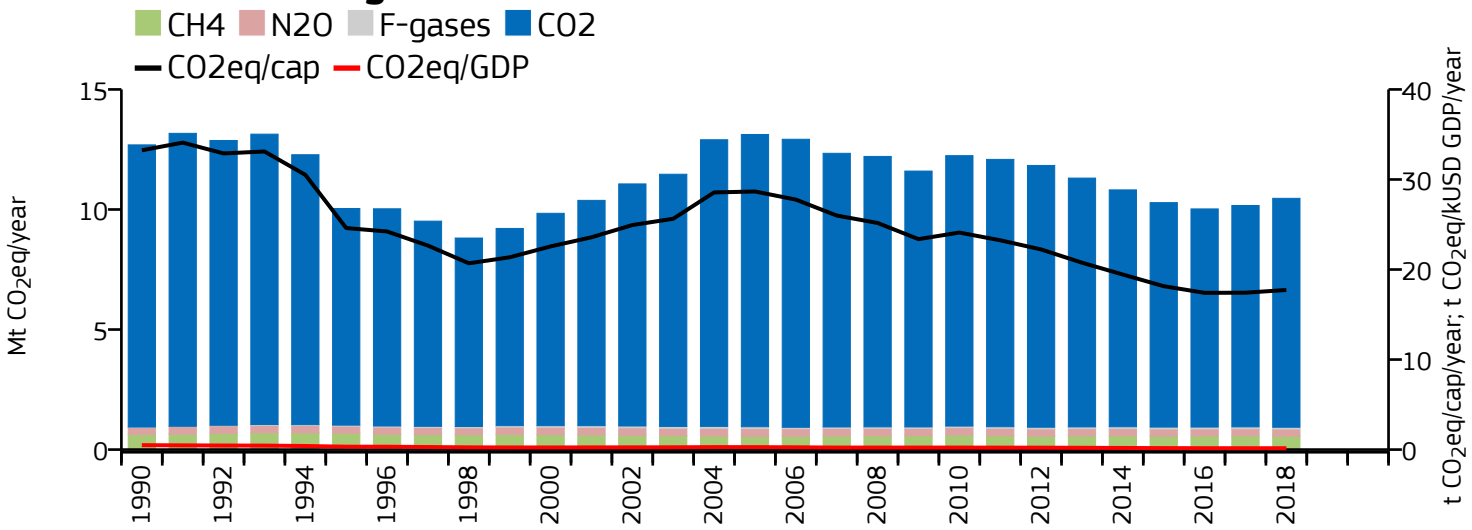
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-90%	-90%	-70%
Other industrial combustion	-67%	-64%	-17%
Buildings	-82%	-78%	+11%
Transport	+1%	+7%	+46%
Other sectors	-4%	-17%	+24%
All sectors	-62%	-50%	+5%

Luxembourg

Fossil CO_2 emissions by sector



Greenhouse gas emissions

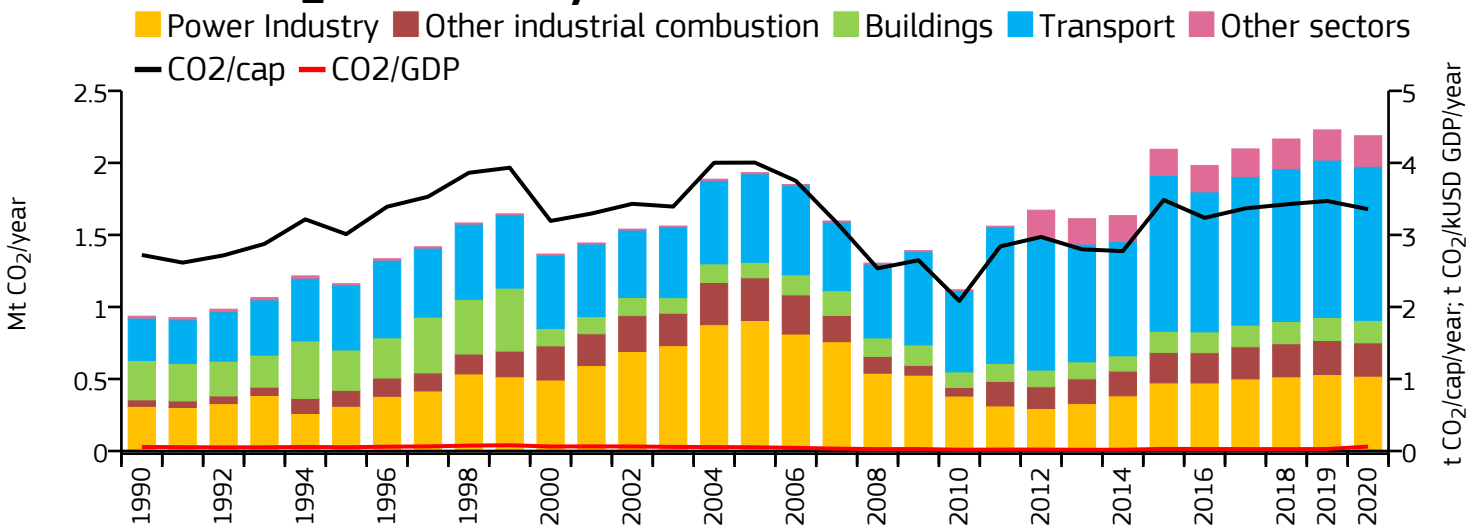


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.998	n/a	13.243	n/a	0.115
2018	9.534	10.465	16.150	17.727	0.138
2005	12.172	13.124	26.586	28.665	0.252
1990	11.752	12.691	30.781	33.240	0.455

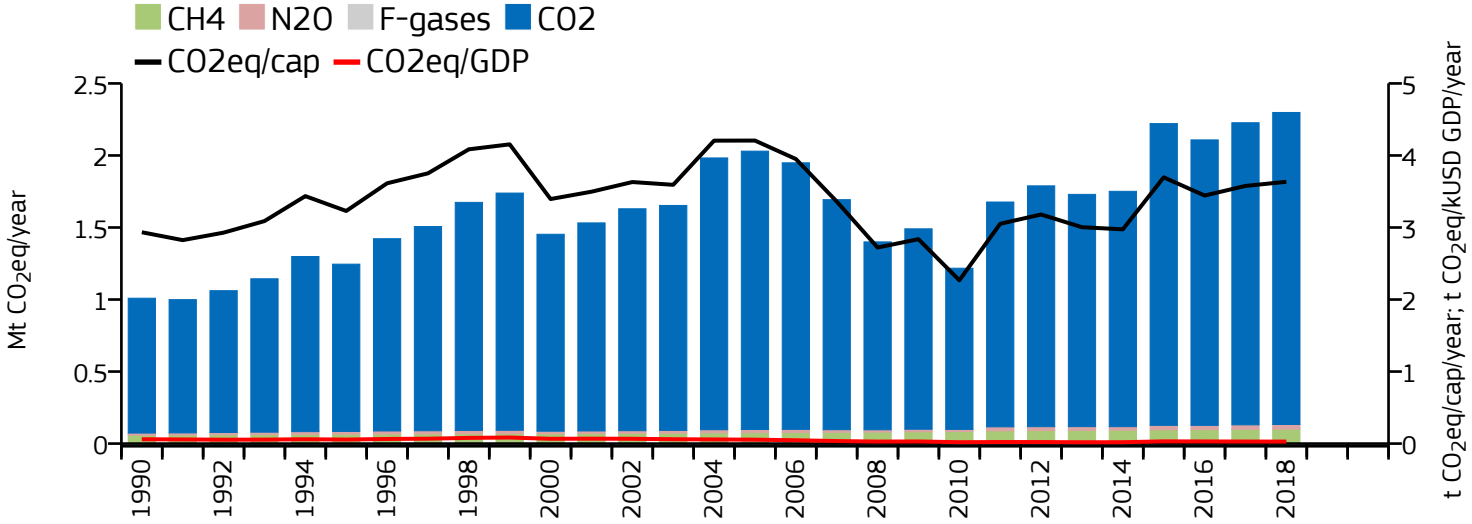
		2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
	Power Industry	-85%	-84%	-80%
	Other industrial combustion	-83%	-82%	-27%
	Buildings	+15%	+36%	+6%
	Transport	+81%	+127%	-17%
	Other sectors	-40%	-25%	-8%
	All sectors	-32%	-18%	-20%

Macao

Fossil CO_2 emissions by sector



Greenhouse gas emissions

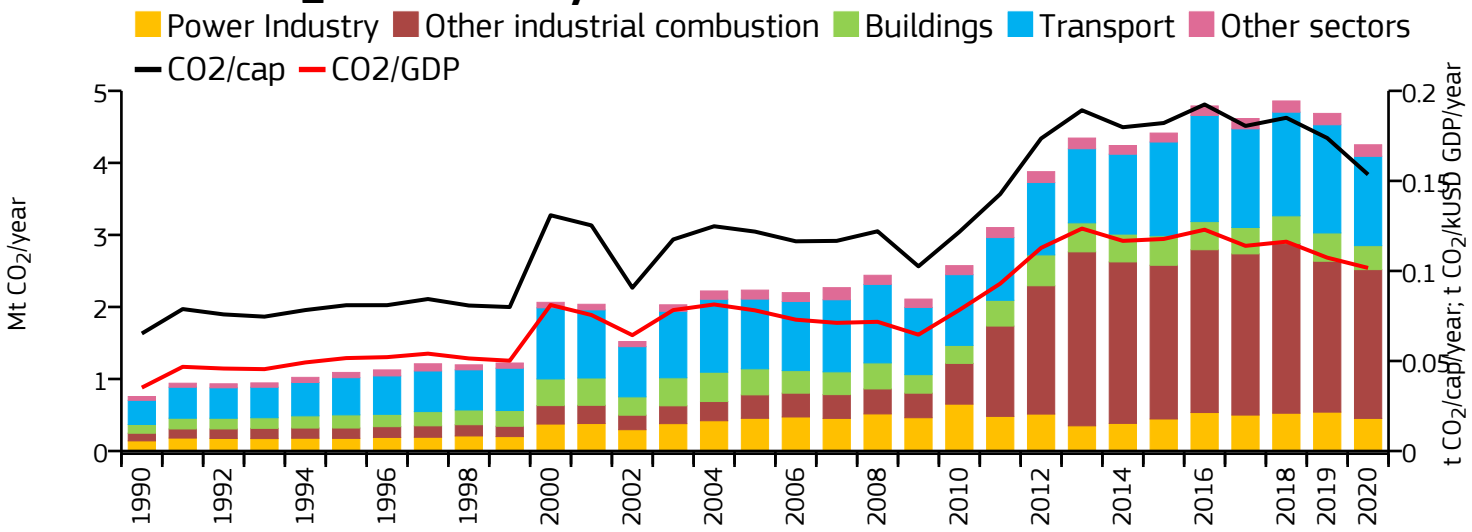


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	2.188	n/a	3.357	n/a	0.061
2018	2.166	2.298	3.425	3.634	0.026
2005	1.932	2.030	4.004	4.207	0.052
1990	0.936	1.009	2.722	2.934	0.056

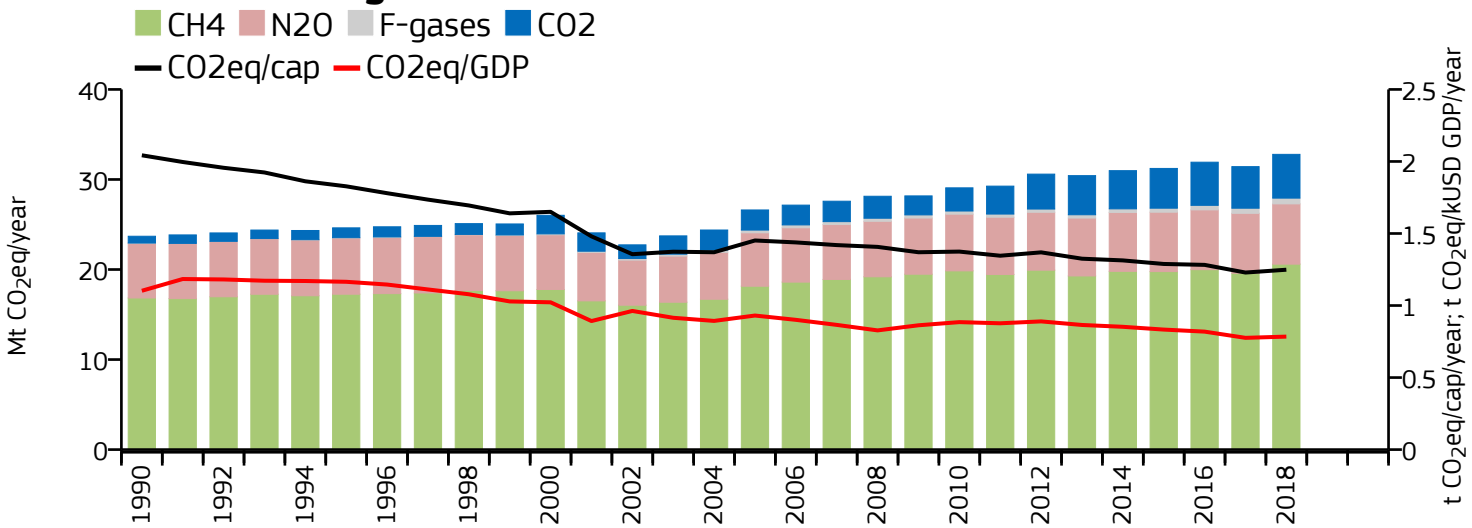
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+67%	+66%	-43%
Other industrial combustion	+415%	+410%	-23%
Buildings	-43%	-42%	+48%
Transport	+263%	+258%	+72%
Other sectors	+1510%	+321%	+240%
All sectors	+134%	+128%	+13%

Madagascar

Fossil CO_2 emissions by sector



Greenhouse gas emissions

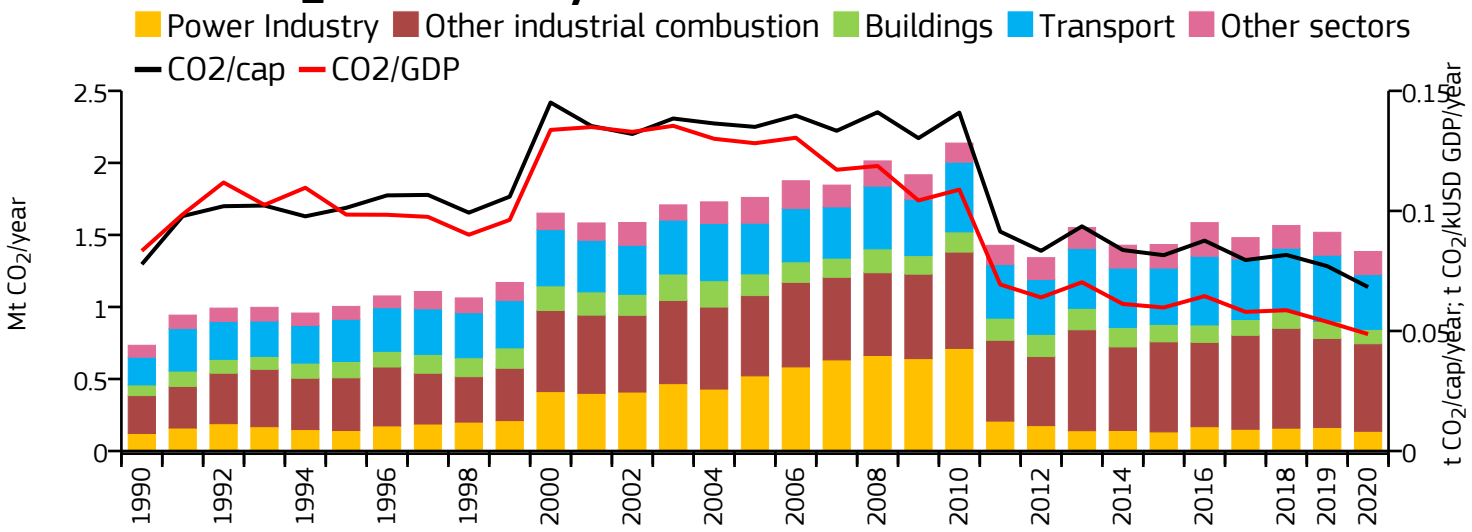


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	4.252	n/a	0.154	n/a	0.102
2018	4.860	32.790	0.185	1.249	0.116
2005	2.234	26.614	0.122	1.451	0.078
1990	0.757	23.695	0.065	2.043	0.035

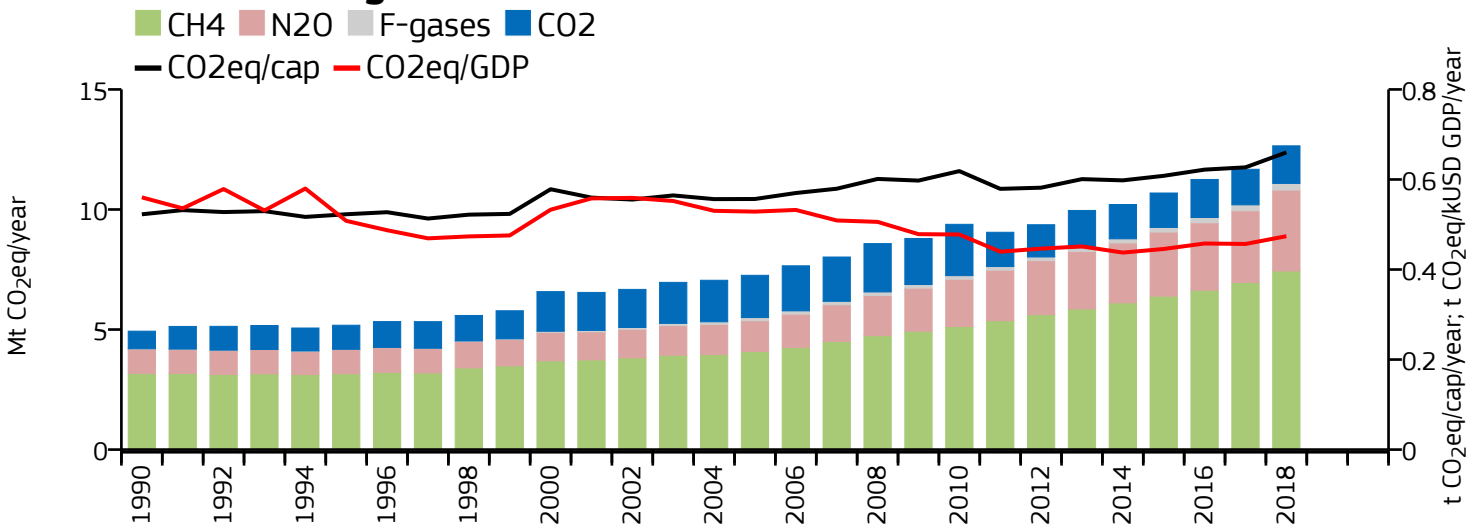
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+222%	+275%	+16%
Other industrial combustion	+1841%	+1975%	+613%
Buildings	+175%	+132%	+30%
Transport	+270%	+329%	+49%
Other sectors	+202%	+19%	+13%
All sectors	+462%	+38%	+23%

Malawi

Fossil CO_2 emissions by sector



Greenhouse gas emissions

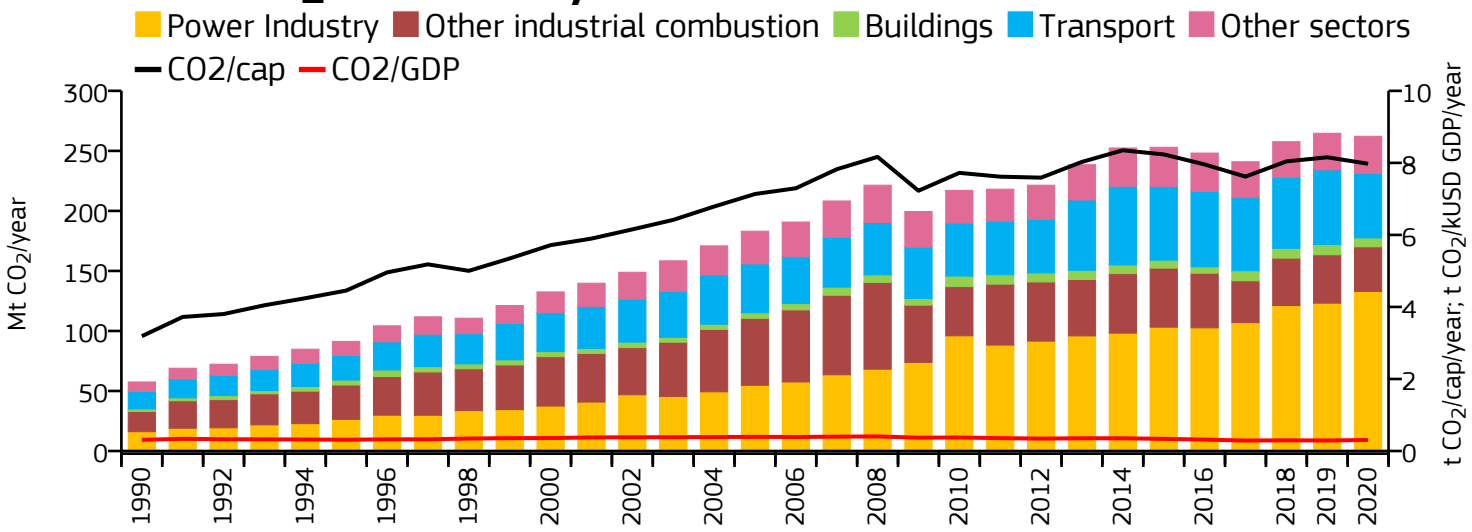


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.385	n/a	0.068	n/a	0.049
2018	1.565	12.651	0.082	0.660	0.059
2005	1.760	7.259	0.135	0.557	0.128
1990	0.734	4.932	0.078	0.523	0.083

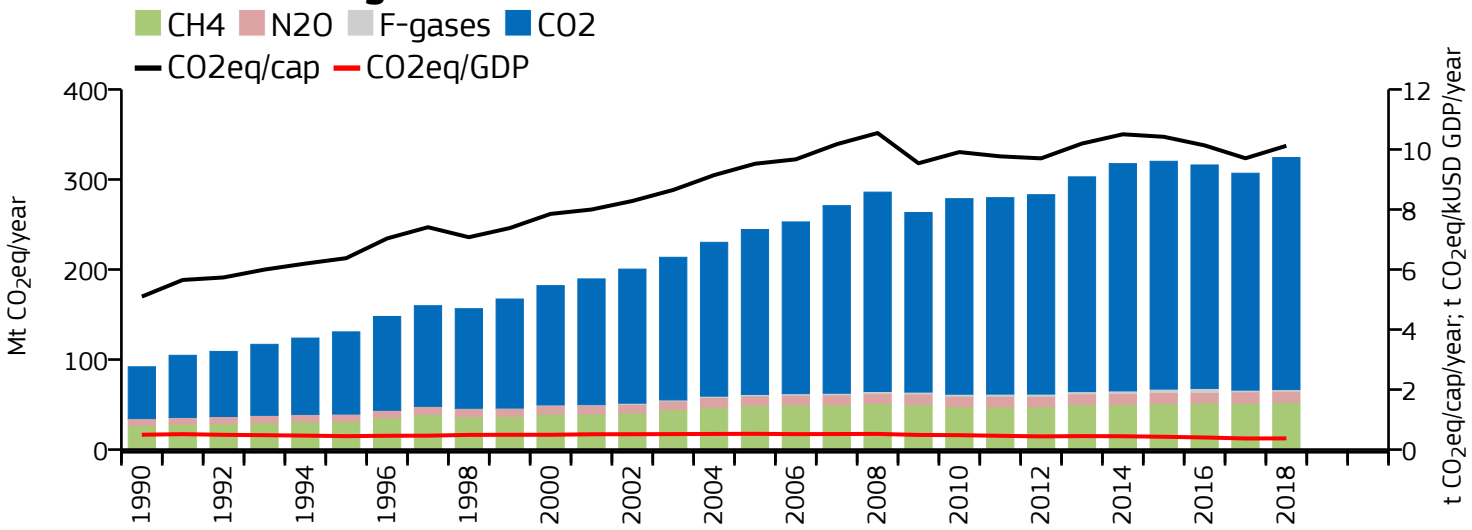
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +12%	↗ +31%	↘ -69%
Other industrial combustion	↗ +131%	↗ +161%	↗ +24%
Buildings	↗ +35%	↗ +30%	↗ +10%
Transport	↗ +97%	↗ +129%	↗ +26%
Other sectors	↗ +94%	↗ +182%	↗ +107%
All sectors	↗ +89%	↗ +156%	↗ +74%

Malaysia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

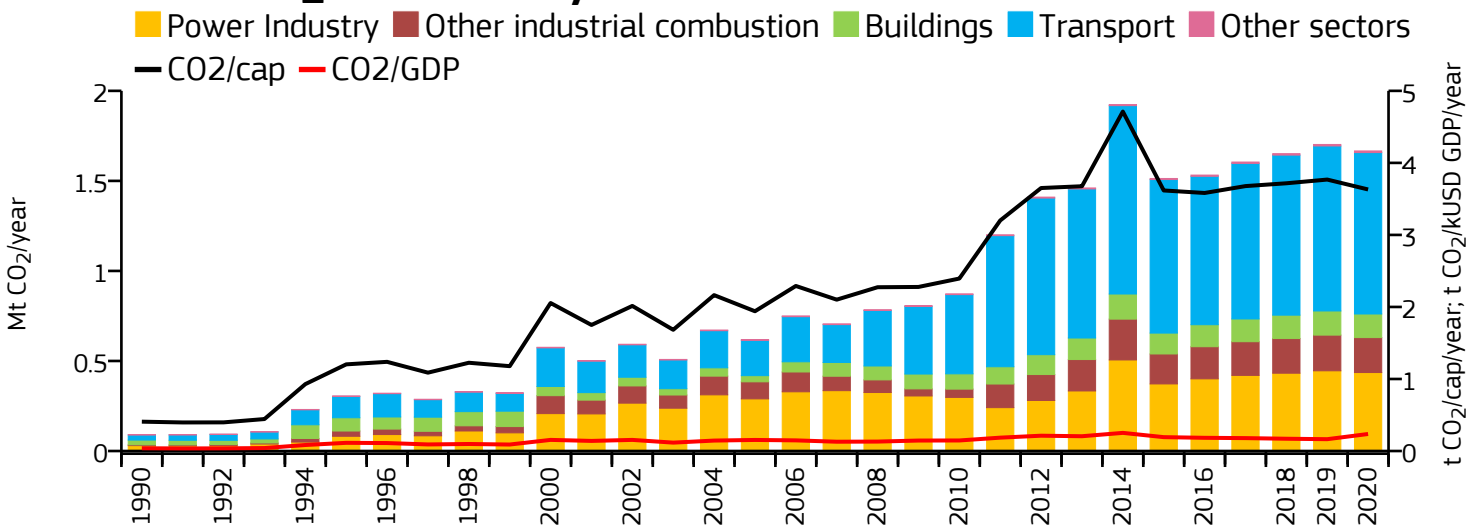


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	262.171	n/a	7.976	n/a	0.306
2018	257.648	324.312	8.041	10.121	0.297
2005	183.094	244.364	7.136	9.523	0.393
1990	57.513	91.953	3.188	5.098	0.310

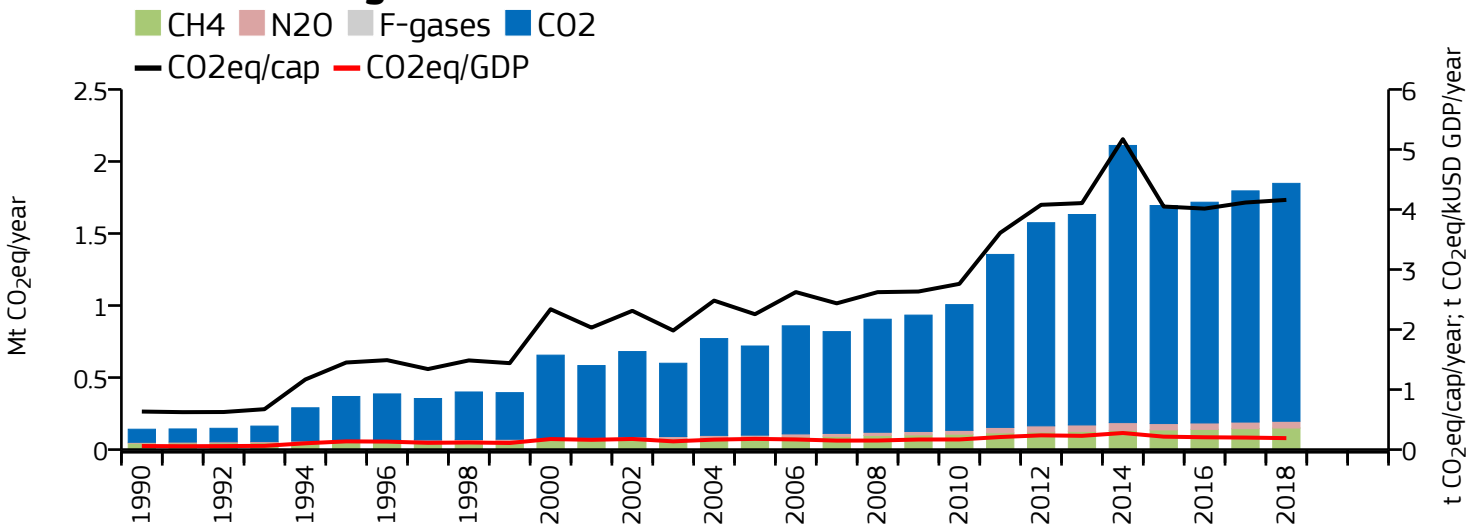
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+727%	+654%	+121%
Other industrial combustion	+120%	+134%	-29%
Buildings	+262%	+289%	+79%
Transport	+268%	+306%	+45%
Other sectors	+293%	+126%	+8%
All sectors	+356%	+253%	+33%

Maldives

Fossil CO_2 emissions by sector



Greenhouse gas emissions

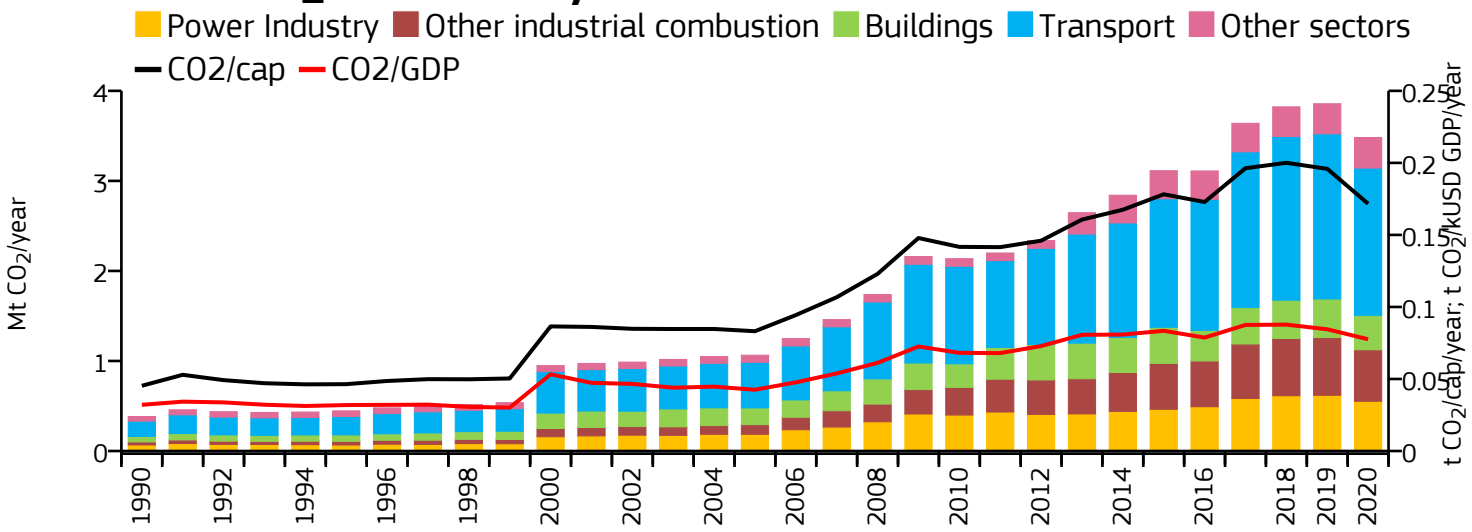


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.666	n/a	3.631	n/a	0.236
2018	1.651	1.848	3.717	4.160	0.170
2005	0.619	0.719	1.940	2.255	0.154
1990	0.091	0.141	0.407	0.634	0.038

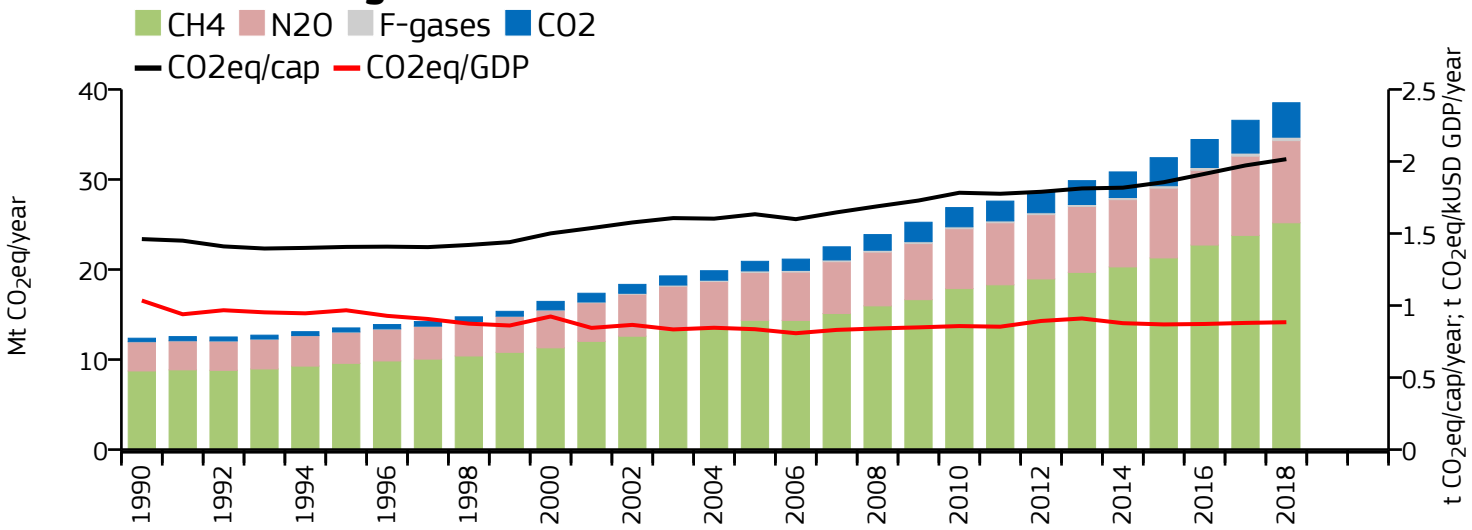
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+1354%	+1342%	+49%
Other industrial combustion	+4369%	+4328%	+103%
Buildings	+397%	+399%	+280%
Transport	+3051%	+3011%	+352%
Other sectors	+413%	+262%	+87%
All sectors	+1733%	+1207%	+157%

Mali

Fossil CO_2 emissions by sector



Greenhouse gas emissions

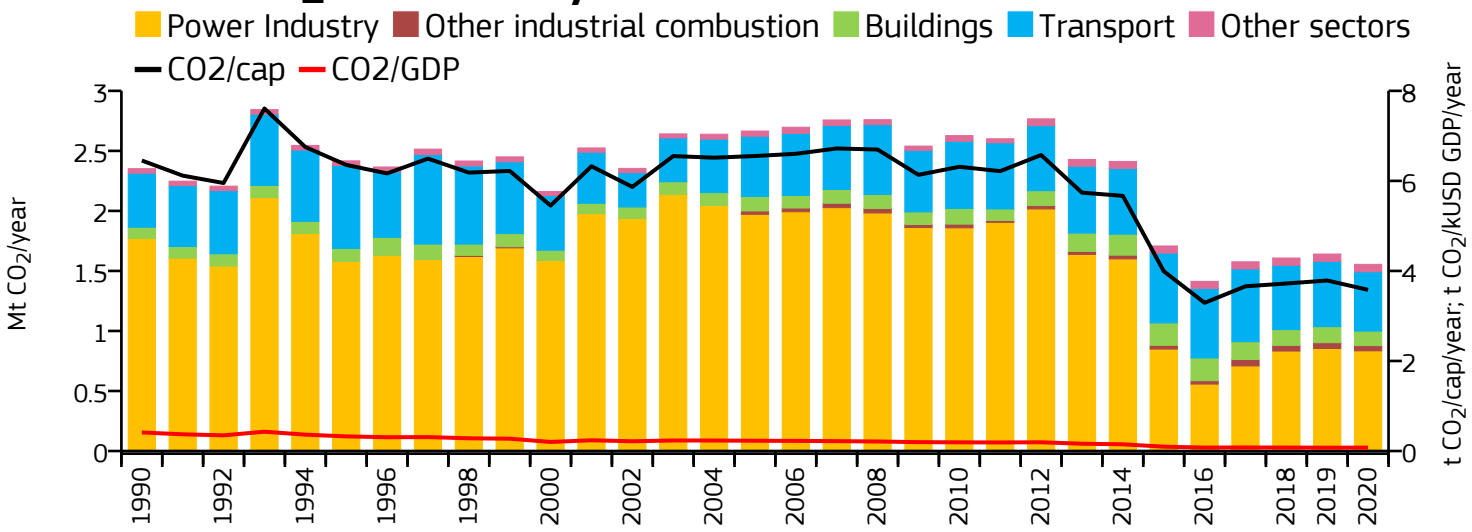


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	3.482	n/a	0.172	n/a	0.078
2018	3.822	38.521	0.200	2.016	0.088
2005	1.064	20.910	0.083	1.634	0.043
1990	0.383	12.369	0.045	1.461	0.032

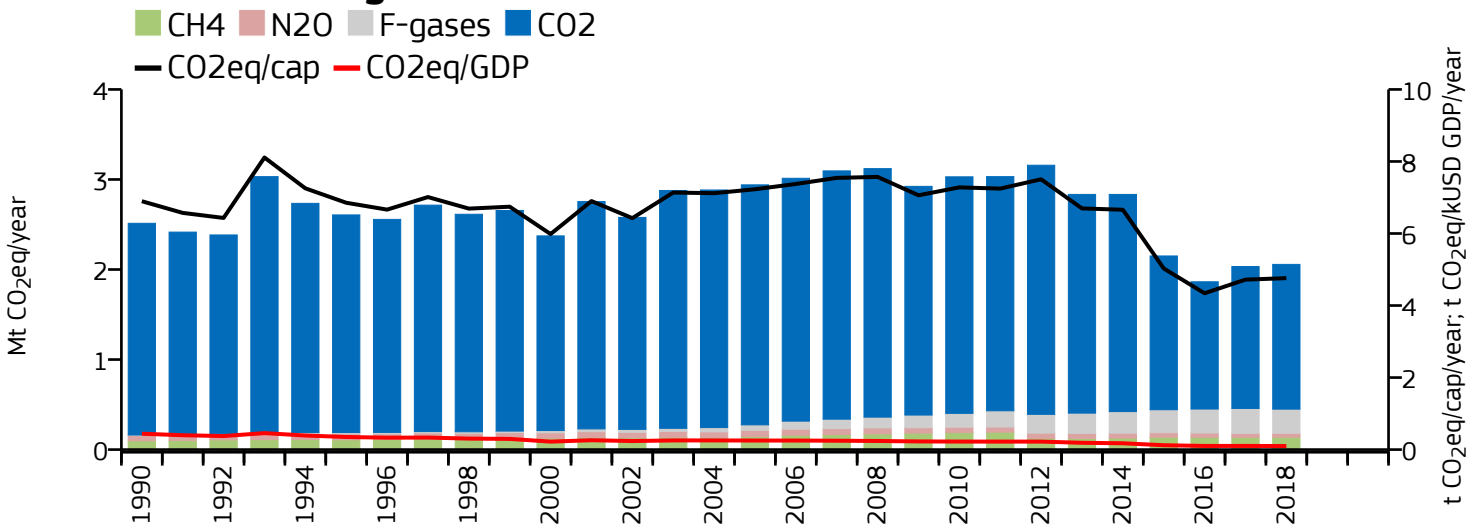
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+721%	+815%	+231%
Other industrial combustion	+1606%	+1683%	+483%
Buildings	+527%	+134%	+48%
Transport	+861%	+968%	+260%
Other sectors	+563%	+195%	+77%
All sectors	+809%	+211%	+84%

Malta

Fossil CO_2 emissions by sector



Greenhouse gas emissions

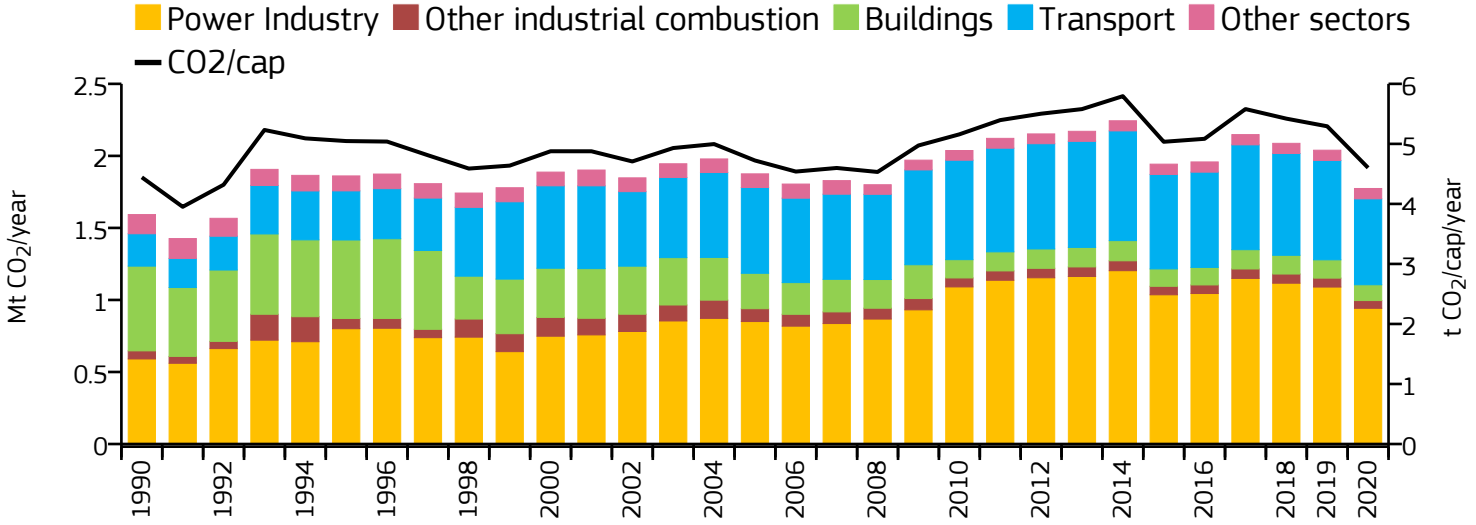


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.555	n/a	3.580	n/a	0.075
2018	1.608	2.057	3.721	4.760	0.077
2005	2.665	2.940	6.553	7.228	0.228
1990	2.352	2.513	6.453	6.896	0.412

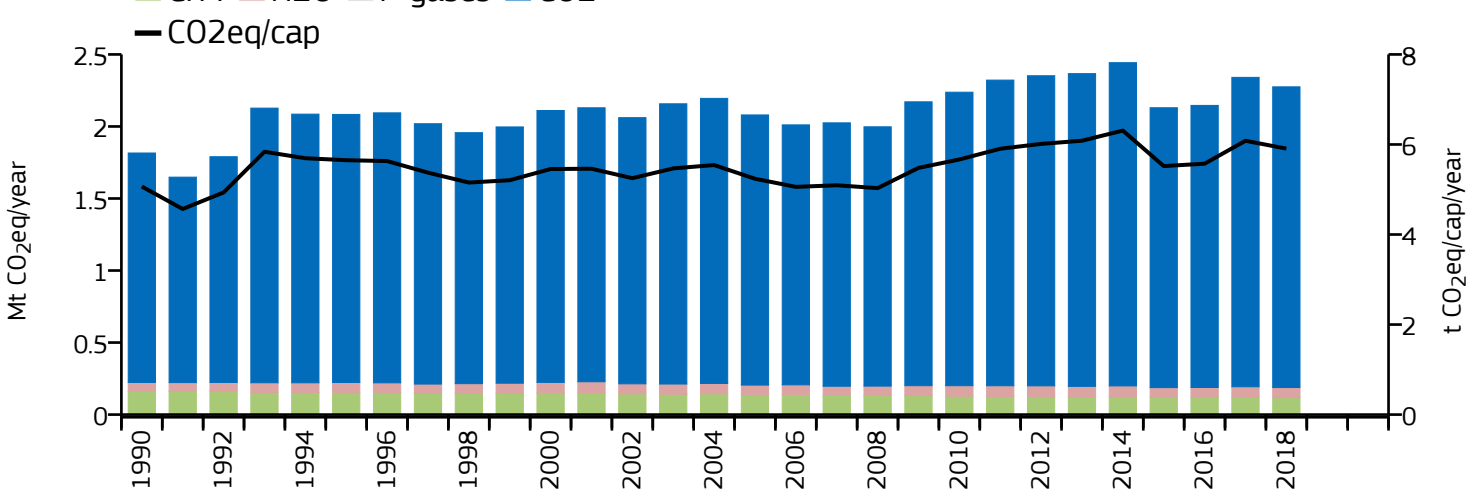
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-53%	-53%	-58%
Other industrial combustion		+5%	+69%
Buildings	+30%	+43%	+9%
Transport	+10%	+19%	+7%
Other sectors	+69%	+167%	+63%
All sectors	-34%	-18%	-30%

Martinique

Fossil CO_2 emissions by sector



Greenhouse gas emissions

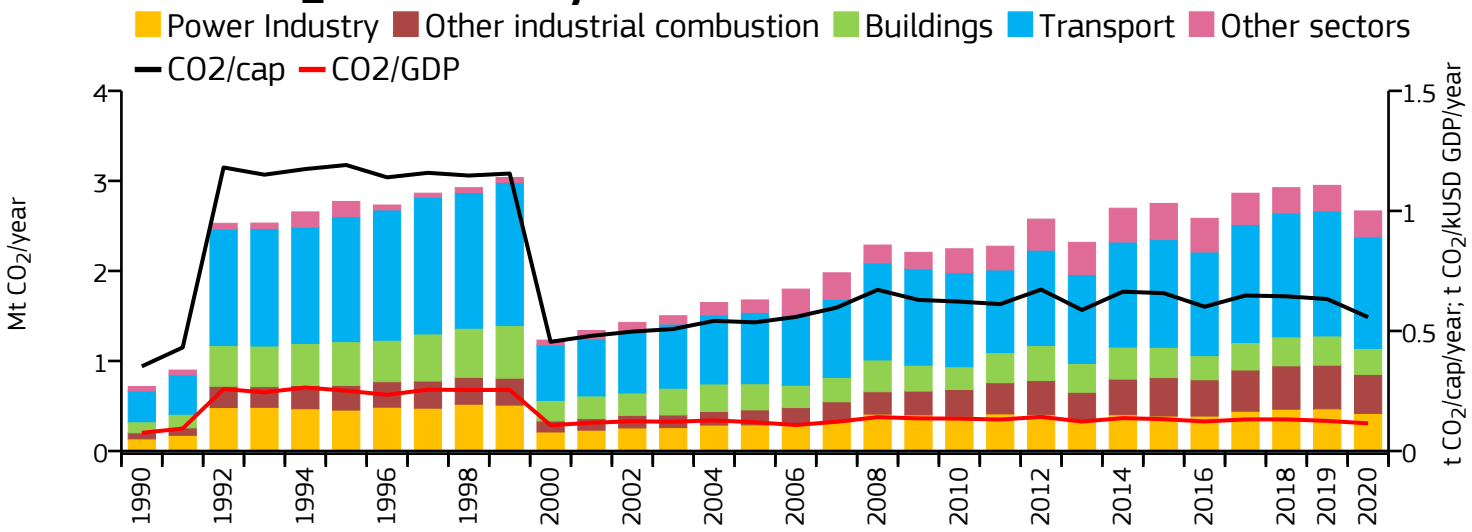


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.774	n/a	4.602	n/a	n/a
2018	2.087	2.275	5.420	5.908	n/a
2005	1.875	2.080	4.723	5.239	n/a
1990	1.593	1.816	4.443	5.066	n/a

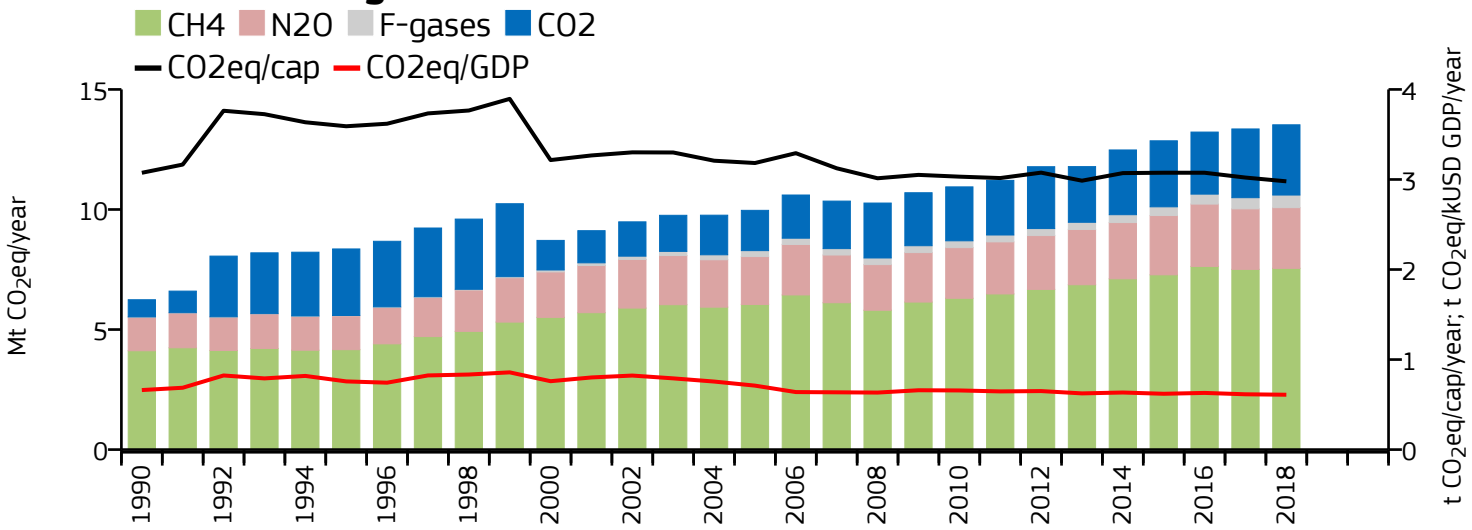
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+60%	+89%	+31%
Other industrial combustion	-4%	+13%	-30%
Buildings	-81%	-77%	-46%
Transport	+165%	+213%	+19%
Other sectors	-46%	-30%	-14%
All sectors	+11%	+25%	+9%

Mauritania

Fossil CO_2 emissions by sector



Greenhouse gas emissions

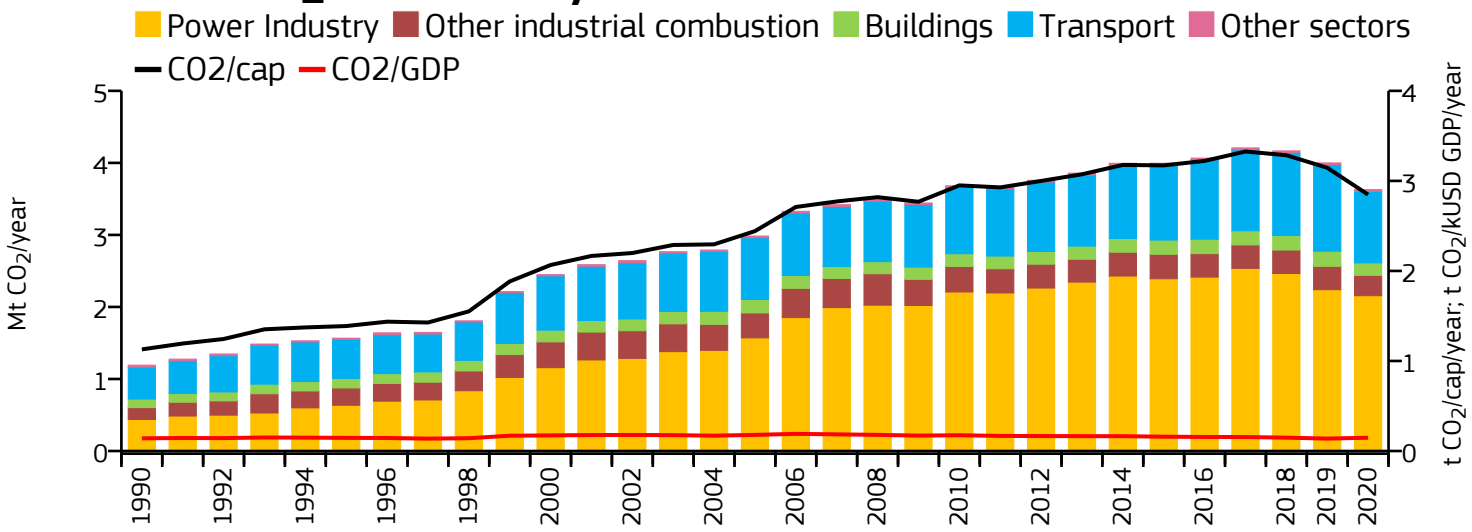


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	2.666	n/a	0.557	n/a	0.115
2018	2.925	13.527	0.644	2.979	0.132
2005	1.678	9.964	0.536	3.183	0.120
1990	0.716	6.241	0.353	3.074	0.076

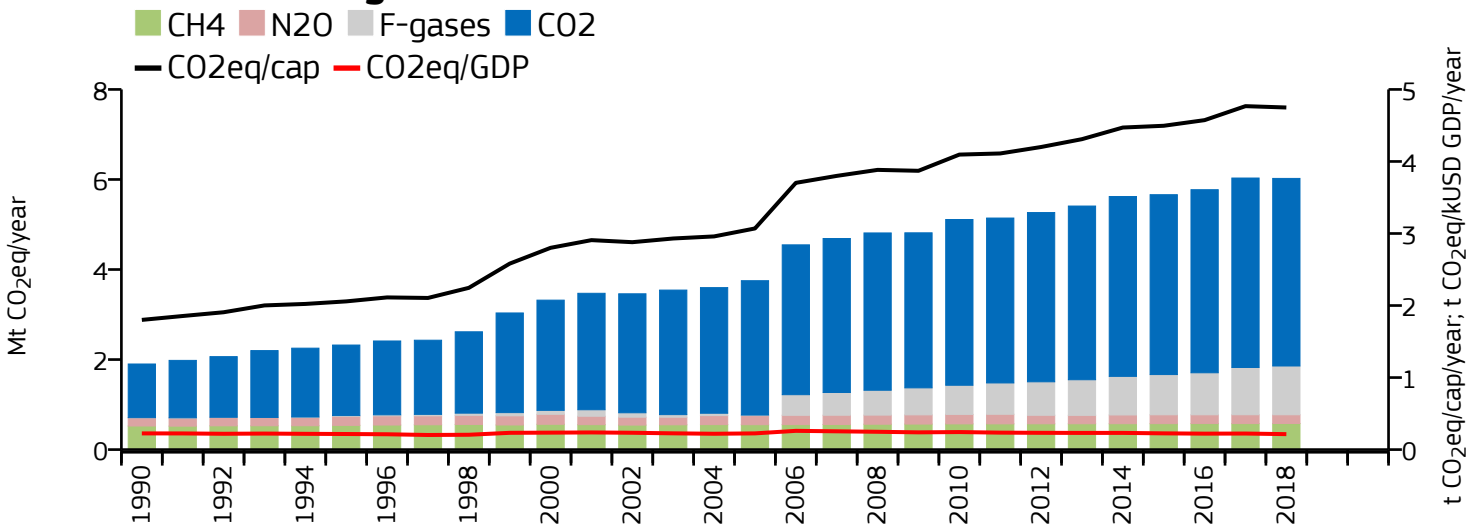
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+210%	+245%	+60%
Other industrial combustion	+543%	+596%	+188%
Buildings	+137%	+134%	+20%
Transport	+262%	+303%	+74%
Other sectors	+479%	+95%	+29%
All sectors	+272%	+117%	+36%

Mauritius

Fossil CO_2 emissions by sector



Greenhouse gas emissions

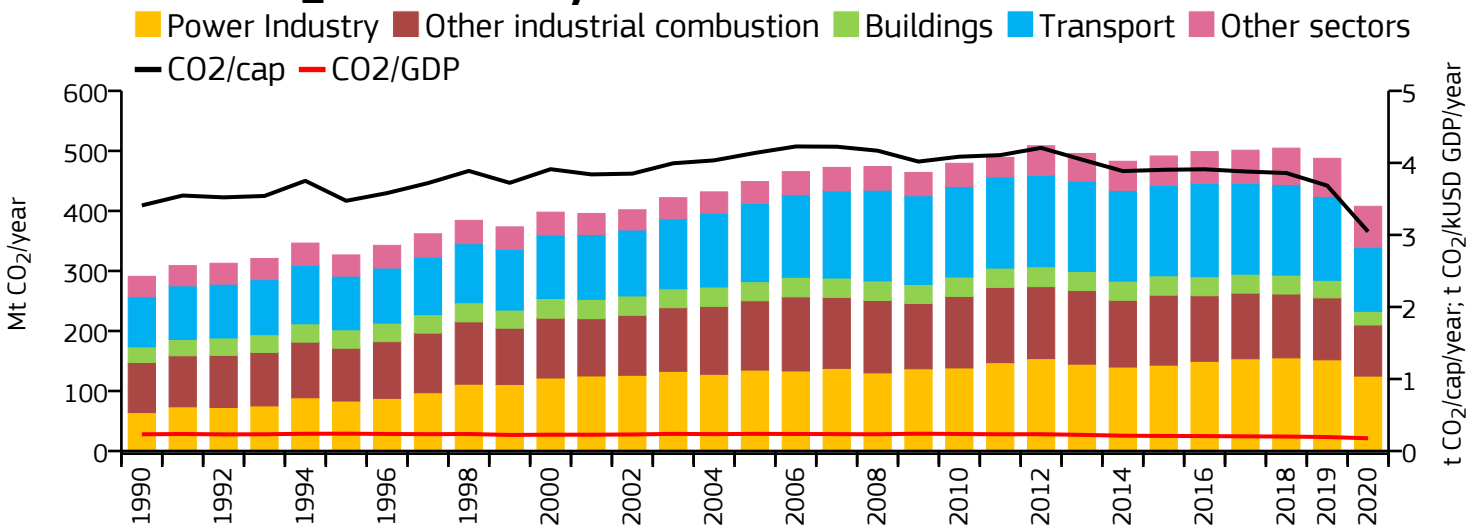


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	3.628	n/a	2.848	n/a	0.147
2018	4.167	6.023	3.285	4.749	0.148
2005	2.984	3.751	2.442	3.070	0.179
1990	1.192	1.901	1.129	1.801	0.141

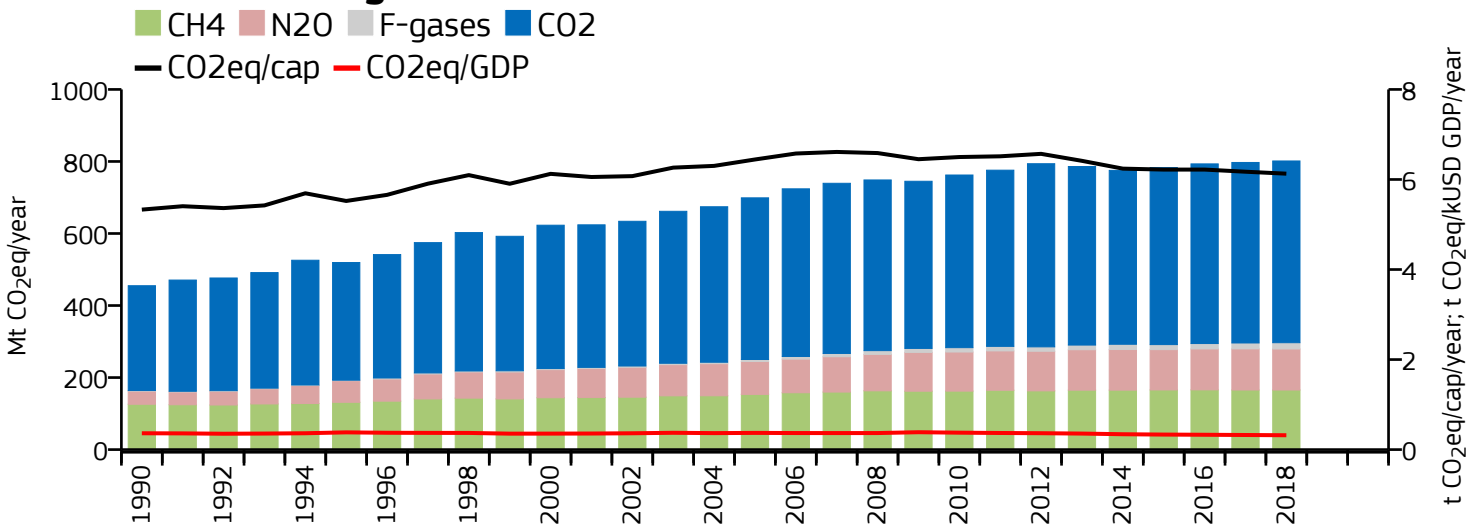
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +393%	↗ +461%	↗ +56%
Other industrial combustion	↗ +71%	↗ +74%	↘ -7%
Buildings	↗ +46%	↗ +54%	↗ +7%
Transport	↗ +124%	↗ +159%	↗ +34%
Other sectors	↘ -8%	↗ +167%	↗ +146%
All sectors	↗ +204%	↗ +217%	↗ +61%

Mexico

Fossil CO_2 emissions by sector



Greenhouse gas emissions

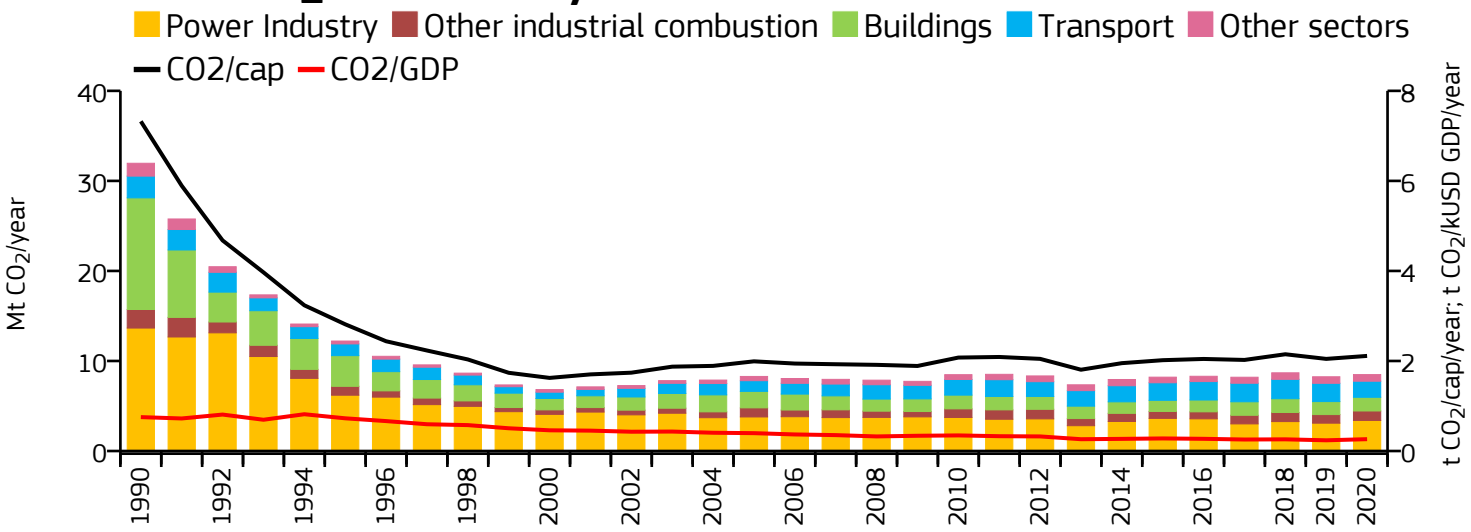


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	407.695	n/a	3.045	n/a	0.177
2018	504.609	801.380	3.859	6.129	0.201
2005	448.861	698.992	4.138	6.444	0.238
1990	291.037	454.995	3.410	5.330	0.232

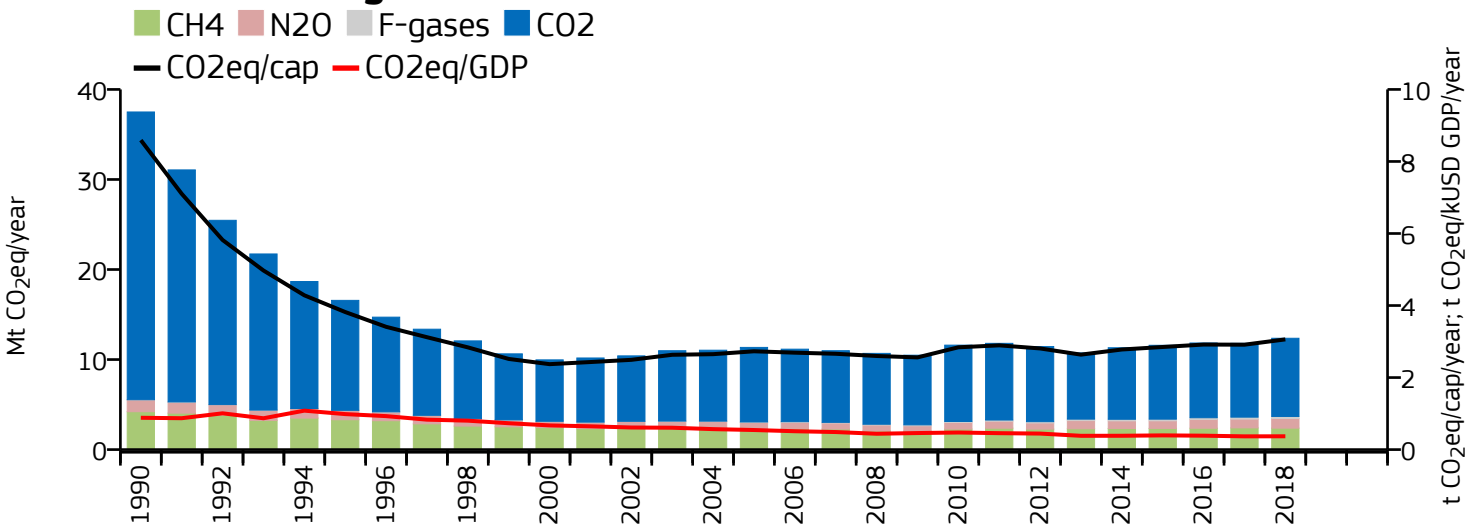
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +95%	↗ +143%	↗ +15%
Other industrial combustion	→ +2%	↗ +27%	↘ -8%
Buildings	↘ -12%	↗ +21%	→ 0%
Transport	↗ +27%	↗ +81%	↗ +16%
Other sectors	↗ +102%	↗ +82%	↗ +25%
All sectors	↗ +40%	↗ +76%	↗ +15%

Moldova

Fossil CO_2 emissions by sector



Greenhouse gas emissions

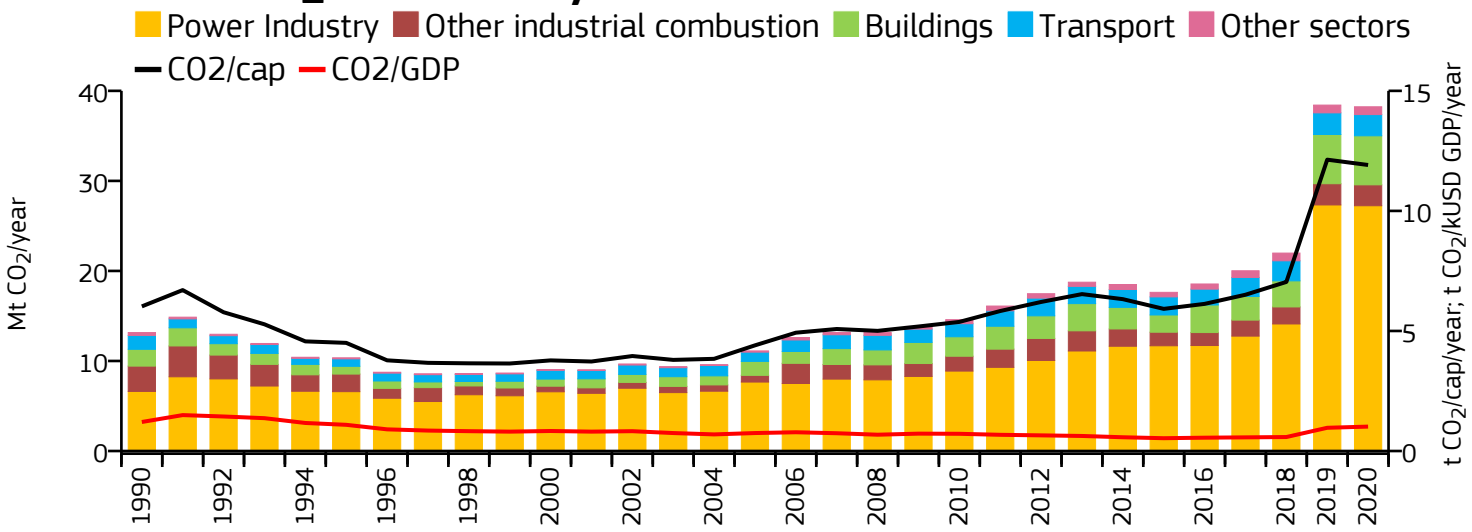


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	8.487	n/a	2.112	n/a	0.263
2018	8.685	12.365	2.149	3.060	0.259
2005	8.281	11.348	1.992	2.729	0.397
1990	31.959	37.497	7.323	8.592	0.753

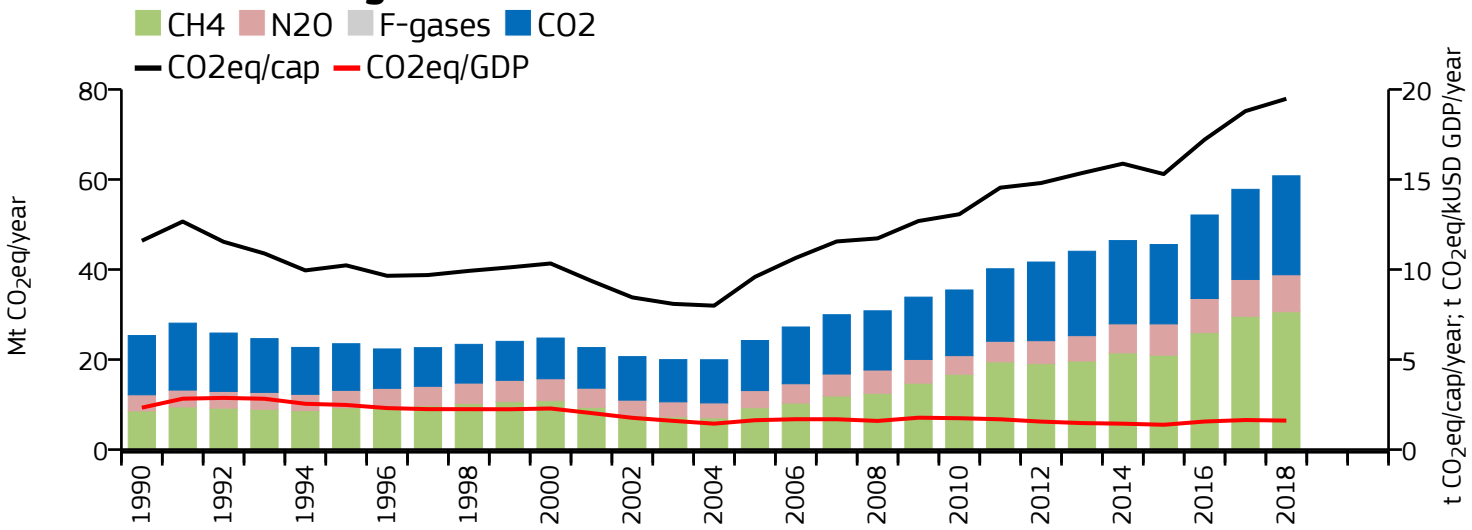
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-75%	-76%	-14%
Other industrial combustion	-49%	-51%	0%
Buildings	-88%	-85%	-2%
Transport	-26%	-11%	+80%
Other sectors	-49%	-39%	+17%
All sectors	-73%	-67%	+9%

Mongolia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

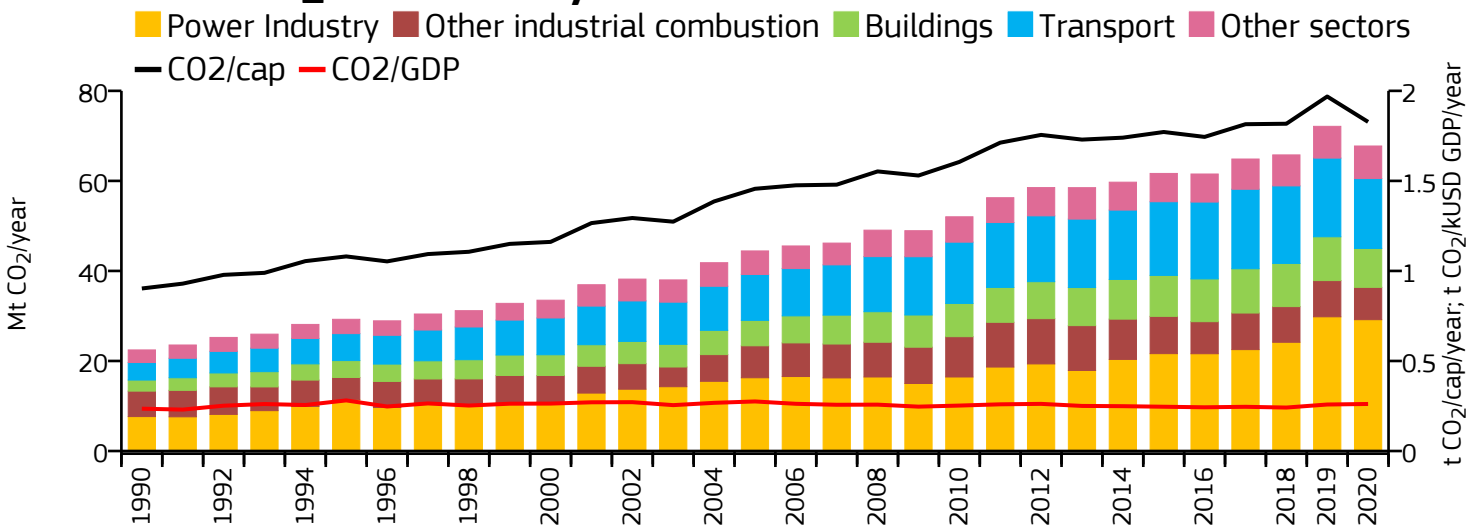


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	38.231	n/a	11.912	n/a	1.017
2018	21.983	60.815	7.042	19.481	0.582
2005	11.118	24.227	4.400	9.589	0.748
1990	13.154	25.329	6.023	11.597	1.208

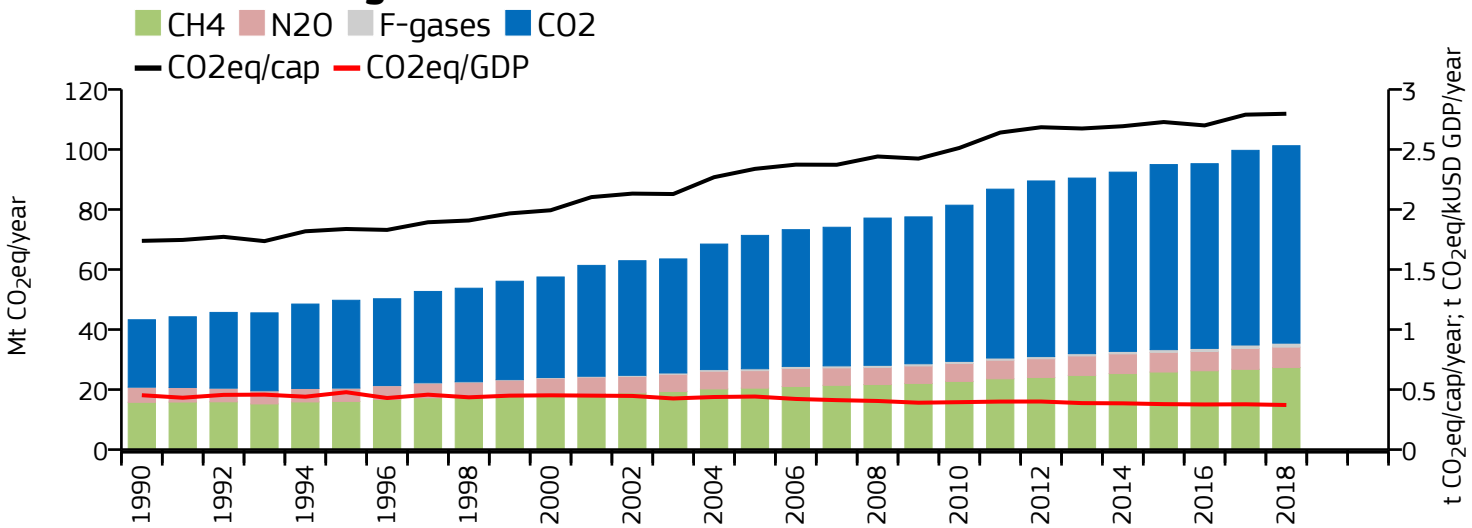
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+312%	+113%	+84%
Other industrial combustion	-17%	-33%	+154%
Buildings	+192%	+67%	+83%
Transport	+53%	+46%	+117%
Other sectors	+175%	+219%	+203%
All sectors	+191%	+140%	+151%

Morocco

Fossil CO_2 emissions by sector



Greenhouse gas emissions

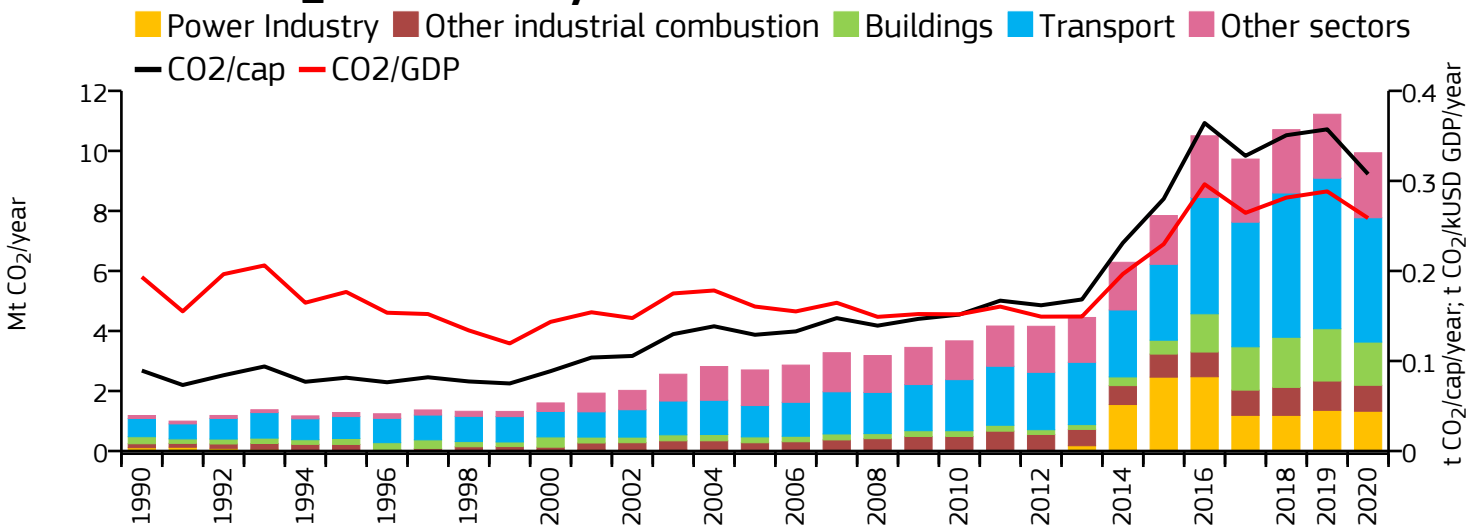


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	67.752	n/a	1.828	n/a	0.261
2018	65.774	101.243	1.817	2.797	0.241
2005	44.443	71.370	1.456	2.338	0.275
1990	22.454	43.257	0.903	1.739	0.235

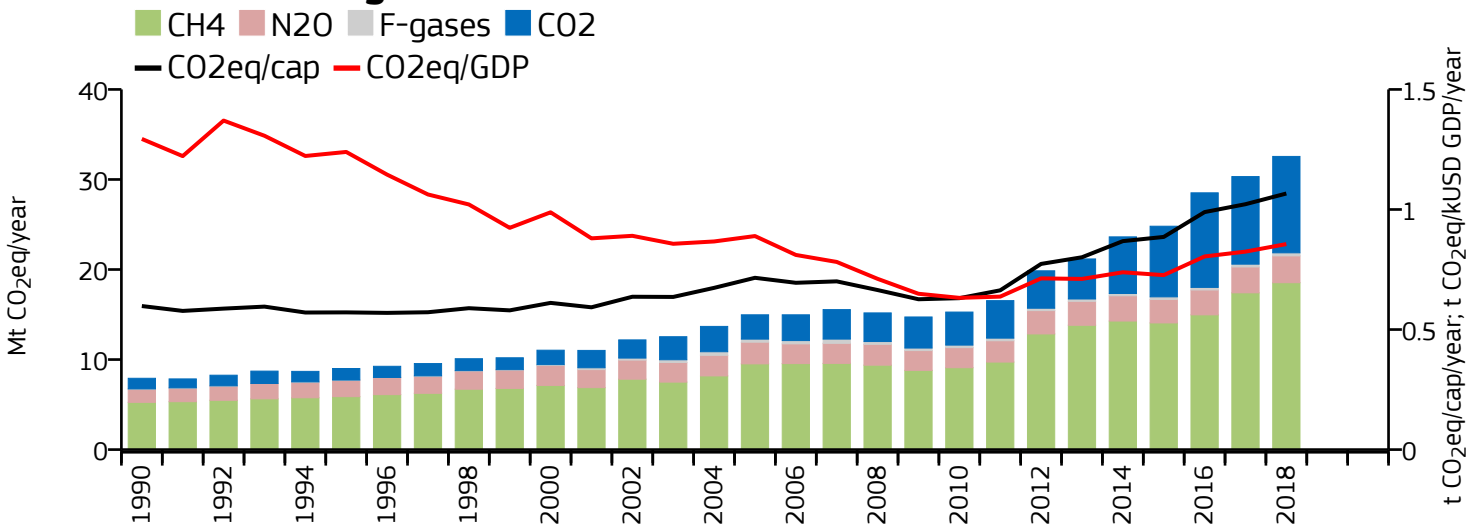
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+281%	+216%	+48%
Other industrial combustion	+27%	+39%	+11%
Buildings	+252%	+258%	+57%
Transport	+299%	+340%	+69%
Other sectors	+159%	+80%	+33%
All sectors	+202%	+134%	+42%

Mozambique

Fossil CO_2 emissions by sector



Greenhouse gas emissions

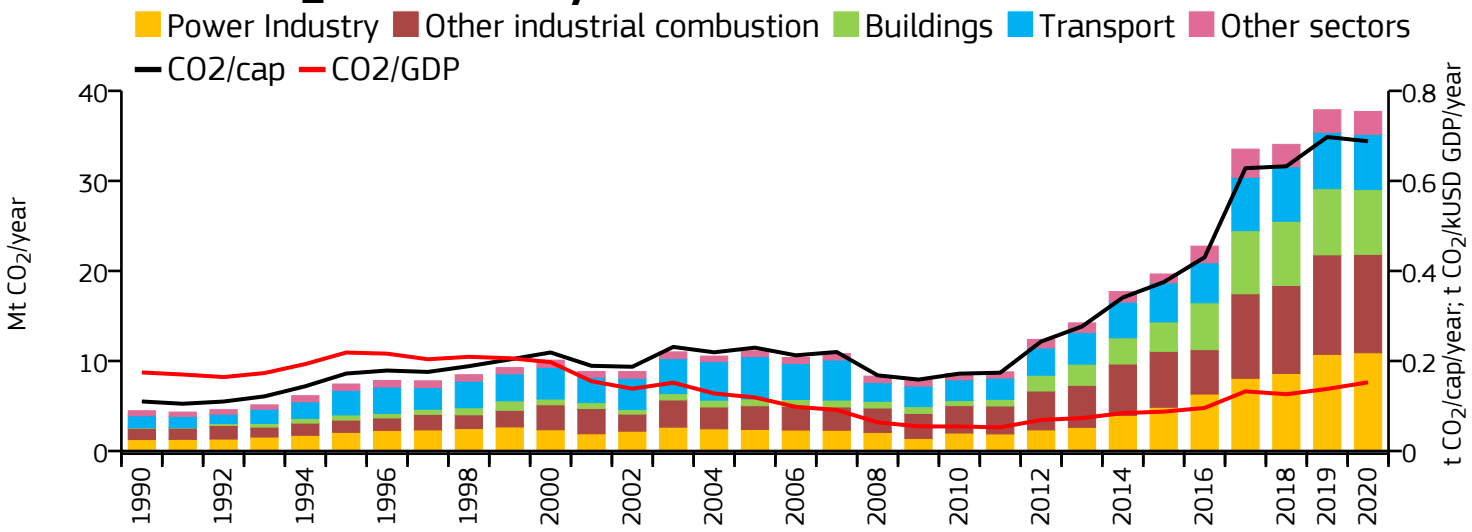


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	9.937	n/a	0.308	n/a	0.259
2018	10.707	32.560	0.351	1.067	0.281
2005	2.701	14.969	0.129	0.715	0.160
1990	1.183	7.920	0.089	0.598	0.193

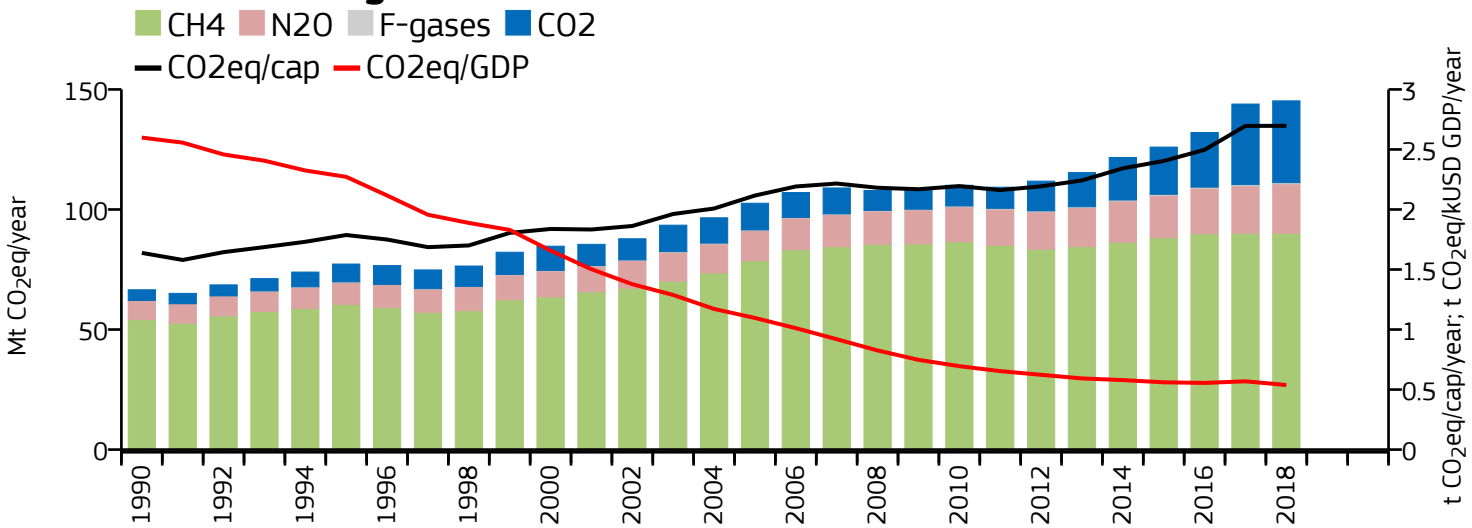
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +1091%	↗ +966%	↗ +6524%
Other industrial combustion	↗ +561%	↗ +444%	↗ +258%
Buildings	↗ +515%	↗ +51%	→ -3%
Transport	↗ +581%	↗ +691%	↗ +361%
Other sectors	↗ +2103%	↗ +326%	↗ +108%
All sectors	↗ +740%	↗ +311%	↗ +118%

Myanmar/Burma

Fossil CO_2 emissions by sector



Greenhouse gas emissions

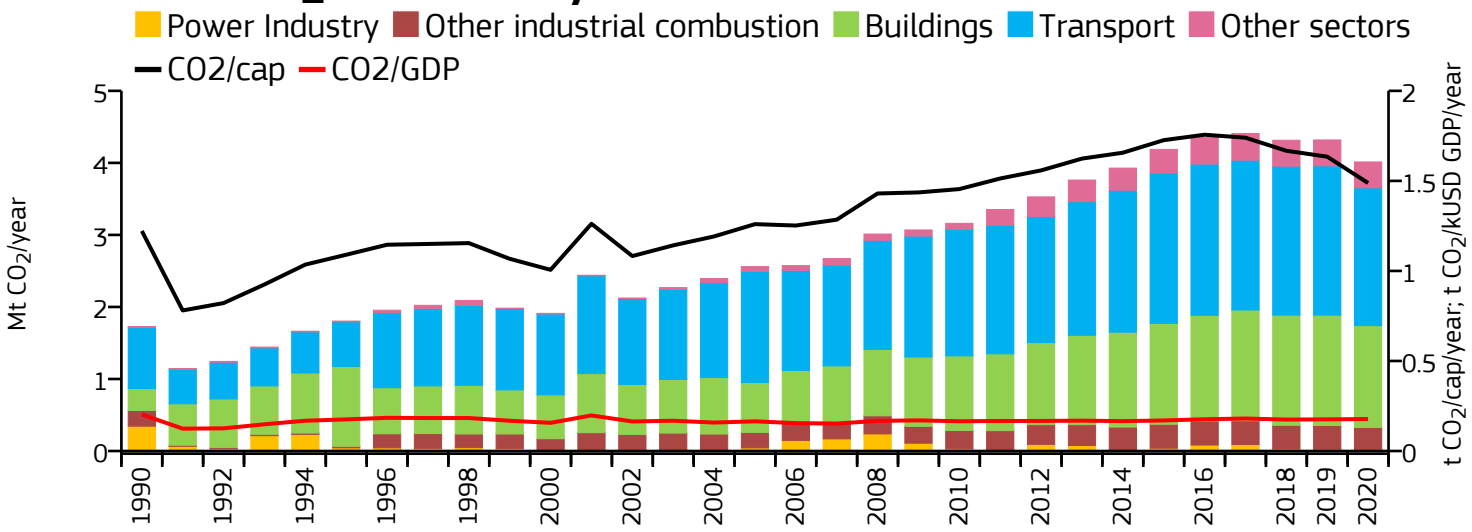


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	37.711	n/a	0.688	n/a	0.153
2018	34.058	145.237	0.632	2.697	0.126
2005	11.129	102.603	0.230	2.116	0.119
1990	4.469	66.563	0.110	1.638	0.174

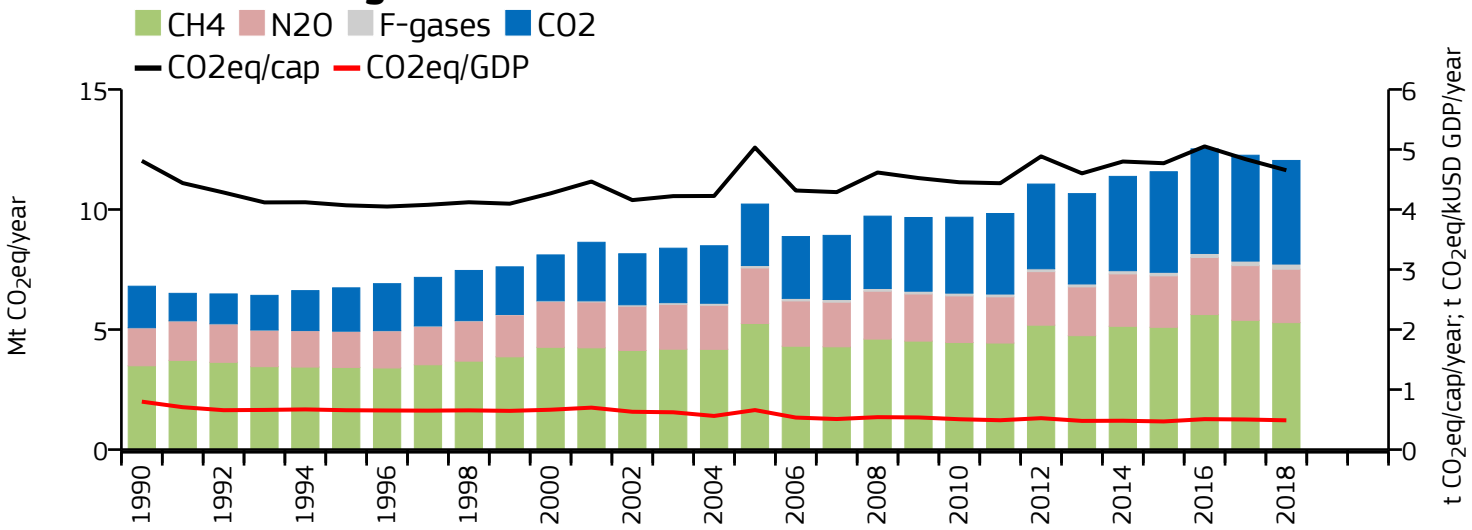
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+758%	+578%	+259%
Other industrial combustion	+750%	+658%	+268%
Buildings	+59379%	+287%	+164%
Transport	+356%	+362%	+32%
Other sectors	+358%	+83%	+23%
All sectors	+744%	+118%	+42%

Namibia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

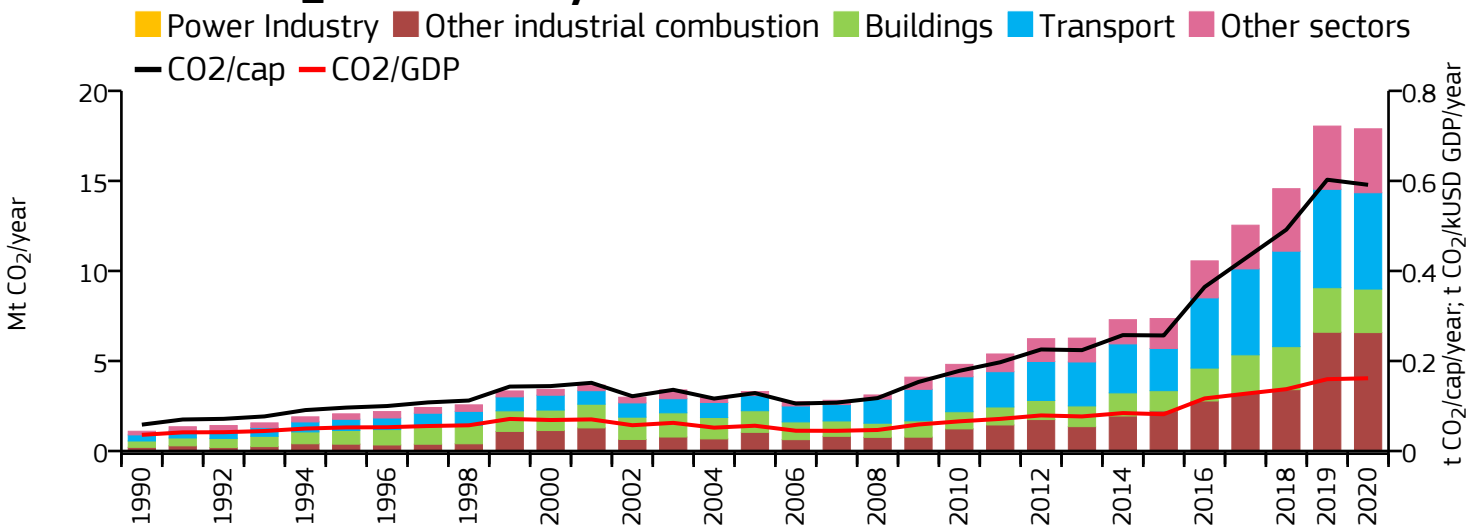


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	4.013	n/a	1.488	n/a	0.178
2018	4.314	12.042	1.667	4.653	0.175
2005	2.560	10.226	1.260	5.032	0.165
1990	1.729	6.805	1.222	4.810	0.203

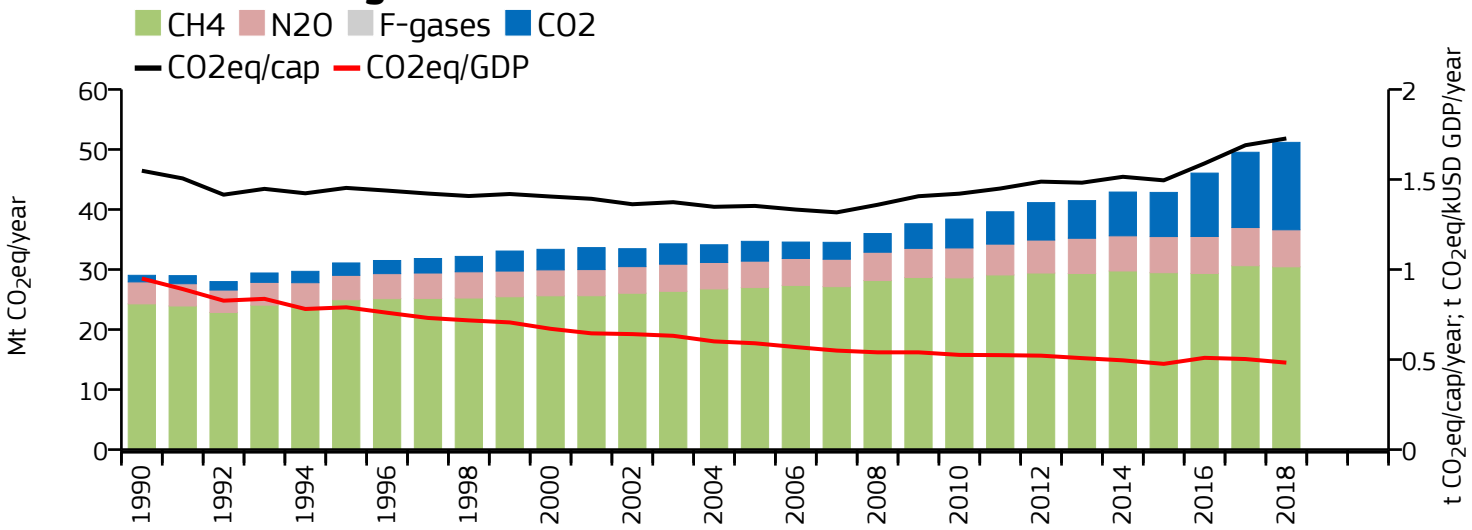
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-93%	-92%	-33%
Other industrial combustion	+39%	+51%	+53%
Buildings	+365%	+350%	+114%
Transport	+126%	+144%	+33%
Other sectors	+2275%	+58%	+4%
All sectors	+132%	+77%	+18%

Nepal

Fossil CO_2 emissions by sector



Greenhouse gas emissions

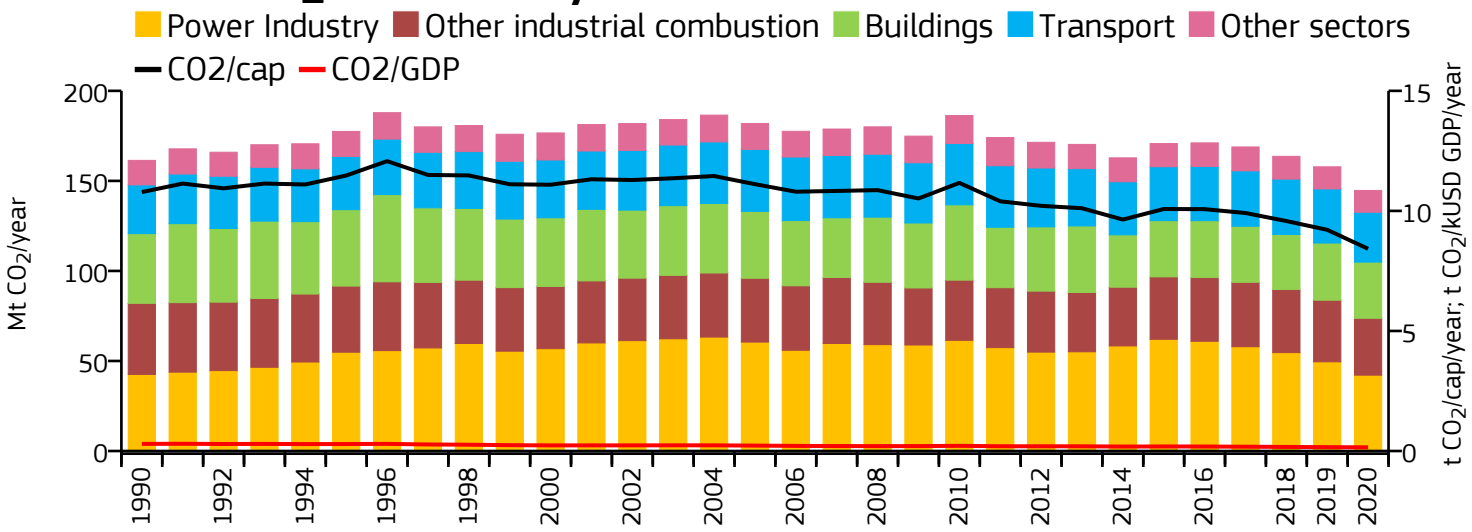


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	17.892	n/a	0.591	n/a	0.162
2018	14.566	51.182	0.492	1.728	0.137
2005	3.300	34.695	0.129	1.353	0.056
1990	1.098	29.034	0.059	1.549	0.036

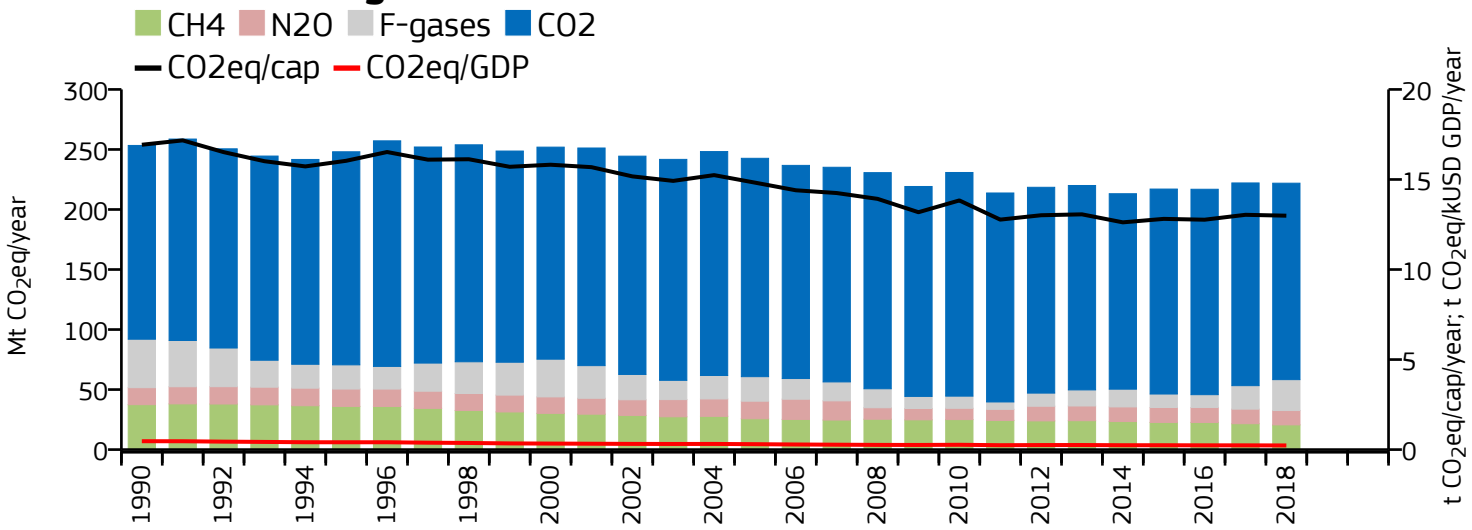
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry		0%	-99%
Other industrial combustion	+3127%	+1555%	+230%
Buildings	+586%	+137%	+42%
Transport	+1480%	+1469%	+534%
Other sectors	+1650%	+40%	+27%
All sectors	+1530%	+76%	+48%

Netherlands

Fossil CO_2 emissions by sector



Greenhouse gas emissions

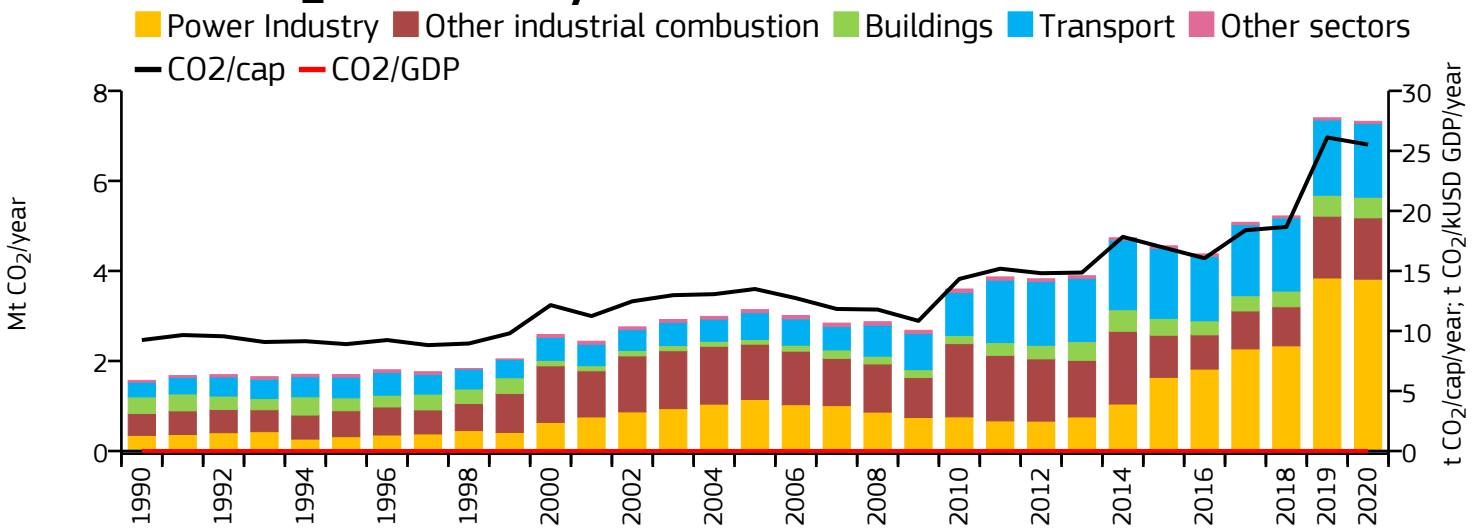


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	144.695	n/a	8.422	n/a	0.153
2018	163.640	221.904	9.578	12.989	0.169
2005	181.892	242.635	11.113	14.824	0.225
1990	161.396	253.339	10.785	16.928	0.296

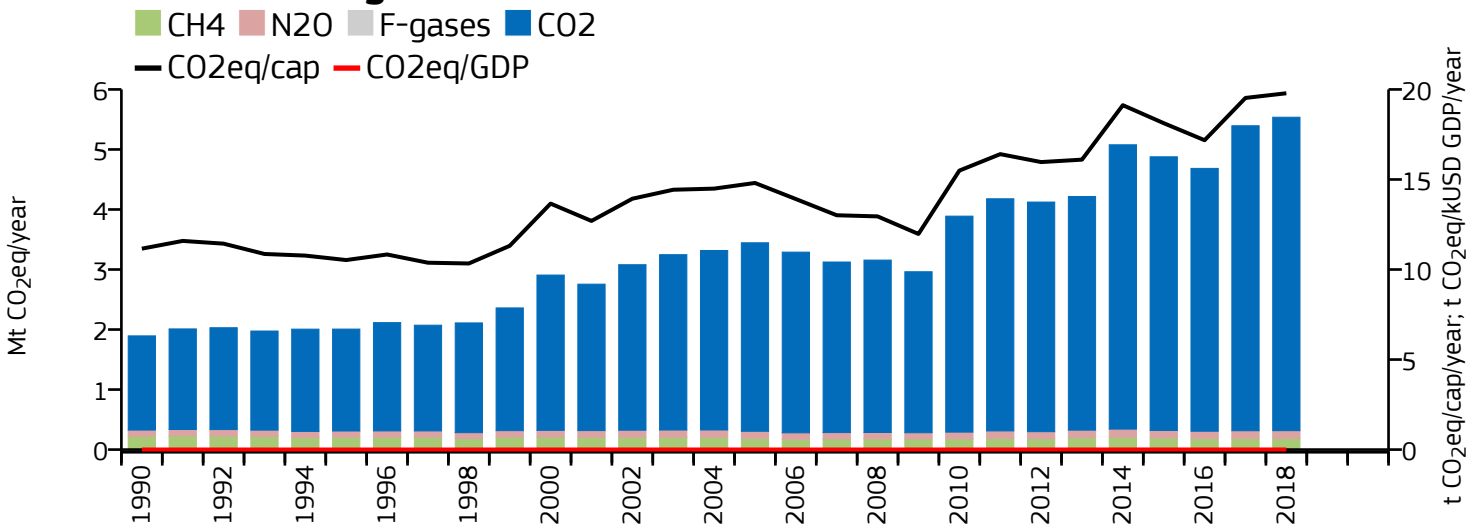
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	→ -1%	↗ +29%	↘ -10%
Other industrial combustion	↘ -20%	↘ -11%	→ -1%
Buildings	↘ -19%	↘ -21%	↘ -17%
Transport	→ +2%	↗ +13%	↘ -11%
Other sectors	↘ -11%	↘ -33%	↘ -6%
All sectors	↘ -10%	↘ -12%	↘ -9%

New Caledonia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

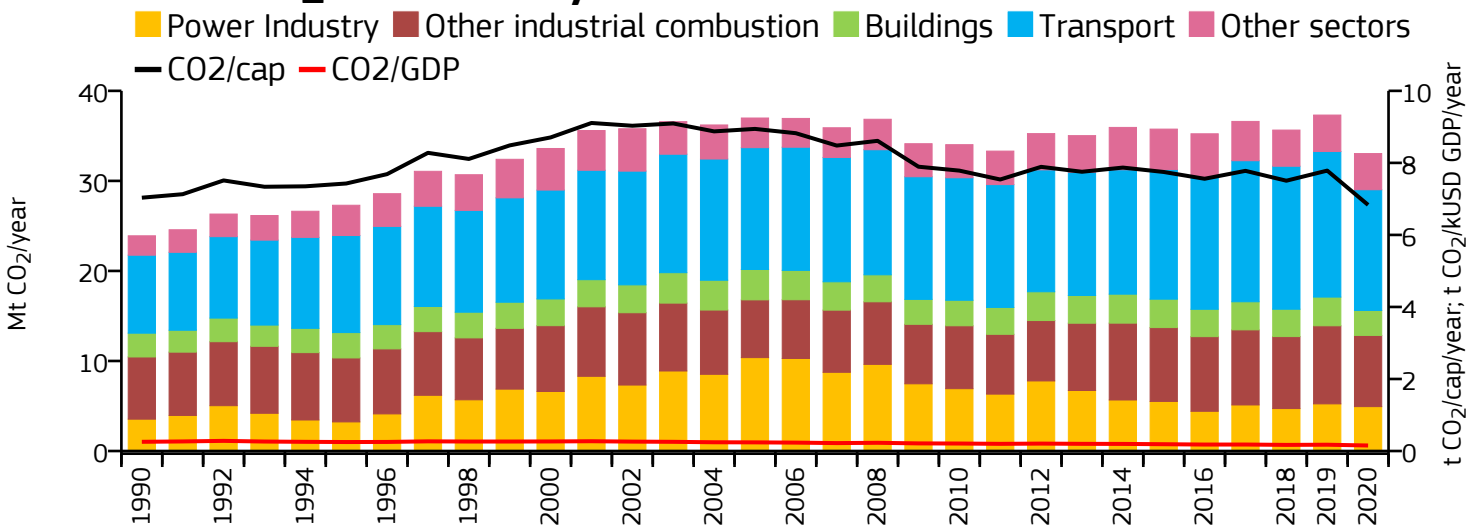


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.323	n/a	25.522	n/a	0.004
2018	5.222	5.537	18.661	19.788	0.005
2005	3.140	3.445	13.494	14.806	0.005
1990	1.569	1.894	9.242	11.157	0.003

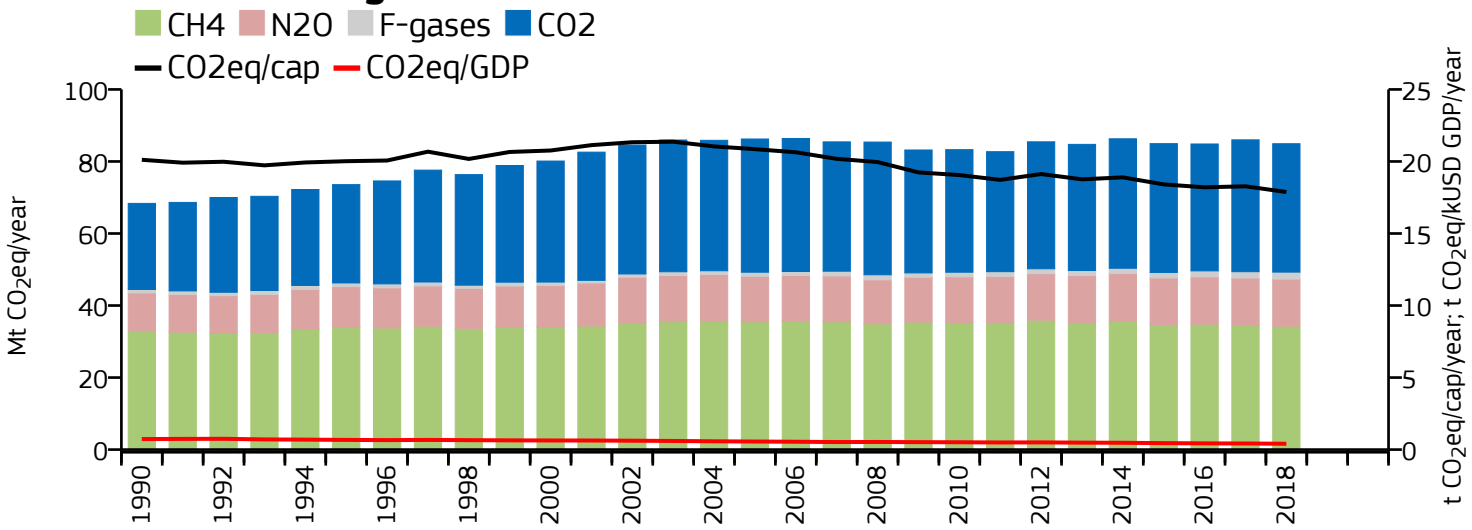
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +999%	↗ +574%	↗ +104%
Other industrial combustion	↗ +180%	↗ +78%	↘ -29%
Buildings	↗ +25%	→ -3%	↗ +248%
Transport	↗ +396%	↗ +389%	↗ +172%
Other sectors	↗ +33%	↘ -8%	↘ -11%
All sectors	↗ +367%	↗ +192%	↗ +61%

New Zealand

Fossil CO_2 emissions by sector



Greenhouse gas emissions

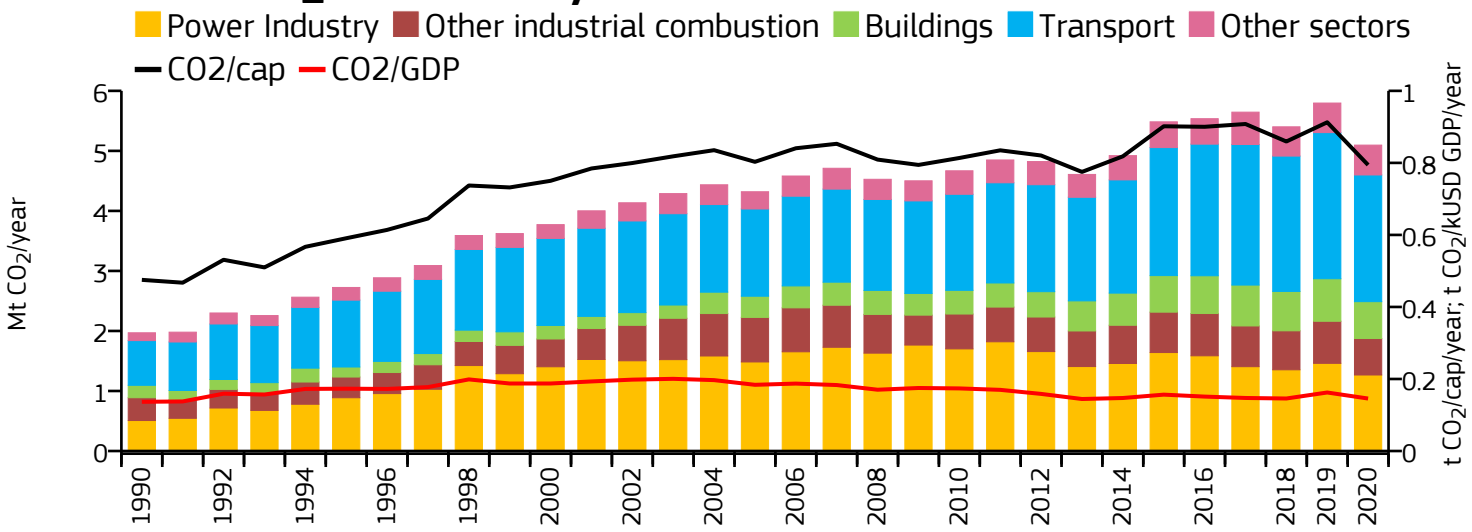


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	33.034	n/a	6.833	n/a	0.153
2018	35.645	84.923	7.505	17.880	0.170
2005	36.984	86.238	8.943	20.854	0.240
1990	23.901	68.360	7.033	20.117	0.256

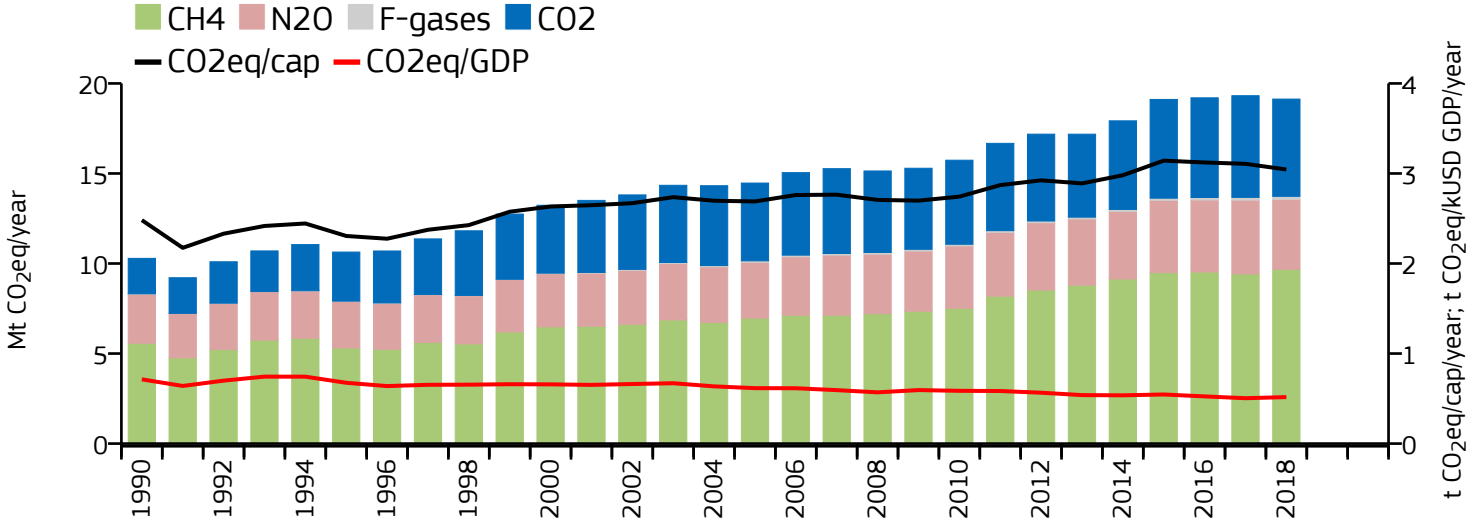
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+39%	+33%	-55%
Other industrial combustion	+14%	+16%	+24%
Buildings	+5%	+16%	-9%
Transport	+55%	+82%	+17%
Other sectors	+87%	+14%	+2%
All sectors	+38%	+24%	-2%

Nicaragua

Fossil CO_2 emissions by sector



Greenhouse gas emissions

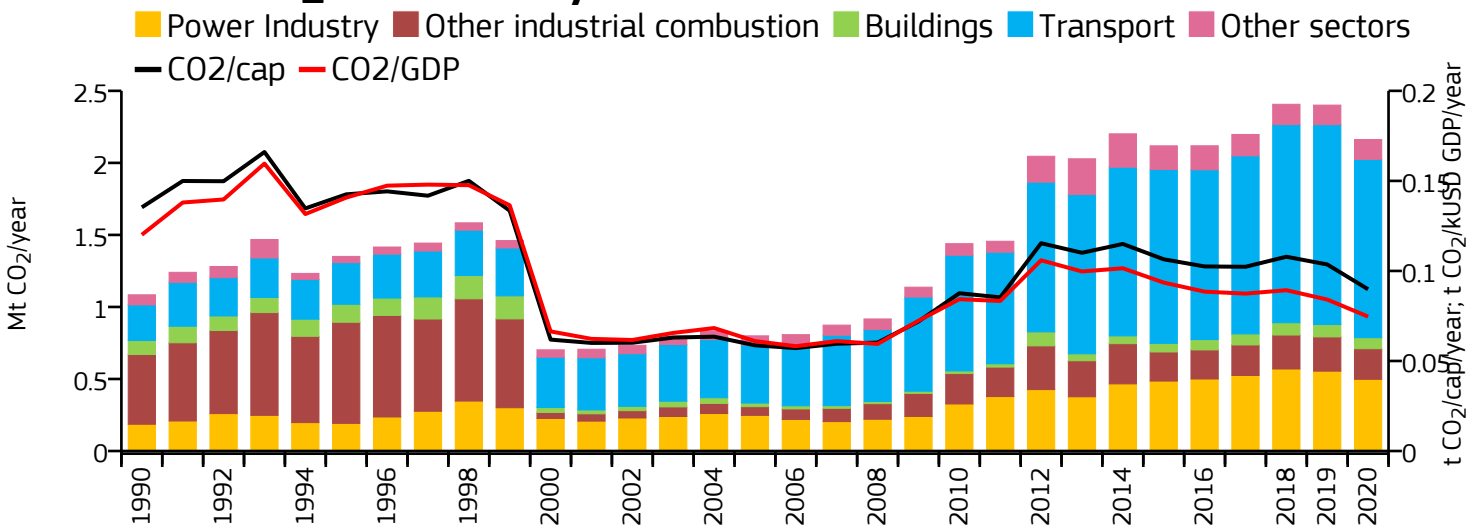


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	5.096	n/a	0.794	n/a	0.146
2018	5.401	19.131	0.859	3.044	0.146
2005	4.319	14.467	0.803	2.689	0.184
1990	1.970	10.285	0.475	2.482	0.137

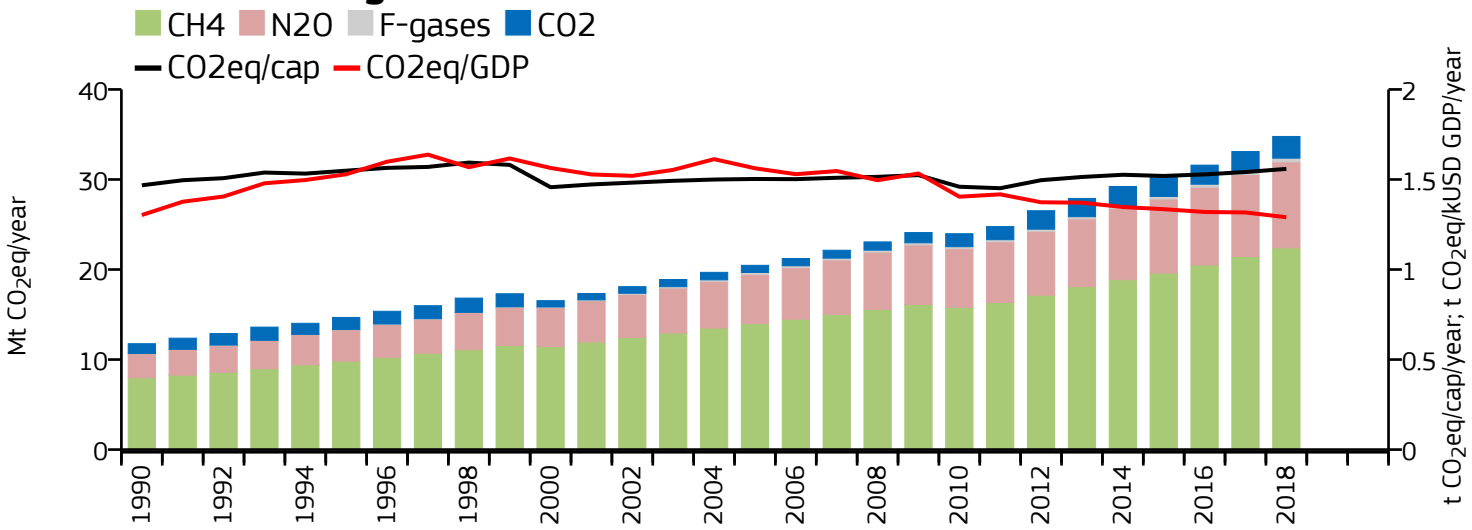
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+149%	+171%	-7%
Other industrial combustion	+60%	+69%	-12%
Buildings	+197%	+95%	+45%
Transport	+183%	+203%	+55%
Other sectors	+282%	+70%	+37%
All sectors	+159%	+86%	+32%

Niger

Fossil CO_2 emissions by sector



Greenhouse gas emissions

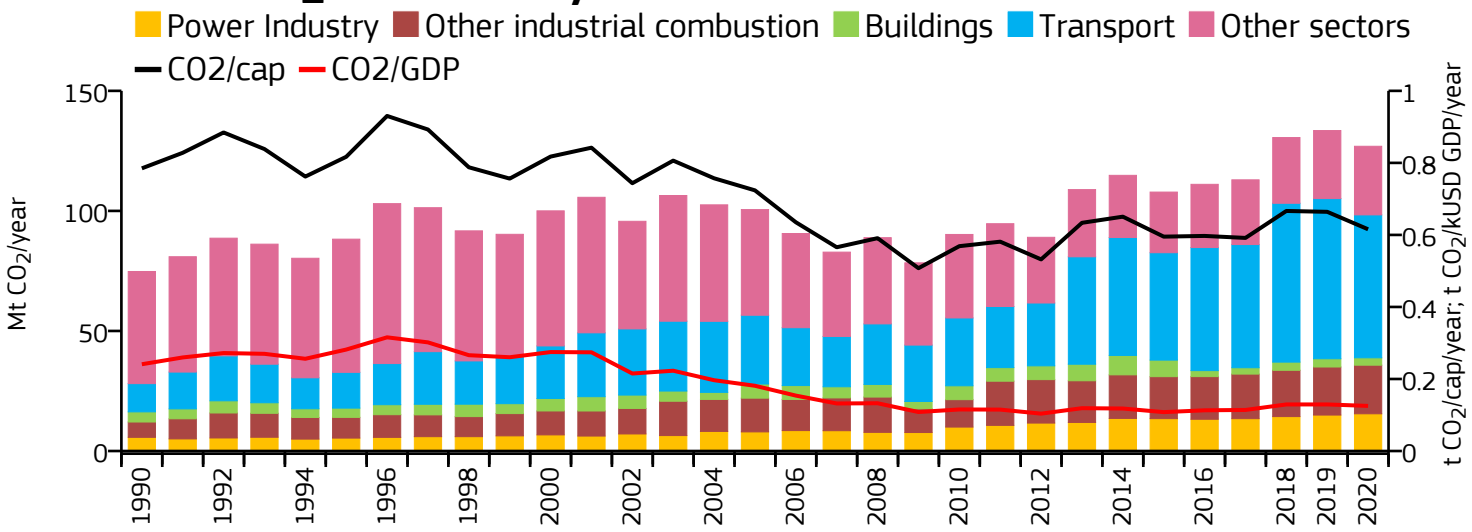


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	2.162	n/a	0.090	n/a	0.075
2018	2.407	34.777	0.108	1.559	0.089
2005	0.799	20.465	0.059	1.503	0.061
1990	1.084	11.760	0.135	1.468	0.120

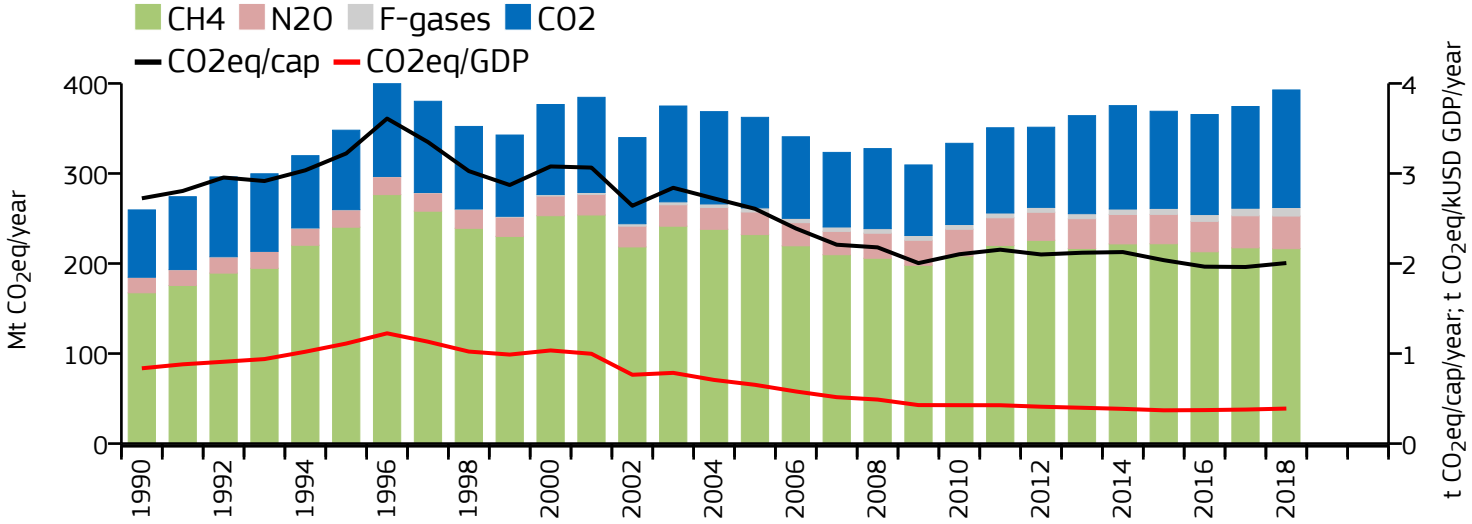
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+168%	+206%	+130%
Other industrial combustion	-56%	-51%	+300%
Buildings	-22%	+38%	+71%
Transport	+402%	+458%	+241%
Other sectors	+97%	+211%	+65%
All sectors	+99%	+196%	+70%

Nigeria

Fossil CO_2 emissions by sector



Greenhouse gas emissions

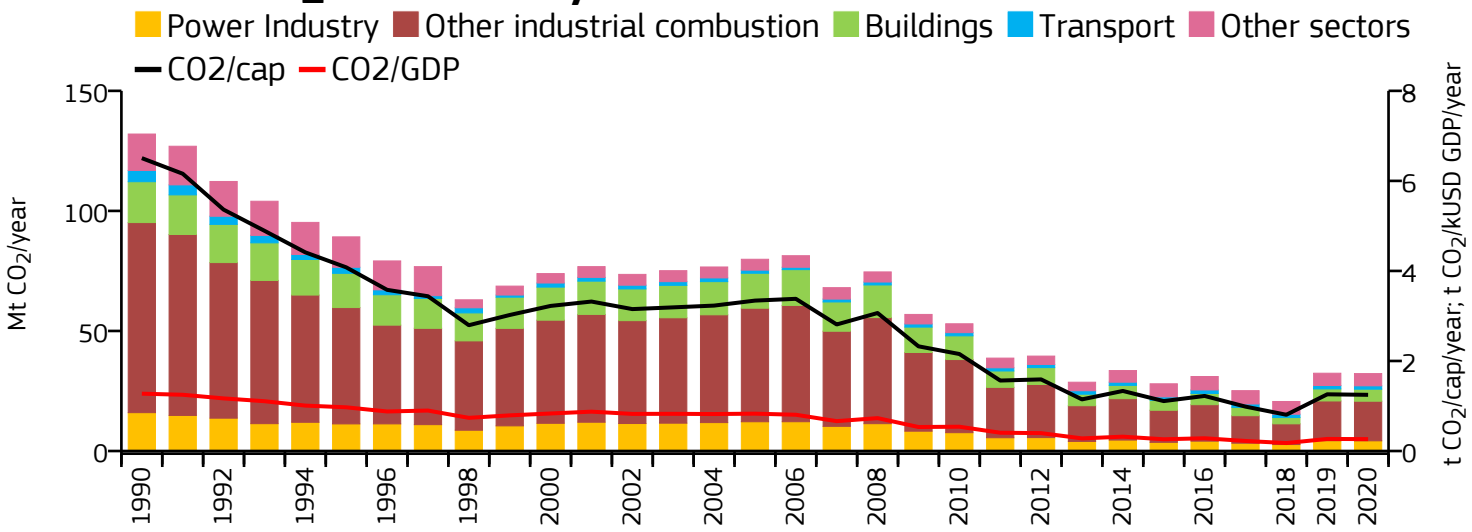


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	126.920	n/a	0.616	n/a	0.125
2018	130.549	392.760	0.666	2.005	0.129
2005	100.547	362.341	0.724	2.608	0.181
1990	74.768	259.520	0.785	2.724	0.241

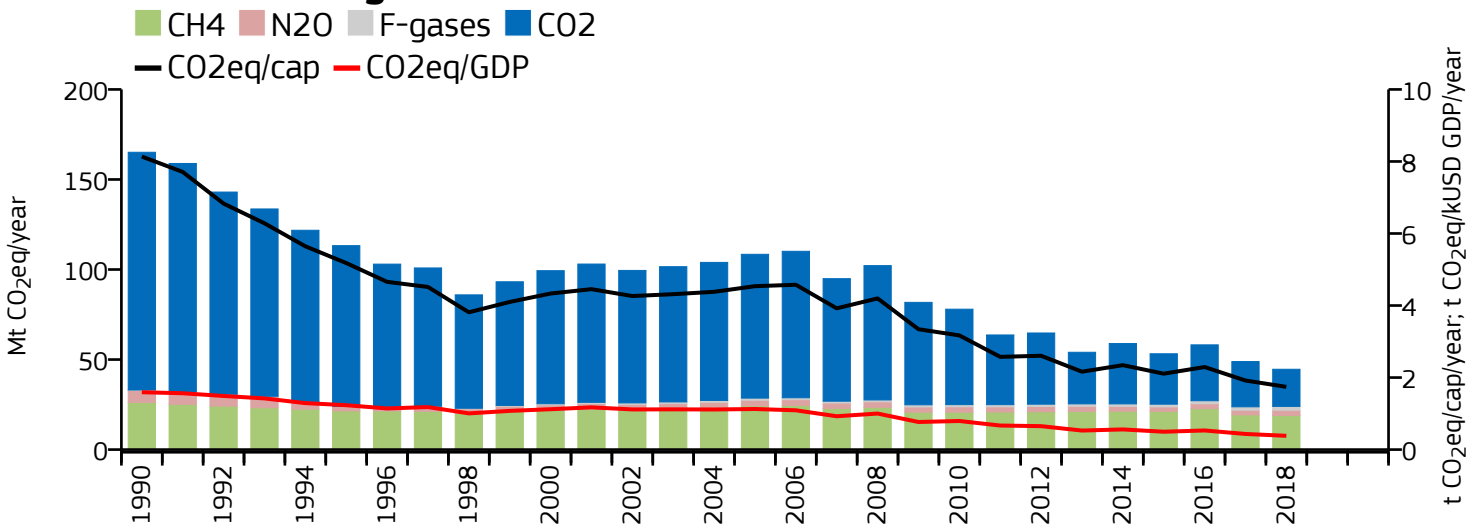
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +172%	↗ +152%	↗ +80%
Other industrial combustion	↗ +218%	↗ +202%	↗ +36%
Buildings	↘ -27%	↗ +77%	↗ +25%
Transport	↗ +406%	↗ +463%	↗ +131%
Other sectors	↘ -39%	↗ +18%	↘ -10%
All sectors	↗ +70%	↗ +51%	↗ +8%

North Korea

Fossil CO_2 emissions by sector



Greenhouse gas emissions

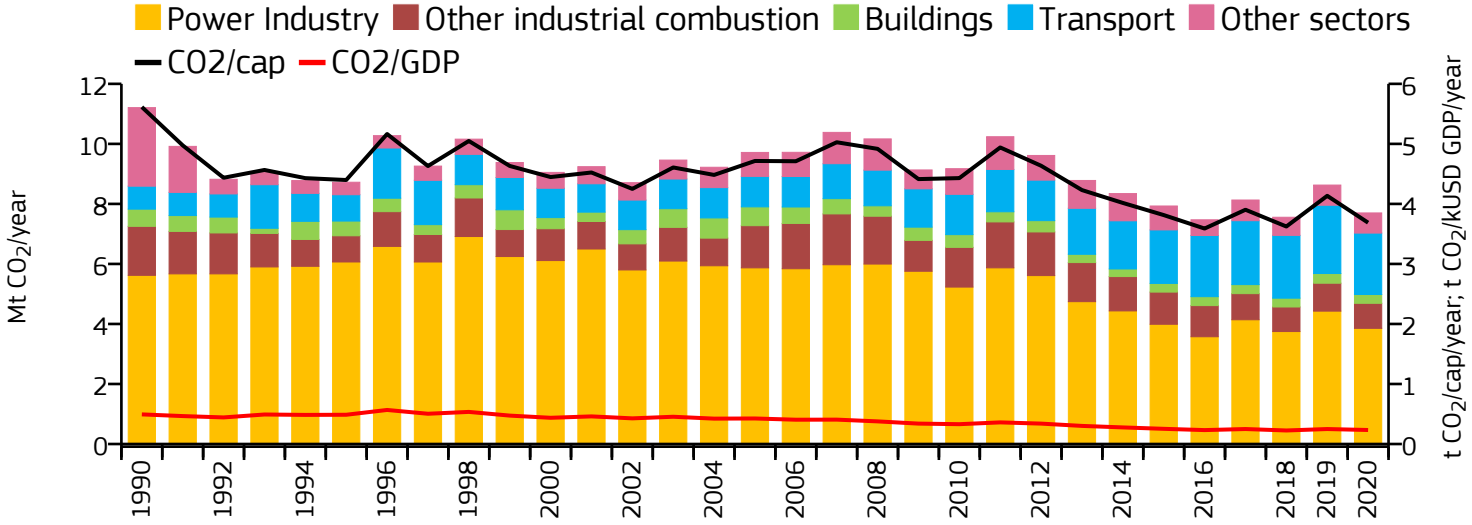


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	32.245	n/a	1.248	n/a	0.264
2018	20.625	44.608	0.805	1.742	0.177
2005	79.861	108.450	3.341	4.537	0.830
1990	132.017	165.105	6.505	8.136	1.273

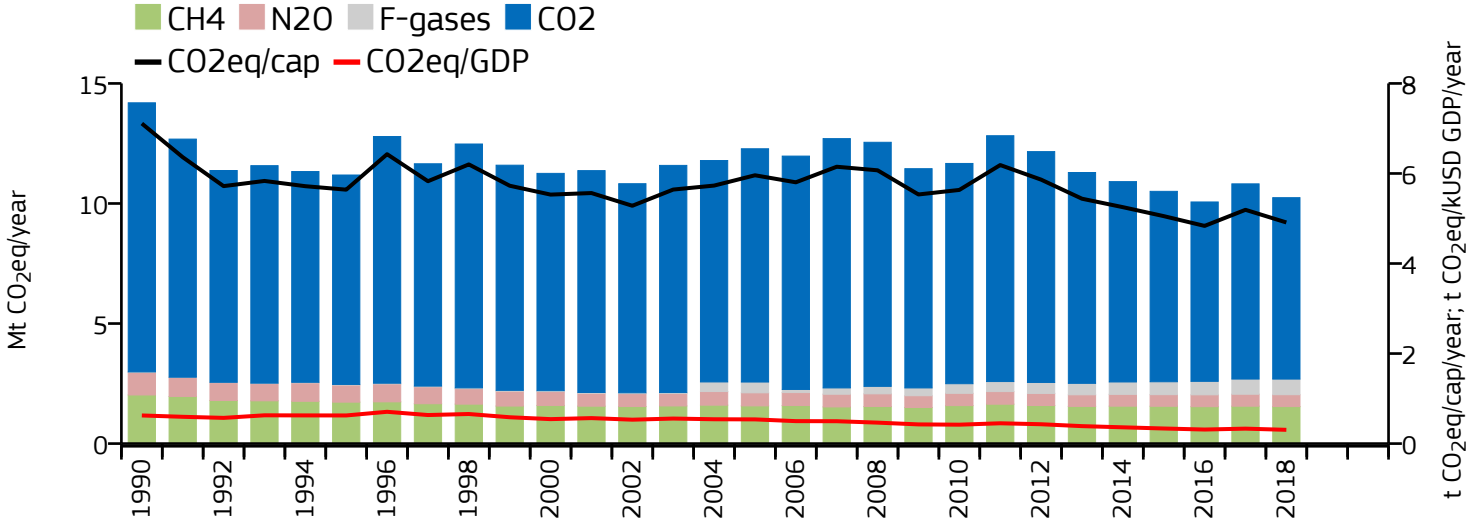
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-73%	-83%	-78%
Other industrial combustion	-79%	-89%	-82%
Buildings	-71%	-83%	-81%
Transport	-70%	-70%	+6%
Other sectors	-66%	-38%	-8%
All sectors	-76%	-73%	-59%

North Macedonia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

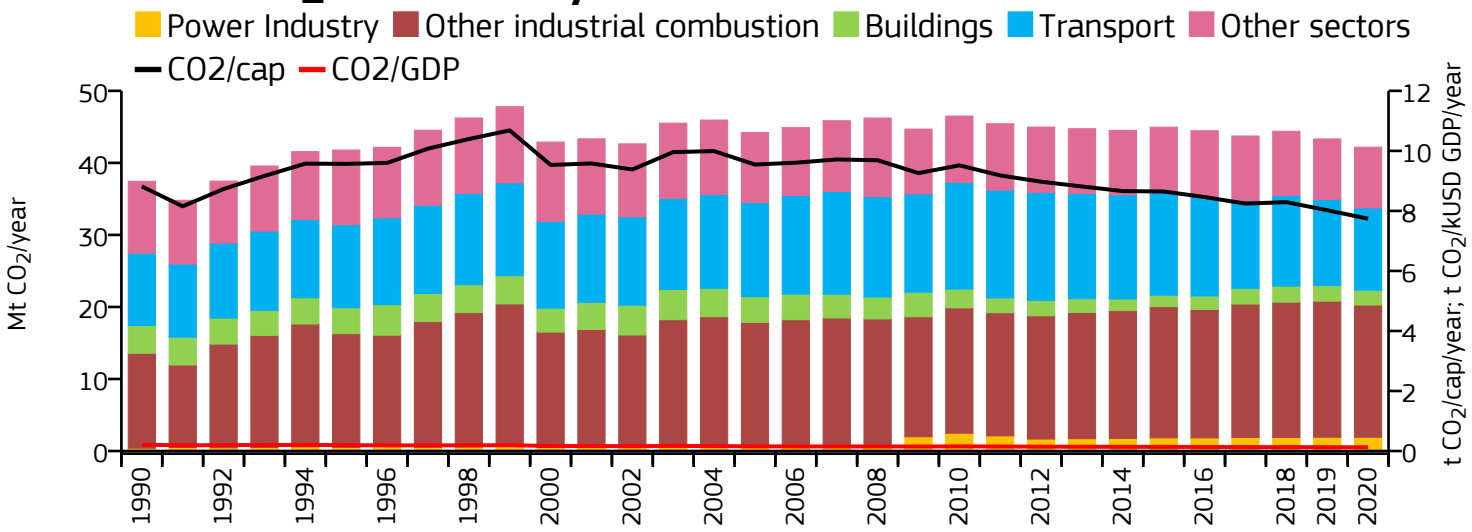


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.699	n/a	3.687	n/a	0.233
2018	7.555	10.242	3.624	4.912	0.225
2005	9.715	12.279	4.715	5.960	0.425
1990	11.208	14.193	5.615	7.110	0.493

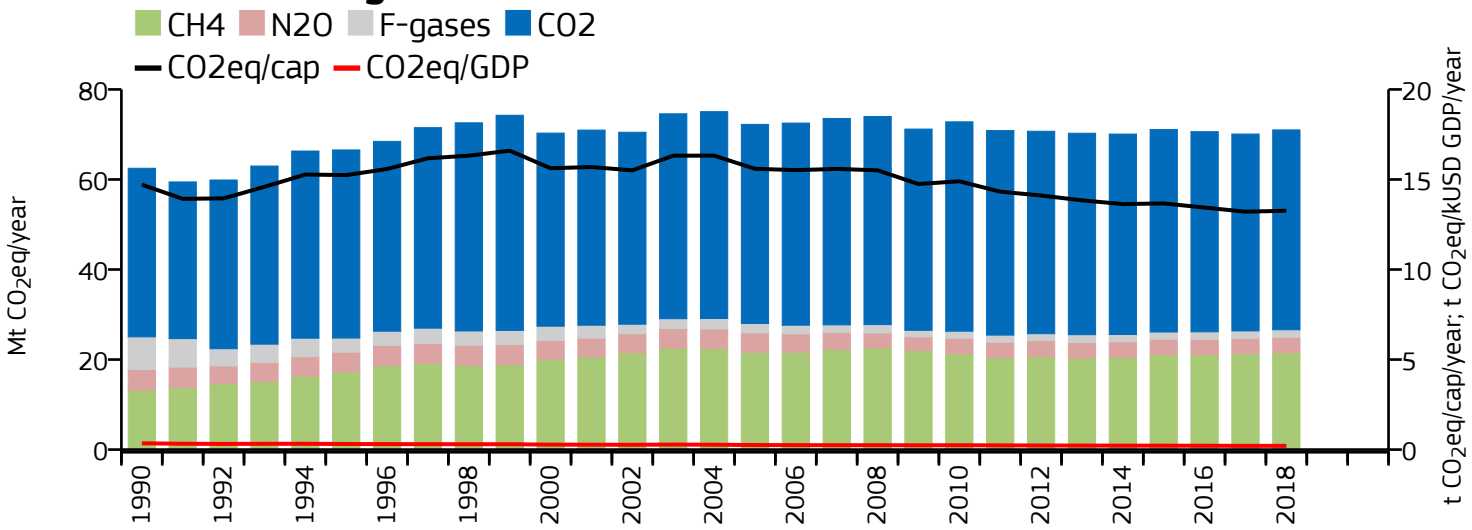
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↘ -31%	↘ -33%	↘ -36%
Other industrial combustion	↘ -49%	↘ -50%	↘ -42%
Buildings	↘ -49%	↘ -36%	↘ -46%
Transport	↗ +167%	↗ +172%	↗ +106%
Other sectors	↘ -74%	↘ -43%	→ -2%
All sectors	↘ -31%	↘ -28%	↘ -17%

Norway

Fossil CO_2 emissions by sector



Greenhouse gas emissions

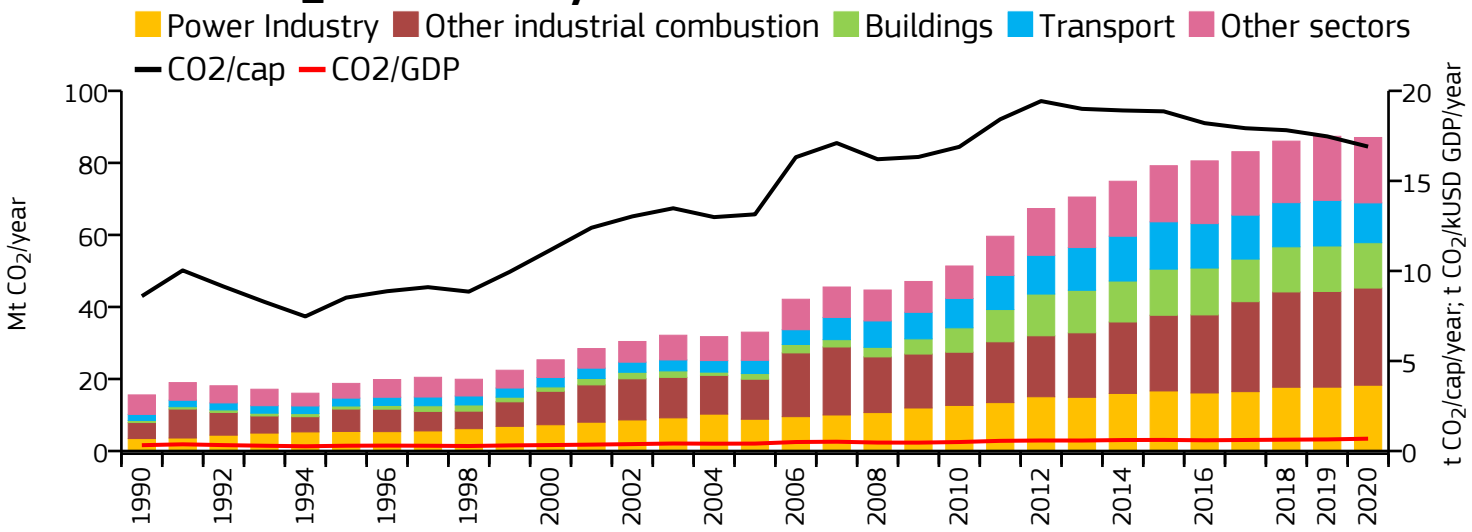


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	42.182	n/a	7.740	n/a	0.123
2018	44.392	71.006	8.292	13.264	0.130
2005	44.218	72.228	9.545	15.592	0.155
1990	37.444	62.488	8.816	14.712	0.210

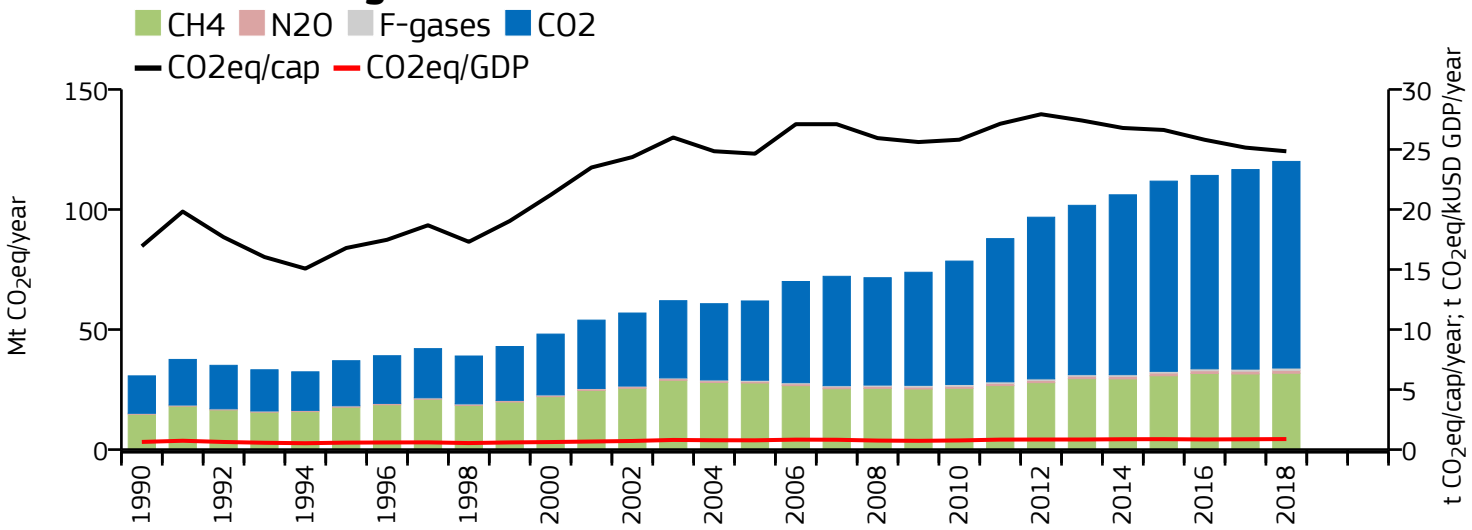
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+385%	+378%	+170%
Other industrial combustion	+39%	+42%	+9%
Buildings	-47%	-41%	-36%
Transport	+14%	+24%	-4%
Other sectors	-15%	+2%	-6%
All sectors	+13%	+14%	-2%

Oman

Fossil CO_2 emissions by sector



Greenhouse gas emissions

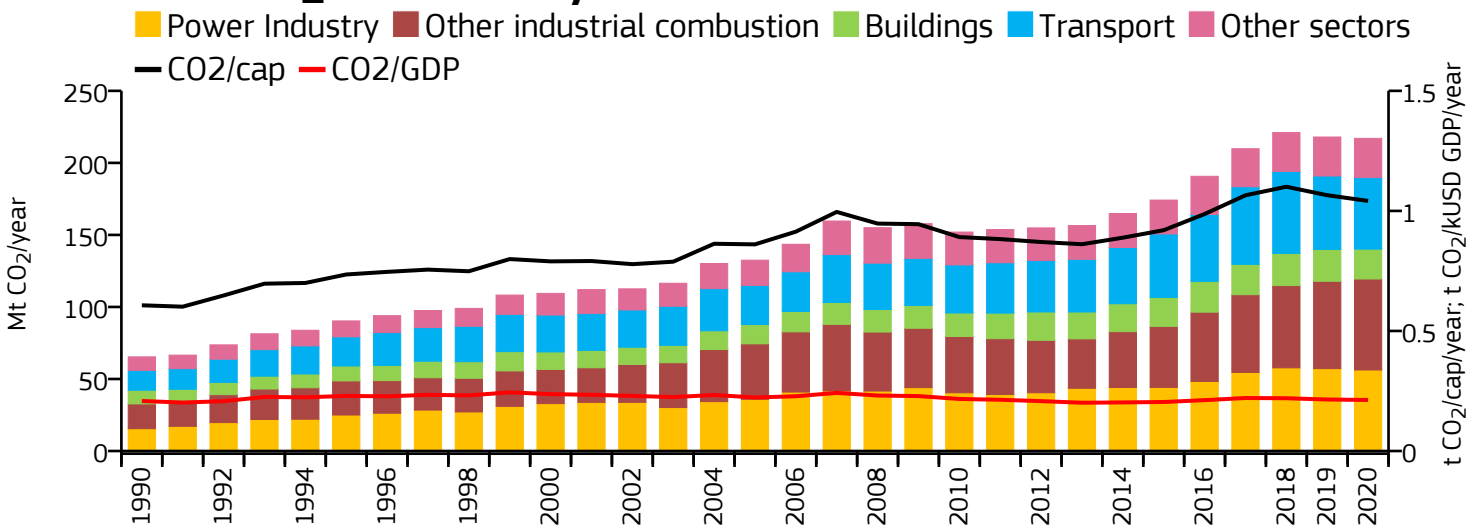


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	87.050	n/a	16.904	n/a	0.685
2018	86.042	120.015	17.814	24.848	0.628
2005	33.004	61.900	13.142	24.649	0.412
1990	15.580	30.700	8.597	16.941	0.324

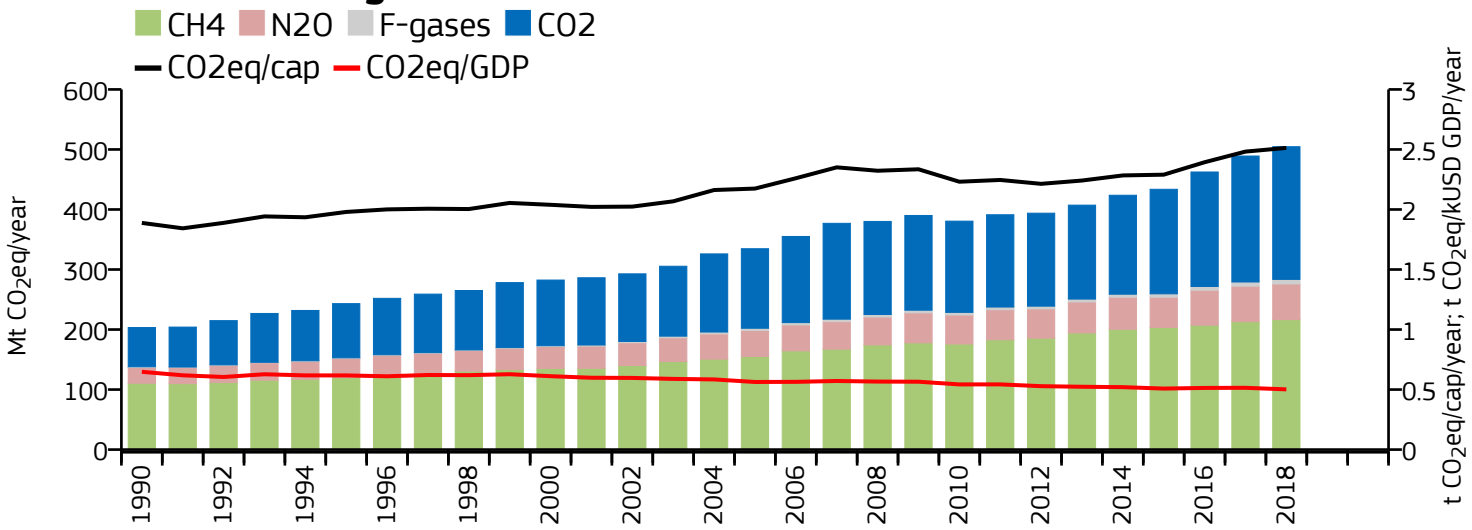
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+429%	+413%	+101%
Other industrial combustion	+506%	+493%	+138%
Buildings	+2086%	+2073%	+695%
Transport	+557%	+622%	+232%
Other sectors	+235%	+148%	+39%
All sectors	+459%	+291%	+94%

Pakistan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

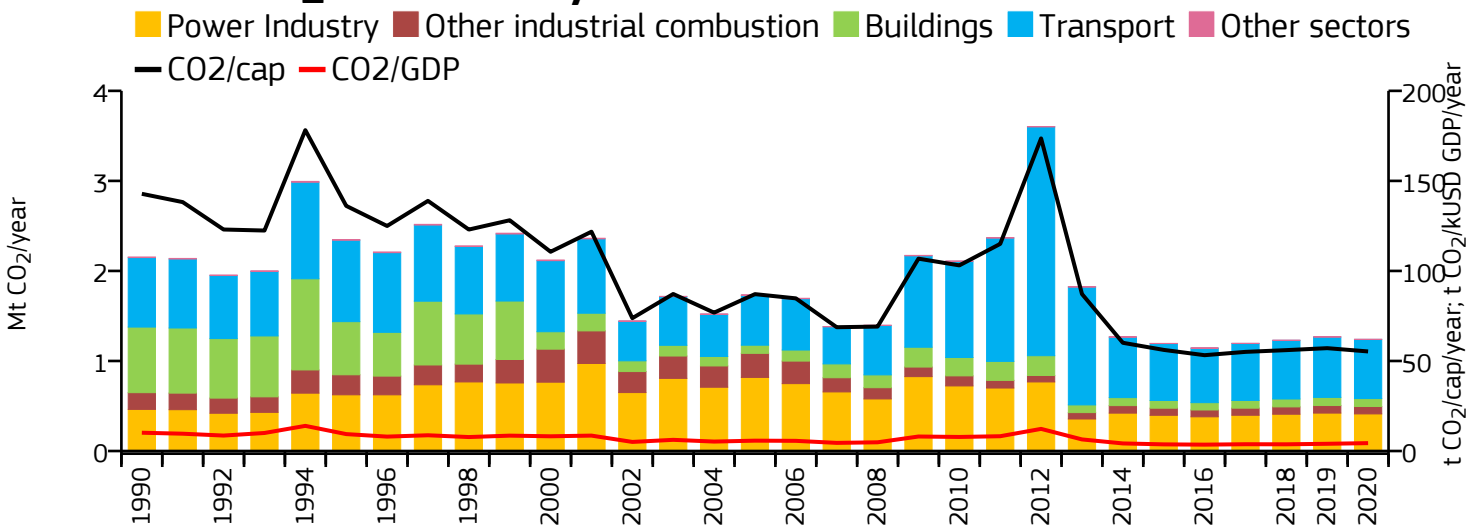


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	217.025	n/a	1.042	n/a	0.213
2018	221.020	504.590	1.101	2.513	0.220
2005	132.460	334.628	0.861	2.174	0.223
1990	65.347	203.325	0.607	1.888	0.208

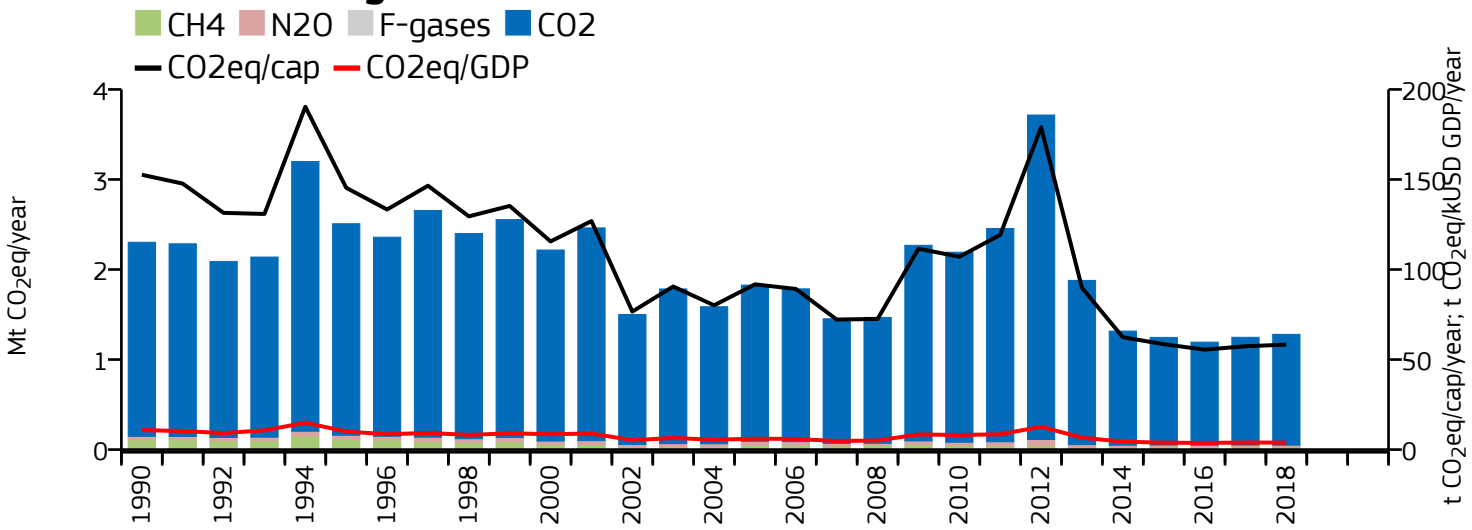
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+263%	+286%	+66%
Other industrial combustion	+267%	+231%	+49%
Buildings	+118%	+112%	+50%
Transport	+260%	+314%	+110%
Other sectors	+191%	+110%	+41%
All sectors	+232%	+148%	+51%

Palau

Fossil CO_2 emissions by sector



Greenhouse gas emissions

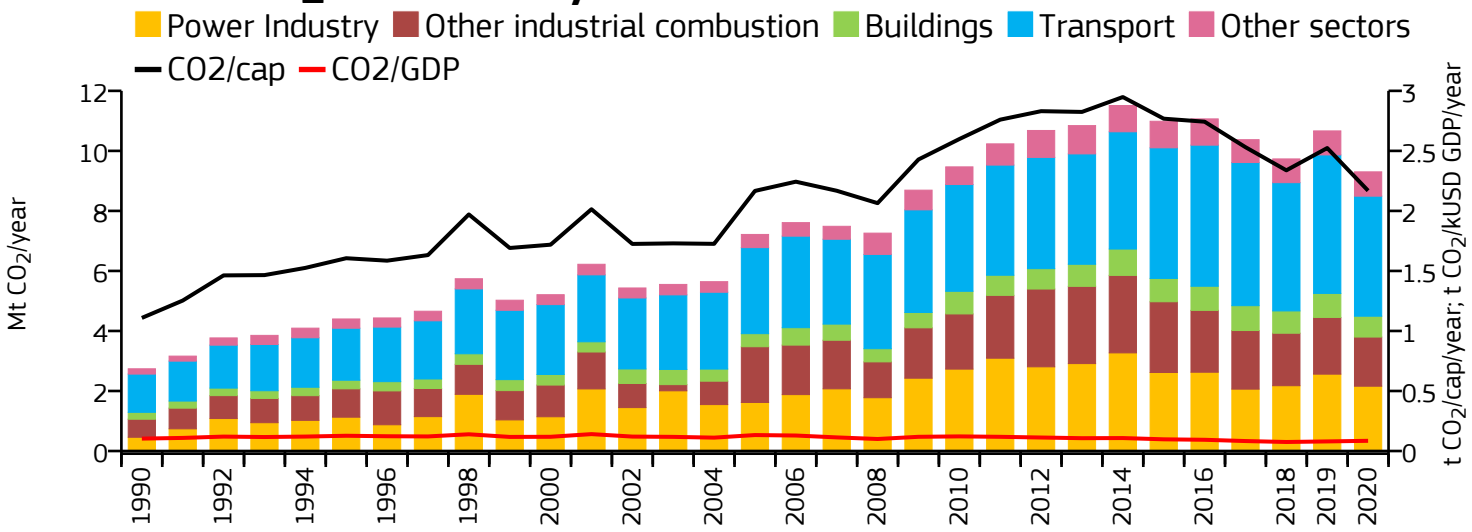


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.241	n/a	55.289	n/a	4.372
2018	1.230	1.280	56.018	58.269	3.724
2005	1.734	1.827	87.114	91.762	5.746
1990	2.155	2.303	142.826	152.615	10.154

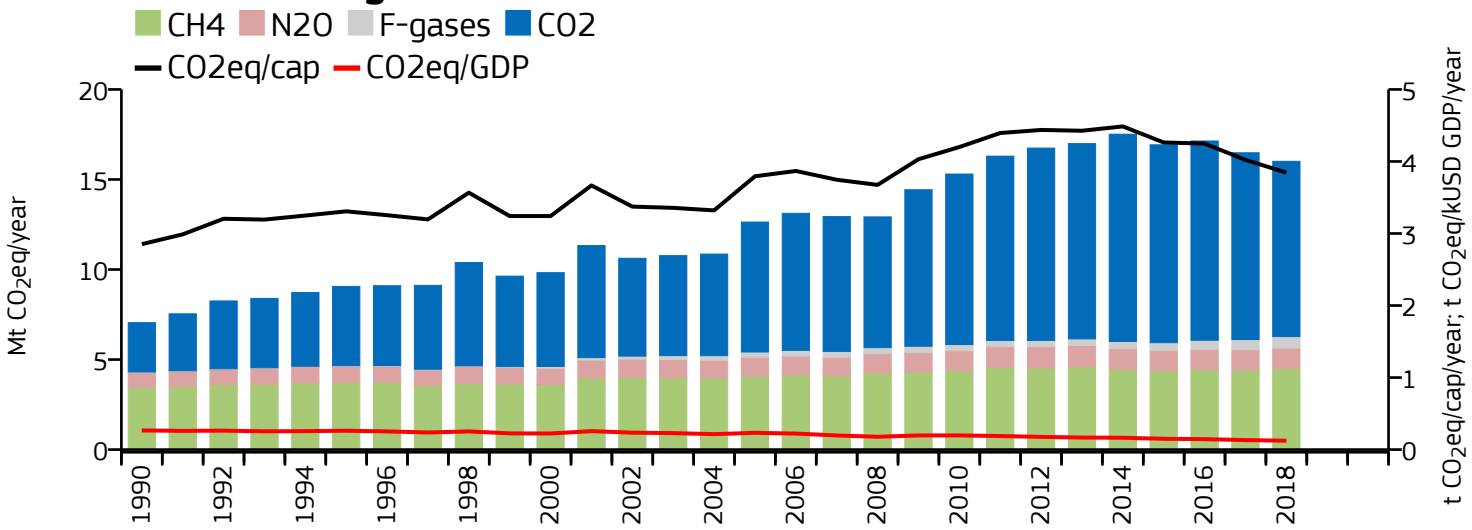
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↘ -11%	↘ -12%	↘ -50%
Other industrial combustion	↘ -56%	↘ -56%	↘ -69%
Buildings	↘ -88%	↘ -88%	→ 0%
Transport	↘ -15%	↘ -16%	↗ +17%
Other sectors	↘ -79%	↘ -70%	↘ -53%
All sectors	↘ -42%	↘ -44%	↘ -30%

Panama

Fossil CO_2 emissions by sector



Greenhouse gas emissions

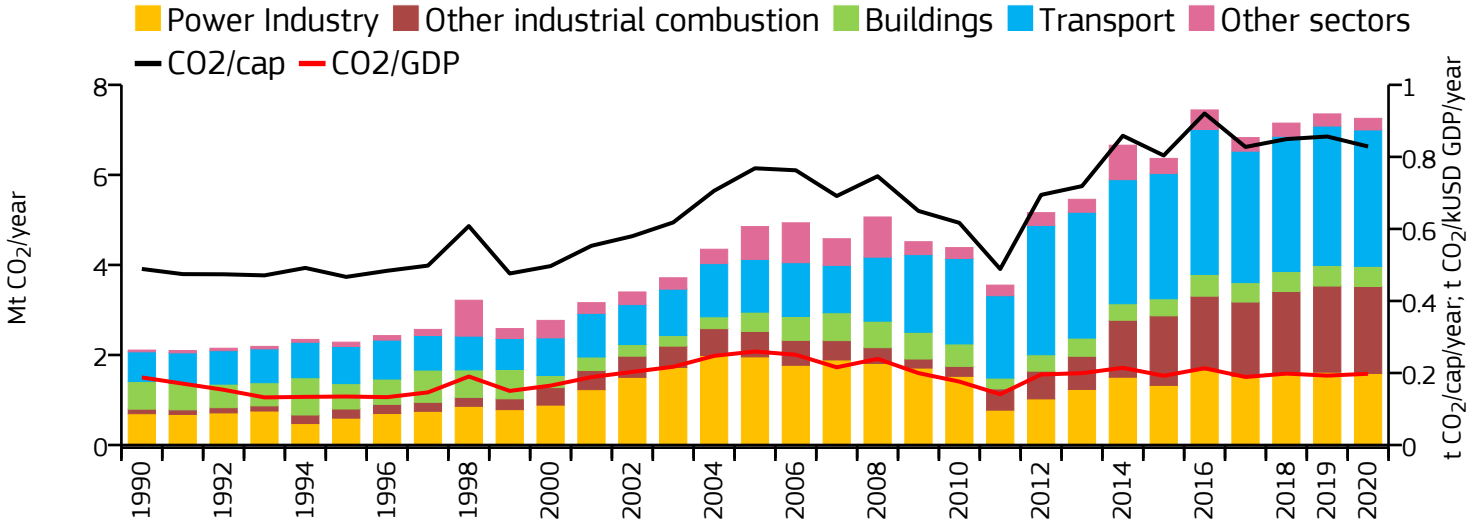


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	9.301	n/a	2.168	n/a	0.085
2018	9.732	16.008	2.338	3.846	0.075
2005	7.216	12.635	2.167	3.794	0.133
1990	2.739	7.048	1.109	2.852	0.103

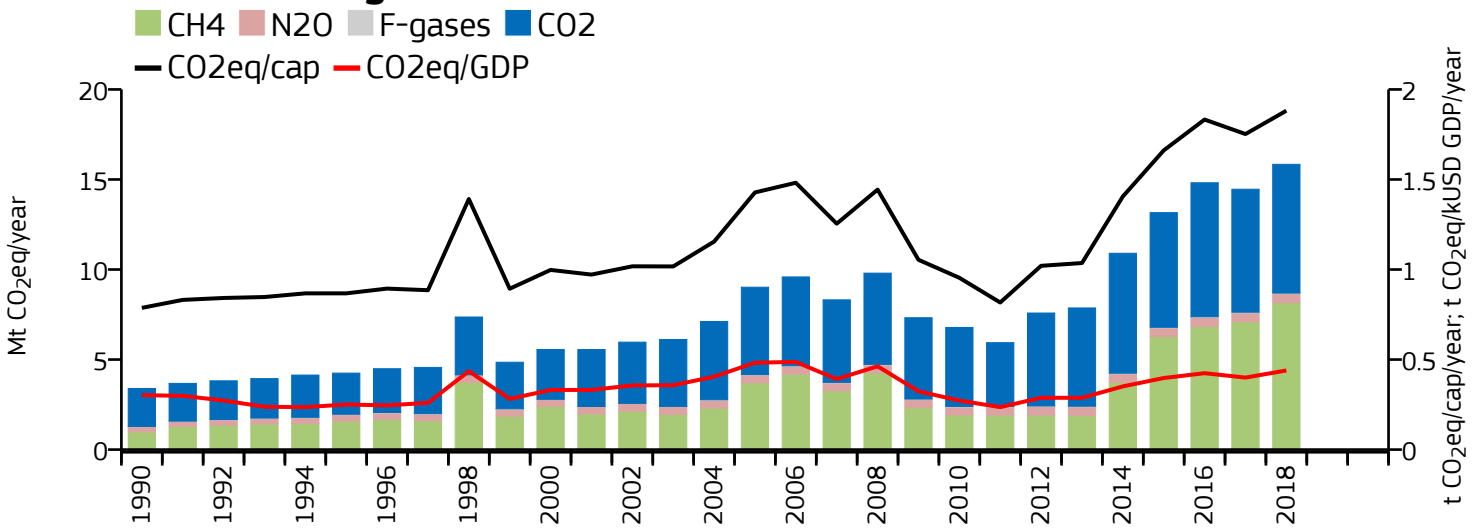
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+371%	+373%	+34%
Other industrial combustion	+172%	+186%	-6%
Buildings	+203%	+137%	+60%
Transport	+214%	+235%	+49%
Other sectors	+360%	+60%	+21%
All sectors	+240%	+127%	+27%

Papua New Guinea

Fossil CO_2 emissions by sector



Greenhouse gas emissions

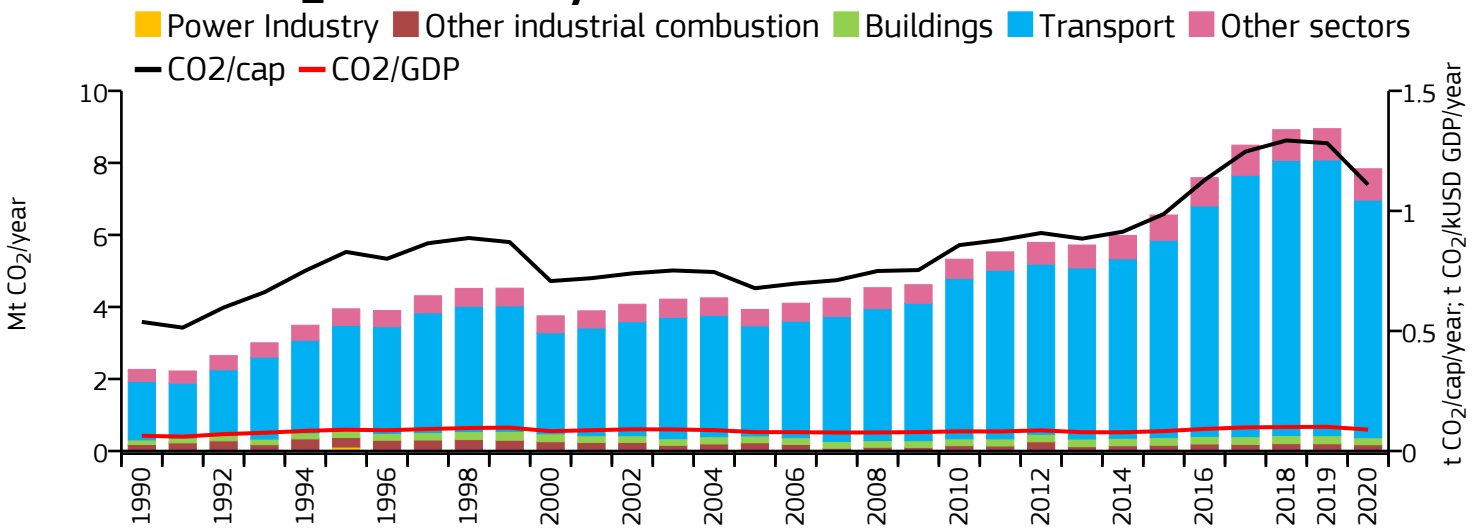


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.257	n/a	0.829	n/a	0.198
2018	7.151	15.842	0.849	1.882	0.198
2005	4.852	9.017	0.768	1.428	0.260
1990	2.109	3.395	0.489	0.787	0.188

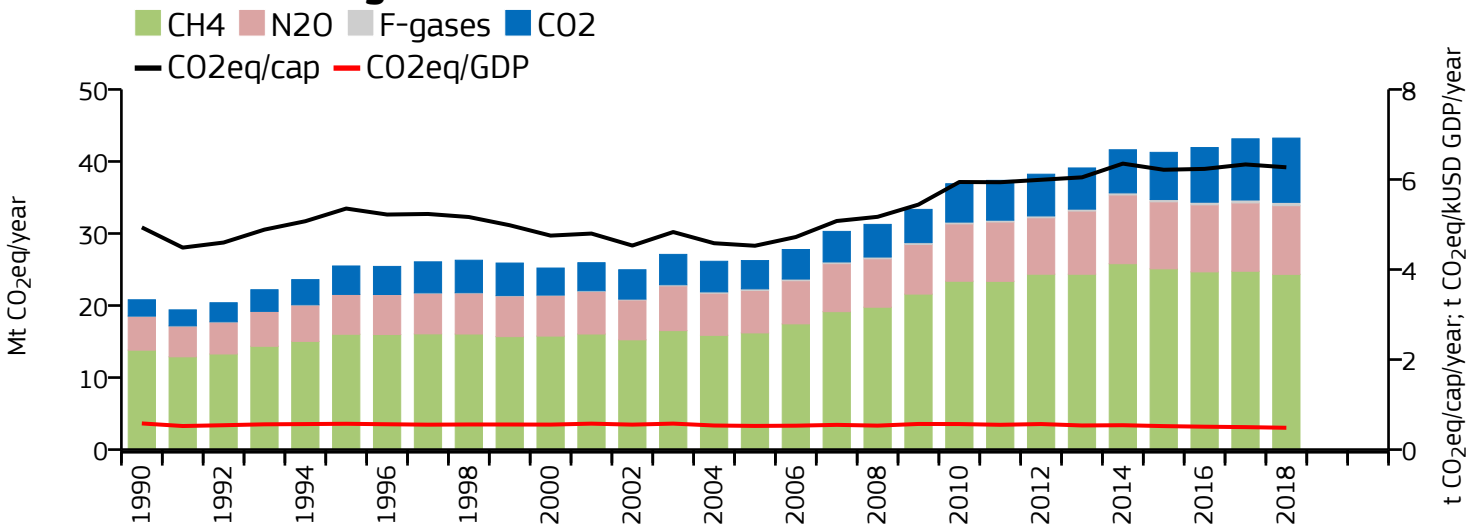
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +128%	↗ +125%	↘ -20%
Other industrial combustion	↗ +1817%	↗ +1693%	↗ +224%
Buildings	↘ -27%	→ 0%	→ -2%
Transport	↗ +359%	↗ +353%	↗ +156%
Other sectors	↗ +572%	↗ +683%	↗ +92%
All sectors	↗ +244%	↗ +367%	↗ +76%

Paraguay

Fossil CO_2 emissions by sector



Greenhouse gas emissions

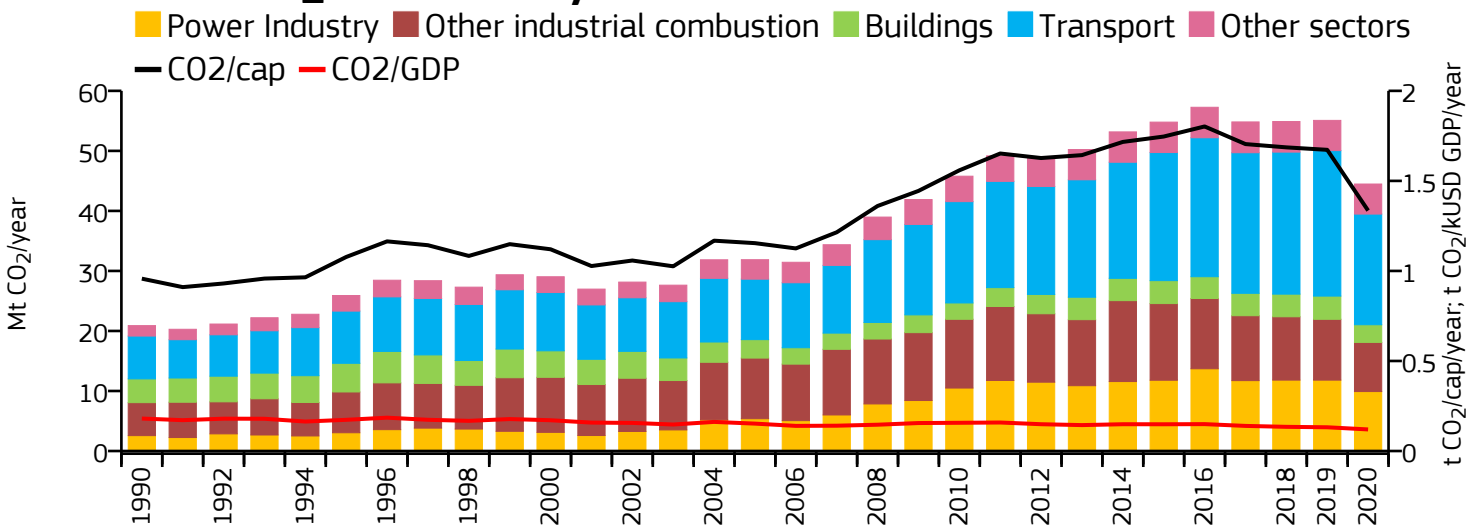


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.836	n/a	1.109	n/a	0.089
2018	8.921	43.246	1.293	6.270	0.100
2005	3.929	26.240	0.678	4.528	0.079
1990	2.266	20.797	0.538	4.936	0.063

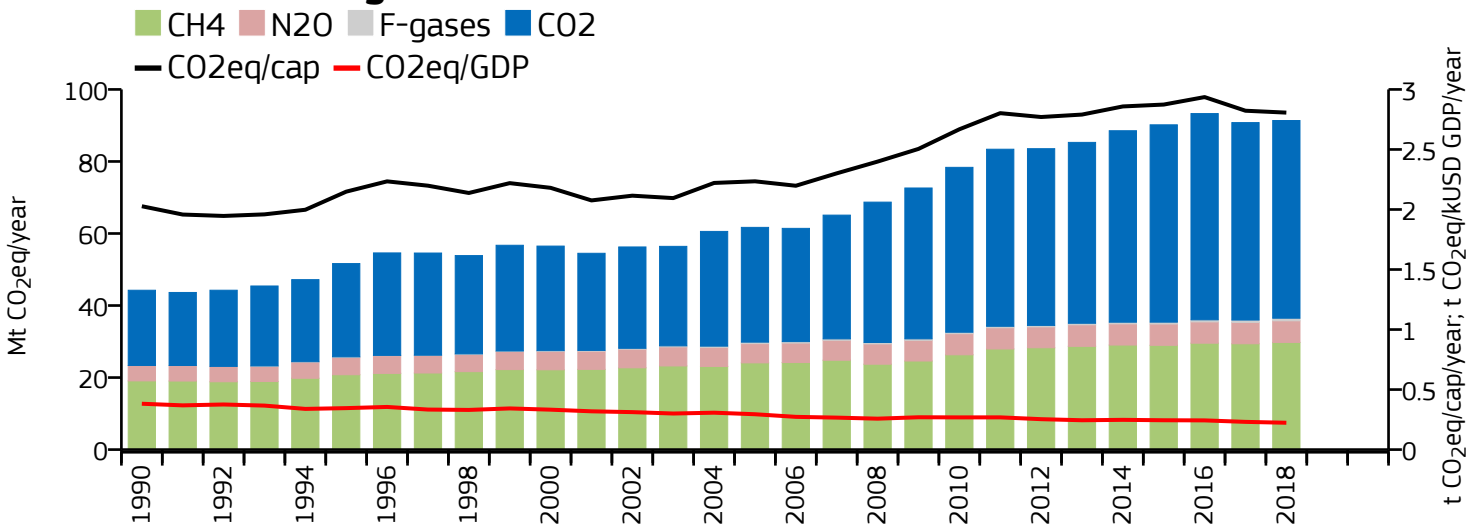
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-79%	-84%	0%
Other industrial combustion	-1%	+28%	+1%
Buildings	+53%	+13%	+16%
Transport	+307%	+371%	+150%
Other sectors	+159%	+89%	+55%
All sectors	+246%	+108%	+65%

Peru

Fossil CO_2 emissions by sector



Greenhouse gas emissions

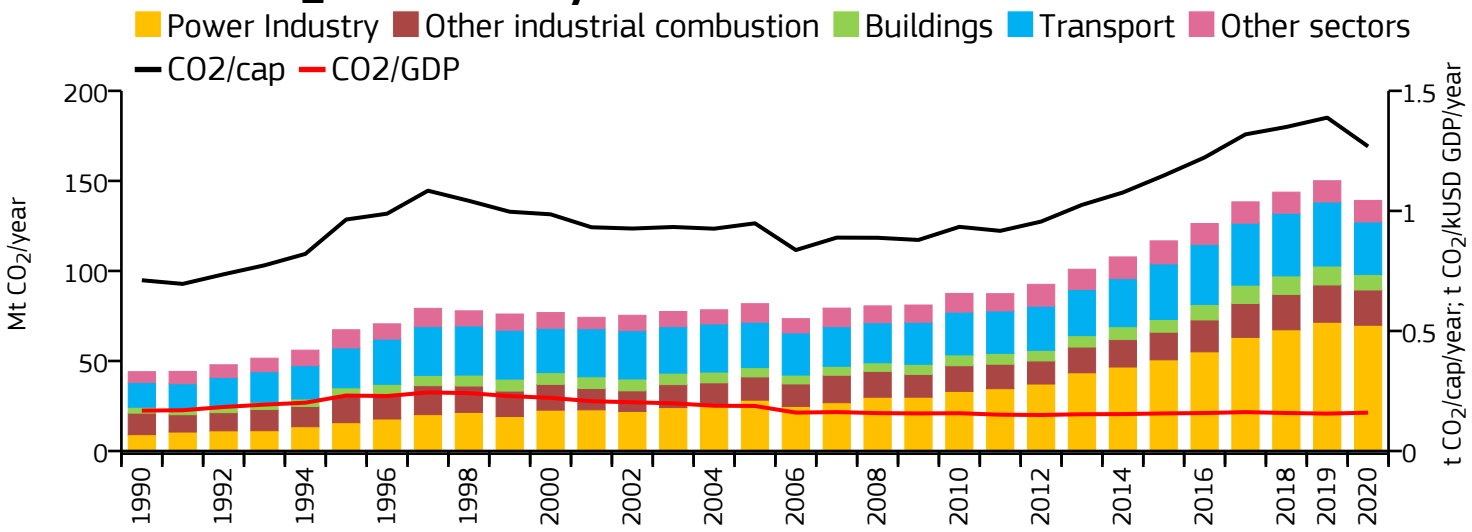


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	44.479	n/a	1.335	n/a	0.120
2018	54.888	91.369	1.686	2.807	0.134
2005	31.871	61.700	1.154	2.235	0.152
1990	20.890	44.246	0.957	2.027	0.180

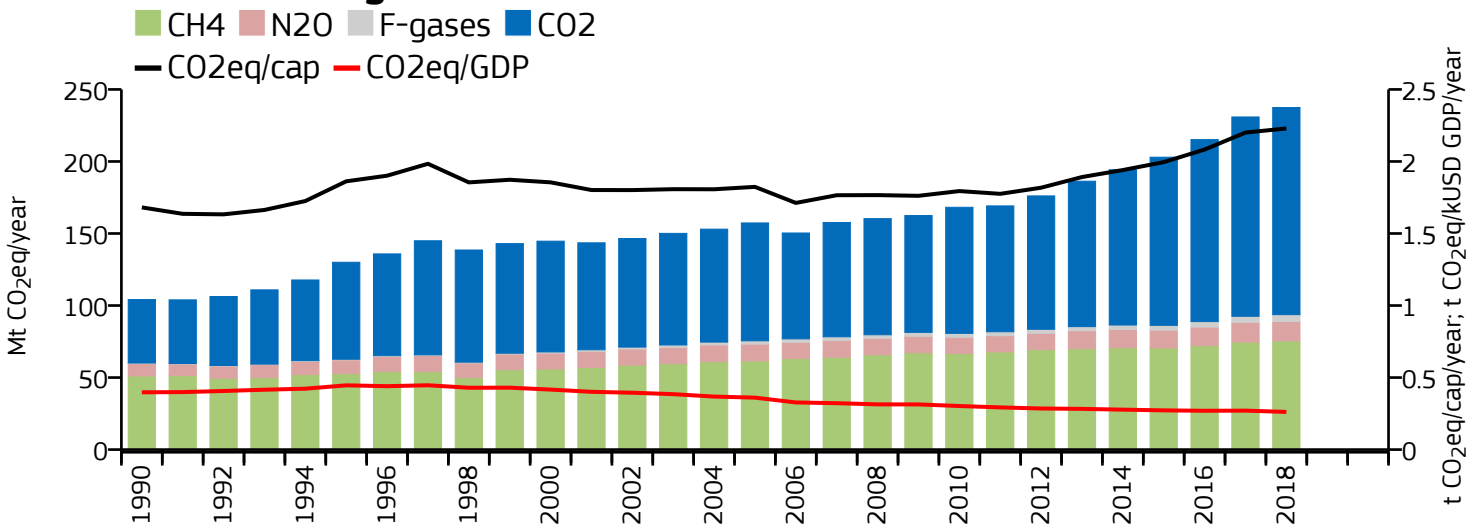
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+286%	+361%	+120%
Other industrial combustion	+49%	+92%	+5%
Buildings	-26%	-7%	+19%
Transport	+158%	+232%	+136%
Other sectors	+188%	+68%	+26%
All sectors	+113%	+107%	+48%

Philippines

Fossil CO_2 emissions by sector



Greenhouse gas emissions

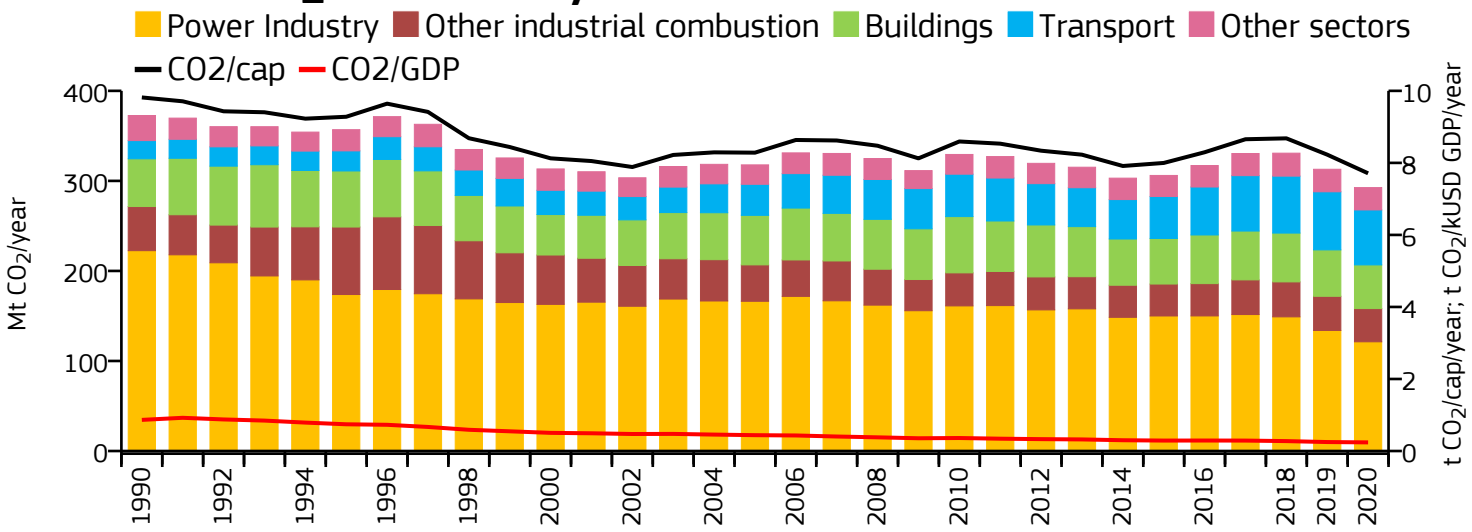


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	139.158	n/a	1.268	n/a	0.160
2018	143.754	237.423	1.350	2.229	0.158
2005	81.815	157.329	0.948	1.824	0.188
1990	44.058	104.140	0.711	1.681	0.168

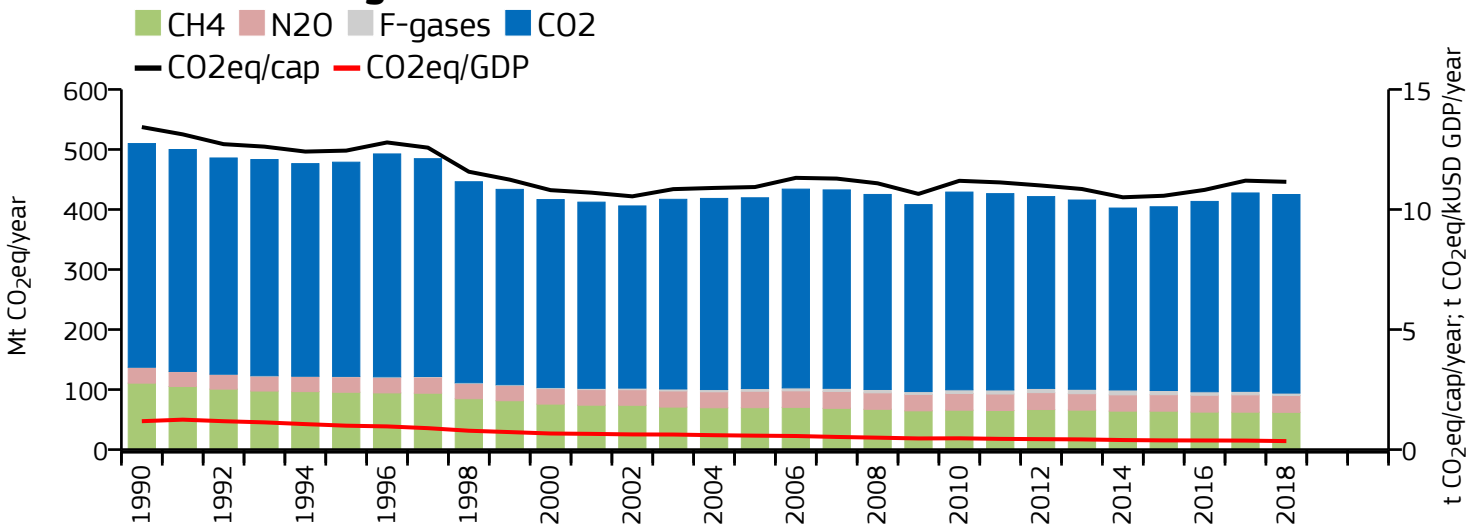
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+669%	+641%	+139%
Other industrial combustion	+64%	+64%	+51%
Buildings	+165%	+94%	+71%
Transport	+112%	+153%	+38%
Other sectors	+99%	+64%	+23%
All sectors	+216%	+128%	+51%

Poland

Fossil CO_2 emissions by sector



Greenhouse gas emissions

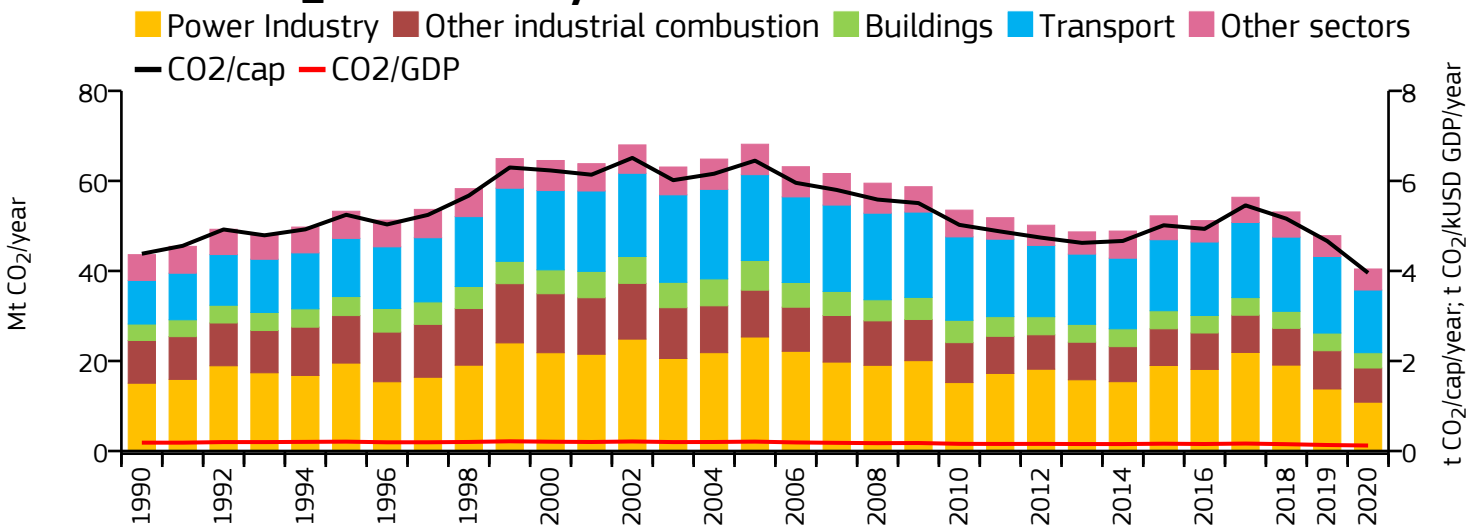


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	292.562	n/a	7.711	n/a	0.239
2018	330.801	424.965	8.681	11.153	0.275
2005	317.792	419.487	8.284	10.935	0.440
1990	372.613	509.816	9.817	13.432	0.864

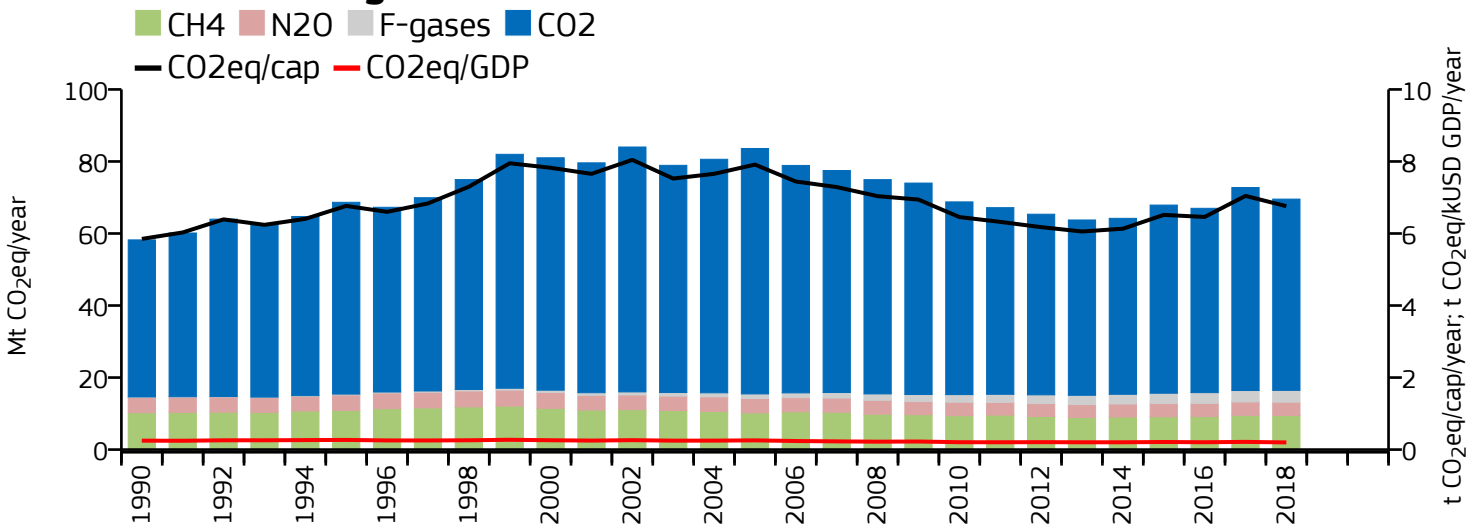
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-45%	-32%	-10%
Other industrial combustion	-25%	-20%	-4%
Buildings	-8%	+4%	-1%
Transport	+202%	+210%	+83%
Other sectors	-11%	-30%	-3%
All sectors	-21%	-17%	+1%

Portugal

Fossil CO_2 emissions by sector



Greenhouse gas emissions

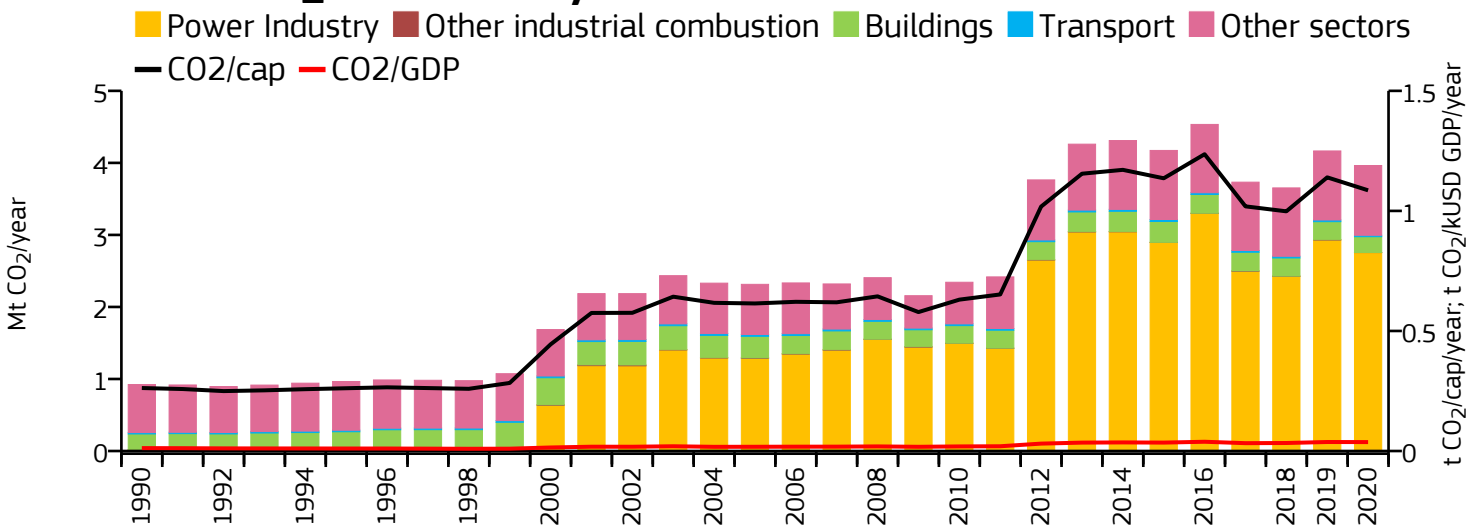


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	40.433	n/a	3.957	n/a	0.122
2018	53.106	69.552	5.160	6.758	0.152
2005	68.146	83.604	6.450	7.913	0.209
1990	43.612	58.224	4.382	5.850	0.185

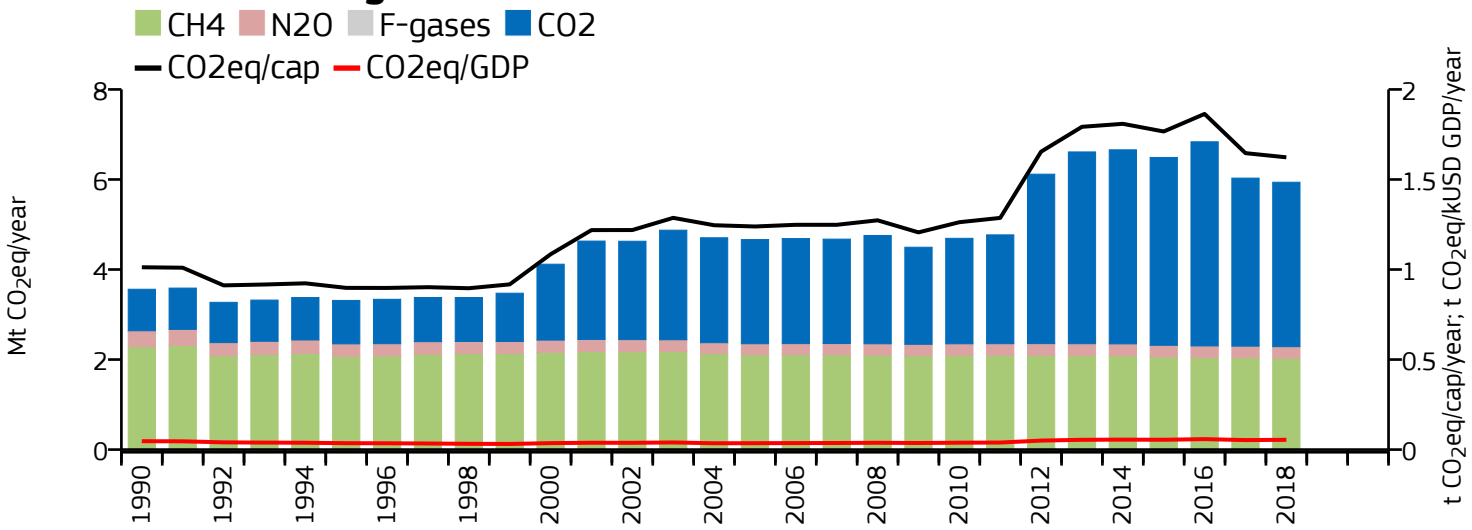
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-28%	+27%	-24%
Other industrial combustion	-20%	-14%	-21%
Buildings	-7%	-1%	-42%
Transport	+44%	+69%	-14%
Other sectors	-18%	+9%	0%
All sectors	-7%	+19%	-17%

Puerto Rico

Fossil CO_2 emissions by sector



Greenhouse gas emissions

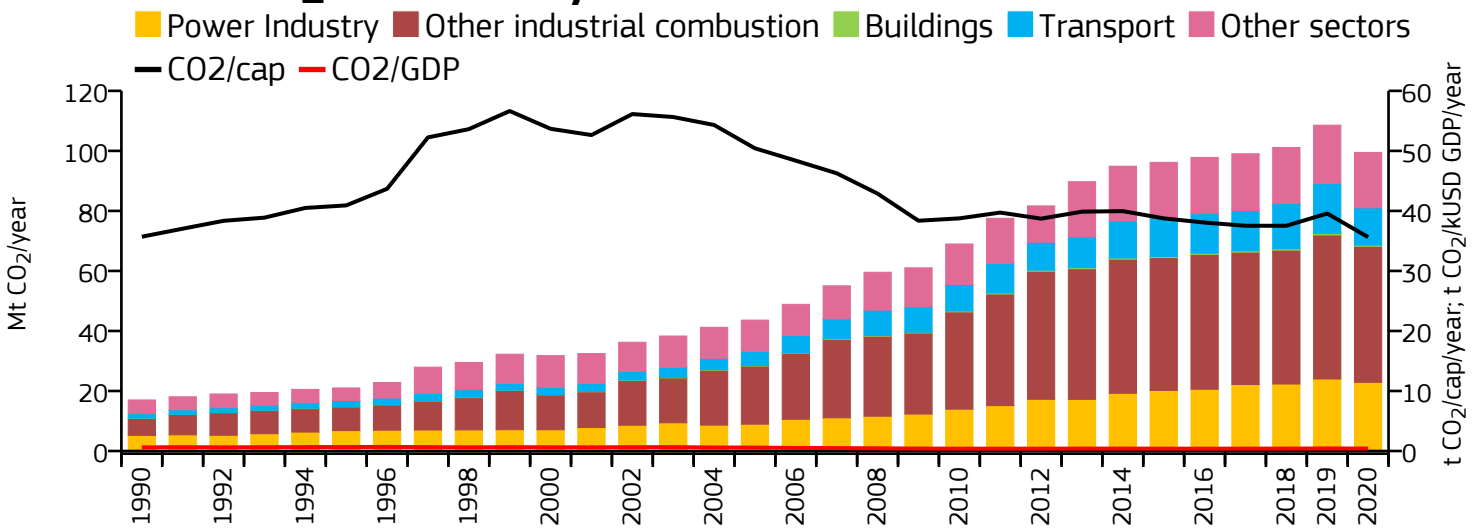


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	3.964	n/a	1.086	n/a	0.037
2018	3.653	5.939	0.998	1.623	0.033
2005	2.314	4.665	0.615	1.239	0.018
1990	0.923	3.562	0.262	1.012	0.012

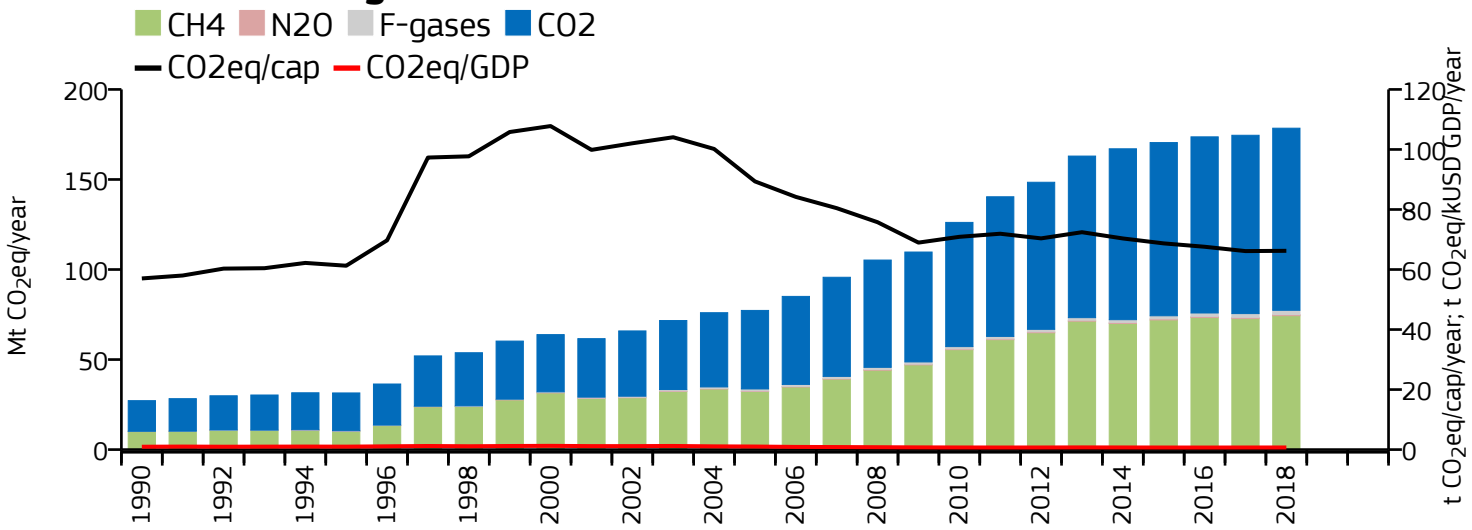
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +18725%	↗ +16480%	↗ +88%
Other industrial combustion	↘ -26%	↘ -35%	↘ -9%
Buildings	→ -1%	↗ +15%	↘ -16%
Transport	→ +5%	↗ +23%	↘ -8%
Other sectors	↗ +45%	→ -2%	↗ +6%
All sectors	↗ +330%	↗ +67%	↗ +27%

Qatar

Fossil CO_2 emissions by sector



Greenhouse gas emissions

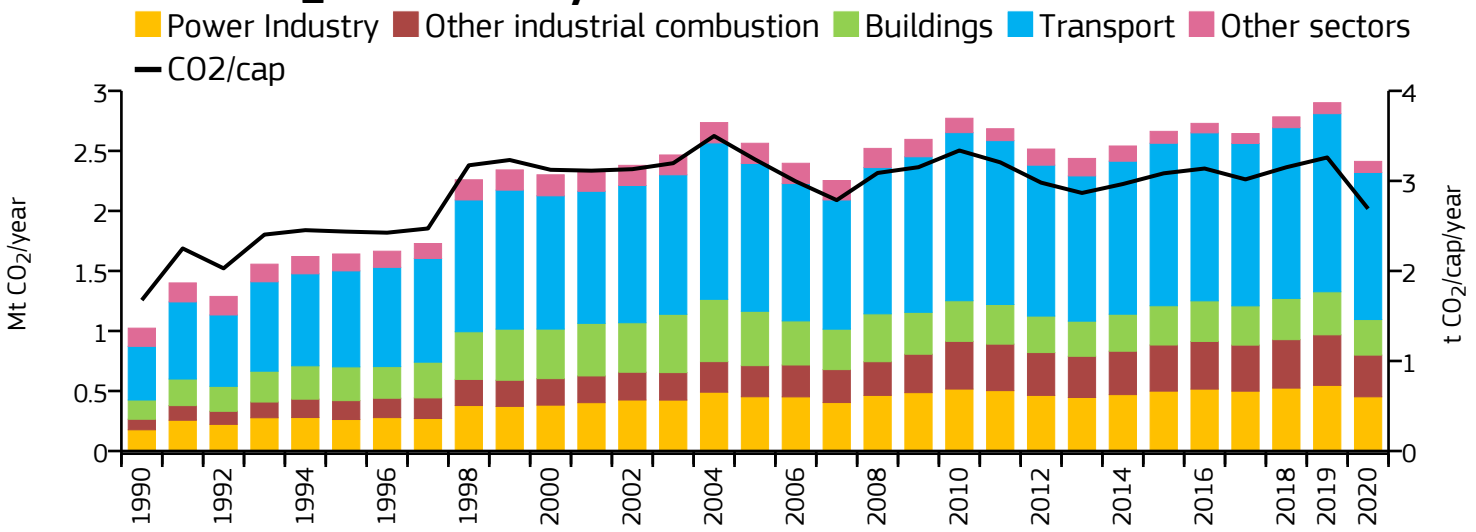


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	99.487	n/a	35.635	n/a	0.405
2018	101.121	178.477	37.524	66.229	0.400
2005	43.610	77.280	50.424	89.355	0.574
1990	17.010	27.168	35.701	57.023	0.596

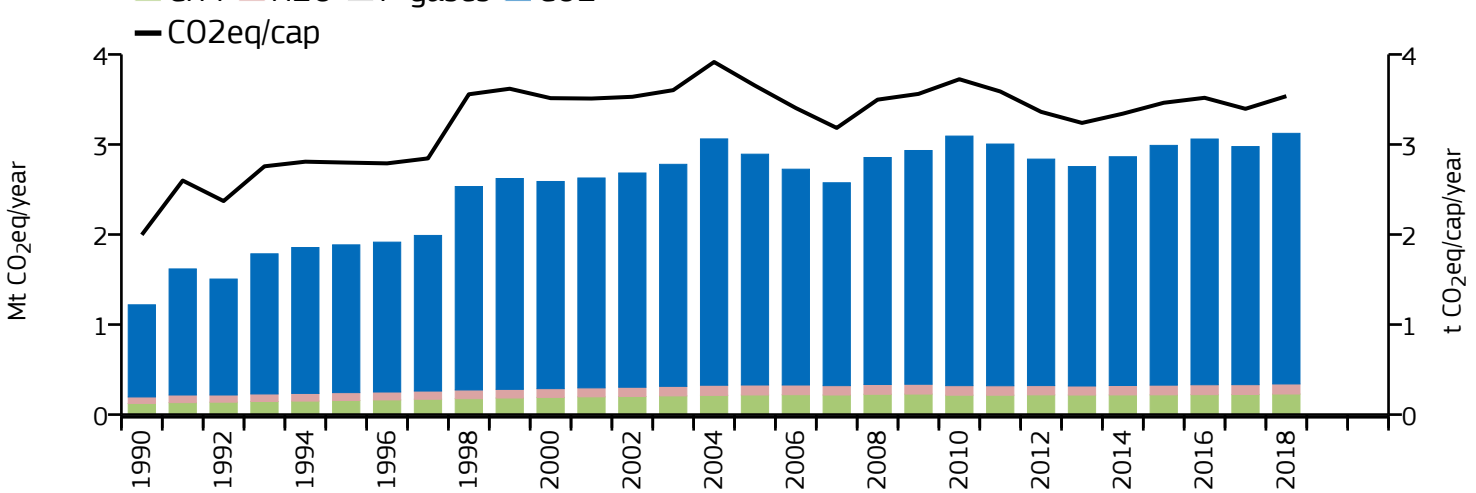
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+339%	+328%	+150%
Other industrial combustion	+702%	+689%	+130%
Buildings	+301%	+389%	+181%
Transport	+743%	+919%	+219%
Other sectors	+303%	+552%	+118%
All sectors	+485%	+557%	+131%

Réunion

Fossil CO_2 emissions by sector



Greenhouse gas emissions

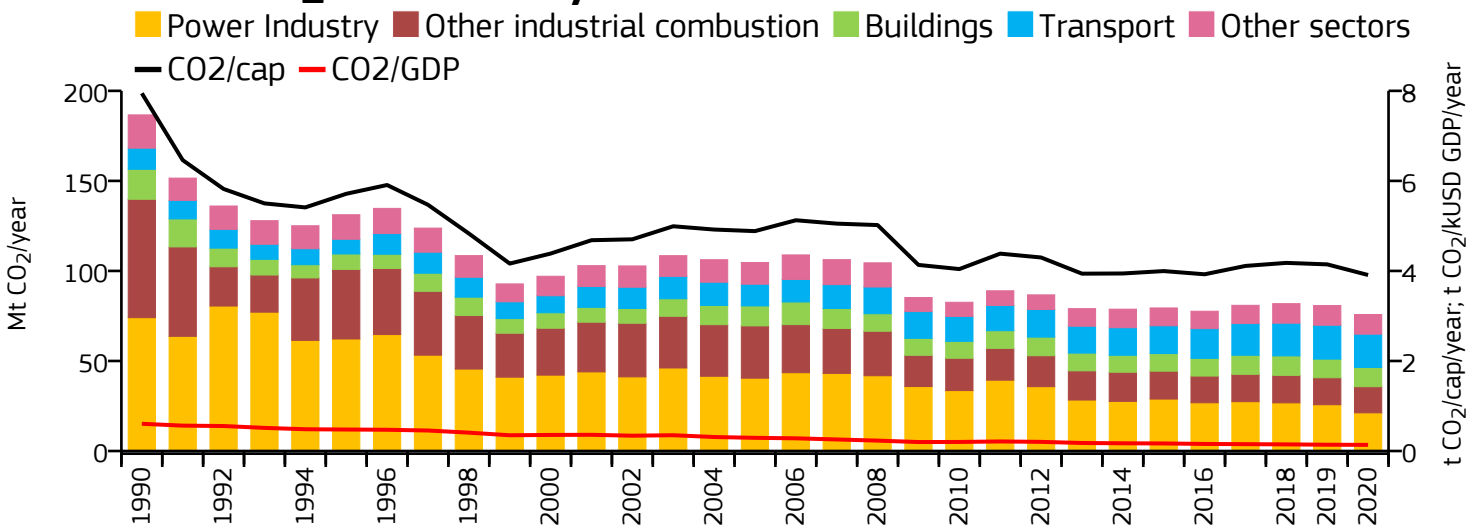


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	2.413	n/a	2.691	n/a	n/a
2018	2.783	3.124	3.151	3.537	n/a
2005	2.564	2.892	3.239	3.654	n/a
1990	1.023	1.219	1.676	1.997	n/a

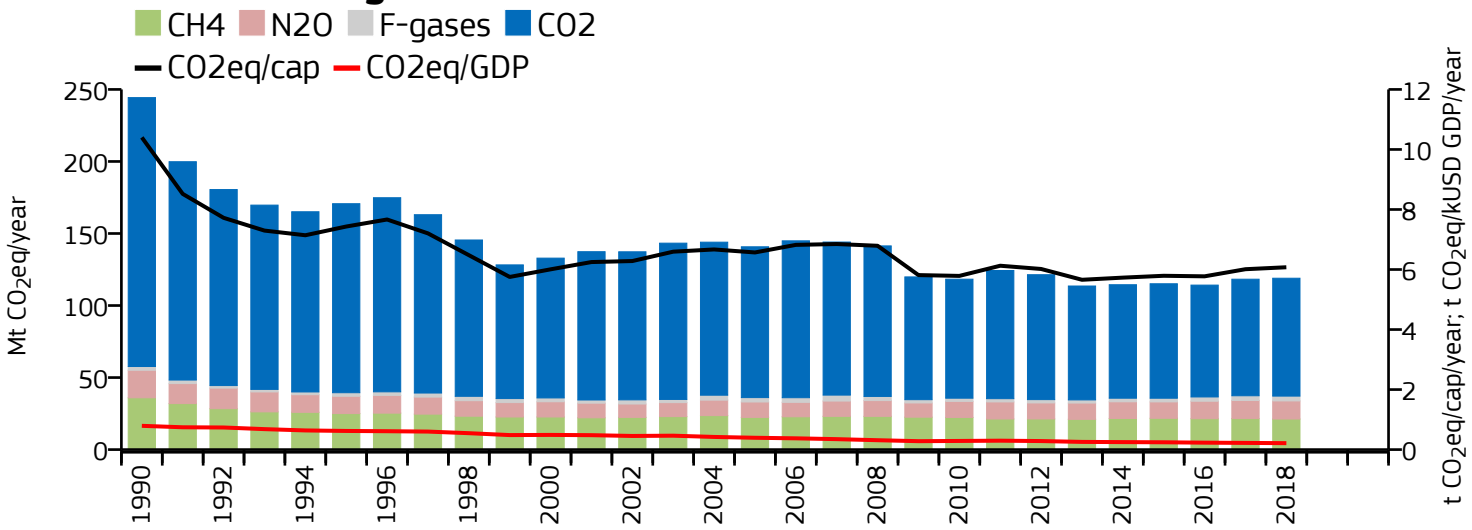
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +156%	↗ +197%	↗ +16%
Other industrial combustion	↗ +295%	↗ +341%	↗ +56%
Buildings	↗ +85%	↗ +109%	↘ -25%
Transport	↗ +174%	↗ +217%	↗ +15%
Other sectors	↘ -39%	↗ +23%	↘ -13%
All sectors	↗ +136%	↗ +156%	↗ +8%

Romania

Fossil CO_2 emissions by sector



Greenhouse gas emissions

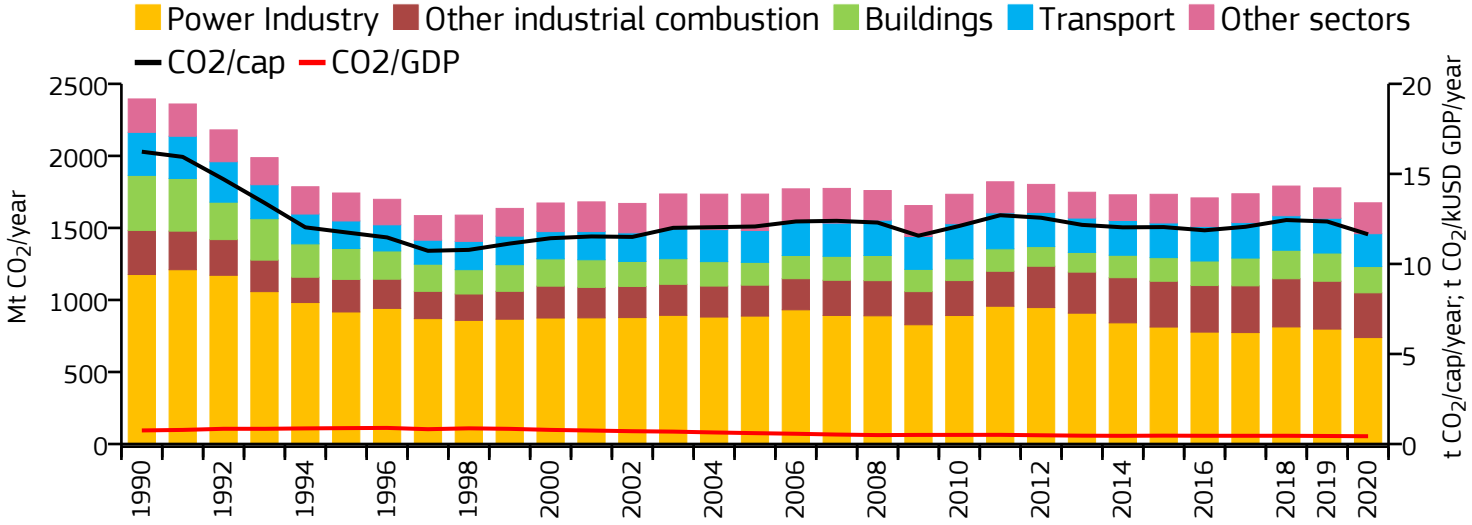


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	75.797	n/a	3.909	n/a	0.136
2018	81.824	118.954	4.179	6.075	0.147
2005	104.675	140.766	4.884	6.568	0.293
1990	186.651	244.318	7.946	10.401	0.605

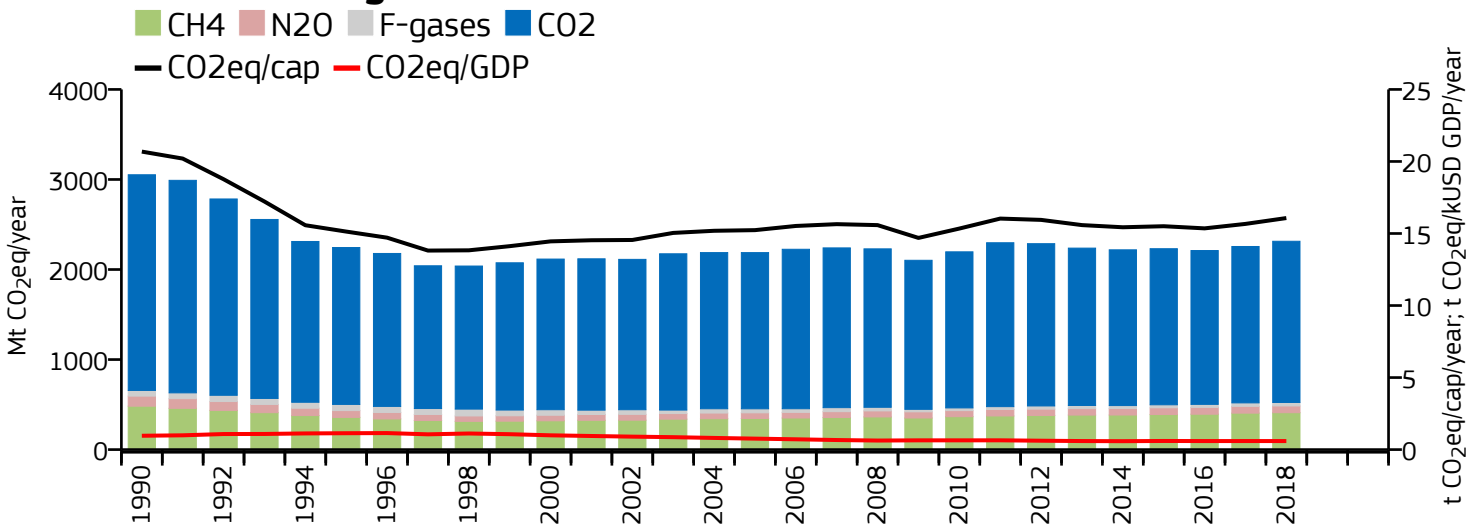
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-71%	-64%	-34%
Other industrial combustion	-78%	-77%	-47%
Buildings	-36%	-31%	-1%
Transport	+58%	+54%	+50%
Other sectors	-41%	-38%	-1%
All sectors	-59%	-51%	-15%

Russia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

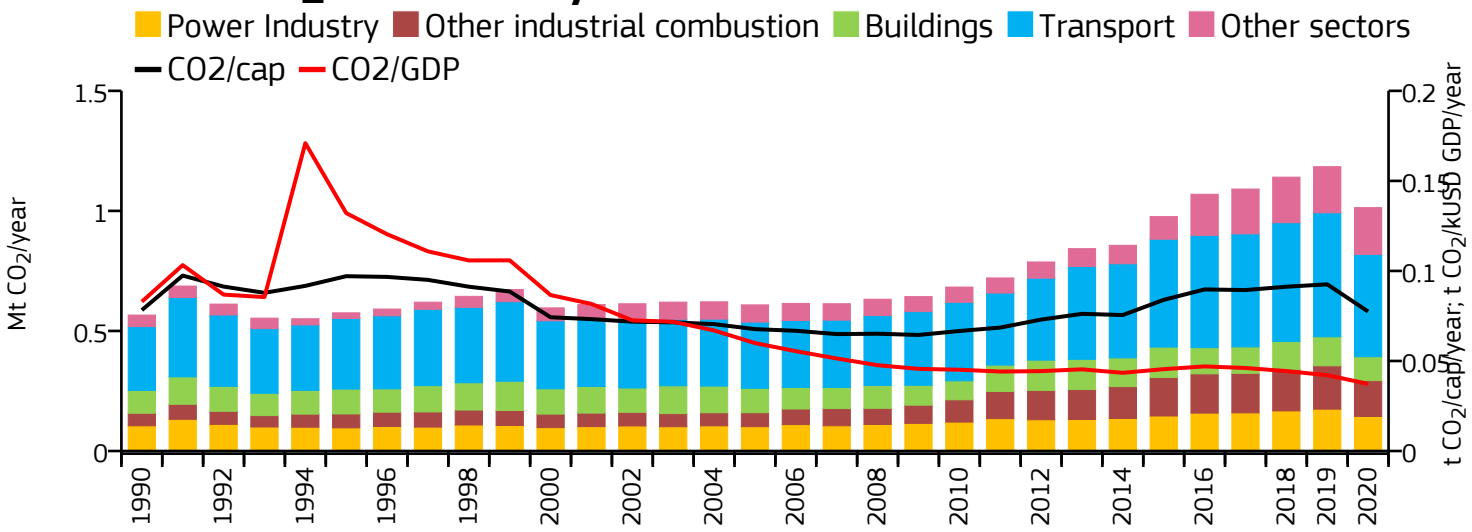


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1674.228	n/a	11.644	n/a	0.432
2018	1790.520	2313.735	12.437	16.072	0.457
2005	1734.852	2187.695	12.080	15.233	0.603
1990	2395.273	3052.285	16.232	20.684	0.754

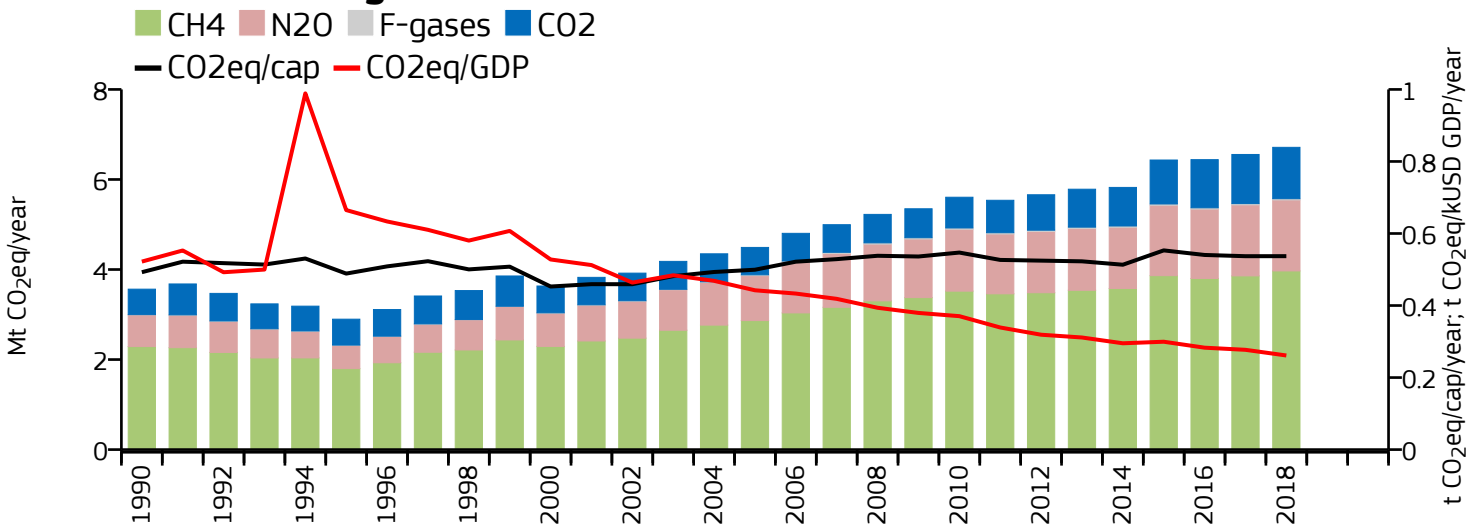
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-37%	-31%	-8%
Other industrial combustion	+1%	+9%	+56%
Buildings	-52%	-50%	+23%
Transport	-24%	-20%	+8%
Other sectors	-7%	-16%	+3%
All sectors	-30%	-24%	+6%

Rwanda

Fossil CO_2 emissions by sector



Greenhouse gas emissions

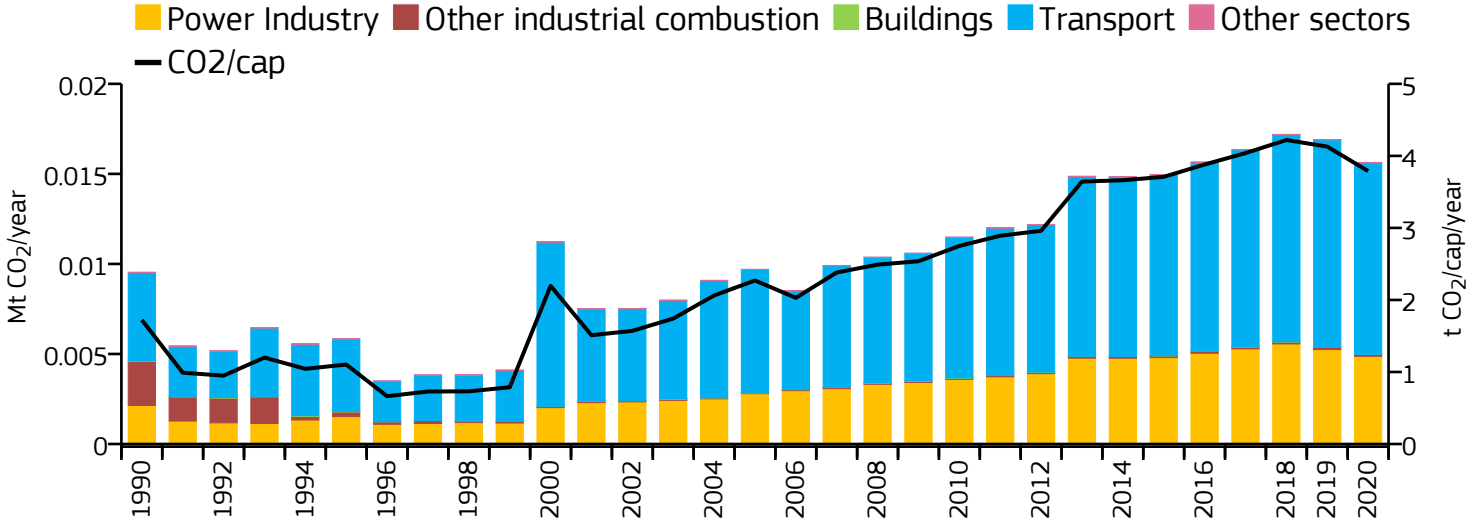


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.014	n/a	0.077	n/a	0.037
2018	1.141	6.714	0.091	0.537	0.044
2005	0.609	4.491	0.068	0.499	0.060
1990	0.566	3.564	0.078	0.492	0.083

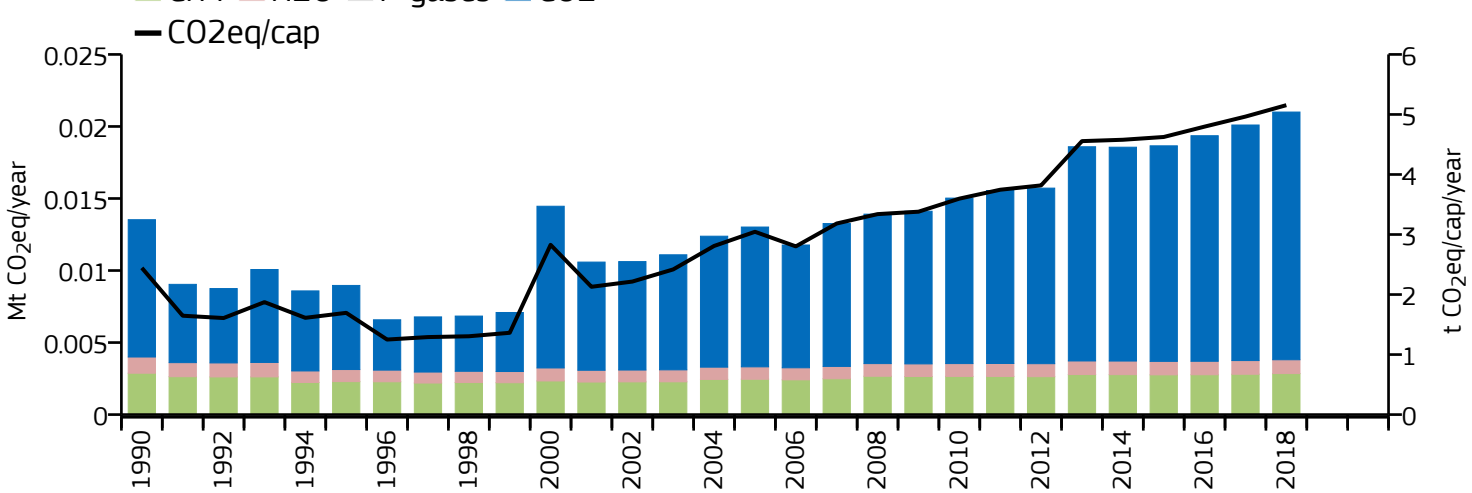
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+37%	+60%	+66%
Other industrial combustion	+185%	+216%	+189%
Buildings	+5%	-9%	+6%
Transport	+60%	+86%	+80%
Other sectors	+306%	+116%	+52%
All sectors	+79%	+88%	+50%

Saint Helena, Ascension and Tristan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

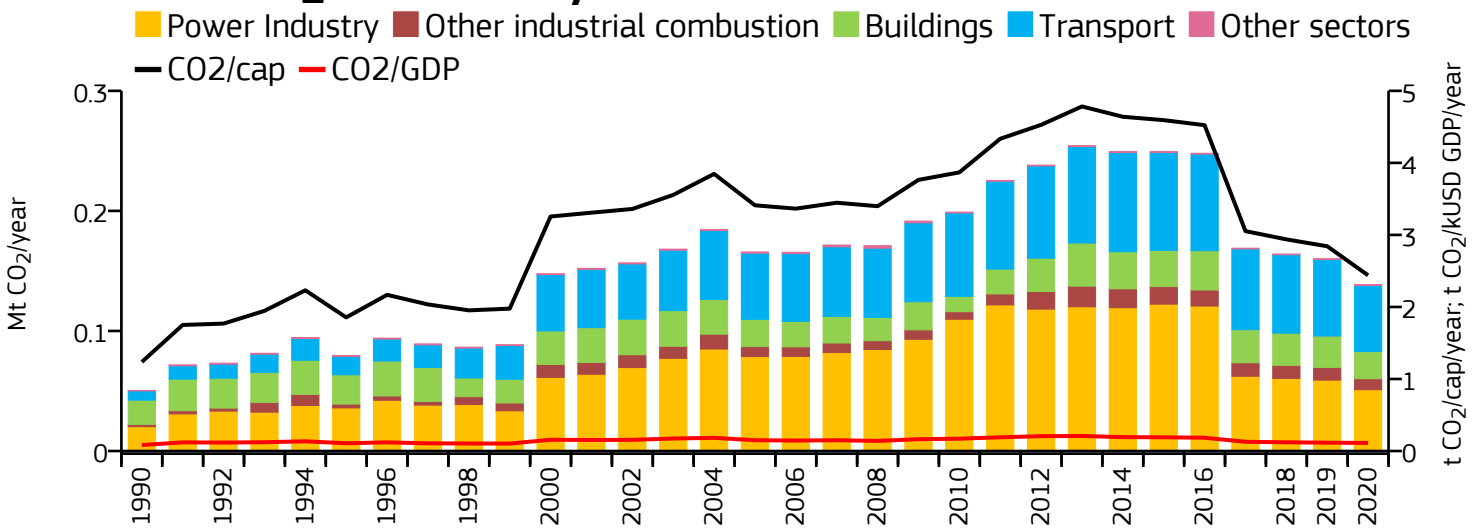


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.016	n/a	3.790	n/a	n/a
2018	0.017	0.021	4.220	5.155	n/a
2005	0.010	0.013	2.270	3.045	n/a
1990	0.010	0.014	1.722	2.444	n/a

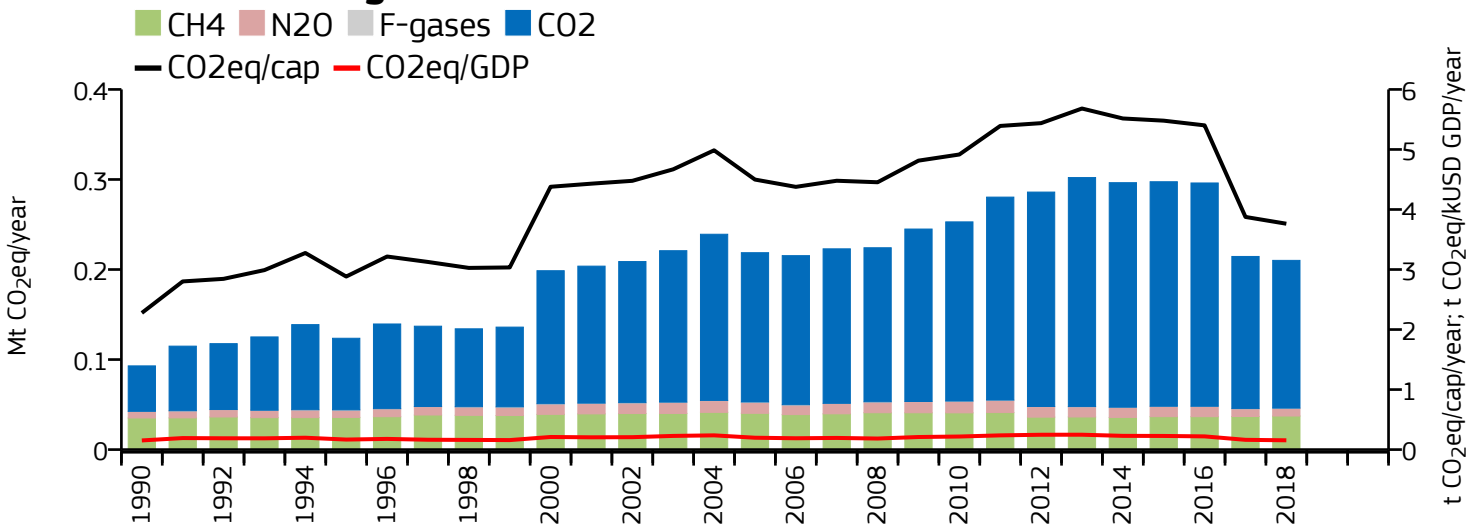
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+128%	+160%	+99%
Other industrial combustion	-96%	-95%	+126%
Buildings	-92%	-91%	+21%
Transport	+117%	+135%	+68%
Other sectors	+1366%	-6%	+14%
All sectors	+64%	+55%	+61%

Saint Kitts and Nevis

Fossil CO_2 emissions by sector



Greenhouse gas emissions

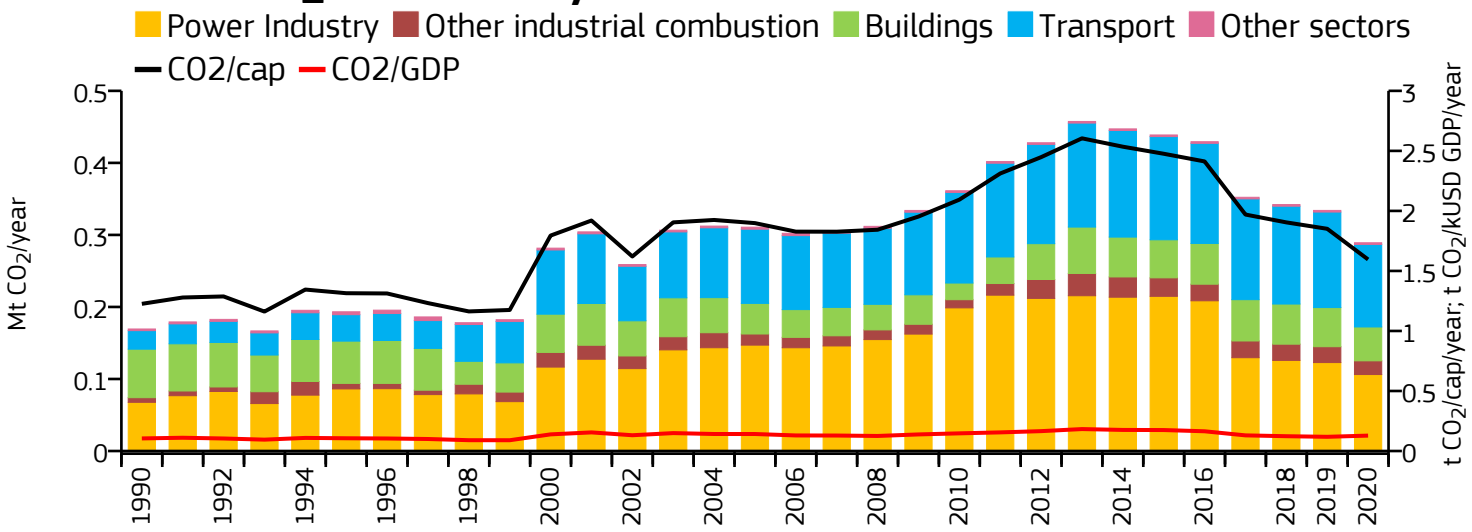


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.139	n/a	2.439	n/a	0.112
2018	0.164	0.210	2.938	3.763	0.121
2005	0.166	0.219	3.411	4.498	0.150
1990	0.050	0.093	1.236	2.277	0.083

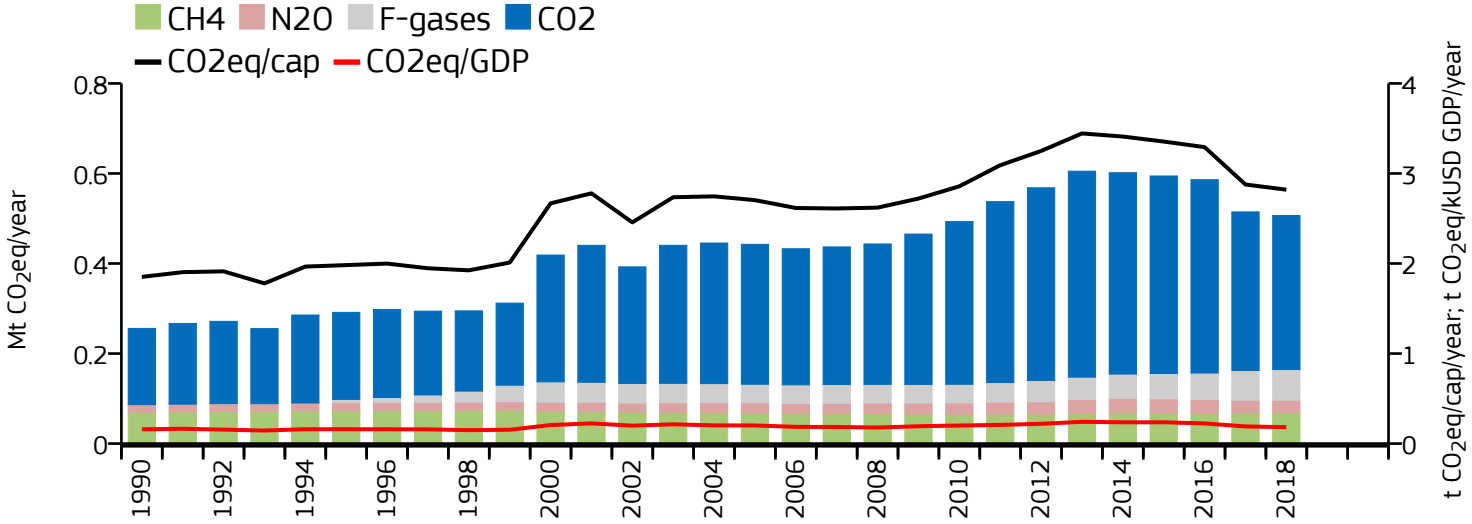
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +152%	↗ +199%	↘ -23%
Other industrial combustion	↗ +375%	↗ +355%	↗ +26%
Buildings	↗ +12%	↗ +37%	↗ +19%
Transport	↗ +615%	↗ +743%	↗ +18%
Other sectors	↗ +49%	↗ +6%	↘ -14%
All sectors	↗ +175%	↗ +126%	→ -4%

Saint Lucia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

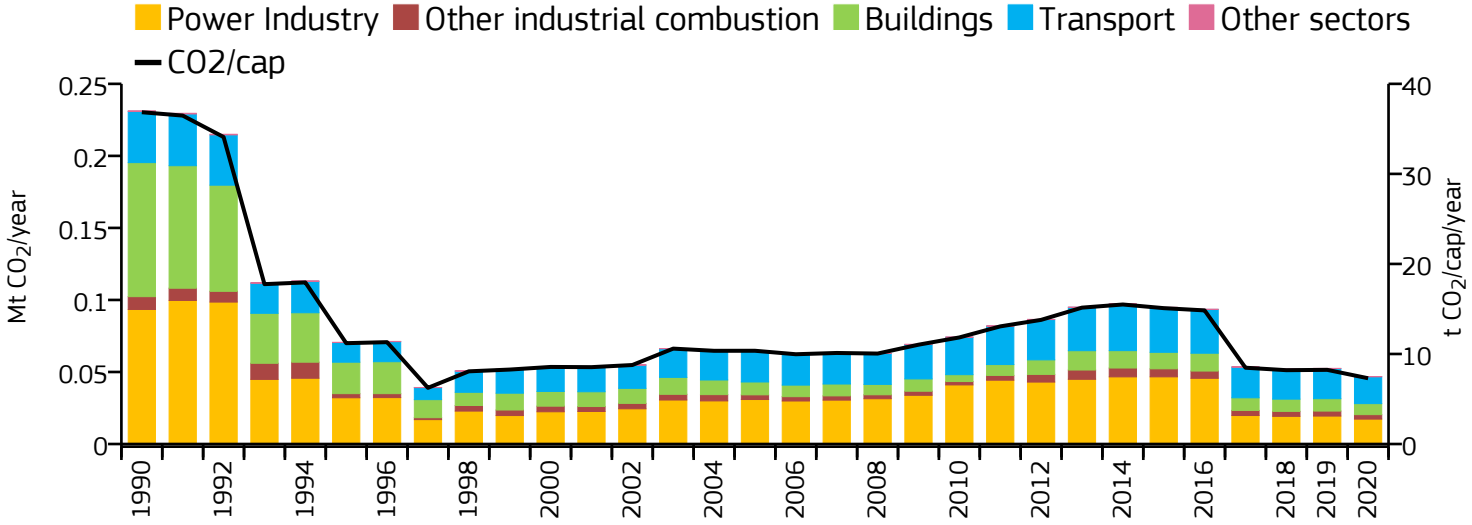


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.289	n/a	1.595	n/a	0.128
2018	0.342	0.507	1.904	2.820	0.123
2005	0.311	0.443	1.898	2.704	0.142
1990	0.169	0.256	1.226	1.851	0.105

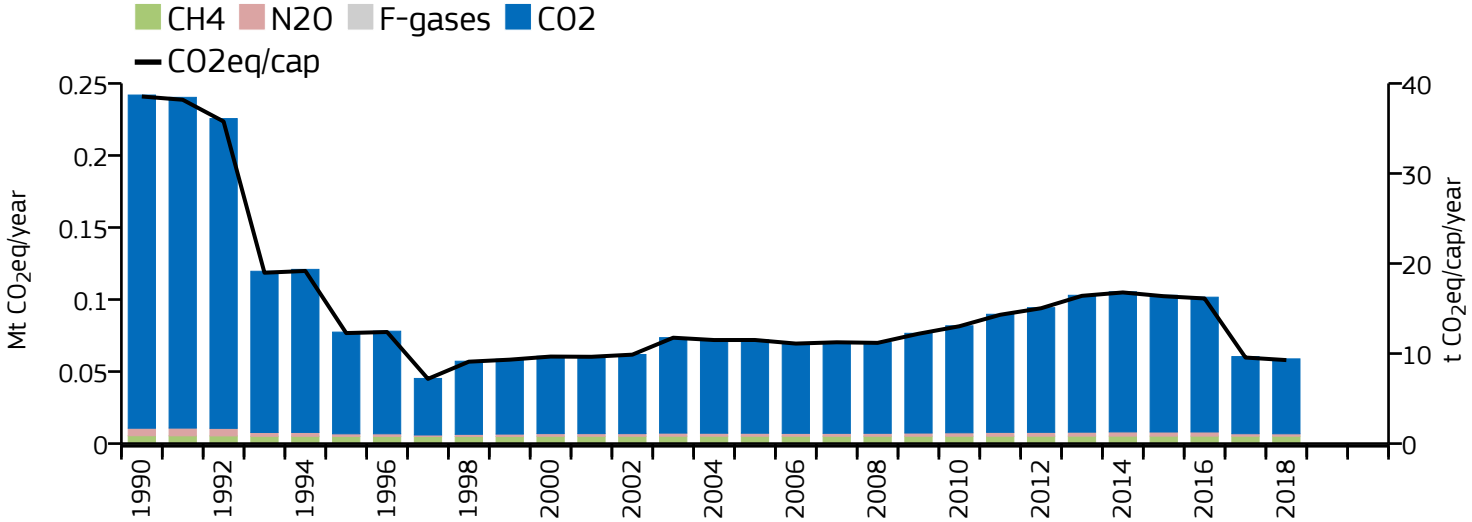
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+57%	+86%	-14%
Other industrial combustion	+196%	+250%	+46%
Buildings	-30%	-15%	+32%
Transport	+346%	+425%	+32%
Other sectors	-2%	+86%	+24%
All sectors	+71%	+98%	+14%

Saint Pierre and Miquelon

Fossil CO_2 emissions by sector



Greenhouse gas emissions

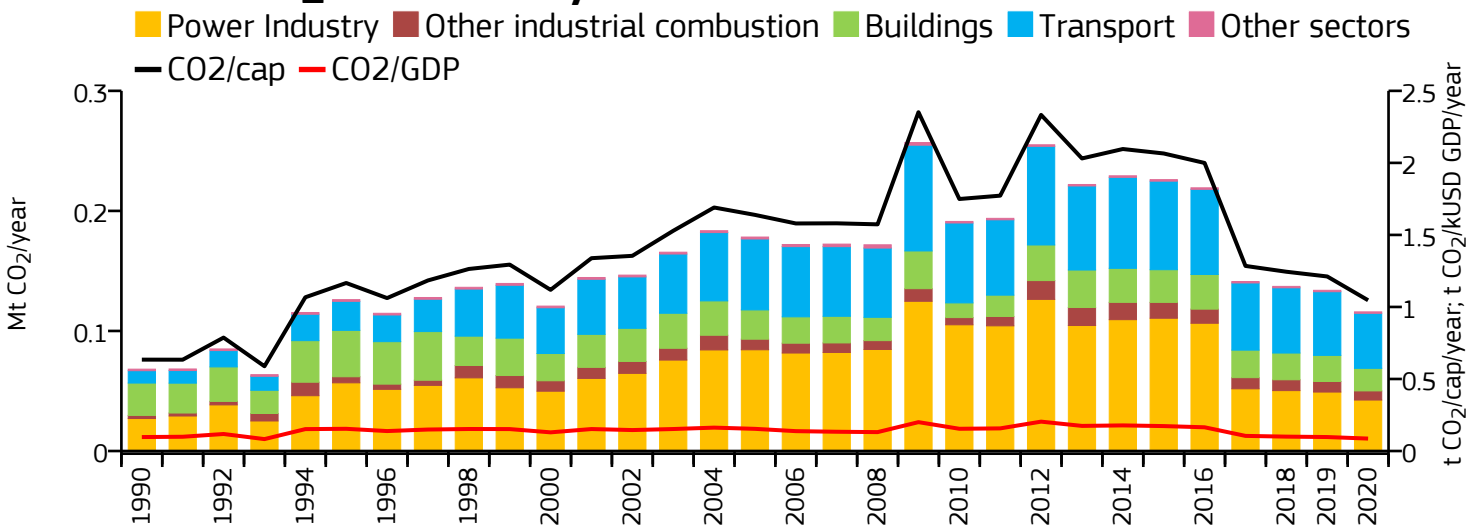


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.047	n/a	7.304	n/a	n/a
2018	0.052	0.059	8.199	9.272	n/a
2005	0.065	0.072	10.356	11.506	n/a
1990	0.231	0.242	36.849	38.550	n/a

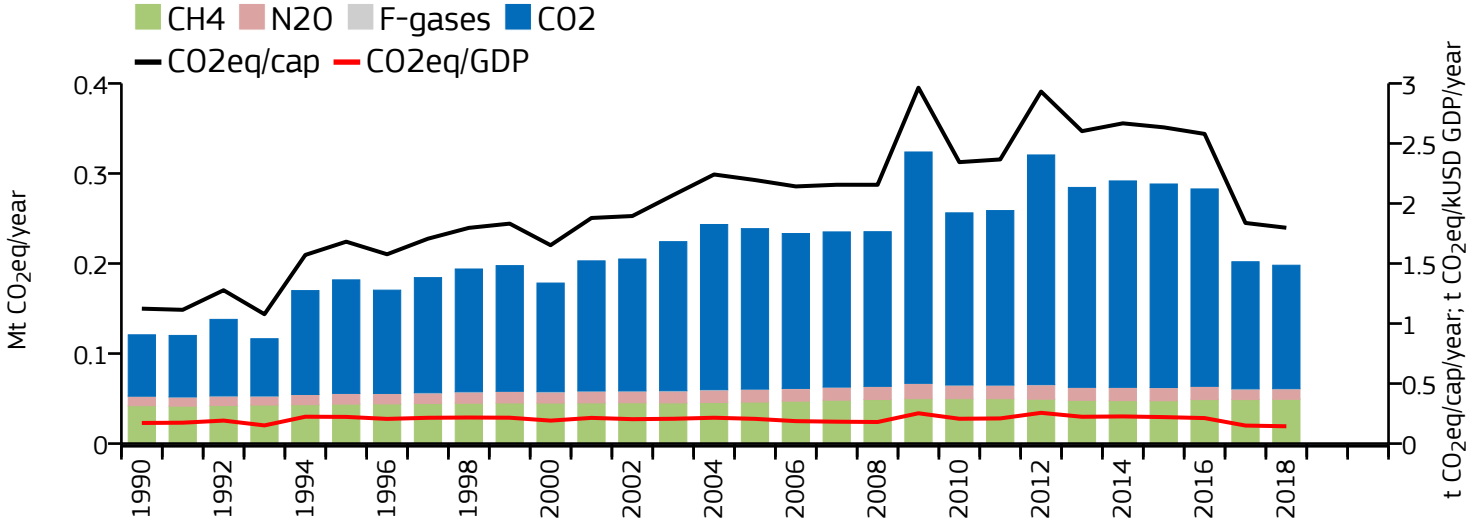
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-81%	-79%	-38%
Other industrial combustion	-65%	-61%	+6%
Buildings	-92%	-91%	-4%
Transport	-47%	-43%	-4%
Other sectors	-77%	-29%	-5%
All sectors	-80%	-76%	-18%

Saint Vincent and the Grenadines

Fossil CO_2 emissions by sector



Greenhouse gas emissions

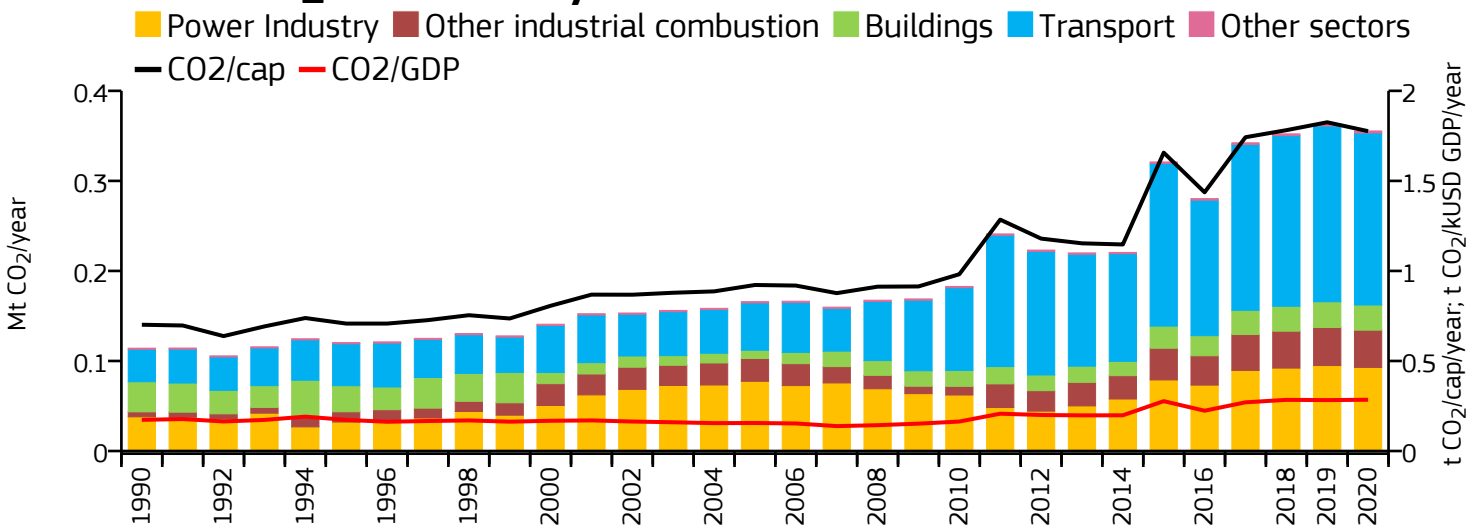


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.116	n/a	1.046	n/a	0.086
2018	0.137	0.198	1.244	1.798	0.100
2005	0.178	0.239	1.639	2.195	0.154
1990	0.068	0.121	0.634	1.124	0.097

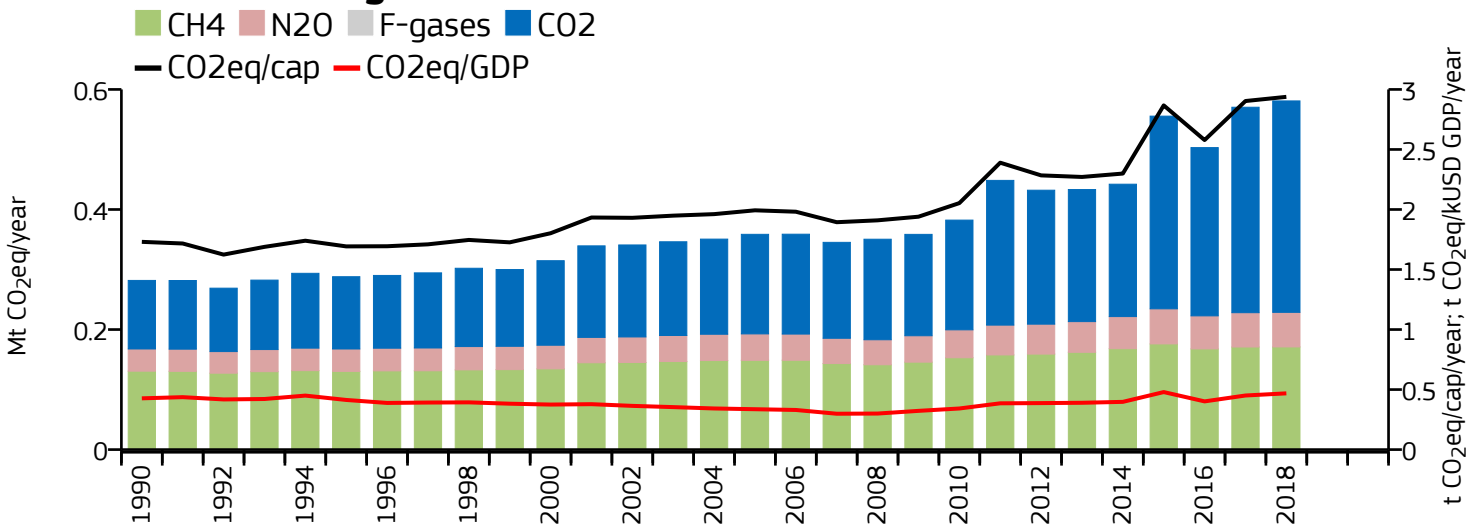
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +57%	↗ +86%	↘ -40%
Other industrial combustion	↗ +196%	↗ +248%	→ +2%
Buildings	↘ -30%	↘ -15%	↘ -8%
Transport	↗ +345%	↗ +425%	↘ -8%
Other sectors	↘ -9%	↗ +13%	→ 0%
All sectors	↗ +70%	↗ +64%	↘ -17%

Samoa

Fossil CO_2 emissions by sector



Greenhouse gas emissions

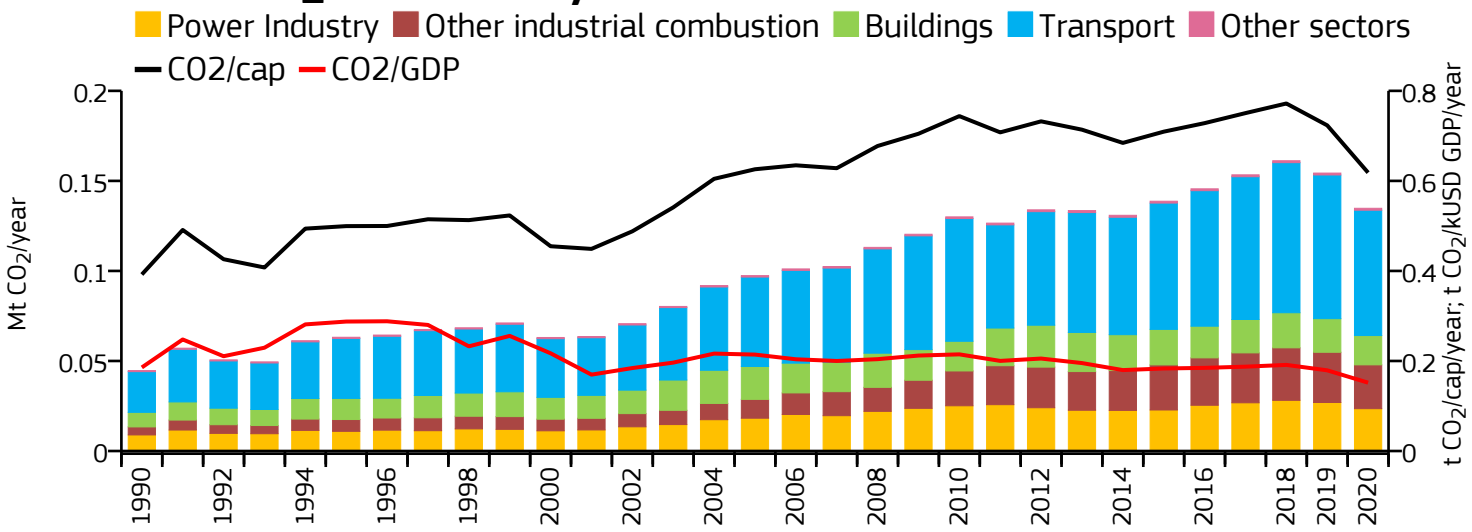


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.355	n/a	1.776	n/a	0.285
2018	0.352	0.581	1.782	2.938	0.284
2005	0.166	0.359	0.922	1.993	0.156
1990	0.114	0.282	0.701	1.730	0.173

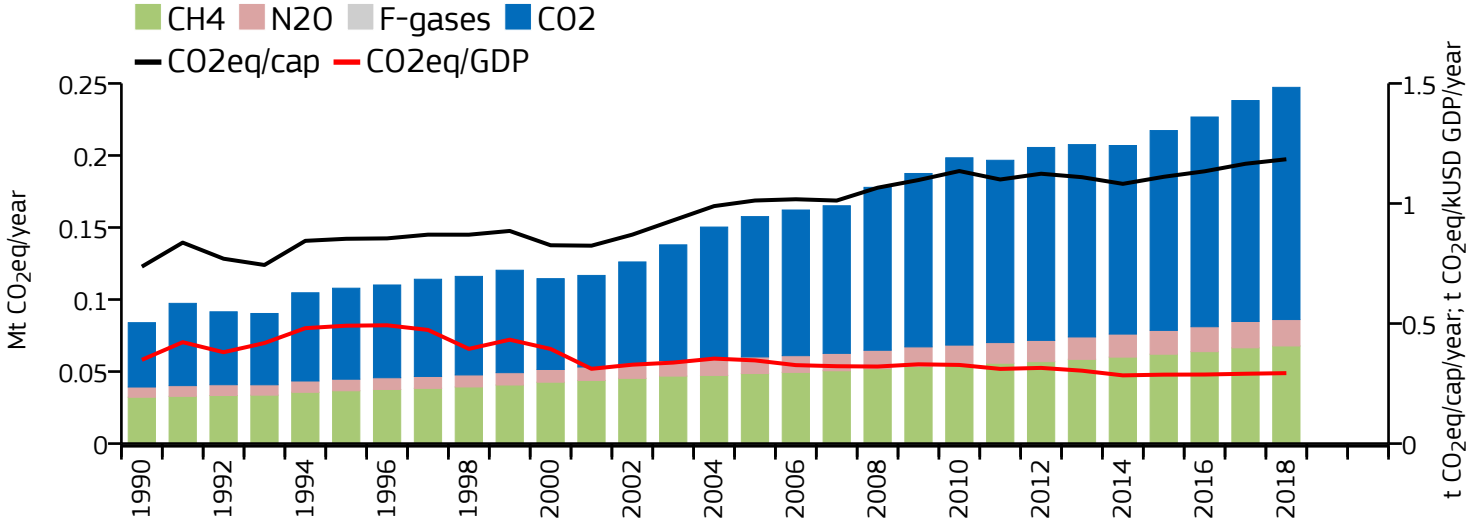
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +145%	↗ +142%	↗ +19%
Other industrial combustion	↗ +652%	↗ +638%	↗ +62%
Buildings	↘ -16%	↘ -9%	↗ +130%
Transport	↗ +430%	↗ +423%	↗ +259%
Other sectors	↗ +84%	↗ +35%	↗ +19%
All sectors	↗ +211%	↗ +106%	↗ +62%

São Tomé and Príncipe

Fossil CO_2 emissions by sector



Greenhouse gas emissions

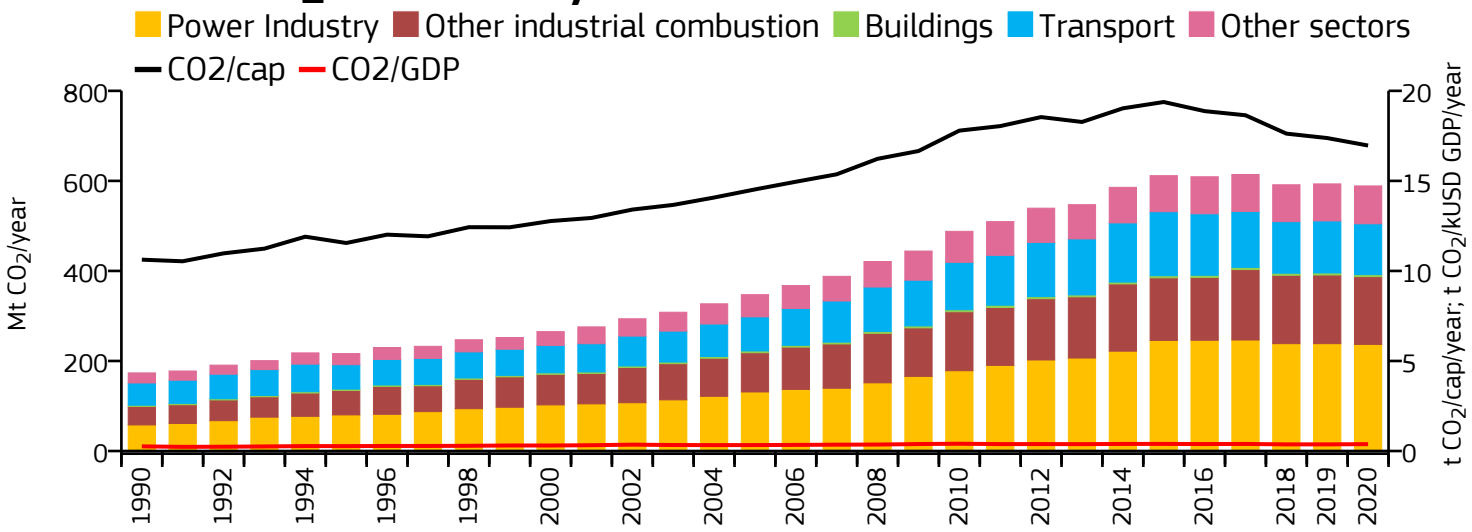


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.135	n/a	0.618	n/a	0.152
2018	0.161	0.247	0.772	1.184	0.191
2005	0.097	0.158	0.626	1.012	0.214
1990	0.045	0.084	0.392	0.737	0.186

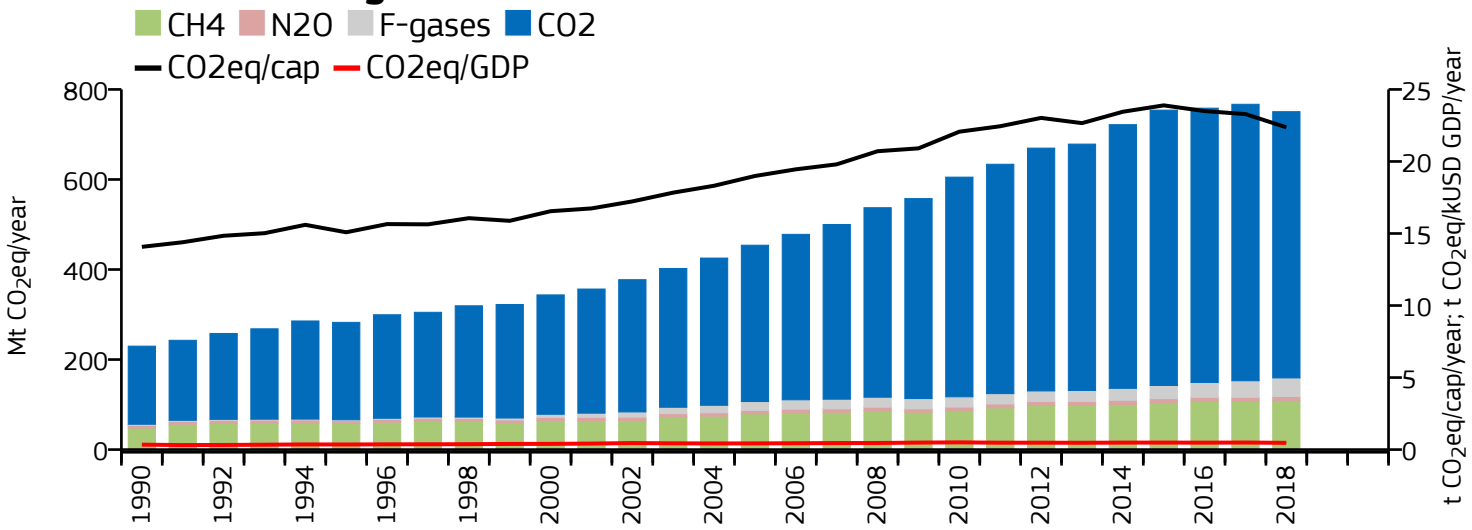
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+163%	+216%	+55%
Other industrial combustion	+447%	+550%	+178%
Buildings	+101%	+99%	+10%
Transport	+208%	+269%	+68%
Other sectors	+80%	+133%	+49%
All sectors	+202%	+195%	+57%

Saudi Arabia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

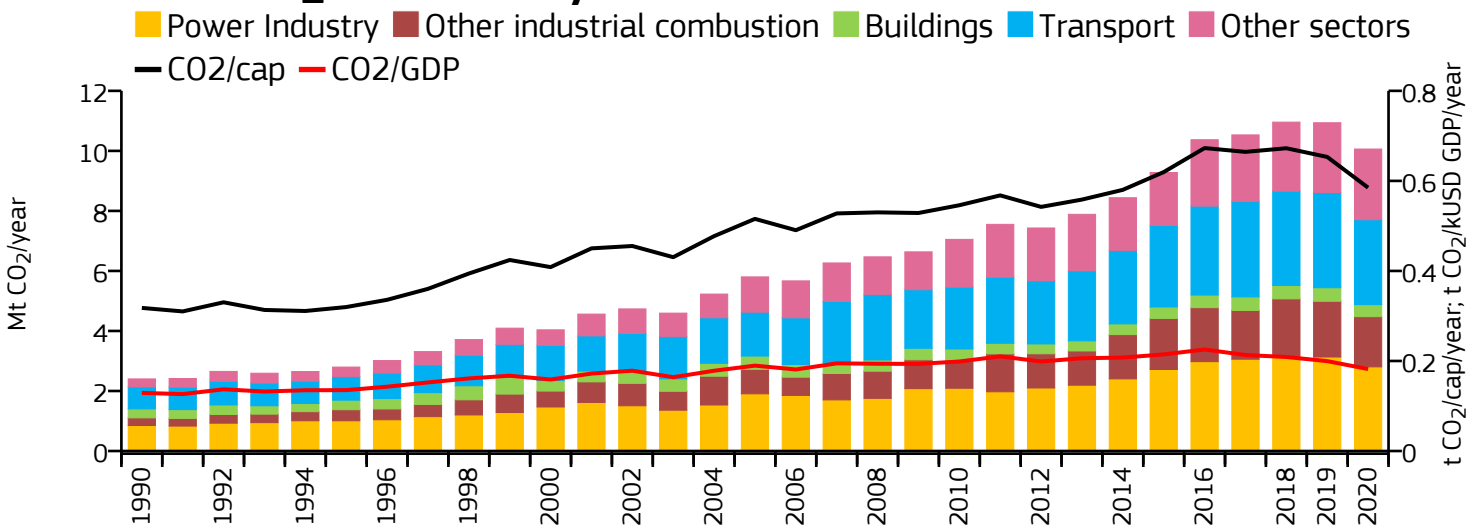


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	588.814	n/a	16.964	n/a	0.382
2018	591.397	750.597	17.625	22.370	0.369
2005	347.263	454.019	14.526	18.992	0.329
1990	173.479	229.773	10.625	14.073	0.258

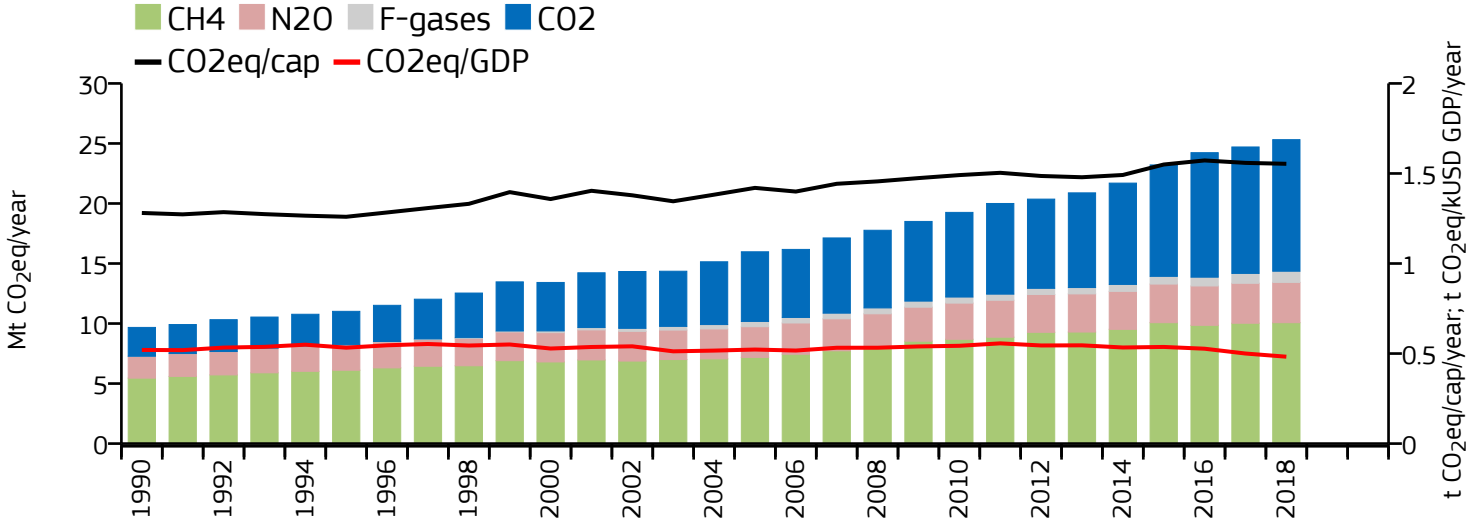
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+309%	+312%	+82%
Other industrial combustion	+265%	+266%	+74%
Buildings	+75%	+78%	+12%
Transport	+129%	+131%	+51%
Other sectors	+276%	+208%	+55%
All sectors	+239%	+227%	+65%

Senegal

Fossil CO_2 emissions by sector



Greenhouse gas emissions

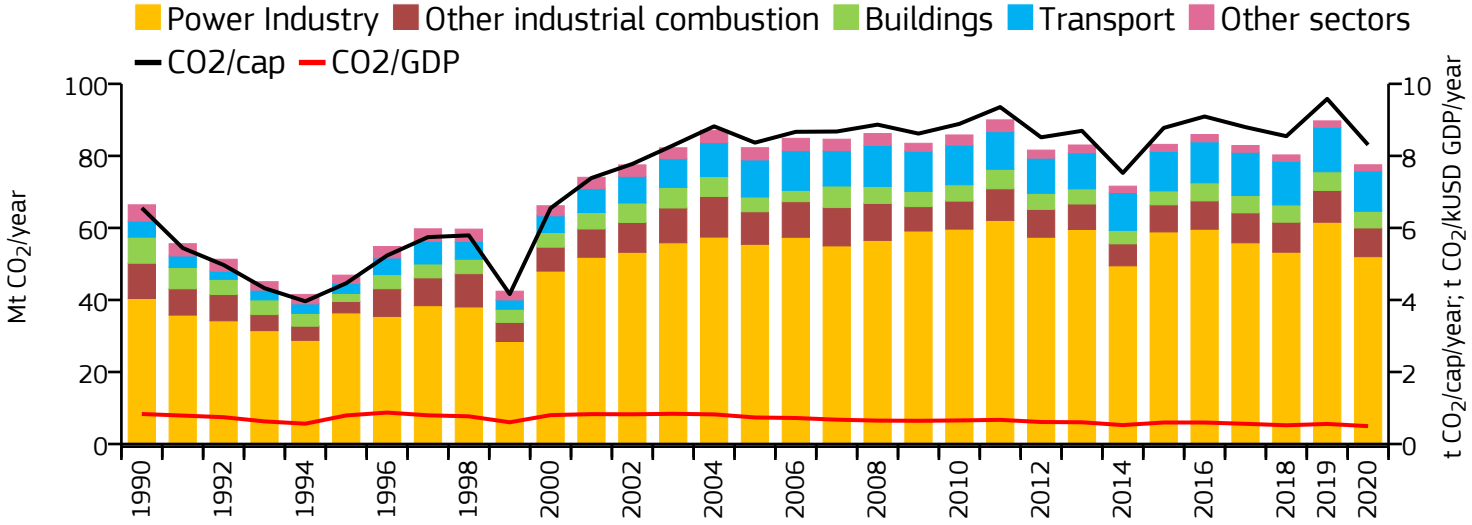


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	10.061	n/a	0.585	n/a	0.182
2018	10.958	25.316	0.673	1.554	0.209
2005	5.801	15.976	0.516	1.420	0.190
1990	2.402	9.677	0.318	1.281	0.129

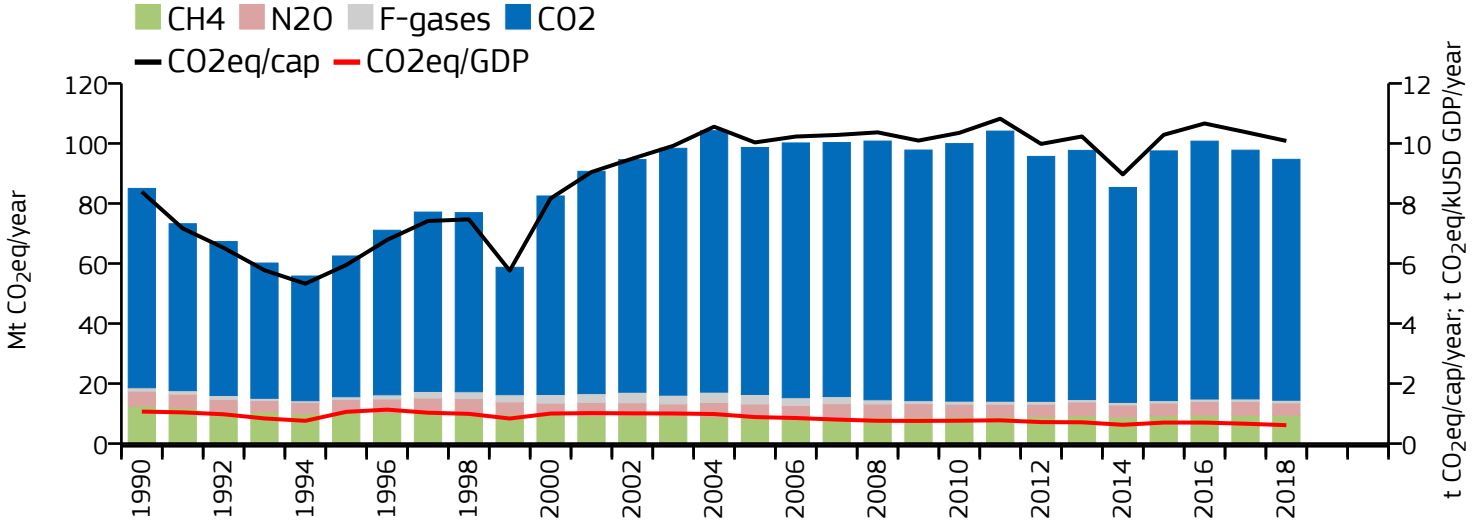
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+230%	+269%	+65%
Other industrial combustion	+557%	+651%	+136%
Buildings	+34%	+75%	+28%
Transport	+288%	+330%	+115%
Other sectors	+777%	+120%	+46%
All sectors	+319%	+162%	+58%

Serbia and Montenegro

Fossil CO_2 emissions by sector



Greenhouse gas emissions

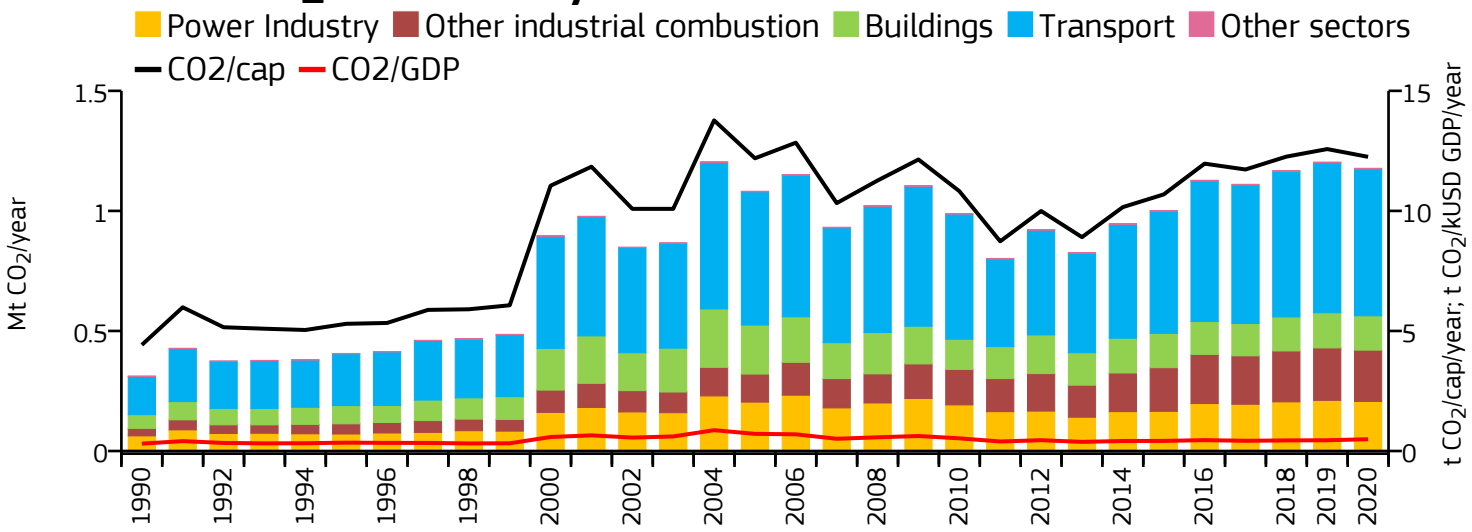


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	77.525	n/a	8.306	n/a	0.496
2018	80.266	94.709	8.547	10.085	0.520
2005	82.265	98.649	8.368	10.034	0.737
1990	66.414	85.021	6.554	8.391	0.833

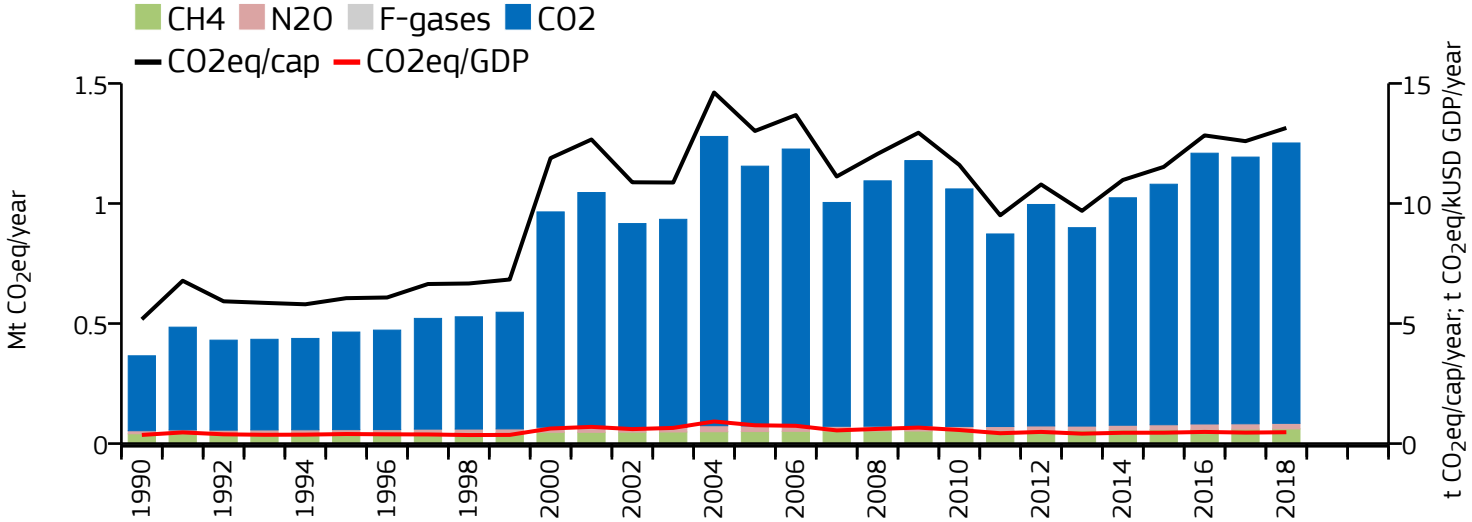
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+29%	+32%	-4%
Other industrial combustion	-19%	-15%	-8%
Buildings	-36%	-26%	+19%
Transport	+150%	+171%	+18%
Other sectors	-62%	-34%	-21%
All sectors	+17%	+11%	-4%

Seychelles

Fossil CO_2 emissions by sector



Greenhouse gas emissions

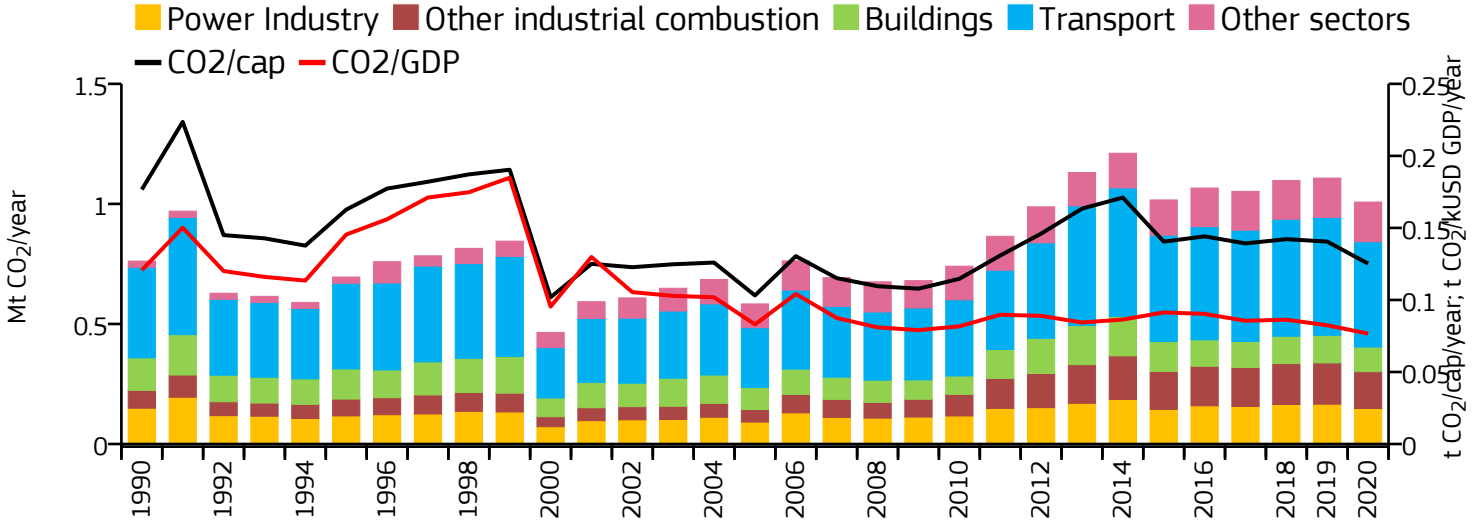


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.178	n/a	12.252	n/a	0.491
2018	1.168	1.252	12.261	13.147	0.441
2005	1.082	1.155	12.191	13.020	0.715
1990	0.312	0.366	4.419	5.177	0.308

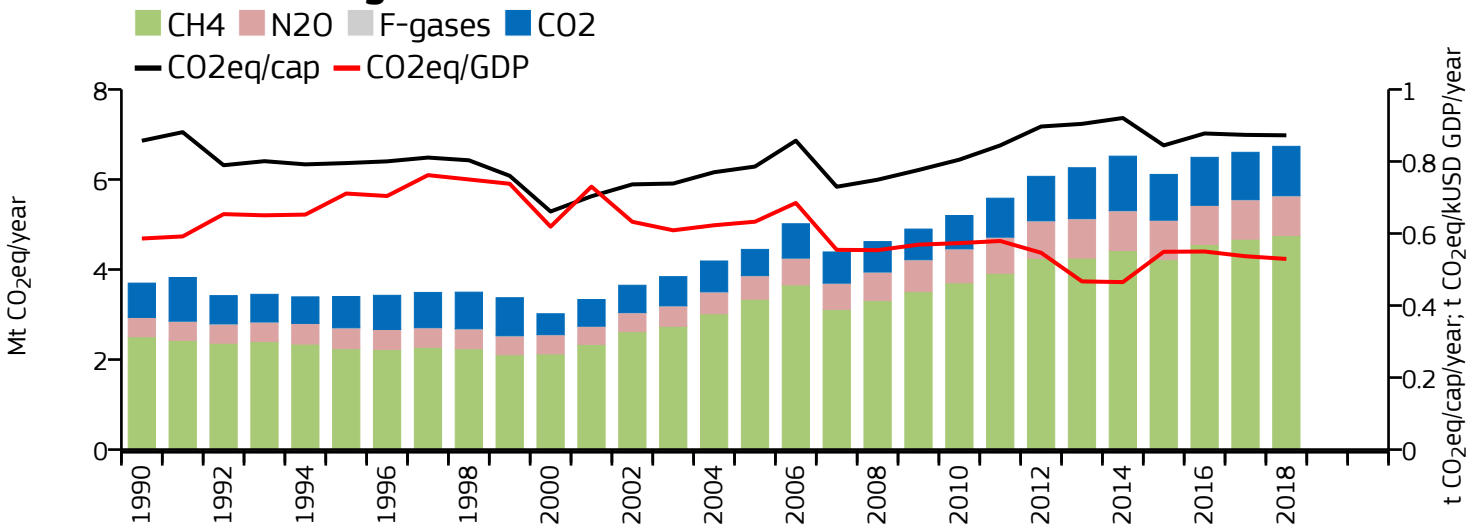
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+228%	+225%	+1%
Other industrial combustion	+581%	+575%	+81%
Buildings	+151%	+145%	-31%
Transport	+284%	+280%	+9%
Other sectors	+126%	+51%	+19%
All sectors	+277%	+242%	+8%

Sierra Leone

Fossil CO_2 emissions by sector



Greenhouse gas emissions

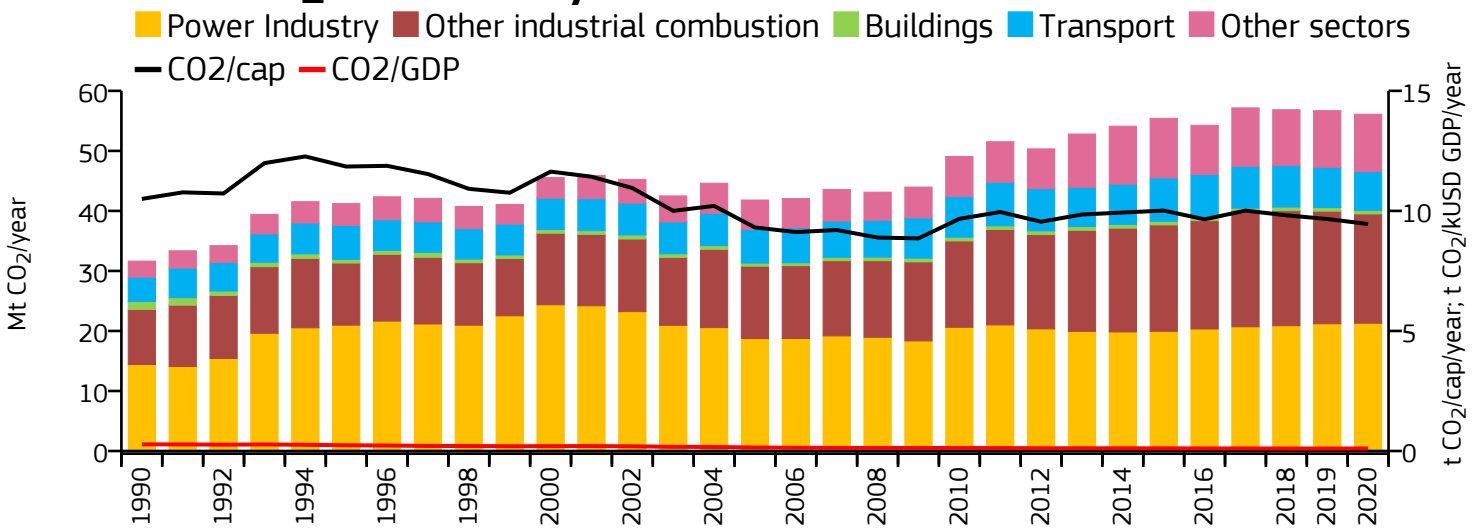


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.008	n/a	0.125	n/a	0.077
2018	1.098	6.736	0.142	0.873	0.086
2005	0.583	4.447	0.103	0.786	0.083
1990	0.762	3.698	0.177	0.858	0.121

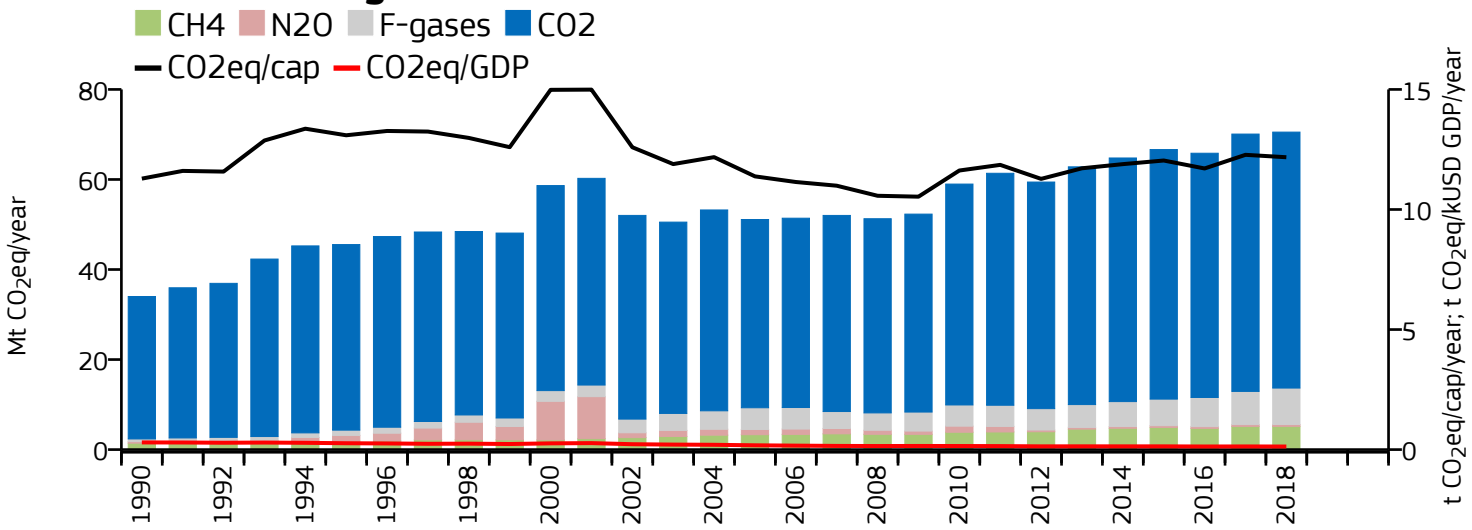
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-1%	+11%	+81%
Other industrial combustion	+106%	+126%	+214%
Buildings	-24%	+27%	+15%
Transport	+16%	+29%	+96%
Other sectors	+551%	+107%	+52%
All sectors	+32%	+82%	+51%

Singapore

Fossil CO_2 emissions by sector



Greenhouse gas emissions

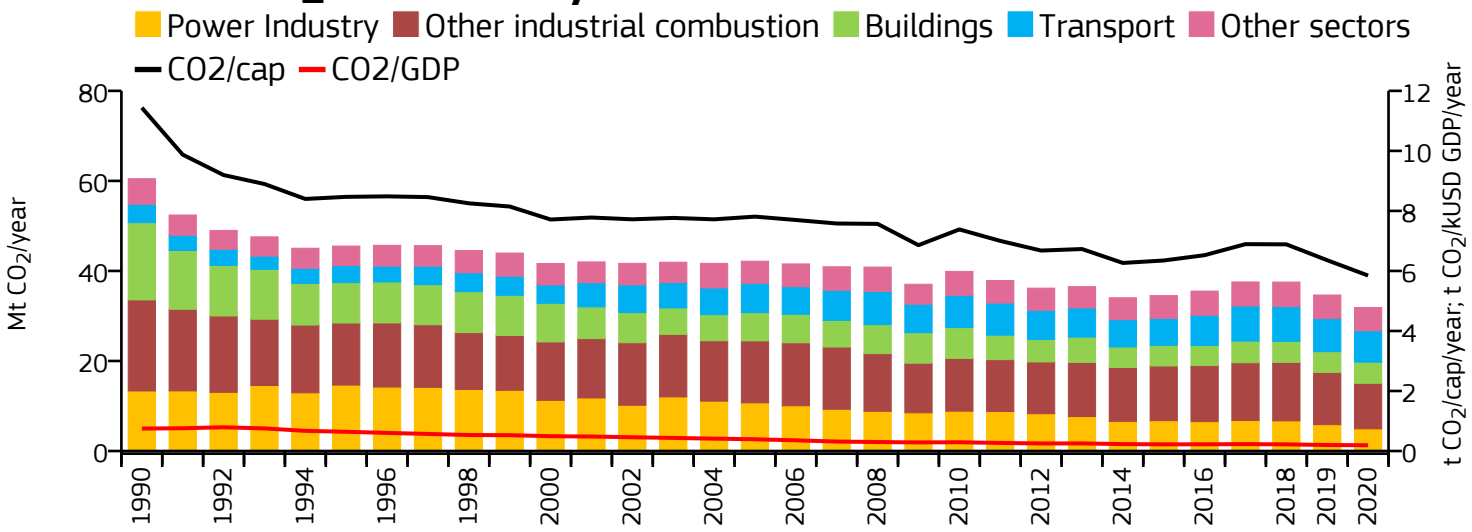


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	56.108	n/a	9.454	n/a	0.106
2018	56.853	70.521	9.816	12.176	0.103
2005	41.814	51.105	9.311	11.379	0.146
1990	31.635	34.001	10.500	11.285	0.278

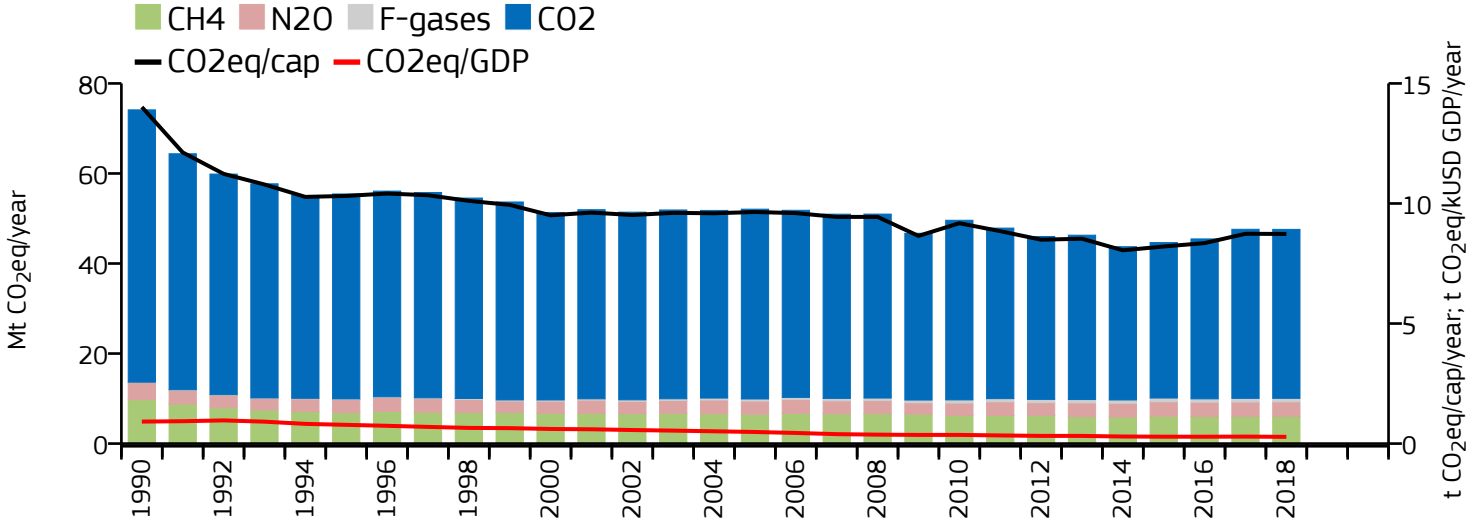
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +48%	↗ +45%	↗ +12%
Other industrial combustion	↗ +99%	↗ +107%	↗ +57%
Buildings	↘ -55%	↘ -55%	↗ +16%
Transport	↗ +58%	↗ +69%	↗ +23%
Other sectors	↗ +259%	↗ +381%	↗ +64%
All sectors	↗ +77%	↗ +107%	↗ +38%

Slovakia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

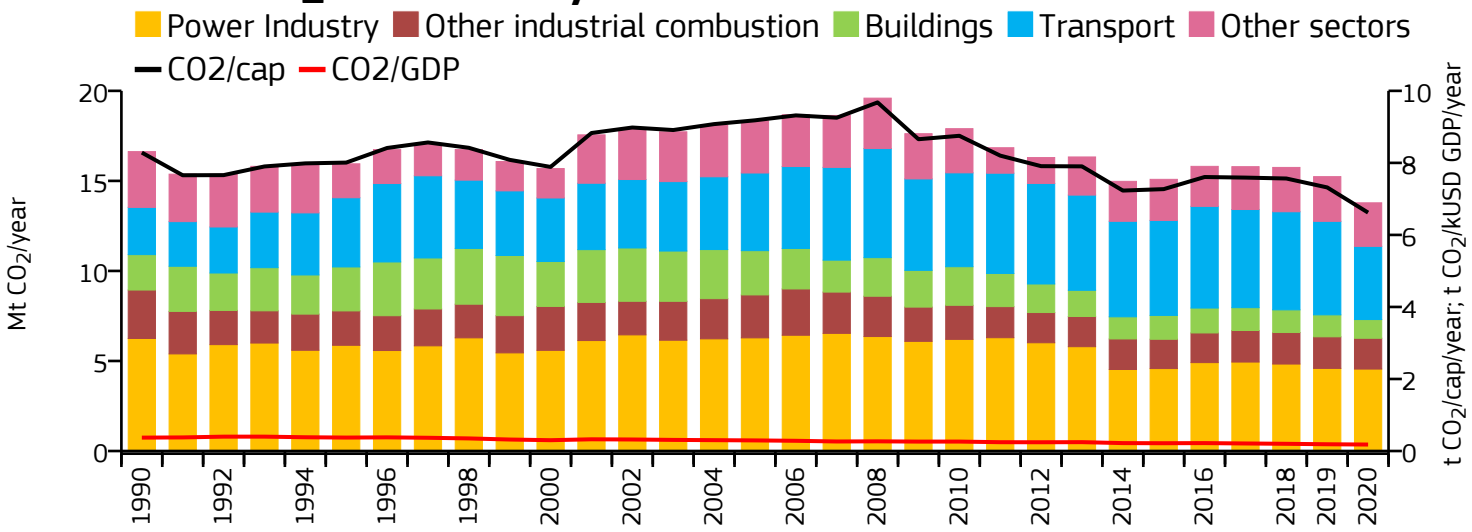


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	31.871	n/a	5.846	n/a	0.192
2018	37.525	47.582	6.886	8.731	0.221
2005	42.164	52.073	7.810	9.645	0.391
1990	60.487	74.127	11.438	14.017	0.748

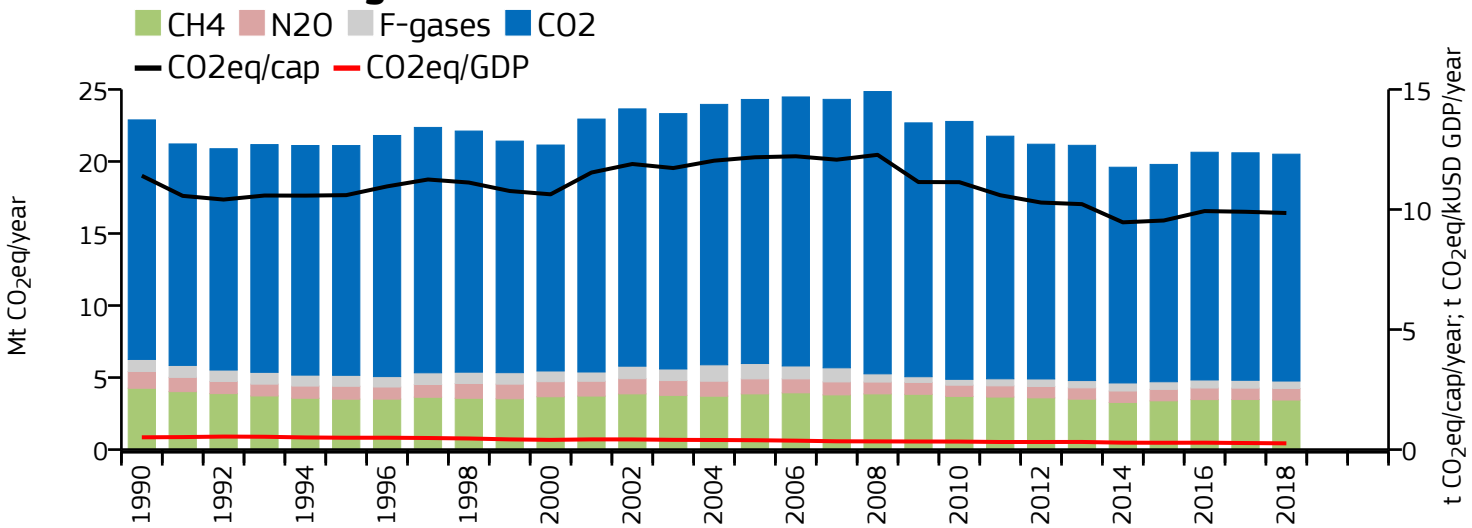
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-63%	-50%	-37%
Other industrial combustion	-50%	-36%	-5%
Buildings	-73%	-73%	-26%
Transport	+70%	+88%	+19%
Other sectors	-9%	-19%	+5%
All sectors	-47%	-36%	-9%

Slovenia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

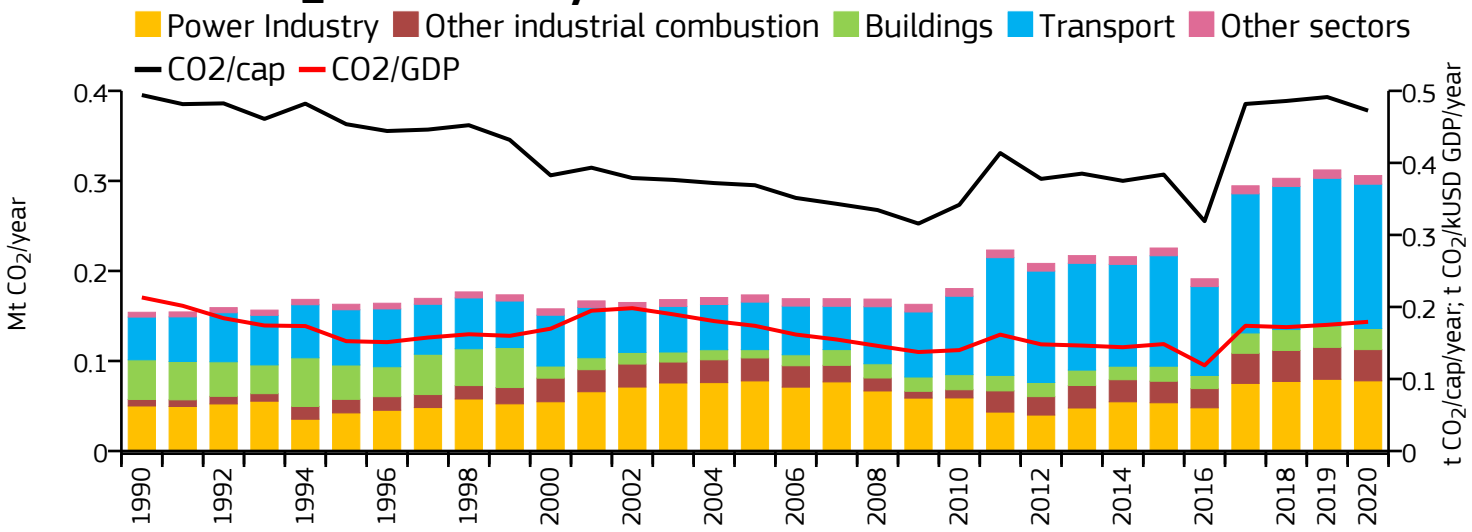


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	13.782	n/a	6.619	n/a	0.180
2018	15.748	20.506	7.566	9.853	0.200
2005	18.329	24.304	9.182	12.175	0.294
1990	16.626	22.885	8.286	11.405	0.372

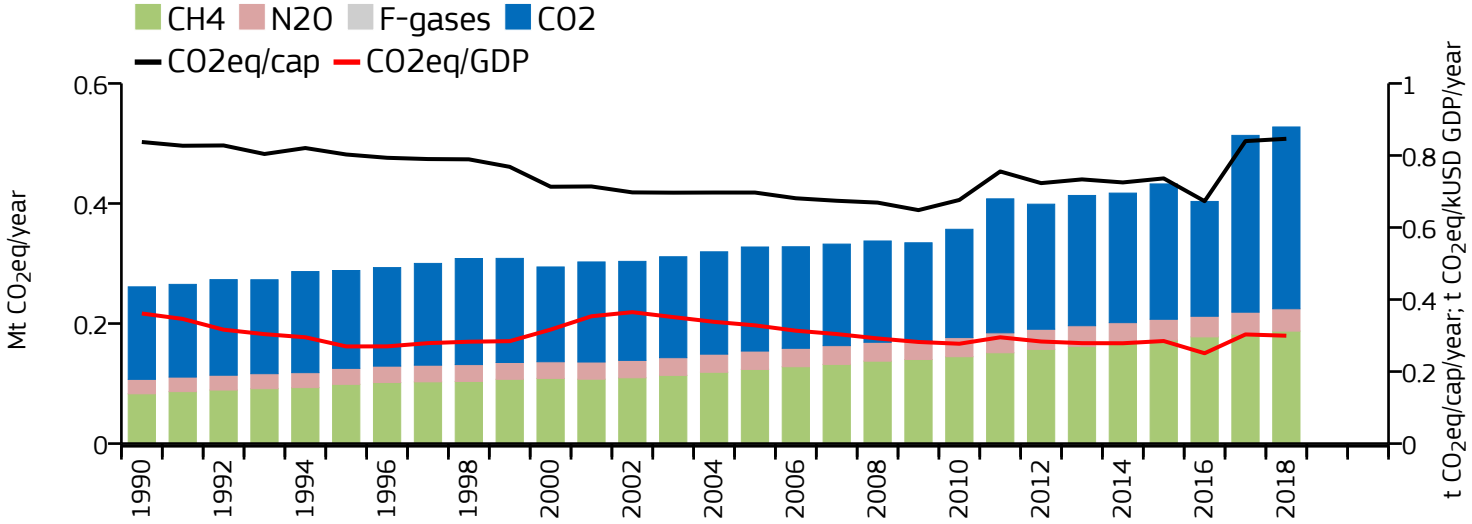
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-27%	-23%	-23%
Other industrial combustion	-36%	-35%	-27%
Buildings	-47%	-30%	-44%
Transport	+55%	+106%	+26%
Other sectors	-22%	-24%	-20%
All sectors	-17%	-10%	-16%

Solomon Islands

Fossil CO_2 emissions by sector



Greenhouse gas emissions

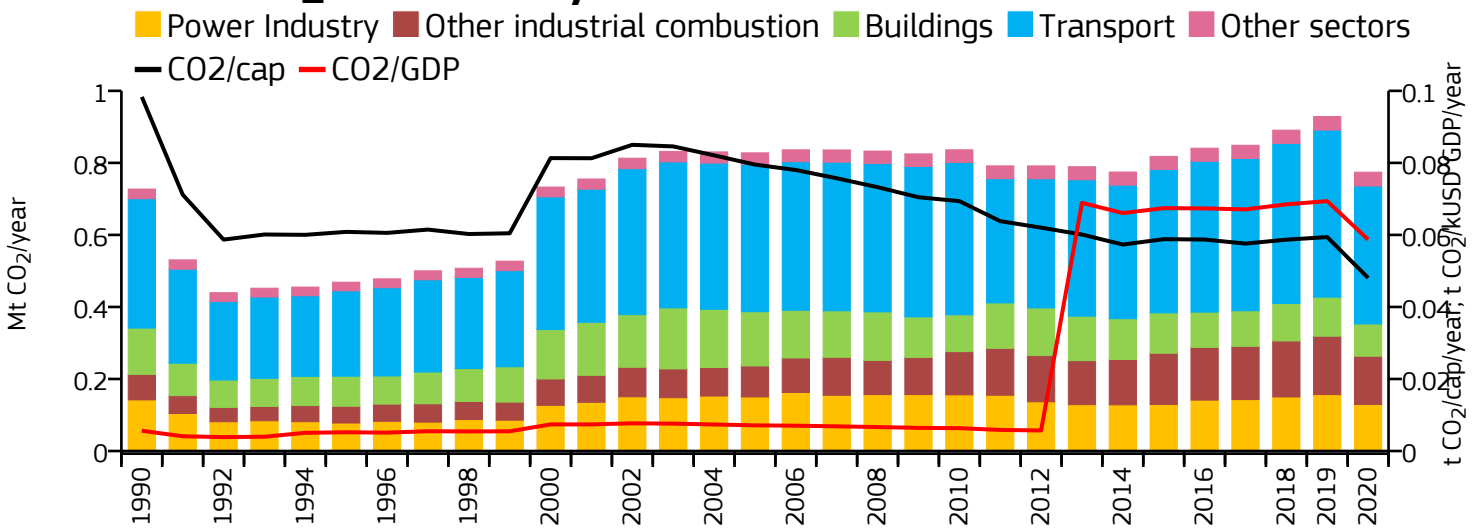


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.306	n/a	0.473	n/a	0.179
2018	0.303	0.527	0.486	0.846	0.172
2005	0.173	0.328	0.369	0.697	0.174
1990	0.154	0.261	0.494	0.837	0.213

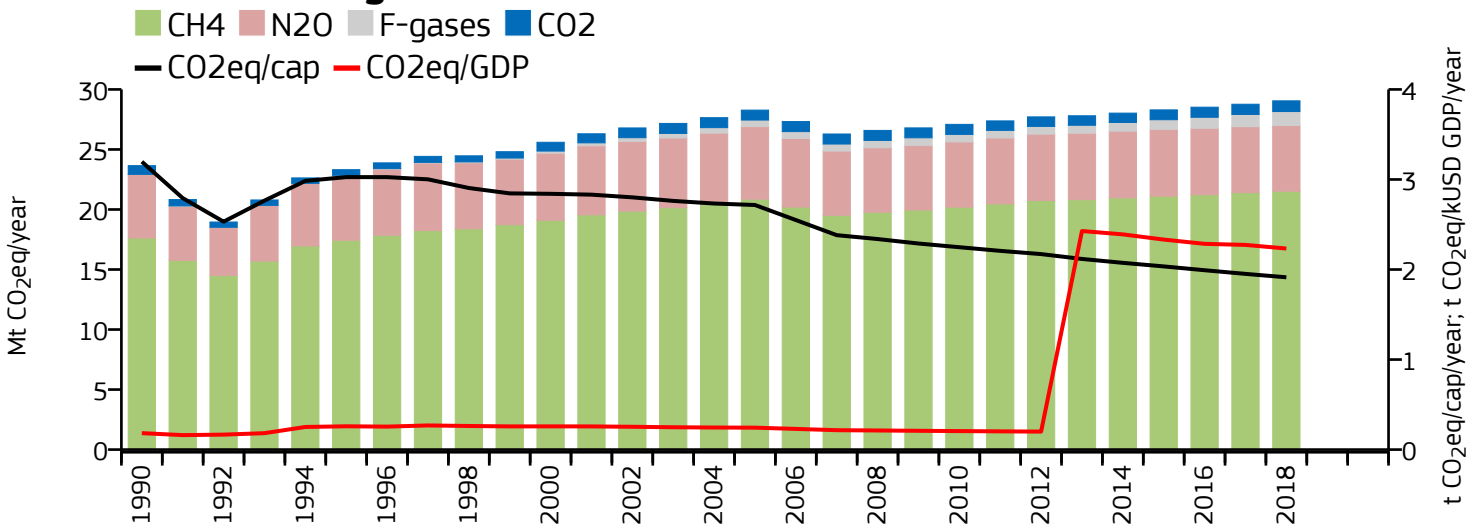
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+56%	+54%	-1%
Other industrial combustion	+379%	+374%	+35%
Buildings	-47%	-34%	+69%
Transport	+238%	+233%	+200%
Other sectors	+78%	+110%	+47%
All sectors	+98%	+102%	+61%

Somalia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

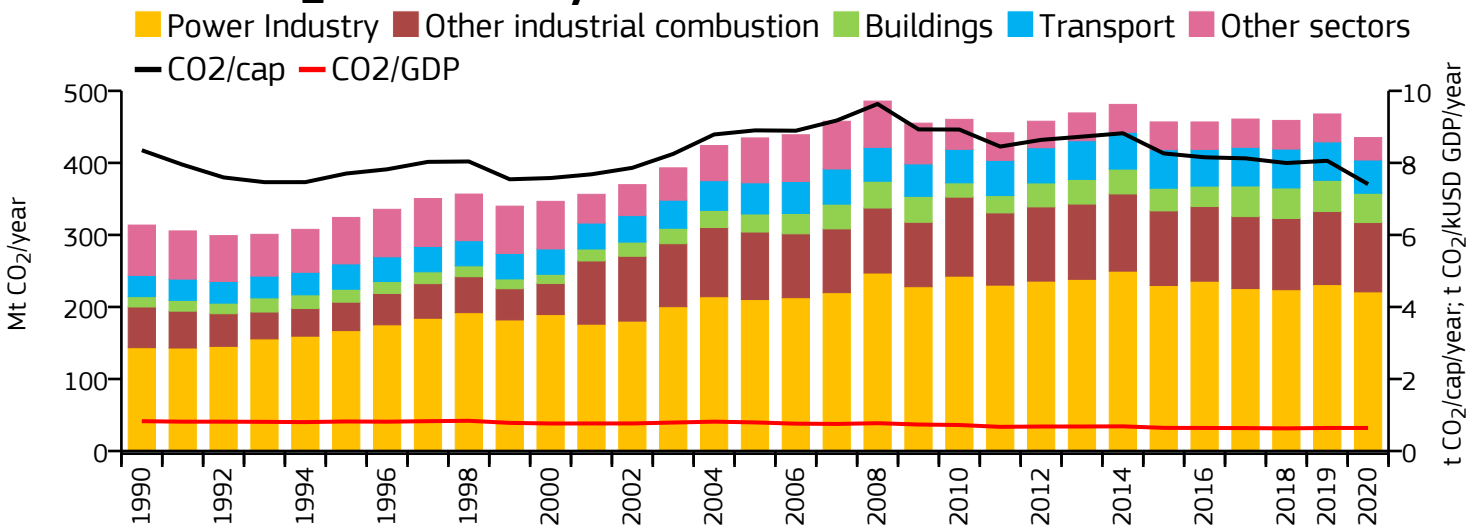


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.774	n/a	0.048	n/a	0.059
2018	0.891	29.049	0.059	1.913	0.068
2005	0.828	28.277	0.080	2.716	0.007
1990	0.727	23.652	0.098	3.197	0.006

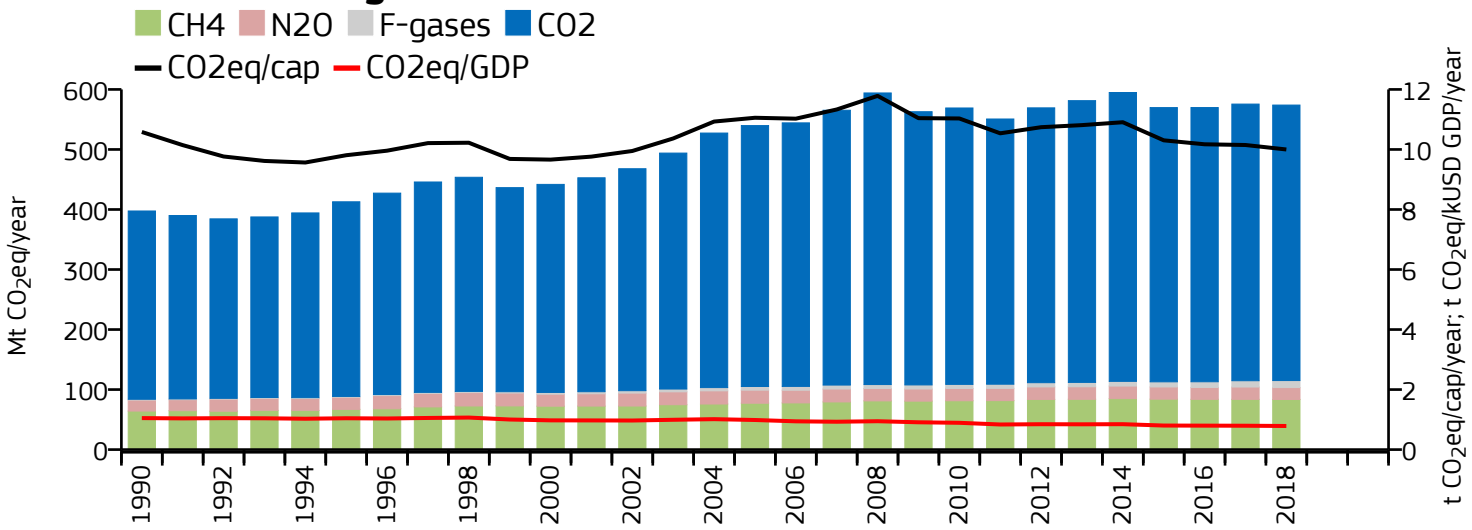
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-9%	+8%	+2%
Other industrial combustion	+89%	+122%	+81%
Buildings	-30%	+136%	+34%
Transport	+7%	+24%	+9%
Other sectors	+43%	+19%	+1%
All sectors	+6%	+23%	+3%

South Africa

Fossil CO_2 emissions by sector



Greenhouse gas emissions

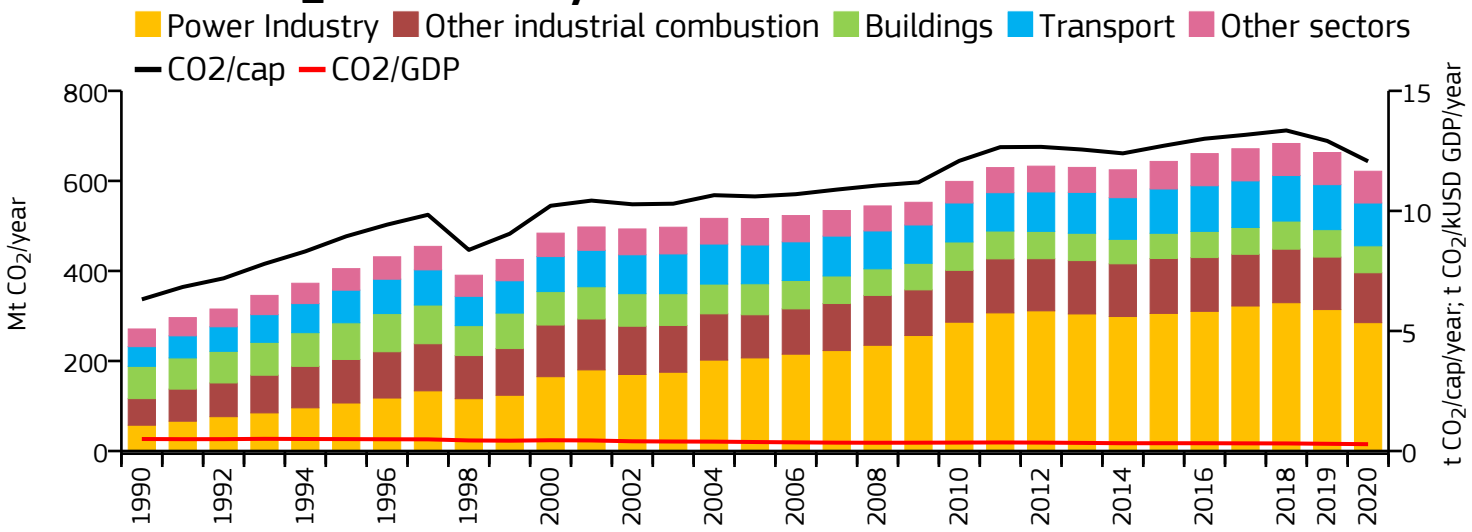


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	435.127	n/a	7.410	n/a	0.640
2018	458.961	573.959	7.996	10.000	0.629
2005	434.640	539.763	8.903	11.056	0.794
1990	313.668	397.499	8.351	10.583	0.828

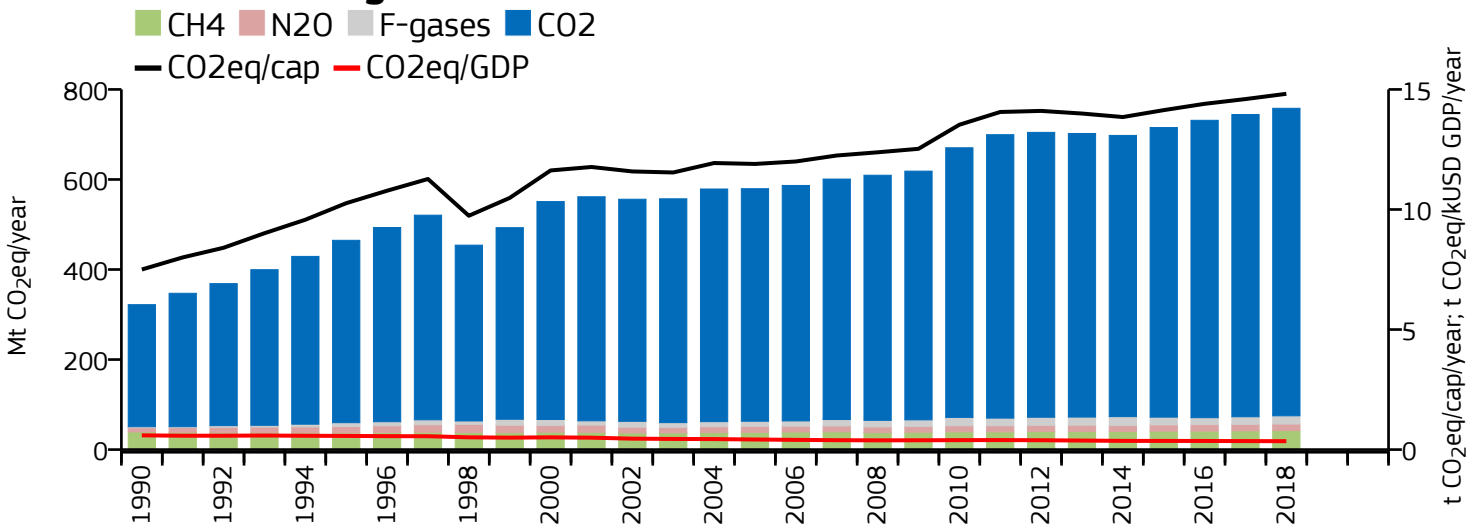
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +54%	↗ +56%	↗ +6%
Other industrial combustion	↗ +70%	↗ +75%	→ +5%
Buildings	↗ +184%	↗ +166%	↗ +66%
Transport	↗ +56%	↗ +82%	↗ +25%
Other sectors	↘ -55%	→ 0%	↘ -8%
All sectors	↗ +39%	↗ +44%	↗ +6%

South Korea

Fossil CO_2 emissions by sector



Greenhouse gas emissions

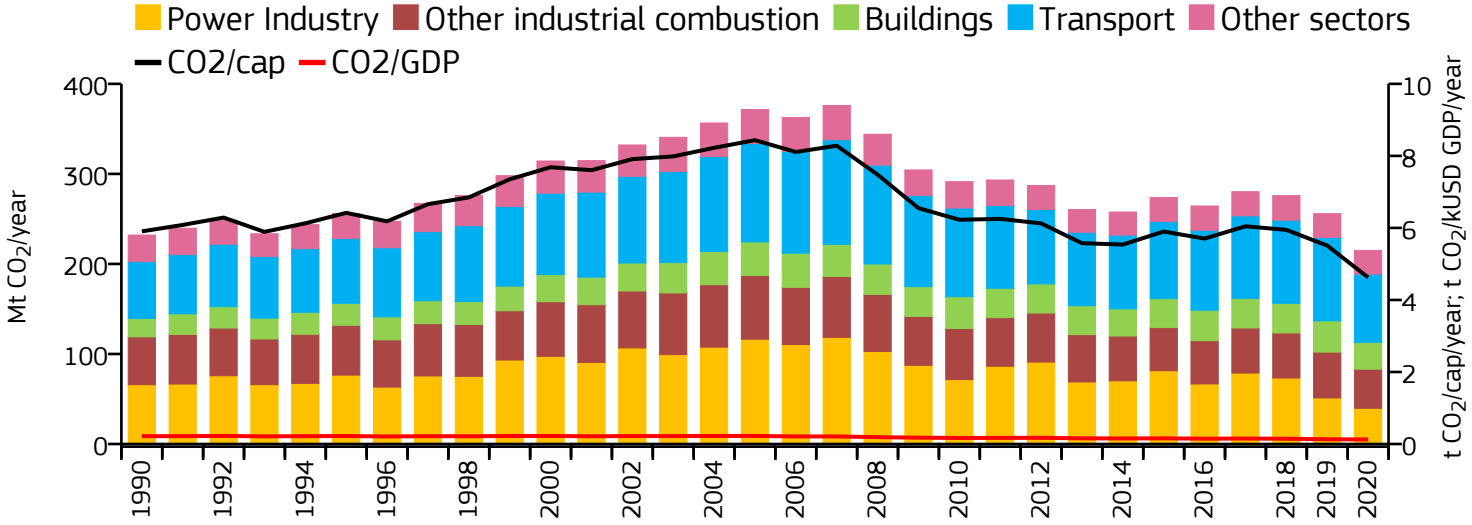


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	621.468	n/a	12.066	n/a	0.284
2018	683.098	758.137	13.351	14.818	0.316
2005	516.456	579.471	10.603	11.897	0.374
1990	271.081	321.917	6.316	7.500	0.500

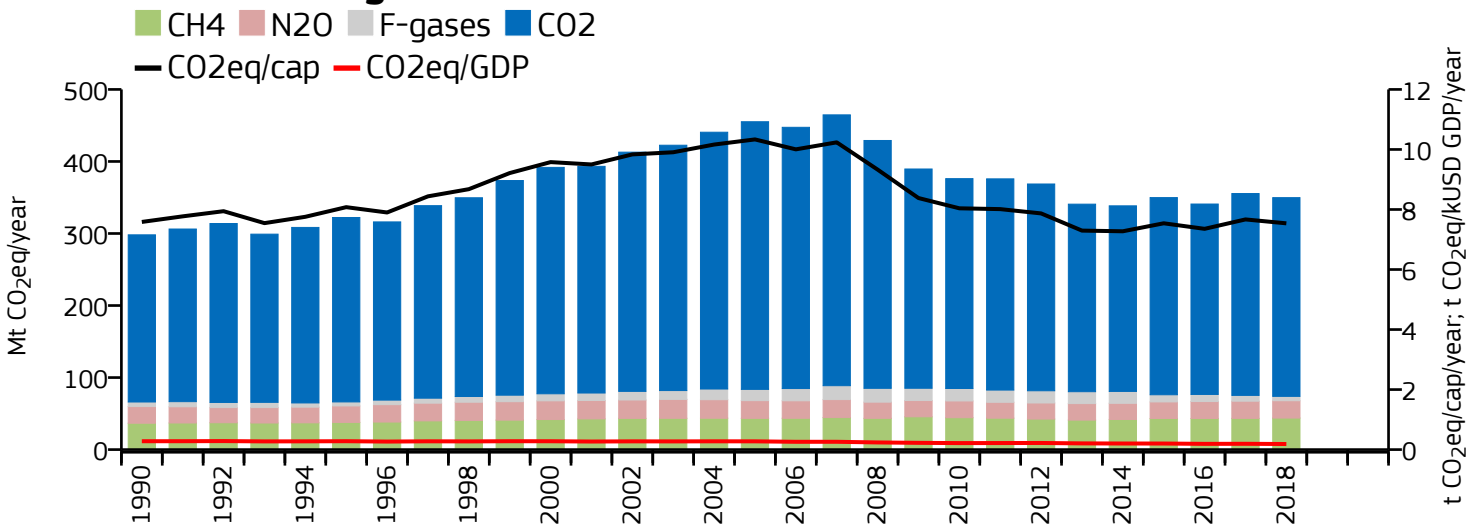
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+398%	+479%	+59%
Other industrial combustion	+88%	+102%	+24%
Buildings	-17%	-16%	-10%
Transport	+117%	+131%	+17%
Other sectors	+80%	+64%	+20%
All sectors	+129%	+136%	+31%

Spain and Andorra

Fossil CO_2 emissions by sector



Greenhouse gas emissions

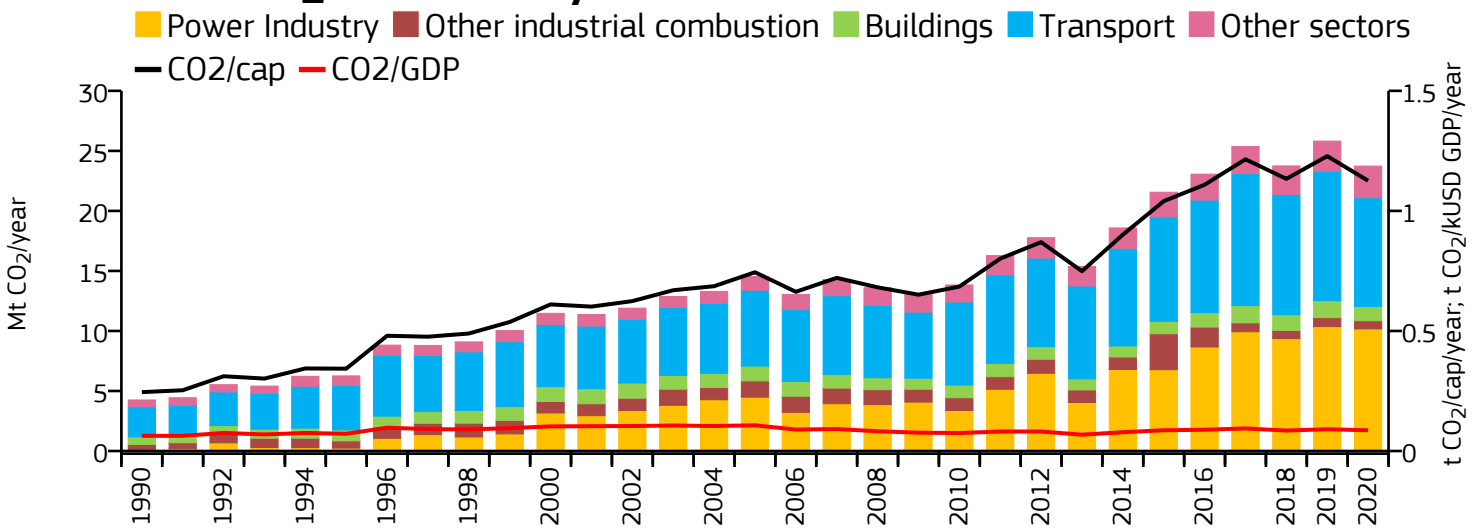


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	214.847	n/a	4.624	n/a	0.125
2018	275.864	349.766	5.946	7.538	0.146
2005	371.535	455.148	8.436	10.334	0.224
1990	232.067	298.132	5.904	7.585	0.217

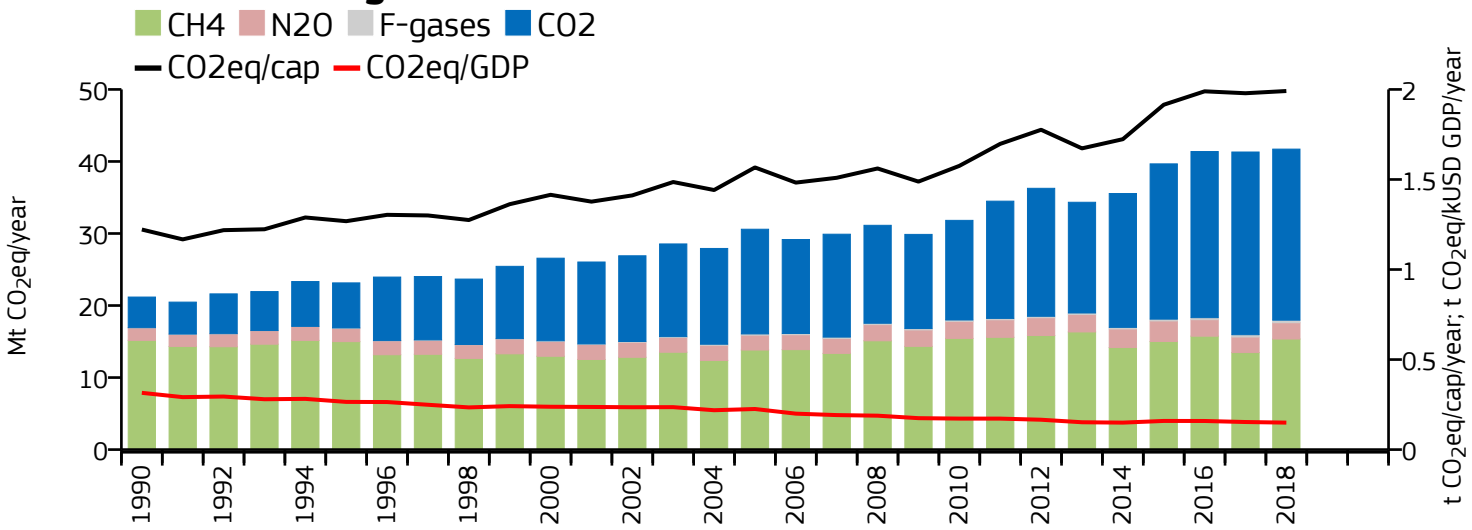
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-40%	+11%	-37%
Other industrial combustion	-18%	-6%	-29%
Buildings	+46%	+59%	-11%
Transport	+20%	+45%	-16%
Other sectors	-11%	+6%	-17%
All sectors	-7%	+17%	-23%

Sri Lanka

Fossil CO_2 emissions by sector



Greenhouse gas emissions

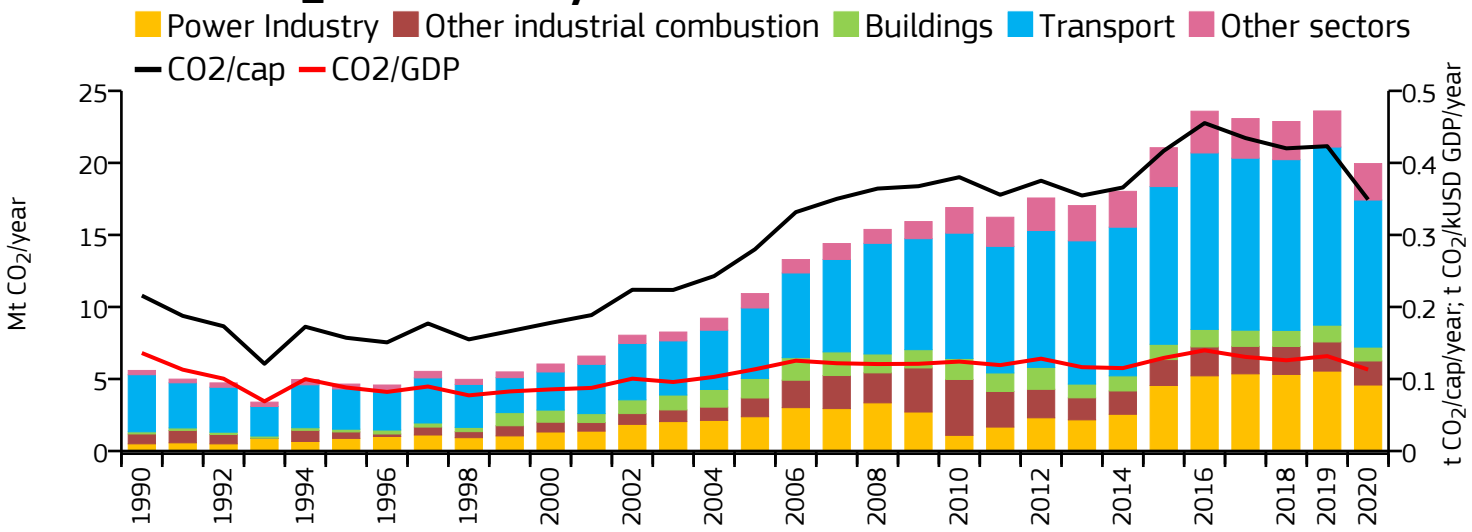


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	23.734	n/a	1.126	n/a	0.086
2018	23.747	41.715	1.134	1.991	0.085
2005	14.535	30.593	0.744	1.567	0.107
1990	4.250	21.177	0.245	1.222	0.063

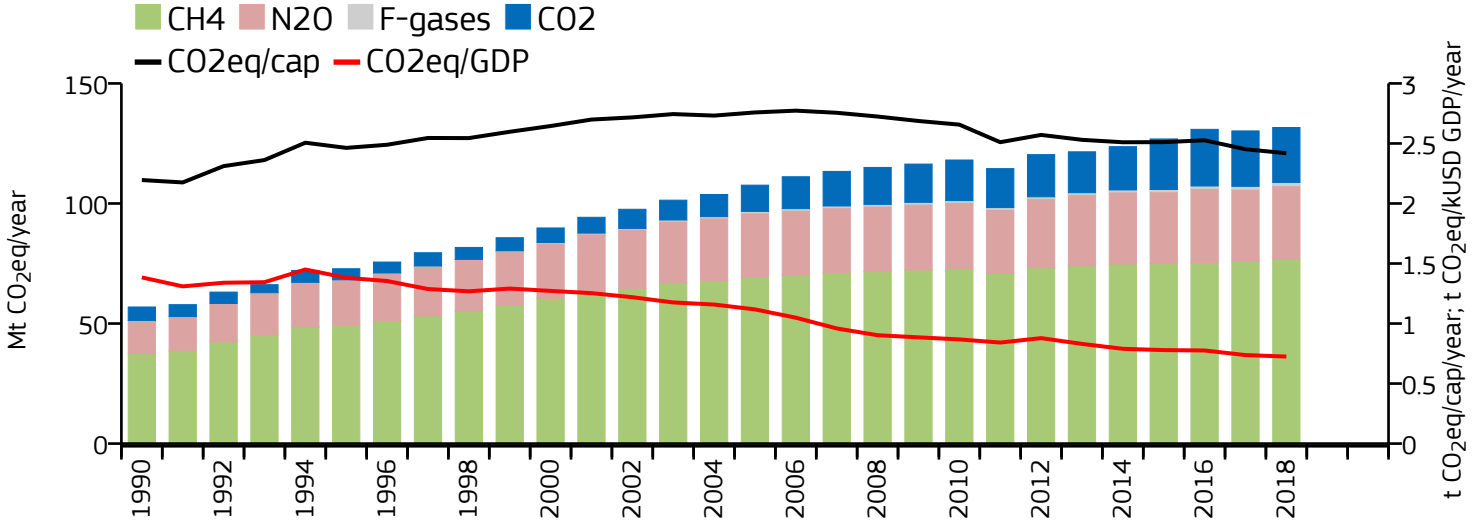
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +164176%	↗ +151355%	↗ +109%
Other industrial combustion	↗ +24%	↗ +40%	↘ -43%
Buildings	↗ +89%	↗ +25%	→ -4%
Transport	↗ +263%	↗ +302%	↗ +59%
Other sectors	↗ +359%	↗ +17%	↗ +20%
All sectors	↗ +458%	↗ +97%	↗ +36%

Sudan and South Sudan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

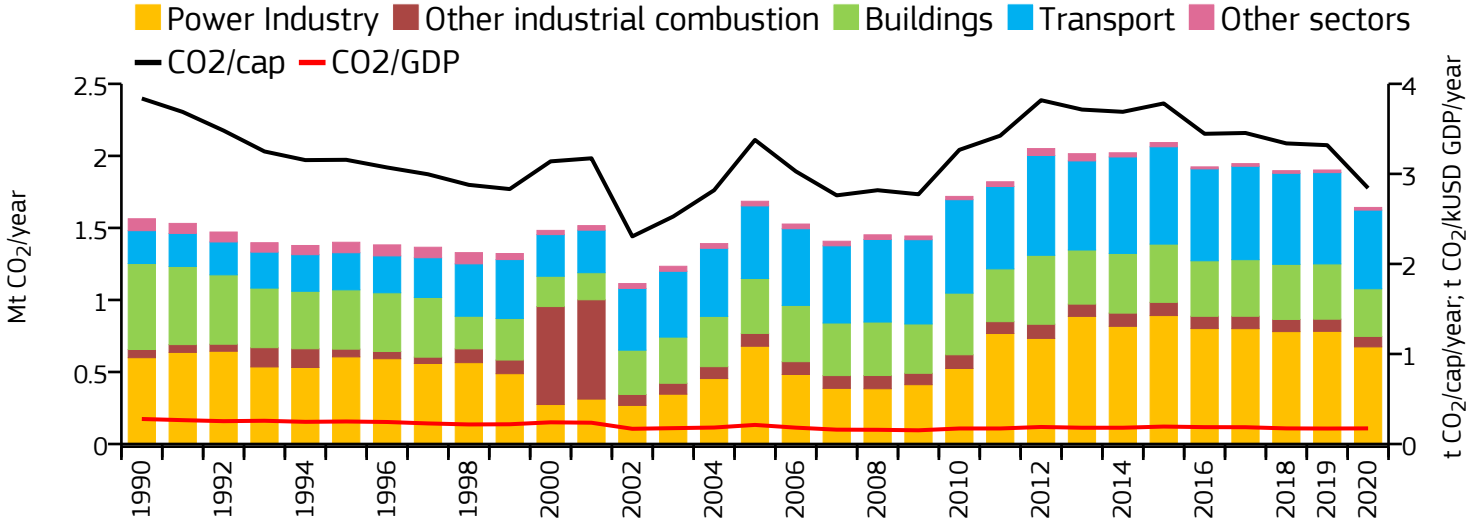


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	19.951	n/a	0.349	n/a	0.113
2018	22.871	131.641	0.420	2.419	0.126
2005	10.927	107.636	0.280	2.758	0.113
1990	5.592	56.892	0.216	2.195	0.136

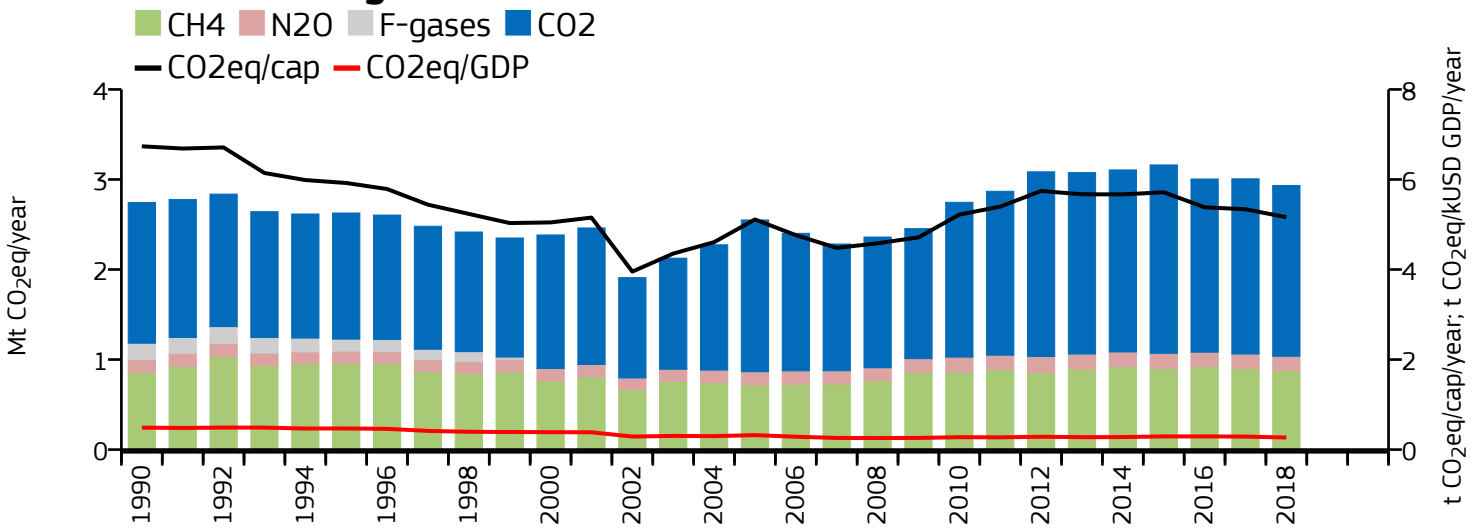
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+820%	+969%	+124%
Other industrial combustion	+143%	+172%	+45%
Buildings	+547%	+200%	-1%
Transport	+158%	+200%	+142%
Other sectors	+754%	+116%	+14%
All sectors	+257%	+131%	+22%

Suriname

Fossil CO_2 emissions by sector



Greenhouse gas emissions

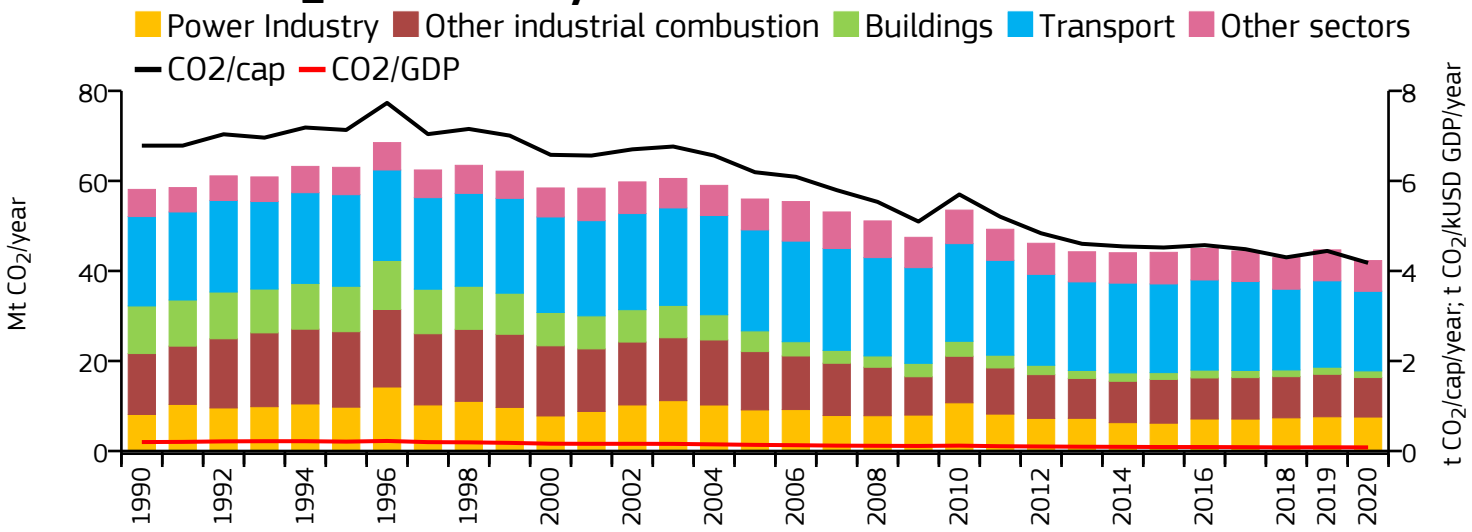


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.642	n/a	2.842	n/a	0.174
2018	1.897	2.933	3.339	5.162	0.173
2005	1.685	2.550	3.377	5.111	0.212
1990	1.564	2.745	3.837	6.737	0.278

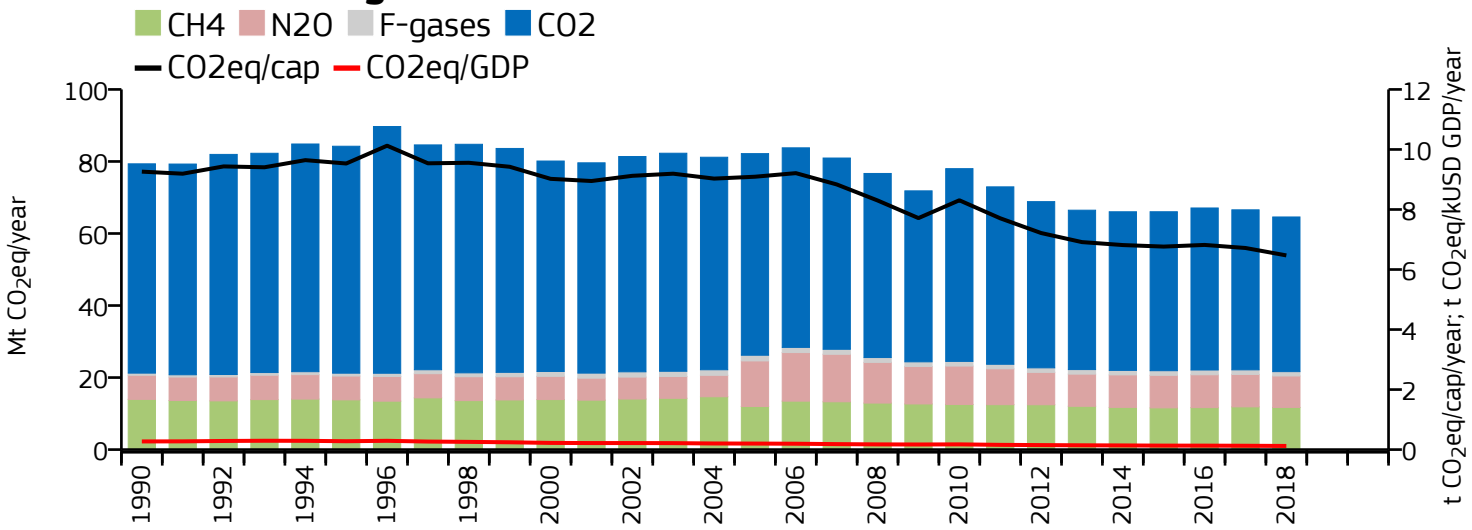
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+13%	+30%	+15%
Other industrial combustion	+28%	+40%	-3%
Buildings	-45%	-30%	-1%
Transport	+140%	+176%	+26%
Other sectors	-78%	-20%	+19%
All sectors	+5%	+7%	+15%

Sweden

Fossil CO_2 emissions by sector



Greenhouse gas emissions

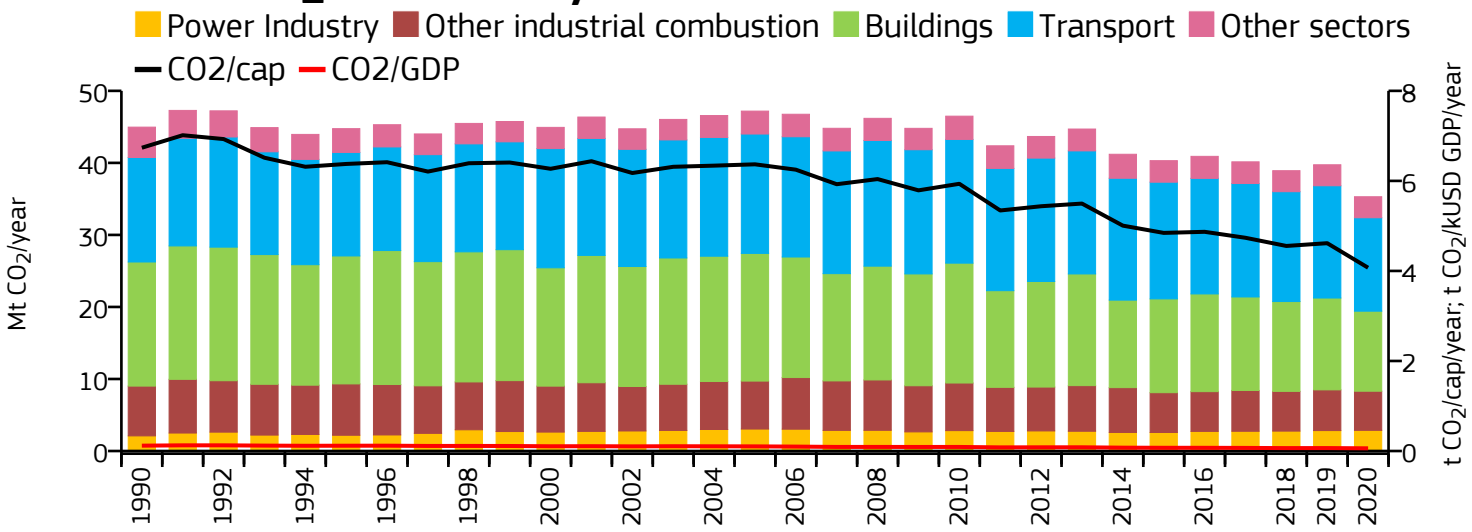


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	42.297	n/a	4.179	n/a	0.081
2018	42.945	64.588	4.302	6.470	0.081
2005	55.975	82.176	6.193	9.092	0.136
1990	58.110	79.342	6.783	9.261	0.199

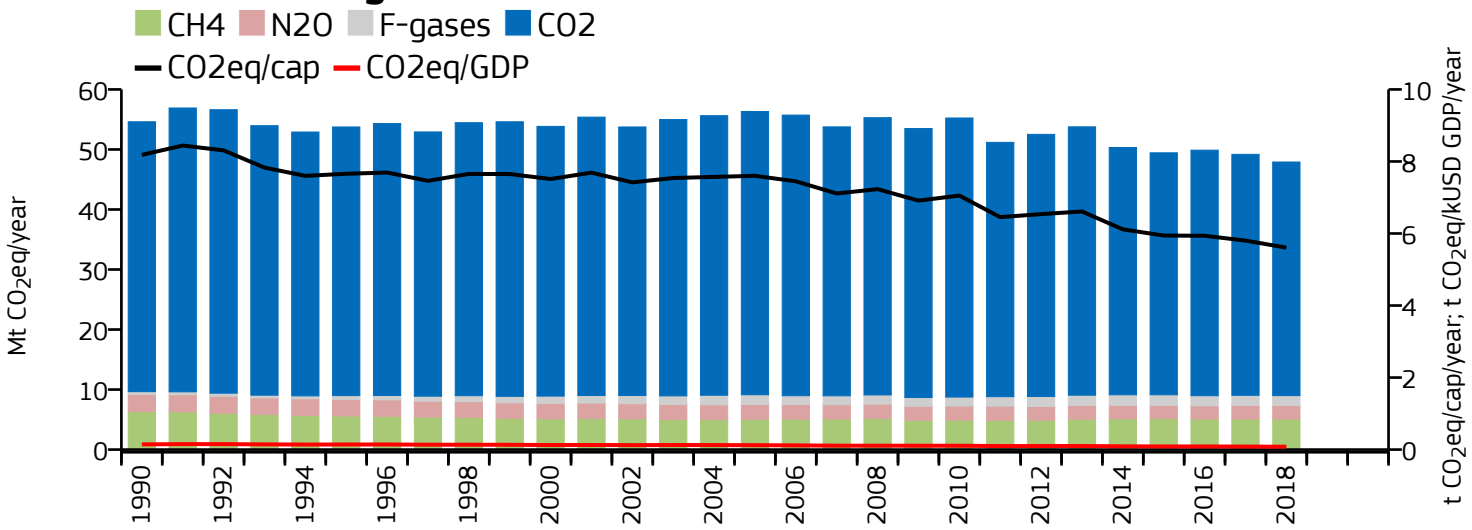
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-7%	-6%	-18%
Other industrial combustion	-35%	-31%	-28%
Buildings	-86%	-83%	-62%
Transport	-11%	-10%	-20%
Other sectors	+13%	+5%	-14%
All sectors	-27%	-19%	-21%

Switzerland and Liechtenstein

Fossil CO_2 emissions by sector



Greenhouse gas emissions

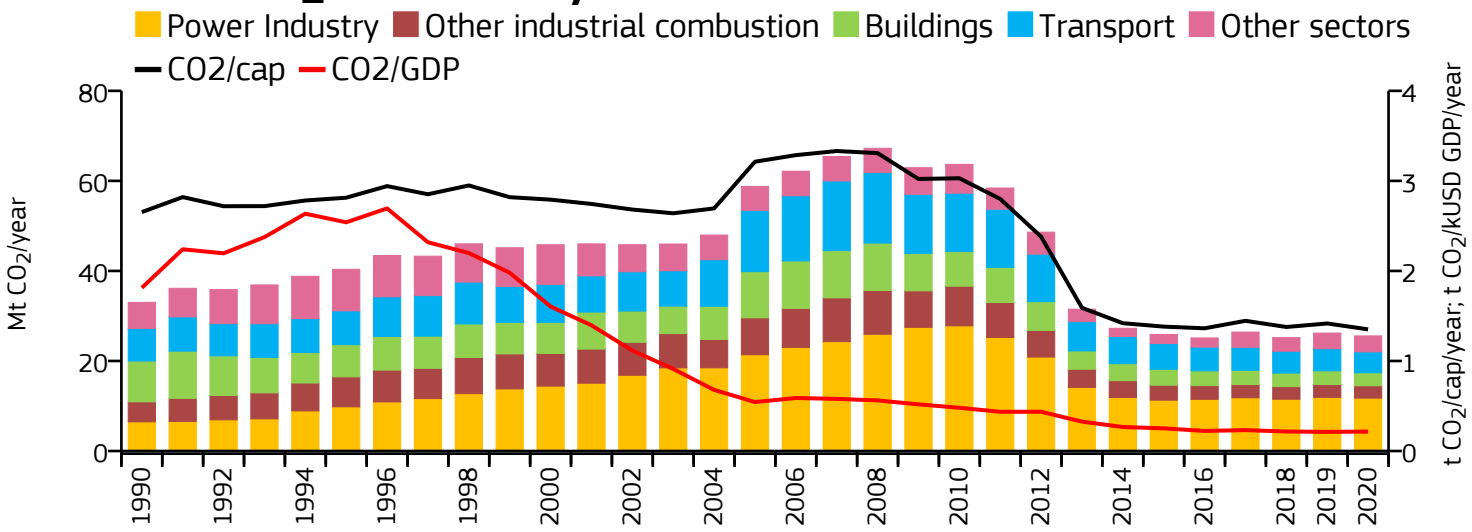


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	35.299	n/a	4.071	n/a	0.060
2018	38.916	47.908	4.555	5.607	0.065
2005	47.190	56.327	6.368	7.601	0.103
1990	44.964	54.616	6.736	8.182	0.119

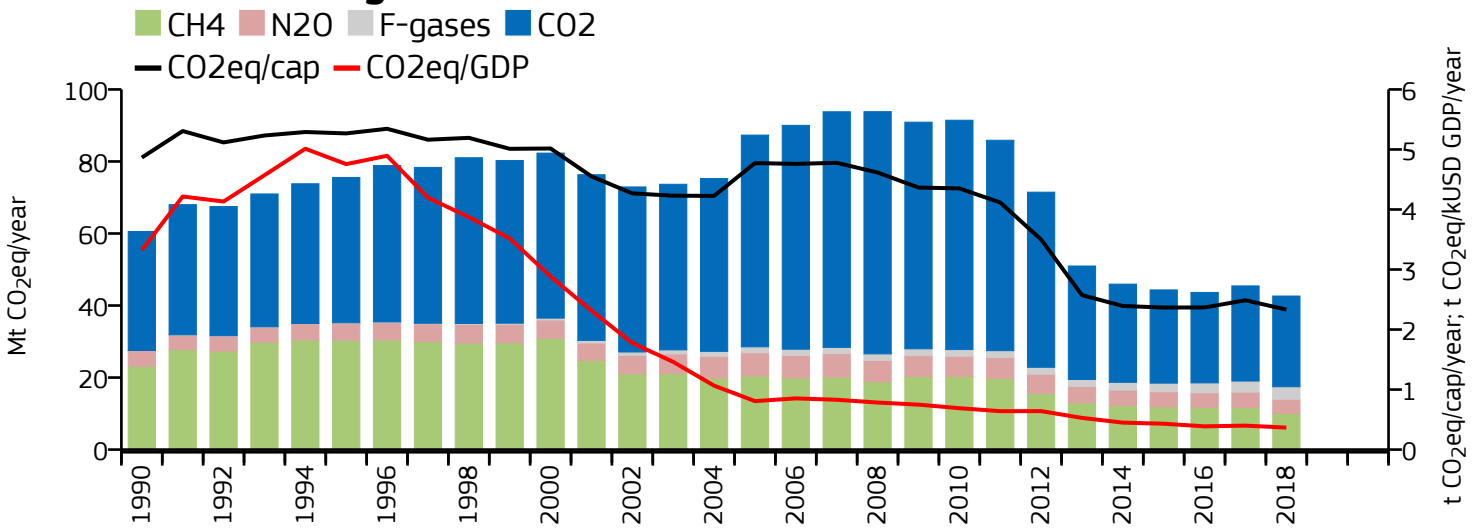
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+37%	+34%	-8%
Other industrial combustion	-21%	-20%	-17%
Buildings	-36%	-27%	-29%
Transport	-11%	+4%	-8%
Other sectors	-31%	-14%	-3%
All sectors	-21%	-12%	-15%

Syria

Fossil CO_2 emissions by sector



Greenhouse gas emissions

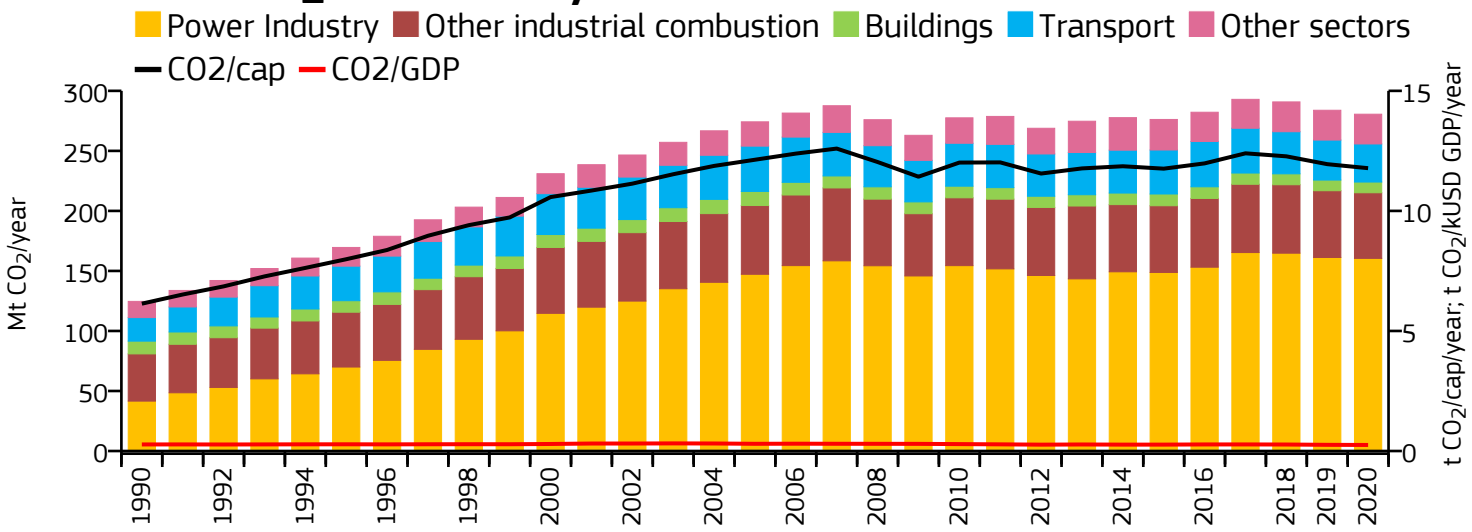


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	25.570	n/a	1.351	n/a	0.216
2018	25.186	42.635	1.377	2.332	0.216
2005	58.783	87.319	3.213	4.773	0.544
1990	33.026	60.547	2.653	4.865	1.812

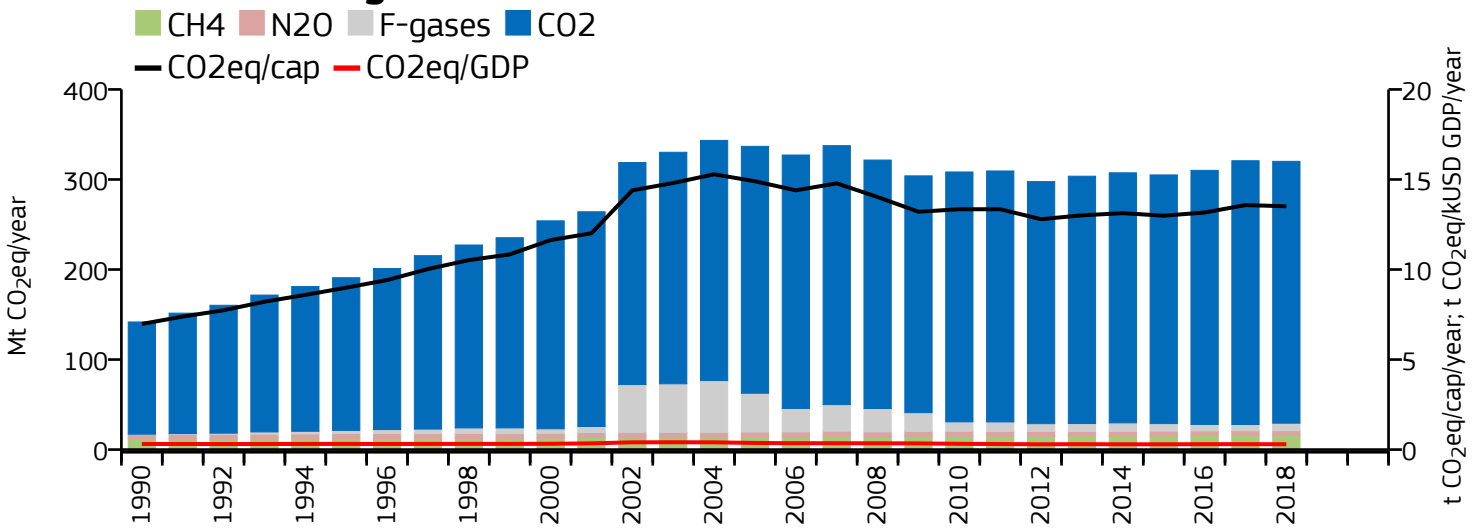
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+81%	+78%	-46%
Other industrial combustion	-38%	-37%	-66%
Buildings	-68%	-66%	-71%
Transport	-36%	-33%	-64%
Other sectors	-39%	-38%	-39%
All sectors	-23%	-30%	-51%

Taiwan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

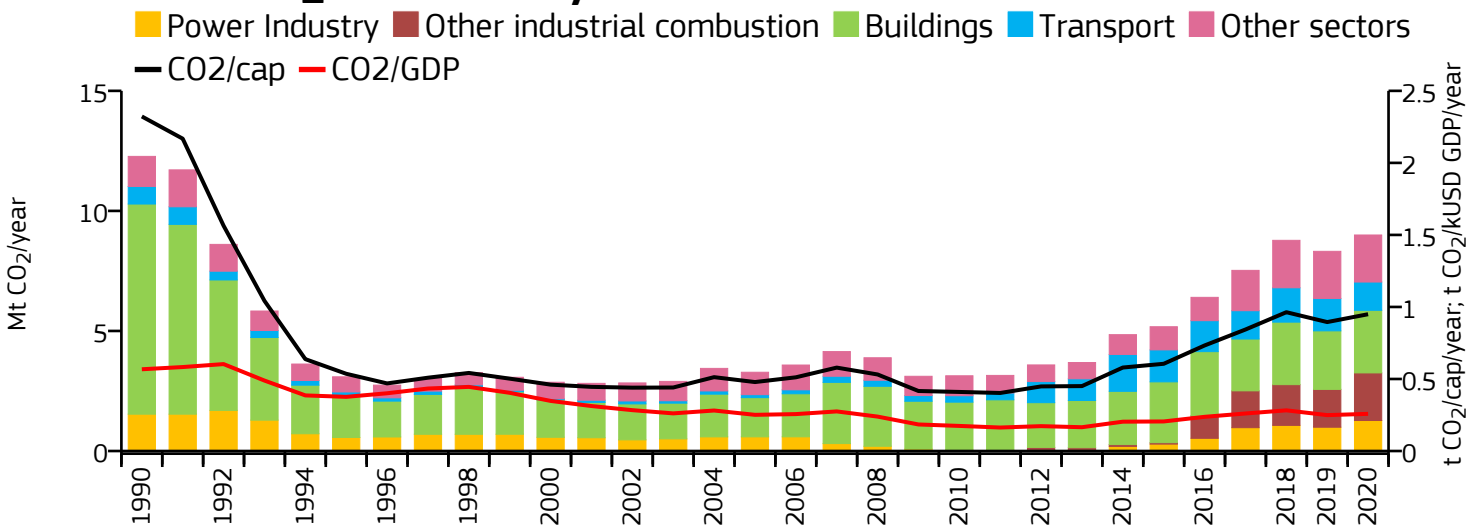


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	280.561	n/a	11.779	n/a	0.252
2018	290.794	320.133	12.273	13.511	0.270
2005	274.197	336.806	12.131	14.901	0.300
1990	124.638	141.741	6.136	6.978	0.273

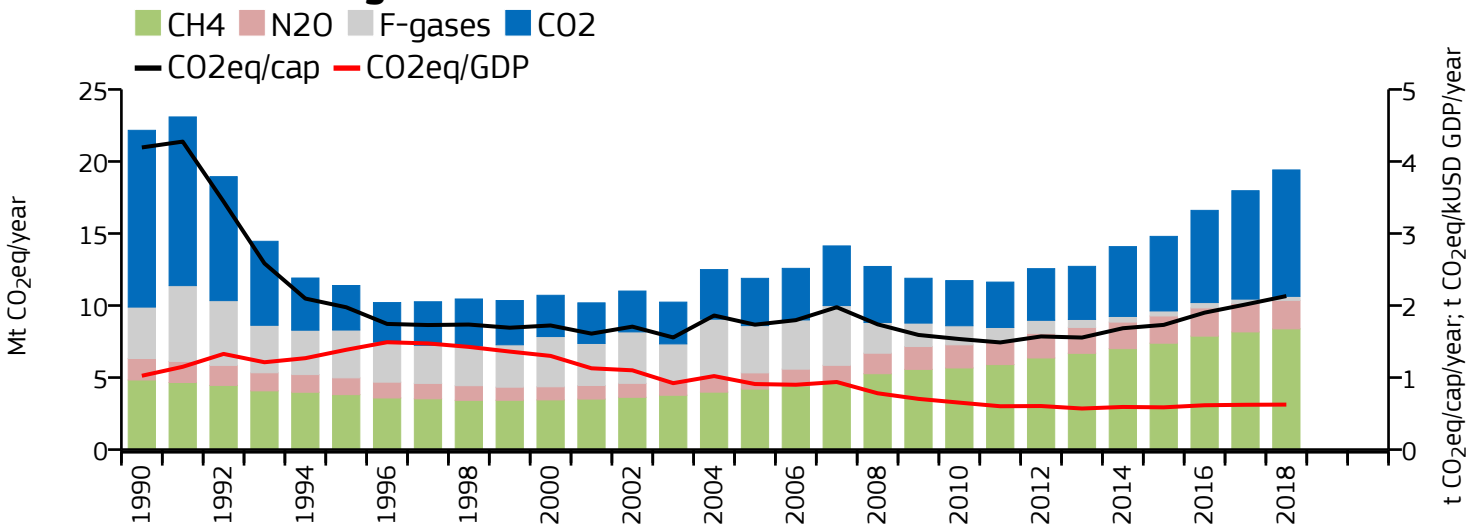
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+286%	+297%	+12%
Other industrial combustion	+39%	+45%	-1%
Buildings	-16%	-14%	-22%
Transport	+62%	+79%	-7%
Other sectors	+83%	+75%	-35%
All sectors	+125%	+126%	-5%

Tajikistan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

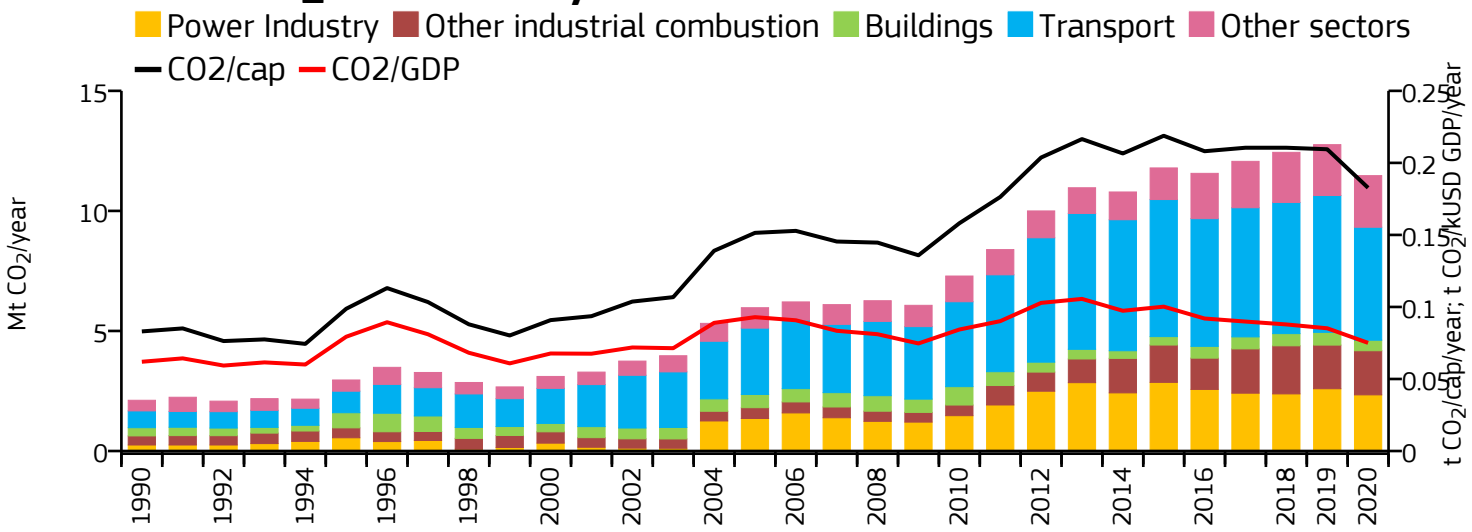


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	8.997	n/a	0.950	n/a	0.258
2018	8.775	19.412	0.963	2.131	0.282
2005	3.281	11.887	0.479	1.734	0.251
1990	12.271	22.163	2.322	4.195	0.567

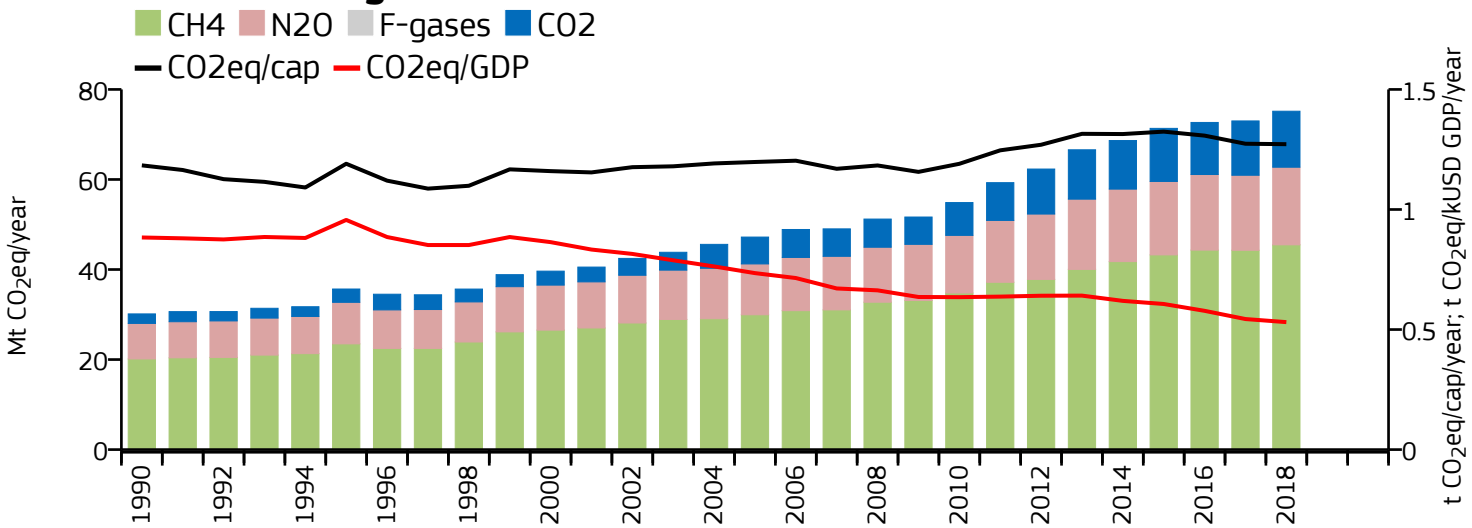
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-17%	-30%	+82%
Other industrial combustion		+184006%	+1592480%
Buildings	-70%	-70%	+64%
Transport	+61%	+93%	+1033%
Other sectors	+56%	+15%	+31%
All sectors	-27%	-12%	+63%

Tanzania

Fossil CO_2 emissions by sector



Greenhouse gas emissions

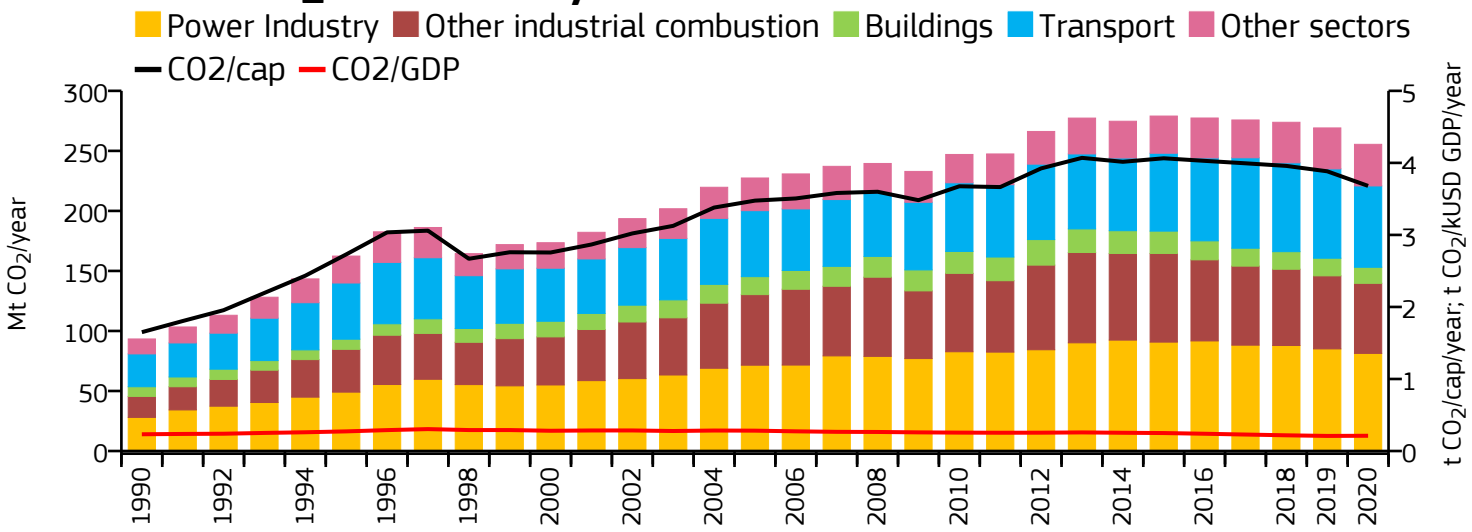


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	11.468	n/a	0.183	n/a	0.075
2018	12.440	75.162	0.211	1.272	0.088
2005	5.968	47.207	0.151	1.198	0.093
1990	2.114	30.139	0.083	1.184	0.062

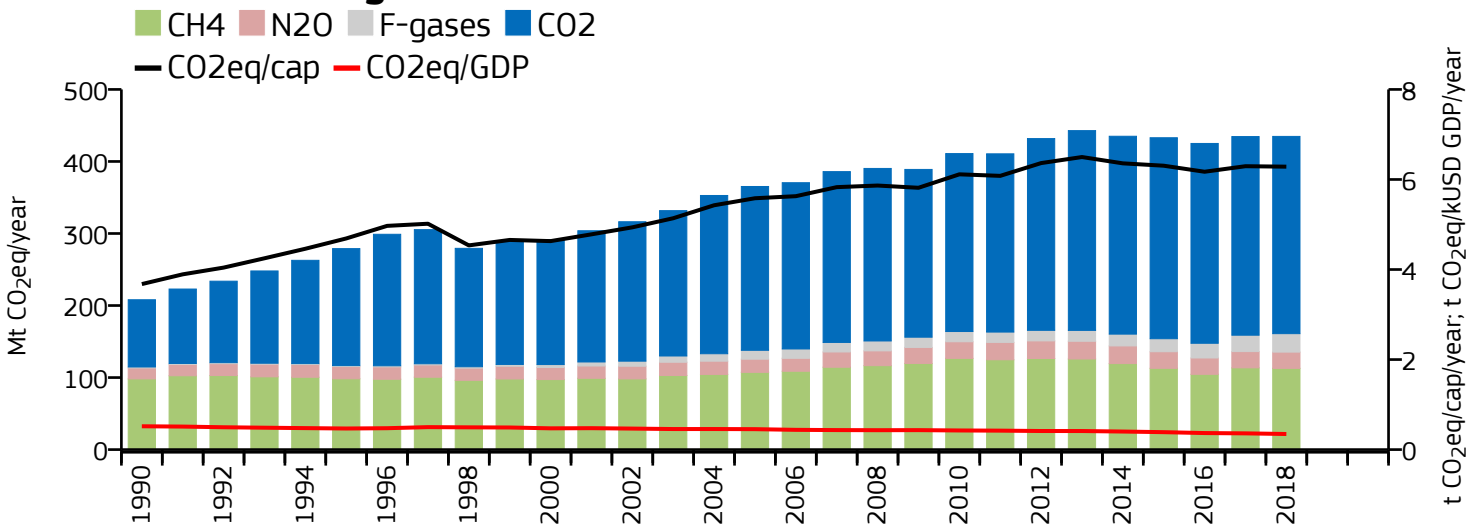
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+835%	+850%	+76%
Other industrial combustion	+385%	+369%	+287%
Buildings	+28%	+71%	+17%
Transport	+573%	+681%	+98%
Other sectors	+385%	+133%	+57%
All sectors	+443%	+149%	+59%

Thailand

Fossil CO_2 emissions by sector



Greenhouse gas emissions

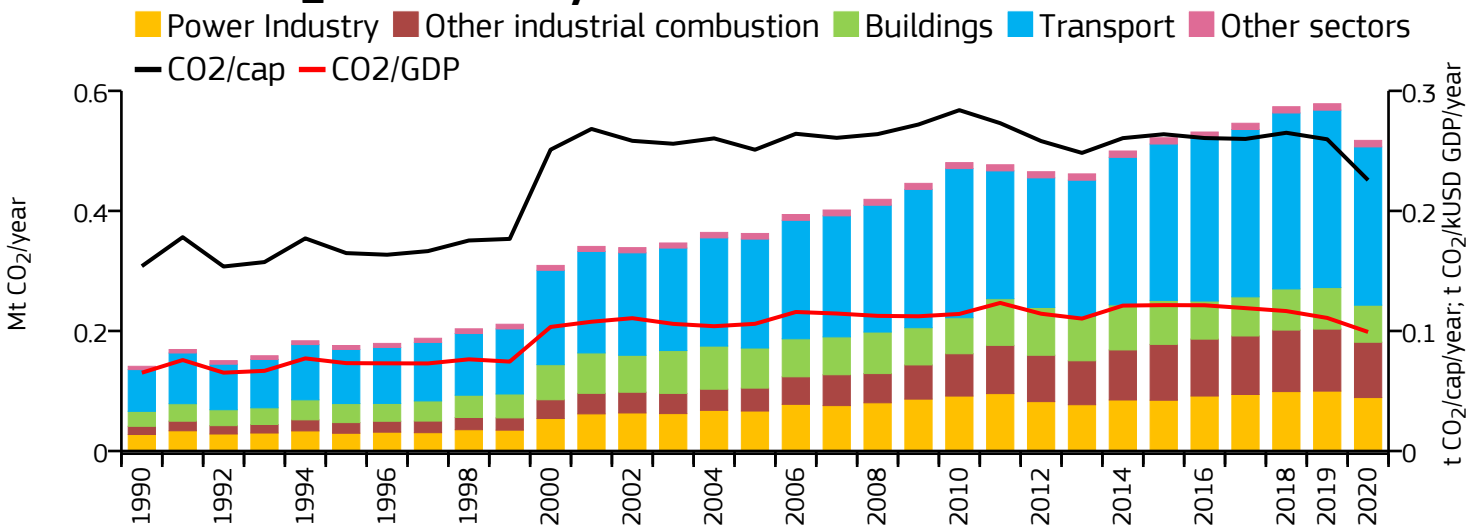


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	255.464	n/a	3.680	n/a	0.212
2018	273.831	434.781	3.958	6.284	0.218
2005	227.419	365.261	3.476	5.583	0.283
1990	93.340	208.018	1.650	3.676	0.232

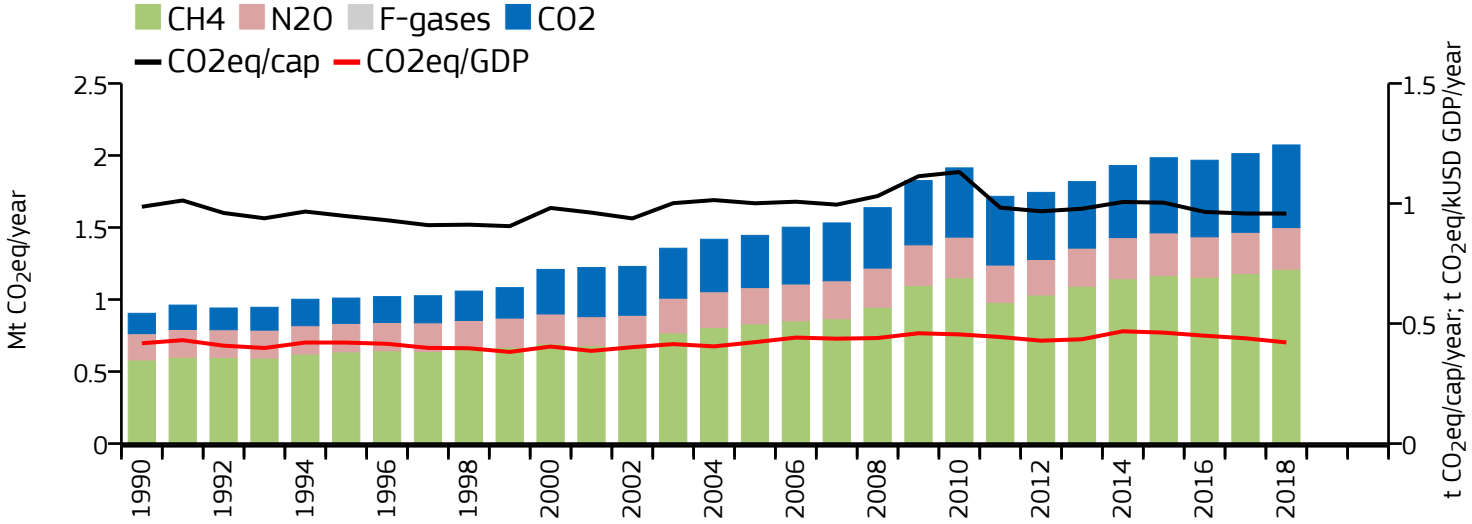
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+190%	+225%	+27%
Other industrial combustion	+234%	+264%	+9%
Buildings	+66%	+68%	-5%
Transport	+148%	+171%	+35%
Other sectors	+178%	+50%	+16%
All sectors	+174%	+109%	+19%

The Gambia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

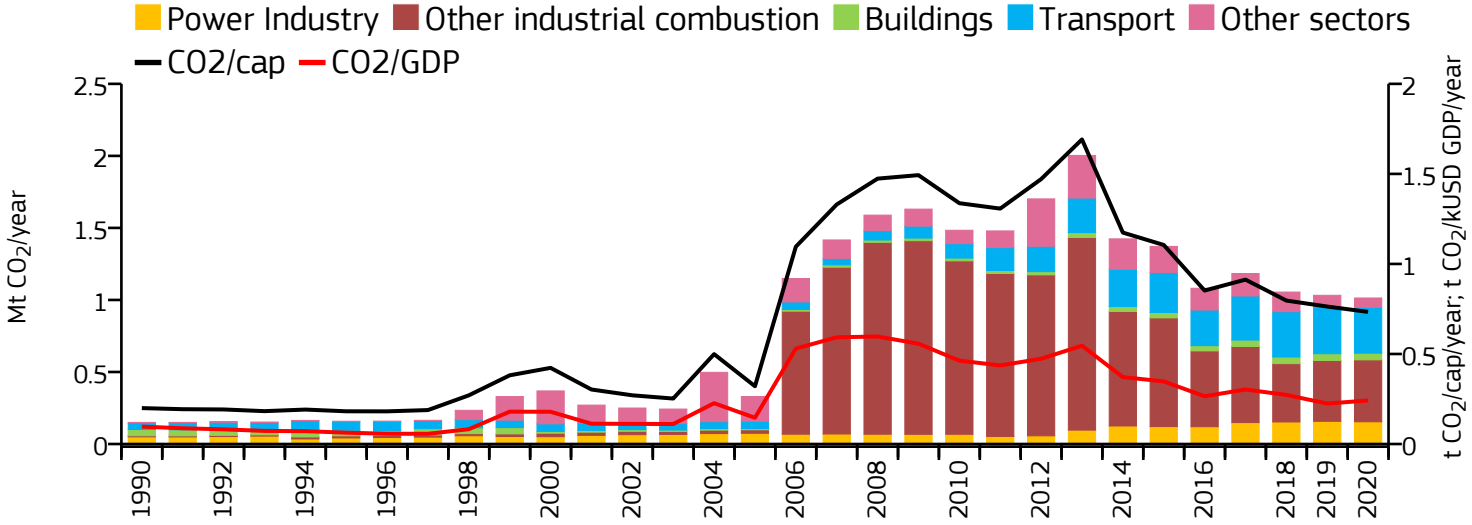


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.518	n/a	0.226	n/a	0.099
2018	0.574	2.073	0.265	0.958	0.117
2005	0.362	1.445	0.251	1.001	0.106
1990	0.141	0.904	0.154	0.986	0.065

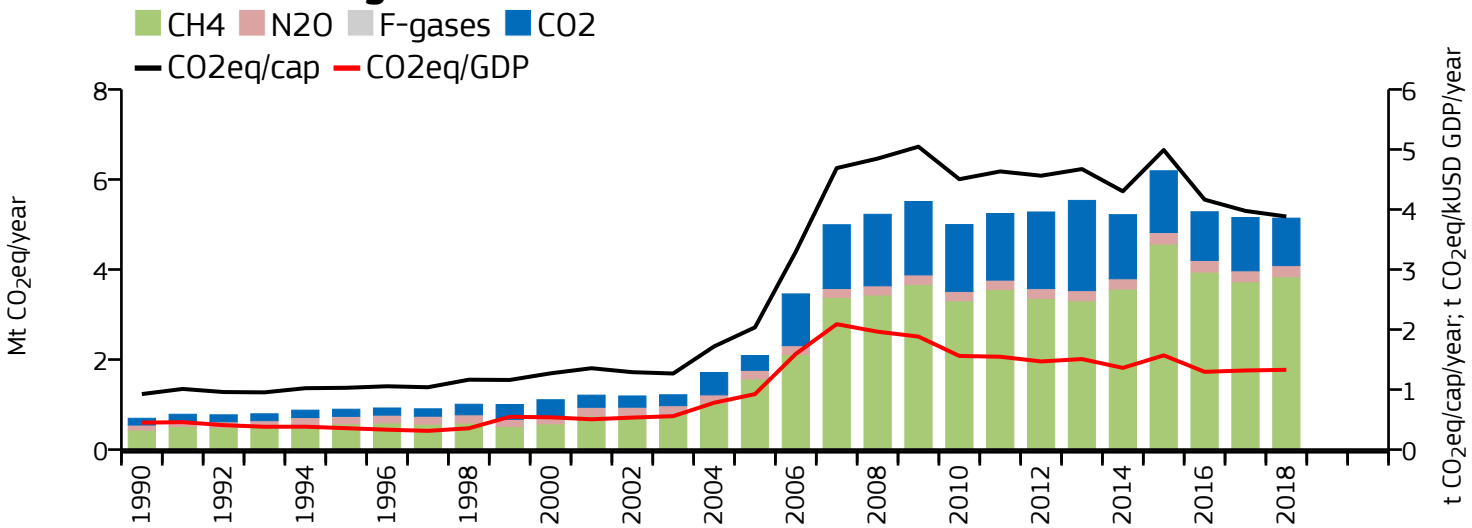
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+224%	+261%	+49%
Other industrial combustion	+573%	+639%	+167%
Buildings	+148%	+118%	+13%
Transport	+279%	+322%	+62%
Other sectors	+97%	+97%	+39%
All sectors	+267%	+129%	+43%

Timor-Leste

Fossil CO_2 emissions by sector



Greenhouse gas emissions

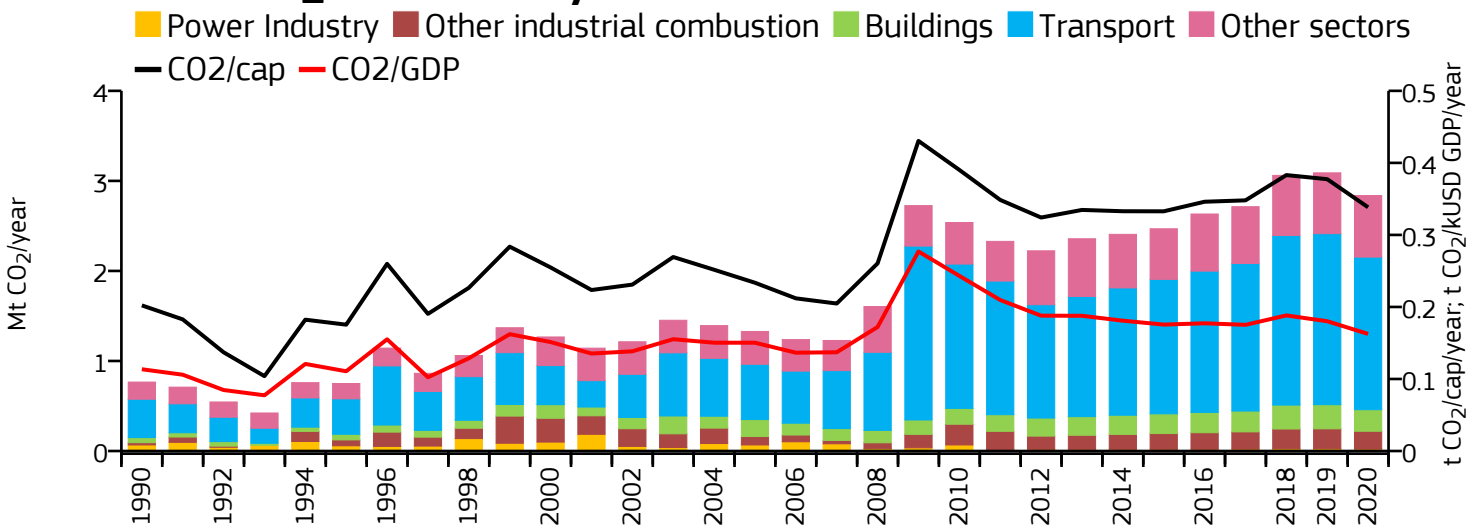


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	1.014	n/a	0.734	n/a	0.242
2018	1.055	5.141	0.797	3.883	0.273
2005	0.329	2.090	0.321	2.036	0.146
1990	0.150	0.695	0.199	0.925	0.097

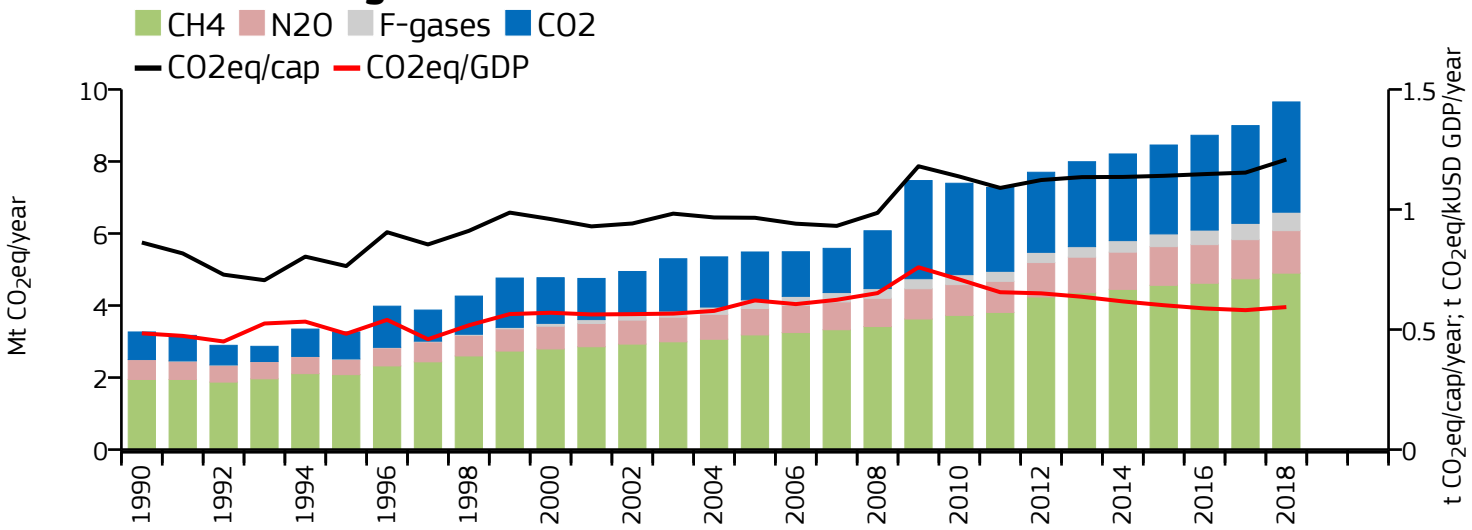
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+211%	+208%	+105%
Other industrial combustion	+5875%	+5515%	+1317%
Buildings	+6%	+1%	+168%
Transport	+573%	+566%	+522%
Other sectors	+2893%	+682%	+120%
All sectors	+576%	+639%	+146%

Togo

Fossil CO_2 emissions by sector



Greenhouse gas emissions

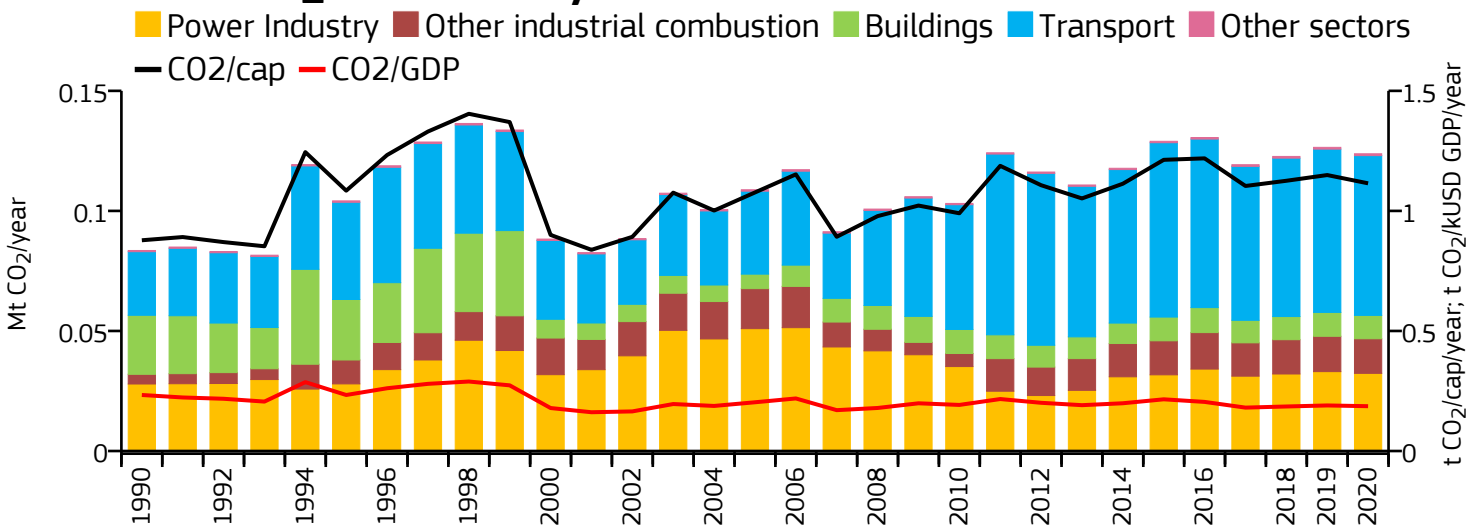


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	2.837	n/a	0.338	n/a	0.163
2018	3.061	9.653	0.383	1.208	0.188
2005	1.328	5.487	0.234	0.965	0.150
1990	0.766	3.266	0.202	0.862	0.114

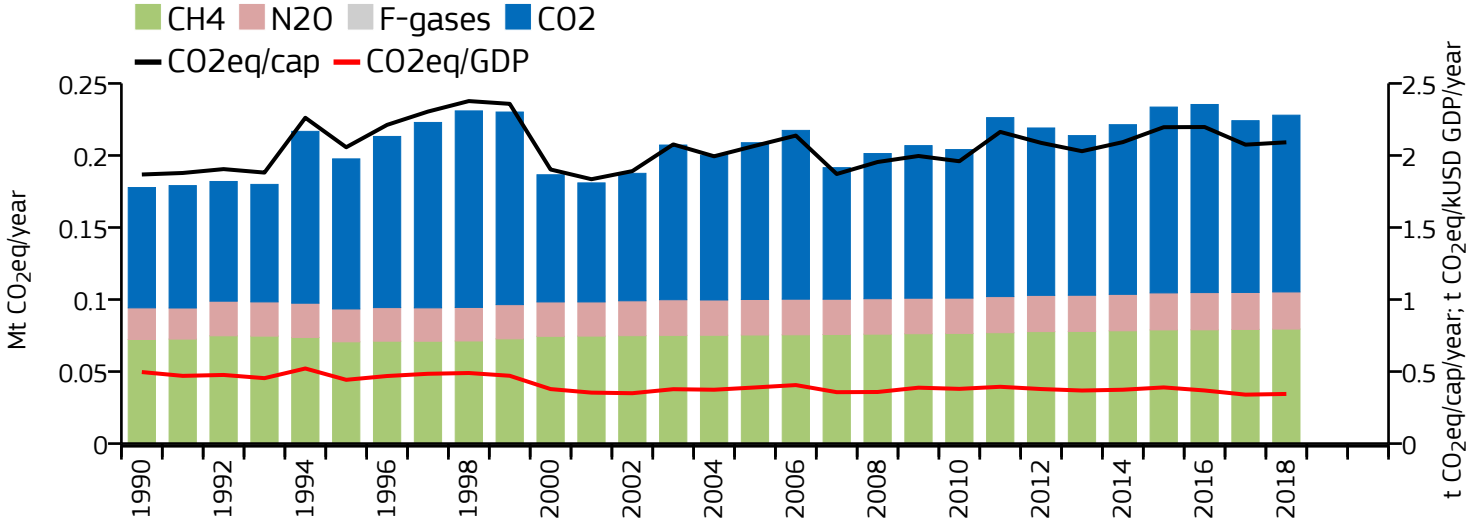
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-68%	-64%	-64%
Other industrial combustion	+694%	+780%	+134%
Buildings	+323%	+176%	+44%
Transport	+297%	+341%	+206%
Other sectors	+259%	+174%	+61%
All sectors	+271%	+196%	+76%

Tonga

Fossil CO_2 emissions by sector



Greenhouse gas emissions

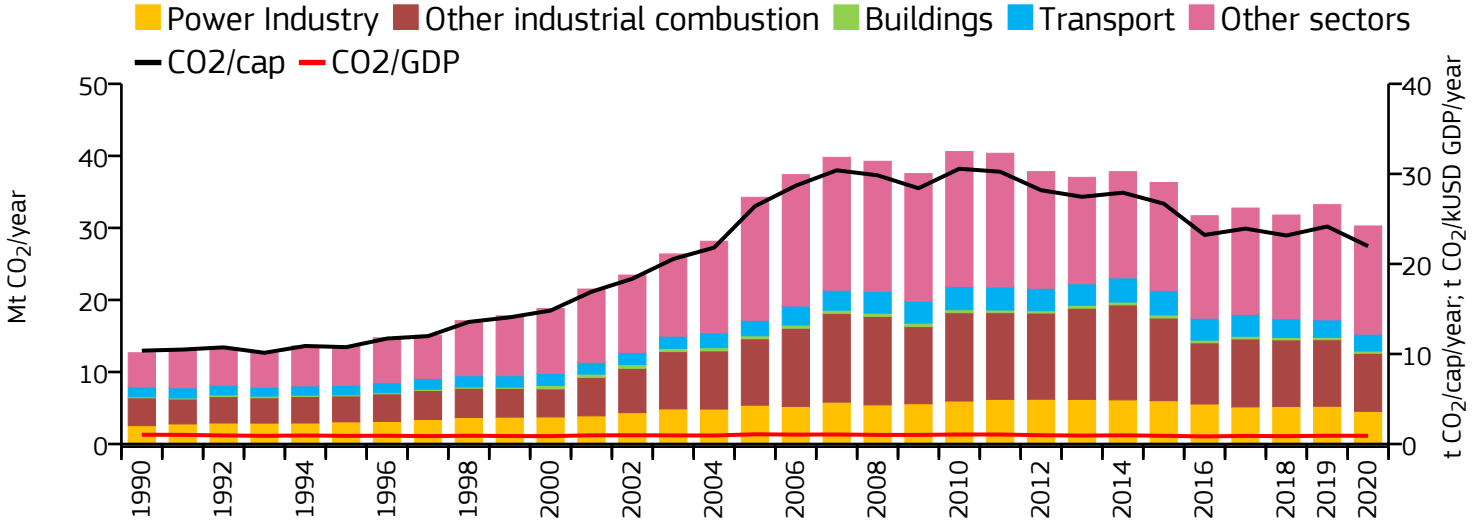


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.124	n/a	1.115	n/a	0.187
2018	0.123	0.228	1.126	2.091	0.185
2005	0.109	0.209	1.077	2.067	0.203
1990	0.084	0.178	0.878	1.868	0.233

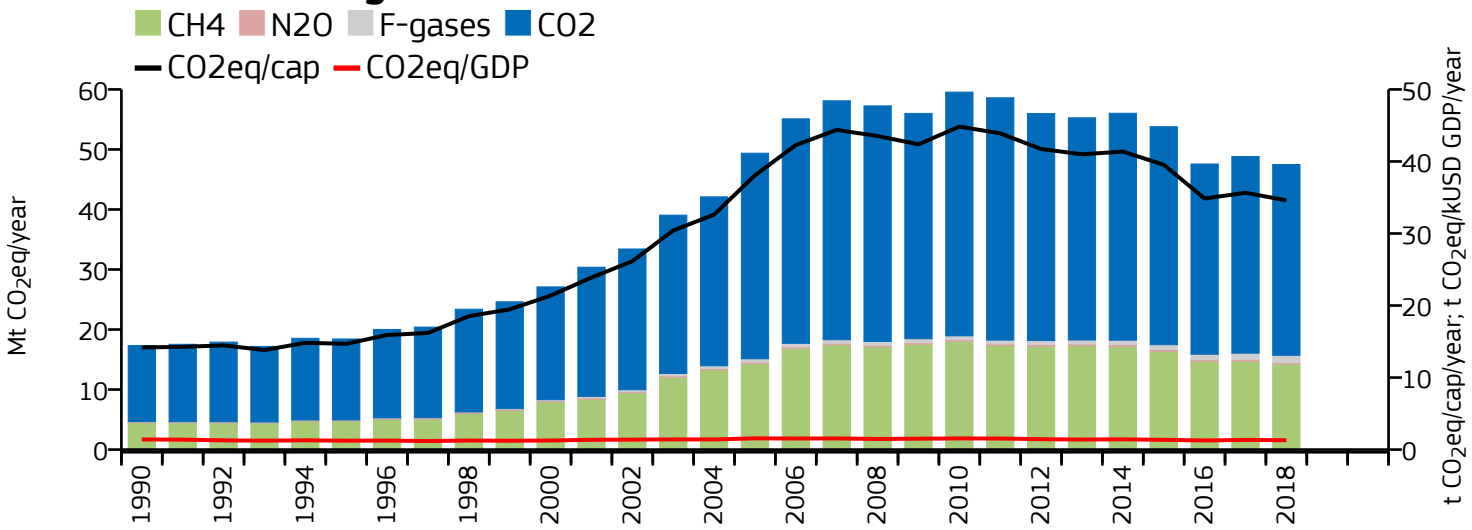
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +16%	↗ +15%	↘ -37%
Other industrial combustion	↗ +256%	↗ +253%	↘ -14%
Buildings	↘ -60%	↘ -60%	↗ +59%
Transport	↗ +151%	↗ +148%	↗ +90%
Other sectors	↗ +52%	↗ +12%	→ +5%
All sectors	↗ +48%	↗ +28%	↗ +9%

Trinidad and Tobago

Fossil CO_2 emissions by sector



Greenhouse gas emissions

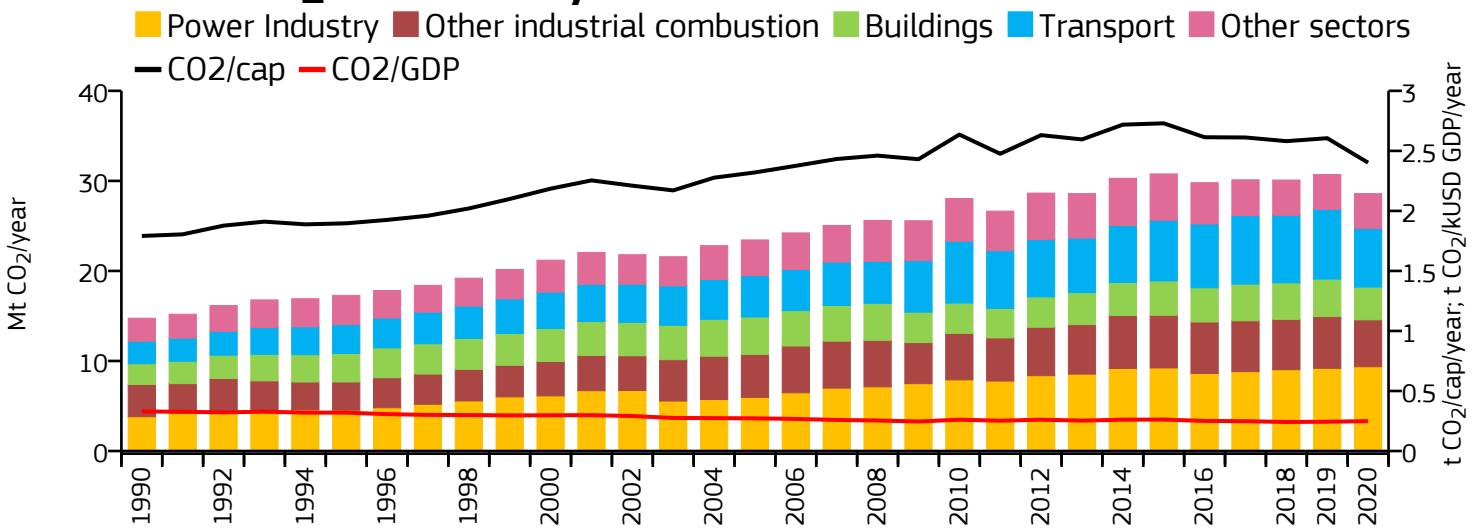


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	30.271	n/a	21.971	n/a	0.912
2018	31.787	47.494	23.159	34.602	0.871
2005	34.250	49.376	26.408	38.071	1.082
1990	12.668	17.328	10.367	14.181	1.029

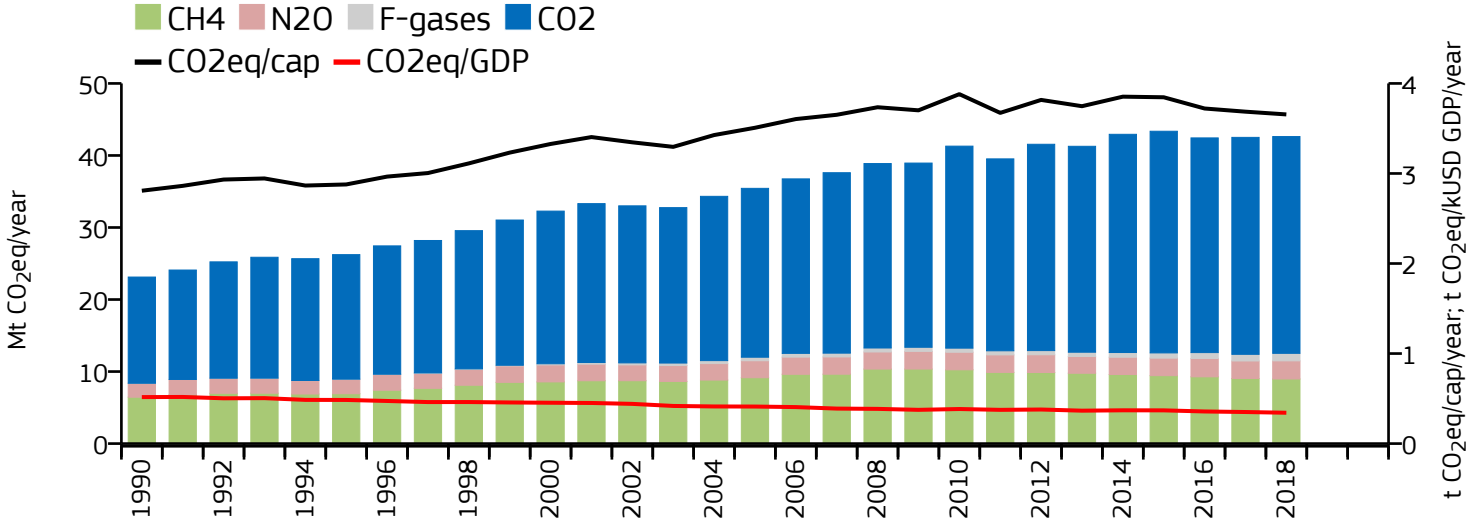
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+78%	+104%	-3%
Other industrial combustion	+108%	+138%	0%
Buildings	+121%	+142%	-16%
Transport	+74%	+91%	+20%
Other sectors	+215%	+221%	-6%
All sectors	+139%	+174%	-4%

Tunisia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

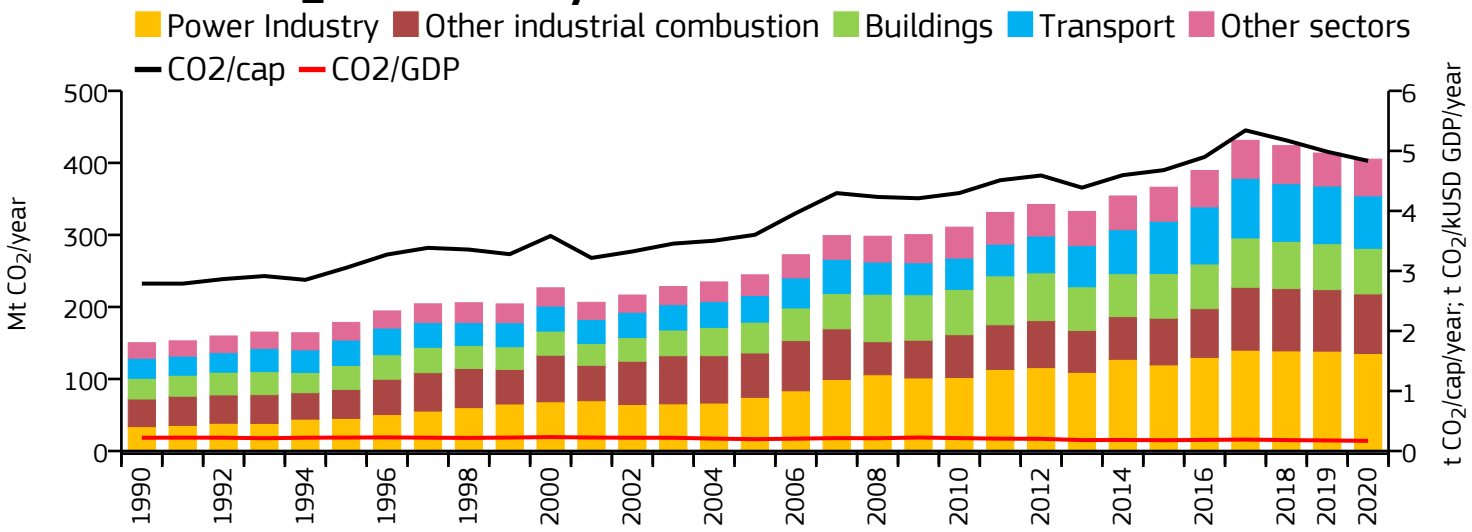


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	28.589	n/a	2.402	n/a	0.249
2018	30.093	42.624	2.581	3.656	0.242
2005	23.443	35.435	2.320	3.508	0.272
1990	14.747	23.121	1.791	2.808	0.329

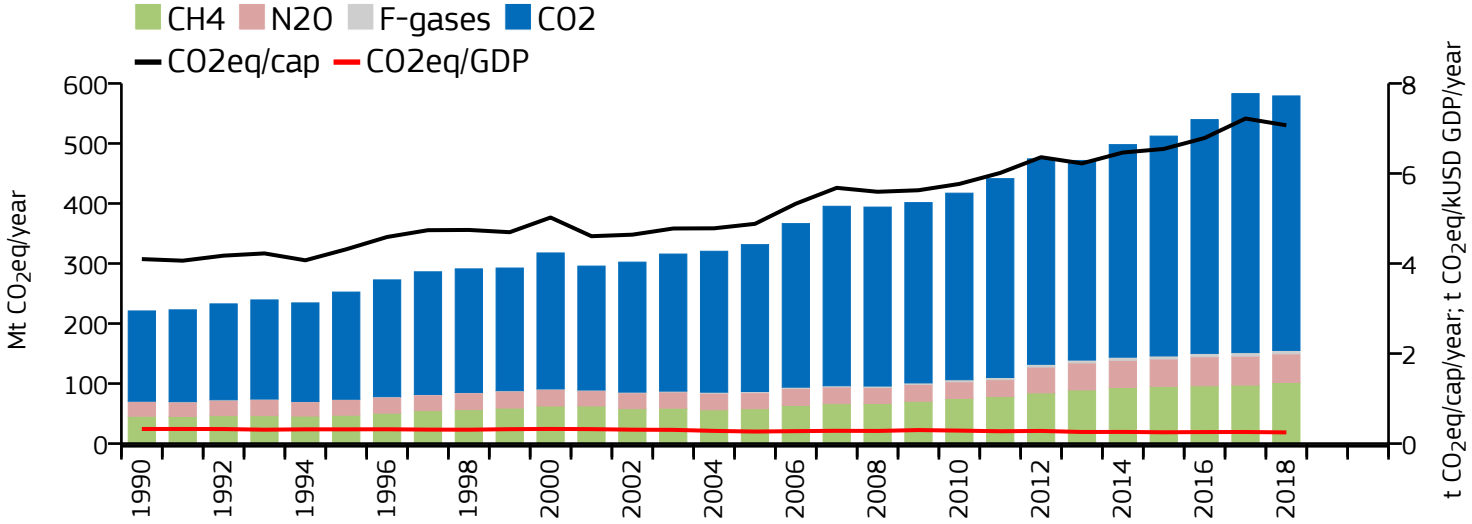
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+145%	+137%	+52%
Other industrial combustion	+46%	+56%	+17%
Buildings	+57%	+75%	-3%
Transport	+161%	+200%	+63%
Other sectors	+52%	+50%	+3%
All sectors	+94%	+84%	+20%

Turkey

Fossil CO_2 emissions by sector



Greenhouse gas emissions

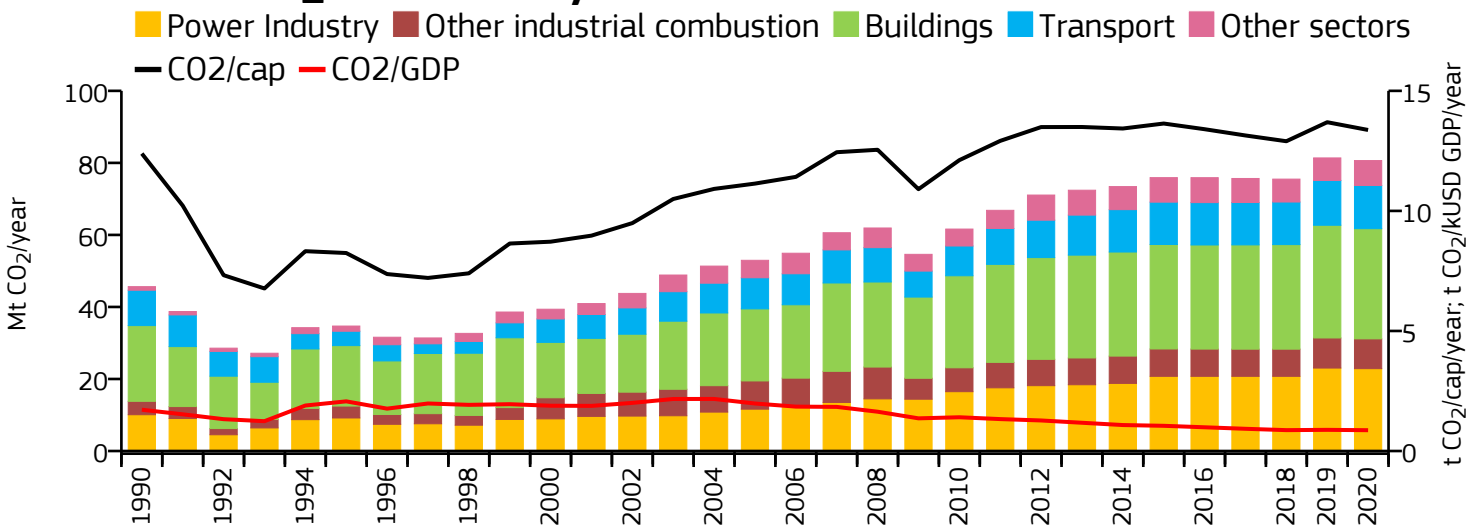


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	405.203	n/a	4.833	n/a	0.169
2018	423.944	579.189	5.175	7.070	0.182
2005	244.606	331.437	3.602	4.881	0.197
1990	150.382	220.981	2.789	4.098	0.221

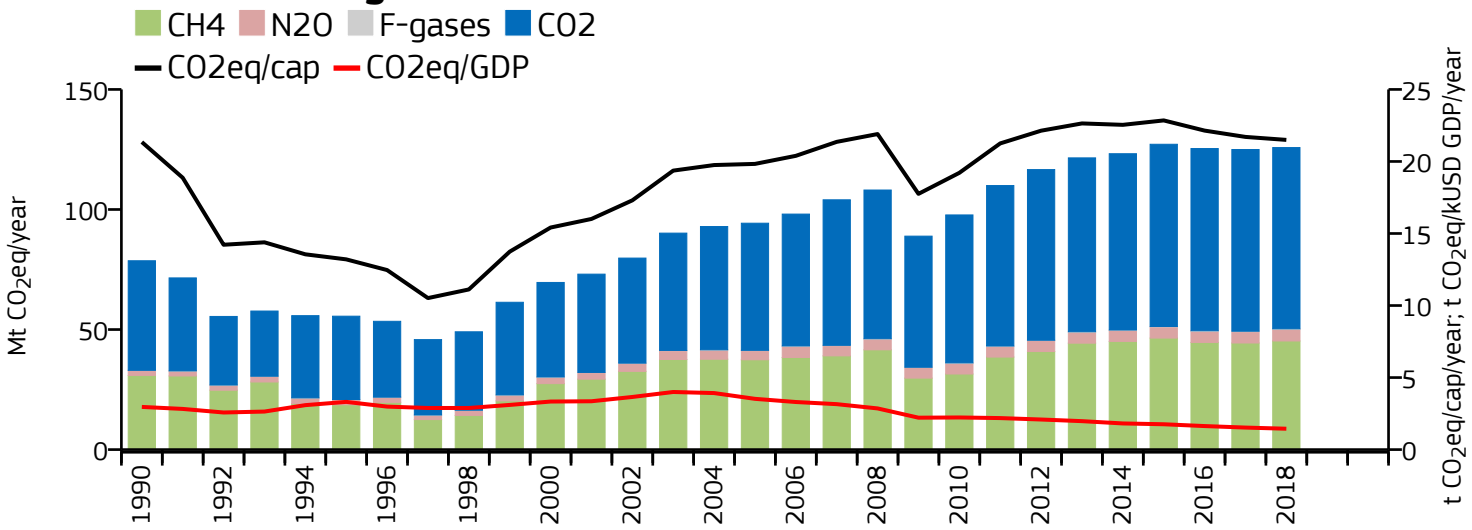
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+300%	+314%	+87%
Other industrial combustion	+116%	+125%	+40%
Buildings	+121%	+106%	+47%
Transport	+161%	+186%	+116%
Other sectors	+136%	+133%	+84%
All sectors	+169%	+162%	+75%

Turkmenistan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

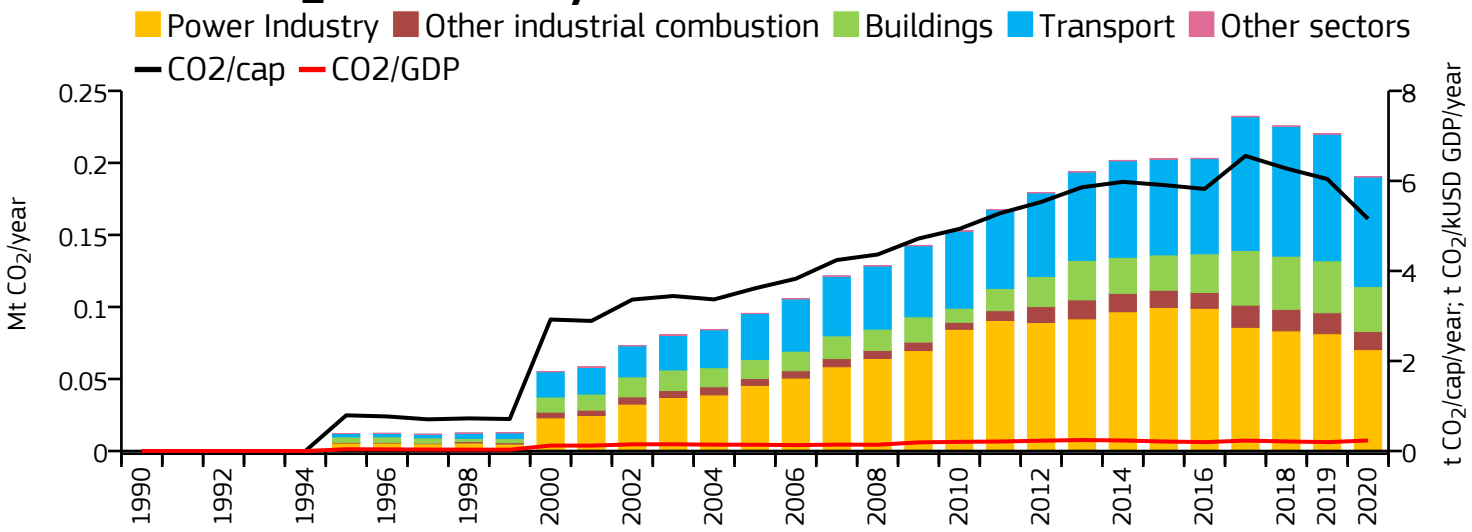


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	80.643	n/a	13.371	n/a	0.867
2018	75.495	125.788	12.902	21.497	0.869
2005	52.954	94.287	11.137	19.830	1.979
1990	45.636	78.645	12.388	21.348	1.719

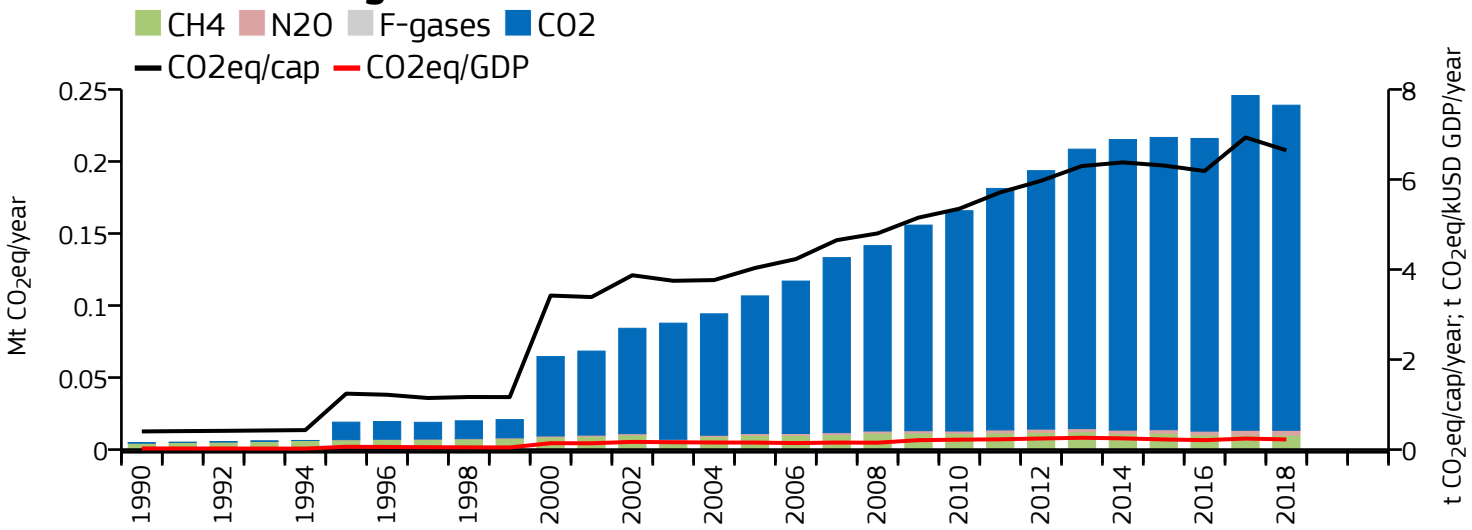
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+127%	+106%	+78%
Other industrial combustion	+122%	+102%	-4%
Buildings	+46%	+37%	+45%
Transport	+22%	+21%	+37%
Other sectors	+598%	+67%	+23%
All sectors	+77%	+60%	+33%

Turks and Caicos Islands

Fossil CO_2 emissions by sector



Greenhouse gas emissions

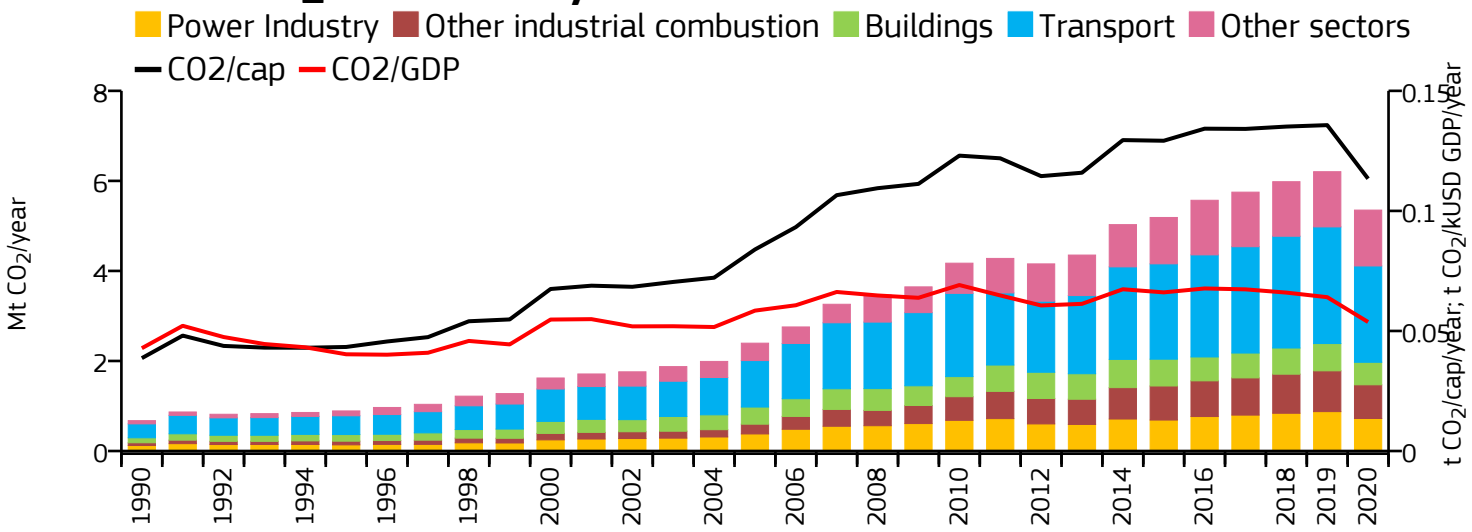


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.191	n/a	5.157	n/a	0.233
2018	0.226	0.239	6.275	6.648	0.213
2005	0.096	0.107	3.613	4.034	0.139
1990	0.000	0.005	0.000	0.403	0.000

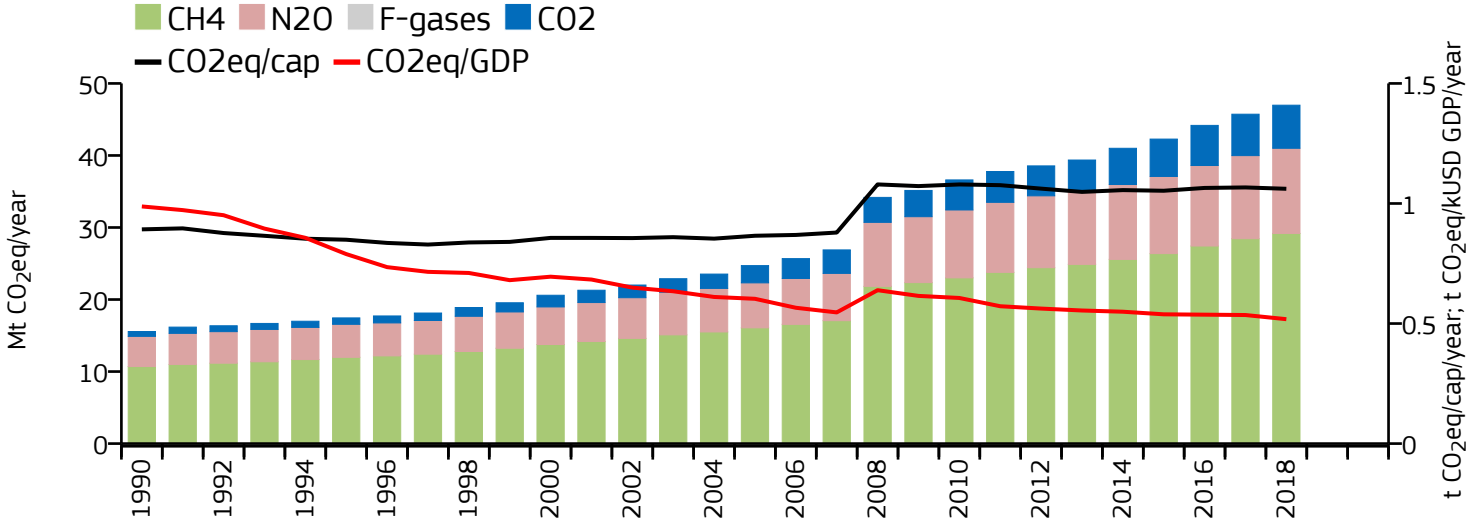
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)		2018 vs 2005 (GHG)
Power Industry	↗	↗		↗ +83%
Other industrial combustion	↗	↗		↗ +213%
Buildings	↗	↗		↗ +182%
Transport	↗	↗	+9%	↗ +182%
Other sectors	↗	↗	+139%	↗ +7%
All sectors	↗	↗		↗ +124%

Uganda

Fossil CO_2 emissions by sector



Greenhouse gas emissions

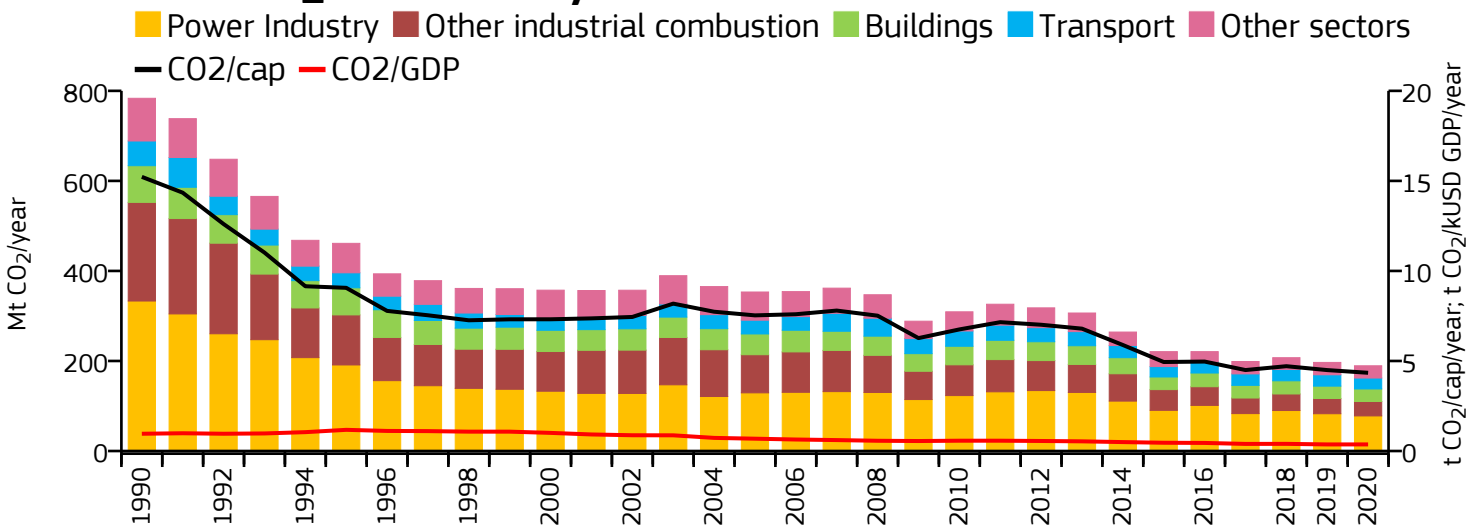


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	5.352	n/a	0.113	n/a	0.054
2018	5.982	46.980	0.135	1.061	0.066
2005	2.396	24.708	0.084	0.866	0.058
1990	0.674	15.560	0.039	0.892	0.043

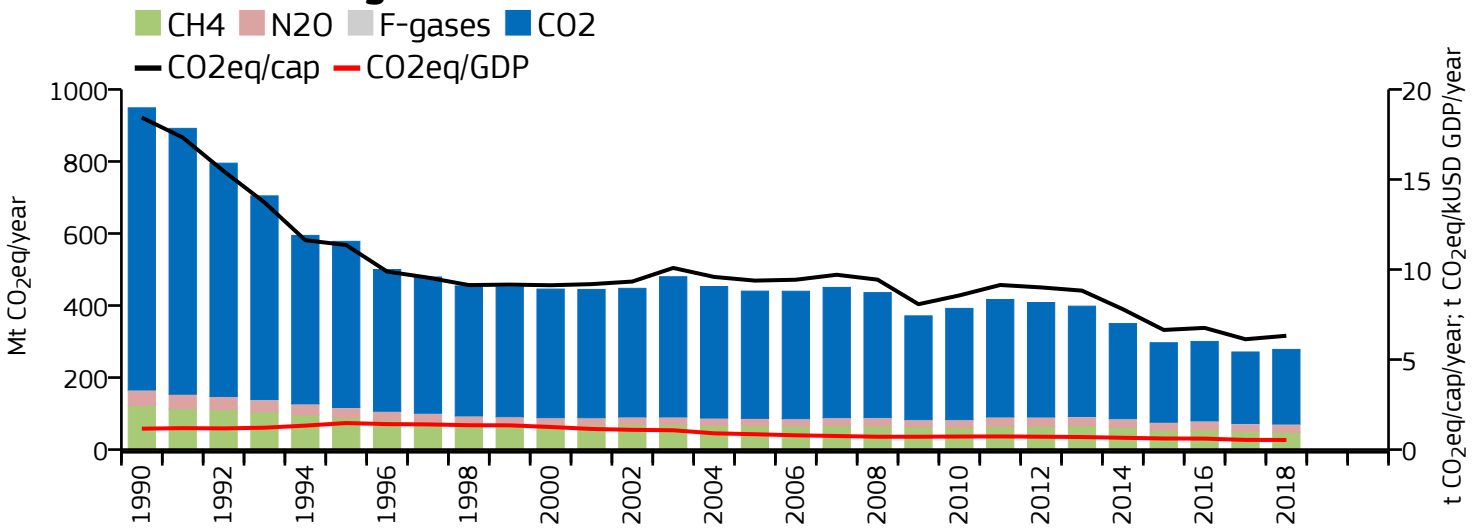
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+492%	+594%	+124%
Other industrial combustion	+1129%	+1063%	+274%
Buildings	+352%	+77%	+26%
Transport	+592%	+704%	+141%
Other sectors	+1628%	+211%	+99%
All sectors	+693%	+202%	+90%

Ukraine

Fossil CO_2 emissions by sector



Greenhouse gas emissions

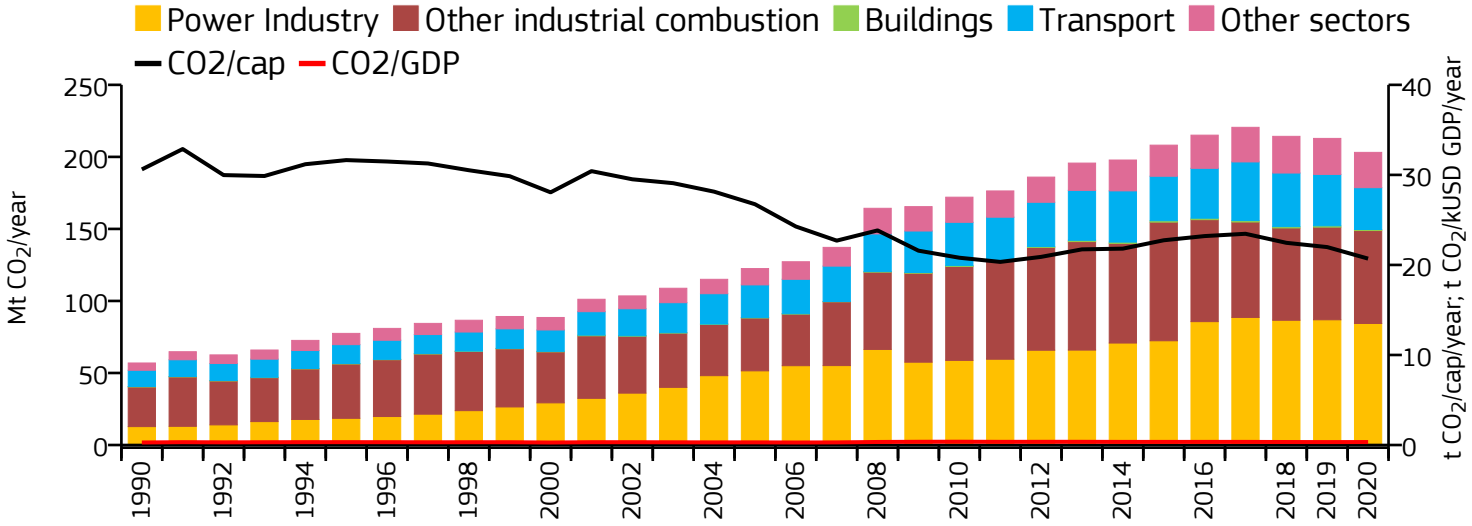


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	189.305	n/a	4.344	n/a	0.366
2018	207.266	278.147	4.710	6.320	0.397
2005	353.197	439.998	7.532	9.383	0.684
1990	783.494	948.902	15.224	18.438	0.959

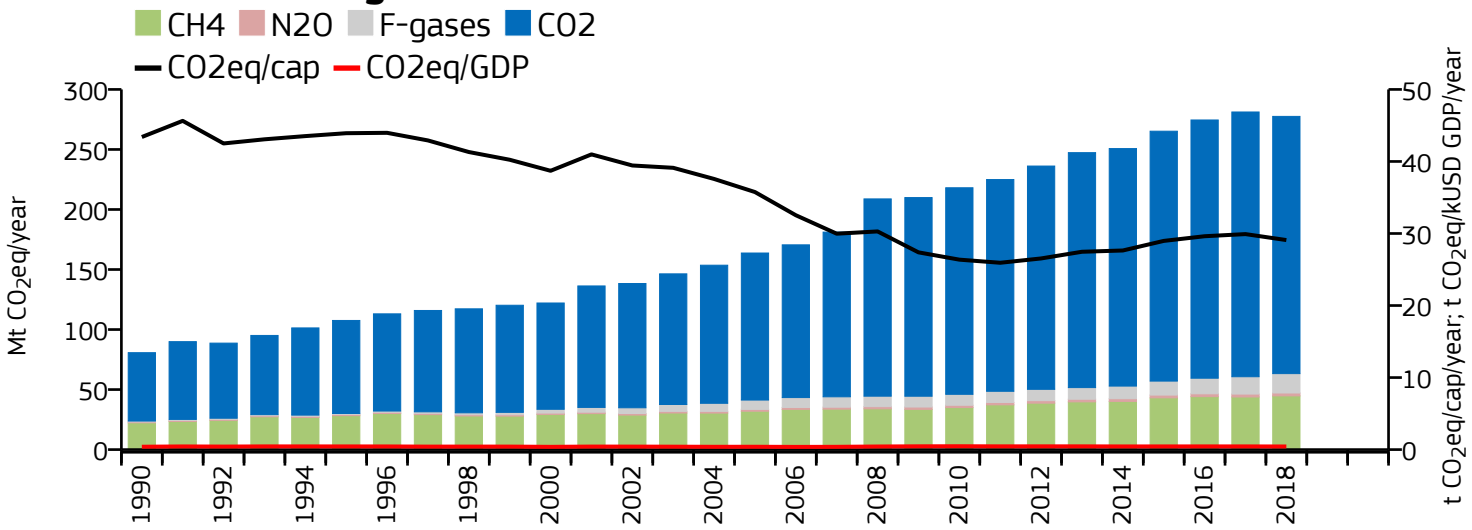
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-77%	-73%	-30%
Other industrial combustion	-85%	-83%	-57%
Buildings	-66%	-64%	-36%
Transport	-56%	-54%	-17%
Other sectors	-71%	-63%	-35%
All sectors	-76%	-71%	-37%

United Arab Emirates

Fossil CO_2 emissions by sector



Greenhouse gas emissions

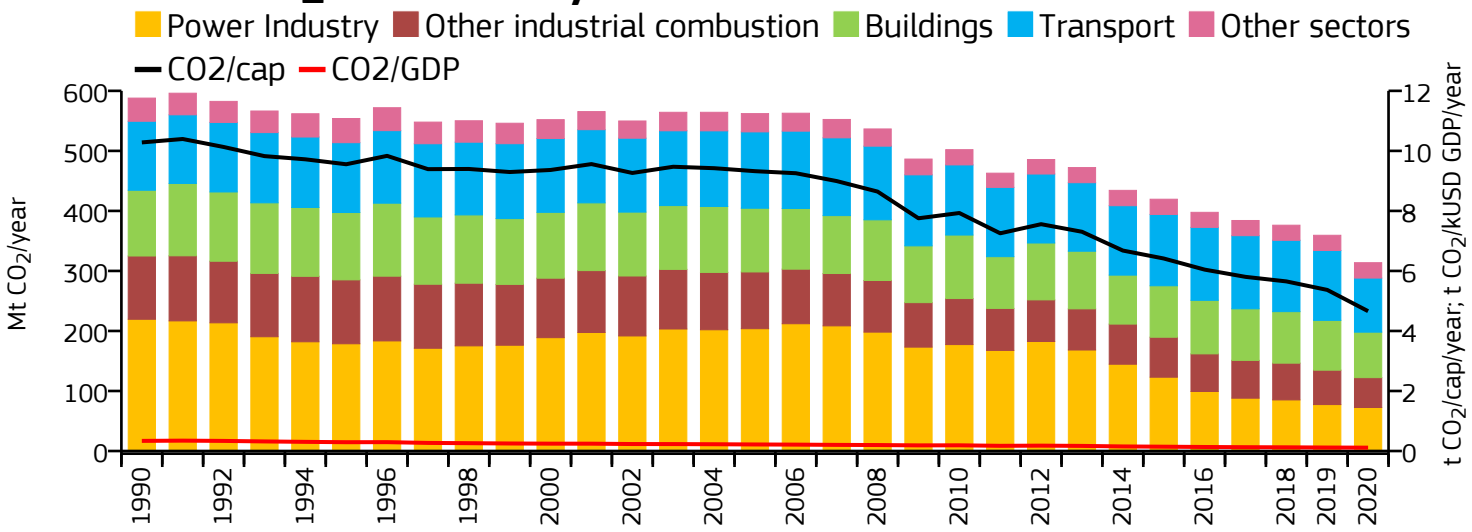


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	203.136	n/a	20.700	n/a	0.329
2018	214.267	277.544	22.456	29.088	0.332
2005	122.472	163.735	26.743	35.754	0.294
1990	56.937	80.722	30.609	43.395	0.279

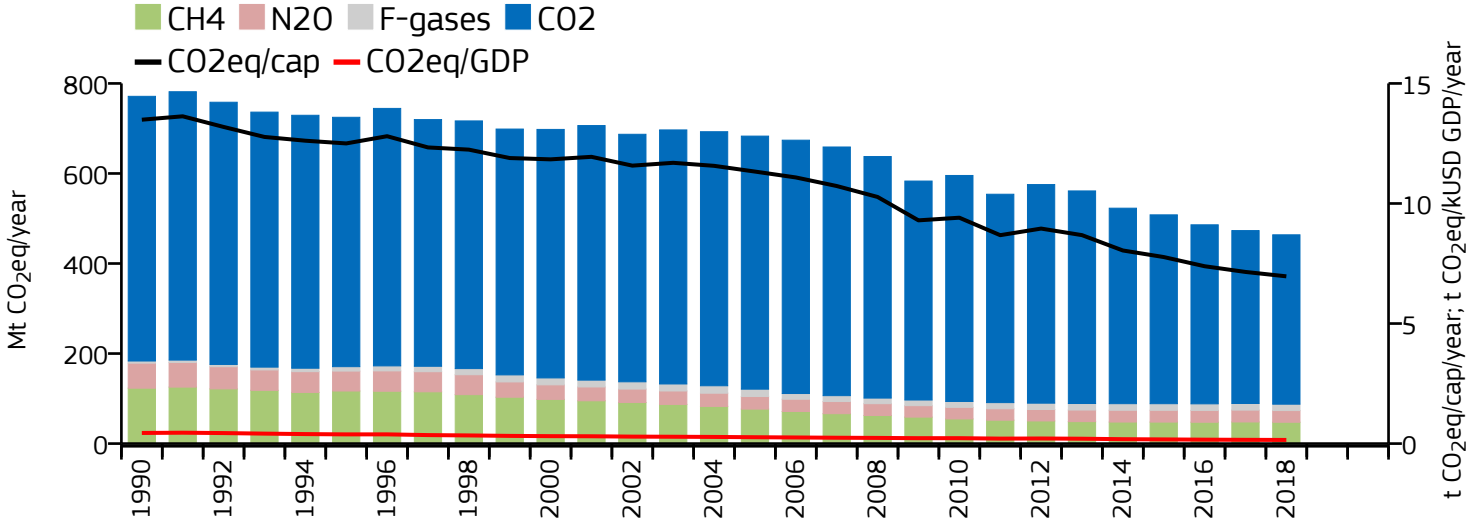
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+561%	+578%	+68%
Other industrial combustion	+134%	+134%	+75%
Buildings	+136%	+206%	+573%
Transport	+157%	+229%	+63%
Other sectors	+385%	+207%	+68%
All sectors	+257%	+244%	+70%

United Kingdom

Fossil CO_2 emissions by sector



Greenhouse gas emissions

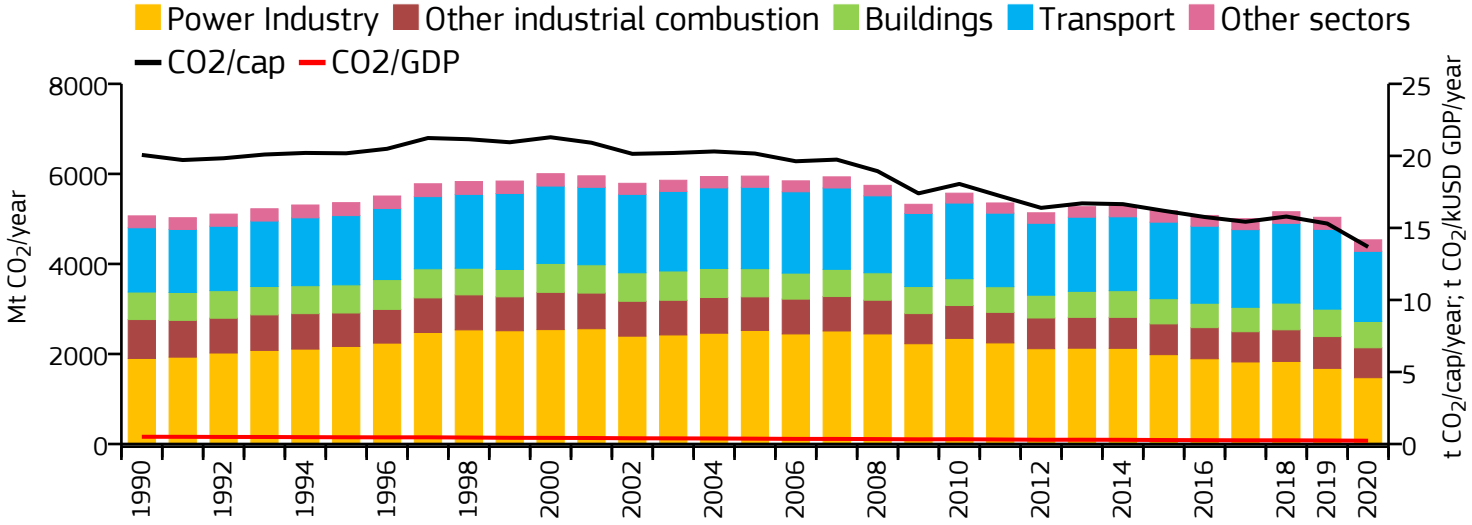


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	313.729	n/a	4.659	n/a	0.112
2018	376.200	463.735	5.651	6.966	0.123
2005	562.096	682.997	9.324	11.329	0.218
1990	587.938	771.365	10.282	13.489	0.337

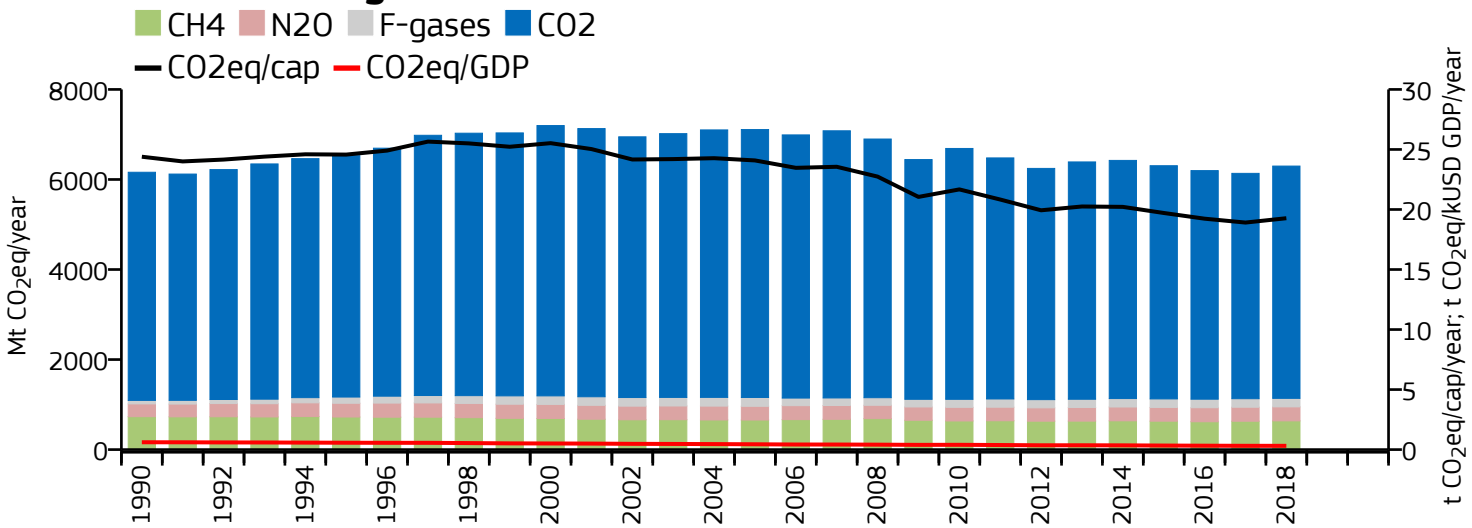
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-67%	-61%	-58%
Other industrial combustion	-53%	-42%	-35%
Buildings	-31%	-22%	-18%
Transport	-22%	+2%	-7%
Other sectors	-34%	-50%	-26%
All sectors	-47%	-40%	-32%

United States

Fossil CO_2 emissions by sector



Greenhouse gas emissions

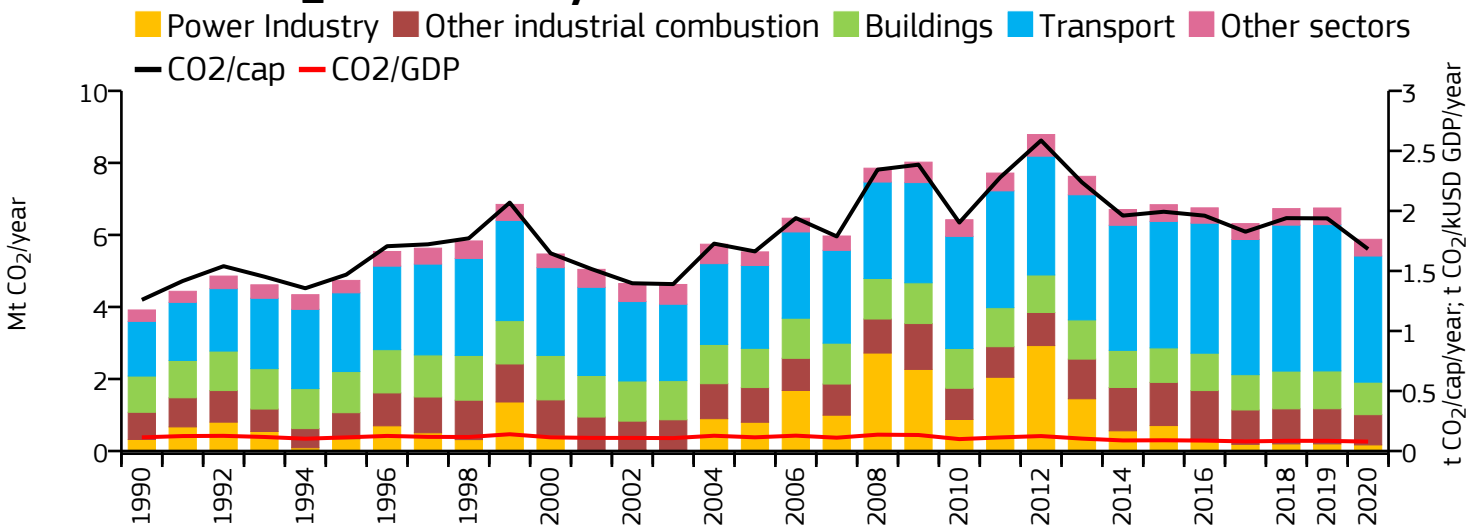


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	4535.301	n/a	13.684	n/a	0.229
2018	5159.307	6297.624	15.789	19.273	0.256
2005	5950.701	7108.544	20.163	24.086	0.370
1990	5067.497	6160.301	20.067	24.394	0.502

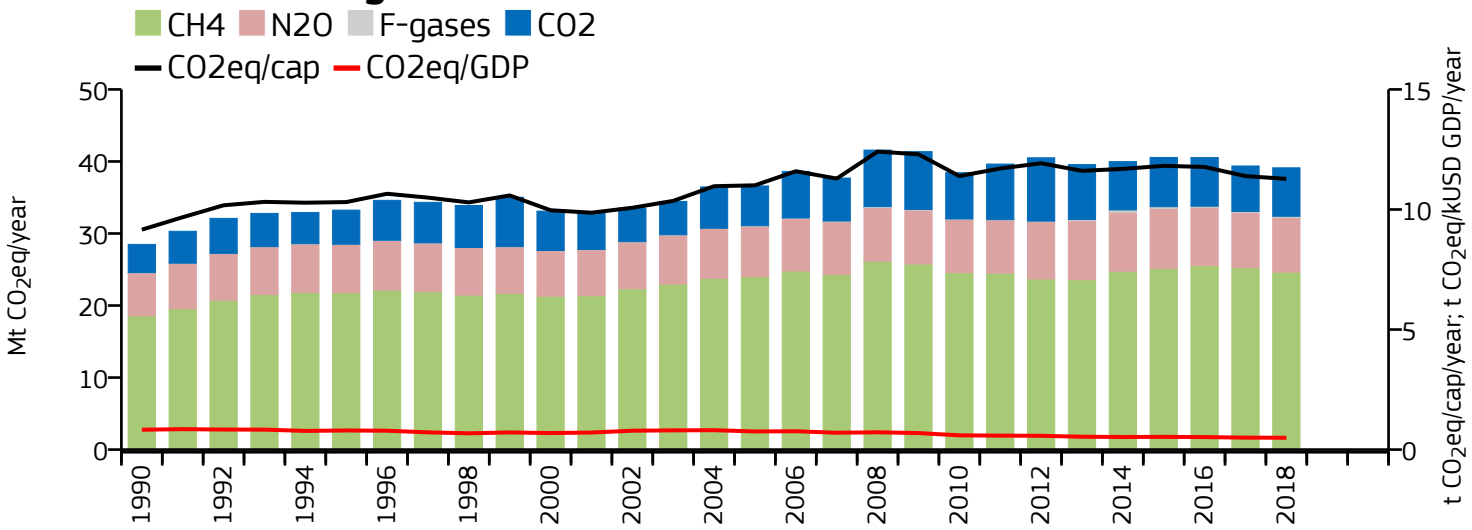
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↘ -23%	→ -4%	↘ -27%
Other industrial combustion	↘ -23%	↘ -18%	↘ -6%
Buildings	→ -4%	→ -3%	↘ -6%
Transport	↗ +9%	↗ +23%	→ -2%
Other sectors	→ -3%	→ +4%	→ 0%
All sectors	↘ -11%	→ +2%	↘ -11%

Uruguay

Fossil CO_2 emissions by sector



Greenhouse gas emissions

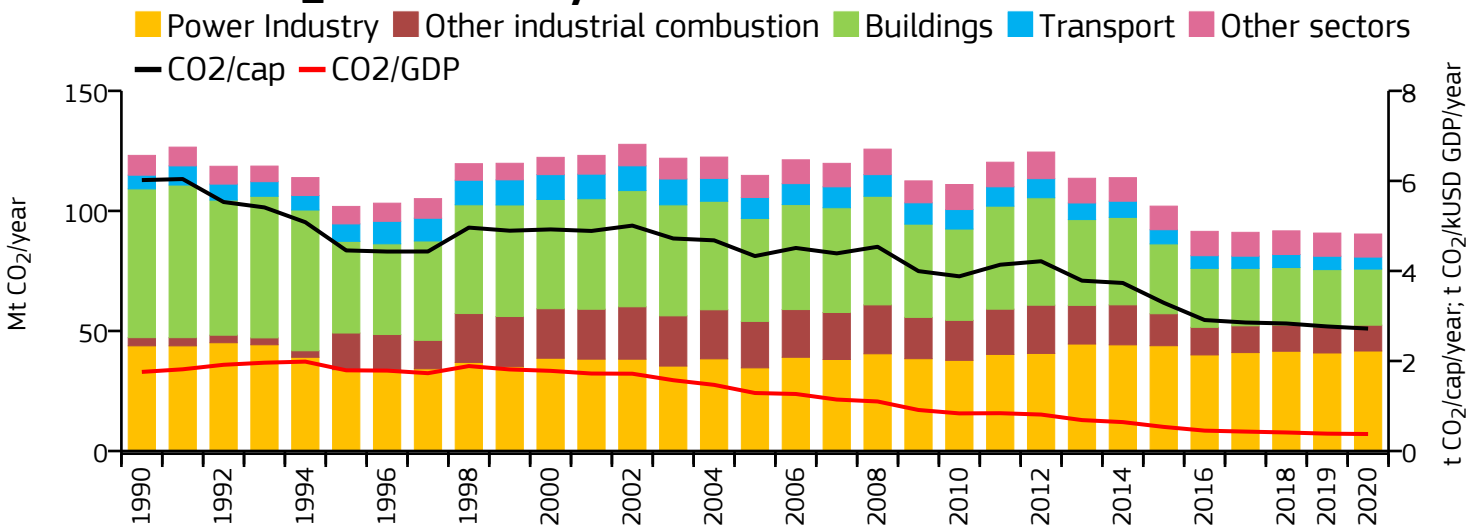


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	5.878	n/a	1.682	n/a	0.078
2018	6.730	39.119	1.940	11.275	0.085
2005	5.529	36.603	1.663	11.007	0.114
1990	3.916	28.485	1.259	9.159	0.114

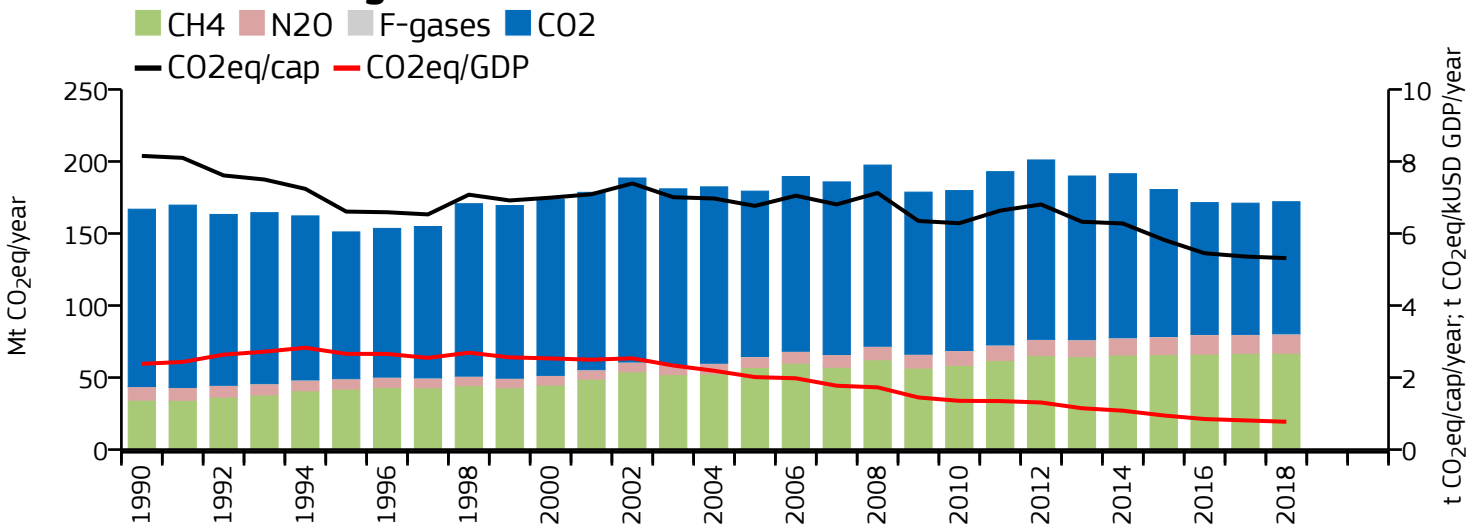
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-47%	-31%	-72%
Other industrial combustion	+11%	+41%	+12%
Buildings	-10%	+5%	-3%
Transport	+131%	+167%	+77%
Other sectors	+47%	+32%	+4%
All sectors	+50%	+37%	+7%

Uzbekistan

Fossil CO_2 emissions by sector



Greenhouse gas emissions

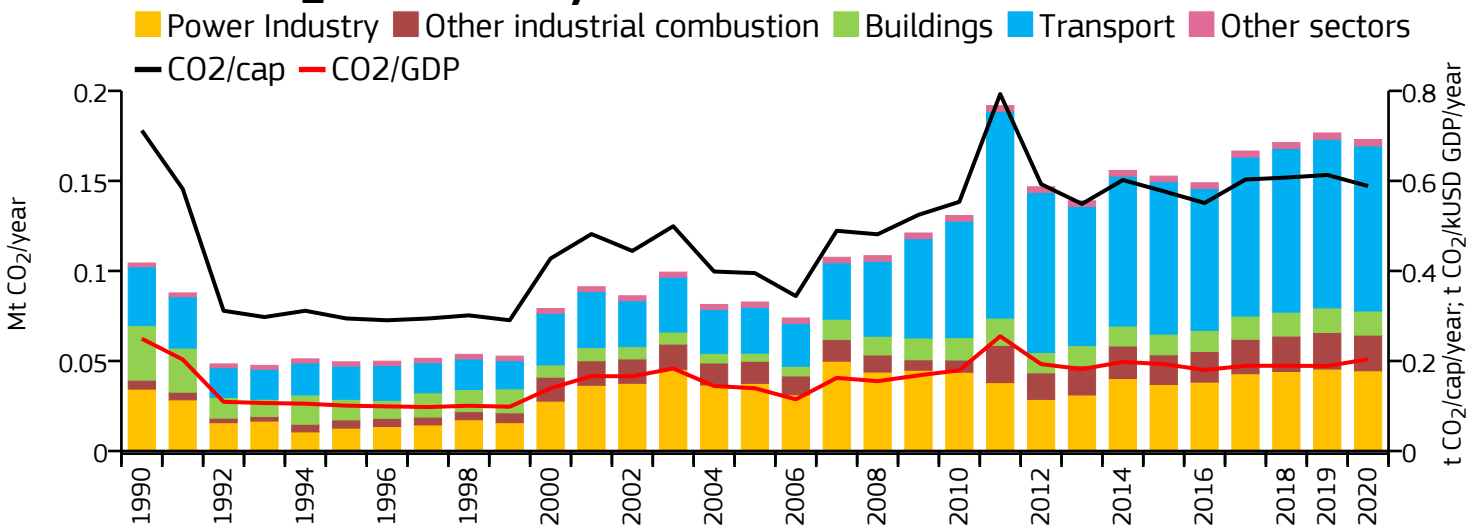


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	90.374	n/a	2.719	n/a	0.377
2018	91.688	172.054	2.833	5.316	0.412
2005	114.791	179.404	4.330	6.767	1.288
1990	123.129	166.869	6.017	8.155	1.757

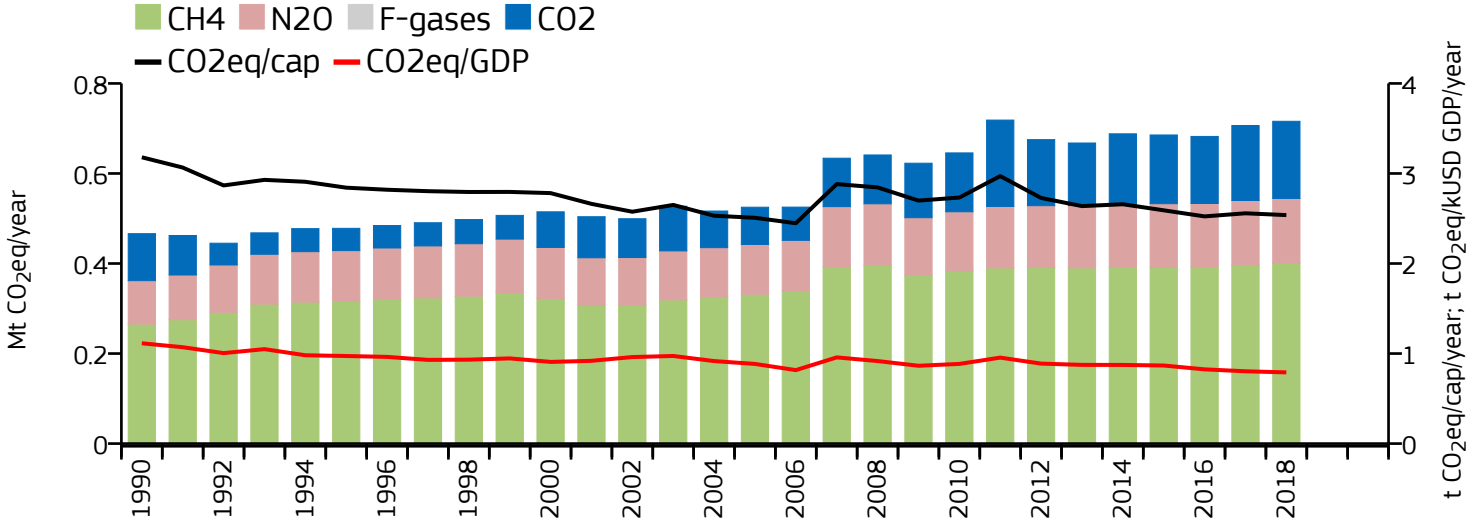
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	→ -5%	→ -5%	↗ +20%
Other industrial combustion	↗ +217%	↗ +216%	↘ -44%
Buildings	↘ -62%	↘ -61%	↘ -44%
Transport	↘ -13%	↘ -6%	↘ -38%
Other sectors	↗ +16%	↗ +75%	↗ +23%
All sectors	↘ -27%	→ +3%	→ -4%

Vanuatu

Fossil CO_2 emissions by sector



Greenhouse gas emissions

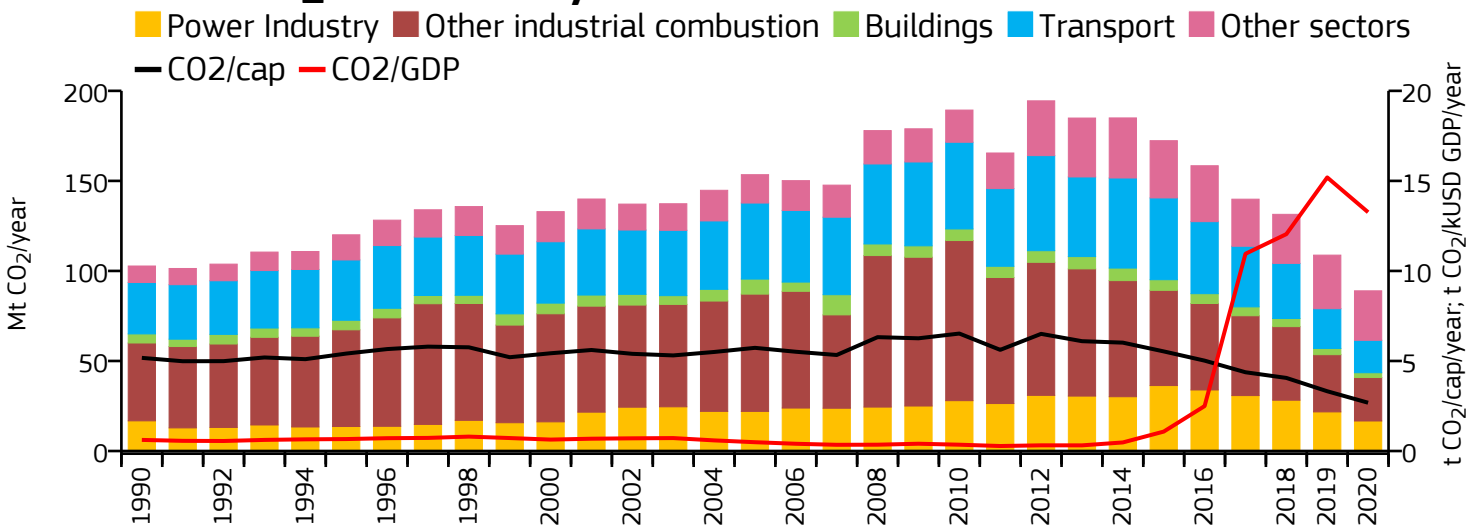


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.173	n/a	0.589	n/a	0.204
2018	0.171	0.716	0.607	2.538	0.189
2005	0.083	0.525	0.395	2.508	0.139
1990	0.104	0.466	0.712	3.180	0.249

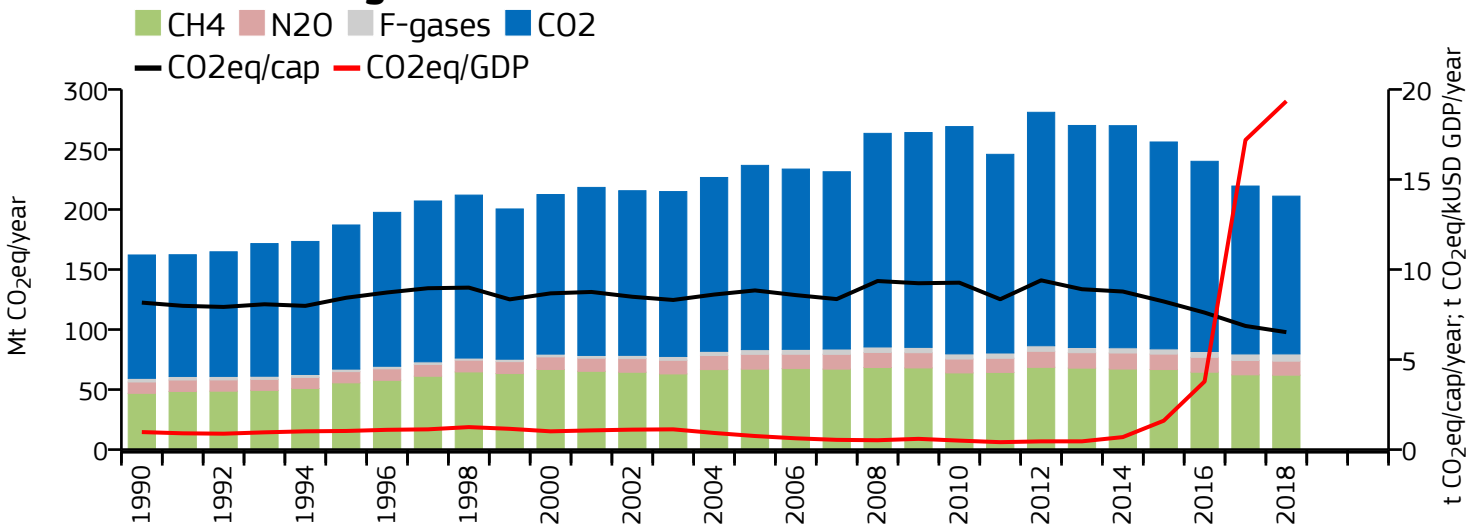
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	↗ +30%	↗ +28%	↗ +18%
Other industrial combustion	↗ +298%	↗ +297%	↗ +60%
Buildings	↘ -56%	↘ -37%	↗ +76%
Transport	↗ +181%	↗ +177%	↗ +255%
Other sectors	↗ +68%	↗ +49%	↗ +23%
All sectors	↗ +66%	↗ +54%	↗ +36%

Venezuela

Fossil CO_2 emissions by sector



Greenhouse gas emissions

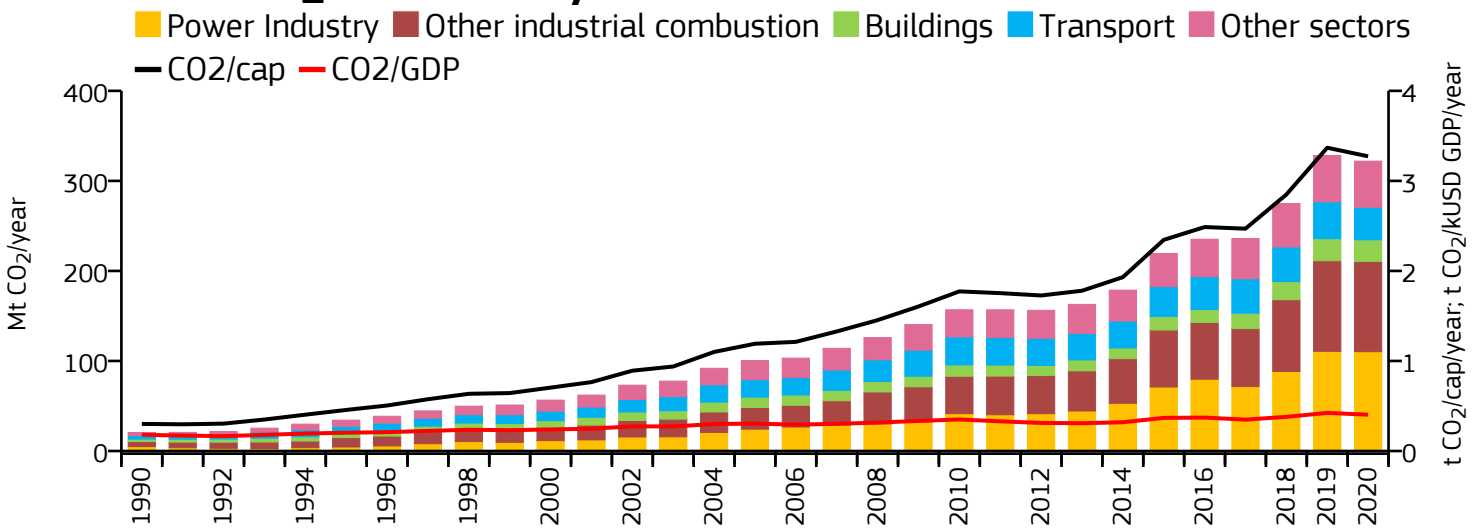


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	88.952	n/a	2.682	n/a	13.260
2018	131.430	211.129	4.059	6.520	12.044
2005	153.449	236.749	5.729	8.839	0.488
1990	102.737	162.105	5.173	8.162	0.616

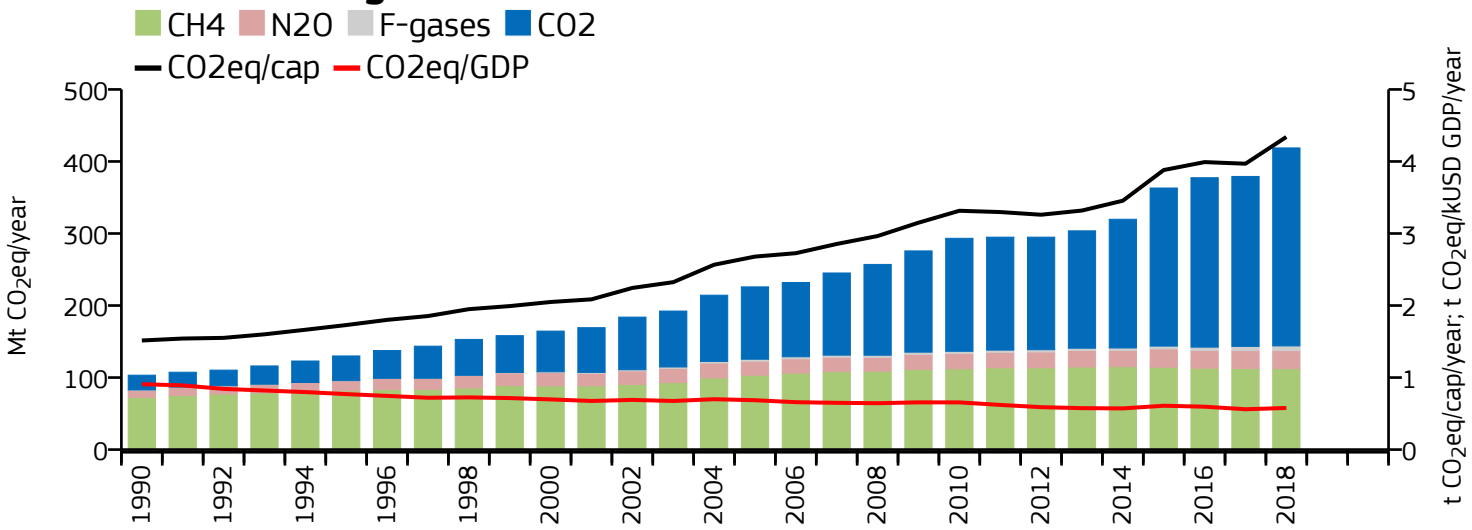
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	0%	+69%	+28%
Other industrial combustion	-44%	-6%	-37%
Buildings	-47%	-10%	-46%
Transport	-37%	+7%	-28%
Other sectors	+200%	+57%	+9%
All sectors	-13%	+30%	-11%

Vietnam

Fossil CO_2 emissions by sector



Greenhouse gas emissions

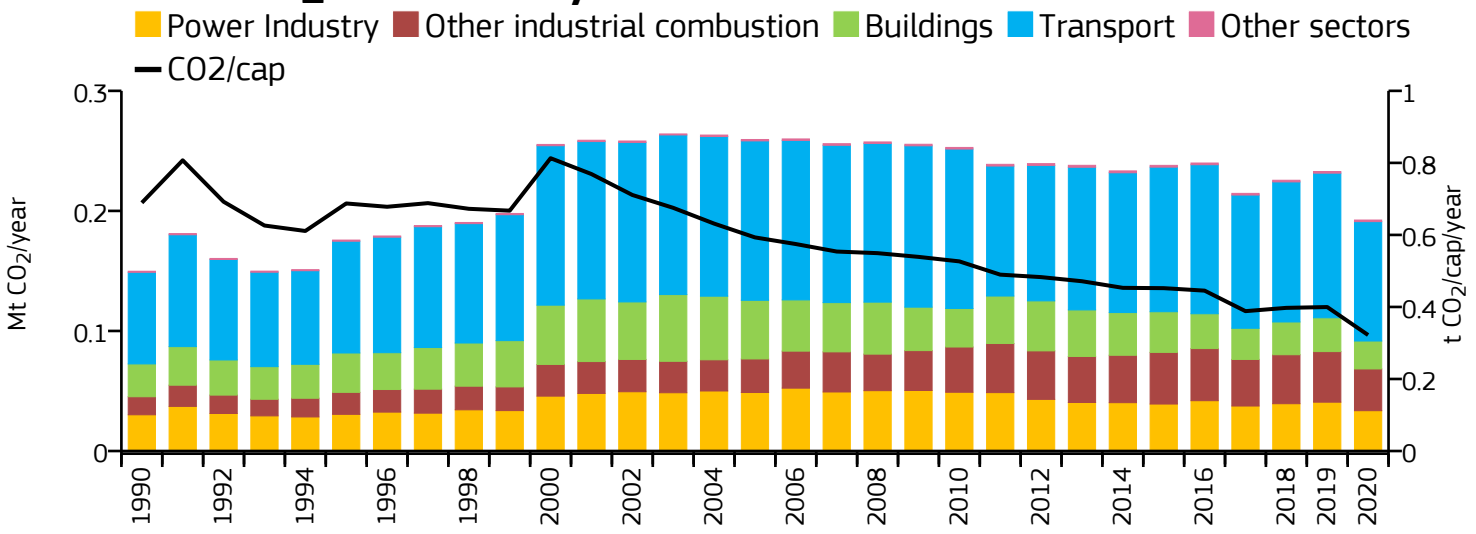


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	321.925	n/a	3.273	n/a	0.403
2018	274.851	418.799	2.848	4.340	0.379
2005	100.433	225.887	1.191	2.679	0.305
1990	20.525	103.304	0.301	1.515	0.180

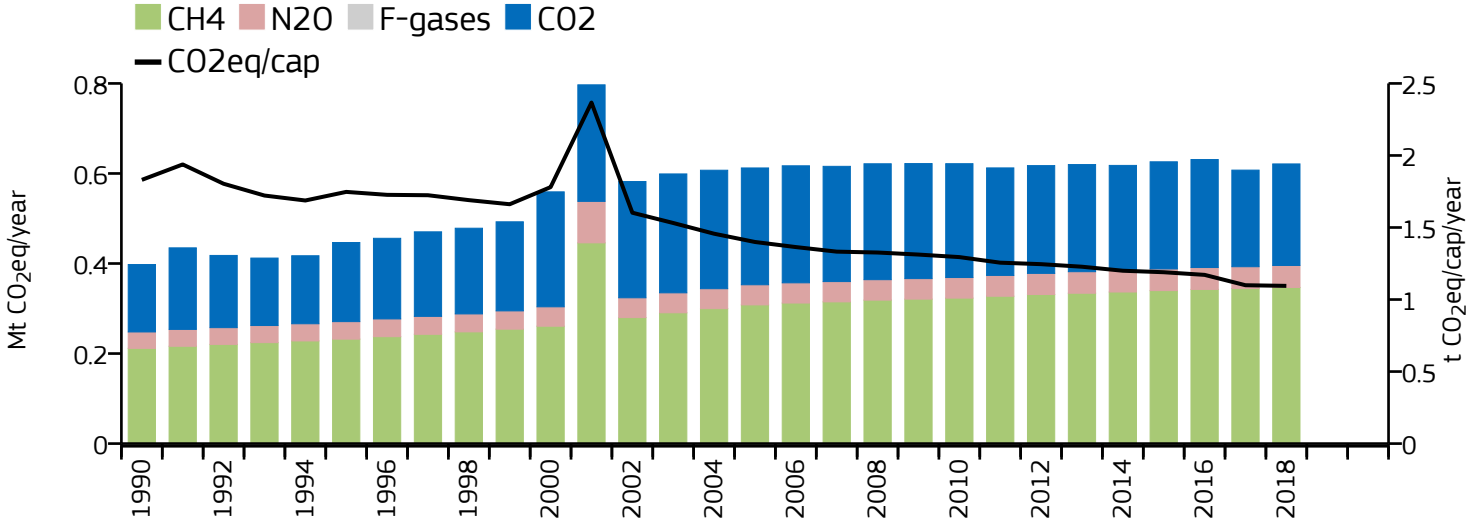
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+2161%	+1711%	+264%
Other industrial combustion	+1673%	+1265%	+231%
Buildings	+790%	+275%	+42%
Transport	+768%	+820%	+98%
Other sectors	+1534%	+128%	+33%
All sectors	+1468%	+305%	+85%

Western Sahara

Fossil CO_2 emissions by sector



Greenhouse gas emissions

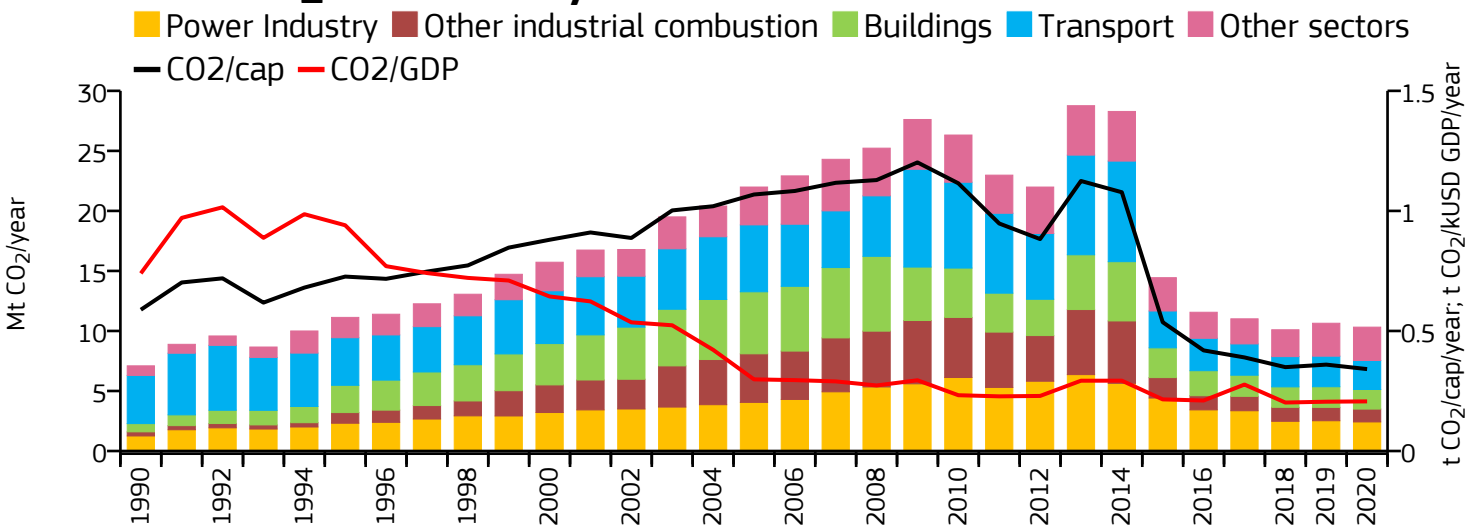


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	0.192	n/a	0.322	n/a	n/a
2018	0.226	0.621	0.397	1.095	n/a
2005	0.259	0.612	0.593	1.399	n/a
1990	0.150	0.398	0.689	1.831	n/a

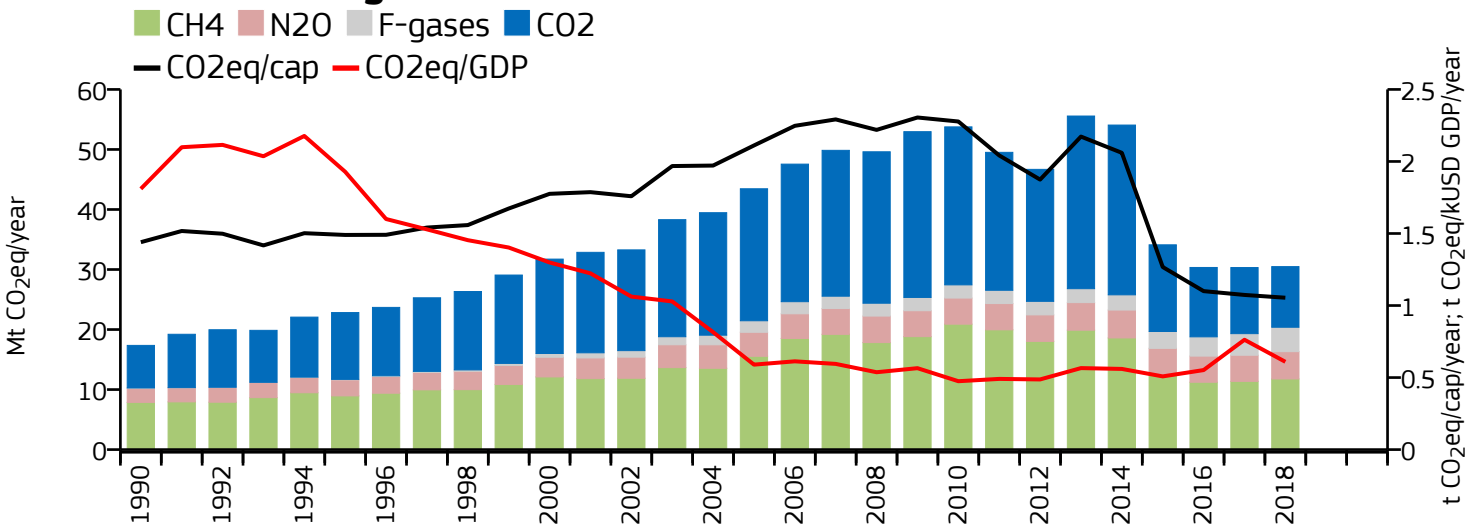
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+11%	+31%	-19%
Other industrial combustion	+131%	+171%	+46%
Buildings	-15%	-1%	-44%
Transport	+30%	+53%	-12%
Other sectors	+54%	+60%	+12%
All sectors	+28%	+56%	+1%

Yemen

Fossil CO_2 emissions by sector



Greenhouse gas emissions

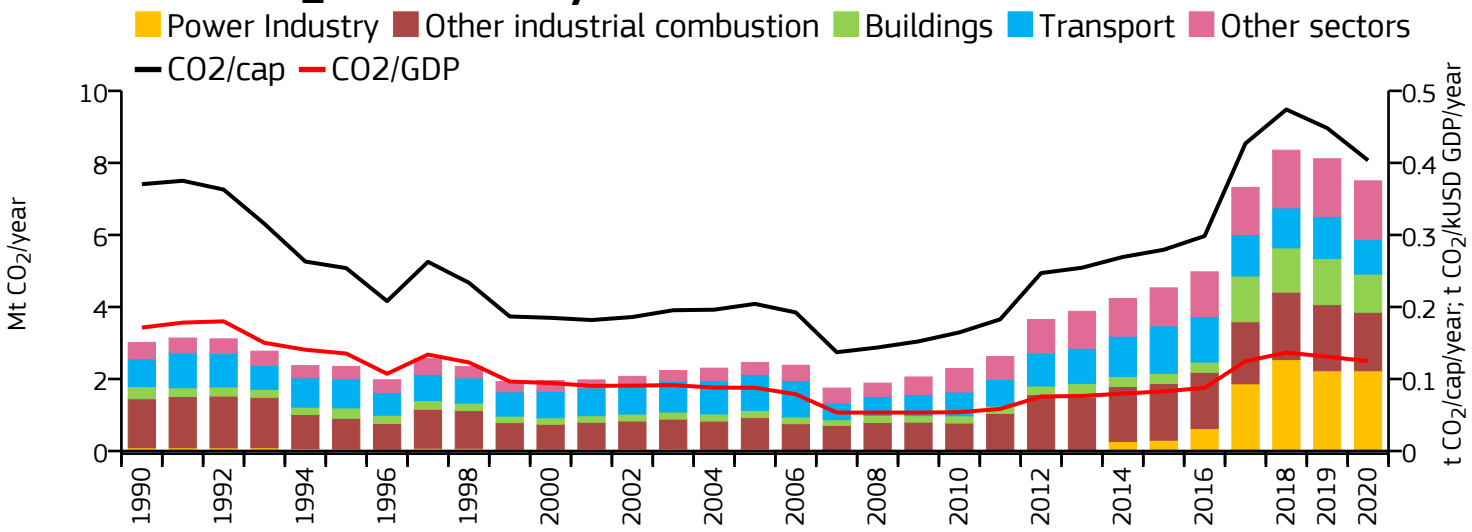


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	10.318	n/a	0.341	n/a	0.207
2018	10.099	30.481	0.349	1.054	0.202
2005	21.989	43.452	1.068	2.111	0.298
1990	7.095	17.358	0.588	1.440	0.740

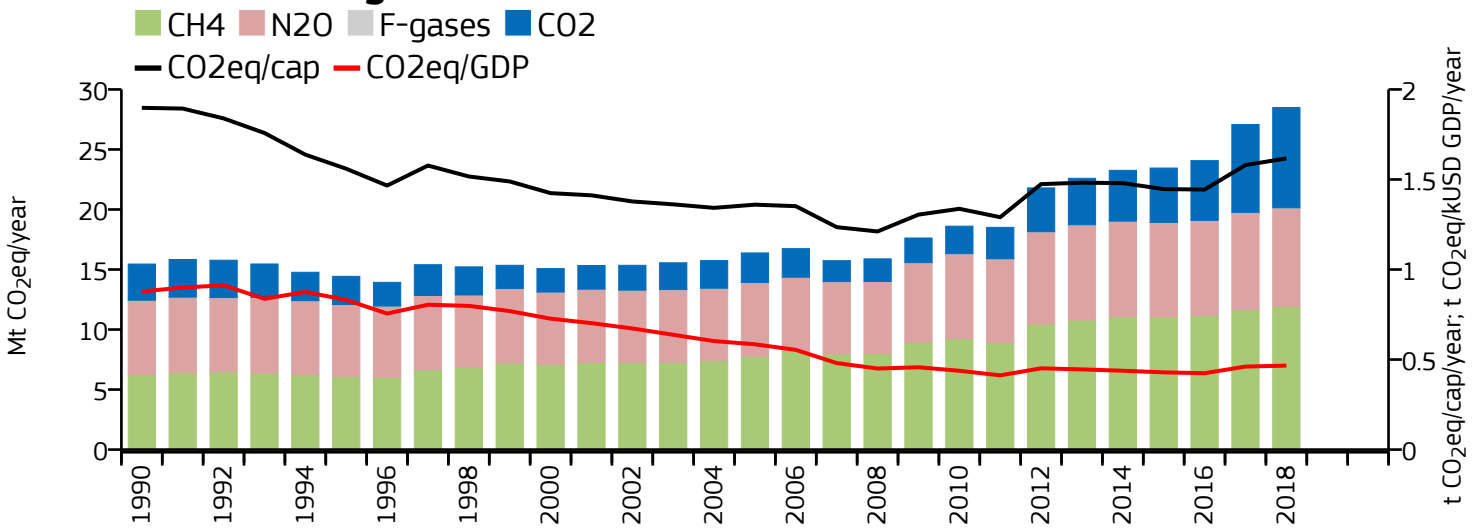
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+93%	+97%	-39%
Other industrial combustion	+213%	+215%	-71%
Buildings	+137%	+149%	-68%
Transport	-40%	-37%	-55%
Other sectors	+248%	+106%	-7%
All sectors	+45%	+76%	-30%

Zambia

Fossil CO_2 emissions by sector



Greenhouse gas emissions

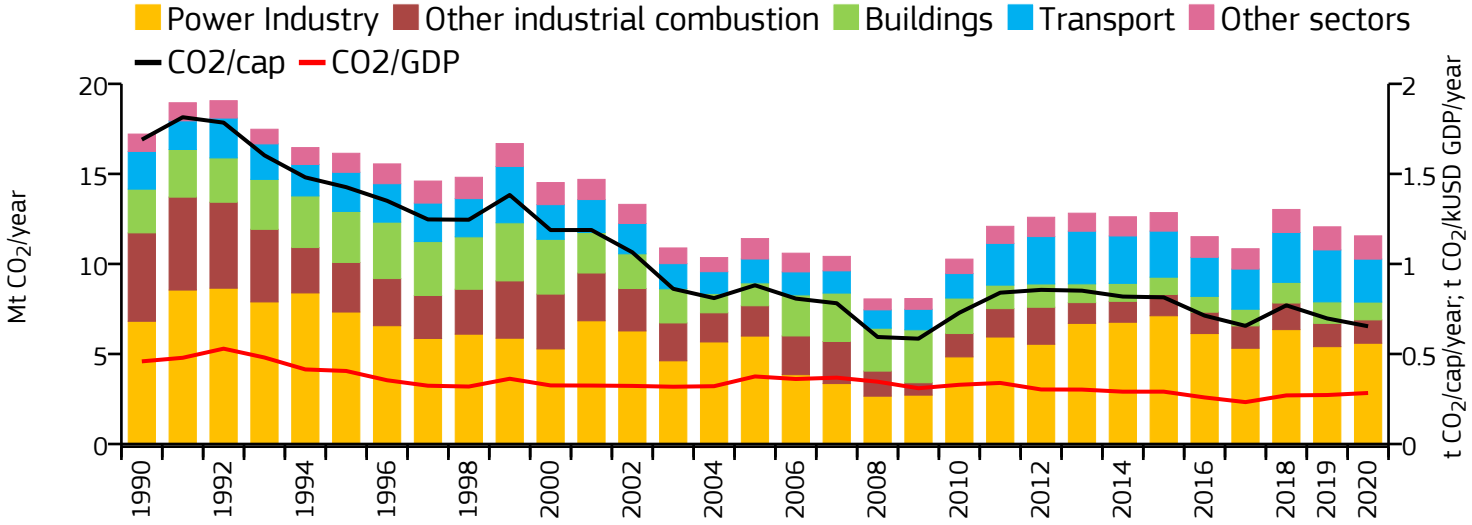


Year	Mt CO_2/yr	GHG: Mt CO_2eq/yr	t CO_2/cap/yr	GHG: t CO_2eq/cap/yr	t CO_2/kUSD/yr
2020	7.501	n/a	0.404	n/a	0.125
2018	8.353	28.490	0.474	1.617	0.137
2005	2.460	16.381	0.204	1.360	0.088
1990	3.016	15.454	0.370	1.898	0.171

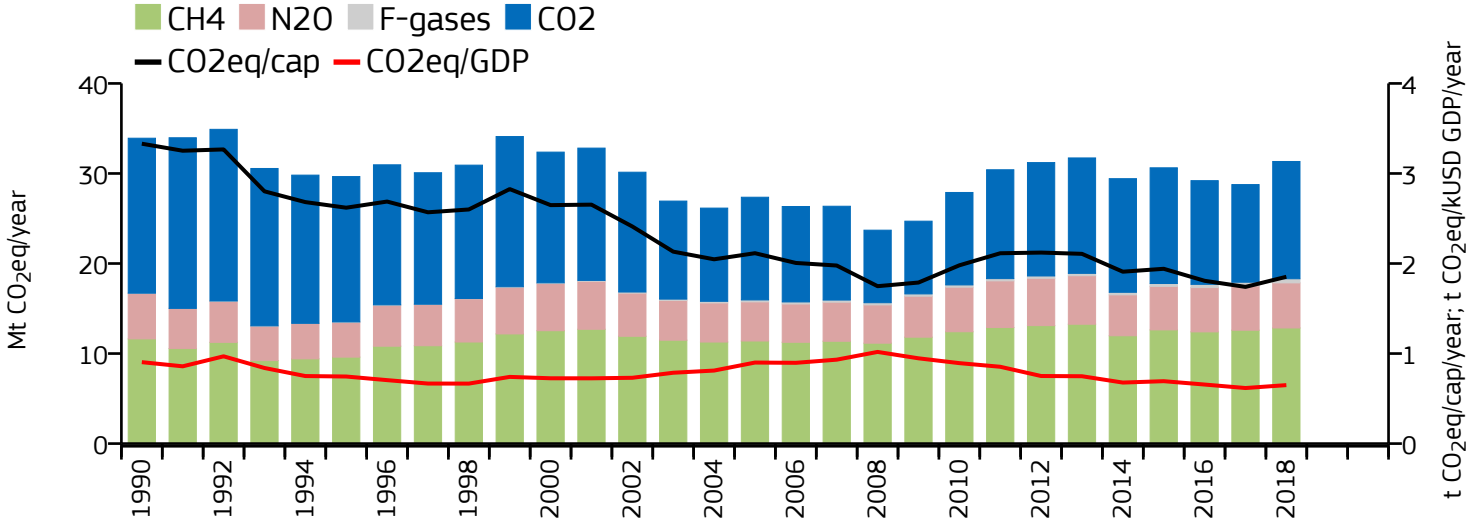
	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	+2293%	+2626%	+4318%
Other industrial combustion	+20%	+44%	+114%
Buildings	+213%	+154%	+112%
Transport	+24%	+43%	+12%
Other sectors	+259%	+65%	+53%
All sectors	+149%	+84%	+74%

Zimbabwe

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
2020	11.559	n/a	0.654	n/a	0.283
2018	13.025	31.332	0.770	1.853	0.270
2005	11.407	27.362	0.882	2.115	0.375
1990	17.212	33.916	1.690	3.331	0.459

	2020 vs 1990 (CO2)	2018 vs 1990 (GHG)	2018 vs 2005 (GHG)
Power Industry	-18%	-7%	+6%
Other industrial combustion	-74%	-70%	-12%
Buildings	-59%	-5%	+15%
Transport	+14%	+31%	+109%
Other sectors	+34%	+6%	+12%
All sectors	-33%	-8%	+15%

Annex 7: CO_2 emissions and removals from LULUCF sector by macro-region

The following macro-regions are presented:

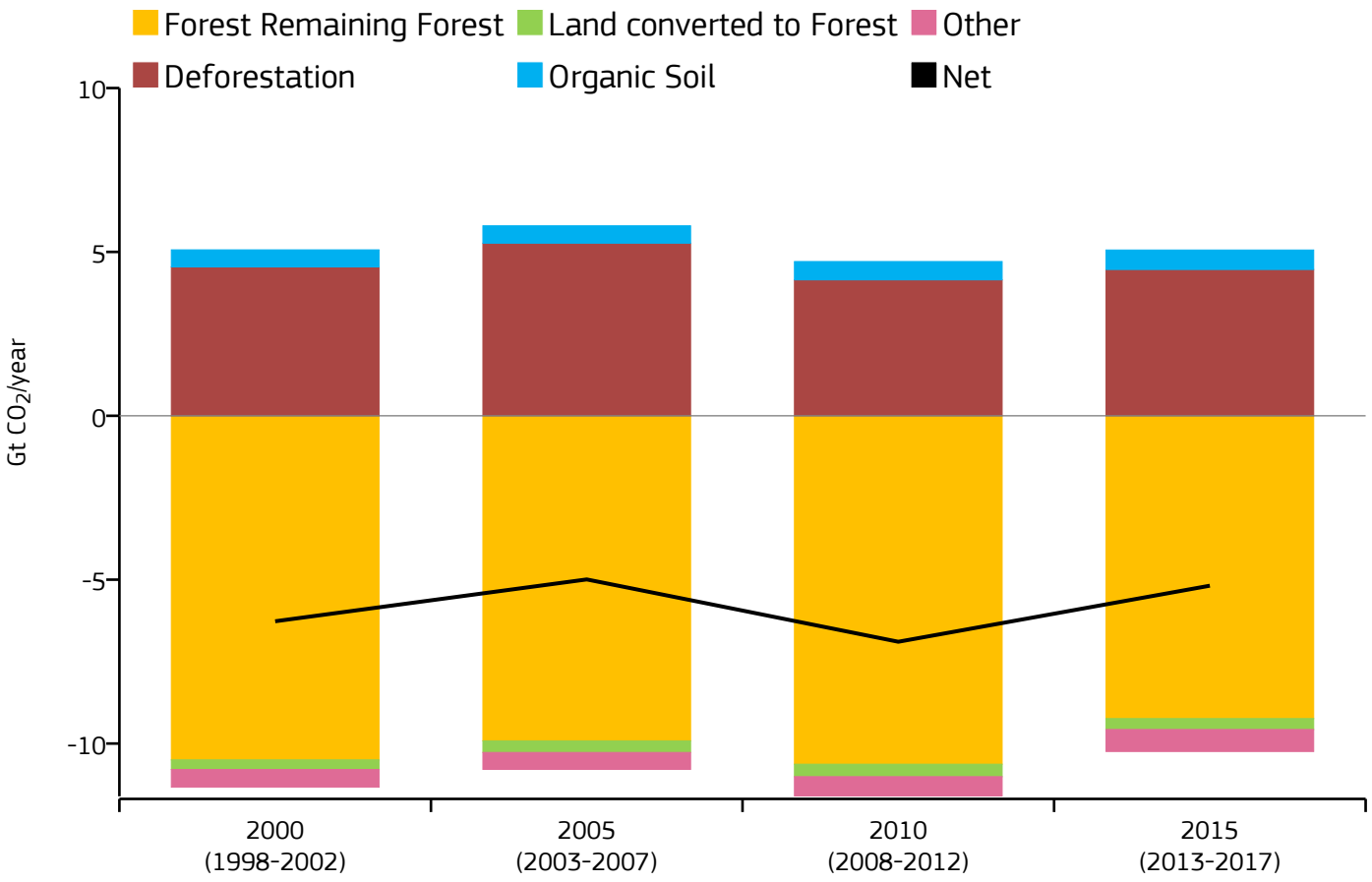
World; EU27; Africa and Middle East; Asia-Pacific developed; Asia and developing Pacific; Eastern Europe and West-Central Asia; Latin America and Caribbean; North America.

For the following LULUCF sectors:

Forest Remaining Forest, Deforestation, Land converted to Forest, Organic Soil, Other and Net.

World

CO_2 emissions and removals from LULUCF sector

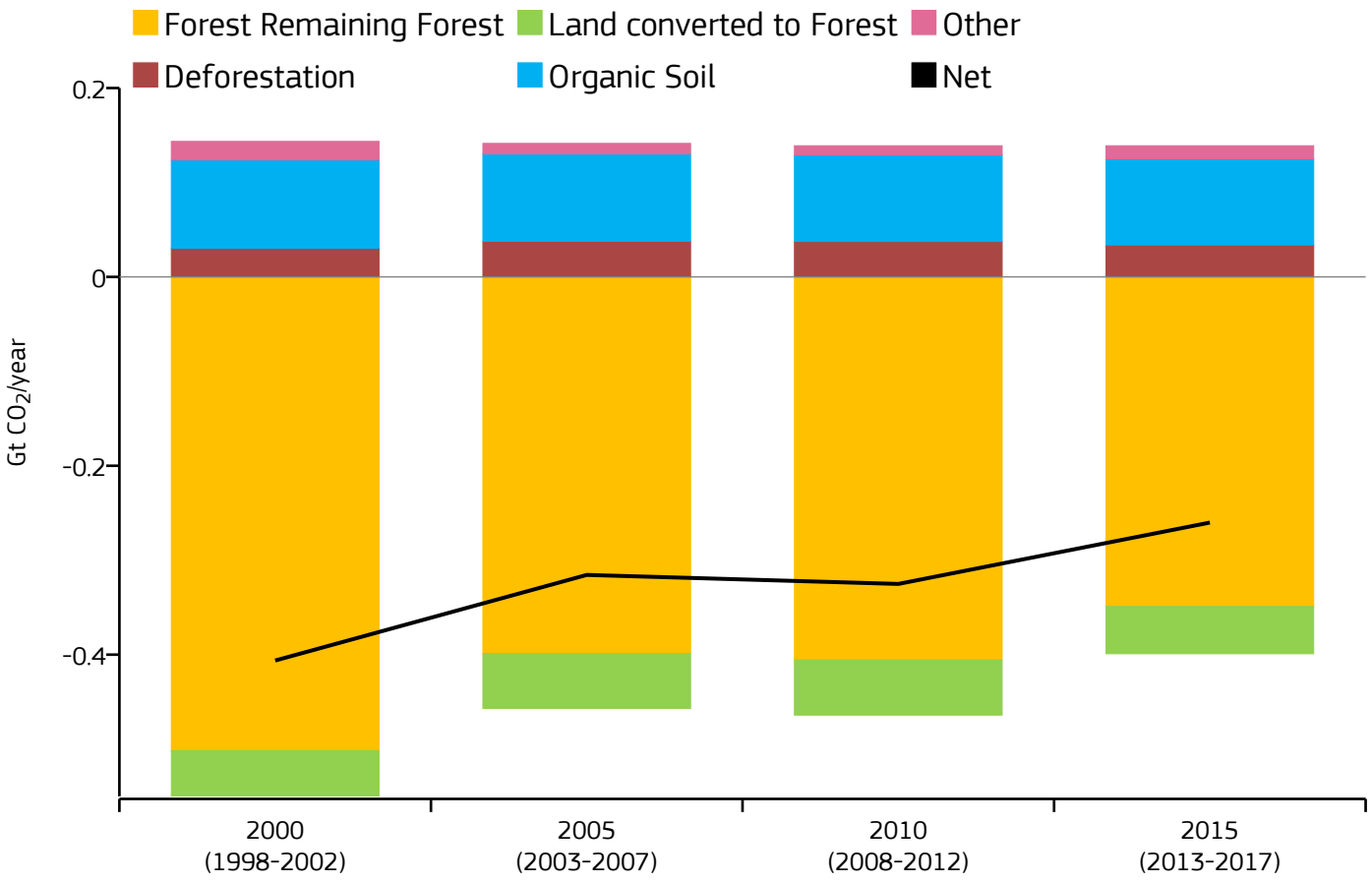


Year	2000	2005	2010	2015
Net flux (MtCO2/yr)	-6.270	-4.993	-6.894	-5.184

Countries included in World:
Abyei; Afghanistan; Aksai Chin; Algeria; Angola; Argentina; Armenia; Arunachal Pradesh; Australia; Austria; Azerbaijan; Bahamas; Bangladesh; Belarus; Belgium; Belize; Benin; Bhutan; Bolivia; Botswana; Brazil; British Virgin Islands; Brunei Darussalam; Bulgaria; Burkina Faso; Burundi; Cambodia; Cameroon; Canada; Cayman Islands; Central African Republic; Chad; Chile; China; China/India; Colombia; Comoros; Congo; Costa Rica; Croatia; Cuba; Cyprus; Czechia; Côte dIvoire; Dem Peoples Rep of Korea; Democratic Republic of the Congo; Denmark; Djibouti; Dominica; Dominican Republic; Ecuador; Egypt; El Salvador; Equatorial Guinea; Eritrea; Estonia; Ethiopia; Falkland Islands (Malvinas); Fiji; Finland; France and Monaco; French Guiana; Gabon; Gambia; Georgia; Germany; Ghana; Greece; Guatemala; Guinea; Guinea-Bissau; Guyana; Haiti; Halaib triangle; Honduras; Hungary; Ilemi triangle; India; Indonesia; Iran (Islamic Republic of); Iraq; Ireland; Israel; Italy, San Marino and the Holy See; Jamaica; Jammu and Kashmir; Japan; Jordan; Kazakhstan; Kenya; Kuril islands; Kuwait; Kyrgyzstan; Lao Peoples Democratic Republic; Latvia; Lebanon; Lesotho; Liberia; Libya; Lithuania; Luxembourg; Madagascar; Madeira Islands; Malawi; Malaysia; Maldives; Mali; Malta; Mauritania; Mexico; Moldova, Republic of; Mongolia; Morocco; Mozambique; Myanmar; Namibia; Nepal; Netherlands; New Caledonia; New Zealand; Nicaragua; Niger; Nigeria; Oman; Pakistan; Panama; Papua New Guinea; Paraguay; Peru; Philippines; Poland; Portugal; Puerto Rico; Qatar; Romania; Russian Federation; Rwanda; Saint Pierre et Miquelon; Saudi Arabia; Senegal; Sierra Leone; Slovakia; Slovenia; Solomon Islands; Somalia; South Africa; South Georgia and the South Sandwich Islands; South Sudan; Spain and Andorra; Sri Lanka; Sudan; Suriname; Sweden; Syrian Arab Republic; Tajikistan; Thailand; Timor-Leste; Togo; Trinidad and Tobago; Tunisia; Turkmenistan; USA; Uganda; United Arab Emirates; United Republic of Tanzania; Uruguay; Uzbekistan; Vanuatu; Venezuela; Viet Nam; West Bank; Western Sahara; Yemen; Zambia; Zimbabwe.

EU27

CO_2 emissions and removals from LULUCF sector

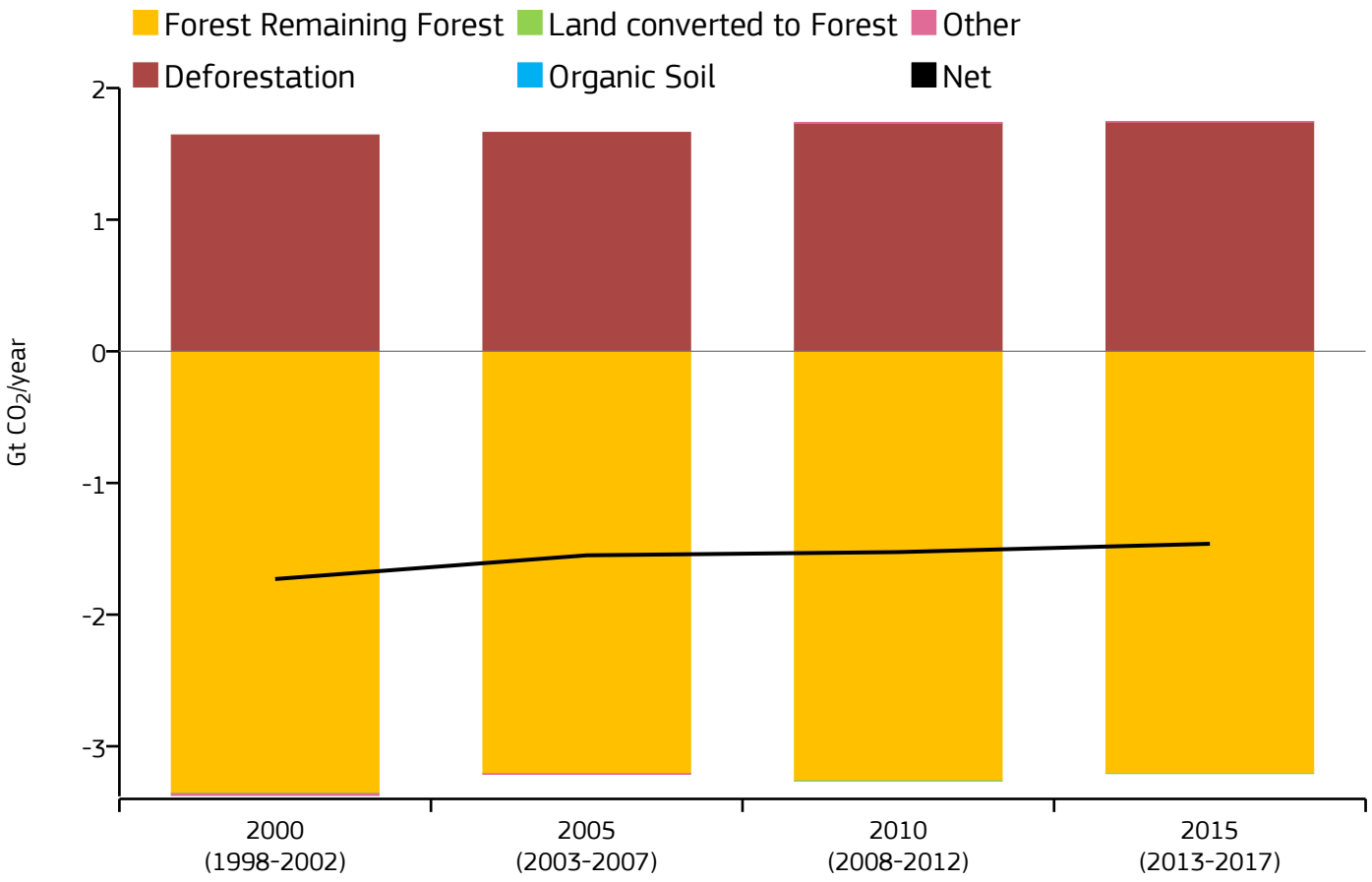


Year	2000	2005	2010	2015
Net flux (MtCO2/yr)	-0.406	-0.316	-0.325	-0.260

Countries included in EU27:
Austria; Belgium; Bulgaria; Croatia; Cyprus; Czechia; Denmark; Estonia; Finland; France and Monaco; Germany; Greece; Hungary; Ireland; Italy, San Marino and the Holy See; Latvia; Lithuania; Luxembourg; Malta; Netherlands; Poland; Portugal; Romania; Slovakia; Slovenia; Spain and Andorra; Sweden.

Africa and Middle East

CO_2 emissions and removals from LULUCF sector

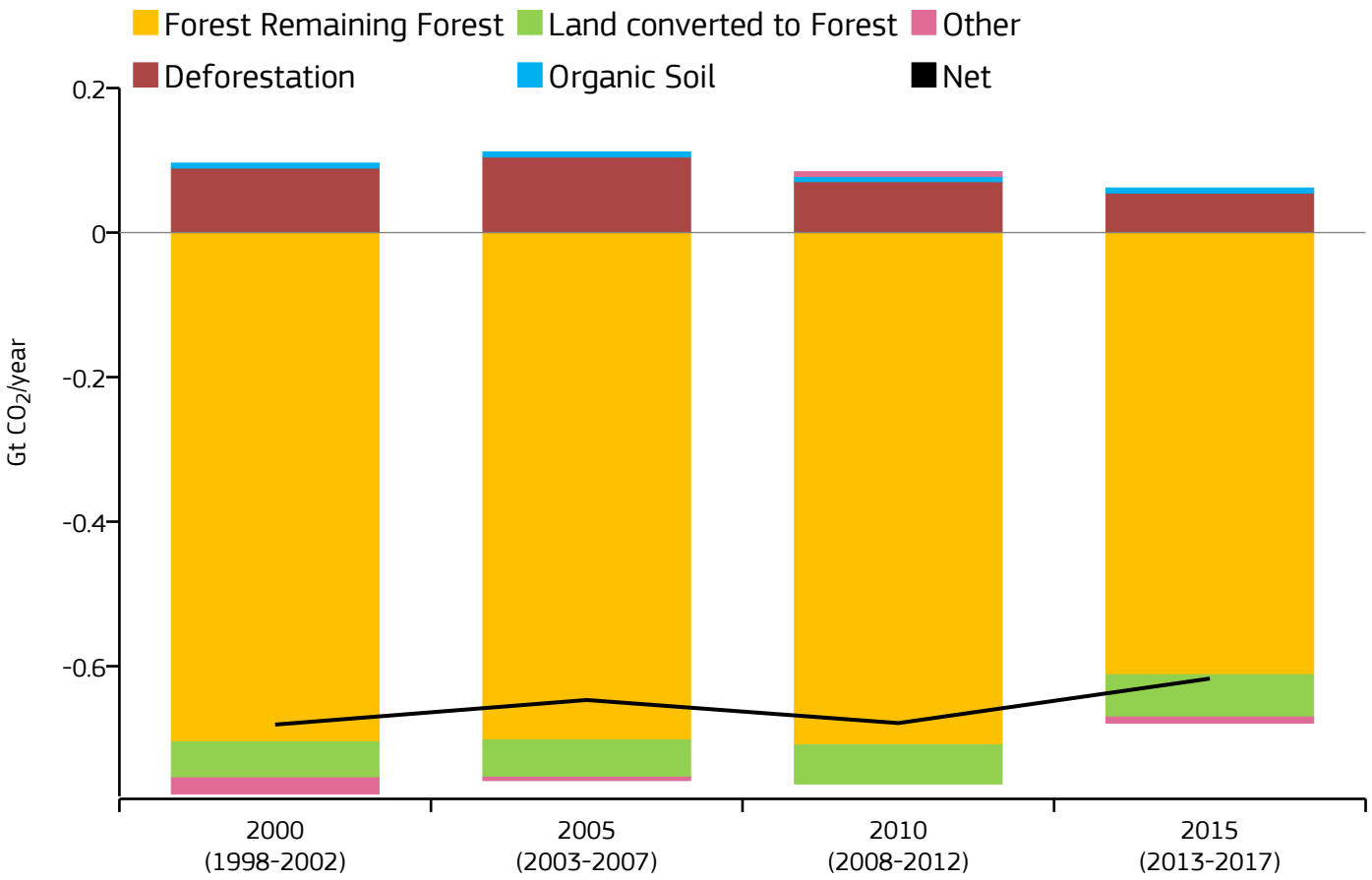


Year	2000	2005	2010	2015
Net flux (MtCO2/yr)	-1.730	-1.549	-1.525	-1.462

Countries included in Africa and Middle East:
Algeria; Angola; Arunachal Pradesh; Benin; Botswana; Burkina Faso; Burundi; Cameroon; Central African Republic; Chad; Comoros; Congo; Côte dIvoire; Democratic Republic of the Congo; Djibouti; Egypt; Equatorial Guinea; Eritrea; Ethiopia; Gabon; Gambia; Ghana; Guinea; Guinea-Bissau; Halaib triangle; Ilemi triangle; Iran (Islamic Republic of); Iraq; Israel; Jammu and Kashmir; Jordan; Kenya; Kuwait; Lebanon; Lesotho; Liberia; Libya; Madagascar; Madeira Islands; Malawi; Mali; Mauritania; Morocco; Mozambique; Namibia; Niger; Nigeria; Oman; Qatar; Rwanda; Saudi Arabia; Senegal; Sierra Leone; Somalia; South Africa; South Sudan; Sudan; Syrian Arab Republic; Togo; Tunisia; Uganda; United Arab Emirates; United Republic of Tanzania; West Bank; Western Sahara; Yemen; Zambia; Zimbabwe.

Asia-Pacific developed

CO_2 emissions and removals from LULUCF sector

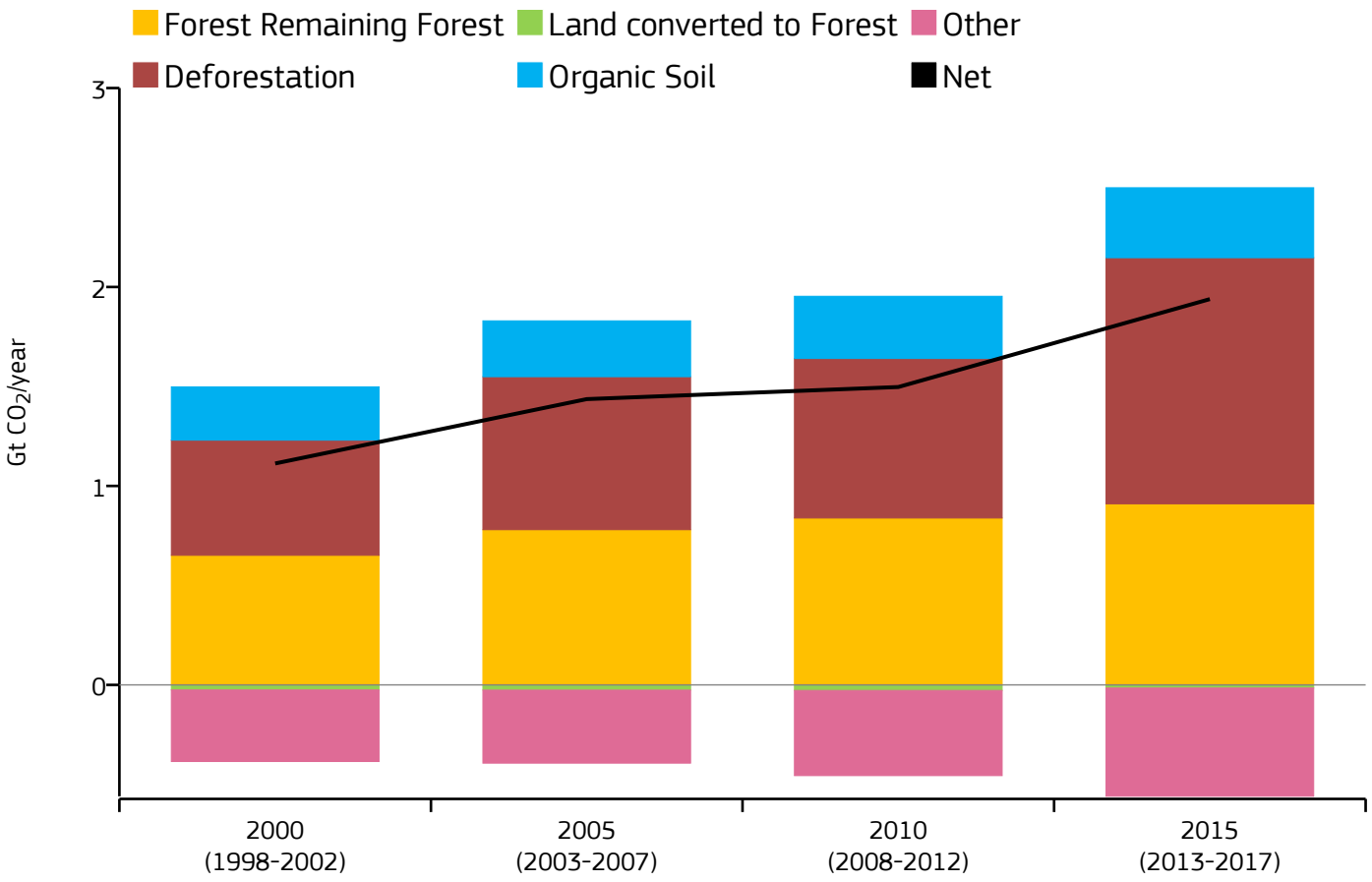


Year	2000	2005	2010	2015
Net flux (MtCO2/yr)	-0.681	-0.647	-0.679	-0.617

Countries included in Asia-Pacific developed:
Australia; Japan; New Zealand.

Asia and developing Pacific

CO_2 emissions and removals from LULUCF sector

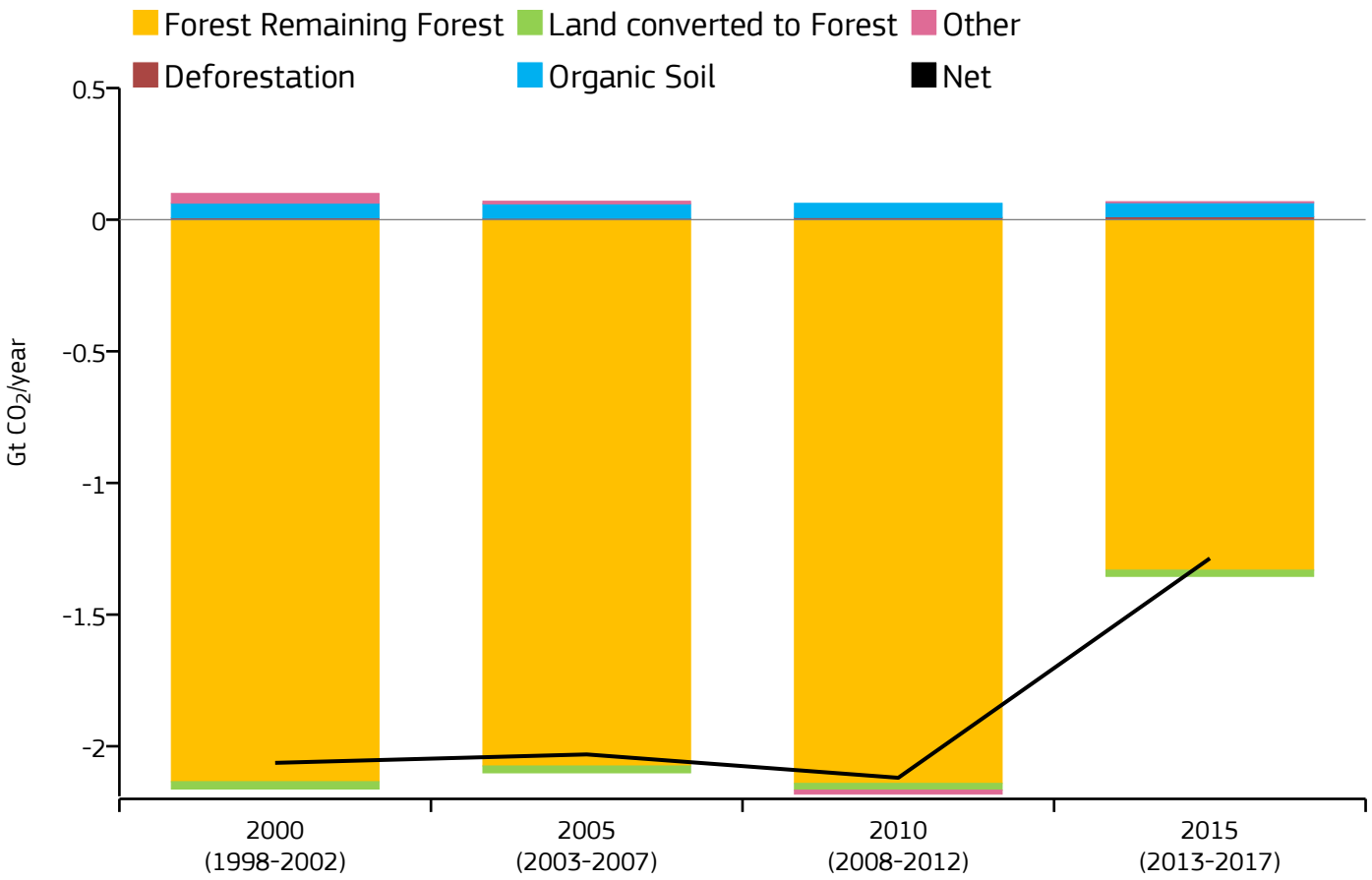


Year	2000	2005	2010	2015
Net flux (MtCO2/yr)	1.113	1.436	1.497	1.939

Countries included in Asia and developing Pacific:
Abyei; Afghanistan; Aksai Chin; Bangladesh; Bhutan; Brunei Darussalam; Cambodia; China; China/India; Dem Peoples Rep of Korea; Fiji; India; Indonesia; Kuril islands; Lao Peoples Democratic Republic; Malaysia; Maldives; Mongolia; Myanmar; Nepal; New Caledonia; Pakistan; Papua New Guinea; Philippines; Saint Pierre et Miquelon; Solomon Islands; Sri Lanka; Thailand; Timor-Leste; Vanuatu; Viet Nam.

Eastern Europe and West-Central

CO_2 emissions and removals from LULUCF sector

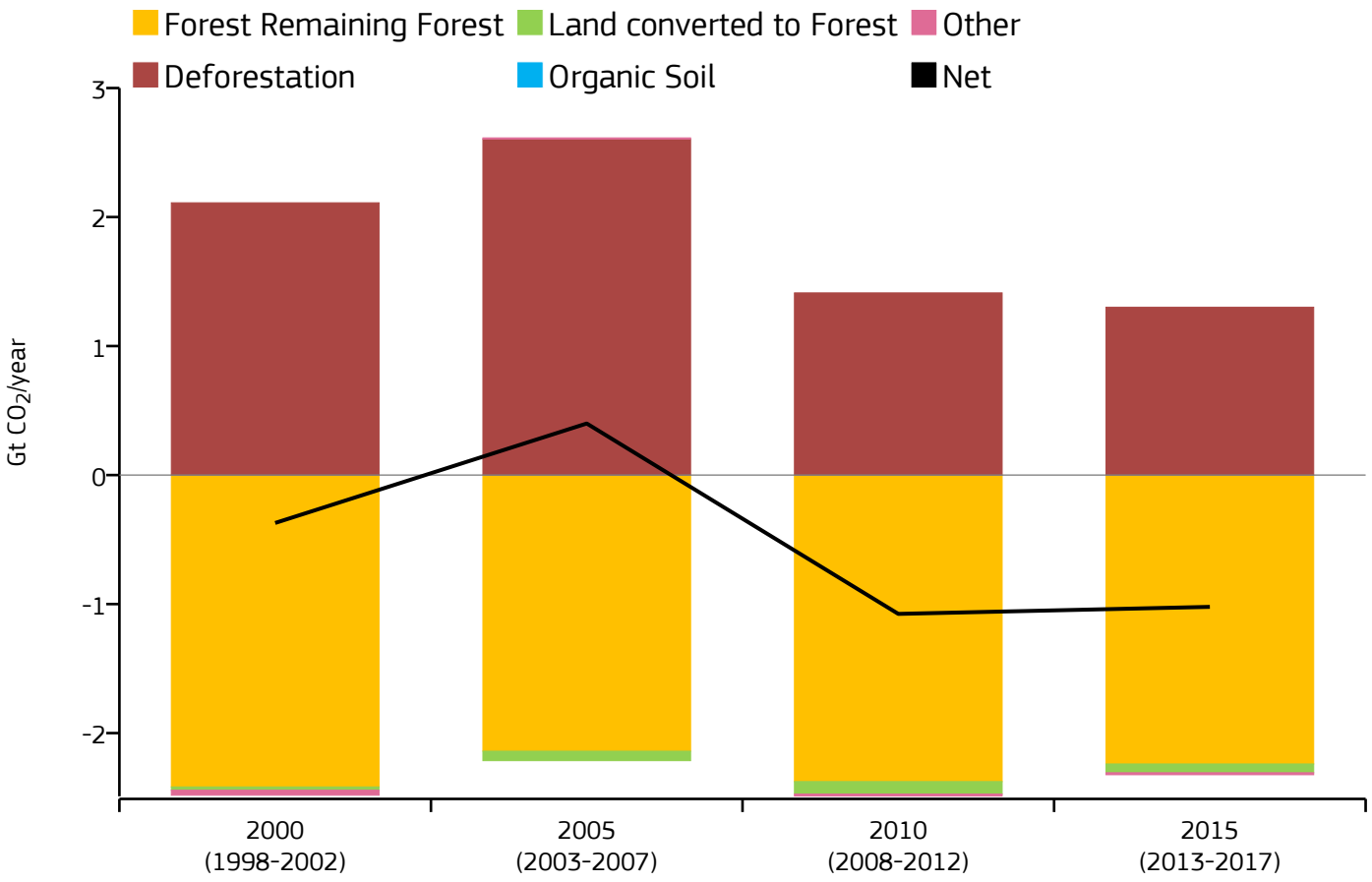


Year	2000	2005	2010	2015
Net flux (MtCO2/yr)	-2.063	-2.031	-2.120	-1.286

Countries included in Eastern Europe and West-Central Asia:
Armenia; Azerbaijan; Belarus; Georgia; Kazakhstan; Kyrgyzstan; Moldova, Republic of; Russian Federation; Tajikistan; Turkmenistan; Uzbekistan.

Latin America and Caribbean

CO_2 emissions and removals from LULUCF sector

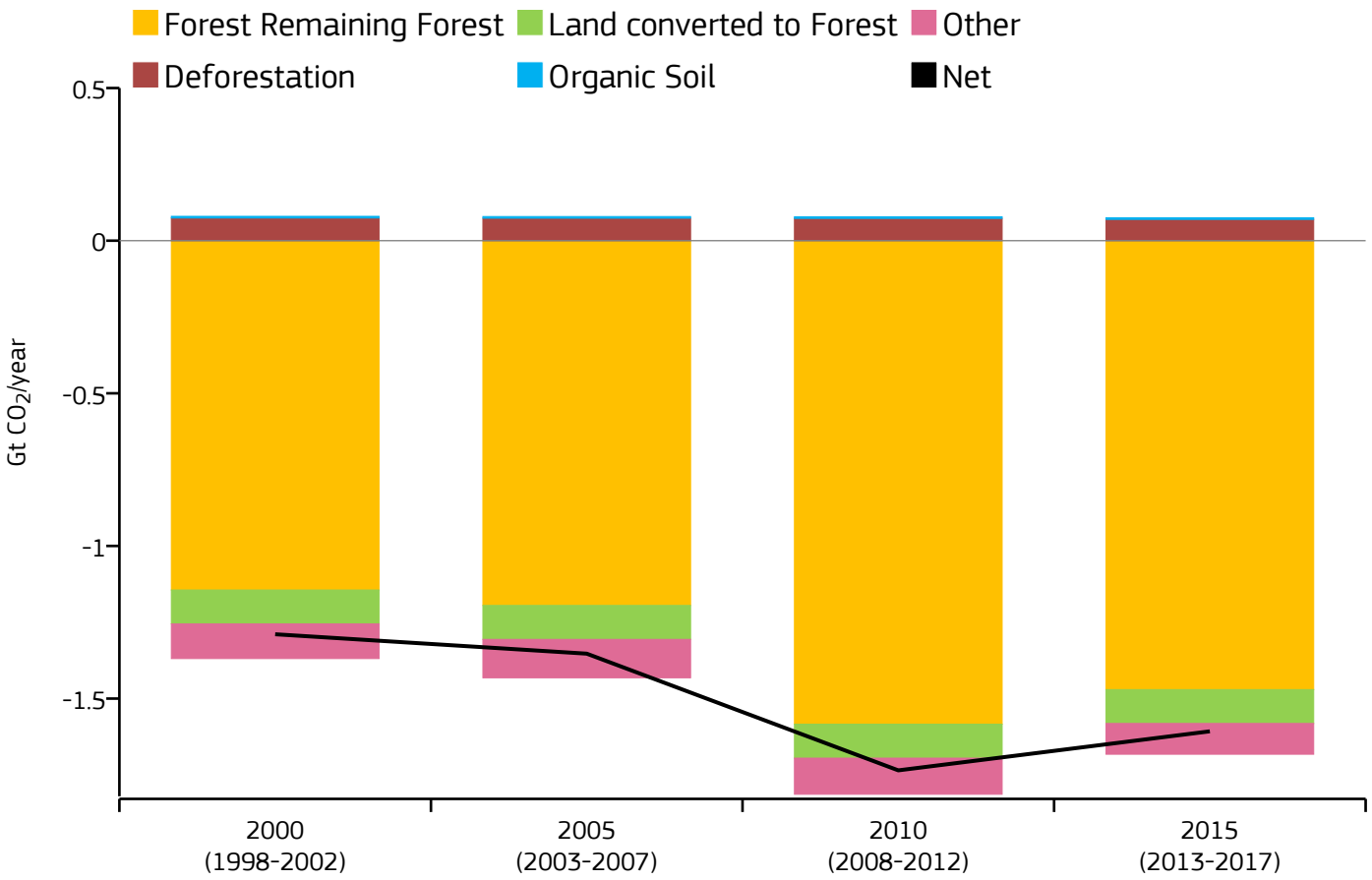


Year	2000	2005	2010	2015
Net flux (MtCO2/yr)	-0.371	0.400	-1.076	-1.022

Countries included in Latin America and Caribbean:
Argentina; Bahamas; Belize; Bolivia; Brazil; British Virgin Islands; Cayman Islands; Chile; Colombia; Costa Rica; Cuba; Dominica; Dominican Republic; Ecuador; El Salvador; Falkland Islands (Malvinas); French Guiana; Guatemala; Guyana; Haiti; Honduras; Jamaica; Mexico; Nicaragua; Panama; Paraguay; Peru; Puerto Rico; South Georgia and the South Sandwich Islands; Suriname; Trinidad and Tobago; Uruguay; Venezuela.

North America

CO_2 emissions and removals from LULUCF sector



Year	2000	2005	2010	2015
Net flux (MtCO2/yr)	-1.289	-1.353	-1.735	-1.607

Countries included in North America:
Canada; USA.

Disclaimer

This publication presents the fossil CO_2 and other GHG emissions from all countries, and CO_2 LULUCF by macro-regions 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 20/07/2021).

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