

Climate action in Greece

Latest state of play

The EU's binding [climate and energy legislation](#) for 2030 requires Member States to adopt [national energy and climate plans](#) (NECPs) covering the period 2021 to 2030. In October 2020, the European Commission published an [assessment](#) for each NECP. Greece submitted its [NECP](#) in December 2019. A high proportion of Greeks ([74 %](#)) expect national governments to tackle climate change.

Greece accounts for 2.4 % of total EU greenhouse gas (GHG) emissions and has reduced its emissions at a higher pace than the EU average since 2005. The carbon intensity of the Greek economy decreased by 23 % from 2005 to 2019, at a slower rate than the EU-27 average.

Energy industry emissions fell by almost 45 % in the 2005-2019 period in Greece, reducing their share of total emissions by 14 %. Further reductions are expected as the country proceeds with phasing out lignite-fired power plants. The sector that showed the greatest percentage reduction in emissions between 2005 and 2019 – 54 % – was manufacturing industries and construction. Transport and agriculture were the sectors with the lowest reductions. Under the Effort-sharing Decision for the 2013-2020 period, Greece needs to reduce its emissions in sectors not included in the EU's emission trading system by 4 %, compared with 2005 levels, and is on track to achieving it.

The share of renewable energy sources in Greece reached 19.7 % in 2019. The country's 2030 target of a 35 % share is focused mainly on changes to the transport and heating and cooling sectors.

Emissions and demographics

In 2019, Greece had 10.7 million inhabitants, accounting for 2.4 % of total EU-27 [population](#).

In 2019 per capita emissions were close to the EU-27 average. The Greek per capita level decreased at a faster rate than overall EU per capita emissions between 2005 and 2015. Aligned with the EU trend, per capita emissions in Greece followed the overall EU decrease from 2016. The gap narrowed however, from 2.0 tCO₂e per capita above the EU average in 2005 to 0.1 tCO₂e per capita below in 2019.

The Greek population has decreased since 2011 and – according to [projections](#) – will remain on that path, in contrast to the overall EU trend of decrease starting only in 2045.

Figure 1 – Total greenhouse gas emissions (tCO₂e) per inhabitant in 2019



Data source: Eurostat demo_pjan and EEA ([GHG trends](#), [GHG estimates](#), [UNFCCC reporting](#)).

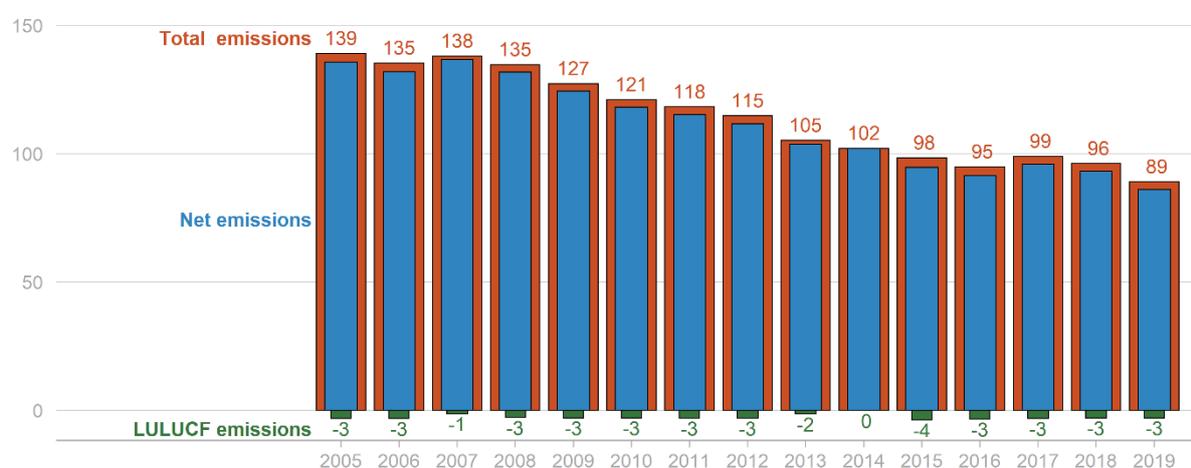
This briefing is one in a series which will cover all EU Member States.

Greece's progress so far

Having recorded net emissions of 86 MtCO₂e in 2019, Greece's emissions make up 2.4 % of the EU total and have decreased by 36 % since 2005. This is above the EU-wide emissions reduction of 19 % in the same period. As land use, land-use change and forestry (LULUCF) emissions remained stable from 2005 onwards, net emissions followed the trend set by total emissions in the country.

Greece's LULUCF carbon sink functions remained stable between 2005 and 2019. The country, supported by the EU's common agricultural policy, is planning to roll out measures to support both the LULUCF and agricultural sectors, such as organic farming, supply chain organisation, waste usage, and increased use of domestic biofuels. The [rural development programme](#) will promote a more intense afforestation process, in order to increase carbon removal from the LULUCF sector. Carbon removal from sinks is expected to continue until 2040.

Figure 2 – Total, LULUCF and net greenhouse gas (GHG) emissions (MtCO₂e)



Data source: EEA ([GHG trends](#), [GHG estimates](#), [UNFCCC reporting](#)).

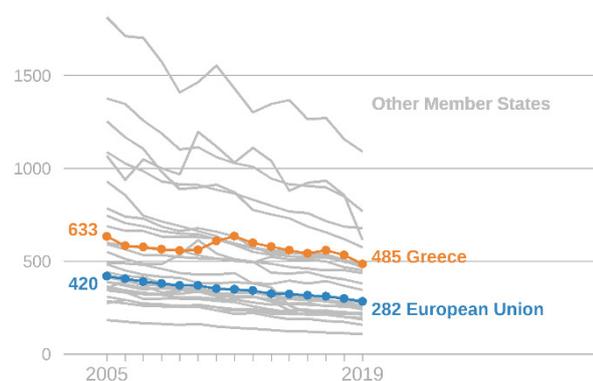
Within the LULUCF sector, it is [expected](#) that forests and forest areas will account for the greatest share of total emissions/removals of all LULUCF categories – they currently account for 56 %. This trend is expected to continue until 2050.

Carbon intensity

In 2019, Greece was the seventh most carbon-intensive economy in the Union, above the EU average by 203 gCO₂e per euro. Taking into account both the evolution of GDP and GHG emissions, decoupling is observable from 2012 onwards, and carbon intensity is expected to fall.

Over the 14-year period, Greece reduced its emissions intensity per unit of GDP by just over 23 %, against the EU average reduction of 33 %. The [impact](#) of the 2009 financial crisis led to an increase in the carbon intensity of the economy in Greece, peaking in 2012. From there onwards the country was able to resume the reduction trend observable from 2005 to 2009.

Figure 3 – Carbon intensity of the economy: GHG emissions (gCO₂e) per unit of GDP (€ in 2015 prices)



Data source: Eurostat Nama_10_gdp [CLV15MEUR] and EEA ([GHG trends](#), [GHG estimates](#), [UNFCCC reporting](#)).

Emissions across the economy

With a 42 % share of the total, energy industries accounted for the largest share of Greece's GHG emissions in 2005. Emissions from energy industries fell by almost 45 % in the 2005-2019 period, reducing their share of total emissions by close to 14 %. According to the [NECP](#), the year 2023 will see the closure of all currently operating lignite-fired power plants, while those still under construction will have until 2028 to close or adapt to new fuel sources. It is therefore [expected](#) that gas-fired plants will play a strengthened role in the country's energy supply.

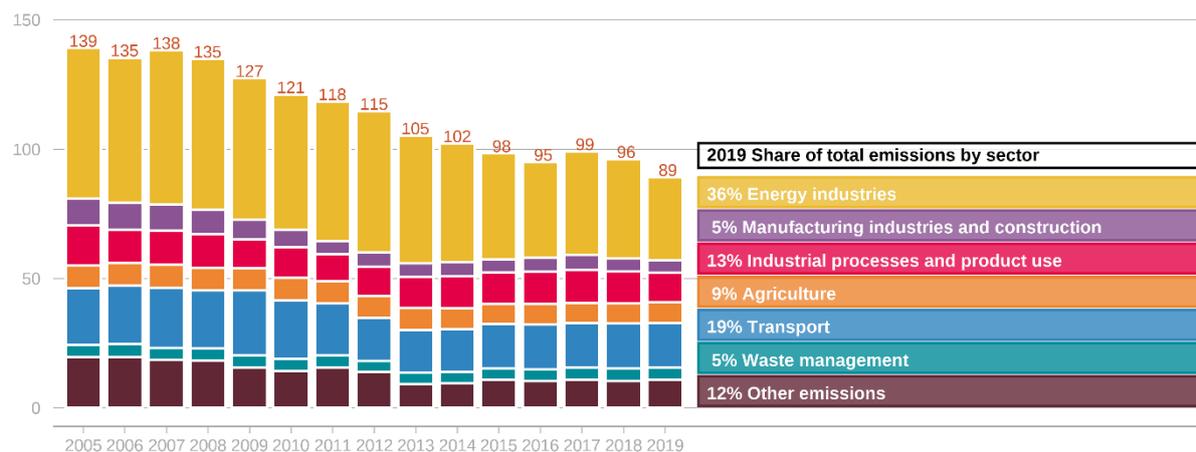
The biggest emissions reduction was in the manufacturing industries and construction sector, which reduced its share of total emissions over the period from 7.4 % to 5.3 %. This translates into a 54 % reduction in emissions since 2005 or 5.5 MtCO₂e.

The sectors with the lowest emissions reductions between 2005 and 2019 were agriculture and transport (13 % and 21 % respectively). Emissions linked to waste management increased by 0.4 %. In combination, these sectors' share of total emissions grew from 25.6 % in 2005 to 33.5 % in 2019.



The lignite-fired Agios Dimitrios power station is expected to withdraw all five of its operating units by 2023.

Figure 4 – Total GHG emissions by sector (MtCO₂e) (rounded data)



Data source: EEA ([GHG trends](#), [GHG estimates](#), [UNFCCC reporting](#)).

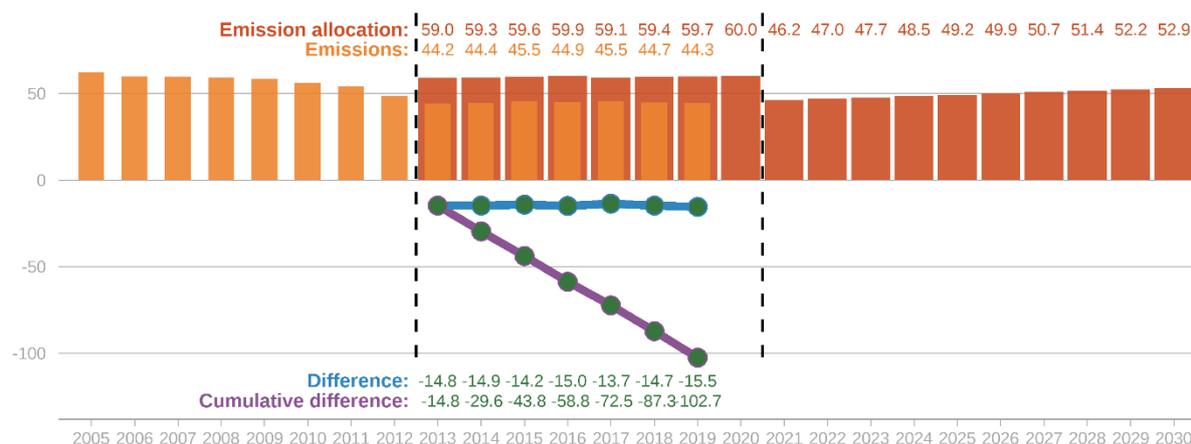
The EU-wide [emissions trading system](#) (ETS) covers emissions from electricity generation and industry. Total [GHG emissions](#) in Greece are expected to decrease to 60.6 MtCO₂e in 2030. This decrease is being driven mostly by the power sector through the reduction in diesel-fired plants and the phasing-out of lignite as a power source, in combination with an expected increased use of renewable energy sources. Greece's ETS-related emissions are [forecast](#) to be 19 MtCO₂e in 2030, as the ETS sectors continue to account for the majority of emission reductions. This will represent a 22 and a 13 percentage point reduction in the share of total GHG emissions compared with 2005 and 2020 values respectively from the sectors covered by the EU-ETS.

As was already the case from 2005 to 2019, it is [expected](#) that CO₂ emissions relating to agriculture and the tertiary sectors – covered by the 'other emissions' category – will remain stable over the next decade. [Measures](#) to reduce emissions from the agricultural sector include the promotion of sustainable food production and sustainable farm management. For the [tertiary sector](#), emissions will be reduced through action on lighting, street lighting, heat pump installation, and improved efficiency of end-use appliances.

Effort-sharing achievements

EU effort-sharing legislation covers emissions from sectors not included in the ETS, such as transport, buildings, agriculture and waste. The Effort-sharing Decision (ESD) for the 2013-2020 period requires Greece to decrease its non-ETS GHG emissions by 4 %, compared with 2005. Since the beginning of the ESD period, Greece has always remained below its allocated emissions target. For the 2021-2030 [Effort-sharing Regulation](#) (ESR) period, Greece must reduce its emissions by 16 % compared with 2005 levels. Adding to this target, the Commission's assessment of the NECP states that Greece could achieve up to a 33 % reduction, a 17 percentage point over-achievement, with full implementation of planned policies and measures. At its current pace, the country will begin the ESR period with lower emissions than those allocated for the year 2021.

Figure 5 – Greece's emissions under Effort-sharing Decision/Regulation (MtCO₂e)



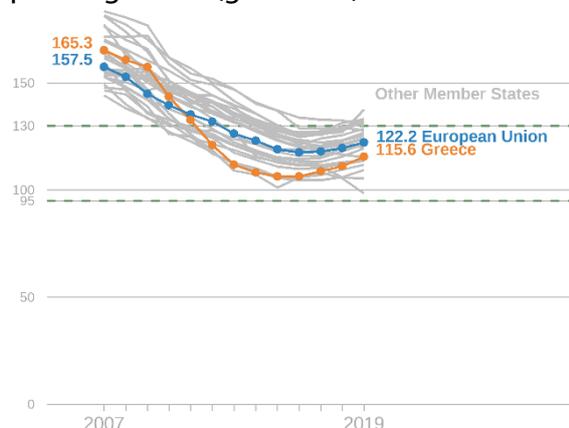
Data source: Commission [ESD allocation](#), [EUR-Lex](#) and [EEA](#), figures display rounded data.

Of the sectors covered by effort-sharing legislation, transport and buildings are Greece's biggest sources of emissions. A long-term strategy for the renovation of the country's building stock will address nearly 600 000 buildings and building units (12 % to 15 % of the country's total), with energy efficiency upgrading as the main objective. This is to be achieved by implementing energy management systems, improving existing measures, such as mandatory solar thermal systems in new and renovated buildings, by introducing incentives (tax, financial and town planning) and also by recycling construction and demolition waste.

The transport sector will have a relatively modest impact in achieving the overall GHG emissions reduction targets, according to the Commission's [assessment](#) of the NECP. Emission [reductions](#) in the sector are to be achieved by reducing the cost of small-scale electricity storage technologies and alternative fuels, and by introducing smart infrastructures for electromobility and advanced biofuels.

The average [emissions of new passenger cars](#) have been below the EU-27 target ceiling of 130 gCO₂/km and below the EU average since 2011. However, with numbers rising since 2016, Greece remains a considerable distance from the new 2021 EU-27 target ceiling of 95 gCO₂/km.

Figure 6 – Average emissions: New passenger cars (g CO₂/km)



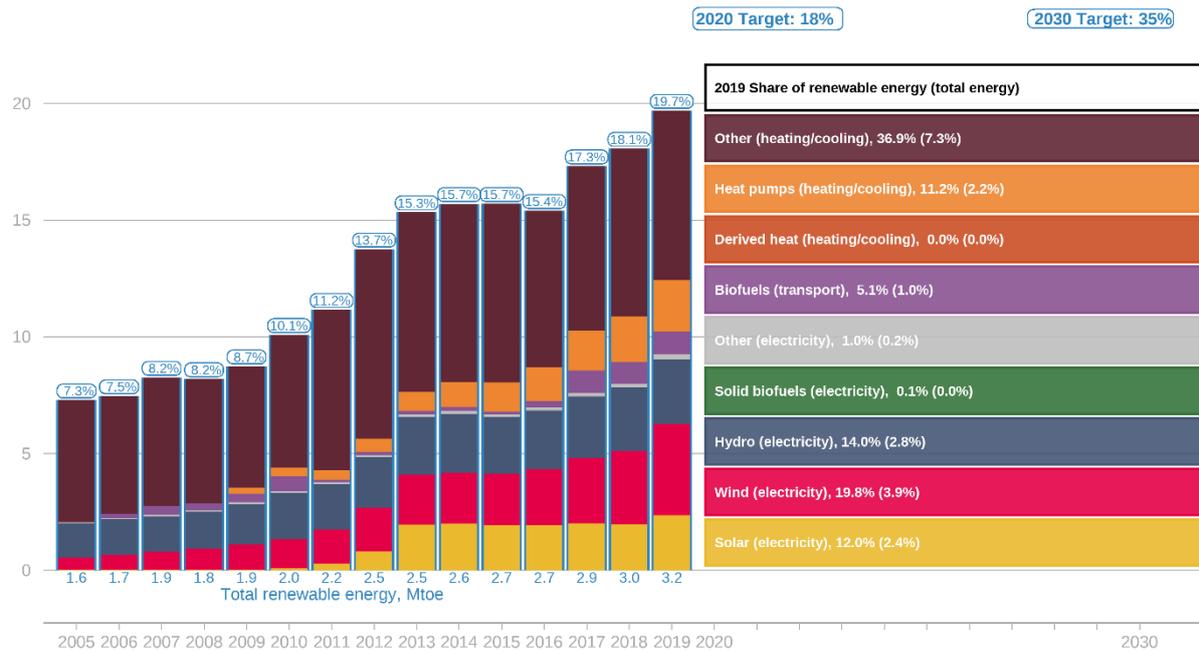
Data source: [EEA](#) and Eurostat sdg_12_30.

Energy transition

Renewable energy

Greece increased its [renewable energy](#) share of gross final energy consumption by 12.4 percentage points between 2005 and 2019. To meet the 2030 target, the renewable energy share of gross energy consumption has to rise from 19.7 % to 35 % in just over a decade. In its assessment of Greece's NECP, the Commission finds the indicative target of 35 % renewable energy (RE) in the energy mix to be sufficiently ambitious.

Figure 7 – Renewable energy share of gross final energy consumption



Data source: Eurostat ([shares tool](#)), [NECP 2030 targets](#) and [EEA](#).

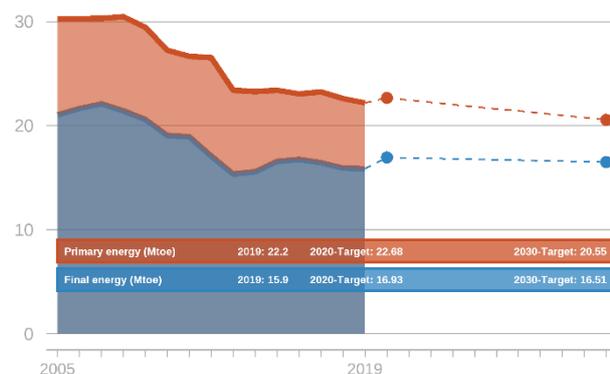
In order to reach the 2030 target, Greece has set [objectives](#) for the minimum renewable energy share in different sectors: 60 % of gross final electricity consumption, 40 % in heating and cooling, and 14 % in transport.

Energy efficiency

The European Commission has assessed Greece's 2030 primary and final energy consumption targets as modest and low in ambition, respectively. Nevertheless, the Commission acknowledges the application of the [energy efficiency first principle](#).

The final NECP focuses on measures to address the issue mostly through the buildings and transport sectors. The Commission notes that the plan is an improvement on the draft NECP but still lacks ambition in its targets.

Figure 8 – Energy efficiency: Primary and final energy consumption (Mtoe)



Data source: Eurostat nrg_bal_s, [NECP 2020 + 2030 targets](#) and [EEA](#).

Outlook: Plans and policies

In March 2021, Greece introduced its [long-term renovation strategy](#). This document is based on the latest available data on the country's building stock (2011) and takes into consideration the age and number of buildings, the climatic zones where they are located and their energy consumption levels and characteristics. Government support for private individuals will come in the form of subsidies for each investment, up to 85 % of the investment or €50 000 per household. Upgrades to building or building unit insulation, energy autonomy interventions, and installation of charging points for electric vehicles all fall within the scope of the planned subsidies.

Greece is the seventh country in the world and third in the EU-27 when it comes to [lignite production](#). Although it is cheap to mine, the lignite produced in Greece is of a poor quality, making the cost of energy production very high. Greece still has one lignite-fuelled power plant under construction, but it has already committed to potentially switch to gas by 2028. By 2023, seven lignite-fuelled power generation sites will be [closed](#). This represents an installed capacity of 2.8 GW.

In December 2020, to help reach its targets for the renewable energy share of total energy consumption, the Greek government [approved](#) a set of four projects, which in combination combined could produce 2.8 GW from renewable energy sources. The projects relate to solar photovoltaic parks and stations, with an investment of €1.31 billion, and also to wind power investments, costing €706 million. By the end of 2020, 1 200 projects had been submitted, representing 24 GW produced from renewable energy sources.

MAIN REFERENCES

Hellenic Republic, [National energy and climate plan](#), December 2019.

European Commission, Assessment of the final national energy and climate plan of Greece, [SWD\(2020\) 907 final](#).

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eprs@ep.europa.eu (contact)

www.eprs.ep.parl.union.eu (intranet)

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