

Climate action in Bulgaria

Latest state of play

EU legislation requires Member States to adopt [national energy and climate plans](#) (NECPs) for the 2021-2030 period in order to contribute to the EU's binding climate and energy targets for 2030. Each individual final NECP has been assessed by the European Commission. The [assessments](#) were published in October 2020. A high proportion of Bulgarians ([61%](#)) expect national governments to tackle climate change.

Bulgaria submitted its [final NECP](#) in March 2020, taking into consideration the recommendations of the Commission on the draft report. In the 1990s, Bulgaria experienced structural economic changes relating to its transition to a market-based economy. In 1990, the country accounted for [total emissions](#) of 103 million tonnes of CO₂-equivalent (MtCO₂e) (excluding land use, land use change and forestry (LULUCF) and including international aviation). In 2005, its total GHG emissions decreased by 37 % compared with 1990, while in 2019 they were 44 % below the 1990 level. Bulgaria's NECP identifies several reasons for the reduction in total GHG emissions. These include: structural changes in industry, such as the decline in energy-intensive enterprises, an increased share of hydro and nuclear electricity, implementation of energy efficiency measures in the housing sector, and a shift from solid and liquid fuels to natural gas in energy consumption. However, according to the [country report](#) under the 2020 European Semester, Bulgaria is the most GHG-intensive economy in the European Union, and coal is still the main source of energy.

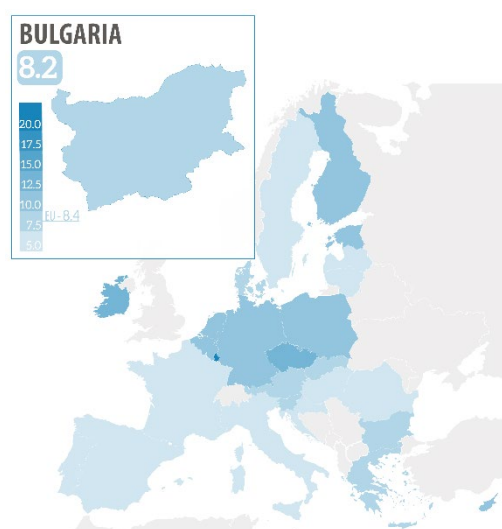
Emissions and demographics

In the European Union, over the 2005-2019 period, [average GHG emissions per inhabitant](#) decreased from 10.8 tonnes CO₂e to 8.4 tonnes CO₂e.

Since 2005, Bulgaria's per capita GHG emissions have fluctuated below the EU average. However, going against the EU trend, by 2019 there was no significant decrease compared to the 2005 level (8.4 tonnes in 2005 and 8.2 tonnes in 2019 per person) with [variations from year to year](#) (between 9.2 tonnes per person in 2007 and 7.7 tonnes in 2013). In 2019, average carbon emissions per capita decreased slightly compared with 2018 (8.3 tonnes).

Since the end of the 1980s, Bulgaria has suffered a serious demographic crisis. Between 1990 and 2019, the population decreased by 20.1 %, according to [Eurostat](#). The constant fall in the population, observed over the last 20 years, is [expected to continue](#).

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



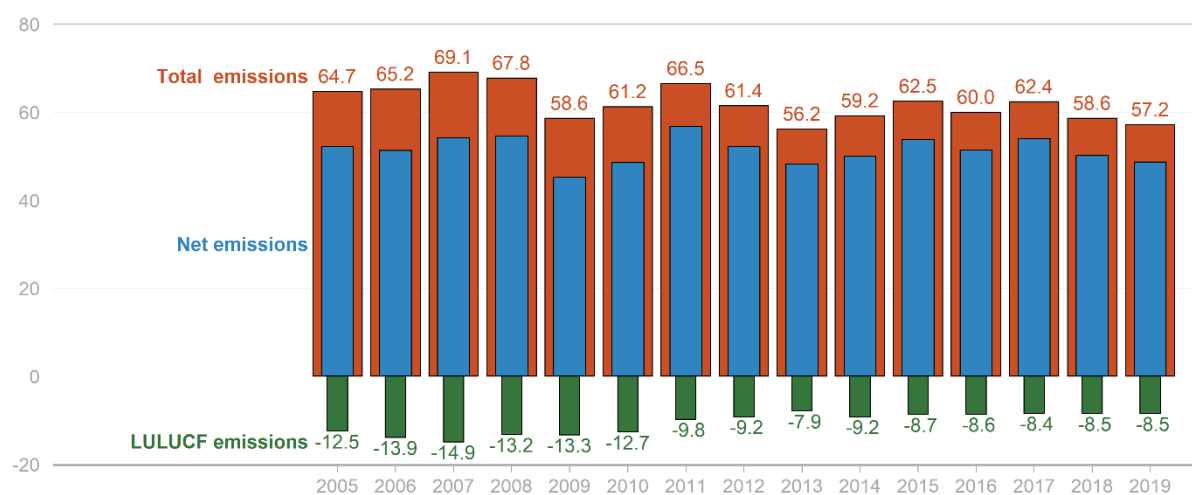
Source: EPRS illustration using EEA data (2019).

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

Bulgaria's progress so far

In 2019 Bulgaria accounted for 57.2 MtCO₂e in total emissions (excluding LULUCF and including international aviation) achieving a reduction of 11.6 % compared with 2005 and 44.4 % compared with 1990, while [EU-27 total GHG emissions in 2019](#) were 19 % below 2005 levels and 24 % below 1990 levels. Bulgaria's total emissions also fell by 6.1 % from 2017 to 2018 and by 2.4 % from 2018 to 2019. Including reported removals from its LULUCF sectors, Bulgaria emitted 48.7 MtCO₂e in 2019, a reduction of 6.7 % compared with 2005.

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



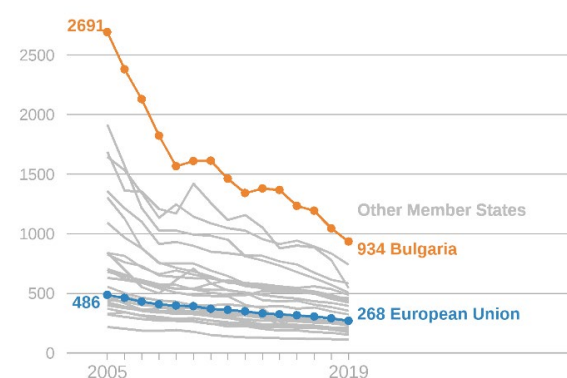
Source: EPRS illustration using EEA data.

Since 2005, Bulgaria has been reporting a net carbon sink from its LULUCF sectors. The main sector contributing to GHG emission removals is forestry. However, the carbon sink functions of forests and land-use are slowly decreasing. The main reason for the fall in removals from forest land, identified in Bulgaria's NECP, is the lower growth rate of forests owing to their average age. The plan however assumes that in the LULUCF sector the accounted emissions would not exceed the accounted removals (no-debit commitment) owing to afforestation efforts.

Emissions intensity

The carbon intensity of the Bulgarian economy more than halved between 2005 and 2019. For each euro generated in the economy, the country emitted 934 grams of CO₂e in 2019, compared with 2 691 grams of CO₂e per euro in 2005. However, the ratio of GHG emissions to GDP remains the highest in Europe. Although [GDP growth has remained strong](#) since 2015 (with annual growth at over 3 % prior to 2020) and emissions have tended to go down slightly, additional measures would be needed to decouple economic growth and emissions sustainably. Bulgaria's NECP aims to further reduce the carbon intensity of the economy through energy transformation, mainly increasing energy generation from renewable sources and improving energy efficiency.

Figure 3 – Carbon intensity of economy – GHG emissions (grams CO₂e) per GDP (euro)



Source: EPRS illustration using data from Eurostat (Nama_10_gdp), EEA.

Emissions across the economy

In the EU-27, energy supply and transport have always been the [biggest emitters](#) of GHG emissions.

Between 2005 and 2019, the energy sector remained the main source of GHG emissions in Bulgaria with the highest share in total emissions. In 2019, energy producers emitted 22.3 MtCO₂e, i.e. a share of 39%, which is a slight decrease compared with 2018 (40%), followed by transport (16%), industrial processes and product use (12%), and agriculture (11%).

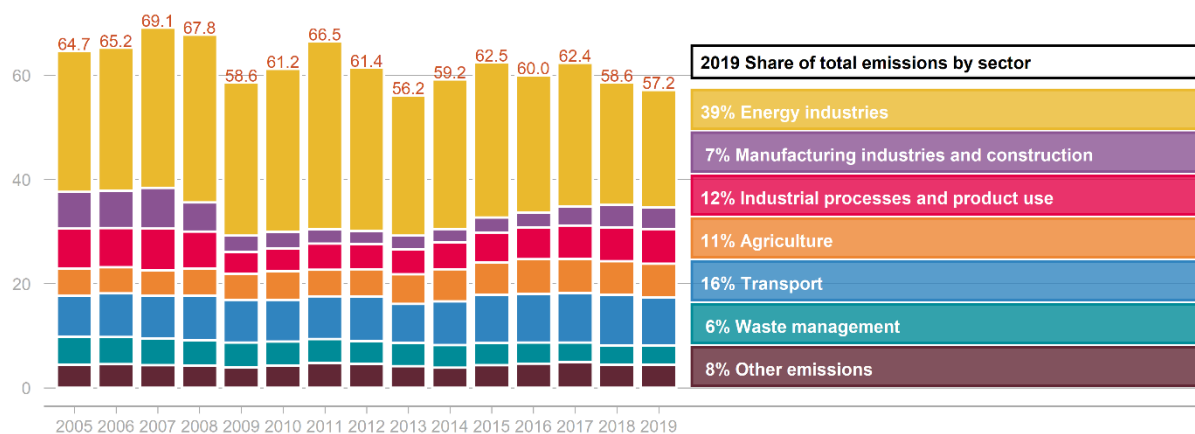
In order to decarbonise the energy sector, Bulgaria's NECP highlights measures relating to renewable sources, energy efficiency, the internal market and energy security. Additional measures could also lead to progressive GHG emissions reduction, such as transition from coal to natural gas, increasing the share of heating and cooling from renewable sources, reducing losses in transmission networks, use of non-conventional fuels for primary energy production, and policies and measures in the household and public sectors.



Coal-fired generation of electricity and heat contribute to over 90 % of GHGs in the energy sector.

While the absolute values of emissions from the energy sector tended to decrease over the period, although showing year-to-year variation, the country has not yet been able to curb the growth of emissions in the transport sector. Road transport is considered a key category, owing to the large amount of CO₂ emissions from the use of diesel, petrol and LPG. In May 2017, Bulgaria adopted its [Integrated Transport Strategy for 2030](#). As regards decarbonisation, some of the measures aim to increase the share of public electric transport; promote the use of electric and hybrid vehicles; create low-emission zones in large cities; introduce intelligent transport systems; and incentivise modal shift. However, further measures have to be decided on to improve the sustainability of the transport sector by developing public investment projects and promoting private investment.

Figure 4 – Total GHG emissions by sector (MtCO₂)



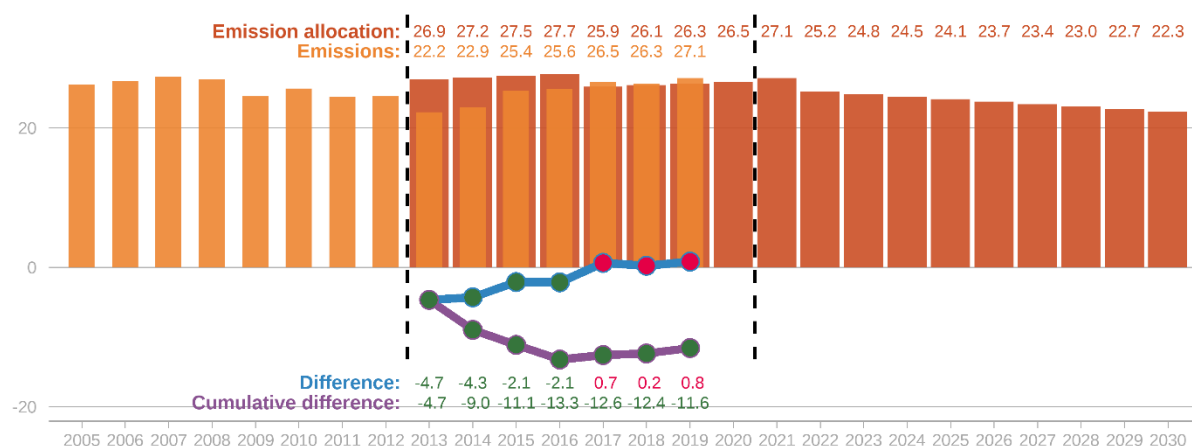
Source: EPRS illustration based on EEA data.

The waste management sector showed a constant decrease in GHG emissions and the lowest share of total emissions in 2019. However, the NECP considers that there is room for improvement as regards waste prevention, separate collection, re-use and recycling, and recovery of biodegradable waste, involving mainly the management of municipal solid waste. The measures could be achieved by applying existing legislation without substantial investment.

Effort-sharing achievements

EU effort-sharing legislation covers emissions from sectors not included in the EU emissions trading system (ETS), such as transport, buildings, small industry, agriculture and waste. For the periods 2013–2020 and 2021–2030, it establishes binding GHG emission targets for each Member State and sets up annual emission allocations (AEAs). The Effort-sharing Decision (ESD) sets the national targets up to 2020, while the Effort-sharing Regulation (ESR) sets them up to 2030. The aim is to achieve a collective reduction of 10 % in total EU emissions from non-ETS sectors by 2020 and of 30 % by 2030. Today these sectors account for around 55 % of EU emissions. The GHG emissions from electricity generation and industry are covered by the EU ETS.

Figure 5 – Bulgaria's emissions under Effort-sharing Regulation (MtCO₂e) (rounded data)



Source: EPRS illustration using data from the European Environment Agency (2020).

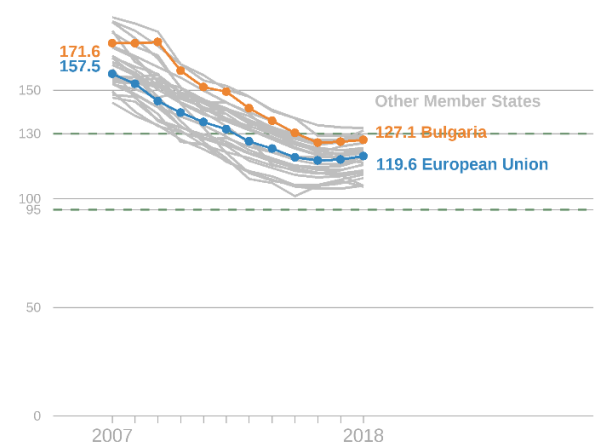
Under the ESD, Bulgaria is allowed to increase its emissions by 20 % compared with 2005, while under the ESR, the country's 2030 target is 0 % compared with 2005. Between 2017 and 2019, Bulgaria exceeded its AEAs but the banked surplus could be used in later years. According to the NECP, the 2030 national target would be achieved with additional measures, e.g. the LULUCF no-debit commitment. However, the [Commission points out problems](#) in relation to the 2005 emissions values used for the calculations. [Projections](#) thus show a gap between the target and projected emissions compared with the 2005 base year of -8 % with existing measures, and -14 % with additional measures.

In the EU, more than one third of effort-sharing emissions come from transport.

In 2018, 86.9 % of the [vehicles in Bulgaria](#) were over 10 years old, while new vehicles (1 to 5 years old) represented 5.6 % of the total.

Since 2009, Bulgaria has gradually reduced its CO₂ emissions from new passenger cars but still remained above the EU average in 2018, despite closing the gap. Since 2016, average CO₂ emissions from new cars in Bulgaria remained below the EU fleet-wide average target of 130 gCO₂/km set in 2015 and applied until 2020. However, this is still 34 % above the new EU-wide emissions target of 95 gCO₂/km applied from 2021.

Figure 6 – Average CO₂ emissions from new passenger cars (g/km)



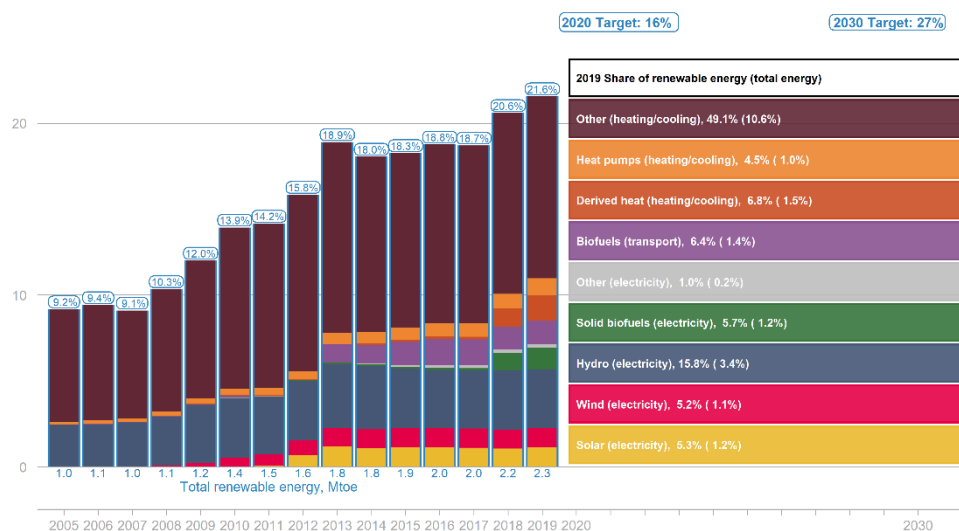
Source: EPRS illustration using data from Eurostat, EEA.

Energy transition

Renewable energy

In 2019, the share of energy from renewable energy sources (RES) in Bulgaria's gross final consumption (RES share) was 21.6%. From 2005 to 2019, it rose by about 12 percentage points. Since 2013, the country has surpassed its legally binding target for 2020 (16%). Between 2005 and 2019, the contribution of RES to energy needs was centred on the heating and cooling sector. The share of wind and solar energy meanwhile grew steadily in the electricity sector. Since 2013 their contributions to the RES share have remained stable. In 2019, solid biofuels, used for electricity, represented 5.7% of the RES share, which is a slight increase compared with 2018. The contribution of transport biofuels has varied slightly since 2013 and was at 6.4% in 2019.

Figure 7 – Renewable energy source share of total energy consumption



Source: EPRS illustration using Eurostat (SHARES tool) and EEA data.

The EU-27 have set a binding target of a minimum 32% RES share by 2030. Bulgaria's target is a renewable share of 27.09% as contribution to the EU-wide target, to be achieved by increasing the consumption of renewables in the heating and cooling, electric power, and transport sectors.

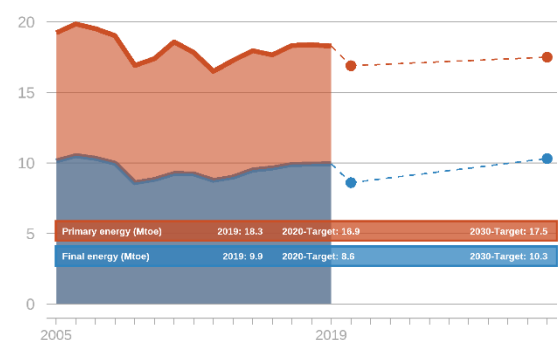
Energy efficiency

As regards energy efficiency, the Member States have set indicative individual targets to contribute to the EU 2020 and 2030 targets.

In 2019, primary energy consumption in Bulgaria was 8.3% above the 2020 target of 16.9 Mtoe and final energy consumption was 15% higher than the target of 8.6 Mtoe. The Commission thus considers that the country's progress towards the targets has been insufficient.

The national contribution to 2030 EU target, set out in the NECP, is 17.5 Mtoe for primary energy consumption and 10.3 Mtoe for final energy consumption. The Commission considers the level of ambition of these targets to be low and very low respectively.

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



Source: EPRS illustration using data from Eurostat and EEA (Trends and projections 2019).

Outlook: Plans and policies

In its assessment of Bulgaria's final NECP, the Commission notes that, in most areas, the policies and measures planned for the next 10 years are extensions of those already applied up until 2020. When it comes to decarbonisation, by 2030 Bulgaria intends to [reduce its GHG emissions by 49 %](#) compared with 1990 levels, mainly through measures in the energy sector, especially those supporting RES sector transformation. The country expects to achieve its 2030 national RES share target by achieving a 30.33 % share of energy from renewables in electricity, 42.6 % in the sector of heating and cooling, and 14.2 % in transport. To these ends, Bulgaria plans, for instance to increase the electricity generated from wind and solar power and biomass, to develop cogeneration plants using biomass, to increase the share of biofuels in the energy mix and to introduce new generation biofuels from 2020 onwards and hydrogen in 2030. It also plans to support grid integration and to increase the use of smart grids and storage systems. However, Bulgaria does not yet have a coal phase-out strategy in place. Although an increase in the use of biomass is projected, the NECP argues that no significant changes in the [LULUCF sector](#) are expected in the next 10 years. As regards energy efficiency, the Commission considers that the planned policies and measures are relevant in terms of achieving the objectives, but that the targets remain well below efforts at EU level. Bulgaria's NECP highlights the link between energy efficiency achievements and policy on building renovation, providing indicative interim targets and estimates of energy and CO₂ savings. Although Bulgaria [is still drafting](#) its long-term renovation strategy, it has already set a target to renovate over 5 % of public buildings per year and to improve their energy performance.

MAIN REFERENCES

European Commission, [Assessment of the final national energy and climate plan of Bulgaria](#), SWD(2020) 901, October 2020.

European Environment Agency, [Trends and projections in Europe 2020: Tracking progress towards Europe's climate and energy targets](#), November 2020.

Republic of Bulgaria, Ministry of Energy, Ministry of the Environment and Water, [Integrated Energy and Climate Plan of the Republic of Bulgaria 2021–2030](#), (NECP), February 2020.

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