



## Country profile – Bulgaria

The section 'Key climate- and energy-related data' was prepared by the EEA. It includes the latest data available as of 31 July 2014

The section 'Climate and energy policy framework' was prepared by eclareon and Ecologic Institute, Germany. It includes the latest information on national policies and measures available as of 31 May 2014.

For methodological details and other country profiles, see [www.eea.europa.eu/themes/climate/country-profiles](http://www.eea.europa.eu/themes/climate/country-profiles).

## Key climate- and energy-related data — Bulgaria

Key data on GHG emissions	2005	2011	2012	2013	EU 2012
Total GHG emissions (UNFCCC, Kyoto Protocol) (Mt CO <sub>2</sub> -eq.)	63.7	66.0	61.0	56.7	4 544.2
GHG per capita (t CO <sub>2</sub> -eq./cap.)	8.2	9.0	8.3	7.8	9.0
GHG per GDP (g CO <sub>2</sub> -eq./PPS in EUR)	1 004	769	689	630	350
Share of GHG emissions in total EU-28 emissions (%)	1.2 %	1.4 %	1.3 %	1.3 %	100 %
EU ETS verified emissions (Mt CO <sub>2</sub> -eq.)	0.0	40.0	35.0	32.7	1 848.6
Share of EU ETS emissions in total emissions (%)	0 %	61 %	57 %	58 %	41 %
ETS emissions vs allowances (free, auctioned, sold) (%)	n/a	- 3.7 %	- 18.4 %	n.a.	- 14.1 %
Share of CERs & ERUs in surrendered allowances (%)	n/a	26.8 %	27.6 %	n.a.	26.4 %
Non-ETS (ESD) emissions, adjusted to 2013–2020 scope (Mt CO <sub>2</sub> -eq.)	22.7	24.2	24.2	24.0	2 566.6
Key data on renewable energy	2005	2010	2011	2012	EU 2012
Share of renewable energy in gross FEC (%)			14.6 %	16.3 %	14.1 %
( ) = including all biofuels consumed in transport	(9.5 %)	(14.4 %)			
Share of renewable energy for electricity (%)	9.8 %	13.7 %	13.9 %	17.0 %	23.5 %
Share of renewable energy for heating and cooling (%)	14.3 %	24.4 %	24.9 %	27.5 %	15.6 %
Share of renewable energy for transport (%)			0.4 %	0.3 %	5.1 %
( ) = including all biofuels consumed (%)	(0.4 %)	(1.0 %)			
Key data on energy consumption	2005	2010	2011	2012	EU 2012
Primary energy consumption (Mtoe)	18.9	17.3	18.6	17.8	1 584.8
Primary energy consumption per capita (Mtoe/cap.)	2.4	2.3	2.5	2.4	3.1
Final energy consumption (Mtoe)	10.1	8.8	9.3	9.2	1 104.5
Final energy consumption per capita (Mtoe/cap.)	1.3	1.2	1.3	1.3	2.2
Efficiency of conventional thermal electricity and heat production (%)	43.1 %	45.3 %	44.7 %	46.0 %	50.0 %
Energy consumption per dwelling by end use	2005	2009	2010	2011	EU 2011
Total energy consumption per dwelling (toe/dwelling)	0.72	0.77	0.81	n/a	1.42
Space heating and cooling (toe/dwelling)	0.48	0.54	0.57	n/a	0.96
Water heating (toe/dwelling)	0.05	0.04	0.05	n/a	0.18
Cooking (toe/dwelling)	0.05	0.05	0.04	n/a	0.08
Electricity (lighting, appliances) (toe/dwelling)	0.14	0.15	0.15	n/a	0.20

### Progress towards GHG targets (under the Effort Sharing Decision, i.e. non-ETS emissions)

2013 ESD target (% vs base year)	+ 12.2 %	2020 ESD target (% vs base year)	+ 20.0 %
2013 ESD emissions (% vs base year)	+ 4.8 %	2020 ESD projections WEM (% vs base year)	+ 22.6 %
		2020 ESD projections WAM (% vs base year)	+ 9.5 %

Based on approximated emission estimates for 2013, emissions covered by the Effort Sharing Decision (ESD) (i.e. in the sectors which are not covered by the EU ETS) are expected to be below the annual ESD target in 2013. Projections indicate that 2020 ESD emissions are expected to be below the 2020 ESD target, only if measures planned until 2013 are fully implemented.

### Progress towards renewable energy targets

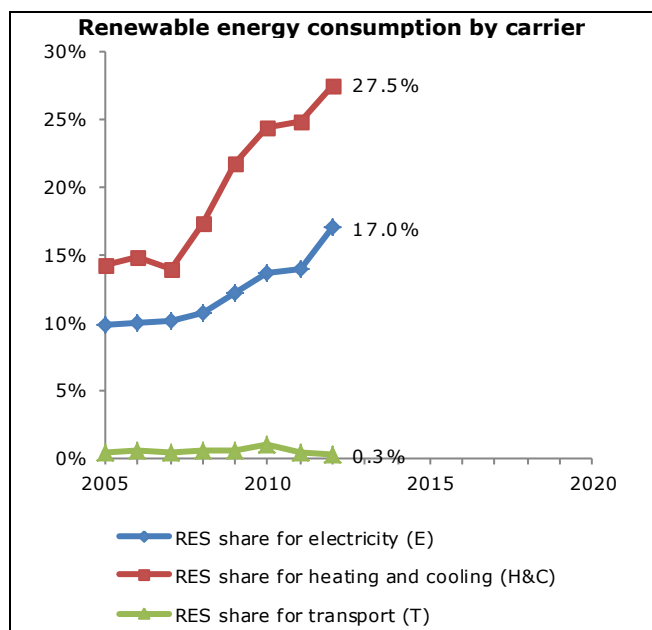
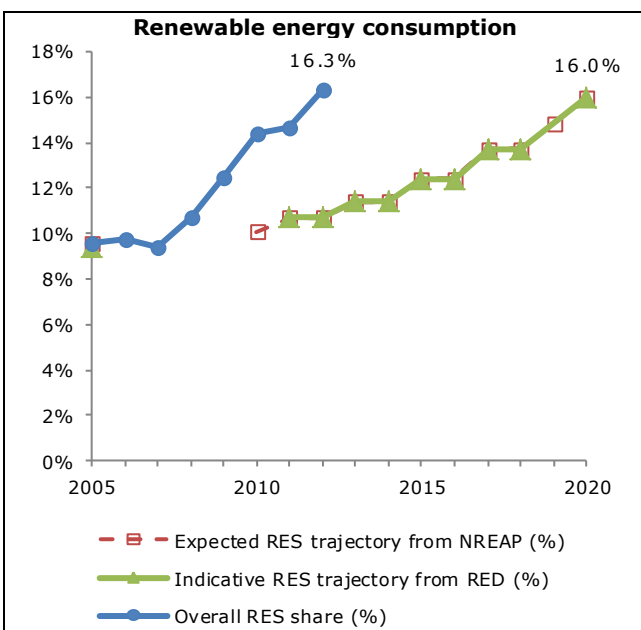
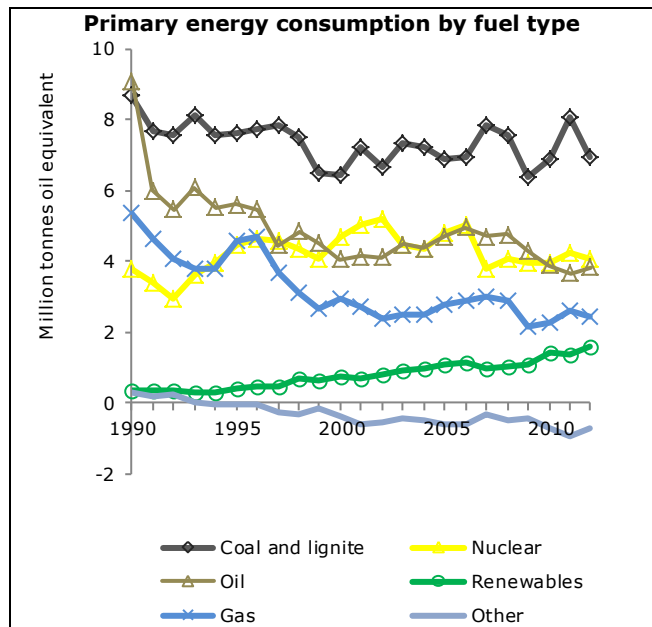
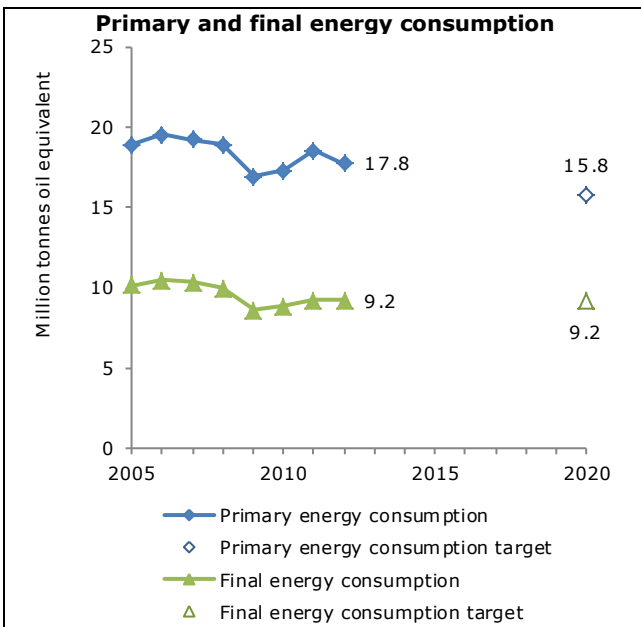
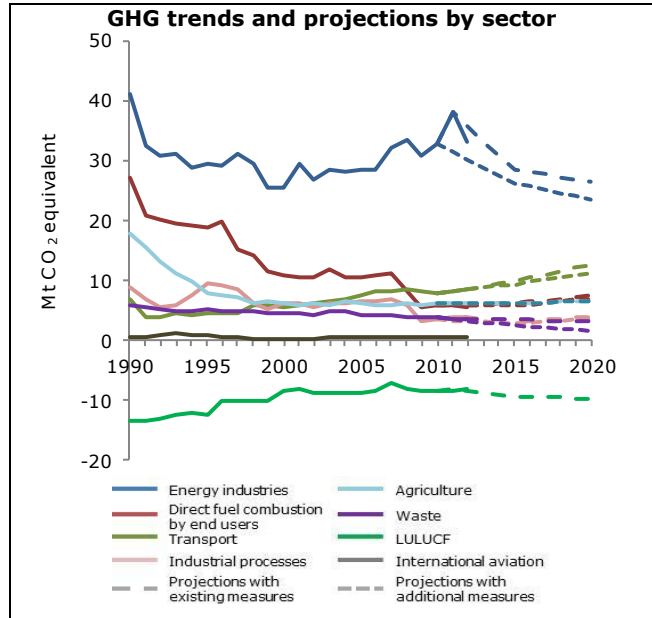
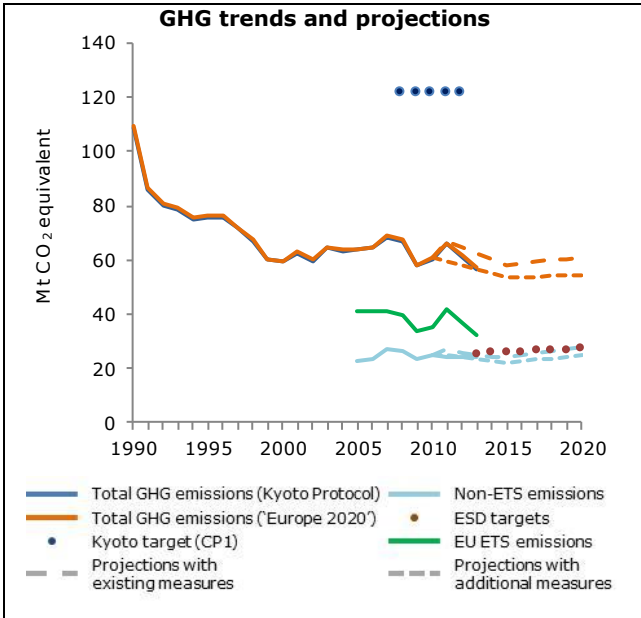
2012 RES share in gross final energy consumption (%)	16.3 %	2011–2012 indicative share from RES Directive (%)	10.7 %
2020 RES target	16.0 %	2012 expected share from NREAP (%)	10.7 %

The average share of renewable sources in gross final energy consumption for 2011–2012 was 15.5% (1.6 Mtoe), which is higher than the indicative RED target for 2011–2012 (10.7%). At the same time, the share of renewables in 2012 (16.3 %) is higher than the expected 2012 NREAP target (10.7 %). Over the period 2005–2012 the observed average annual growth rate in renewable energy consumption amounted to 7.0%. In order to reach its 2020 NREAP target, Bulgaria needs an average annual growth rate of 2.6% in the run-up to 2020. In absolute terms, this is equivalent to 0.6 time its cumulative effort so far.

### Progress towards energy efficiency targets

Primary energy consumption:		Final energy consumption:	
2005–2012 average annual change	-0.9 %	2005–2012 average annual change	-1.3 %
2012–2020 average annual change to target	-1.5 %	2012–2020 average annual change to target	-0.1 %

Primary and final energy consumption decrease during the period 2005–2012 and should further decrease to achieve the 2020 targets, in particular primary energy consumption. The input to conventional thermal power stations increased over the period 2005–2012 and represents 42 % of the primary energy consumption in Bulgaria. Increasing energy efficiency in transformation for electricity production could help further reduce primary energy consumption. The transport and residential sectors are particularly important to achieve further reductions in final energy consumption.



## Climate and energy policy framework

### Challenges and opportunities

Bulgaria has the highest energy intensity of the economy in the EU and the energy supply is the main source of greenhouse gas (GHG) emissions due to the high share of coal for energy generation. Energy prices, which are state regulated, play a crucial political, economic and social role in Bulgaria. They are below the EU average and the Bulgarian energy utilities face financial difficulties as they cannot cover the costs of generation. However, at the same time, a large share of the population is at risk of energy poverty. Hence, in early 2013, winter electricity price hikes led to public protests and political turmoil with a government resigning, subsequent elections and continued protests over many months. Increasing energy efficiency in power generation as well as in energy end-use would help to stabilise the spending on energy in the light of increasing energy prices through reduced consumption. The amendment of the Energy Efficiency Act that, for example, stipulates to increase the number of near-zero energy buildings constitutes an improvement in this regard, but is only a small step considering that Bulgaria wants to halve its energy intensity by 2020.

In addition, emissions from transport represent a considerable share of overall emissions and Bulgaria also observed a strong shift from rail to road transport, both for passenger and freight. Emissions from newly registered cars are among the highest in the EU but there is no registration tax incentivising the purchasing of low-emission cars. In addition, the vehicle ownership tax is low compared to the EU average as well as the taxes on transport fuels, thus not creating incentives for more efficient vehicles and efficient driving. The promotion of public transport and the purchasing of efficient cars, for example through tax incentives and public subsidies, would reduce GHG emissions and airborne pollutants.

### Climate and energy strategies

Bulgaria has outlined its climate change actions until 2020 in the Third National Action Plan on Climate Change (NAPCC). The document basically outlines how Bulgaria wants to achieve its 2020 climate and energy targets without limiting economic growth. It takes into consideration the National Development Programme as well as the Energy Strategy. The second document further outlines energy policy priorities: Bulgaria wants to address the high energy intensity of its economy and the high dependency on imports through diversification of sources and routes as well as the use of domestic sources, including its coal. At the same time, the Strategy highlights the need to shift to low-carbon energy sources — i.e. nuclear energy and renewables. The Bulgarian government strongly backs the realisation of the controversial Belene nuclear power plant.

### Renewable energy

Bulgaria increased its share of renewables mainly in heating and cooling, but there is little progress in the electricity sector (see Figure above). The main support mechanism for renewable electricity is a feed-in tariff (FIT). However, the renewable sector faces some uncertainties: since the adoption of the new Renewable Energy Act in May 2011, the rates are no longer regulated by law and can be reduced at any time by the regulatory authority Bulgarian State Energy and Water Regulatory Commission (DKEVR). Furthermore, DKEVR introduced a retroactive grid access fee for renewables in September 2012, which was then overruled by the Supreme Administrative Court of Bulgaria. Following this decision, the government amended the Renewable Energy Law at the end of 2013 to introduce a new 20 % fee on revenues of photovoltaic plants and wind farms. In addition, in February 2014, DKEVR declared to introduce a new grid access fee for renewable energy producers. DKEVR already introduced a 'temporary' grid access fee in 2012, which was subsequently rejected by Bulgaria's Supreme Administrative Court. DKEVR now decided to backdate the new fee to the date when the previous fee came into force, thus retroactively applying the fee to all renewable energy plants that have been connected to the grid since that date. The fee needs to be paid to the transmission grid operator Electroenergien Sistem Operator (ESO), which is deeply in debt. The new grid access fee was harshly criticised by both renewable energy associations and distribution grid operators.

Renewables in heating and cooling are promoted through grants provided by the European Regional Development Fund (ERDF) and loans from the Bulgarian Energy Efficiency and Renewable Energy Credit Line, the Energy Efficiency Fund and the Residential Energy Efficiency Credit Line (REECL). In addition, owners of efficient buildings using renewables for heating can get exemption from property tax for 5 or 10 years depending on the building's efficiency.

### Energy networks

Bulgaria has to 'accelerate electricity and gas interconnector projects and enhance the capacity to cope with disruptions'. However, future investments in the transmission and distribution grid for electricity could be notably hampered by the fact that both the transmission system operator ESO and the three distribution grid operators are facing severe financial difficulties.

### Energy efficiency

Bulgaria is delayed in publishing its national energy efficiency strategy that should set the national target for energy savings and the necessary steps and measures to achieve this goal. Energy **taxation** is the third lowest in the EU and thus well below the EU average. There are exemptions for natural gas, coal and electricity used in households.

The introduction of a **mandatory energy efficiency scheme** to reduce the energy consumption in the energy end-use sectors is taken into consideration and might be implemented for the period 2014–2020.

**Cogeneration** is promoted through a FIT on electricity fed to the grid. In addition, the Energy Efficiency Fund provides subsidies for cogeneration projects.

Energy efficiency in **industry** is promoted through individual energy-saving targets that have been set for industrial facilities with a consumption of more than 3 000 MWh. In addition, there is an obligation for enterprises to carry out energy audits every 3 years. Financial support for the use of energy-saving technologies in enterprises and improvement of energy management is provided through the programmes 'Energy efficiency and green economy' and 'Investments in green industry' under the Operational Programme 'Development of the competitiveness of the Bulgarian economy'. For small and medium-sized enterprises, financial support is provided for energy audits and obligatory implementation of the recommendations coinciding with the audits through the Bulgaria Energy Efficiency for Competitive Industry Financing Facility.

In the **building sector**, minimum energy performance standards exist for new and modernised buildings and energy performance certification was introduced. The project Energy Renovation of Bulgarian Homes under the Operational Programme 'Regional development' offers financial support for multi-family residential buildings with a total budget of BGN 50 million (EUR 26 million). The scheme finances the implementation of energy efficiency measures in multi-family buildings in 36 municipalities. An additional funding of EUR 9.5 million is available from the Housing Renovation Fund offering low-interest loans and bank guarantees for home owners. Energy efficiency is also the focus of the new Operational Programme 'Regions in growth' for 2014–2020 (NRP, 2014). In addition, the REECL for energy efficiency in **households** provides financial support for the purchasing of energy-efficient appliances and equipment.

### Transport

Incentives for efficient driving and the purchasing of efficient cars include an ownership tax that is based on kilowatts and age for passenger and on load-carrying capacity or axles cars for trucks. There is no registration tax. Bulgaria has a time-based vignette system in place for passenger and commercial cars (CE Delft, 2012). Both diesel and petrol are taxed below EU average. Renewables in transport are promoted through a biofuel quota and a reduced excise duty tax rate for fuels containing at least 4 % of biofuels. In addition, Bulgaria incentivises the purchasing and use of electric and hybrid vehicles through an exemption of the ownership tax. The development of a long-term strategic document for the development of sustainable mobility, including measures to promote the use of renewable energy in transport, is envisaged.

Bulgaria also wants to improve the public transport system and increase non-motorised mobility. From the Operational Programme 'Regional development' a total of BGN 403 million (approximately EUR 200 million) should be spent by mid-2015 to improve public transport systems in seven major cities: Sofia, Burgas, Varna, Plovdiv, Stara Zagora, Pleven and Ruse (Stroeji, 2012). The projects envisage a set of measures for the modernisation of public transport, including automated ticketing systems, passenger information in real time, building new bike lanes, and facilitating the access of buses and trams.

### Agriculture

Bulgaria aims at improving manure management, which is the most important source of methane emissions in agriculture, through investment subsidies and financing of education and trainings. In addition, there are standards for nitrogen fertilisation, low-interest loans for investments in more efficient irrigation systems, and education and training on the optimisation of nitrogen use (NC6).

### Waste

The National Waste Management Programme outlines the main objectives for integrated waste management and includes increasing the collection of separated waste, and introducing differentiated charges for waste. The National Strategic Plan for Gradual Reduction of Biodegradable Waste focuses on the introduction of a separate collection of green waste and the further use of landfill gases for energy generation. However, the main activities in the waste sector are related to the implementation of EU legislation. Bulgaria has to catch up with the delayed construction of regional household waste depots if it wants to avoid penalties under an ongoing EU infringement procedure. Twenty-four waste depots had to be constructed in Bulgaria by 2009 under the Operational Programme 'Environment'; however, only two have been built so far. In addition, there are delays in the implementation of the integrated waste management system in Sofia — mainly financed by the EU's Operational Programme — including also the construction of the long-awaited waste plant that started in January 2014 and is planned to be concluded in August 2015.

### Land use, land-use change and forestry

Bulgaria wants to increase carbon sequestration through afforestation of non-wooded areas in forest areas, afforestation of abandoned agricultural land, arid lands and deforested areas, and restoration and maintenance of protective forest belts and new anti-erosion afforestation. It is also planned to improve prevention of forest fires through early warning systems, and the restoration, protection and sustainable management of wetlands should be supported. The government also wants to increase urban and suburban parks and green zones (MMR, 2013).

### References

MMR, 2013, 'Reporting of MS in accordance with Decision No 280/2004/EC about their GHG emission projections up to 2020', May 2013 (<http://cdr.eionet.europa.eu/bg/eu/ghgpro/envuarma>) accessed 15 October 2014.

NC6, 'Bulgaria's sixth national communication to the UNFCCC', submission date 31 December 2013 ([http://unfccc.int/files/national\\_reports/annex\\_i\\_natcom/submitted\\_natcom/application/pdf/vi\\_nc\\_bulgaria\\_2013\[1\].pdf](http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/vi_nc_bulgaria_2013[1].pdf)) accessed 8 October 2014.

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