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**2022 Country Report - Bulgaria**

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**Recommendation for a COUNCIL RECOMMENDATION**

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European  
Commission

# Bulgaria

2022 Country Report



# ECONOMIC AND EMPLOYMENT SNAPSHOT

## Economy to suffer from high inflation

**At the start of the COVID-19 pandemic, economic conditions in Bulgaria were favourable.** The positive trend of robust economic growth over the period 2015-2019 (3.2% on average) has been underpinned by growing private consumption and positive labour market developments. Still, Bulgaria has been slow to catch up with the rest of the EU, in terms of income per capita. Through the COVID-19 crisis, the relative income convergence continued, as real GDP declined by less than in the EU average. Though Bulgaria has rebounded from the immediate economic shock caused by the pandemic, structural vulnerabilities are expected to hamper its path towards convergence. Bulgaria still has one of the highest levels of poverty and income inequality, a poorly performing healthcare system and issues with the quality and inclusiveness of education. Strong regional disparities, a shrinking working-age population and persistently high labour shortages weigh on productivity growth and upward social convergence. The business environment is generally not supportive of investment; this is also due to many institutional shortcomings. Finally, Bulgaria remains by far the most energy- and greenhouse gas-intensive economy in the EU.

**The Next Generation EU funds and the path towards euro adoption provide a unique opportunity to modernise the economy.** Investments in the recovery and transformation of the economy, as well as Bulgaria's commitments to key structural reforms, are expected to boost potential growth. They also present an opportunity to decarbonise the economy. Bulgaria's commitment to adopting the euro provides further impetus for reforms, notably in the

governance of state-owned enterprises, insolvency, the non-banking financial sector and anti-money laundering.

**The Bulgarian economy has almost fully recovered from the pandemic-induced shock.** After falling by 4.4% in 2020, real GDP rebounded by 4.2% in 2021, driven by household consumption and goods exports. Private consumption remained relatively unaffected in 2020 compared to the EU average, given that the sectors most hit by the supply restrictions, such as accommodation and catering services, account for a much smaller share of consumer spending in Bulgaria than in other Member States. Bulgaria also had generally less stringent restrictions in the second half of the year. In 2021, private consumption expanded robustly, supported by job retention schemes, positive wage dynamics, higher pension expenditures, low household debt, and improvements in consumer sentiment. Conversely, investment growth remained subdued in 2020, but dropped significantly in 2021. Exports of goods reached their pre-pandemic level in Q2-2021, after a sharp drop at the start of the pandemic. In contrast, in 2021 real exports of services were still 18% below their 2019 levels, as nominal revenues from foreign tourism stood at only 55% of the pre-pandemic levels <sup>(1)</sup>. Price pressures are set to weigh on household consumption in 2022. The increased uncertainty is forecast to negatively affect private investment, while public investment, supported by the RRF funds, is forecast to fully compensate this decline.

**Disparities between and within regions remain high in Bulgaria.** In 2019, GDP per capita was largely below 50% of the EU average across all regions, except in the southwest region that includes the capital city.

<sup>(1)</sup> The Bulgarian tourism value chain (direct and spill-over effects) was responsible for about 6% of total employment in 2018 ([JRC121262](#))

Closing the gap in regional disparities by boosting the economic potential of Bulgaria's less developed regions would contribute to the country's long-term sustainable and inclusive growth.

**The Bulgarian economy's energy intensity is exacerbating the effects of energy price hikes.**

The price of electricity in the free market has increased four-fold and become more volatile since mid-2021, while regulated prices have been kept fixed. Electricity prices on the unregulated domestic market followed the regional and global price increase in the fourth quarter of 2021. In 2021 the domestic 'day ahead' market became more tightly linked to the EU electricity market, as it was integrated with the markets in Greece and Romania. The regulated retail electricity market has only been supplying to households as of October 2020. Prices are determined by the energy and water regulator, largely based on the baseload price: the price at which the retail end suppliers buy power from the national electricity company, NEK. The National Assembly has imposed a moratorium on future increases in the prices of electricity, central heating and water supply between December 2021 and March 2022. In parallel, the government introduced support programmes for firms, public utilities suppliers and household gas consumers that mitigated the impact of sharp increases in energy prices. Despite these measures, higher energy and other intermediate input costs, combined with higher prices of imported goods, led to higher inflation in the other components of the HICP index. As the economy is still over three times more energy-intensive than the EU average, the indirect effect on the producer and on final consumer prices is more pronounced than in most of the other EU Member States.

**All consumer price inflation components are forecast to exhibit high price increases in 2022.**

HICP inflation is expected to reach 11.9% in 2022 before decreasing to 5.0% in 2023. Energy price inflation is expected to peak mid-2022 and turn negative in 2023. Food inflation has picked up in the first three months of 2022 due to rising international food, commodity and energy prices and is expected to stay high.

**Unemployment is stabilising after an increase at the start of the pandemic.**

The unemployment rate decreased from a 6.6% peak in Q2-2020 to 4.6% in Q4-2021 (see Graph 1.1). As expected, most job losses were recorded in the accommodation and food services sectors. More adverse labour market developments have been avoided largely by the swift introduction of short-time work schemes with the support of the Support to mitigate Unemployment Risks in an Emergency (SURE) instrument and REACT-EU (see Annex 3).

**Adverse demographic developments and high inactivity rates pose significant risks.**

Bulgaria is having to deal with a double trend of an ageing and a rapidly shrinking population (by around 10% over a decade). Combined with high inactivity rates for some groups, including Roma and those living in rural and underserved areas, this remains a key challenge for making a fair and inclusive economic recovery in line with the European Pillar of Social Rights (see Annex 12).

**Wage growth continues to be strong, outpacing productivity developments.**

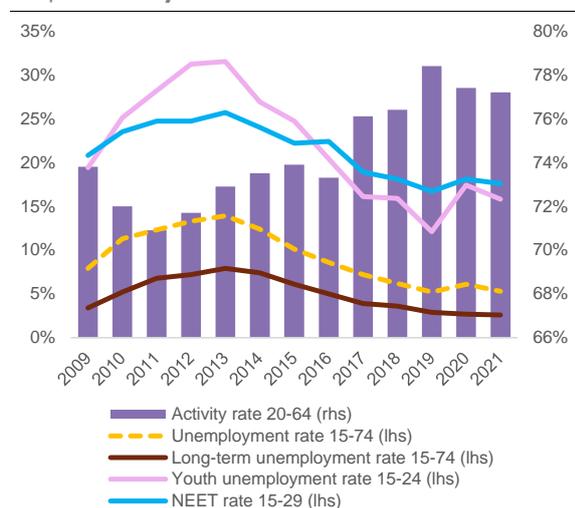
Nominal compensation per employee grew strongly in 2019 and 2020 by about 7% each year, albeit with significant regional and sectorial disparities. Wage growth in 2020 was primarily driven by an increase in public sector wages, a large share of which went to the very low-paid health workers. Wage growth further increased in 2021 to 9.5% and is expected to continue growing at a similar pace in 2022 and then decelerate to around 8% in 2023. In April 2022, the minimum wage increased by 9.2% (up to BGN 710 or EUR 363). Wage growth outside manufacturing sector remained much higher than labour productivity growth. The increased energy and other input costs present a challenge for the production sector. To improve competitiveness and avoid job losses going forward, Bulgaria will have to boost its labour productivity by addressing the widespread skills mismatches and improve labour market efficiency.

**Increasing house prices point to growing vulnerabilities in the housing market.**

House prices accelerated to a growth rate of

8.7% in 2021. The risk of overvaluation has increased, even if it remains contained. While household indebtedness is low in an international context, mortgage growth increased rapidly to nearly 18% in 2021, according to ECB's notional stocks data. Rises in interest rates might create difficulties for some borrowers. From that perspective, the European Systemic Risk Board (ESRB) considers macroprudential policies to be partially appropriate and partially sufficient, while acknowledging several measures in place in Bulgaria that mitigate the current residential real estate vulnerabilities. Therefore, the ESRB issued a warning to Bulgaria in February 2022 to address these risks.

Graph 1.1: Key labour market indicators



Source: Eurostat

**Although profitable and well capitalised, the financial sector operates amid heightened uncertainty.** Risks stem mainly from the high share of non-performing loans (NPLs), corporate indebtedness and banks' exposures to highly affected sectors by the COVID-19 pandemic. The NPL ratio remains among the highest in the EU. The ratio was on a declining path, but the number of NPLs may rise in response to adverse developments in economic conditions and possible interest rate increases. The return on equity declined from around 11.2% in 2019 to around 9.1% in the first 9 months of 2021, due to lower profit for 2020 and increasing equity over the year. Behind the profit decrease were the decline in all major income components and the increase in impairment charges of financial assets. The

measures announced by the Bulgarian National Bank at the beginning of the crisis, including the retention of profits, were instrumental in preserving the banking sector's stability and further strengthening banks' capital and liquidity. Following the decline in 2020, banks' profitability strongly rebounded in 2021.

## Sound public finances helped to weather the crisis

**Bulgaria entered the pandemic with a strong fiscal position.** Thanks to, inter alia, its commitment to fiscal stability and the currency board in place, its sovereign debt and exchange rates have not experienced severe tensions since the onset of the COVID-19 crisis. Bulgaria usually outperforms its budgetary targets. This outperformance stems from the authorities' prudent approach to revenue estimates but it also reveals specific weaknesses in expenditure planning and execution for public procurements, capital expenditures or the programming period cycle for EU funds. This along with legislative restrictions usually leads to the underestimation of the budget balance in both cash and ESA (accrual) terms. Also, the Ministry of Finance does not always seem to have enough information on the detailed content of major public expenditure and revenue items at the general government level. As a consequence, if total planned investment is not executed as planned, part of it can be redirected to other items like wages or subsidies. Coupled with difficulties in producing projections in ESA terms, this points to a need to strengthen the information base for public finances.

**Emergency budgetary measures helped to contain the negative effects of the pandemic.** The Bulgarian Government has increased the capacity of its healthcare system, provided relief to those individuals and sectors that have been particularly affected, and has introduced measures to protect jobs. Taking into account the government's response and the impact of the pandemic on economic activity, the

government balance recorded a deficit of 4% of GDP in 2020 (in ESA terms). The temporary pandemic-related measures increased from 2.9% of GDP in 2020 to 4.3% of GDP in 2021. As a result, the deficit slightly rose to 4.1% of GDP, somewhat cushioned by the stronger economic growth but also further exacerbated by the introduction of the above-mentioned energy price measures (0.6% of GDP in 2021). The fiscal stance<sup>(2)</sup> is set to remain expansionary in 2022 (-3.4% of GDP), owing to the large contribution of EU funds and Recovery and Resilience Facility (RRF) grants. Finally, the general government debt is estimated to have further increased to 25.1% of GDP in 2021 and to slightly rise to 25.6% of GDP in 2023. The impact of the deficits on the debt ratio is partially moderated by the positive economic growth.

## The economic impact of Russia's invasion of Ukraine

**The Bulgarian economy is relatively exposed to the repercussions from the Russian invasion of Ukraine.** The main reasons for this are the economy's very high energy intensity and its dependence on Russian energy imports. In particular, 63% of total crude oil imports and 75% of total gas imports have come from Russia<sup>(3)</sup>. The share of natural gas in Bulgaria's energy mix is relatively low, fluctuating around 14% in recent years. Bulgaria receives natural gas predominantly from Russia through gas pipelines. Nevertheless, some limited alternative supply routes exist.

<sup>(2)</sup> A negative (positive) sign of the indicator corresponds to an excess (shortfall) of primary expenditure growth compared with medium-term economic growth, indicating an expansionary (contractionary) fiscal policy.

<sup>(3)</sup> Eurostat, 2020, share of Russian imports over total imports of natural gas, crude oil, including intra-EU trade. For crude oil, the Russian share can be underrepresented due to unclear ultimate country of origin. 2019 data has been used. 2020 import data is not informative, as large quantities of crude oil imports had been categorised as from 'not specified' trade partners.

**The exposure of Bulgarian exports of goods to the Russian and Ukrainian markets is limited.** Exports of goods to Russia and Ukraine each constituted around 1.2% of total goods exports each in 2021. The share of value added that depends on Russian imports, driven by domestic and export demand, is somewhat higher than trade shares, but at 2.4%, it is still limited. The unilateral stop of Russian natural gas supply by Gazprom on 27 April is expected to cause a significant one-off increase in gas prices in 2022, since the available alternative supplies are likely to be contracted at higher prices.

**People fleeing from the war in Ukraine are also taking refuge in Bulgaria.** As of 28 April more than 200 thousand have entered Bulgaria, with 96 thousand, or 1.5% of the Bulgaria's total population, remaining in the country. Currently, the aid to the incoming displaced people consists of providing BGN 40 subsidy per day per person for a maximum period of three months to hotels that accommodate them. The budgetary costs related to people fleeing from Ukraine is assumed to amount to 0.1% of GDP. Exceptional support is made available to Bulgaria under the Cohesion's Action for Refugees in Europe (CARE) initiative and through additional pre-financing under the Recovery Assistance for Cohesion and the Territories of Europe (REACT-EU) programme to urgently address reception and integration needs for those fleeing Ukraine.

## Some progress towards Sustainable Development Goals

**Bulgaria needs to step up efforts towards achieving the Sustainable Development Goals (SDGs).** In terms of the environment and climate, more needs to be done to improve energy efficiency given that both final and primary energy consumption have been moving away from their SDG objectives. The 'responsible consumption and production' indicators (SDG 12) are far below the EU average. The circular material use rate is about four times lower than the EU average

and the amount of generated waste (excluding major mineral waste) is almost double the EU average. 'Average CO<sub>2</sub> emissions per km from new passenger cars' exceed the EU average.

**There is still no significant progress on the SDGs in the social area.** Bulgaria has fared well on labour market indicators in SDG 8 'Decent work and economic growth', with employment rates on the rise and even surpassing the EU average, and the shares of long-term unemployed and young people not in employment education or training falling, although the latter is still significantly above the EU average. Bulgaria is one of the worst performers in the EU on SDG 1 'No poverty', with Roma communities bearing the brunt of this. This is further exacerbated by adverse developments in the area covered by SDG 10 'Reduced inequalities', and by relatively weak performance in the area covered by SDG 4 'Quality education'.

## THE RECOVERY AND RESILIENCE PLAN IS UNDERWAY

**The Bulgarian recovery and resilience plan (RRP) is ambitious.** With a total of EUR 6.3 billion in grants, it represents about 10.2% of its GDP in 2019. The plan includes important measures to accelerate the twin transition and boost economic and social resilience.

**Significant efforts are being made to accelerate the decarbonisation of the energy sector.** These include the adoption of a clear framework for the phasing out of coal and binding commitments to cut greenhouse gas emissions from power production by 40%. The plan also envisages tripling power generation from renewables, accelerated deployment of alternative energy sources, such as renewable hydrogen, geothermal and sustainable biogas, building up large electricity storage capacities, increasing electricity interconnection capacities, improving the energy efficiency of buildings, and liberalising the wholesale and retail electricity markets. Transport reforms and investments are targeting the decarbonisation of road transport, including encouraging electric mobility; increasing the quality, coverage and use of rail passenger services, including by modernising and digitalising rolling stock, and promoting sustainable urban mobility. Of the plan's investments and reforms, 58.9% contribute to Bulgaria's achievement of its climate objective.

**The plan promotes the achievement of digital objectives with 25.8% of its overall investments and reforms.** Efforts will focus on enhancing connectivity and broadband deployment in remote and sparsely populated areas, promoting the acquisition of digital skills across Bulgaria's population, as well as the digitalisation of businesses and public administration. Investments in areas like electricity storage capacities, the digitalisation and sustainability of transport, make a

significant contribution to both Bulgaria's green and digital objectives.

**The implementation of the RRP contributes to improving Bulgaria's institutional framework and addressing numerous challenges linked to the business environment.** RRP reforms support a stronger institutional framework, including through improvements in the capacity and functioning of the anti-corruption framework, judicial reforms to ensure the effectiveness of criminal proceedings and the accountability and criminal liability of the Prosecutor-General, as well as to improve implementation of the anti-money laundering framework. The plan also aims to increase the quality and predictability of the legislative process, regulate lobbying activities and protect whistleblowers. Furthermore, it includes a set of measures to reduce the administrative burden by reinforcing e-government, including through the digitalisation of the justice system and the increased provision of digital public services. The reform of the insolvency framework is expected to contribute to a more effective and flexible system for the restructuring of businesses, while stronger governance of state-owned enterprises and the reform of public procurement procedures should contribute to a more transparent and efficient allocation of public resources. Businesses, including small and medium-sized enterprises (SMEs), are also being bolstered through grants and financial instruments to support their green and digital transitions and innovation.

**The RRP is expected to improve access to education, adult learning and healthcare, and to promote social inclusion, thereby contributing to the implementation of the European Pillar of Social Rights.** Relevant measures in education and training include the mandatory inclusion of 4-year-olds in pre-school education, enhancing the relevance of

higher education with the aim of addressing labour market shortages and promoting research, as well as digital skills courses for adults and a platform for adult learning. Strengthening skills by improving the labour market relevance of Bulgaria's education and lifelong-learning systems can help to alleviate some of the labour market bottlenecks and narrow the productivity gap towards the EU averages. The healthcare system will be improved through a new national strategy on health, the implementation of the National Health Information System, as well as a network of outpatient units in underserved areas, supported by a reform targeting the shortages and unbalanced distribution of medical professionals. To foster social inclusion, the plan includes a reform of the minimum income scheme to improve its adequacy and coverage, as well as measures to improve employment and social services, including long-term care.

**The RRP also includes measures to reform the research and innovation ecosystem.**

This pertains to a new governance structure including the creation of a new consultative body, the Innovation Board, and a new legislative framework for research and innovation (R&I) development and research universities. New instruments for the funding of research will complement the reform. Overall, this is expected to foster efficient policy coordination at all stages of research and innovation, enhance technology transfer and stimulate public and private investment in research and innovation with the goal of spurring the country's medium- and long-term economic growth. The successful implementation of the RRP R&I measures and cohesion policy measures will be crucial for boosting productivity and competitiveness.

**Key deliverables under the RRP in 2022-2023**

- Pass legislation adopting the coal and lignite phase-out calendar and introducing a CO<sub>2</sub> emissions cap for lignite and coal-fired power plants and adopt the Roadmap to Climate Neutrality
- Liberalise the wholesale electricity market
- Launch a national support scheme for the energy efficiency of residential and non-residential buildings and implement reform to tackle barriers to energy efficiency investments
- Define energy poverty
- Increase the accountability and criminal liability of the Prosecutor-General
- Reform the Anti-corruption Commission
- Reform the insolvency framework
- Launch the Economic Transformation Programme to support the innovation and growth of Bulgarian businesses, in particular by supporting their green and digital transitions
- Put the National Health Strategy and related action plan in place
- Ordinance on the quality of social services to define the quality standards for the provision of social services
- Publish a report making evidence-based recommendations to expand effective coverage and better target the minimum income scheme
- Action plans for the Higher Education Strategy and the Strategic Framework for the Development of Education, Training and Learning 2021-2030
- Adopt the Research and Innovation Act
- Establish the National Fund for Decarbonisation
- Adopt the Social Support Code, addressing the fragmentation of the legislation in the area of social benefits and services

## FURTHER PRIORITIES AHEAD

**Besides the challenges the RRP addresses, as outlined in Section 2, Bulgaria faces additional key challenges the plan does not fully address.** The RRP does not address high out-of-pocket payments for healthcare services. Employment and social services could also be integrated further and more attention could be given to the provision of employment services better targeted to individual needs. Further steps to move to a more resource-efficient and circular economy can also put Bulgaria more firmly on the path towards environmental sustainability. Finally, in the context of the energy-related challenges the invasion of Ukraine has brought with it, Bulgaria could consider speeding up investment in interconnection with neighbouring Member States, to reduce its dependency on fossil fuels and increase the share of renewables in energy consumption. Addressing these challenges would also help Bulgaria to make further progress on the relevant SDG indicators for the respective underlying areas.

### Labour market and social challenges

**Social challenges are significant and the crisis has exacerbated some of them.**

While the labour market seems to be recovering quickly in the wake of the pandemic, the share of the population at risk of poverty or social exclusion remains high (33.6% in 2020). Vulnerable groups, such as older people, Roma and people with disabilities, are disproportionately at risk of poverty. The RRP includes measures for adult learning, encompassing the provision of digital skills courses for adults. However, additional efforts to provide effective active labour market policies tailored to the challenges of vulnerable groups would help Bulgaria deal

with labour shortages, given the likely regional developments and adverse demographic trends. Albeit increasing, Bulgaria's spending on overall active labour market policies is among the lowest in the EU and mismatches between skills and labour market needs are higher than both those of other Member States in similar situations and the EU average.

**Certain RRP measures pave the way for integrating employment and social services further.** They relate to upgrading the Employment Agency's IT systems, thereby laying the technical foundations for further integrating services, including employment, social and administrative services. Further enhancing this integrated approach to service provision would help to better meet labour market needs, stimulating upskilling and reskilling and the move to a higher value-added economy. The still limited access to quality education in Bulgaria and the high rate of early school leaving, particularly among disadvantaged groups, including Roma, and in rural areas, also affects employability and labour market outcomes.

### Unequal access to healthcare persists

**The pandemic has highlighted the shortcomings of Bulgaria's healthcare system.**

It has brought to the fore the structural challenges related to the sustainability, accessibility and capacity of the healthcare system. Total life expectancy in Bulgaria, at 73.6 years, is 7 years below the EU average. Limited access to healthcare, mainly a consequence of high out-of-pocket payments, as well as unequal regional distribution and the low number of health professionals (primarily nurses), has been a

feature of the Bulgarian healthcare system for many years. The system is hospital-centred, to the detriment of ambulatory care. This is a result of low public expenditure on healthcare and public health (5.9 % of GDP in 2020, 2.1 percentage points below the EU average), covering only around 60.6 % of total healthcare costs, against 79.5 % on average in the EU. The share of out-of-pocket payments (formal and informal) is the highest in the EU, bringing the burden of healthcare costs above the EU average. The effectiveness of the healthcare system in Bulgaria remains low in comparison to other Member States. Deaths from both preventable and treatable causes are well above the rates for the EU as a whole.

**The RRP does not address high out-of-pocket payments.** There are measures in the RRP addressing significant challenges in the healthcare system, such as improving access to healthcare across the country, including to screening and preventive healthcare services, but high out-of-pocket payments and gaps in health insurance coverage remain unaddressed. There is therefore room to improve the effectiveness of and access to Bulgaria's healthcare system.

## Green transition and resource efficiency

**The circular use of material in Bulgaria is among the lowest in the EU.** Bulgaria still lacks an overarching circular economy programme. There are also waste management challenges. At 2.6%, Bulgaria's circular material use rate is far below the EU average of 12.8%. At 32%, the recycling rate of municipal waste is still considerably below the 2025 target of 55% and well below the EU average of 46%. Waste management and compliance with urban wastewater collection and treatment obligations continue to be a challenge. Despite having one of the lowest levels of generation of municipal waste, Bulgaria remains one of the Member States with the highest landfilling rate (61% in 2018 compared to the EU average of 24%). The recovery rate of construction and demolition waste is below 30%, when it should be at

least 70% in accordance with EU law. According to the latest available data, Bulgaria's overall compliance rate with the Urban Waste Water Treatment Directive is 30%, the EU's fourth lowest and well below the EU average of 76% in 2018. According to the last available data<sup>(4)</sup>, the overall compliance rate in Bulgaria is 30%, which is the fourth lowest and well below the EU average of 76% in 2018.

## Energy-related challenges from the invasion of Ukraine on the security of supply

**Bulgaria relies on natural gas from Russia, mostly for district heating and industrial use.** In 2020, it imported most of its gas from Russia. However, the share of natural gas in the energy mix in 2020 was only 14%, with very limited impact on electricity generation. Bulgaria also imports very little hard coal from Russia (0.56 million tonnes, 85% of total coal imports), primarily for industrial use as coal-fired power generation is fully covered by the domestic production of lignite. Rather, the increase in natural gas prices indirectly affected electricity prices because of market coupling and the general increase in the EU. In the electricity sector, household consumers are covered by regulated prices, which will be gradually phased out by 2025 as stipulated in the RRP.

**Swift implementation of the energy reforms and investments in the RRP will be crucial for increasing energy security.** With over 37% of RRP investments aimed at the energy sector and very ambitious reforms to accelerate decarbonisation and the deployment of renewable energy, the RRP will make a tangible contribution to decreasing Bulgaria's dependence on Russian gas.

**Besides the measures in its RRP, Bulgaria could accelerate the diversification of gas routes by swiftly completing existing**

<sup>(4)</sup> WISE -- [Country profiles on urban waste water treatment - Bulgaria](#).

**investments at an advanced stage and by expanding storage.** This includes the finalisation of planned interconnector projects with neighbouring countries, as well as planned gas storage projects. Bulgaria has also expressed strong support for common gas procurement at EU level. Investments in new infrastructure should be future-proof where possible and avoid lock-in effects.

**Energy efficiency should also remain a priority for rapidly lowering energy demand.** The Bulgarian RRP has ambitious targets for the renovation of public and residential buildings. However, the needs of the country's current building stock are significantly more pressing. Acceleration of the deep energy renovation of public and residential buildings and support for the installation of solar heating systems and heat pumps for own use can lead to further energy consumption savings, benefiting both citizens and companies alike. In addition, efforts could be made to increase the energy efficiency in industry, as it remains a large gas consumer with a share of 40% in 2019. Expanding renewable energy and other low-carbon sources such as geothermal will also reduce import dependency and contribute to decarbonisation. Implementation of the reforms in the RRP will greatly contribute to this.

## KEY FINDINGS

### **Bulgaria's RRP includes measures to address a series of its structural challenges**

- Measures for accelerating and facilitating the deployment of renewable energy generation and storage; cutting the power sector's greenhouse gas emissions by 40%, with a view to fully phasing out coal by 2038 at the latest; liberalising the electricity markets; boosting renovations of building stock to improve energy efficiency.
- A set of measures focusing intently on the digital transformation, with measures to support the acquisition of digital skills across the whole population, the digitalisation of businesses and public administration and the improvement of connectivity and broadband deployment in remote and sparsely populated areas.
- A comprehensive set of measures to strengthen Bulgaria's institutional framework by: reforming anti-corruption institutions; passing new legislation on lobbying and the protection of whistleblowers; reforming the judicial system to ensure the accountability and criminal liability of the Prosecutor-General; reforming the legislative process; reforming public procurement to increase the share of competitive procedures; reforming the governance framework of state-owned enterprises; implementing reform to improve insolvency and restructuring proceedings.
- Modernising the educational system and infrastructure. Improving access to quality education for vulnerable groups and people from disadvantaged communities, such as Roma.
- Improving access to healthcare and supporting the deinstitutionalisation of care.
- Increasing the adequacy and coverage of the minimum income scheme and improving social and employment services.
- Providing significant support to businesses, especially small and medium-sized ones, through grants and financial instruments aimed at promoting digitalisation, the circular economy, and the use of renewables for own consumption.
- Sustainable transport reforms in the areas of road decarbonisation, road safety, public transport, a modal shift to railways, and investments in railways, the metro, digitalisation and road safety.

### **Besides the reforms and investments in the RRP, Bulgaria would benefit from addressing the following challenges**

- Speeding up investment in interconnection with neighbouring Member states to strengthen the diversification of energy supply.
- Further increasing resource and energy efficiency, by moving towards a more sustainable and circular economic model.
- Further improving access to healthcare services, in particular by addressing the high share of out-of-pocket payments.
- Further strengthening the integration of employment and social services and the provision of active labour market policies, in particular to tackle the challenges of vulnerable groups, including Roma.



# ANNEXES



## LIST OF ANNEXES

Cross-cutting progress indicators	19
Annex 1: Sustainable Development Goals	19
Annex 2: Recovery and Resilience Plan – implementation	22
Annex 3: Other EU instruments for recovery and growth	23
Annex 4: Progress in the implementation of country-specific recommendations	26
<b>Environmental sustainability</b>	<b>29</b>
Annex 5: Green Deal	29
Annex 6: Employment and social impact of the green transition	33
<b>Productivity</b>	<b>35</b>
Annex 7: Resource efficiency and productivity	35
Annex 8: Digital transition	36
Annex 9: Innovation	38
Annex 10: Industry and single market	40
Annex 11: Public administration	42
<b>Fairness</b>	<b>44</b>
Annex 12: Employment, skills and social policy challenges in light of the European Pillar of Social Rights	44
Annex 13: Education and skills	46
Annex 14: Health and health systems	48
Annex 15: Economic and social performance at regional level	50
<b>Macroeconomic stability</b>	<b>53</b>
Annex 16: Key financial sector developments	53
Annex 17: Taxation	55
Annex 18: Key economic and financial indicators	57
Annex 19: Debt sustainability analysis	58

## LIST OF TABLES

Table A2.1:	Key elements of the Bulgarian RRP	22
Table A4.1:	Summary table on 2019, 2020 and 2021 CSRs	27
Table A5.1:	Indicators underpinning progress on the European Green Deal from a macroeconomic perspective	32
Table A7.1:	Selected resource efficiency indicators	35
Table A8.1:	Key Digital Economy and Society Index indicators	37
Table A9.1:	Key research, development and innovation indicators	39
Table A10.1:	Key Single Market and Industry indicators	41

Table A11.1:	Public administration indicators – Bulgaria	43
Table A13.1:	EU-level targets and other contextual indicators under the European Education Area strategic framework	47
Table A14.1:	Key health indicators	49
Table A15.1:	Selected indicators at regional level – Bulgaria	52
Table A16.1:	Financial soundness indicators	54
Table A17.1:	Taxation indicators	56
Table A18.1:	Key economic and financial indicators	57
Table A19.1:	Debt sustainability analysis for Bulgaria	58
Table A19.2:	Heat map of fiscal sustainability risks for Bulgaria	59

## LIST OF GRAPHS

Graph A1.1:	Progress towards SDGs in Bulgaria in the last five years	19
Graph A3.1:	2014-2020 European Structural and Investment Funds – total budget by fund	23
Graph A3.2:	Cohesion policy contribution to the SDGs	24
Graph A4.1:	Bulgaria's progress on the 2019-2020 CSRs (2022 European Semester cycle)	26
Graph A5.1:	Fiscal aspects of the green transition – taxation and government expenditure on environmental protection	29
Graph A5.2:	Thematic – Energy Share in energy mix (solids, oil, gas, nuclear, renewables)	29
Graph A5.3:	Thematic – Biodiversity Terrestrial protected areas and organic farming	30
Graph A5.4:	Thematic – Mobility Share of zero-emission vehicles	31
Graph A6.1:	Fair green transition challenges	34
Graph A6.2:	Energy poverty by income decile	34
Graph A7.1:	Economic importance and expansion of the circular economy – Employment and value added in circular economy sectors	35
Graph A11.1:	E-government benchmark scores and (lhs) and e-government users (rhs)	42
Graph A11.2:	Performance on the single market public procurement indicator	42
Graph A13.1:	Low achievement in reading by socio-economic status, PISA 2018	46
Graph A14.1:	Life expectancy at birth, years	48
Graph A14.2:	Projected increase in public expenditure on health care over 2019-2070 (reference scenario)	48
Graph A15.1:	Average GDP per head growth vs GDP per head in 2010	50
Graph A15.2:	Labour productivity, EU-27, Bulgaria NUTS 2 regions, 2000-2019	50
Graph A15.3:	Territories most affected by the climate transition in Bulgaria	51
Graph A15.4:	Innovation performance in Bulgaria	51
Graph A15.5:	Unemployment rate	51
Graph A17.1:	Tax wedge indicators	56

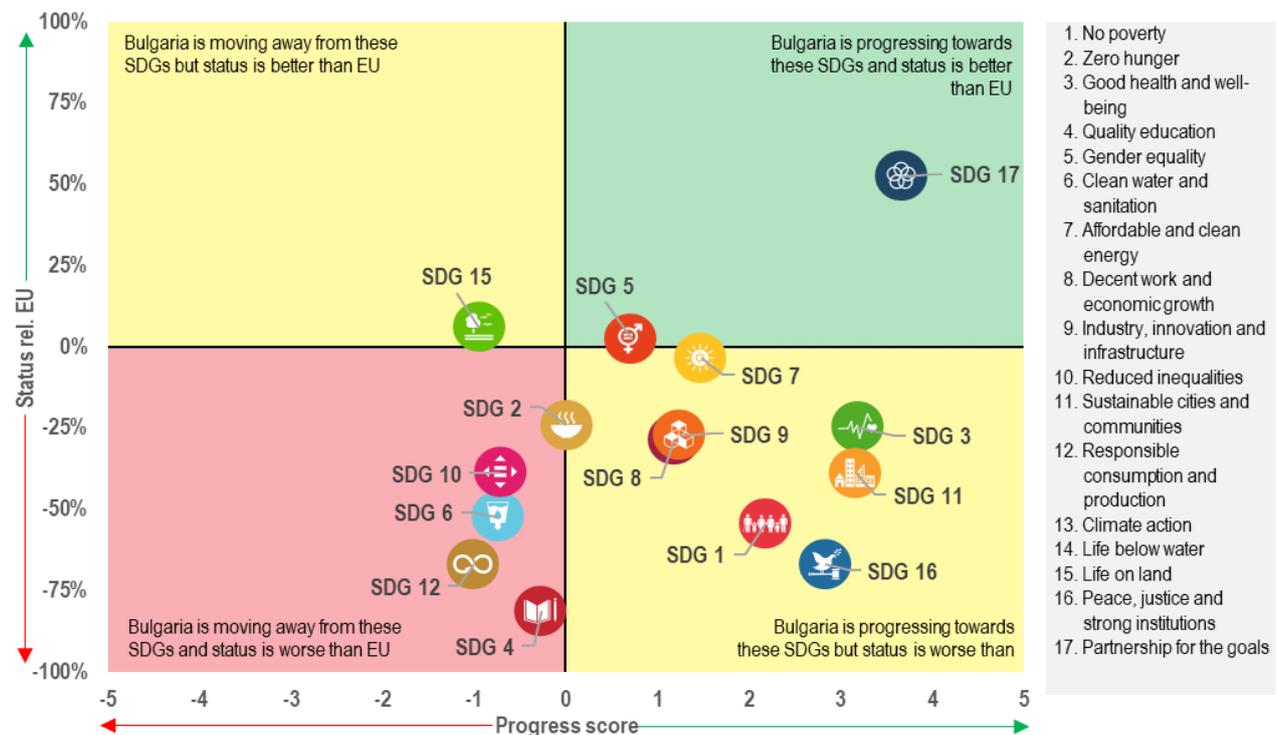
**This Annex assesses Bulgaria’s progress on the Sustainable Development Goals (SDGs) along the four dimensions of competitive sustainability.** The 17 SDGs and their related indicators provide a policy framework under the UN’s 2030 Agenda for Sustainable Development. The aim is to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind. The EU and its Member States are committed to this historic global framework agreement and to playing an active role in maximising progress on the SDGs. The graph below is based on the EU SDG indicator set developed to monitor progress on SDGs in an EU context.

**Bulgaria is improving on most SDG indicators related to environmental sustainability (SDG 2, 6, 7, 9 and 11). Challenges remain in some areas however (especially SDG 12).** On the other hand, the country performs well on SDGs 15 and 17. The ‘responsible consumption and production’ indicators (SDG 12) rate way below the EU average. The ‘circular material use rate’ dropped from 3.1% of the material input for domestic use in 2015 to 2.6% in 2020 (compared

to 12.8% in the EU). The ‘generation of waste excluding major mineral waste’ rate of 3097 kg per capita is also way above the EU average of 1820 kg per capita. The ‘average CO2 emissions per km from new passenger cars’ also exceeds the EU average of 108.2g of CO<sub>2</sub> per km by 24.8g. The ‘sanitation’ indicator (SDG 6), despite some improvement, remains below the EU average, with 7% of the population (in 2020) ‘having neither a bath, nor a shower, nor indoor flushing toilet in the household’ (compared to 11.1% in 2015 and the EU 2019 average of 1.6%) and 64.5% of the population (in 2020) ‘connected to at least secondary wastewater treatment’ (the EU average for the same year was 80.9%).

**On ‘affordable and clean energy’ (SDG 7), Bulgaria has made some progress.** Namely, in the share of renewable energy in total energy consumption (an increase from 18.3% in 2015 to 23.3% in 2020) and is in line with the EU average for this indicator (22.09 % in 2020). Bulgaria betters the EU average on ‘energy import dependency’ (37.9% of imports in gross available energy compared to 57.5% in the EU), but struggles when it comes to ‘access to affordable

Graph A1.1: Progress towards SDGs in Bulgaria in the last five years



(1) For detailed datasets on the various SDGs see the annual ESTAT report ‘Sustainable development in the European Union’, <https://ec.europa.eu/eurostat/product?code=KS-09-22-019>; Extensive country specific data on the short-term progress of Member States can be found here: Key findings - Sustainable development indicators - Eurostat (europa.eu)

Source: Eurostat, latest update of 28 April 2022. Data mainly refer to 2015–2020 and 2016–2021

energy', with 27.5% (2020) of the population 'unable to keep their home adequately warm' (EU 2020 average: 7.4%).

**Bulgaria generally underperforms on SDG indicators related to fairness.** However, the picture is mixed. Some SDG indicators have improved (SDG 1, 2, 3, 5, 8) others have worsened (SDG 4, 10). Bulgaria underperforms in all indicators related to 'no poverty' (SDG 1). Despite progress made on the percentage of 'people at risk of poverty or social exclusion' (33.6% of the population in 2020 compared to 43.4% in 2015; the 2020 EU average: 21.6%), as well as the percentage of 'severely materially or socially deprived people' (22.1% in 2020 compared to 36.8% in 2015 and the 2020 EU average of 6.8%), a disparity remains between Bulgaria's and the EU's results. The 'in-work at-risk-of-poverty rate' is also deteriorating (9.6% of the population aged 16 or over in 2020 compared to 7.7% in 2015).

**There are still challenges related to health and education.** While Bulgarians enjoy longer 'healthy life years at birth' (SDG 3) (66.3 years in 2020 compared to the EU average of 64.6), they are more often victims of 'standardised avoidable mortality' (2018: 414.5 per 100 000 people compared to EU 252.1 in 2017) as well as 'fatal accidents at work' (2019: 3.37 per 100 000 people compared to EU 1.74) or 'road traffic deaths' (rate of 9 in 2019 compared to 5.1 in the EU). On 'quality education' (SDG 4), Bulgaria shows rather 'low achievements in reading' (47.1% of 15-year-old students with low achievements in 2018 compared to the EU average of 22.5% in the same year) and a higher-than-average amount of 'early leavers from education and training' (in 2020: 12.2% of the population aged 18 to 24). There is also room for improvement in 'gender equality' (SDG 5), as only 12.9% of board members (senior management) are female compared to 29.5% in the EU (2020).

**Bulgaria is improving on some SDG indicators related to productivity (SDG 8, 9), but still needs to catch up on the SDG 4.** Namely, the 'share of (Bulgarian) households with high-speed internet connections' is below the EU average. According to the data from the Digital Economy and Society Index (DESI 2021), Bulgaria scores only 59% in the overall broadband take-up of households (EU average: 77%) and is also lagging behind in the take-up of high-speed fixed

broadband of at least 100 Mbps (15%, against an EU average of 34%). In addition, digital skills remain a problem for the adult population with 31% of individuals aged 16 to 74 enjoying 'at least basic digital skills' (2021; EU average: 54%).

**All 'R&D and innovation' indicators' (SDG 9) also show results below the EU average.** This is particularly visible when it comes to 'gross domestic expenditure on R&D' (2020: 0.86% of GDP compared to the EU average of 2.32%) or 'R&D personnel' (2020: 0.82% of the active population compared to EU average of 1.43%). Bulgarian 'patent applications to the European Patent Office' amount to 7 per million inhabitant (2020), while the EU average is 147 per million inhabitant. R&I shortages are addressed by the Bulgarian RRP (Component 2) through a number of programmes, but also through the forthcoming Research and Innovation Act and through the mandate of the newly created Ministry for Innovation and Growth advised by the Innovation Board.

**Bulgaria is improving on SDG indicators related to macroeconomic stability (8, 16) and performs well on SDG 17.** It is improving on the EU average on indicators related to 'decent work and economic growth' (SDG 8), but several challenges remain. Real GDP per capita of EUR 6380 remains well below the EU average of EUR 26 380. The 'investment share of GDP' (16.6% in 2021, well below the EU average of 22% for the same period) has averaged 18.3% for the last 6 years and was below the average investment share for the EU. On the other hand, Bulgaria is far less indebted than the EU average, with 'general government gross debt' of 24.7 % of GDP in 2020 compared to 90.1 % of GDP in the EU.

**Bulgaria has also shown some improvements on the 'peace, justice and strong institutions' indicators (SDG 16).** While still below the EU average, the country has made some positive change when it comes to 'peace and personal security', lowering by 7% the percentage of 'population reporting crime, violence or vandalism in their area' (from 26.3% in 2015 to 19.1% in 2020 (EU average: 13.2% in 2015 and 11% in 2019). On the other hand, there has been no change when it comes to 'standardised death rate due to homicide' (1.2 per 100 000 people both in 2013 and 2018 (EU average: 0.9 in 2013 and 0.7 in 2017). The Bulgarian RRP addresses these issues in its 'Business environment' component,

with several reforms aimed at making the justice and administrative justice systems more accessible, effective and predictable, and at fighting corruption

**The Recovery and Resilience Facility (RRF) is the centrepiece of the EU's efforts to support its recovery from the COVID-19 pandemic and strengthen resilience against future shocks.** Bulgaria submitted its recovery and resilience plan (RRP) on 15 October 2021. The Commission's positive assessment on 7 April 2022 and the Council's approval on 4 May 2022 paved the way for disbursing EUR 6.3 billion in grants under the RRF over the period 2022-2026. The key elements of the Bulgarian RRP are set out in Table A2.1.

Table A2.1: **Key elements of the Bulgarian RRP**

Total allocation	EUR 6.3 billion in grants (10.2% of 2019 GDP)
Investments and Reforms	57 investments and 47 reforms
Total number of Milestones and Targets	346 (206 milestones and 140 targets)
Estimated macroeconomic impact (1)	Raise GDP by 1.9%-3% by 2026 (0.6% in spillover effects)
First instalment	Bulgaria has not yet submitted a first payment request

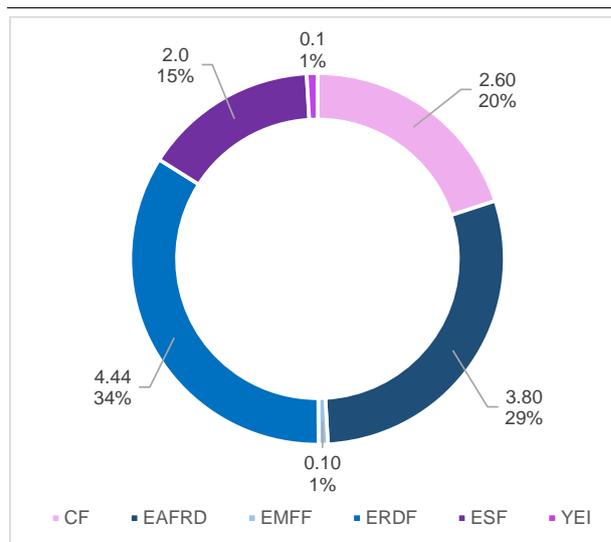
(1) See Pfeiffer P., Varga, J. and in 't Veld, J. (2021), 'Quantifying Spillovers of NGEU investment', European Economy Discussion Papers, No. 144 and Afman et al. (2021), 'An overview of the economics of the Recovery and Resilience Facility', Quarterly Report on the Euro Area (QREA), Vol. 20, No. 3 pp. 7-16.

**Source:** European Commission

**The EU's budget of more than EUR 1.2 trillion for 2021-2027 is the investment lever to help implement EU priorities.** Underpinned by an additional amount of about EUR 800 billion through NextGenerationEU and its largest instrument, the Recovery and Resilience Facility, it represents significant firepower to support the recovery and sustainable growth.

**In 2021-2027, EU cohesion policy funds <sup>(5)</sup> will support long-term development objectives in Bulgaria by investing EUR 10.8 billion <sup>(6)</sup>.** This includes EUR 1 295.0 million from the Just Transition Fund that are available to Bulgaria to alleviate the socio-economic impacts of the green transition in the most vulnerable regions. The 2021-2027 cohesion policy funds partnership agreements and programmes are designed taking into account the 2019-2020 country-specific recommendations (CSRs) and investment guidance provided within the context of the European Semester, ensuring synergies and complementarities with other EU funding. In addition, Bulgaria will benefit from EUR 5.7 billion support for the 2023-27 period from the Common Agricultural Policy, which supports social, environmental, and economic sustainability and innovation in agriculture and rural areas, contributing to the European Green Deal, and ensuring long-term food security.

Graph A3.1: 2014-2020 European Structural and Investment Funds – total budget by fund



(1) EUR billion in current prices, % of total

(2) The data for the EAFRD refer to the period 2014-2022

Source: European Commission, Cohesion Open Data

**In 2014-2020, the European Structural and Investment Funds (ESIF) for Bulgaria are set to invest EUR 11.05 billion <sup>(7)</sup> from the EU budget. The total investment, including national financing, amounts to EUR 13.02 billion (Graph A3.1), representing around 3.59% of GDP for the period 2014-2020 and 66.03% of public investment <sup>(8)</sup>. By 31 December 2021, 88% of the total was allocated to specific projects and 61% was reported as spent, leaving EUR 5.02 billion to be spent by the end of 2023 <sup>(9)</sup>. Of the 11 objectives, the most relevant for cohesion policy funding in Bulgaria are environmental protection and resource efficiency, the competitiveness of SMEs, network infrastructure in transport and energy, and social inclusion (in total EUR 8.12 billion). By the end of 2020, cohesion policy investments was supporting 27 494 firms, had improved water supply and waste water treatment for 300 000 people, and had financed 72km of new roads including the Trans-European**

<sup>(5)</sup> European Regional Development Fund (ERDF), European Social Fund+ (ESF+), Cohesion Fund (CF), Just Transition Fund (JTF), Interreg.

<sup>(6)</sup> Current prices, source: [Cohesion Open Data](#)

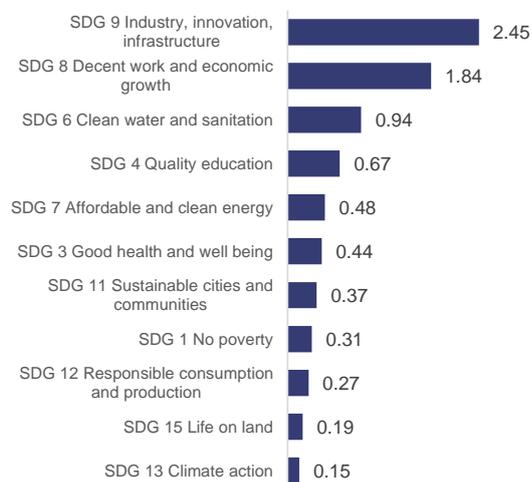
<sup>(7)</sup> ESIF includes cohesion policy funds (ERDF, ESF+, CF, Interreg) and the European Agricultural Fund for Rural Development (EAFRD) and European Maritime and Fisheries Fund (EMFF). According to the 'N+3 rule', the funds committed for the years 2014-2020 must be spent by 2023 at the latest (by 2025 for EAFRD). Data source: [Cohesion Open Data](#), cut-off date 31.12.2021 for ERDF, ESF+, CF, Interreg; cut-off date 31.12.2020 for EAFRD and EMFF.

<sup>(8)</sup> Public investment is gross fixed capital formation plus capital transfers, general government.

<sup>(9)</sup> Including REACT-EU. ESIF data on <https://cohesiondata.ec.europa.eu/countries/BG>

Transport Network. The European Social Fund (ESF) has invested over EUR 1.5 billion in improving the quality of and access to education at all levels, supporting employment, and reducing poverty and social exclusion. It has supported over 500 000 people by improving access to employment, including upskilling and reskilling opportunities and better social inclusion. In the area of education, more than 451 000 students have been included in extracurricular activities, more than 55 400 have been involved in practical training in a real work environment, 8 300 school students participated in practical training activities in a real work environment, over 1 800 kindergartens have received support for providing an environment for active inclusion in the system of preschool education (including for the early prevention of learning difficulties), and over 102 600 children and students have been included in measures for educational integration and reintegration. The Fund for European Aid to the Most Deprived (FEAD) programme has provided warm lunches for over 50 000 people monthly, and on average each year 520 000 people and members of their families received 290 000 food packages for the duration of the programme.

Graph A3.2: **Cohesion policy contribution to the SDGs**



(1) EUR billion in current prices

Source: European Commission, DG REGIO

**Cohesion policy funds are already contributing in great measure to achieving the SDG objectives.** In Bulgaria's case, cohesion policy funds are supporting 11 of the 17 SDGs with up to 94% of the expenditure contributing to the achievement of the related goals.

**REACT-EU, under NextGenerationEU, provided EUR 575.9 million of additional funding to 2014-2020 cohesion policy allocations for Bulgaria to ensure a balanced recovery, create conditions conducive to convergence and provide vital support for regions to help them deal with the impact of COVID-19.**

REACT-EU gives Bulgaria support for school education and healthcare to help it deal with the effects of the COVID-19 pandemic, as well as helping SMEs with working capital and increase their energy efficiency, contributes to the short-time work schemes, provides food to the most deprived and home care for elderly and disabled people.

**The Coronavirus Response Investment Initiative<sup>(10)</sup> provided the first EU emergency support to Bulgaria to help it deal with the COVID-19 pandemic.**

It introduced extraordinary flexibility enabling Bulgaria to re-allocate resources for immediate response to the crisis. Overall, around EUR 750 million have been mobilised together with national co-financing. For instance, Bulgaria shifted resources to purchase protective equipment and healthcare material, reinforce healthcare staff, provide vital working capital for SMEs, support temporary employment schemes and give elderly and vulnerable people additional assistance.

**Bulgaria received support, under the European instrument for temporary support to mitigate unemployment risks in an emergency (SURE), to finance short-time work schemes.**

The Council granted financial assistance under SURE to Bulgaria in September 2020 for a maximum of EUR 511 million, which was disbursed by 25 May 2021. SURE is estimated to have supported approximately 10% of workers and 5% of firms for at least one month in 2020 and 4% of workers and 2% of firms in 2021, primarily in manufacturing, accommodation and food services, and wholesale and retail trade. Bulgaria is estimated to have saved a total of EUR 0.03 billion on interest payments as a result of SURE's lower interest rates.

**The European Commission is engaged in providing tailor-made expertise through the**

<sup>(10)</sup> Re-allocating ESIF resources in accordance with Regulation (EU) 2020/460 of the European Parliament and of the Council of 30 March 2020, and Regulation (EU) 2020/558 of the European Parliament and of the Council of 23 April 2020.

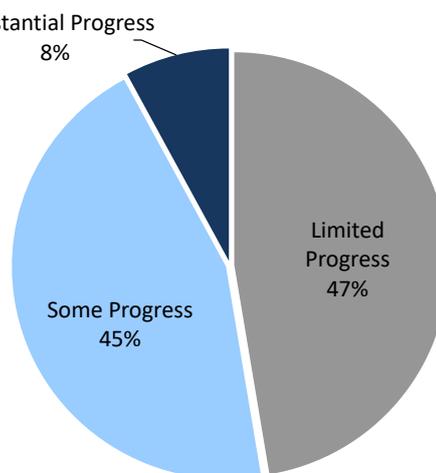
**Technical Support Instrument**, to help Bulgaria design and implement growth-enhancing reforms, including for implementing its RRP. Since 2016, Bulgaria has received assistance through 51 technical support projects. Projects delivered in 2021 aimed, for example, at supporting the implementation of the reform of the governance of state-owned enterprises, or effectively mitigating money laundering and terrorism financing risks. The Commission has also helped Bulgaria implement specific RRP reforms, for instance by improving the tools for preventing and counteracting corruption. In 2022, new projects will start to support, amongst others, the overall RRP monitoring, reporting, audit and control frameworks, project management and coordination methods, and help Bulgaria apply the ‘Do No Significant Harm’ principle.

**Bulgaria also benefits from other EU programmes.** These include the Connecting Europe Facility, which allocated EU funding of EUR 413.9 million to specific strategic transport network projects, and Horizon 2020, which allocated EU funding of EUR 160.8 million.

## ANNEX 4: PROGRESS IN THE IMPLEMENTATION OF COUNTRY-SPECIFIC RECOMMENDATIONS

**The Commission assessed the 2019-2021 country-specific recommendations (CSRs) <sup>(11)</sup> addressed to Bulgaria in the context of the European Semester. The assessment takes into account the policy action taken by Bulgaria to date <sup>(12)</sup>, as well as the commitments in the Recovery and Resilience Plan (RRP) <sup>(13)</sup>. At this early stage of the RRP implementation, overall 53% of the CSRs subparts focusing on structural issues in 2019 and 2020 have recorded at least “some progress”, while 47% recorded “limited progress” (see Graph A4.1). Considerable additional progress in addressing structural CSRs is expected in the years to come with the further implementation of the RRP.**

Graph A4.1: Bulgaria’s progress on the 2019-2020 CSRs (2022 European Semester cycle)



Source: European Commission

<sup>(11)</sup> 2021 CSRs: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021H0729%2802%29&qid=1627675454457>  
2020 CSRs: [EUR-Lex - 32020H0826\(02\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020H0826(02)) - EN - EUR-Lex (europa.eu)  
2019 CSRs: [EUR-Lex - 32019H0905\(02\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019H0905(02)) - EN - EUR-Lex (europa.eu)

<sup>(12)</sup> Incl. policy action reported in the National Reform Programme, as well as in the RRF reporting (bi-annual reporting on the progress with implementation of milestones and targets and resulting from the payment request assessment).

<sup>(13)</sup> Member States were asked to effectively address all or a significant subset of the relevant country-specific recommendations issued by the Council in 2019 and 2020 in their RRP. The CSR assessment presented here takes into account the degree of implementation of the measures included in the RRP and of those done outside of the RRP at the time of assessment. Measures foreseen in the annex of the adopted Council Implementing Decision on the approval of the assessment of the RRP, which are not yet adopted nor implemented but considered as credibly announced, in line with the CSR assessment methodology, warrant “limited progress”. Once implemented, these measures can lead to “some/substantial progress” or “full implementation”, depending on their relevance.

Table A4.1: Summary table on 2019, 2020 and 2021 CSRs

Bulgaria	Assessment in May 2022*	RRP coverage of CSRs until 2026
<b>2019 CSR1</b>	<b>Some Progress</b>	
<i>Improve tax collection through targeted measures in areas such as fuel and labour taxes.</i>	Some Progress	
<i>Upgrade the State-owned enterprise corporate governance by adopting and putting into effect the forthcoming legislation.</i>	Some Progress	Relevant RRP measures planned as of 2022 and 2023
<b>2019 CSR 2</b>	<b>Some Progress</b>	
<i>Ensure the stability of the banking sector by reinforcing supervision</i>	Substantial Progress	
<i>, promoting adequate valuation of assets, including bank collateral</i>	Some Progress	
<i>, and promoting a functioning secondary market for non-performing loans.</i>	Some progress	
<i>Ensure effective supervision and the enforcement of the AML framework.</i>	Some Progress	Relevant RRP measures planned as of 2021
<i>Strengthen the non-banking financial sector by effectively enforcing risk-based supervision</i>	Substantial Progress	
<i>, the recently adopted valuation guidelines</i>	Some Progress	
<i>and group-level supervision.</i>	Some Progress	
<i>Implement the forthcoming roadmap tackling the gaps identified in the insolvency framework.</i>	Some Progress	Relevant RRP measures planned as of 2022
<i>Foster the stability of the car insurance sector by addressing market challenges and remaining structural weaknesses.</i>	Some Progress	
<b>2019 CSR 3</b>	<b>Limited Progress</b>	
<i>Focus investment-related economic policy on research and innovation</i>	Limited Progress	Relevant RRP measures planned as of 2022,2023,2024,2025,2026
<i>, transport, in particular on its sustainability</i>	Limited Progress	Relevant RRP measures planned as of 2020, 2022-2026
<i>, water, waste and energy infrastructure and energy efficiency, taking into account regional disparities,</i>	Limited Progress	Relevant RRP measures planned as of 2023-2026
<i>and improving the business environment.</i>	Some Progress	Relevant RRP measures planned as of 2022,2023,2025,2026
<b>2019 CSR4</b>	<b>Limited Progress</b>	
<i>Strengthen employability by reinforcing skills, including digital skills.</i>	Limited Progress	Relevant RRP measures planned as of 2020, 2022,2023,2024,2026
<i>Improve the quality, labour market relevance, and inclusiveness of education and training, in particular for Roma and other disadvantaged groups.</i>	Limited Progress	Relevant RRP measures planned as of 2022,2026
<i>Address social inclusion through improved access to integrated employment and social services</i>	Limited Progress	Relevant RRP measures planned as of 2022,2023
<i>and more effective minimum income support.</i>	Limited Progress	Relevant RRP measures planned as of 2022,2023,2024,2025,2026
<i>Improve access to health services, including by reducing out-of-pocket payments and addressing shortages of health professionals.</i>	Limited Progress	Relevant RRP measures planned as of 2022,2023,2026
<b>2020 CSR1</b>	<b>Some Progress</b>	
<i>In line with the general escape clause, take all necessary measures to effectively address the pandemic, sustain the economy and support the ensuing recovery. When economic conditions allow, pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment.</i>	Not relevant anymore	Not applicable
<i>Mobilise adequate financial resources to strengthen the resilience, accessibility and capacity of the health system, and ensure a balanced geographical distribution of health workers.</i>	Limited Progress	Relevant RRP measures planned as of 2022,2023,2026
<b>2020 CSR2</b>	<b>Limited Progress</b>	
<i>Ensure adequate social protection and essential services for all</i>	Limited Progress	Relevant RRP measures planned as of 2022,2023
<i>and strengthen active labour market policies.</i>	Limited Progress	Relevant RRP measures planned as of 2020, 2022,2023,2024,2026
<i>Improve access to distance working</i>	Limited Progress	Relevant RRP measures planned as of 2023
<i>and promote digital skills</i>	Limited Progress	Relevant RRP measures planned as of 2020, 2022,2023,2024,2026
<i>and equal access to education.</i>	Limited Progress	Relevant RRP measures planned as of 2020, 2022,2023,2024,2026
<i>Address the shortcomings in the adequacy of the minimum income scheme.</i>	Limited Progress	Relevant RRP measures planned as of 2022,2023,2024,2025,2026
<b>2020 CSR 3</b>	<b>Some Progress</b>	
<i>Streamline and accelerate the procedures to provide effective support to small and medium-sized enterprises and self-employed,</i>	Substantial Progress	

(Continued on the next page)

Table (continued)

<i>also ensuring their continued access to finance and flexible payment arrangements.</i>	Some Progress	Relevant RRP measures planned as of 2022-2026
<i>Front-load mature public investment projects and promote private investment to foster the economic recovery.</i>	Limited progress	
	Some progress	Relevant RRP measures planned as of 2021-2026
<i>Focus investment on the green and digital transition, in particular on clean and efficient production and use of energy and resources,</i>	Some Progress	Relevant RRP measures planned as of 2023-2026
<i>environmental infrastructure</i>	Limited Progress	Relevant RRP measures planned as of 2023-2026
<i>and sustainable transport, contributing to a progressive decarbonisation of the economy, including in the coal regions.</i>	Limited Progress	Relevant RRP measures planned as of 2022-2026
<b>2020 CSR 4</b>	<b>Some progress</b>	
<i>Minimise administrative burden to companies by improving the effectiveness of public administration</i>	Some Progress	Relevant RRP measures planned as of 2023, 2024, 2026
<i>and reinforcing digital government.</i>	Some Progress	Relevant RRP measures planned as of 2022-2026
<i>Ensure an effective functioning of the insolvency framework.</i>	Some progress	Relevant RRP measures planned as of 2022, 2023, 2024 ,2025, 2026
<i>Step up the efforts to ensure adequate risk assessment, mitigation, effective supervision and enforcement of the anti-money laundering framework.</i>	Some progress	Relevant RRP measures planned as of 2021
<b>2021 CSR1</b>	<b>Substantial progress</b>	
<i>In 2022, pursue a supportive fiscal stance, including the impulse provided by the Recovery and Resilience Facility, and preserve nationally financed investment. Keep the growth of nationally financed current expenditure under control.</i>	Full implementation	Not applicable
<i>When economic conditions allow, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring fiscal sustainability in the medium term.</i>	Substantial progress	Not applicable
<i>At the same time, enhance investment to boost growth potential. Pay particular attention to the composition of public finances, on both the revenue and expenditure sides of the budget, and to the quality of budgetary measures in order to ensure a sustainable and inclusive recovery. Prioritise sustainable and growth-enhancing investment, in particular investment supporting the green and digital transition.</i>	Substantial progress	Not applicable
<i>Give priority to fiscal structural reforms that will help provide financing for public policy priorities and contribute to the long-term sustainability of public finances, including, where relevant, by strengthening the coverage, adequacy and sustainability of health and social protection systems for all.</i>	Limited progress	Not applicable

\* See footnote 13

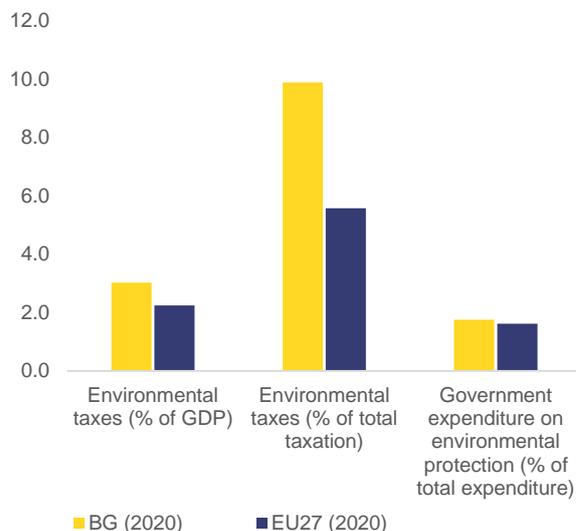
Source: European Commission

**The European Green Deal intends to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use.** This annex offers a snapshot of the most significant and economically relevant developments in Bulgaria in the respective building blocks of the European Green Deal. It is complemented by Annex 6 on the employment and social impact of the green transition and Annex 7 for circular economy aspects of the Green Deal.

**With measures taken and considered so far, Bulgaria would miss its current 2030 greenhouse gas reduction targets for non-Emissions Trading System (ETS) sectors.** Bulgaria’s total greenhouse gas emissions have remained approximately at the same level since 2015, albeit decreasing significantly compared to their 1990 level. Bulgaria exceeded its 2020 target emissions for non-ETS sectors and is projected to miss both the current and the proposed target for 2030 under the Fit for 55 package for non-ETS sectors, even if all additional measures were implemented. Under current land management practices, Bulgaria is projected to see no developments in net removals by 2030. Furthermore, the country’s decarbonisation path to long-term climate neutrality is **still unclear and relevant goals and plans** are lacking.

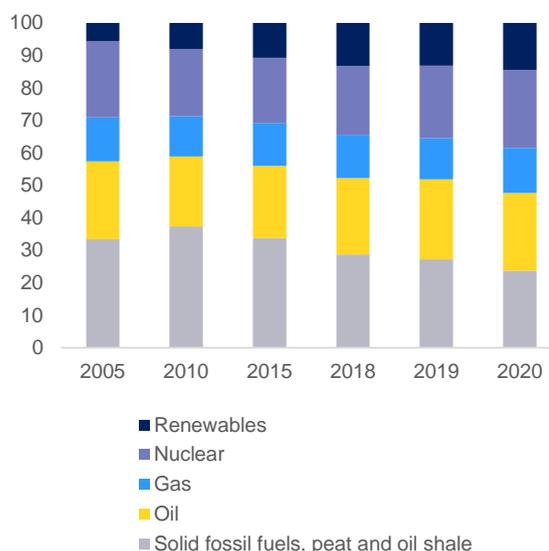
**Bulgaria records high collection of environmental taxes compared to the EU average.** This is especially the case in the area of energy, while the taxation of pollution, resources and transport is rather low<sup>(14)</sup>. Government expenditure on environmental protection has been slightly increasing over the past few years, but at roughly the same pace as total government expenditure. There are significant public budget climate risks for Bulgaria, with insurance coverage for floods and wildfires rather low.

Graph A5.1: Fiscal aspects of the green transition – taxation and government expenditure on environmental protection



Source: Eurostat

Graph A5.2: Thematic – Energy Share in energy mix (solids, oil, gas, nuclear, renewables)



(1) The energy mix is based on gross inland consumption, and excludes heat and electricity. The share of renewables includes biofuels and non-renewable waste.

Source: Eurostat

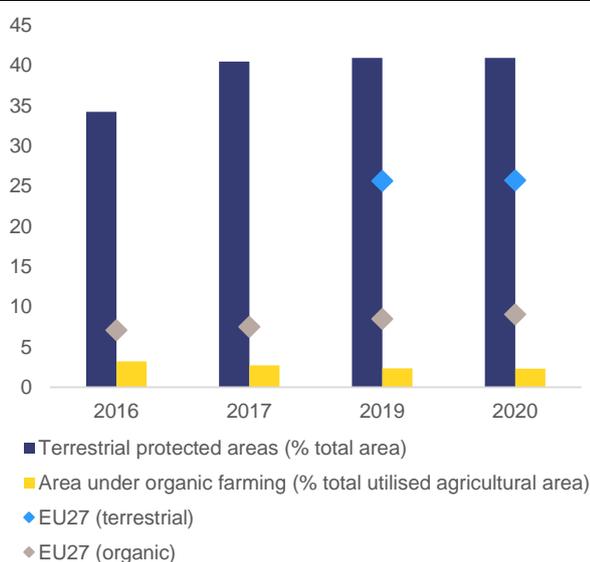
**Bulgaria is the most energy- and emissions-intensive Member State in the EU, with its energy mix still very much reliant on fossil fuels.** In 2020, 31% of the country’s electricity production was based on lignite and coal, while natural gas is widely used for heating and cooling

<sup>(14)</sup> For more information on taxation see Annex 18.

and industrial consumption. The share of the gross final energy consumption derived from renewable energy reached 23% in 2020. The national energy and climate plan puts forward a national contribution of 27% of the share of final consumption derived from renewable energy for the EU's 2030 target. This is just in line with the result of the formula in Regulation (EU) 2018/1999. No commitment to decommissioning coal-based power plants has been made so far.

**In terms of biodiversity and ecosystem health, there is room for improvement.** With the third highest share of its territory designated a protected area, Bulgaria reports that nearly 80% of its protected habitats are in poor conservation status and just under 11% in good conservation status. The species in good conservation status show a decline from 53% in 2012 to 38% in 2018. However, 54% of Bulgaria's breeding bird species show short-term increasing or stable population trends. With an estimated 2.3% of areas under organic farming, Bulgaria has the third lowest value for organic farming, well below the EU average. The opportunities organic farming provides are therefore still to be fully explored.

Graph A5.3: **Thematic – Biodiversity**  
**Terrestrial protected areas and organic farming**



(1) For terrestrial protected areas data for 2018, and data for the EU average (2016, 2017) is lacking

**Source:** EEA (terrestrial protected areas) and Eurostat (organic farming)

**In terms of pollution, air quality in Bulgaria continues to be a cause of great concern.** The latest available annual estimates from the

European Environment Agency (EEA) <sup>(15)</sup> point to about 10 600 premature deaths attributable to fine particulate matter concentrations, 290 to ozone concentration and 1 120 to nitrogen dioxide concentration <sup>(16)</sup>.

**The transition to sustainable transport remains a key challenge.** The limited development of transport infrastructure and slow progress on the Trans-European Transport Network affects the economic and social development of Bulgaria. This contributes to significant disparities between the different regions and creates a north-south divide.

**Road safety is a major issue.** Bulgaria has one of the worst track records in the EU, with 90 deaths per million inhabitants in 2019. There is an urgent need for reforms to improve the enforcement of rules, increase the number of vehicle inspections, promote awareness of and investments in infrastructure/vehicle safety and remove black spots, especially in view of the target of a 50% reduction of victims by 2030, in line with the EU road safety framework.

**Current taxes and charges linked to transport do not cover the costs generated.** Costs of negative externalities in transport (accidents, congestion, air pollution, climate change, noise and habitat damage) are estimated to be about EUR 7 billion annually for road, rail and inland waterways, while total revenue from all land transport modes amounts to about EUR 4 billion (respectively 66% and 46% of the costs for passengers and freight).

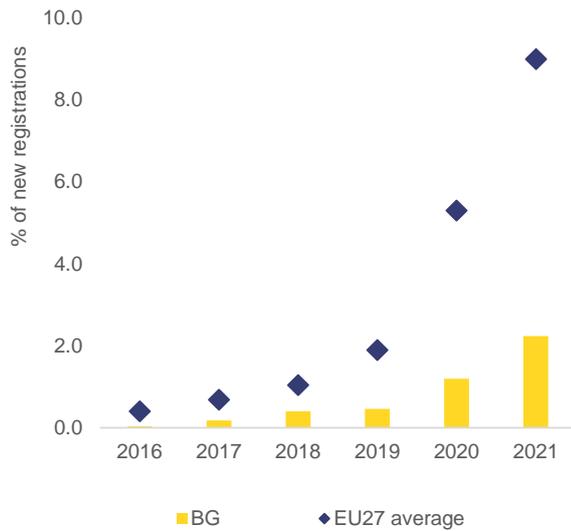
**The uptake of zero-emission passenger cars in Bulgaria is low, as is the density of public electric charging points.** Despite the increase in the number of zero-emission vehicles, the speed of the shift towards an electrified vehicle fleet remains slow compared to the EU average. The same is the case for the deployment of infrastructure for electric vehicles. While the number of public charging points increased from 18 in 2015 to 531 in 2021, the ratio of public charging points per 100 km<sup>2</sup> is one of the lowest

<sup>(15)</sup> [European Environment Agency. Air Quality in Europe – 2021 Report](#). Please see details in this report as regards the underpinning methodology, p.106.

<sup>(16)</sup> These figures refer to the impacts of individual pollutants, and to avoid double-counting cannot be added up to derive a sum.

in the EU (0.63 per 100 km<sup>2</sup> of land area) and far below the average of 13.54 per 100 km<sup>2</sup>. However, the spread of the increase in recharging infrastructure is not equal across the EU, with a small number of Member States way ahead in terms of the density of the network (the top 8 MS had an average ratio of 40.6 public charging points per 100 km<sup>2</sup> in 2021).

Graph A5.4: **Thematic – Mobility**  
**Share of zero-emission vehicles**



(1) Zero emission vehicles (passenger cars) include battery and fuel cell electric vehicles (BEV, FCEV).

**Source:** European Alternative Fuels Observatory

Table A5.1: Indicators underpinning progress on the European Green Deal from a macroeconomic perspective

			2005	2019	2020	Target	Distance	'Fit for 55'			
						2030	WEM	WAM	Target	Distance	
			2030	WEM	WAM	2030	WEM	WAM			
Progress to policy targets	Non-ETS GHG emission reduction target (1)	MTCO <sub>2</sub> eq; %; pp (2)	22.3	17%	26%	0%	7	11	-10%	-3	1
									National contribution to 2030 EU target		
			2005	2016	2017	2018	2019	2020			
	Share of energy from renewable sources in gross final consumption of energy (1)	%	9%	19%	19%	21%	22%	23%	27%		
	Energy efficiency: primary energy consumption (1)	Mtoe	19.2	17.7	18.3	18.4	18.2	17.2	17.5		
Energy efficiency: final energy consumption (1)	Mtoe	10.1	9.6	9.9	9.9	9.8	9.5	10.3			
			BULGARIA						EU		
			2015	2016	2017	2018	2019	2020	2018	2019	2020
Fiscal and financial indicators	Environmental taxes (% of GDP)	% of GDP	3.0	3.0	2.8	2.6	3.0	3.0	2.4	2.4	2.2
	Environmental taxes (% of total taxation)	% of taxation (3)	10.2	10.2	9.4	8.8	9.9	9.9	6.0	5.9	5.6
	Government expenditure on environmental protection	% of total exp.	1.93	1.90	1.93	1.89	1.90	1.75	1.66	1.70	1.61
	Investment in environmental protection	% of GDP (4)	2.06	0.58	0.45	0.45	-	-	0.42	0.38	0.41
	Fossil fuel subsidies	EUR 2020bn	0.3	0.5	0.5	0.5	0.6	-	56.9	55.7	-
	Climate protection gap (5)	score 1-4	2 out of 4 (slight increase from historical level of 1.8). This is a low/medium risk category (4 being a high risk).								
Climate	Net GHG emissions	1990 = 100	59	57	61	58	56	52	79	76	69
	GHG emissions intensity of the economy	kg/EUR '10	1.54	1.44	1.45	1.33	1.25	1.20	0.32	0.31	0.30
	Energy intensity of the economy	kgoe/EUR '10	0.45	0.43	0.43	0.42	0.40	0.40	0.12	0.11	0.11
Energy	Final energy consumption (FEC)	2015=100	100.0	101.7	104.3	104.5	103.7	100.5	103.5	102.9	94.6
	FEC in residential building sector	2015=100	100.0	102.7	105.7	101.7	98.6	108.6	101.9	101.3	101.3
	FEC in services building sector	2015=100	100.0	107.3	108.2	114.1	117.5	100.1	102.4	100.1	94.4
Pollution	Smog-precursor emission intensity (to GDP) (4)	tonne/EUR '10 (6)	4.88	3.92	3.57	3.33	2.89	-	0.99	0.93	-
	Years of life lost caused due to air pollution by PM <sub>2.5</sub>	per 100,000 inh.	1972	1858	2076	1980	1606	-	863	762	-
	Years of life lost due to air pollution by NO <sub>2</sub>	per 100,000 inh.	89	151	204	167	170	-	120	99	-
	Nitrate in ground water	mg NO <sub>3</sub> /litre	31.3	32.7	29.7	29.8	29.8	-	21.7	20.7	-
Biodiversity	Terrestrial protected areas	% of total	-	34.3	40.5	-	41.0	41.0	-	25.7	25.7
	Marine protected areas	% of total	-	8.1	-	-	8.1	-	-	10.7	-
	Organic farming	% of total utilised agricultural area	2.4	3.2	2.7	2.6	2.3	2.3	8.0	8.5	9.1
				2000-2006		2006-2012		2012-2018		00-06	06-12
Net land take	per 10,000 km <sup>2</sup>		3.7		3.9		3.2	13.0	11.0	5.0	
			2015	2016	2017	2018	2019	2020	2018	2019	2020
Mobility	GHG emissions intensity of transport (to GVA) (7)	kg/EUR '10	3.18	3.41	3.72	3.59	3.47	3.68	0.89	0.87	0.83
	Share of zero emission vehicles (8)	% in new registrations	0.0	0.0	0.2	0.4	0.5	1.2	1.0	1.9	5.4
	Number of plug-in electric vehicles per charging point		43	45	13	17	21	19	8	8	12
	Share of electrified railways	%	71.1	71.2	71.2	71.2	71.2	-	55.6	56.0	-
	Congestion (average number of hours spent in road congestion per year by a representative commuting driver)		30.3	31.0	34.1	35.8	36.2	-	28.9	28.8	-
			Year	BG	EU						
Digital	Share of smart meters in total metering points (9) - electricity	% of total	2018	0.0	35.8						
	Share of smart meters in total metering points (9) - gas	% of total	2018	0.0	13.1						
	ICT used for environmental sustainability (10)	%	2021	67.9	65.9						

(1) The 2030 non-ETS GHG target is based on the Effort Sharing Regulation. The FF55 targets are based on the COM proposal to increase EU's climate ambition by 2030. Renewables and Energy Efficiency targets and national contributions under the Governance Regulation (Regulation (EU) 2018/1999). (2) Distance to target is the gap between Member States' 2030 target under the Effort Sharing Regulation and projected emissions, with existing measures (WEM) and with additional measures (WAM) respectively, as a percentage of 2005 base year emissions. (3) Percentage of total revenues from taxes and social contributions (excluding imputed social contributions). Revenues from the ETS are included in environmental tax revenues (in 2017 they amounted to 1.5% of total environmental tax revenues at the EU level). (4) Covers expenditure on gross fixed capital formation to be used for the production of environmental protection services (i.e. abatement and prevention of pollution) covering all sectors, i.e. government, industry and specialised providers. (5) The climate protection gap indicator is part of the European adaptation strategy (February 2021), and is defined as the share of non-insured economic losses caused by climate-related disasters. (6) Sulphur oxides (SO<sub>2</sub> equivalent), Ammonia, Particulates < 10µm, Nitrogen oxides in total economy (divided by GDP). (7) Transportation and storage (NACE Section H). (8) Zero emission vehicles include battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV). (9) European Commission Report (2019) 'Benchmarking smart metering deployment in the EU-28'. (10) European Commission (2021). Each year the DESI is re-calculated for all countries for previous years to reflect any possible change in the choice of indicators and corrections to the underlying data. Country scores and rankings may thus differ compared with previous publications.

Source: Eurostat, JRC, European Commission, EEA, EAFO

**The green transition not only encompasses improvements to environmental sustainability, but also includes a significant social dimension.** While measures in this regard include the opportunity for sustainable growth and job creation, it must also be ensured that no one is left behind and all groups in society benefit from the transition. Bulgaria's green transition could benefit from the development of renewable sources of energy production such as wind, solar energy and geothermal basins. At the same time, Bulgaria continues to rely heavily on coal-fired power plants, with the result that lower-income groups and certain territories are likely to face transition challenges.

**Bulgaria's RRP outlines measures to support a fair green transition.** The measures envisaged in the plan to tackle energy poverty, which affects about one third of the Bulgarian population, include the development of a definition and criteria to identify energy-poor households as part of the Energy Act, in the context of market liberalisation and the financing of energy efficiency projects. The RRP also envisages the establishment of a National Decarbonisation Fund as well as the enhancement of investments in the energy efficiency of multi-apartment buildings. Some investments are planned in renewable energy projects, including projects for residential buildings. These are coupled with actions to promote renewable energy generation with a view to Bulgaria's reaching its 2030 environmental targets. In synergy with the Recovery and Resilience Facility (RRF), the European Social Fund Plus (ESF+) will help unlock the potential of green skills and jobs, and the Just Transition Fund (EUR 1.3 billion; current prices) will help mitigate the social impact of the transition in three Bulgarian regions<sup>(17)</sup> (see Annex 3). The integrated national energy and climate plan of 9 March 2020 provides to some extent an analysis of the employment, skills and social impact of the planned measures. It also proposes some measures to address energy poverty, ensuring the protection of and energy safeguards for vulnerable consumers, including the provision of targeted heating allowances as well as a mechanism for their protection in the process of the liberalisation of electricity prices.

<sup>(17)</sup> NUTS3 level regions Stara Zagora (plus 10 additional neighbouring municipalities affected in terms of commuting workforce), Kyustendil and Pernik – pending approval of Territorial Just Transition Plans by the Commission.

**The Bulgarian economy has been steadily reducing its carbon footprint relative to output, but it remains one of the EU's most carbon-intensive economies.** Its greenhouse gas (GHG) emissions intensity (in terms of gross value added) decreased by over one third between 2015 and 2020, but is still around four times the EU average. The carbon footprint per worker is also on a declining trend – at 14.22 tonnes, it is slightly above the EU average (13.61 tonnes) (see Figure 1). Declining sectors characterising the Bulgarian economy include coal and lignite extraction and fossil fuel-based electricity generation. Upskilling and reskilling measures are particularly important in this respect (see Annex 15). The employment share of energy-intensive sectors (such as metals, chemicals and non-metallic minerals) is broadly in line with the EU average, with only non-metallic mineral production above the EU average. Conversely, jobs in environmental goods and services represent a significantly lower share of employment (1.4% versus 2.1% in the EU)<sup>(18)</sup>. Wind and solar energy potential, as well as energy efficiency improvements, offer further opportunities for green jobs<sup>(19)</sup>. The Bulgarian working-age population has been shrinking over the last decade, which contributes to increasing labour shortages (see Annex 12). Labour shortages linked to the transition to a climate-neutral economy have been identified in several sectors, notably manufacturing and tourism (Eurofound, 2021).

**As for the social dimension of the green transition, ensuring access to essential transport and energy services is difficult.** The share of the population at risk of poverty in rural areas was 36.3% in 2020, well above the EU average (18.8%) and among the highest in the EU<sup>(20)</sup>. The share of the population unable to keep their homes adequately warm is declining. However, it remains one of the highest in the EU (27.5% versus 7.4% on average in the EU in 2020). Lower-income groups are affected the

<sup>(18)</sup> There is currently no common EU-wide definition of green jobs. The environmental goods and services sector accounts only report on an economic sector that generates environmental products, i.e. goods and services produced for environmental protection or resource management.

<sup>(19)</sup> <https://publications.jrc.ec.europa.eu/repository/handle/JRC126047>

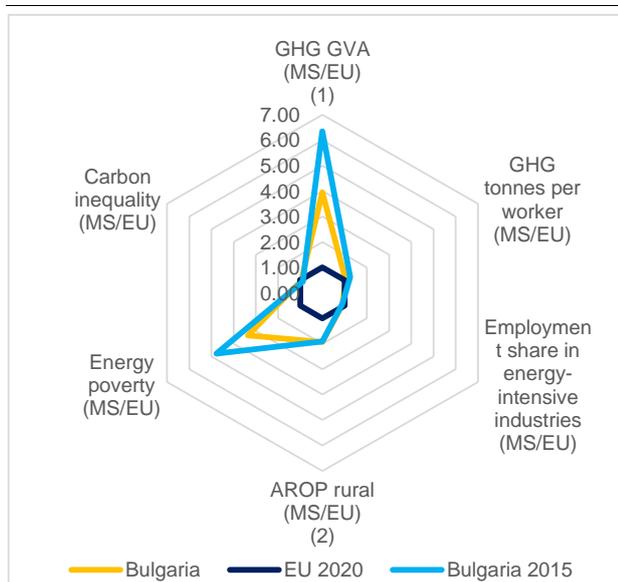
<sup>(20)</sup> Based on COM(2021) 568 final as a proxy for potential transport challenges in the context of the green transition.

most (Graph A6.2). The average carbon footprint of the top 10% of emitters is 5 times higher than that of the bottom 50% of the population.

**Tax systems are crucial for ensuring a fair transition towards climate neutrality <sup>(21)</sup>.**

Bulgaria's revenues from total environmental taxes marginally increased from 2.95% of GDP in 2015 to 2.99% in 2019, and remained relatively stable in 2020 (against 2.24% in the EU). The labour tax wedge for low-income earners <sup>(22)</sup> increased from 33.6% to 34.9% from 2015 to 2018 (with no change until 2021), compared to 31.9% in the EU in 2021 (see Annex 18).

Graph A6.1: **Fair green transition challenges**



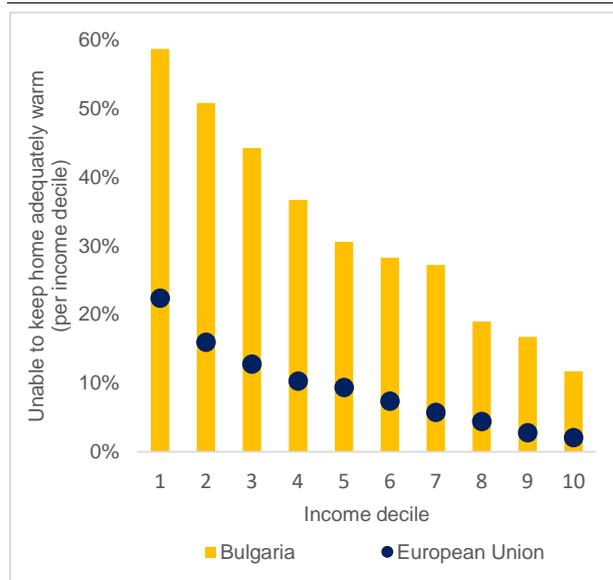
Numbers are the normalised indicator performance relative to the EU27 average

(1) GHG tonnes per Euro of gross added value (MS/EU)

(2) Share of population in rural areas at risk of poverty (MS/EU)

**Source:** Eurostat, World Inequality Database

Graph A6.2: **Energy poverty by income decile**



**Source:** Eurostat EU-SILC survey (2020)

<sup>(21)</sup> COM(2021) 801 final.

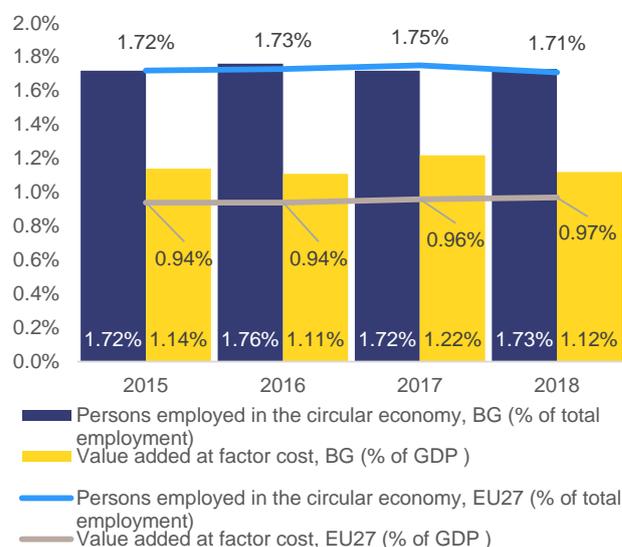
<sup>(22)</sup> Tax wedge for a single earner at 50% of the national average wage (Tax and benefits indicators database, European Commission/OECD).

**The efficient use of resources is key to ensuring competitiveness and open strategic autonomy, while minimising the environmental impact.** The green transition presents a major opportunity for European industry by creating markets for clean technologies and products. It will have an impact across the entire value chain in sectors such as energy and transport, construction and renovation, food and electronics, helping to create sustainable, local and well-paid jobs across Europe.

**Bulgaria is among the Member States that lag behind the most in implementing circular economy measures.** The country's circular material use rate was 2.6% in 2020, around 5 times lower than the EU average (12.8%). Bulgaria does not yet have a formal circular economy strategy, although it is developing one. At the same time, the circular economy has become more important because of the need not only to support the green transition, but also Bulgaria's strategic autonomy.

**The Bulgarian economy is one of the most resource-intensive in the EU, lagging behind Member States in implementing the circular economy principle and engaging in eco-innovation activities.** Resource productivity in the EU has been at 2.23 purchasing power standards (PPS) per kg, but in Bulgaria it was still 0.82 PPS per kg as of 2020.

Graph A7.1: Economic importance and expansion of the circular economy – Employment and value added in circular economy sectors



Source: Eurostat

Table A7.1: Selected resource efficiency indicators

SUB-POLICY AREA	2015	2016	2017	2018	2019	2020	EU27	Latest year EU27
<b>Circularity</b>								
Resource Productivity (Purchasing power standard (PPS) per kilogram)	0.6	0.7	0.7	0.8	0.8	0.8	2.2	2020
Material Intensity (kg/EUR)	1.6	1.4	1.3	1.3	1.2	1.2	0.4	2020
Circular Material Use Rate (%)	3.1	4.4	3.5	2.5	2.3	2.6	12.8	2020
Material footprint (Tonnes/capita)	20.8	18.1	20.7	22.9	22.9	-	14.6	2019
<b>Waste</b>								
Waste generation (kg/capita, total waste)	-	16 907	-	18 470	-	-	5 234	2018
Landfilling (% of total waste treated)	-	83.2	-	85.4	-	-	38.5	2018
Recycling rate (% of municipal waste)	29.4	31.8	34.6	31.5	-	-	47.8	2020
Hazardous waste (% of municipal waste)	-	11.1	-	10.4	-	-	4.3	2018
<b>Competitiveness</b>								
Gross value added in environmental goods and services sector (% of GDP)	1.82	1.92	1.92	1.89	2.83	-	2.32	2019
Private investment in circular economy (% of GDP)	1.82	1.92	1.93	1.9	-	-	0.12	2018

Source: Eurostat

### **The Digital Economy and Society Index (DESI) monitors EU Member States' digital progress.**

The areas of human capital, digital connectivity, the integration of digital technologies by businesses and digital public services reflect the Digital Decade's four cardinal points<sup>(23)</sup>. This Annex describes Bulgaria's DESI performance.

### **Bulgaria's contribution to the digital objectives in its Recovery and Resilience Plan is nearly EUR 1.6 billion, 25.8% of the plan's total allocation.**

Measures are dedicated to increasing the digital skills of the population, improving digital connectivity, the digitalisation of public services, and supporting business digitalisation.

### **Bulgaria scores low in the DESI human capital dimension.**

Only about a third of Bulgaria's population has basic digital skills, the lowest in the EU. The percentage of ICT specialists is also one of the lowest in the EU, although the ratio of female ICT specialists is the highest.

### **Bulgaria performs better in digital connectivity.**

The country is above the EU average in the coverage of fixed very-high capacity networks but under the EU average on mobile broadband coverage and the assignment of 5G spectrum is low (25% compared to EU average of 56%). On a positive note, broadband prices are one of the lowest in the EU, with a score of 86 compared to the EU average of 73<sup>(24)</sup>.

### **Bulgaria scores very low in the DESI dimension of integration of digital technology.**

One main challenge is the adoption of digital technology in enterprises (mainly SMEs), where the percentage is one of the lowest in the EU. The adoption of advanced technologies (such as big data, cloud and AI) is also very low.

### **Bulgaria has a very low performance in the DESI digital public services dimension.**

It scores far below the EU average for digital public services for citizens (59 vs 75), but near the EU average for businesses (76 vs 82). The percentage of e-government users has also stagnated in recent years at 36% compared to the EU average

of 64%. The use of open data is also lower than the EU average, but only by 3 percentage points.

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<sup>(23)</sup> 2030 Digital Compass: the European Way for the Digital Decade Communication, COM (2021) 118 final.

<sup>(24)</sup> Source: Communications Committee (COCOM) based on iDATE

Table A8.1: **Key Digital Economy and Society Index indicators**

	Bulgaria			EU	EU-top performance
<b>Human capital</b>	DESI 2020	DESI 2021	DESI 2022	DESI 2022	DESI 2022
<b>At least basic digital skills</b>	<b>NA</b>	<b>NA</b>	<b>31%</b>	<b>54%</b>	<b>79%</b>
% individuals			2021	2021	2021
<b>ICT specialists</b>	<b>3.1%</b>	<b>3.3%</b>	<b>3.5%</b>	<b>4.5%</b>	<b>8.0%</b>
% individuals in employment aged 15-74	2019	2020	2021	2021	2021
<b>Female ICT specialists</b>	<b>28%</b>	<b>28%</b>	<b>28%</b>	<b>19%</b>	<b>28%</b>
% ICT specialists	2019	2020	2021	2021	2021
<b>Connectivity</b>					
<b>Fixed Very High Capacity Network (VHCN) coverage</b>	<b>65%</b>	<b>75%</b>	<b>85%</b>	<b>70%</b>	<b>100%</b>
% households	2019	2020	2021	2021	2021
<b>5G coverage (*)</b>	<b>NA</b>	<b>0%</b>	<b>40%</b>	<b>66%</b>	<b>99.7%</b>
% populated areas		2020	2021	2021	2021
<b>Integration of digital technology</b>					
<b>SMEs with at least a basic level of digital intensity</b>	<b>NA</b>	<b>NA</b>	<b>25%</b>	<b>55%</b>	<b>86%</b>
% SMEs			2021	2021	2021
<b>Big data</b>	<b>7%</b>	<b>6%</b>	<b>6%</b>	<b>14%</b>	<b>31%</b>
% enterprises	2018	2020	2020	2020	2020
<b>Cloud</b>	<b>NA</b>	<b>NA</b>	<b>10%</b>	<b>34%</b>	<b>69%</b>
% enterprises			2021	2021	2021
<b>Artificial Intelligence</b>	<b>NA</b>	<b>NA</b>	<b>3%</b>	<b>8%</b>	<b>24%</b>
% enterprises			2021	2021	2021
<b>Digital public services</b>					
<b>Digital public services for citizens</b>	<b>NA</b>	<b>NA</b>	<b>59</b>	<b>75</b>	<b>100</b>
Score (0 to 100)			2021	2021	2021
<b>Digital public services for businesses</b>	<b>NA</b>	<b>NA</b>	<b>76</b>	<b>82</b>	<b>100</b>
Score (0 to 100)			2021	2021	2021

(\*) The 5G coverage indicator does not measure users' experience, which may be affected by a variety of factors such as the type of device used, environmental conditions, number of concurrent users and network capacity. 5G coverage refers to the percentage of populated areas as reported by operators and national regulatory authorities

**Source:** Digital Economy and Society Index

**This Annex provides a general overview of the performance of Bulgaria's research and innovation system.** Bulgaria is an emerging innovation performer according to the 2021 edition of the European Innovation Scoreboard <sup>(25)</sup> and has difficulties reducing the gap between it and the EU innovation leaders. Total research and development (R&D) intensity was 0.85% of GDP in 2020, still far below the EU-27 average of 2.32%.

**Low levels of public and private research and innovation (R&I) investment continue to affect Bulgaria's research and innovation potential.** Public R&D intensity remains one of the lowest in the EU, at 0.27% of GDP, and the country also scores low in terms of business R&D expenditure (0.58% in 2020). To overcome this key challenge, Bulgaria announced its intention to gradually increase public R&D spending to reach the target of 1% of GDP for 2025. Meeting this target, as well as the new 2030 gross expenditures on research and development (GERD) target of 3% of GDP, will require a significant and continuous increase in science and innovation funding.

**Besides challenges arising from insufficient R&D funding, the Bulgarian research and innovation system still suffers from structural shortcomings, holding back the potential contribution of R&I to productivity and economic growth.** The high degree of institutional fragmentation of the public science base is a key obstacle to improving scientific performance. The share of the country's scientific publications within the top 10% most cited scientific publications worldwide is the lowest in the EU (2.6% in 2018) and has been on a declining trend since 2010. Science-business links are insufficiently developed, as reflected in the low share of public-private scientific co-publications, which remains far below the EU average (5.3% compared to 9.05%). Bulgarian inventors file a low number of patents (0.5 patent applications per billion GDP compared to the EU average of 3.5), making domestic industries strongly dependent on the import of technology and knowledge capital. On a positive note, employment in fast-growing enterprises in innovative sectors (% of total employment) is above the EU average.

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<sup>(25)</sup> 2021 European Innovation Scoreboard, Country profile: Bulgaria <https://ec.europa.eu/docsroom/documents/45907>

Table A9.1: **Key research, development and innovation indicators**

<b>Bulgaria</b>	<b>2010</b>	<b>2015</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Compound annual growth 2010-20</b>	<b>EU average</b>
<b>Key indicators</b>							
R&D Intensity (GERD as % of GDP)	0.56	0.95	0.75	0.83	0.85	4.2	2.32
Public expenditure on R&D as % of GDP	0.28	0.25	0.21	0.27	0.27	-0.2	0.78
Business enterprise expenditure on R&D (BERD) as % of GDP	0.28	0.7	0.54	0.56	0.58	7.4	1.53
<b>Quality of the R&amp;I system</b>							
Scientific publications of the country within the top 10% most cited publications worldwide as % of total publications of the country	3.1	2.4	2.6	:	:	-2.2	9.9
PCT patent applications per billion GDP (in PPS)	0.3	0.6	0.5	:	:	4.6	3.5
<b>Academia-business cooperation</b>							
Public-private scientific co-publications as % of total publications	4.6	6.2	5.6	5.2	5.3	1.6	9.05
<b>Human capital and skills availability</b>							
New graduates in science & engineering per thousand pop. aged 25-34	11.4	11.4	9.1	9	:	-4.6	16.3
<b>Public support for business enterprise expenditure on R&amp;D (BERD)</b>							
Total public sector support for BERD as % of GDP	:	0.025	:	0.018	:	18.3	0.196
<b>Green innovation</b>							
Share of environment-related patents in total patent applications filed under PCT (%)	10.2	28.7	16.6	:	:	6.3	12.8
<b>Finance for innovation and Economic renewal</b>							
Venture Capital (market statistics) as % of GDP	0.015	0.011	0.011	0.009	0.01	-3.6	0.054
Employment in fast-growing enterprises in innovative sectors (% of total employment)	6.2	6.6	7	6.6	:	0.8	5.5

**Source:** DG Research and Innovation - Common R&I Strategy and Foresight Service - Chief Economist Unit

Data: Eurostat, OECD, DG JRC, Science-Metrix (Scopus database and EPO's Patent Statistical database), Invest Europe

**Productivity growth is a critical driver of economic prosperity, well-being and convergence over the long run** <sup>(26)</sup>. A major source of productivity for the EU economy is a well-functioning single market, where fair and effective competition and a business-friendly environment are ensured, in which small and medium-sized enterprises (SMEs) can operate and innovate without difficulty. Businesses and industry rely heavily on robust supply chains and are facing bottlenecks that bear a negative impact on firms' productivity levels, employment, turnover and entry/exit rates. This may impact the Member States' capacity to deliver on Europe's green and digital transformation.

**Labour productivity in Bulgaria remains about half the EU average.** Labour productivity growth accelerated to 3.6% in 2019, but the COVID-19 pandemic slowed it down to 0.3% in 2020. Small growth was maintained mainly in professional, scientific and technical services, as well as wholesale and retail, mainly due to labour hoarding during the pandemic, and in the mining industry. In 2021, productivity recovery picked up, with total factor productivity swiftly resuming its pre-pandemic pace. RRP and cohesion policy support for R&I activities can lead to high productivity gains in coming years. However, persistent structural issues affect productivity and competitiveness.

**Despite some improvements, the business environment is still not entirely conducive to investments.** Access to finance has worsened for Bulgarian companies, along with a growing share of rejected loans. Around 15% of SMEs did not manage to obtain the amount they requested for a loan <sup>(27)</sup>. Equity financing remains limited, with venture capital investments around 0.01% of GDP <sup>(28)</sup>. The RRP and ESIF measures are expected to bring improvements. The liquidity measures introduced by the government during the pandemic slowed down the number of bankruptcies. However, the insolvency framework needs further improvements to avoid trapping resources in non-productive firms. The RRP covers this. Business dynamism is also affected by labour shortages, with 27% of companies facing

constraints <sup>(29)</sup>, well above the EU average, as well as by administrative burdens and regulatory barriers. Investment in the country remains subdued, at 19.2% of GDP.

**The Bulgarian economy is well integrated into the single market, but some barriers remain.** The professions of lawyers, architects, engineers, and tourist guides are more regulated than the EU average and unnecessary restrictions have not been addressed. Competition in public tenders remains a challenge, with a high share of procedures with no calls for bids (29%) or with a single bidder (26%). In over 80% of public tenders, the price is the only award criterion, limiting the possibility for the acquisition of higher quality or more sustainable products and services. The Bulgarian RRP includes concrete measures to tackle some of these key issues.

**Bulgaria has an open economy, well integrated into global value chains, the domestic value added of exports is still low.** The country is more involved in assembling and processing input from other countries, but overall its economy has been relatively less affected by global supply chain disruptions, possibly due to the relative diversification of manufacturing production. Material shortages are reported by 7% of companies, compared to the EU average of 26%.

<sup>(26)</sup> [Annual Sustainable Growth Survey](#)

<sup>(27)</sup> SAFE survey on access to finance, 2021.

<sup>(28)</sup> InvestEurope.

<sup>(29)</sup> ECFIN consumer & business survey.

Table A10.1: Key Single Market and Industry indicators

SUB-POLICY AREA	INDICATOR NAME	DESCRIPTION	2021	2020	2019	2018	2017	Growth rates	EU27 average*
<b>HEADLINE INDICATORS</b>									
Economic structure	Value added by source (domestic)	VA that depends on domestic intermediate inputs, % [source: OECD (TIVA), 2018]				58.48			62.6%
	Value added by source (EU)	VA imported from the rest of the EU, % [source: OECD (TIVA), 2018]				22.02			19.7%
	Value added by source (extra-EU)	% VA imported from the rest of the world, % [source: OECD (TIVA), 2018]				19.5			17.6%
Cost competitiveness	Producer energy price (industry)	Index (2015=100) [source: Eurostat, sts_inppd_a]	137.3	111.9	114.5	107.7	100.2	37.0%	127.3
<b>RESILIENCE</b>									
Shortages / supply chain disruptions	Material Shortage using survey data	Average (across sectors) of firms facing constraints, % [source: ECFIN CBS]	7	4	4	5	4	75%	26%
	Labour Shortage using survey data	Average (across sectors) of firms facing constraints, % [source: ECFIN CBS]	27	28	44	44	35	-23%	14%
	Sectoral producer prices	Average (across sectors), 2021 compared to 2020 and 2019, index [source: Eurostat]						5.9%	5.4%
Strategic dependencies	Concentration in selected raw materials	Import concentration a basket of critical raw materials, index [source: COMEXT]	0.16	0.14	0.15	0.16	0.16	0%	17%
	Installed renewables electricity capacity	Share of renewable electricity to total capacity, % [source: Eurostat, nrg_inf_epc]		47.8	46.3	46.0	48.1	-1%	47.8%
Investment dynamics	Net Private investments	Change in private capital stock, net of depreciation, % GDP [source: Ameco]		4.1	4.5	4.6	4.6	-10.9%	2.6%
	Net Public investments	Change in public capital stock, net of depreciation, % GDP [source: Ameco]		1.1	0.8	0.4	-0.5	-320%	0.4%
<b>SINGLE MARKET</b>									
Single Market integration	Intra-EU trade	Ratio of Intra-EU trade to Extra-EU trade, index [source: Ameco]	1.72	1.72	1.67	1.74	1.62	6.0%	1.59
Professional services restrictiveness	Regulatory restrictiveness indicator	Restrictiveness of access to and exercise of regulated professions (professions with above median restrictiveness, out of the 7 professions analysed in SW D (2021)185 [source: SW D (2021)185; SW D(2016)436 final])	4				3	33.3%	3.37
Professional qualifications recognition	Recognition decisions w/o compensation	Professionals qualified in another EU MS applying to host MS, % over total decisions taken by host MS [source: Regulated professions database]	1.3						45%
Compliance - cooperation EC and MS	Transposition - overall	5 sub-indicators, sum of scores [source: Single Market Scoreboard]		Below average	Above average	On average	On average		
	Infringements - overall	4 sub-indicators, sum of scores [source: Single Market Scoreboard]		Below average	On average	On average	On average		
Investment protection	Confidence in investment protection	Companies confident that their investment is protected by the law and courts of MS if something goes wrong, % of all firms surveyed [source: Flash Eurobarometer 504]	37						56%
<b>BUSINESS ENVIRONMENT - SMEs</b>									
Business demography	Bankruptcies	Index (2015=100) [source: Eurostat, sts_rb_a]		107.90	129.30	118.00	126.70	-14.8%	70.10
	Business registrations	Index (2015=100) [source: Eurostat, sts_rb_a]		70.6	93.6	100.3	103.7	-31.9%	105.6
Access to finance	Late payments	Share of SMEs experiencing late payments in past 6 months, % [source: SAFE]	32.4	30.3	34.5	n.a.	n.a.	-5.8%	45%
	EIF Access to finance index - Loan	Composite: SME external financing over last 6 months, index from 0 to 1 (the higher the better) [source: EIF SME Access to Finance Index]		0.47	0.41	0.27	0.25	92.0%	0.56
	EIF Access to finance index - Equity	Composite: VC/GDP, IPO/GDP, SMEs using equity, index from 0 to 1 (the higher the better) [source: EIF SME Access to Finance Index]		0.06	0.05	0.1	0.07	-9.9%	18%
Public procurement	% of rejected or refused loans	SMEs whose bank loans' applications were refused or rejected, % [source: SAFE]	15.5	9.6	7.1	15	7.4	110.1%	12.4%
	SME contractors	Contractors which are SMEs, % of total [source: Single Market Scoreboard]		69	68	67	56	23.2%	63%
	SME bids	Bids from SMEs, % of total [source: Single Market Scoreboard]		69	67	66	54	27.8%	70.8%

(\*) latest available

Source: See above in the table the respective source for each indicator in the column "Description".

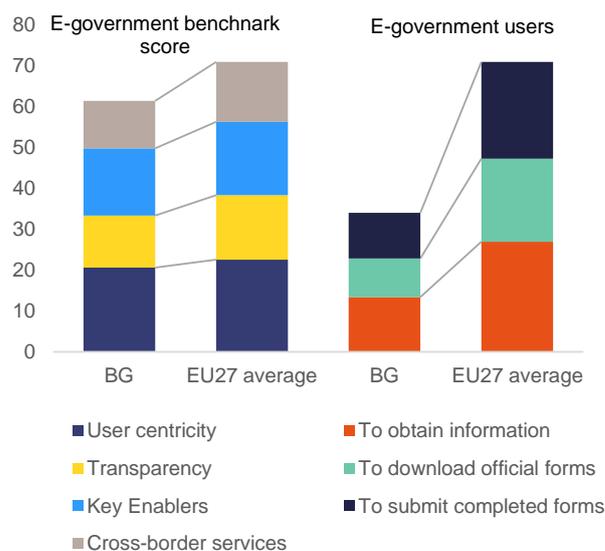
**Good administrative capacity enables economic prosperity, social progress and fairness.** Public administrations at all government levels deliver crisis response, ensure the provision of public services and contribute to building resilience needed for the sustainable development of the EU economy.

**Bulgaria’s public administration is ranked substantially below the EU average<sup>(30)</sup>.**

Ongoing reforms for digitalisation, better service delivery and policymaking, including with support from EU funds, have produced mixed results so far. The e-government indices are well below the EU average (Graph A11.1). The COVID-19 crisis triggered some advancements in the provision of digital public services. However, cross-border mobility remains particularly low and user-centricity also remains below the EU-27 average. E-government users represent only 36% of internet users, well below the EU average of 70.8%. The RRP aims to give impetus to the digital transformation of public administration, including the judiciary. Key reforms and investments include the digitalisation of registry data and e-certification based on information in registries, electronic submission of legal documents, remote court hearings, the digitalisation of key judicial processes in the administrative justice system, the digitalisation of the Bulgarian Post Office and the introduction of building information modelling for the construction sector. Investments in digital systems are expected to improve strategic planning, reform implementation, the management of emergencies and healthcare.

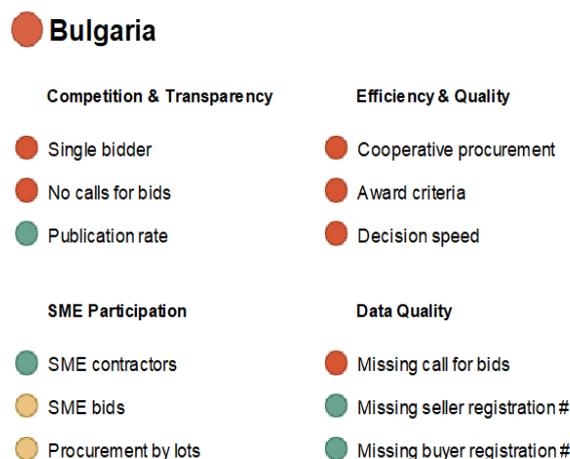
**Public procurement remains a challenge.** In the Single Market Scoreboard, Bulgaria keeps ranking at the bottom due to underperformance in transparency, competition and efficiency in public procurement (Graph A11.2). The RRP contains reforms to reduce the share of non-competitive and in-house bids and to advance e-procurement.

Graph A11.1: E-government benchmark scores and (lhs) and e-government users (rhs)



Source: Eurostat (ICT use survey), E-government benchmark report

Graph A11.2: Performance on the single market public procurement indicator



(1) The competition and transparency indicators are triple-weighted, whereas the efficiency and quality indicators have unitary weights. All others receive a 1/3 weighting in the SMS composite indicator.

Source: Single Market Scoreboard, 2020 data

**Bulgaria underperforms in policy planning and coordination.** The use of impact assessments and ex-post evaluations still needs to be applied consistently for all legislative proposals. Administrative capacity remains weak. Civil servants have high education levels, but their participation in adult learning is very low (BG 1.7%; EU average 18.6%).

<sup>(30)</sup> Worldwide Governance Indicators, 2020.

Table A11.1: **Public administration indicators – Bulgaria**

BG	Indicator (1)	2017	2018	2019	2020	2021	EU27
<b>E-government</b>							
1	Share of individuals who used internet within the last year to interact with public authorities (%)	31.0	33.0	36.0	36.0	34.0	70.8
2	2021 e-government benchmark's overall score (2)	na	na	na	na	61.4	70.9
<b>Open government and independent fiscal institutions</b>							
3	2021 open data maturity index	na	na	na	na	78.0	81.1
4	Scope Index of Fiscal Institutions	53.9	55.2	55.2	55.2	na	56.8
<b>Educational attainment level, adult learning, gender parity and ageing</b>							
5	Share of public administration employees with tertiary education, levels 5-8 (3)	55.3	55.0	55.8	55.6	56.3	55.3
6	Participation rate of public administration employees in adult learning (3)	1.9	1.9	1.9	na	1.7	18.6
7	Gender parity in senior civil service positions (4)	0.4	3.4	8.2	8.8	19.0	21.8
8	Share of public sector workers between 55 and 74 years (3)	18.6	21.9	22.2	20.5	21.4	21.3
<b>Public Financial Management</b>							
9	Medium term budgetary framework index	0.73	0.73	0.73	0.73	na	0.72
10	Strength of fiscal rules index	2.8	2.8	2.8	3.0	na	1.5
11	Public procurement composite indicator	-3.7	-3.3	-1.3	-5.3	na	-0.7
<b>Evidence-based policy making</b>							
12	Index of regulatory policy and governance practices in the areas of stakeholder engagement, Regulatory Impact Assessment (RIA) and ex post evaluation of legislation	1.70	na	na	na	na	1.6

(1) High values stand for good performance barring indicators # 7 and 8. (2) Measures the user centricity (including for cross-border services) and transparency of digital public services as well as the existence of key enablers for the provision of those services. (3) Break in the series in 2021. (4) Defined as the absolute value of the difference between the share of men and women in senior civil service positions.

**Source:** ICT use survey, Eurostat (# 1); E-government benchmark report (# 2); Open data maturity report (# 3); Fiscal Governance Database (# 4, 9, 10); Labour Force Survey, Eurostat (# 5, 6, 8), European Institute for Gender Equality (# 7), Single Market Scoreboard public procurement composite indicator (# 11); OECD Indicators of Regulatory Policy and Governance (# 12).

### The judicial system faces various challenges.

Administrative courts are among the most efficient in the EU in terms of the length of proceedings. However, the lack of data on the efficiency of litigious and non-litigious civil and commercial cases (first and second instance courts) does not enable a proper evaluation of the overall efficiency of the judicial system. The quality of the justice system faces some challenges as regards courts fees, access to legal aid and digitalisation: despite a slight improvement, digital tools are seldom used in courts. Certain concerns about judicial independence remain <sup>(31)</sup>

<sup>(31)</sup> For more detailed analysis of the performance of the justice system in Bulgaria, see the 2022 EU Justice Scoreboard

(forthcoming) and the country chapter for Bulgaria of the Commission's 2022 Rule of Law Report (forthcoming).

ANNEX 12: EMPLOYMENT, SKILLS AND SOCIAL POLICY CHALLENGES IN LIGHT OF THE EUROPEAN PILLAR OF SOCIAL RIGHTS

**The European Pillar of Social Rights provides the compass for upward convergence towards better working and living conditions in the EU.** The implementation of its 20 principles on equal opportunities and access to the labour market, fair working conditions, social protection and inclusion, supported by the 2030 EU headline targets on employment, skills and poverty reduction, will strengthen the EU’s drive towards a digital, green and fair transition. This Annex provides an overview of Bulgaria’s progress in achieving the goals under the European Pillar of Social Rights.

rate of workers aged 55-64 increased steadily (from 54.5% in 2016 to 64.8% in 2021), surpassing the EU average (54.9%). At the same time, the employment rate of people aged 20-64 with low qualifications (46.3% in 2021) remains well below the EU average (54.9%) and is significantly lower (42.4 pps) than for highly skilled people. The share of young people (15-29) not in employment, education or training (NEET) is high (17.6% in 2021 compared to 13.1% on average in the EU). The disability employment gap is well above the EU average (33 pps vs 24.3 pps), with an employment rate of people with disabilities of 43.1% in 2020, compared to 76.1% for those without. In 2020, only 47% of Roma were engaged in any form of paid work. These figures point to the need for strengthening the provision of more tailored active labour market policies for vulnerable and underrepresented groups (e.g. people with disabilities and Roma), while taking into account the significant regional differences in labour market outcomes. The need to integrate vulnerable groups into the labour market is made all the more pressing by the fact that the working-age population is expected to have decreased by 12.5% by 2030. Bulgaria will focus its European Social Fund Plus (ESF+) investments on improving access to employment, upskilling and reskilling, improving the capacity and effectiveness of public employment services and improving social services.

Social Scoreboard for BULGARIA		
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24) (2021)	12.2
	Individuals' level of digital skills (% of population 16-74) (2021)	31.0
	Youth NEET (% of total population aged 15-29) (2021)	17.6
	Gender employment gap (percentage points) (2021)	8.4
	Income quintile ratio (S80/S20) (2020)	8.0
Dynamic labour markets and fair working conditions	Employment rate (% population aged 20-64) (2021)	73.2
	Unemployment rate (% population aged 15-74) (2021)	5.3
	Long term unemployment (% population aged 15-74) (2021)	2.6
	GDH per capita growth (2008=100) (2020)	
Social protection and inclusion	At risk of poverty or social exclusion (in %) (2020)	33.6
	At risk of poverty or social exclusion for children (in %) (2020)	36.2
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP) (2020)	20.4
	Disability employment gap (ratio) (2020)	33.0
	Housing cost overburden (% of population) (2020)	14.4
	Children aged less than 3 years in formal childcare (% of under 3-years-olds) (2020)	15.0
	Self-reported unmet need for medical care (% of population 16+) (2020)	1.4
<div style="display: flex; justify-content: space-between; font-size: 8px;"> <span>Critical situation</span> <span>To watch</span> <span>Weak but improving</span> <span>Good but to monitor</span> <span>On average</span> <span>Better than average</span> <span>Best performers</span> </div>		
<small>Update of 29 April 2022. Member States are classified on the Social Scoreboard according to a statistical methodology agreed with the EMCO and SPC Committees. It looks jointly at levels and changes of the indicators in comparison with the respective EU averages and classifies Member States in seven categories. For methodological details, please consult the Joint Employment Report 2022. Due to changes in the definition of the individuals' level of digital skills in 2021, exceptionally only levels are used in the assessment of this indicator; NEET: neither in employment nor in education and training; GDH: gross disposable household income.</small>		

**Low levels of basic and digital skills and low adult participation in learning are major issues for Bulgaria, given, on top of everything else, adverse demographic trends and the imperative to ensure the green and digital transitions are fair.** The participation rate of children under 3 in formal childcare was 15% in 2020, well below the EU average (32.3%). The early school leaving rate was 12.2% in 2021, above the EU average (9.7%). The challenge is particularly acute in certain regions and among disadvantaged groups, especially Roma (see Annex 13). Only 31% of the population report basic or above basic levels of digital skills in 2021, compared to 54% on average in the EU. Adult participation in learning (25-64) over the past 4 weeks was well below the 2020 EU average (1.8% versus 10.8%). As part of the RRP, investment in a new digital platform for adult learning, and the provision of training in digital skills for 500 000

**The labour market in Bulgaria is recovering, but overall outcomes remain below their pre-crisis period.** The employment rate was 73.6% in Q4-2021, 0.3 percentage points (pps) below the pre-pandemic (reference Q4 2019), and slightly below the EU average (74.0%). The employment

registered unemployed people and workers could address some of the challenges outlined here. In close cooperation with the social partners and civil society organisations, the ESF+ interventions will focus on strengthening the quality and inclusiveness of education and training. This will help Bulgaria reach the 2030 EU headline target on skills.

**Bulgaria is facing very high levels of income inequality and risk of poverty or social exclusion, which have worsened as a result of the COVID-19 crisis.** In 2020, the income of the richest 20% of the population was 8 times higher than that of the poorest 20% (versus 4.9 times higher in the EU). The share of people at risk of poverty or social exclusion stood at 33.6% in 2020, among the highest in the EU. 14.4% of the population experience housing overburden cost. Bulgaria recorded one of the lowest impacts of social transfers (other than pensions) on poverty reduction in the EU (20.4% in 2020), well below the EU average (33.2%). The coverage of home care for older people is one of the lowest in the EU (11.6% versus 28.6% in the EU in 2019). As part of the RRP, Bulgaria plans to reform minimum income support. A recent study <sup>(32)</sup> simulates the social impacts of minimum income support reform, planned to be gradually implemented until 2024, showing a decrease of 5.8% in the depth of poverty, measured by the at-risk-of-poverty gap, but only very modest impacts on severe material deprivation and risk-of-poverty rates. Further efforts will therefore be needed, in other areas also, to have a significant impact on the country's consistently high poverty rates.

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<sup>(32)</sup> European Commission, Joint Research Centre, based on the Euromod model.

**This Annex outlines the main challenges for Bulgaria's education and training system in light of the EU-level targets of the European Education Area strategic framework and other contextual indicators, based on the analysis from the 2021 Education and Training Monitor.** Ensuring the quality and equity of education remain major challenges and risk worsening due to the pandemic. Bulgaria lags behind the EU average and EU-level targets in terms of participation in early childhood education, basic skills, early leavers from education and training, and tertiary education.

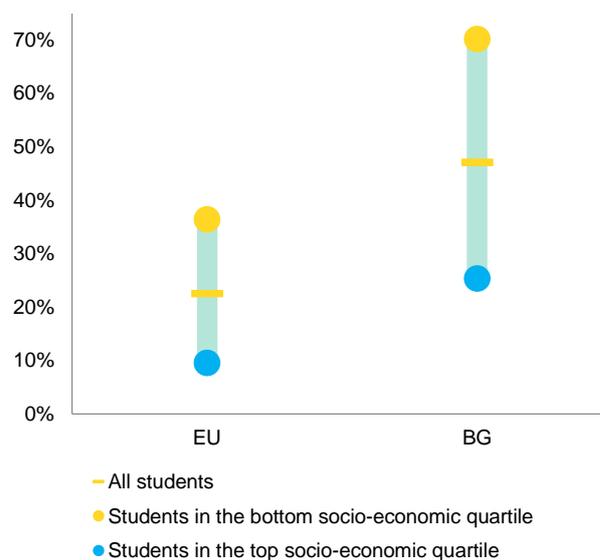
**Participation in early childhood education and care remains low and is decreasing.** Socio-economic factors as well as an insufficient number of places in certain municipalities have an impact on the participation rate (79.9%), below the EU average (92.8%). The participation rate of children under 3 in formal childcare (15% in 2020) has increased compared to previous years, but it is still well below the EU average (32.3%). In spite of sustained efforts in recent years, the participation of children from disadvantaged backgrounds, including Roma children, is still low.

**Educational outcomes are low, with almost half of Bulgaria's teenagers lacking basic skills.** Results of the Programme for International Student Assessment (PISA) show that twice as many Bulgarian 15-year olds than on average in the EU failed to demonstrate a minimum level of reading knowledge (e.g. 47.1% vs 22.5%). Data on the achievement of 15-year old pupils and their socio-economic status confirm that socio-economic status strongly affects educational outcomes. Learning losses due to the repeated school closures and shift to remote learning threaten the past years' efforts to improve educational outcomes and exacerbate inequalities. Although Bulgaria's general government expenditure on education increased by 14% in 2019, it remained one of the lowest in the EU (3.9% compared to 4.7% of GDP in the EU-27). Lack of adequate IT infrastructure and insufficient digital skills among teachers create additional difficulties (see Annexes 7 and 12).

**The rate of early school leaving is high and risks worsening due to the pandemic.** It has not improved over the last decade and stood at 12.2% in 2021 (EU-27 average of 97%). The rate is particularly high among disadvantaged groups,

including Roma, and in rural areas (23.7%). Disadvantaged pupils are often concentrated in schools in which the quality of education and the learning conditions are poor. In spite of measures taken, including with support from EU funds, Roma inclusion in education remains a challenge.

Graph A13.1: **Low achievement in reading by socio-economic status, PISA 2018**



(1) The EU average does not include Spain.

Source: OECD (2019), PISA 2018

**Tertiary attainment is quite low, with a marked gender gap and low percentage of science, technology, engineering and maths (STEM) graduates.** Only 33.6% of Bulgarians aged 25-34 held a university degree in 2021: 28% of men in this age group completed tertiary education, compared to 39.5% of women. Regional imbalances between the demand for and supply of educational services compound labour market mismatches. The percentage of STEM graduates is one of the lowest in the EU (19.8%, compared to EU average 26%).

**The teacher population is one of the oldest in the EU, with about half of school teachers older than 50.** Salaries are increasing the attractiveness of the profession, but attracting talented candidates into teacher education programmes remains difficult, in particular in rural areas. To strengthen the profession, additional measures, including with support from EU funds, were taken to strengthen initial teacher education and continuous professional development. Nevertheless, the need to upgrade teachers' skills remains.

Table A13.1: EU-level targets and other contextual indicators under the European Education Area strategic framework

Indicator		Target	2015		2021		
			Bulgaria	EU27	Bulgaria	EU27	
<b>Participation in early childhood education (age 3+)</b>		<b>96%</b>	<b>84.8%</b>	<b>91.9%</b>	<b>79.9%</b> <sup>2019</sup>	<b>92.8%</b> <sup>2019</sup>	
<b>Low achieving 15-year-olds in:</b>	<b>Reading</b>	<b>&lt; 15%</b>	<b>41.5%</b>	<b>20.4%</b>	<b>47.1%</b> <sup>2018</sup>	<b>22.5%</b> <sup>2018</sup>	
	<b>Mathematics</b>	<b>&lt; 15%</b>	<b>42.1%</b>	<b>22.2%</b>	<b>44.4%</b> <sup>2018</sup>	<b>22.9%</b> <sup>2018</sup>	
	<b>Science</b>	<b>&lt; 15%</b>	<b>37.9%</b>	<b>21.1%</b>	<b>46.5%</b> <sup>2018</sup>	<b>22.3%</b> <sup>2018</sup>	
<b>Early leavers from education and training (age 18-24)</b>	<b>Total</b>	<b>&lt; 9 %</b>	<b>13.4%</b>	<b>11.0%</b>	<b>12.2%</b>	<b>9.7%</b>	
	By gender	Men		13.3%	12.5%	11.5%	11.4%
		Women		13.4%	9.4%	12.9%	7.9%
	By degree of urbanisation	Cities		3.6%	9.6%	6.8%	8.7%
		Rural areas		29.4%	12.2%	23.7%	10.0%
	By country of birth	Native		13.5%	10.0%	12.2%	8.5%
		EU-born		: <sup>u</sup>	20.7%	: <sup>u</sup>	21.4%
		Non EU-born		: <sup>u</sup>	23.4%	: <sup>u</sup>	21.6%
<b>Tertiary educational attainment (age 25-34)</b>	<b>Total</b>	<b>45%</b>	<b>31.8%</b>	<b>36.5%</b>	<b>33.6%</b>	<b>41.2%</b>	
	By gender	Men		24.6%	31.2%	28.0%	35.7%
		Women		39.6%	41.8%	39.5%	46.8%
	By degree of urbanisation	Cities		45.7%	46.2%	47.4%	51.4%
		Rural areas		10.4%	26.9%	13.7%	29.6%
	By country of birth	Native		31.8%	37.7%	33.5%	42.1%
		EU-born		: <sup>u</sup>	32.7%	: <sup>u</sup>	40.7%
		Non EU-born		: <sup>u</sup>	27.0%	: <sup>u</sup>	34.7%
<b>Share of school teachers (ISCED 1-3) who are 50 years or over</b>			<b>47.7%</b>	<b>38.3%</b>	<b>49.5%</b> <sup>2019</sup>	<b>38.9%</b> <sup>2019</sup>	

The 2018 EU average on PISA reading performance does not include Spain; b = break in time series, c = confidential, u = low reliability, : = not available.

Data are not yet available for the remaining EU-level targets under the European Education Area strategic framework, covering underachievement in digital skills, exposure of vocational education and training graduates to work-based learning and participation of adults in learning.

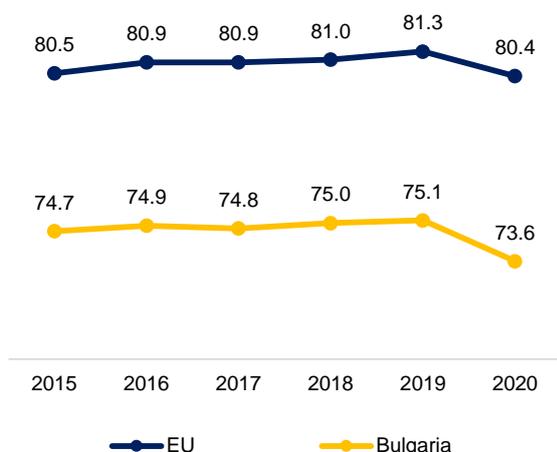
Source: Eurostat (UOE, LFS); OECD (PISA)

**The reforms and investments under the recovery and resilience plan will help address some of these longstanding challenges.** Key reforms focus on pre-school, school education, lifelong learning and higher education. Such reforms will be complemented by the corresponding investments in, among other things, infrastructure, equipment and digitalisation, as well as training programmes, the modernisation of educational institutions and the establishment of an online platform for adult learning. Increased ESF+ funding for education also provides a key opportunity to improve Bulgaria's education system.

**Especially relevant in light of the ongoing COVID-19 pandemic, resilient healthcare is a prerequisite for a sustainable economy and society.** This Annex provides a snapshot of the healthcare sector in Bulgaria.

**Life expectancy in Bulgaria was the lowest in the EU in 2020.** Moreover, the COVID-19 pandemic led to a significant drop in life expectancy of 18 months between 2019 and 2020. As of 17 April 2022, Bulgaria reported 5.29 cumulative COVID-19 deaths per 1 000 inhabitants and 165 confirmed cumulative COVID-19 cases per 1 000 inhabitants. The treatable mortality rate per 100 000 population was 189.0 (2019), well above the EU average of 92.1 (2017), although cancer mortality rates are lower than in the EU overall. Cardiovascular disease is a leading cause of death.

Graph A14.1: Life expectancy at birth, years



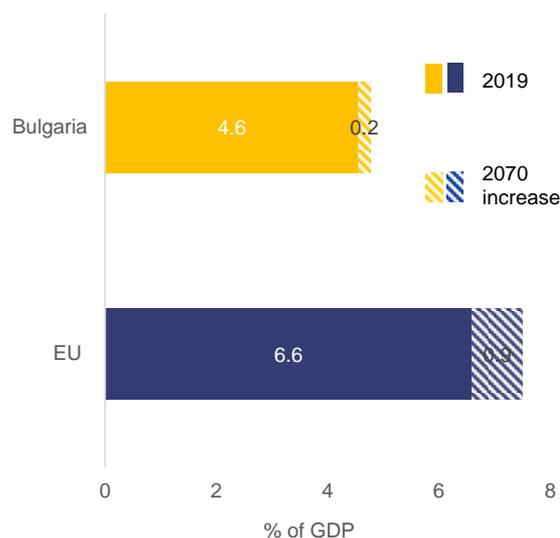
Source: Eurostat database

**Health spending in Bulgaria remains significantly lower than the EU average.**

When measured as a share of GDP, Bulgaria's spending on health stood at 7.1% in 2019, below the EU average of 9.9%. Despite significant increases in expenditure on health per capita over the past decade, Bulgaria's per capita expenditure (adjusted for differences in purchasing power) stood at EUR 1 273 in 2019, the lowest in the EU. Public financing of the health system accounted for 61% of health spending in 2019. Out-of-pocket spending (38% of all healthcare expenditure), driven mainly by the costs of outpatient pharmaceuticals, was over 2.5 times the EU average. Public expenditure on health is

projected to increase by 0.2 percentage points of GDP by 2070 (compared to 0.9 percentage points for the EU) <sup>(33)</sup>.

Graph A14.2: Projected increase in public expenditure on health care over 2019-2070 (reference scenario)



Source: European Commission/EPC (2021)

**The health system is characterised by high out-of-pocket payments and a hospital-centred care model (nearly double the EU average of acute care beds).** The COVID-19 pandemic highlighted the need for additional investment in the health sector, including better preparedness for future health system shocks. For Bulgaria, this challenge also includes investment to create a uniform health information system to speed up the use of e-health, and to support working conditions for the health workforce. Hospitalisation rates in Bulgaria are high, partly due to the underdevelopment and underfunding of both preventive health services and primary care. The capacity of the Bulgarian healthcare system is undermined by severe shortages of nursing professionals. The distribution of doctors is uneven across the country. The consumption of antibiotics (daily defined dose per 1 000 inhabitants per day) was 20.7, well above the EU average of 14.5 (2020). This raises public health concerns about antimicrobial resistance.

<sup>(33)</sup> 'The 2021 Ageing Report: Economic and Budgetary Projections for the EU Member States (2019-2070)', European Commission (ECFIN) and Ageing Working Group (EPC).

Table A14.1: **Key health indicators**

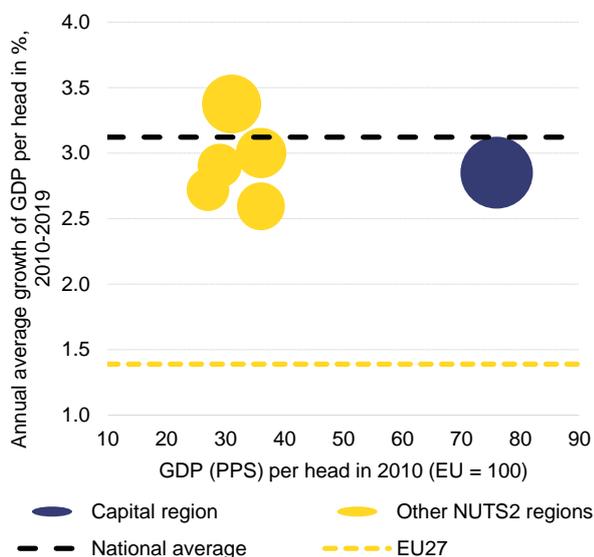
	2016	2017	2018	2019	2020	EU average (latest year)
Treatable mortality per 100 000 population (mortality avoidable through optimal quality healthcare)	194.4	191.8	188.2	189.0		92.1 (2017)
Cancer mortality per 100 000 population	232.1	232.4	232.5	242.2		252.5 (2017)
Current expenditure on health, % GDP	7.5	7.5	7.3	7.1		9.9 (2019)
Public share of health expenditure, % of current health expenditure	55.4	56.4	59.1	60.6		79.5 (2018)
Spending on prevention, % of current health expenditure	2.8	2.8	2.8	3.0		2.8 (2018)
Acute care beds per 100 000 population	603.1	616.8	624.5	641.2		387.4 (2019)
Doctors per 1 000 population *	4.1	4.2	4.2	4.2		3.8 (2018)
Nurses per 1 000 population *	4.3	4.4	4.4	4.4		8.2 (2018)
Consumption of antibacterials for systemic use in the community, daily defined dose per 1 000 inhabitants per day **	17.6	18.9	19.5	19.1	20.7	14.5 (2020)

Doctors' density data refer to practising doctors in all countries except FI, EL, PT (licensed to practice) and SK (professionally active). Nurses' density data refer to practising nurses in all countries (imputation from year 2014 for FI) except IE, FR, PT, SK (professionally active) and EL (nurses working in hospitals only). More information: [https://ec.europa.eu/health/state-health-eu/country-health-profiles\\_en](https://ec.europa.eu/health/state-health-eu/country-health-profiles_en)

**Source:** Eurostat Database, except: \* Eurostat and OECD, \*\* ECDC.

**The regional dimension is an important factor when assessing economic and social developments in a Member State.** Taking into account this dimension enables a well-calibrated and targeted policy response that fosters cohesion and ensures sustainable and resilient economic development across all regions. Internal regional disparities continue to be significant in Bulgaria. All but the capital region remain below 50% of the EU average in terms of GDP/capita (in purchasing power standards). Disparities are driven by gaps in labour productivity, demographics, education levels, employment, infrastructure quality and R&I performance. This could create bottlenecks and slow down the country's contribution to the EU's green and digital objectives.

**Graph A15.1: Average GDP per head growth vs GDP per head in 2010**

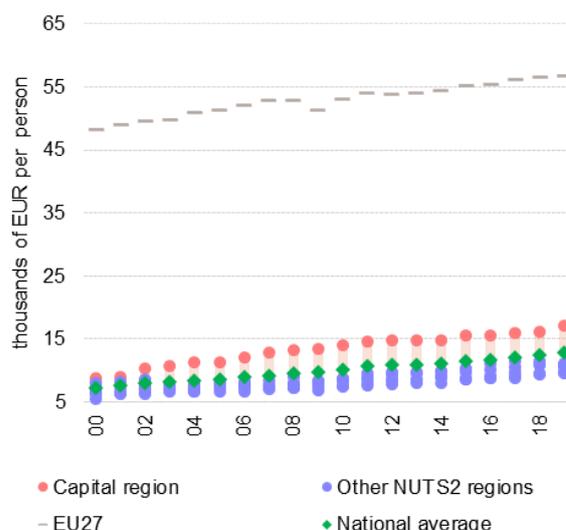


(1) Bubble size: population, 2019

Source: European Commission

**Bulgarian regions have been slowly catching up in terms of GDP per head with the rest of the EU since Bulgaria's accession, but internal convergence is slow.** In 2019, GDP per head in Severozapaden corresponded to 32% of the EU average while in the capital region it was 89%, with all other regions below the national average. Economic activity in Bulgaria remains highly concentrated in the capital region, which generates 51% of national GDP.

**Graph A15.2: Labour productivity, EU-27, Bulgaria NUTS 2 regions, 2000-2019**



(1) Unit: real GVA in EUR million (2015 prices) by employment in thousands of people

(2) The light red circle shows the capital city region.

(3) The blue circles show the remaining NUTS2 regions.

(4) The green diamond shows the national average.

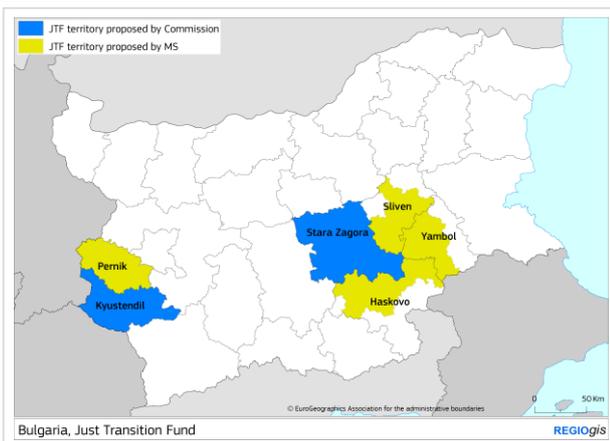
(5) The purple line shows the EU27 average.

Source: European Commission

**Labour productivity has steadily increased in Bulgaria, with less developed regions catching up, but the country is lagging behind the EU and significant regional disparities remain.** Bulgaria has the lowest labour productivity in the EU, equal to around 23% of the EU average. Labour productivity is the highest in the capital region, almost twice as high as in Yuzhentsentralen, the least productive region. However, productivity growth has generally been higher in the less developed regions, notably in the least productive region, where labour productivity grew by 3.5% a year between 2010 and 2019. Productivity growth in the capital region was one of the lowest in the country, at 2.5% a year.

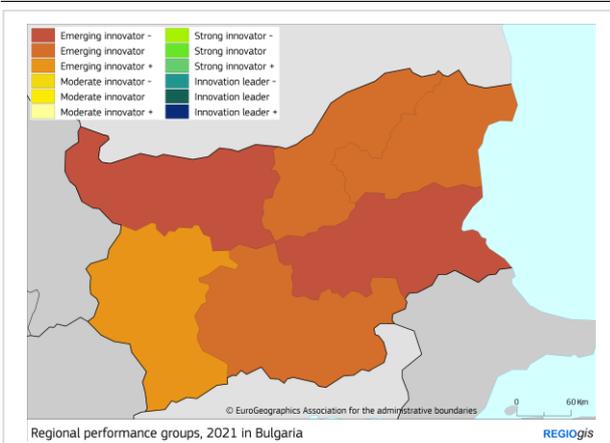
**Climate transition challenges differ greatly between Bulgarian regions.** Bulgaria's is the most energy-intensive economy in the EU and its CO<sub>2</sub> emissions in comparison to GDP remain the highest in Europe. The energy sector is the main source of GHG emissions. Due to a concentration of several coal-fired power plants and the country's biggest coal mine in Yuzhentsentralen, emissions from fossil fuels in that region exceed 2.5 times the EU average. As a consequence, the Stara Zagora NUTS3 region has the highest number of people affected by the climate transition.

Graph A15.3: Territories most affected by the climate transition in Bulgaria



Source: European Commission

Graph A15.4: Innovation performance in Bulgaria

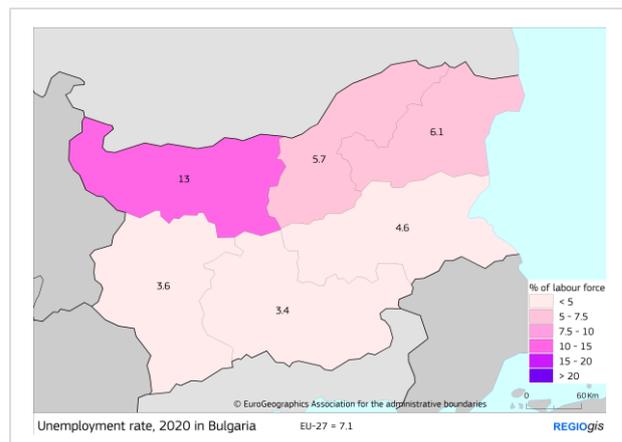


Source: European Commission

**Key assets such as transport infrastructure and human capital are still lacking in many of the country's less developed regions.** This results in Bulgaria's low innovation performance. Transport infrastructure, in particular roads, is more developed in southern regions, in particular in the capital. In some less developed regions, less than 25% of the population aged 30-34 has a tertiary degree, against 46.4% in the capital region. Employment in high-technology sectors and R&D expenditure are also much lower in less developed regions.

**Bulgaria is characterised by a strong regional digital divide.** The ICT uptake is low: in 2021, 34% of the population used internet for interaction with public authorities against 65% on average in the EU. The capital region has a higher share of ICT uptake (41%) compared to the least developed regions where it can be as low as 17 % (Severozapaden and Severen tsentralen).

Graph A15.5: Unemployment rate



Source: European Commission

**The unemployment rate (5.1%) is lower than in the EU (7.1%) but there are wide regional variations.** In 2020, the unemployment rate was as low as 3.4% in Yuzhentsentralen, but peaked at 13.0% in the least developed region of Severozapaden. The employment rate in this region is also particularly low, at 63.3% against the national average of 73.4%.

**The country and some of its less developed regions are rapidly losing their population.** This could constitute a major hurdle in Severozapaden and Severentsentralen, whose populations have declined by 14.3% and 10.4% respectively. In comparison, the population in the capital region decreased by only 1.9% as the natural population change was compensated by an increase in net migration (+1.7%).

**Bulgaria was severely affected by the COVID-19 pandemic, with far-reaching regional socio-economic consequences.** The unemployment rate dropped rapidly between 2015 and 2019, but increased by 2.1 percentage points (pps) in Severozapaden and by 1.3 pps in the capital region. By contrast, it only increased by 0.2 pps in Severoiztochen.

Table A15.1: Selected indicators at regional level – Bulgaria

NUTS 2 Region	GDP per head (PPS)	Real productivity growth	GDP per head growth	Population growth	Population with high educational attainment	R&D expenditure	Transport performance by car	Regional Competitiveness Index	CO <sub>2</sub> emissions from fossil fuels per head	Innovation performance
	EU27=100, 2019	Avg % change on preceding year, 2010-2019	Avg % change on preceding year, 2010-2019	Total % change, 2011-2019	% of population aged 30-34, 2017-2019	% of GDP, 2018	% Pop. within a 1h30 travel / within 120 km radius, 2018	Range 0-100, 2019	tCO <sub>2</sub> equivalent, 2018	RIS regional performance group
European Union	100	1.00	1.39	1.8	39.4	2.19		57.3	7.2	
Bulgaria	53	2.87	3.12	-5.7	33.0	0.76	56.9	25.1		
Severozapaden	32	2.60	2.72	-14.3	18.3	0.49	29.4	7.6	4.5	Emerging innovator -
Severen tsentralen	35	2.47	2.91	-10.4	32.4	0.32	37.1	19.1	3.5	Emerging innovator
Severozitochen	41	2.53	2.59	-4.3	30.9	0.43	46.9	20.0	5.8	Emerging innovator
Yugoiztochen	40	3.05	3.00	-5.0	21.6	0.32	56.5	13.8	17.8	Emerging innovator -
Yugozapaden	89	2.51	2.85	-1.9	46.4	1.14	71.4	44.3	4.1	Emerging innovator +
Yuzhen tsentralen	37	3.45	3.38	-5.0	24.7	0.44	67.7	21.2	5.5	Emerging innovator

Source: Eurostat, \*EDGAR Database

**This Annex provides an overview of key developments in Bulgaria's financial sector.**

Overall, Bulgaria's banking sector remains relatively robust and is dominated by subsidiaries and branches of euro area banks. Total banking sector assets stood at almost 109% of GDP in 2021, with the five largest banks having a share of 67.1% at the end of 2020, higher than in previous years. The loan-to-deposit ratio has declined since the start of the pandemic, driven by strong deposit growth. The market-funding ratio has declined further and was quite low in 2020, as companies' access to financial market funding, especially listed shares and debt securities, remains very limited. The banking sector in Bulgaria maintained high capitalisation and profitability rates, despite the adverse impact of the pandemic on the economy. The system-wide capital adequacy ratio was 22.6% at the end of Q3-2021, above the EU average. Following a pronounced decline in 2020, banks' profitability strongly rebounded in 2021, with a return on equity of 9.1% in Q3. The cost-to-income ratio has slightly declined, on the back of the efforts made by banks to increase efficiency.

**Non-performing loans (NPLs) remain relatively high, but have been steadily decreasing, including throughout the pandemic.**

The NPL ratio has been on a downward trend across individual banks and segments, declining to 5.3% at the end of Q3-2021 (from 5.9% at the end of 2020). However, it remains one of the highest in the EU (well above the EU average of 2.1% in Q3-2021), as the pace of NPL reduction has been more limited compared to many other Member States. NPLs to non-financial corporations (NFCs) also decreased, but still stood at 8.5% of total loans and advances in Q3-2021 (compared with 9.6% at the end of 2020), and were even higher for domestically owned banks.

**Bank credit activity strengthened further, in particular household lending.**

In Q4-2021, growth rates in new lending reached 5.7% for NFCs and 14.5% year-on-year for households. At the same time, mortgage loans grew strongly, by 18.1 % year-on-year in December 2021. Strong lending activity in the housing loans segment, amid higher house prices and heightened competition among credit institutions, requires special attention to risks arising from the residential real estate market. Private sector debt

increased to 94.3% of GDP (on consolidated basis) in 2020, driven to a large extent by the GDP contraction during the COVID 19 pandemic. Financial literacy among households remains low, limiting the capacity to make informed choices and to plan for retirement.

Table A16.1: **Financial soundness indicators**

	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
<b>Total assets of the banking sector (% of GDP)</b>	101.5	101.6	100.0	108.2	108.9
<b>Share (total assets) of the five largest banks (%)</b>	56.5	59.7	62.5	67.1	-
<b>Share (total assets) of domestic credit institutions (%)<sup>1</sup></b>	23.6	22.1	22.3	22.8	28.8
<b>Financial soundness indicators:<sup>1</sup></b>					
<b>- non-performing loans (% of total loans)</b>	10.2	7.7	6.5	5.9	5.3
<b>- capital adequacy ratio (%)</b>	21.8	20.6	19.5	23.1	22.6
<b>- return on equity (%)</b>	10.2	11.8	11.2	4.9	9.1
<b>NFC credit growth (year-on-year % change)</b>	4.8	8.6	7.6	4.0	5.7
<b>HH credit growth (year-on-year % change)</b>	8.9	9.1	10.6	7.6	14.5
<b>Cost-to-income ratio (%)<sup>1</sup></b>	45.1	45.3	46.8	47.2	45.0
<b>Loan-to-deposit ratio (%)<sup>1</sup></b>	72.6	75.5	78.0	69.7	71.4
<b>Central bank liquidity as % of liabilities</b>	0.0	0.0	-	0.0	-
<b>Private sector debt (% of GDP)</b>	98.6	95.0	90.7	94.3	-
<b>Long-term interest rate spread versus Bund (basis points)</b>	128.5	49.6	68.2	76.4	56.3
<b>Market funding ratio (%)</b>	17.1	15.5	15.4	13.7	-
<b>Green bond issuance (bn EUR)</b>	-	-	-	-	-

(1) Last data: Q3 2021.

**Source:** ECB, Eurostat, Refinitiv

**This Annex provides an indicator-based overview of Bulgaria's tax system.** It includes information on the tax structure, i.e. the types of tax that Bulgaria derives most revenue from, the tax burden for workers, and the progressivity and redistributive effect of the tax system. It also provides information on tax collection and compliance, and on the risks of aggressive tax planning activity.

**Bulgaria's total tax revenues are low in relation to GDP, and the tax system relies heavily on indirect taxation.** With only a 10% rate, the country has the lowest personal income tax rate in the EU, which is also very close to the average income tax rate in Bulgaria. A result of the flat tax system, this shows a very similar degree of taxation of high-income and low-income earners. Finally, the average forward-looking effective corporate income tax rates persistently remain considerably below the EU average

**The progressivity of personal income tax is an important measure of the redistributive effect of tax and benefit systems.** The degree of progressivity of labour income taxation can be approximated by comparing the tax wedges of high- (167%) vs low- (50%) income earners (percentages of the average wage), with Bulgaria showing the least progressivity in the EU in that respect.

**Bulgaria's labour tax burden is relatively low across the income distribution.** Overall, the tax system is effectively regressive in Bulgaria and does not promote redistribution. The tax burden on labour is generally lower in Bulgaria than the EU average, but with significant exceptions, in particular for single parents with 2 children, earning 67% of the average wage (20.77% vs 18.43 in 2021%).

**Bulgaria is doing moderately well on the digitalisation of tax administration, which can help reduce tax arrears as well as cut compliance costs.** The country has introduced an option for individuals to use pre-filled annual tax returns. The share of e-returns of both corporate income taxes (CIT) and personal income taxes (PIT) has increased considerably in recent years, with 100% of CIT and 83.2% of PIT returns being filed electronically in 2021.

**The VAT gap in Bulgaria in 2019 amounted to 8.3 %, slightly below the EU average.** According to the VAT Gap Study Report 2021, Bulgaria is one of the countries with the most significant decreases in the VAT gap, with a decline of 2.5 pps compared to 2018 (together with Greece, Lithuania and Slovakia, recording reductions in the VAT gap of between 3.2 and 2.2 pps).

Table A17.1: Taxation indicators

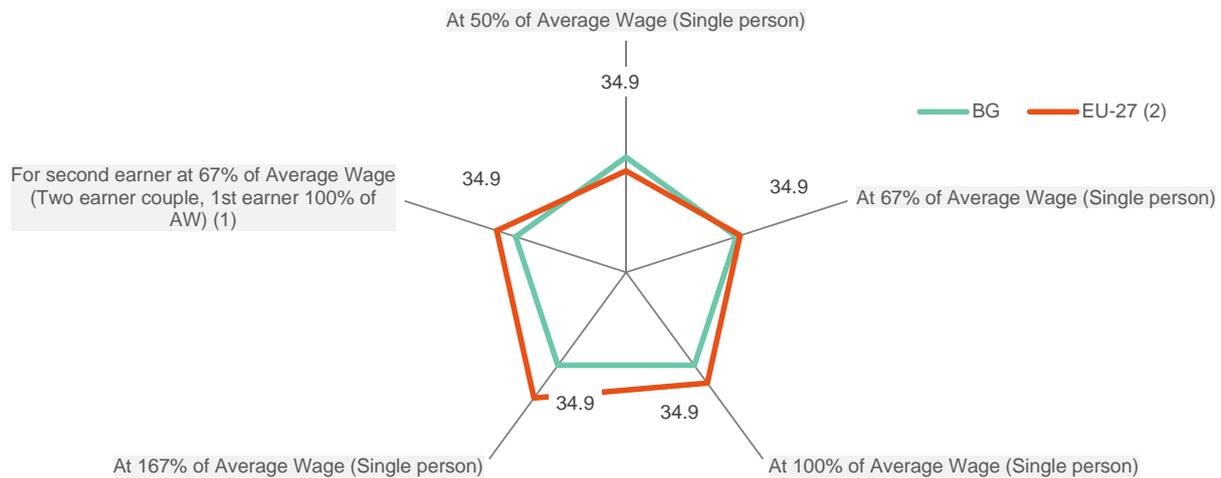
		Bulgaria					EU-27				
		2010	2018	2019	2020	2021	2010	2018	2019	2020	2021
<b>Tax structure</b>	Total taxes (including compulsory actual social contributions) (% of GDP)	25.4	29.7	30.3	30.6		37.9	40.1	39.9	40.1	
	Labour taxes (as % of GDP)	8.4	10.9	11.1	11.5		20.0	20.7	20.7	21.5	
	Consumption taxes (as % of GDP)	13.4	14.1	14.3	14.1		10.8	11.1	11.1	10.8	
	Capital taxes (as % of GDP)	3.6	4.7	5.0	5.0		7.1	8.2	8.1	7.9	
	Total property taxes (as % of GDP)	0.5	0.8	0.8	0.7		1.9	2.2	2.2	2.3	
	Recurrent taxes on immovable property (as % of GDP)	0.3	0.3	0.3	0.3		1.1	1.2	1.2	1.2	
	Environmental taxes as % of GDP	2.7	2.6	3.0	3.0		2.4	2.4	2.4	2.2	
<b>Progressivity &amp; fairness</b>	Tax wedge at 50% of Average Wage (Single person) (*)	32.5	34.9	34.9	34.9	34.9	33.9	32.4	32.0	31.5	31.9
	Tax wedge at 100% of Average Wage (Single person) (*)	32.5	34.9	34.9	34.9	34.9	41.0	40.2	40.1	39.9	39.7
	Corporate Income Tax - Effective Average Tax rates (1) (*)		9.1	9.1	9.1			19.8	19.5	19.3	
	Difference in GINI coefficient before and after taxes and cash social transfers (pensions excluded from social transfers)	3.6	4.4	3.7	4.2		8.4	7.9	7.4	8.3	
<b>Tax administration &amp; compliance</b>	Outstanding tax arrears: Total year-end tax debt (including debt considered not collectable) / total revenue (in %) (*)		27.1	23.8				31.9	31.8		
	VAT Gap (% of VTTL)		10.8	8.3				11.2	10.5		
<b>Financial Activity Risk</b>	Dividends, Interests and Royalties (paid and received) as a share of GDP (%)		4.0	4.1	3.2			10.7	10.5		
	FDI flows through SPEs (Special Purpose Entities), % of total FDI flows (in and out)		0.0	0.0	0.0			47.8	46.2	36.7	

(1) Forward-looking effective tax rate (OECD).

(\*) EU-27 simple average, as no aggregated EU-27 value.

Source: European Commission and OECD

Graph A17.1: Tax wedge indicators



The tax wedge measures the difference between the total labour cost of employing a worker and the worker's net earnings: sum of personal income taxes and employee and employer social security contributions, net of family allowances, expressed as a percentage of total labour costs (the sum of the gross wage and social security contributions paid by the employer).

(1) The second earner average tax wedge measures how much extra personal income tax plus employee and employer social security contributions (SSCs) the family will have to pay as a result of the second earner entering employment, as a proportion of the second earner's gross earnings plus the employer SSCs due on the second earner's income. For a more detailed discussion see OECD (2016), Taxing Wages 2016, OECD Publishing, Paris. [http://dx.doi.org/10.1787/tax\\_wages-2016-en](http://dx.doi.org/10.1787/tax_wages-2016-en)

(2) EU-27 simple average, as no aggregated EU-27 value

Source: European Commission

# ANNEX 18: KEY ECONOMIC AND FINANCIAL INDICATORS

Table A18.1: Key economic and financial indicators

	2004-07	2008-12	2013-18	2019	2020	2021	forecast	
							2022	2023
Real GDP (y-o-y)	6.7	1.4	2.0	4.0	-4.4	4.2	2.1	3.1
Potential growth (y-o-y)	5.9	1.8	2.1	2.1	1.6	1.5	1.5	1.7
Private consumption (y-o-y)	9.2	1.4	1.4	6.0	-0.4	8.0	2.8	3.0
Public consumption (y-o-y)	2.5	-0.3	2.3	2.0	8.3	4.0	0.3	1.7
Gross fixed capital formation (y-o-y)	16.5	-4.2	1.4	4.5	0.6	-11.0	4.0	6.9
Exports of goods and services (y-o-y)	15.0	2.9	5.8	4.0	-12.1	9.9	4.5	4.2
Imports of goods and services (y-o-y)	19.7	-1.1	5.4	5.2	-5.4	12.2	5.0	4.5
Contribution to GDP growth:								
Domestic demand (y-o-y)	10.5	-0.3	1.5	4.7	1.3	3.4	2.4	3.3
Inventories (y-o-y)	0.7	-0.7	0.2	0.0	-1.2	1.9	0.0	0.0
Net exports (y-o-y)	-4.5	2.2	0.3	-0.7	-4.4	-1.1	-0.3	-0.2
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	1.8	-1.0	0.1	0.0	-0.3	-0.2	-0.3	-0.3
Capital accumulation (y-o-y)	2.0	1.7	0.8	0.8	0.8	0.4	0.5	0.6
Total factor productivity (y-o-y)	2.1	1.1	1.2	1.3	1.2	1.3	1.3	1.3
Output gap	1.4	0.7	-0.4	2.5	-3.5	-1.0	-0.4	1.0
Unemployment rate	11.1	10.3	9.7	5.2	6.1	5.3	5.4	5.3
GDP deflator (y-o-y)	7.5	4.0	2.8	5.2	4.2	6.2	9.5	3.9
Harmonised index of consumer prices (HICP, y-o-y)	6.8	4.6	0.0	2.5	1.2	2.8	11.9	5.0
Nominal compensation per employee (y-o-y)	8.6	9.8	7.6	6.9	7.2	9.5	9.7	7.7
Labour productivity (real, hours worked, y-o-y)	3.5	3.2	1.6	3.6	0.3	3.0	0.2	2.7
Unit labour costs (ULC, whole economy, y-o-y)	4.7	6.5	5.9	3.1	9.5	5.4	7.7	4.8
Real unit labour costs (y-o-y)	-2.6	2.5	3.1	-2.0	5.1	-0.8	-1.7	0.9
Real effective exchange rate (ULC, y-o-y)	2.9	4.3	5.6	0.0	.	.	.	.
Real effective exchange rate (HICP, y-o-y)	3.4	1.6	0.0	0.2	2.9	1.3	.	.
Net savings rate of households (net saving as percentage of net disposable income)	.	-2.6	.	.	.	.	.	.
Private credit flow, consolidated (% of GDP)	28.0	8.4	2.1	5.6	4.2	.	.	.
Private sector debt, consolidated (% of GDP)	86.7	134.7	110.2	90.7	94.3	.	.	.
of which household debt, consolidated (% of GDP)	18.0	27.9	23.7	23.0	24.4	.	.	.
of which non-financial corporate debt, consolidated (% of GDP)	68.7	106.8	86.6	67.7	69.9	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (2)	3.3	14.7	12.2	5.7	5.1	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	.	-0.6	.	.	.	.	.	.
Corporations, gross operating surplus (% of GDP)	.	28.6	.	.	.	.	.	.
Households, net lending (+) or net borrowing (-) (% of GDP)	.	-2.7	.	.	.	.	.	.
Deflated house price index (y-o-y)	24.8	-6.5	2.1	3.9	5.2	.	.	.
Residential investment (% of GDP)	3.9	3.4	2.2	2.8	2.9	2.5	.	.
Current account balance (% of GDP), balance of payments	-14.6	-6.5	1.6	1.9	-0.1	-0.4	-1.1	-1.1
Trade balance (% of GDP), balance of payments	-15.4	-6.7	1.9	3.2	1.9	1.8	.	.
Terms of trade of goods and services (y-o-y)	2.8	1.2	1.1	2.5	4.9	1.1	-0.7	-0.6
Capital account balance (% of GDP)	0.2	1.1	1.8	1.4	1.5	0.7	.	.
Net international investment position (% of GDP)	-51.2	-88.5	-55.7	-30.2	-27.1	-19.8	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (1)	.	.	23.2	40.2	47.1	49.1	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (1)	.	.	53.2	39.8	42.0	41.6	.	.
Export performance vs. advanced countries (% change over 5 years)	59.1	24.6	10.9	13.3	16.6	.	.	.
Export market share, goods and services (y-o-y)	6.3	-0.2	3.2	2.8	-0.5	-0.1	-0.2	-0.1
Net FDI flows (% of GDP)	-18.5	-6.1	-2.1	-2.0	-4.5	-1.7	.	.
General government balance (% of GDP)	1.5	-1.8	-0.7	2.1	-4.0	-4.1	-3.7	-2.4
Structural budget balance (% of GDP)	.	.	0.0	1.4	-2.9	-3.8	-3.5	-2.7
General government gross debt (% of GDP)	24.9	14.7	24.4	20.0	24.7	25.1	25.3	25.6

(1) NIIP excluding direct investment and portfolio equity shares

(2) Domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.

Source: Eurostat and ECB as of 2 May 2022, where available; European Commission for forecast figures (Spring Forecast 2022)

This annex assesses fiscal sustainability risks for Bulgaria over the short, medium and long term. It follows the same multi-dimensional approach as the 2021 Fiscal Sustainability Report, updated on the basis of the Commission 2022 spring forecast.

**Table 1 presents the baseline debt projections.** It shows the projected government debt and its breakdown into the primary balance, the snowball effect (the combined impact of interest payments and nominal GDP growth on the debt dynamics) and the stock-flow adjustment. These projections assume that no new fiscal policy measures are taken after 2023, and include the expected positive impact of investments under Next Generation EU.

**Graph 1 shows four alternative scenarios around the baseline, to illustrate the impact of changes in assumptions.** The ‘historical SPB’ scenario assumes that the structural primary balance (SPB) gradually returns to its past average level. In the ‘lower SPB’ scenario, the SPB is permanently weaker than in the baseline. The

‘adverse interest-growth rate’ scenario assumes a less favourable snowball effect than in the baseline. In the ‘financial stress’ scenario, the country temporarily faces higher market interest rates in 2022.

**Graph 2 shows the outcome of the stochastic projections.** These projections show the impact on debt of 2 000 different shocks affecting the government’s budgetary position, economic growth, interest rates and exchange rates. The cone covers 80% of all the simulated debt paths, therefore excluding tail events.

**Table 2 shows the S1 and S2 fiscal sustainability indicators and their main drivers.** S1 measures the consolidation effort needed to bring debt to 60% of GDP in 15 years. S2 measures the consolidation effort required to stabilise debt over an infinite horizon. The *initial budgetary position* measures the effort required to cover future interest payments, the *ageing costs* component accounts for the need to absorb the projected change in ageing-related public expenditure such as pensions, health care and

Table A19.1: Debt sustainability analysis for Bulgaria

Table 1. Baseline debt projections	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Gross debt ratio (% of GDP)	20.0	24.7	25.1	25.3	25.6	26.1	26.6	27.4	29.4	30.8	32.2	33.7	35.3	36.8
Change in debt	-2.1	4.7	0.4	0.2	0.3	0.5	0.6	0.8	2.0	1.4	1.4	1.5	1.6	1.6
of which														
Primary deficit	-2.7	3.5	3.6	3.1	1.9	1.5	1.4	1.5	2.2	2.2	2.2	2.2	2.2	2.2
Snowball effect	-1.4	0.6	-1.9	-2.1	-1.1	-1.0	-0.8	-0.7	-0.2	-0.8	-0.7	-0.7	-0.6	-0.7
Stock-flow adjustment	1.9	0.6	-1.3	-0.8	-0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs (% of GDP)	0.5	5.5	3.4	3.5	2.8	2.8	2.8	2.9	3.7	3.8	4.0	4.1	4.3	4.4

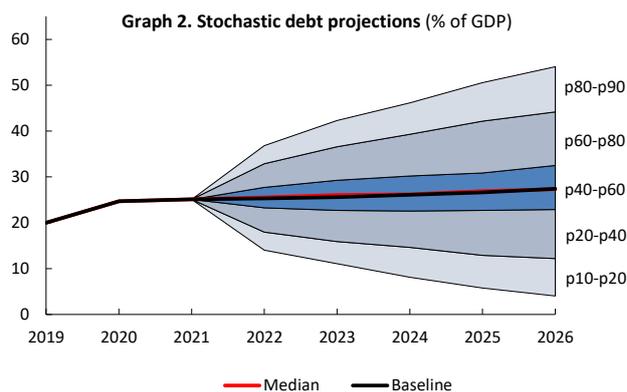
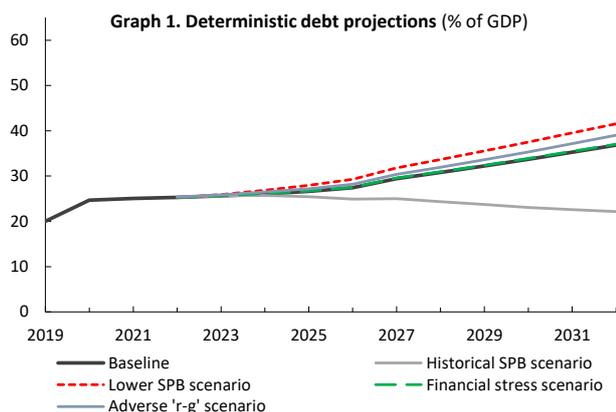


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

	S1	S2
Overall index (pps. of GDP)	-1.2	3.7
of which		
Initial budgetary position	1.3	2.4
Debt requirement	-2.6	
Ageing costs	0.0	1.3
of which		
Pensions	-0.2	0.7
Health care	0.1	0.2
Long-term care	0.0	0.1
Others	0.1	0.3

Source: European Commission

long-term care, and the *debt requirement* measures the additional adjustment needed to reach the 60% of GDP debt target.

**Finally, the heat map presents the overall fiscal sustainability risk classification**

(Table A19.2). The *short-term risk category* is based on the S0 indicator, an early-detection indicator of fiscal stress in the upcoming year. The *medium-term risk category* is derived from the debt sustainability analysis (DSA) and the S1 indicator. The DSA assesses risks to sustainability based on several criteria: the projected debt level in 10 years' time, the debt trajectory ('peak year'), the plausibility of fiscal assumptions and room for tighter positions if needed ('fiscal consolidation space'), the probability of debt not stabilising in the next 5 years and the size of uncertainty. The *long-term risk category* is based on the S2 indicator and the DSA.

**Overall, short-term risks to fiscal sustainability are low.** The Commission's early-detection indicator (S0) does not signal major short-term fiscal risks (Table A19.2).

**Medium-term risks to fiscal sustainability are medium.** On the one hand, the debt sustainability analysis (DSA) points to medium risk. In the baseline, government debt is projected to rise from 25.3% of GDP in 2022 to around 37% of GDP in 2032 (Table 1). This debt path is rather robust to possible shocks to fiscal, macroeconomic and financial variables. At the same time, a high uncertainty is surrounding the projections as illustrated by the stochastic simulations (Tables A19.1 and A19.2). On the other hand, the sustainability gap indicator S1 signals that no

fiscal adjustment would be needed to bring the debt ratio to 60% of GDP in 15 years' time (Table 2). Overall, the medium risk reflects the large deficit, the projected increase in government debt, and the high uncertainty.

**Long-term risks to fiscal sustainability are medium.** Over the long term, both the sustainability gap indicator S2 (at 3.7 pps. of GDP) and the DSA point to medium risks. The S2 indicator suggests that, to stabilise debt over the long term, it will be necessary to address budgetary pressures stemming from population ageing, especially related to public pension expenditure (Table 2).

Table A19.2: Heat map of fiscal sustainability risks for Bulgaria

Short term		Medium term						Long term				
Overall (S0)	Overall (S1+DSA)	S1	Overall	Debt sustainability analysis (DSA)						S2	Overall (S2+DSA)	
				Deterministic scenarios					Stochastic projections			
				Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress				
LOW	MEDIUM	LOW	MEDIUM	Overall	LOW	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM	MEDIUM
				Debt level (2032), % GDP	37	22	42	39	37			
				Debt peak year	2032	2024	2032	2032	2032			
				Fiscal consolidation space	92%	76%	95%	92%	92%			
				Probability of debt ratio exceeding in 2026 its 2021 level						55%		
							50					

(1) *Debt level* in 2032: green: below 60% of GDP, yellow: between 60% and 90%, red: above 90%. (2) The *debt peak year* indicates whether debt is projected to increase overall over the next decade. Green: debt peaks early; yellow: peak towards the middle of the projection period; red: late peak. (3) *Fiscal consolidation space* measures the share of past fiscal positions in the country that were more stringent than the one assumed in the baseline. Green: high value, i.e. the assumed fiscal position is plausible by historical standards and leaves room for corrective measures if needed; yellow: intermediate; red: low. (4) *Probability of the debt ratio exceeding in 2026 its 2021 level*: green: low probability, yellow: intermediate, red: high (also reflecting the initial debt level). (5) The *difference between the 90<sup>th</sup> and 10<sup>th</sup> percentiles* measures uncertainty, based on the debt distribution under 2000 different shocks. Green, yellow and red cells indicate increasing uncertainty.

**Source:** European Commission (for further details on the Commission's multi-dimensional approach, see the 2021 Fiscal Sustainability Report).