Bulgaria

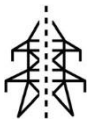
1 Overview of key objectives, targets and contributions in the final NECP

Table 1: Summary of key objectives, targets and contributions of Bulgaria's final updated NECP

		2020	Progress based on latest available data	2030 national targets and contributions	Assessment of 2030 ambition level
	Binding target for greenhouse gas (GHG) emissions compared to 2005 under the Effort Sharing Regulation (ESR) (%)		2022: +9.9% 2023: +4.9%[2]	-10%	NECP: -11.06%
	Binding target for additional net GHG removals under the Regulation on Land Use, Land Use Change and Forestry (LULUCF)		2022: Reported net removals of -9.54 Mt CO_2 eq.	-1.16 Mt CO_2 eq. (additional removal target)	Insufficient ambition based on projections: A gap of 1.45Mt CO_2 eq compared to the 2030 target
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%)	23.3% (SHARES) 16% (target)	2023: 22.5%	34.96%	Bulgaria's contribution of at least 34.96% is above the 33% required under the formula set out in Annex II to the Governance Regulation[3]
	National contribution for energy efficiency:				
	Primary energy consumption	16.90 Mtoe	2023: 16.58 Mtoe	13.19 Mtoe	BG primary energy consumption contribution

[2] The ESR emissions in 2022 are based on 2024 final GHG inventory reports, and 2023 emissions are based on 2024 approximated inventory reports. The percentage reduction is compared with the 2005 emissions as set out in Annex I of Commission Implementing Decision (EU) 2020/2126. However, the final ESR emissions for 2021-2025 will only be established in 2027 after a comprehensive review.

[3] Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action OJ L 328, 21.12.2018, p. 1–77 ('Governance Regulation').

					of 13.19 Mtoe is in line with the EED recast Annex I formula results: 13.71 Mtoe (Reference Scenario) or 14.20 Mtoe (Updated Reference Scenario).
	Final energy consumption	8.6 Mtoe	2023: 9.59 Mtoe	8.82 Mtoe	BG final energy consumption contribution of 8.82 Mtoe is not in line with the national contribution of 8.42 Mtoe submitted by the Commission.
	Level of electricity interconnectivity (%)[4]	11.3%	2024: 16.8%	15%	BG surpassess the EU-wide interconnectivity target.

Source: Eurostat; Bulgaria's final updated national energy and climate plan.

2 CONSIDERATION OF COMMISSION RECOMMENDATIONS ON DRAFT NECP UPDATE

In April 2024, the Commission published a thorough assessment of Bulgaria's draft updated NECP and provided recommendations[5] for the preparation of the final updated NECP. Bulgaria submitted its final updated NECP on 14 January 2025, over six months after the deadline of 30 June 2024.[6]

2.1 DECARBONISATION

Based on the projections provided in the NECP, Bulgaria expects to decrease total GHG emissions (including LULUCF) by 78.2% in 2030 and by 92% in 2040 compared to 1990 and

[4] Calculated by the European Commission based on the ETNSO-E data (Winter Outlook 2024). The 2030 level represents the general interconnectivity target of 15%.
[5] SWD(2024) 125 final, and Commission Recommendation of 26 April 2024, C/2024/2905.
[6] Article 14(2) of Governance Regulation.

reaching net zero in 2050. Bulgaria's NECP includes a commitment to climate neutrality by 2050.

2.1.1 Effort Sharing Regulation

Bulgaria has addressed recommendation 1. The final NECP provides sufficient information on how Bulgaria will meet its ESR target of 10% by 2030 compared to 2005.

The plan provides updated projections that mark an improvement compared to the draft plan, showing that the existing and planned policies and measures will lead to a decrease of 11.06% in 2030 compared to 2005, overachieving by 1.06 percentage points the national ESR target. In 2023, GHG emissions from ESR sectors represented 52% of the total in Bulgaria and are expected to be 47.8% in 2030[7].

The final plan complemented the information on the policies and measures provided in the draft but could still benefit from a clearer description of their scope, timeline and expected greenhouse gas reduction impacts.

For what concerns **transport**, while the plan does not provide projections per sector under the ESR, Bulgaria expects the rate of emissions reductions in total transport to accelerate substantially, driven by for instance EV deployment low emission zones, biofuels deployment and hydrogen fuels. While several transport policies (both existing and planned) are outlined in the plan, the concrete plans for implementation and/or scale up are not always clear and robust implementation and monitoring will be key. The plan refers to the introduction of the emissions trading system for fuel combustion in buildings, road transport and additional sectors (ETS2). The WAM scenario projections account for the effect of ETS2, however they do not clearly consider the impact of ETS2 in achieving the ESR target.

The plan does not provide sufficient detail in the projections on **agriculture**. The sector is described as the largest source of non-CO2 emissions, especially N2O from agricultural soils, although **waste** is also an important contributor. The plan outlines several relevant policies and measures for both sectors, but the lack of quantification of their impact makes it challenging to evaluate their effectiveness.

2.1.2 LULUCF

Bulgaria has partially addressed recommendation 3. The LULUCF sector in Bulgaria generates net removals, absorbing roughly 16% of the total GHG emissions in 2022. Bulgaria has to improve its net removals by -1.163 Mt CO2eq in 2030 as compared to its yearly average in the 2016-2018 reference period. However, according to the latest reported 2022 figures, Bulgaria's performance has worsened by 0.28 Mt CO2eq in comparison to the reference period. Moreover, taking into account its projections for 2030, Bulgaria will still have a gap of 1.45Mt CO2eq in 2030. The plan indicates additional policies for the LULUCF sector compared to the baseline scenario, but these are not sufficient to achieve the LULUCF target.

The plan provides some information on how public funding (CAP, State aid) is used to reach the LULUCF target. The plan lacks information on the status and progress in ensuring higher tier levels and geographically explicit datasets needed to ensure the robustness of net removal

[7] Total GHG excluding LULUCF. Source: EEA. The plan does not include disaggregated information on emissions from the ESR part of transport and buildings.

estimates. Overall, based on the available information, Bulgaria does not design sufficiently effective policies to support the land sector and the achievement of the LULUCF target.

2.1.3 Carbon Capture and Storage

Bulgaria has partially addressed recommendation 2. The plan provides some information on Carbon Capture Utilisation and Storage projects. One of the projects is expected to capture 800 kt annually by 2028. Yet, the plan does not contain a comprehensive CCUS strategy and does not provide estimates for potential storage capacity, set annual injection capacity targets, or outline key national legislative proposals related to CCUS.

2.1.4 Adaptation

Bulgaria has partially addressed recommendation 4. The plan refers to the 2019 National Strategy for Adaptation and its Action Plan up to 2030, to respond to the recommendation and acknowledging the importance of integrating adaptation planning. However, the plan lacks, for most parts, adaptation policies and measures in the relevant Energy Union dimensions. The plan contains an overall **analysis of climate vulnerabilities and risks** through reference to a 2023 study by the National Institute of Meteorology and Hydrology. However, it is short of quantifiable assessment of impacts.

The plan **does not set out significant additional adaptation policies and measures** to support the achievement of national objectives, targets and contributions under the Energy Union It also does not outline the link to the specific Energy Union objectives and policies, that adaptation policies and measures are meant to support. The impacts and benefits of adaptation policies on other Energy Union objectives have generally not been quantified.

2.1.5 Fossil Fuels

Bulgaria has not addressed recommendation 18. The plan includes a commitment to phase down fossil fuels for energy use by 2038. This is mentioned only as part of broader decarbonisation strategies without indicating specific actions or providing quantitative information on build in alternative renewable capacities. Moreover, the plan does not sufficiently explain the alignment between the NECP and TJTPs for Stara Zagora, Kyustendil, and Pernik, nor the intermediate milestones in the timeline for the updated coal phase-out commitments.

The plan states that Bulgaria does not provide fossil fuels subsidies, and hence does not include a timeline for their phase out[8].

2.2 RENEWABLES

Bulgaria has partially addressed recommendation 5. Indicative trajectories for the deployment of renewable energy technologies over the 2020-2030 period are provided with the outlook until 2050. Bulgaria sets a specific target of 6.2% for deployment of innovative renewable energy technologies by 2030. The plan also contains a specific target of 42.04% for renewable fuels of non-biological origin (RFNBOs) for industry by 2030. However, the plan does not include a specific target on the share of renewable energy to reach the indicative 1.6%

[8] The Commission 2024 study and Report on Energy subsidies in the EU identifies the existence of fossil fuel subsidies.

target for industry by 2030. Neither does the plan provide an indicative share of renewables for district heating and cooling over the period 2021-2030.

Bulgaria has partially addressed recommendation 6 and 8. The final plan provides no further information on the uptake of power purchase agreements. For renewable energy deployment in the heating and cooling sector, Bulgaria indicates that the share of renewables will reach 44.01% in 2030, with the aim to promote innovative geothermal and solar technologies, and the use of waste heat and cold. The plan projects that the share of renewable energy in transport will increase to 29.93% by 2030, which will include a contribution of renewable fuels of non-biological origin. As regards the obligation of fuel suppliers in transport, the plan refers to specific obligations on fuel and energy suppliers for a range of renewable fuels without providing further details and does not mention specific measures for promoting renewable fuels of non-biological origin in industry. Geothermal energy will be promoted via the deployment of heat pumps.

While the use of biomass will remain the largest share of renewables in heating and cooling in 2030, it would have to comply with the stricter sustainability requirements in line with Directive (EU) 2018/2001 (the 'revised RED II')[9] and its share gradually will decrease over the next decades. No additional detail has been provided in the final plan on the specific measures, except the aim to develop a vision for the development of the heat market and access of small producers to district heating networks.

Measures to further accelerate permitting procedures and define renewables accelerated areas are mentioned in the context of implementing the requirements of the revised RED II. A plan for the identification of priority areas (Renewables Accelerated Areas) for the development of wind power generation sites is currently under development. The plan does not contain details on procedural steps leading to the adoption of measures aimed at implementing provisions of the revised RED II.

Bulgaria has partially addressed recommendation 7. The updated plan provides the estimated trajectories for biomass demand by sector and biomass use by origin. But it does not assess the domestic supply of forest biomass for energy purposes in 2021-2030 nor the compatibility of the projected use of forest biomass for energy production with Bulgaria's obligations under the revised LULUCF Regulation. Bulgaria does not provide measures to support sustainable biogas and biomethane production, resulting in reduction of current biogas production in 2030 target.

2.3 ENERGY EFFICIENCY DIMENSION

Bulgaria has not addressed recommendation 9. Bulgaria does not include the amount of energy consumption reduction per year to be achieved by all public bodies as required by Article 5 of Directive (EU) 2023/1791 ('EED recast')[10]. Bulgaria does not report the total floor area of heated and cooled buildings owned by public bodies to be renovated yearly - nor the

[9] Directive (EU) 2018/2001 on the promotion of energy from renewable sources, as amended by Directive (EU) 2023/2413

[10] Directive EU 2023/1791 on energy efficiency and amending Regulation (EU) 2023/955 (recast).

corresponding yearly energy savings to be achieved and it also does not specify if it opted for an alternative or default approach. Bulgaria sets out some policies and measures to achieve the reduction of energy consumption from public bodies and the renovation of public buildings, including the introduction of building information modelling at national level.

Bulgaria has partially addressed recommendation 10. Bulgaria sets out policies and measures to achieve the national contributions on energy efficiency, but it does not quantify the expected energy savings and the contribution for each of the reported energy efficiency measures, except for those measures contributing to the energy savings obligation under Article 8 of EED Recast. Considering the latter provision, Bulgaria also includes the amount of cumulative energy savings of 6.2 Mtoe to be achieved over the period from 1 January 2021 to 31 December 2030 and includes an explanation on how the annual savings rate and the calculation baseline were established. Bulgaria does not quantify the savings from those energy efficiency measures targeting energy poverty.

Bulgaria specifies robust energy efficiency financing programmes and support schemes, including financial instruments and public guarantees, able to mobilise private investments and additional co-financing. Bulgaria specifies existing policy measures to promote the uptake of energy efficiency lending products and innovative financing schemes (such as Energy Performance Contracts - ESCOs). Bulgaria establishes a National Energy Efficiency Fund and details its role, as defined in Article 30 of EED Recast, in helping deliver the energy efficiency national contributions to the EU target, by including the use of financial instruments within the Fund.

Bulgaria has partially addressed recommendation 11. The plan does not raise the ambition of the 2020 long-term renovation strategy (LTRS) but recalls some of its key elements, such as the energy savings, renovated area and CO_2 savings milestones for 2030, 2040 and 2050. The plan describes additional measures and initiatives relating to building renovations, which were not identified in the 2020 NECP.

The plan includes sufficient information on related measures for buildings in terms of funding and costs but only includes partial information on energy and emission savings. The plan includes specific information on policies and measures addressing deep renovation (with a specific focus on vulnerable consumers) and decarbonisation of heating or installation of renewables in buildings but not on worst performing buildings.

2.4 ENERGY SECURITY DIMENSION

Bulgaria has partially addressed recommendation 12. The final plan does not further explain how Bulgaria will diversify its gas supply and does not concretely explain how Bulgaria intends to continue encouraging gas demand reduction towards 2030. It does however provide a forecast for the future role of natural gas. In the WAM scenario, primary energy production from natural gas is expected to marginally decrease first, from 169 GWh in 2022 to 164 GWh in 2030, and then much more quickly, to 50 GWh in 2040 and 8 GWh in 2050. In the WEM scenario, however, primary energy production from natural gas increases to 190 GWh by 2030, and then decreases to 168 GWh by 2040.

The final plan does not contain any additional information on storage targets, only a few additional projects.

The plan does not assess the adequacy of the oil infrastructure (pipelines, refineries, and oil storage) in the long run with the expected oil demand decline and the move to lower-carbon alternatives.

It also does not address the imperative of climate adaptation on the energy system, with no new measures.

The plan describes measures to diversify the supply of nuclear fuel but does not provide information on spare parts and services. It mentions small modular reactors and implementing good practices in radioactive waste management and spent nuclear fuel management, without giving further details.

2.5 INTERNAL ENERGY MARKET DIMENSION

Bulgaria has partially addressed recommendation 13. The plan elaborates on the quantification of flexibility needs although not in a structured way, nor does it set specific demand response targets beyond measures enabling participation of demand response. The plan does however provide clear targets to improve the flexibility of the energy system. Bulgaria notably aims to increase flexibility by enabling a non-discriminatory participation of new flexibility services, demand response aggregation, intraday and day-ahead markets, and expanded interconnectors.

The final plan does not provide information on specific measures aimed at energy system integration to facilitate system integration of renewable electricity in accordance with Article 20a of the revised RED II.

The plan defines forward-looking objectives and targets concerning market integration. Bulgaria is actively participating in cross-border market coupling initiatives, including SIDC for intraday trading and SDAC for day-ahead markets. The plan also outlines projects for integration with Serbia, North Macedonia, and Greece. There are plans to fully liberalise the market by 2025 and steps are being taken on different measures relevant to retail markets such as dynamic electricity pricing, aggregator participation, and local energy communities. When introduced, the removal of public supplier quotas and price caps for balancing electricity will further contribute to develop competitive wholesale markets and to phase out measures interfering with market signals, ultimately aligning with EU market rules.

Bulgaria has partially addressed recommendation 14. The updated NECP contains a description on the adopted legal definition of energy poverty (i.e. modification to the Energy Act) along with reference to current measures. Moreover, the role and the tasks of the energy poverty observatory are better described. The plan also provides more explanations on energy efficiency measures. Some estimates of the total number of poor individuals has been improved, but an official system to identify and monitor those in energy poverty has not been developed yet. However, this could be elaborated further to include an energy poverty reduction target and indicative timelines for the implementation of support schemes and the identification mechanism itself. In terms of financing the following is indicated: EU Social Climate Fund, other financial instruments with an EU funding source and the national budget. This could be explained more concretely as well.

2.6 RESEARCH, INNOVATION AND COMPETITIVENESS

Bulgaria has partially addressed recommendation 15. The plan includes a partially comprehensive approach referring to the decarbonisation of the sectors of the economy, however it does not include targets to support research, innovation and competitiveness in clean energy technologies. In terms of share of GDP public spending, the pathway towards 2030 and beyond is not established. Instead, Bulgaria refers to numerous mid-term European funding programmes (2021-2027) as the main source of funding supporting energy transition and clean technologies investments.

The plan includes some measures to promote the development of net-zero projects including those relevant for energy intensive industries, for example in the area of hydrogen and low carbon gasses, the National Roadmap for hydrogen (which was adopted in 2023) and the act on AttractInvestBG for facilitating investments through industrial parks. The plan refers in a general way to the simplified permitting procedures for manufacturing, and more specifically to projects having the status of the Projects of Common Interest (PCI, TEN-E). The plan includes information on policies and measures for the development of clean energy and digital-related skills.

It partly addresses the supply chains of key net-zero components and equipment, through the investments in the industrial parks, such as for the electricity sector, and hydrogen.

2.7 FINANCING THE ENERGY AND CLIMATE TRANSITION

Bulgaria has not addressed recommendation 16. The plan does not provide an estimate of the total investment needs. It focuses mainly on investments in new renewable energy sources, electricity, and heat production. Though this assessment is based on a sound methodology, relying primarily on a top-down approach, investment needs in other sectors are not fully described. The proportion of public investment is unclear, and the tools to mobilise private investment are not described. The plan includes a list of EU financial sources but does not consider national and regional public sources. The types of financial instruments are not detailed.

Bulgaria does not provide a robust macroeconomic impact assessment. It presents different policy scenarios and assesses their impact on carbon intensity, energy prices, and investment. However, the plan does not establish a direct and quantifiable link between specific policy measures and their macroeconomic impact and has limitations concerning the model-based analysis of GDP and employment. The impacts on health and environment are described qualitatively.

2.8 JUST TRANSITION

Bulgaria has partially addressed recommendation 20. The plan provides information on the impact of the transition to climate neutrality on employment (with quantitative information on jobs in the construction sector) and skills but does not sufficiently address the impact on the most vulnerable households. Moreover, the plan does not specify the form of support, the impact of initiatives or the resources available, except for the Just Transition Fund (JTF) and

the Modernisation Fund. The analysis focuses on the JTF and the Territorial Just Transition Plans.

The coal phase-down deadline in the TJTPs (Stara Zagora, Kyustendil, and Pernik) is aligned with the final updated NECP, but the latter does not clarify concrete actions to respect this timeline.

The plan lacks the analytical basis needed for the preparation of the Social Climate Plan, such as information on the estimated impact of ETS2 and the identification of vulnerable groups. The plan does not fully explain how the policy framework identified in the NECP will contribute to the preparation of Bulgaria's Social Climate Plan nor how the consistency of the two plans will be ensured.

2.9 PUBLIC CONSULTATION

Bulgaria has partially addressed recommendation 21. Bulgaria organised public consultations on the draft NECP, mainly organised through the official websites. The Bulgarian authorities responsible for the NECP also participated to various conferences, meetings, roundtables, and stakeholder fora. The public consultation started on 22 December 2023 and lasted a month. This was rather close to date of the submission of the draft plan (February 2024), which might have limited the ability to fully take stakeholder input into account early in the process.

The plan includes a summary of the outcome of the consultations but does not describe how the final plan integrates the inputs suggested from stakeholders. The plan indicates that an extensive consultation process on the final NECP is expected to be launched after the submission of the final updated NECP. The final plan is subject to strategic environmental assessment.

2.10 REGIONAL COOPERATION

Bulgaria has partially addressed recommendation 22. The plan includes a comprehensive list of electricity, gas, and renewable energy-related regional initiatives under the CESEC High-Level Group, aiming at increasing Bulgaria's engagement with neighbouring Member States and Energy Community Contracting Parties, thus enhancing Bulgaria's security of supply, market integration and integration of renewable energy. While detailed information on several regional initiatives within CESEC is provided, the plan does not mention the key CESEC priority of gas quality harmonisation, which is essential for unblocking the full potential of the Trans-Balkan pipeline in reverse flow. This infrastructure route, that connects Greece through Bulgaria, Romania and Ukraine with the CEE gas markets, has been significantly underutilised due to different gas quality parameters across borders. The final plan does not describe how Bulgaria plans to establish a framework for cooperation with other Member States by 2025, in line with Article 9 of the revised RED II.

The plan does not refer to any progress nor efforts for the signature of the two bilateral solidarity agreements for the security of gas supply with Bulgaria's neighbours (Romania and Greece).

2.11 ANALYTICAL BASIS

Bulgaria has addressed recommendation 19. The plan provides both With Existing Measures and With Additional Measures scenarios with projections until 2050.

2.12 STRATEGIC ALIGNMENT, COHERENCE AND INTERACTION WITH OTHER PLANNING INSTRUMENTS AND POLICIES

Bulgaria has partially addressed recommendation 17. The plan covers sufficiently the main reforms and investments of the Recovery and Resilience Plan (RRP)[11] that contribute to implementing the objectives, targets, and contributions of the Energy Union. The final updated NECP still does not refer to Investment 8 (C4.I8): National infrastructure for storage of electricity from renewables (RESTORE), which would enable the installation and commissioning of a national infrastructure of grid-scale electricity storage facilities with at least 3000 MWh of usable energy capacity under the RRP. Some reforms addressed in the final NECP have not been adequately recognized as part of the RRP, such as the reform of the Act on Energy from Renewable Sources.

3 GUIDANCE ON THE IMPLEMENTATION OF THE NATIONAL ENERGY AND CLIMATE PLAN

The Commission encourages Bulgaria to ensure a timely and complete implementation of the final updated NECP. Bulgaria is invited to pay particular attention to following main elements:

- Monitor the impact of policies to decarbonise **transport**, including planned measures to support the uptake of electric vehicles and the construction of recharging infrastructure, to enable modal shift and low emission zones.
- On **LULUCF**, increase monitoring and enforcement of sustainable forest management practices, consider additional measures including afforestation, agroforestry, and improve the targeting and the commitments of existing interventions such as those under the CAP.
- On **adaptation,** assess quantitatively the relevant climate vulnerabilities and risks for the national objectives, targets, and contributions and the policies and measures in the different Energy Union dimensions. That would enable better outlining and quantifying the link to the specific Energy Union objectives and policies, that adaptation policies and measures are meant to support.
- On **fossil fuels**, enable the gradual phase-out of solid fossil fuels in view of the 2038 deadline set by the plan. Identify fossil fuel subsidies and outline a roadmap for their phase-out.
- On **industry**, put in place robust measures to decarbonise industry, including by reducing energy consumption, as the share of energy consumed by industry is projected to decrease less than in other sectors. Develop a framework **to support the uptake of renewable hydrogen and CCUS**.

[11] Bulgaria does not have a REPowerEU chapter as of May 2025.

- Commit public and private R&I funding to the clean energy transition and innovative technologies and industries. Foster additional synergies in the SET-Plan, including on institutional capacity building and synergies with European funding programmes.
- On r**enewable energy,** identify renewable **acceleration areas** for simplified permitting procedures and outline a comprehensive plan to increase renewables uptake in district **heating and cooling.** Commit to the plan to upgrade the electricity grid to integrate increased shares of renewable energy. Put in place a framework to enable renewables **power purchase agreements** to provide certainty to all market actors.
- On **energy efficiency**, put in place measures to achieve the higher ambition for **energy efficiency** by 2030.
- On **buildings**, ramp up the pace and depth of renovation in overall building stock and assess market barriers to speed up the implementation of the measures put forward.
- On the **flexibility on the electricity market**, boost competition on the electricity market and enable the rapid deployment of non-fossil flexibility to further increase system flexibility.
- **On nuclear energy**, continue efforts to diversify nuclear fuel supplies and to ensure its long-term supply of spare parts and maintenance services.
- Adopt a more comprehensive **just transition strategy** that addresses the impact on vulnerable households and allocates sufficient funding.
- **On regional cooperation,** streamline cooperation on the gas quality harmonisation in CESEC which is essential for unblocking the Trans-Balkan pipeline and enhancing Bulgaria's and regional security of supply.