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CHALLENGES OF BULGARIA'S FISCAL POLICY TOWARDS GREEN TRANSITION IN THE EUROPEAN UNION[2]

The article is dedicated to the challenges of the fiscal policy of Bulgaria in the context of the European Union's (EU) priorities for a green, climate-neutral economy's transition. The article analyzes the fiscal aspects of the EU Green Deal and related initiatives NextGenerationEU, Fit for 55 packages, RePower Plan and Just Transition Mechanism for the EU program period 2021-2027. It examines the objectives of the EU Green Deal's implementation in the context of the EU Strategy for Financing the Transition to a Sustainable Economy. It studies the mechanisms, tools and alternative approaches in the application of EU funding and modern financial instruments to stimulate the green transformation of the EU economy.

The research assesses the opportunities for the green transition in Bulgaria through the application of national and European financial instruments. The study assesses the effects of the fiscal instruments for mitigating and adaptation to climate change on the fiscal deficit of Bulgaria. The study shows that the fiscal policy with EU funding and national co-financing for green policies under the National Recovery and Resilience Plan and the Partnership Agreement for 2021-2027 could augment the green transition and have a net positive impact on the fiscal balance. The study also outlines the possible risks and negative impacts on budgetary aggregates.

Keywords: Environmental Sustainability; Government Policy; Economic Integration
JEL: Q56; Q58; F15

Introduction

The EU economic growth paradigm implemented during the Multiannual Financial Framework (MFF) for 2021-2027 is focused on growth recovery and the transition to a climate-neutral and digital economy, but better linked to the EU social goals. In April 2021,

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[2] *The article is based on the author's study Paliova I. (2023). Theoretical and policy aspects of the green transition: fiscal perspectives (pp.19-126). In the collective book: Bobeva D., Zhelyazkova V., Aleksandrova S., Paliova I. (2023). The green transition in the European Union and the challenges facing the financial sector and public finances of Bulgaria, Paisii Hilendarski University Press, ISBN 978-619-202-878-7 (in Bulgarian).*

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the EU-27 reached an agreement on the EU climate legislation, which sets out a framework for climate action to increase security for society and increases the EU's ambition for 2030, with a new target of reducing net greenhouse gas emissions by 55%. Consequently, the Green Deal and EU financial instruments for climate change mitigation and adaptation, pollution control and natural resource management have become among the highest priorities of the EU Member States (MS) during the EU 2021-2027 program cycle.

On January 14, 2020, as part of the EU Green Deal[3], the European Green Deal Investment Plan was presented by the European Commission (EC)[4], which plans to mobilize at least EUR 1 trillion of public and private investments over the next decade.[5] Since 2005 the EU Emissions Trading Scheme (ETS) has generated substantial revenue to mitigate climate change, but additional public and private resources through the new EU initiatives have been needed to achieve the EU goals for climate neutrality by 2050. The Recovery and Resilience Facility (RRF) under NextGenerationEU[6] and the European Green Deal Investment Plan introduce financial instruments through public policies to stimulate environmental investments and to manage decarbonisation in the MS.

In this regard, the purpose of the study is to analyse the fiscal aspects of the EU's new initiatives for the decarbonisation of the EU economy during the program period 2021-2027 and to assess the challenges for Bulgaria's fiscal policy for the implementation of the EU Green Deal and initiatives with a focus on the assessment of the impact of green policies on Bulgaria's fiscal deficit.

1. Budget Aspects of the EU Green Transition Initiatives

The transition to a green economy in the EU depends on the political decisions of the EU institutions, parliaments and MS governments and the effectiveness of fiscal institutions in the implementation of public policies for energy decarbonisation and climate change mitigation and adaptation, including through the uptake of the European Structural and Investment Funds (ESIF) and the new EU funding instruments for the program period 2021-2027.

To achieve its targets for the reduction of carbon emissions by 55% till 2030, the EU has established a number of legal initiatives, which the MS should implement in their legislation and medium-term budgetary frameworks.[7] The energy crisis in the EU, following Russia's

[3] EU Green Deal, Official site of the European Commission, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en.
[4] EU Green Deal investment Plan, https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_24
[5] Official website of the European Commission, clarifications on the European Green Deal Investment Plan and the Just Transition Mechanism, https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_24.
[6] Official website of the European Commission, https://next-generation-eu.europa.eu/index_en.
[7] The new financial instruments include: (a) Recovery and Resilience Facility (RRF) and Support of Cohesion and Territories in Europe (EU-REACT) for investments and reforms; (b) Just Transition Fund (JTF) to stimulate the transition to a climate neutral economy linked to the EU social goals; (c) Horizon 2020 program to stimulate research and innovation; (d) Solvency Instrument Support Facility and the

military invasion of Ukraine, has contributed to new challenges for the MS national budgets, and the European Commission (EC) approved a REPowerEU Plan to provide additional EU resources under their national recovery and resilience plans of the MS to accelerate the environmental transition through new more ambitious targets for energy from renewable sources (RES) up to 45% by 2030.[8]

In the program period 2014-2020, the focus has been on the effects of the MS fiscal policy on sustainable growth, with environmental policies implemented through the ESIF and the Investment Plan for Europe (the so-called Junker Plan).[9] The plan unlocked public and private investment in the real economy of EUR 315 billion over a three-year fiscal period to drive economic growth and the environmental transition. The effects of environmental policies at the EU level were measured by the harmonization of national environmental and social policies, as well as technical standards with the EU legislation; creation of administrative capacity at the level of public administration for the implementation of the EU policies and effective participation in decision-making at the EU level.[10]

From January 2020, the European Green Deal sets out a clear direction for an overarching policy framework for the green transformation of the EU MS economies with significant public funding through national budgets. The goal is to reduce greenhouse gas emissions by 55% by 2030 and to achieve climate neutrality by 2050. Thus, strengthening the links between national structural reform programs and the existing EU funding mechanisms becomes an important condition not only for the 2014-2020 program period but also for 2021-2027.

The EU Green Deal policies use a combination of the EU and national government fiscal policy incentives to remove spillovers and apply the polluter pays to national budgets so that the costs of society are reflected in public and private investment decisions. Specific fiscal initiatives are targeted at relevant sectoral regulatory barriers, such as obstacles to the financing and implementation of energy efficiency investments in the construction sector.

The different nature of the current global economic situation calls for caution and care in considering the economic implications of the fiscal expansion from 2020, and a return to the medium-term budgetary objective. The COVID-19 pandemic and the EU green transition priority also demanded the taking of a historically new step of EU integration to finance the EU budget with new own resources.

The EU budget for 2021-2027 includes, in addition to the ESIF, the instruments of NextGenerationEU of EUR 806.9 billion in 2022 prices to support the MS public investment

InvestEU program (based on the Investment Plan for Europe, the so-called Juncker Plan) to stimulate private investments; and (e) an EU Health program to prevent the recurrence of the public health consequences of the COVID-19 pandemic.

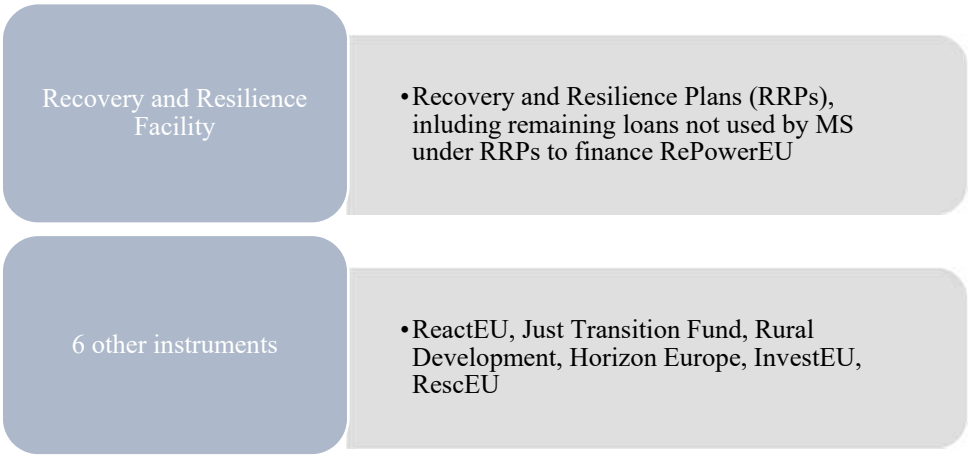
[8] Official site of the EC, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_en.

[9] Official site of the European Commission, https://economy-finance.ec.europa.eu/eueconomyexplained/graphs-economic-topics/investment-plan-europe-juncker-plans-impact-real-economy_en.

[10] European Commission, EU. (2017). Reflection Paper on Deepening the Economic and Monetary Union.

and reforms. In the period 2021-2026, the RRF (EUR 723.8 billion in 2022 prices, of which EUR 338 billion in grants and EUR 385.8 billion in low-interest loans)) and other 6 instruments (EUR 83.1 billion) of NextGenerationEU are to support the public investment and reforms foreseen in the MS national recovery and resilience plans for transition to a green and digital economy, as well as to mitigate the social impact. About 37% of NextGenerationEU is earmarked for climate changes measures. The other 20% is aimed at the development of digitalization. The React-EU (EUR 47.5 billion) is the first instrument under NextGenerationEU, which has already been used by the MS in their fiscal frameworks in the 2014-2020 program period.

Figure 1. NextGenerationEU financial instruments



Source: European Commission, https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility_en.

A new financial source for the EU budget is raising funds by borrowing on capital markets by the EC for the first time in the EU history for the purposes of NextGenerationEU[11], which will be issued in tranches and paid through the contributions of the countries to the EU Budget until 2038.

From January 1, 2021, a new EU-owned resource has been introduced, which is a national contribution based on the amount of non-recycled plastic packaging waste. This resource is to contribute to the achievement of the EU-wide objectives set out in the waste strategy. The contribution is calculated by applying a flat rate of €0.80 per kilogram to each MS's estimated amount of non-recycled plastic packaging waste (in kilograms) for the given year.[12]

[11] Official website of the European Commission, https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility_en.

[12] Council Decision (EU, Euratom) 2020/2053/14 December 2020 on the system of own resources of the European Union and repealing Decision 2014/335/EU, Euratom. In accordance with the European Plastics Strategy, national contributions to the EU Budget should stimulate the reduction of pollution from plastic packaging waste in the MS.

Another source of the EU budget is the revenues from auctions under the EU Emissions Trading System (ETS). According to the EC's proposal, 20% of the EU ETS revenue is included in the EU budget as its own resource, and the remaining 80% is used by the MS through their national budgets. The revenue from the trading of emission allowances used by the MS is part of the MS budgetary revenues and at least 50% of the total revenue should be used for the purposes of decarbonisation and the fight against climate change consequences. In order to achieve the target of reducing EU emissions by 55% by 2030, the EC has set a target for the industries covered by the EU ETS to reduce their emissions by 61% compared to 2005 (the year the ETS was established). This continues to put upward pressure on emission allowance prices and increases the costs of the green transition.

The revenues of a new ETS for non-ETS sectors should be a substantial funding source for the EU budget and MS national budgets for green policies. The new EU initiative Fit for 55 presented by the EC on 14 July 2021 introduced measures for non-ETS sectors, for emissions in agriculture and forestry sectors, for the creation of a Social Climate Fund (SCF) and new CO_2 emission performance standards for road transport and the building stock. A separate ETS is being created for the sectors of buildings and road and marine transport. On the other hand, some studies indicate the dependence of transport modes in the EU Member States on fossil fuels, as well as the level of digitalization of the transport sector, the obstacles to the functioning of sustainable multimodal transport services and the danger of imperfect market structures in the field of transport in the – the underdeveloped regions in the EU (Koralova-Nozharova, 2021).

The EC also created two funds Innovation Fund and Modernization Fund financed by ETS allowances to support green transition.[13]

The Modernisation Fund helps modernize MS energy systems, reduce greenhouse gas emissions in energy, industry, transport and agriculture and support the achievement of their climate and energy goals for 2030. Until June 2023 the EC has approved EUR 197 million for Bulgaria from the Modernisation Fund. The confirmed investments for other MS are for Romania (EUR 1.1 billion), the Czech Republic (EUR 1 billion), Poland (EUR 47 million), Croatia (EUR 88 million), Latvia (EUR 5 million) and Lithuania (EUR 1 million).[14]

The Innovation Fund supports innovative technologies in sectors covered by the EU ETS, including innovative renewables, carbon capture and use and energy storage, as well as the decarbonisation of the maritime sector, covering four topics: "general" decarbonisation; "industry electrification and hydrogen"; "clean tech manufacturing"; and "mid-sized pilots".[15] [16].Until June 2023 the Innovation Fund has awarded large-scale projects in Austria,

[13] In 2023 the overall size of the Innovation Fund has been increased from 450 million ETS allowances to approximately 530 million ETS allowances, https://climate.ec.europa.eu/eu-action/funding-climate-action/innovation-fund/what-innovation-fund_en.

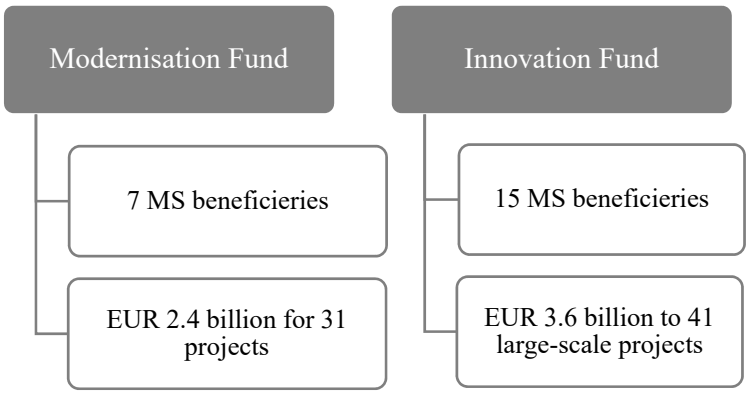
[14] Official website of the Modernization Fund, https://modernizationfund.eu/european-green-deal-eu-modernization-fund-invests-e2-4-billion-to-accelerate-the-green-transition-in-seven-eu-countries/.

[15] Official site of European Commission, https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3787.

[16] Decarbonisation of the maritime sector through the Innovation Fund has been added to Fit for 55 decisions of the European Council of 29 June 2022, https://www.consilium.europa.eu/en/press/press-

Belgium, Croatia, Czechia, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain and Sweden, as well as Norway.

Figure 2. Beneficiaries of Modernisation Fund and Innovation Fund until mid-2023



Source: Official sites of Modernisation and Innovation Funds.

The RePowerEU Plan has been introduced as a new instrument of European green transition policies after Russia's military invasion of Ukraine on 24 February 2022. In the field of energy, the EC responded to the military escalation by RePowerEU Plan presented on 18 May 2022. The new plan changed the EU's energy and climate agenda.[17] It is based on the Fit for 55 packages and has been presented together with a range of other documents – the External Energy Strategy, the Solar Strategy, the Energy Savings Communication, the Solar Roof Initiative and the Biomethane Action Plan. Thus, additional funding of EUR 210 billion at the EU level is foreseen for the implementation of the RePowerEU Plan, with the MS having to add a separate part in their national recovery and resilience plans.

Funding for the RePowerEU plan is ensured from the remaining loans under the RRF of NextGenerationEU, as well as EUR 20 billion through the auction of additional ETS emission allowances under the Fit for 55 packages; over EUR 90 billion in savings from reduced fossil fuel imports by 2030; an additional 10 billion euros for new infrastructure for fossil fuels – terminals for the import of liquefied natural gas; floating storage regasification facilities; interconnections; other funds – European funds under cohesion policies, national fiscal measures, Innovation Fund, the Connecting Europe Mechanism; European Investment Bank (EIB).

For Bulgaria, an additional amount of EUR 480 million is envisaged.[18] In addition to the expected diversification of energy sources in the EU, the REPowerEU plan poses other

releases /2022/06/29/fit-for-55-council-reaches-general-approaches-relating-to-emissions-reductions-and-removals-and-their-social-impacts/.

[17] European Commission (2022) REPowerEU Plan, COM (2022) 230 final, 18 May. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52022DC0230&from=EN.

[18] The funds for Bulgaria were announced by the Acting Minister of Economy and Industry at a conference "The Energy Transformation of Bulgaria in the Context of the Plan RePowerEU", organized

problems and challenges for the EU. It is still too early to make a long-term assessment, but for example, the short-term challenges of liquefied natural gas imports are related to the negative environmental impact of emissions from methane production and transport, global competition for supply and new investment in infrastructure that result in stranded existing assets. In addition, investment in new fossil fuel infrastructure diverts funding and policy focus away from renewables and energy efficiency. Thus, the risk of spending public funds on large fossil fuel projects that after a few years become sunk assets or new fossil fuel dependencies remains significant.

2. The Just Transition Mechanism of the EU and Bulgaria's National Just Transition Plans

Climate neutrality requires a radical restructuring of economies, structural changes in business models and new qualification and skill requirements for the affected workforce, mainly through government programs incorporated in the medium-term fiscal frameworks and national reform programs. The EC's position is that this must be recognized and addressed during the green transition where no one is left behind. At the same time, it is a matter of political commitment and administrative capacity of the MS governments to implement the projects set out in the national recovery and resilience plans, by August 2026, when the MS must report the results achieved, to receive the last payments under the NRRP by the end of 2026.

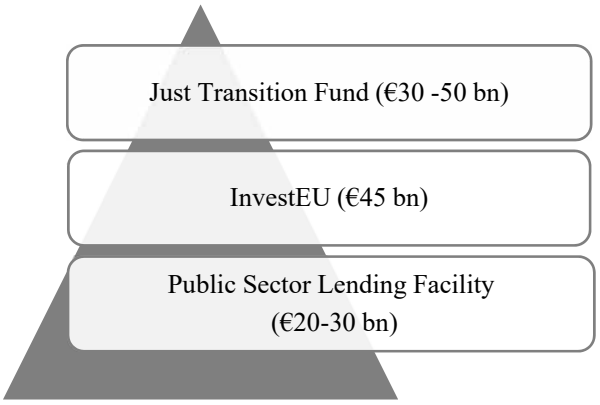
According to the EU Green Deal, coal-fired power plants must be closed by 2030 across Europe, which would be a challenge for the energy sector of Bulgaria and some other MS, especially with the new realities of the war in Ukraine and reduced supplies of Russian gas for Europe. At the same time, this issue is addressed individually for each MS through the national recovery and resilience plans and their national just transition plans which will be financed by the so-called Just Transition Mechanism (JTM). The MS and their regions are assisted through the Just Transition Platform, which is managed by the EC. The platform continues and expands the work of the existing Coal Regions in Transition Platform, which already supports fossil fuel regions in the EU to achieve the transition. It provides technical and advisory support in the preparation of territorial transition plans through an expert network facilitating the exchange of information between MS. There is a reprieve for countries such as Poland and Bulgaria, for which coal-fired power generation is a significant share of their energy mix.

The JTM provides targeted support to generate the necessary investment in the affected territories with three pillars – the Just Transition Fund (JTF), InvestEU (a dedicated just transition scheme), and a new Public Sector Lending Facility (PSLF) for additional investments that are mobilized by the European Investment Bank (EIB). Through the JTM

by the Union of Economists and UNSS on 27.02.2023, https://www.mi.government.bg/news/balgariya-sthe-poluchi-nad-480-mln-evro-ot-plana-repowereu-za-nova-energijna-infrastructura/.

the EC plans to financially support the affected sectors of the member states with at least EUR100 billion to ensure their transition to climate-neutral production.[19]

Figure 3. Just Transition Mechanism



Source: Official site of Just Transition Mechanism.

The JTM finances projects to support EU regions most affected by the transition to a low-carbon economy. The ESIF funds can also be used through national recovery and resilience plans and operational programmes financed by the European Regional Development Fund (ERDF) and the European Social Fund Plus (ESF+). Each pillar of the JTM provides support through various grant and funding instruments to offer a full range of support options in line with the need to mobilize investment for the benefit of the most affected regions. In order to ensure coherence between the three pillars, the JTF provides grants; the InvestEU program attracts private investment and the PSLF mobilizes public financing.[20] The JTM complements the Modernization Fund funded by the EU ETS with additional EUR 14 billion (depending on carbon price levels) in 2021-2030 for low-carbon investments in ten beneficiary MS, including Bulgaria (Romania, Bulgaria, Hungary, Latvia, Lithuania, Estonia, Czech Republic, Poland, Slovakia, Croatia).

Bulgaria has the right to receive EUR 1.2 billion (from an initial EUR 2.7 billion in 2018 prices) from the JTM to green the energy sector, but the uptake is slow due to pending legislative changes.[21] Funds from the JTM are grants, but must be effectively used under the

[19] Official website of the Council of Ministers for the Just Transition Mechanism, https://www.nextgeneration.bg/#modal-four.

[20] In addition, the EC proposed to revise the regulations on the Research Fund for Coal and Steel to make it possible to use part of the assets of the European Coal and Steel Community, which are in liquidation. This should help sustain the annual research program of at least EUR 40 million, as well as to enable the funding of major cutting-edge research and innovation projects in the field of clean steel production. Research activities in the coal sector focus on regions in transition in line with the principles of the JTM.

[21] Official website of the Council of Ministers for the Just Transition Mechanism, https://www.nextgeneration.bg/#modal-four.

National Recovery and Resilience Plan (NRRP) and the Partnership Agreement of Bulgaria for 2021-2027, which is a challenge with the frequent changes and new priorities of the governments.

Despite the considerable public resources foreseen for the green transition, the main question facing Bulgaria is whether the country can abandon the production of coal, which continues to be an important energy source in the energy mix, especially in the current geopolitical situation. For the moment in Bulgaria, coal-fired generated energy provides about 43% of the country's energy mix for 2022, followed by nuclear power (33%) and renewables (18%)[22]. The use of the resources foreseen by the EC JTM is a challenge for the coal plants in Bulgaria, as it is related to their restructuring towards the production of green energy according to national territorial just transition plans in the affected regions.

The EC approved the financing of Bulgaria's national transition plans for the three main regions with coal-fired power plants (Pernik, Stara Zagora and Kyustendil) to be financed by the JTF. Additionally, the World Bank provided technical assistance to eight other regions in Bulgaria that have an indirect social, economic and environmental impact from the restructuring of carbon-intensive industries. Depending on the decision of the EC funding for the eight regions can be approved by the JTF or the ESIF, depending on the plans' compliance with the EU funding requirements.

The change in the Energy Act for the modernization of coal plants is a prerequisite for the use of the financial instruments under the NRRP, but a fair transition depends not only on the available financial resources to support the investments, but also on directing these funds to the right projects. On the other hand, financing of state-owned enterprises can have a negative impact on the fiscal and debt positions, if it is not used according to the EU regulations and deadlines. To finalize these projects after the EU deadlines the European financing will need to be replaced by national resources, which may increase government fiscal deficit and debt levels.

In relation to the challenges of the 2021-2022 EU energy crisis, the EC Strategy for Financing a Sustainable Economy decided to consider natural gas and related technologies and nuclear power as transitional technologies in the green transition, which should help countries like Bulgaria for a more gradual transition to renewables. The new EU Taxonomy Delegated Act from July 2022[23] already covers those energy activities and other activities (e.g. agriculture) not yet covered by the first EU Climate Taxonomy Delegated Act. The new Delegated Act sets out timelines and intermediate steps for these economic activities, including for existing investments that contribute to the ecological transition process in relation to the European

[22] Ministry of Energy (2023), Bulletin on the state and development of energy of the Republic of Bulgaria in 2022, https://www.me.government.bg/uploads/manager/source/VOP/Buletin_Energy-2023-25.04.2023_1_1.pdf.

[23] Official site of the EC, Taxomony Complementary Climate Delegated Act, https://finance.ec.europa.eu/publications/eu-taxonomy-complementary-climate-delegated-act-accelerate-decarbonisation_en

Council Conclusions of 11-12 December 2020, recognizing the role of transition technologies.[24]

The provision of significant public resources through Next GenerationEU and the ESIF in the period 2021-2027 should encourage public and private investment, which is also set out in the EU Strategy for Financing the Transition to a Sustainable Economy. However, as mentioned above the EU funding earmarked for green investments, far exceeds the capacity of the public sector. The green transition requires ensuring synergy between public and private financial flows to relevant economic activities. "By sharing risk between public and private investors, market failures that hinder the financing of sustainable infrastructure and the innovation-driven transition can be effectively overcome."[25]

3. Green Policies of Bulgaria with National and European Funding

The green transition implies the inclusion of public green investments in the fiscal framework and budget to ensure the implementation of priorities for the decarbonisation of the economy through public policies. The absorption of EU funding through the national budget and fiscal policy is one of Bulgaria's important instruments for the transition to a green economy. For the program period of the MFF of the EU 2021-2027, Bulgaria's budget from the EU budget amounts to EUR 17.7 billion, of which EUR 10.9 billion under the Partnership Agreement for 2021-2027, EUR 6.3 billion grants from the RRF, within NextGenerationEU, and EUR 0.5 billion under the RePowerEU Plan. Bulgaria decided not to borrow from the RRF, which was in the amount of 4 billion euros. With the EU funding, Bulgaria has significant public resources for the period 2021-2027, which provide an additional fiscal stimulus for restoring economic growth and implementing the green transition policies.

After three years of derogation of the Maastricht criteria for fiscal deficit and government debt, since 2023 the public green investments in Bulgaria should be implemented upon recovery of their observance. The RRF and REACT-EU account for more than 95% of Next Generation EU grants. The requirement for MS' national recovery and resilience plans[26] is to be fully consistent with the proposed territorial just transition plans under the JTM.[27] A prerequisite for a positive evaluation of the plans has been a thematic concentration of at least

[24] European Commission (2021). COM (2021) 390 final. Strategy for Financing the Transition to a Sustainable Economy, p. 7.
[25] European Commission (2021). COM (2021) 390 final. The Strategy for Financing the Transition to a Sustainable Economy, p. 13.
[26]The criteria for the distribution of the financial resource among the member states for 70% of the grants take into account the population, the reciprocal of its GDP per capita and the average unemployment rate over the last 5 years (2015-2019) compared to the average for the EU. For the remaining 30%, the unemployment indicator for the period 2015-2019 is replaced in the formula with the observed loss of real GDP in 2020 and the observed cumulative loss of real GDP for the period 2020-2021, which will be calculated by 30 June 2022.
[27]April 30, 2021 was the initial deadline for the official submission of the National Recovery and Resilience Plan to the EC. In 2022, the plans are refined and adapted to take into account the final allocation of funds in 2023.

37% for green investments and 20% for digitalization. As a rule, the maximum volume of loans for each MS should not exceed 6.8% of its GNI.

Bulgaria's National Recovery and Resilience Plan (NRRP)[28] outlines goals and necessary investments in four areas – a green, innovative, connected and fair Bulgaria with the largest share of the total budget for green policies. The plan concentrates 58.9% of the total planned expenses for achieving climate objectives, while 25.8% will foster digital transition.[29] Bulgaria's set national target for the share of energy from RES in gross final energy consumption is 27.09% by 2030, far lower than the increased EU target to 45% (from 40%) with the RePowerEU Plan.[30] Another goal is the cumulative reduction of energy intensity of the economy by 10% and carbon intensity by 10%. The creation of a National Fund for decarbonisation and direct involvement of local communities in the management of decarbonisation activities could help in decarbonisation processes. The plan also sets a high level of ambition for the digital transition, using almost 1/4 of the total projected expenditure, setting goals by 2025 for 100% of households to have access to a high-speed Internet connection; 50% of the population to have at least basic skills in the field of digital technologies and 35% of enterprises to have implemented digital technologies by 2025.

The establishment of a system for management and control of funds under the NRRP approved at the beginning of July 2022 should help in the implementation of the projects, however, a number of internal and external risks should be addressed. Due to often changes in the governments during the period 2021 –2022 the implementation of Bulgaria's NRRP was lagging behind as the process of approving the important legislative changes and the implementation of the planned projects under the NRRP have been slowed down.

Bulgaria's Partnership Agreement for 2021-2027 was adopted by the EC at the beginning of July 2022 and is the twelfth agreement for the 2021-2027 EU program period after those already adopted for Greece, Germany, Austria, the Czech Republic, Lithuania, Finland, Denmark, France, Sweden, the Netherlands and Poland. The 2021-2027 Partnership Agreement of Bulgaria has been approved with a budget of EUR 10887 million funded by ESIF and JTF.[31]According to the Partnership Agreement for 2021-2027, the ESIF funding will be devoted to achieving the goals of transition to a green economy and the effects of public policies on sustainable development through the initiatives Smarter Europe (14%), Greener Europe (19%), Connected Europe (14%), Social Europe (23%) Europe and Europe

[28] Approved on 7 April 2022 by the European Commission.

[29] Official site of the European Commission, https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/recovery-and-resilience-plan-bulgaria_en.

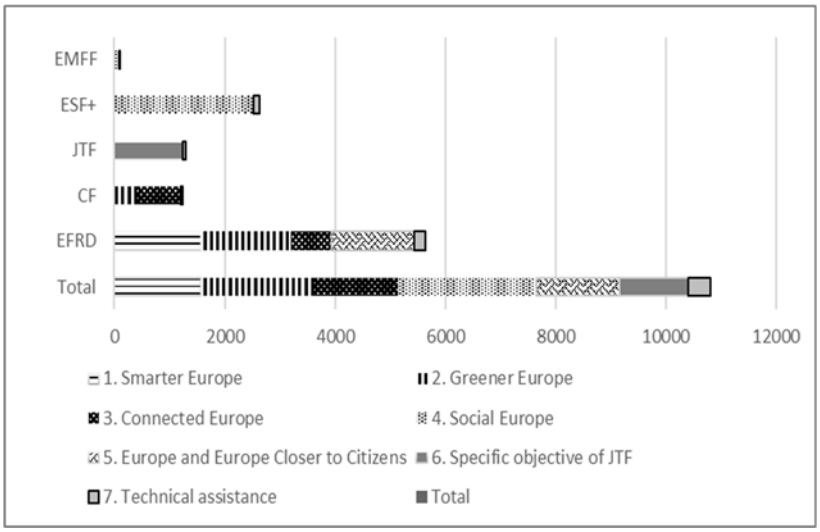
[30] https://www.iea.org/policies/15691-repowereu-plan-joint-european-action-on-renewable-energy-and-energy-efficiency.

[31] According to the General Provisions Regulation for the period 2021-2027, member states must fulfil the so-called horizontal and thematic enabling conditions in the implementation of cohesion policy programmes. One of the enabling conditions requires compliance with the EU Charter of Fundamental Rights. When drawing up their programmes, Member States must assess whether the enabling conditions are met. If the EC is not agreed with this assessment, it cannot reimburse the costs associated with the parts of the relevant program until the conditions are met. Member States must ensure that they continue to meet these conditions throughout the program period.

Closer to Citizens (14%), JTF (12%) and technical assistance to improve administrative capacity (4%) (Figure 4a and Figure 4b).

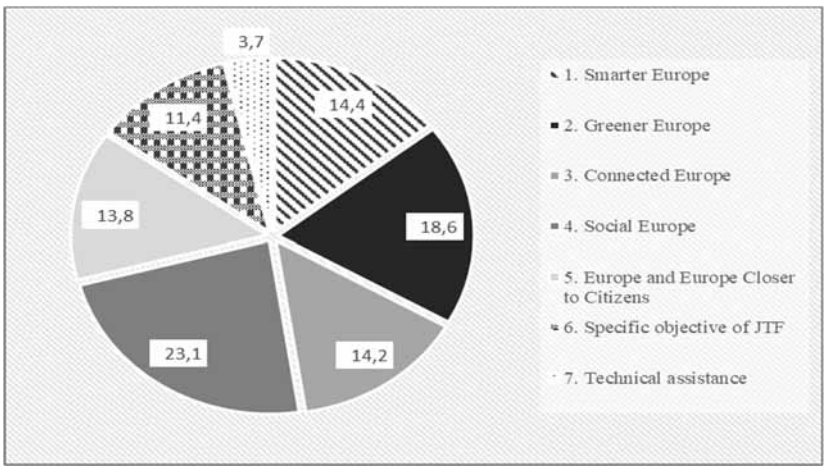
Figure 4 1. Funding and structure of programs under the Partnership Agreement of Bulgaria for the period 2021-2027

a) Funding by ESIF and JTM (in millions of euros)



Note: ERDF — European Regional Development Fund, ESF+ — European Social Fund Plus, CF — Cohesion Fund, JTF — Just Transition Fund, and EMFF — European Maritime, Fisheries and Aquaculture Fund

b) Structure of Programs under the Partnership Agreement of Bulgaria for the period 2021-2027 (% of total budget)



Source: Bulgaria's Partnership Agreement for 2021-2027.

The two operational programs "Transport and Transport Infrastructure" and "Regions in Growth" will continue to play an important role in climate change adaptation related to smart mobility and traffic management information systems, and ensuring traffic safety and the development of the urban environment. As the green economy aims at restructuring a number of activities of so-called "brown" industries, education should also help prepare the workforce for a green, climate-neutral economy. To this end, with the "Jobs for the Future" measures, the workforce should be trained for new jobs.

Significant public resources are planned for the green transition at the EU level, but its successful implementation in Bulgaria and other member states will depend on the effective implementation of the projects set out in the 2021-2027 Partnership Agreement and the NRRP, as well as whether the private sector will support the projects with additional investments. The EU procedures are complex, which implies good government institutional support of the beneficiaries. For Bulgaria, the limited capacity to offer good projects and the coherence of the actions of the public and private sectors as beneficiaries may also be a problem for the period 2021-2027. The absorption of ESIF funds for Bulgaria under the EU MFF for 2021-2027 and the projects under the NRRP might be delayed, due to the completion of the projects of the previous program period 2014-2020 by the end-2023 (according to the t+3 rule, payments up to 3 years after the end of the program period).

4. Assessments of the Impact of Green Policies on the Fiscal Deficit of Bulgaria

Literature review

At the EU level, the green economy is considered in different contexts – political, theoretical, and financial aligned with the EU Green Deal.[32] The United Nations Environment Program (UNEP) defines a "green economy" as one that "results in improved human well-being and social equity while significantly reducing environmental risks and natural resource scarcity".[33] In 2011 the definition has been supplemented with the word "green" referring to an economy that ensures the transition to an economy that is low carbon and resource efficient and socially inclusive (UNEP 2011). In the same year, the OECD and the United Nations Environment Program produced comprehensive reports on the green economy.

The Fiscal Monitor of the International Monetary Fund (IMF, October 2019) suggests that carbon taxes levied on the extraction of fossil fuels in proportion to CO_2 content of their extraction are the most powerful and effective to reduce energy consumption and move to cleaner alternatives, as well as domestic fossil fuel CO_2 emissions. At the beginning of the 1990s Scandinavian countries introduced carbon tax to reduce carbon emissions. Several studies examine the real mitigation effects of carbon tax and the results are not identical. Some researchers analysed the impact of the carbon tax in Finland, Denmark, Sweden and the Netherlands (Lin, Li, 2015; Anderssen, 2017). Carbon tax imposed a significant positive

[32] Official website of the EC, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en.
[33] United Nations Environment Program (2011), Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradications.

impact on Finland's per capita CO_2 emissions growth, while in Denmark, Sweden and Netherlands it was not significant (Lin, Li, 2015). CO_2 emissions from the Swedish transport sector have been reduced by around 6 p.p. on average per year from the carbon tax (Anderssen, 2017). In Norway, the carbon taxes contributed to only a 2% reduction in CO_2 emissions, while the effect from measures for lower energy intensity and other energy mix measures was around 14 % (Bruvoll, Larsen, 2015).

Some researchers note that emissions trading schemes can be politically more feasible than carbon taxes, especially when permits are freely allocated to affected firms (Black et al., 2021). Till now some old EU MS like Denmark, Finland, France, Ireland, Portugal, Sweden, as well as Norway have implemented carbon tax and ETS, while the new MS only ETS (Parry et al., 2022). Some studies show small or non-significant carbon reduction from the introduction of the EU ETS. A study for an aggregate of 14 EU countries and the United Kingdom calculated a carbon leakage rate of 15% (Misch, Wingender, 2021). The reasons for this small effect could result from the free allocation of permits during the first phases of the EU ETS, an overallocation of permits and the role of innovation (Joltreau, Sommerfeld, 2019). Some studies underline that ETS for the transport sector may increase further the cost of the green transition due to the fossil fuel dependence of transport modes in the MS, as well as the low level of digitalisation of the transport sector, the obstacles to the functioning of sustainable multimodal transport services and the risk of imperfect transport market structures in more the less developed regions in the EU (Kolarova-Nosharova, 2021).

The other fiscal instrument implemented for emissions reduction is environmental taxes on energy, transport and pollution. Higher revenues from environmental taxes show higher reductions in CO_2 emissions, PM10 emissions, and energy consumption and production from fossil sources (Miller and Vela, 2013). The findings of a comprehensive analysis of the impacts of the environmental tax reform in Germany displayed that energy taxes reduced uncertainties about the benefits of energy-efficiency investments and the payback period for energy-efficient products was reduced. The reduction in employers' social contribution payments tended to reduce the costs of labour-intensive innovation processes. The reform also had a signalling effect, strengthening awareness of the need for more efficient and rational energy use (Knigge, Görlach, 2005). Another study suggests that an environmental tax may actually reduce the level of uncertainty over future returns provided that it is of sufficient magnitude and longevity (Jaffe et al., 2002). A study for Bulgaria outlines that the high level of environmental taxes in Bulgaria suggests applying the principle of "neutrality of the tax rate, which is also supported by the EC, i.e., the increase in environmental taxes should be compensated by a reduction in other taxes (corporate, income taxes or social security contributions (Ivanova V. et al., 2019, Paliova, 2022). Applying different models, it turns out that taxes rather than capital requirements for banks have a higher direct effect on reducing emissions (Bobeva et al., 2023).

Regarding the impact of crisis events from climate change, the results of studies are straightforward with a negative impact on public finances in the long-term. Studying two extreme weather events in the EU and four in the United States since 1990 the results show a negative impact of crisis events on public finances to range from 0.3% to 1.1% of GDP (Heipertz, Nickel, 2008). Other researchers outlined that mitigation efforts should reduce the risk and economic and fiscal expenditure from climate change in the long term, but are also

expected to result in upward pressure on public finances in the short and medium term (Zenios, 2021). Most models of climate change impacts and adaptation to date are based on climate change scenarios that provide a limited set of possible future climate conditions – invariably specified as average annual conditions such as temperature and moisture (Aleksandrova-Zlatanska, 2019).

Study's Methodology

To assess the impact on the fiscal position of European funding and national co-financing for green policies we use the following equation:

$$FS\ (Green\ adj) = Rev\ (Green) - Exp\ (BG\ Green) - NC\ (Green)$$

where:

Rev (Green) – Income from European funds for "Green Bulgaria" (% of GDP)

Exp (Green) – Expenditures on account of European funding for "Green Bulgaria" (% of GDP)

NC (Green) – National co-financing of Green Budget projects (% of GDP)

FS (Green adj) – Adjustment of fiscal position "Green Budget" (% of GDP) (improvement (+)/ deterioration (-))

The revenues are calculated as a relative share of the revenues for the "Green Bulgaria" program in the total European funding for the relevant program period (defined in the ESIF budget and under the NRRP for the period 2021-2026) and are distributed by year with the structure of the tranches of the EC funding. The expenditures for green public investments are financed with European funds and with national co-financing. The latter is calculated as a relative share of European funding for "Green Bulgaria" and is distributed by year with the structure of expenditures for European projects for the relevant period. The implementation of European projects for the previous period determines the dynamics of absorption, which is usually lower at the beginning of the period and increases gradually as the program period progresses. We are taking into account the deadline end of 2026 for public expenditure and policies under the RRF. We also take into consideration that the originally allocated funds have been reduced by 578 million euros, due to the higher rate of economic growth for 2021. The national funding is set at 15% of the total budget for the "Green Budget", which is based on the parameters set in the Partnership Agreement of Bulgaria for 2021-2027 and the RRF for 2021-2026.

We measured the impact of green policies on fiscal balance, estimating revenues from environmental taxes, sales of greenhouse emissions allowances and the respective public expenditures for climate change mitigation policies, net EU financing and national co-financing for green policies and public spending on crisis events. The respective revenues and expenditures for green policies were calculated as a share of GDP and are distributed by year with the structure of the previous years. Regarding revenues from sales of greenhouse emissions allowances, the study used the assumption that the ETS expands to new sectors with Fit 55 and that the EC plans a decrease in greenhouse emissions allowances, but the

prices increase, which would keep their share as % of GDP in budgetary revenues and expenditures. Then, we incorporated our estimates for the impact of green policies in the budget revenues and expenditures and projections for fiscal balance by 2025. The estimates for 2023-2025 used projections for revenues and expenditures as a share in GDP and economic growth of the Economic Research Institute at the BAS.[34]

We measure primary budget balance, calculating: (a) the structural components of the budget revenues and expenditures by clearing the cyclical elements from the net budget revenues and expenses at constant prices (without interest payments); and (b) cyclical components in the budget revenues and expenditures. For the calculation of structural components, the seasonally adjusted series for net real budget revenues and expenditures on a quarterly basis at constant prices in Bulgaria (Q1 2002-Q4 2022) were filtered by HP filter (Hodrick, Prescott, 1997) with a smoothing parameter $\lambda = 1600$ and calculated as a share of GDP. Simulations were made at $\lambda = 500$ and 1000 to ignore the subjectivity of the conclusions. They did not substantially change the conclusions about cyclically adjusted budget parameters.

The output gap (*Ygap*) is calculated by the formula: $Ygap = (Y - Y^*)/ Y^*$ (%), where Y is actual GDP and Y^* is potential GDP. Potential (trend) GDP Y^* is defined as actual GDP smoothed cyclically with the Hodrick–Prescott filter (HP filter) at a smoothing parameter $\lambda = 1600$ (standardly used in quarterly data and corresponds to an eight-year length of a business cycle).

The government debt forecast is based on estimates of the impact of environmental revenue and green investments on primary structural deficit and interest payments for 2023-2025. The increase in government debt as % of GDP takes into account the debt at the end of the current year plus the change in the primary budget balance plus interest costs and debt repayments for the respective year. The increase in the debt can be less or greater than the fiscal deficit for the respective year and takes into account the need to increase the funds in the fiscal reserve for upcoming repayments under maturing debt. The assumptions of the government debt strategy for debt redemption and new debt issuance, and the projected increase in primary fiscal balance, were used. We also assumed that a gradual reduction in primary structural fiscal balance would require the issuance of net new debt less than its share of GDP. The other assumption was that with the persistent primary structural deficit and debt increase by 2025, the interest expenditures would also slightly increase as a share of GDP.

Study's Results

The results show a positive impact of European funding and national co-financing for green policies on revenues between 0.7 to 1.3%, its absorption for the respective period being less at the beginning of the period and increasing at the end of the period under the payment rule up to 3 years after the end of the program period. The negative impact of national funding for green policies is within 0.1 – 0.3% of GNI, which is offset by ESIF grant income and the

[34] See also Economic Research Institute of the Bulgarian Academy of Sciences. Annual report for 2022, 2023. Economic development and policies in Bulgaria: Assessments and expectations.

net impact of EU-funded green policies, which are positive for both periods by between 0.6% and 1% of GDP (Table 1). It is assumed that 20% of the total ESIF budget for the period 2014-2020 and 25% for the period 2021-2027 finance green policies. For comparison, the estimate in the NRRP for the impact of the funds from the RRF on the fiscal deficit is between 0.1% and 0.6% of GDP on an annual basis.

Table 1. Bulgaria: Impact of green policies financed with European funding on the fiscal position (% of GNI)

a) for the period 2021-2027

	2021	2022	2023	2024	2025	2026	2027
1. European funding for green policies (net)	1.1	1.2	1.3	1.3	1.0	1.1	0.9
2. National co-financing	0.3	0.3	0.3	0.3	0.3	0.3	0.3
3. Impact on the fiscal position (3=1-2)	0.8	0.9	1.0	1.0	0.7	0.8	0.6

b) for the period 2014-2020

	2014	2015	2016	2017	2018	2019	2020
1. European funding for green policies (net)	1.1	1.3	1.0	0.8	0.8	0.7	0.7
2. National co-financing	0.2	0.3	0.2	0.2	0.2	0.1	0.1
3. Impact on the fiscal position (3=1-2)	0.9	1.0	0.8	0.6	0.6	0.6	0.6

Note: Estimates use data of European Commission, Ministry of Finance
Source: Own calculations.

The impact of sales of greenhouse emission allowances on the fiscal balance is neutral as they are revenues of the state budget, but they are also used for the purposes of green transition policies in the respective fiscal year. The impact of the ecological taxes on revenues is between 2.6% and 3% of GDP and 9-10% of the total tax revenues. The empirical estimates of the study also display that the country has reached the level of environmental taxes in total taxes recommended by the EC and uses the biggest part of revenues from greenhouse emissions for climate mitigation actions. In our other study, we assessed the impact of ecological taxes and public expenditures on greenhouse emissions (Paliova, 2022). The latter study found statistical significance and a direct relationship between environmental taxes on transport and the reduction of greenhouse emissions, but not for environmental taxes on energy and the reduction of greenhouse emissions. The author agrees with other studies presented in the literature review, suggesting that an increase in environmental taxes should be compensated by a reduction in other taxes (corporate, income taxes or social security contributions (Ivanova et al., 2019) and that taxes rather than capital requirements for banks have a higher direct effect on reducing emissions (Bobeva et al., 2023).

The study shows that expenditure for green policies will also increase due to the increase of crisis events resulting from climate change. Similar to another study for the EU and USA crisis events (Heipertz, Nickel, 2008; Zenios, 2021), our research also gives evidence that public spending on crisis events will have a negative impact on fiscal balance in the medium and long term. Public expenditures to cover the damage from the crisis caused by climate change in some years reached 0.2% of GDP, and in the future, it is expected to increase.

Other studies on the impact of fiscal policy on the transition towards a low-carbon economy in Bulgaria do not find a statistical significance of government spending, structural deficit and debt on the components of GDP in the short term (Zlatinov, 2020).

Table 2. Bulgaria: The impact of green policies on budget revenues and expenditures (% of GDP)

	2018	2019	2020	2021	2022	2023	2024	2025
Impact on the revenue from sales of greenhouse emission allowances (+)	0.5	0.8	0.8	1.2	1.2	1.2	1.2	1.2
Impact on the revenue from environmental taxes (+)	2.62	2.99	3.03	3.03	3.03	3.03	3.03	3.03
Net impact of green policies financed with EU funding and national co-financing (+)	0.6	0.6	0.6	0.8	0.8	1.0	1.0	0.6
Impact of green policies financed by receipts from greenhouse emission allowances (-)	0.5	0.8	0.8	1.2	1.2	1.2	1.2	1.2
Impact of expenditures for climate change-related crisis events (-)	0.2	0.01	0.02	0.1	0.1	0.1	0.1	0.1
Impact on fiscal balance	3.02	3.58	3.61	3.73	3.73	3.93	3.93	3.53

Note: Estimates used a database of Eurostat for Fiscal notification 04-2023, NSI, EU ETS, Electricity System Security Fund, Ministry of Finance. Damages from crisis phenomena until 2020 are based on reported data to NSI, and it is assumed that they are within 0.1% of GDP on average annually.
Source: Own estimates.

Table 3. Projection of fiscal balance during green transition

	2018	2019	2020	2021	2022	2023	2024	2025
Budget balance (1-2+3)	2,3	2.1	-3.7	-3.9	-2.9	-3.0	-3.0	-2.8
Of which								
(1) Primary budget balance (1.1+1.2)	2.8	2.6	-2.7	-3.4	-2.5	-2.5	-2.4	-2.2
(1.1) Primary structural budget balance	*2.7*	*2.4*	*-3.0*	*-4.4*	*-2.8*	*-2.6*	*-2.4*	*-2.2*
(1.2) Cyclical component	*0.1*	*0.2*	*0.3*	*1.0*	*0.3*	*0.1*	*0.0*	*0.0*
(2) Interest expense	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.4*	*-0.5*	*-0.6*	*-0.6*
Budget balance on a cash basis % of GDP	*0.1*	*-1.0*	*0.2*	*-2.8*	*-0.8*	*-3.0*	*-3.0*	*-2.8*

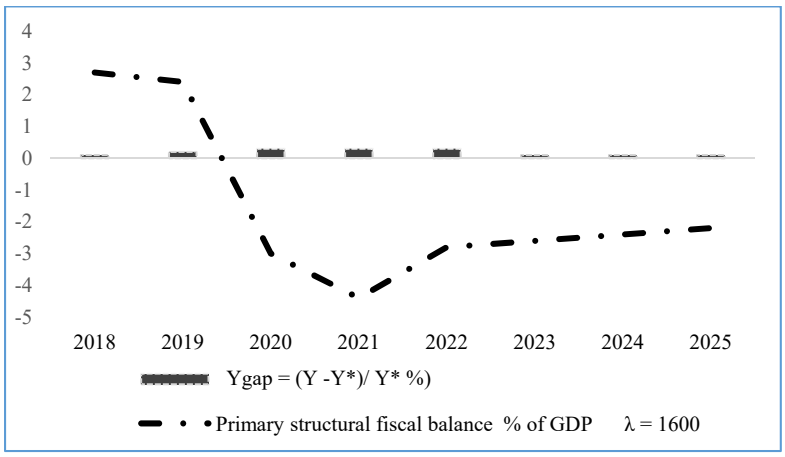
	Real net revenue λ = 1600	Real net expenditure λ = 1600	Budget balance λ = 1600	Budget balance as % of GDP λ = 1600	Real net revenue % of GDP λ = 1600	Real net expenditure % of GDP λ = 1600
2018	36667,55	34380,54	2287,01	2,3	37,7	35,9
2019	39594,22	37485,48	2108,74	2,1	39,1	37,5
2020	33719,60	37526,14	-3806,54	-3,9	34,7	39,1
2021	38476,32	41908,91	-3432,58	-3,3	36,7	40,5
2022	39920,17	43083,44	-3163,27	-2,9	36,7	40,0
2023	45279,14	48556,72	-3277,58	-3,0	37,3	40,0
2024	45723,43	49399,93	-3676,50	-3,0	37,0	40,0
2025	46060,90	49496,98	-3436,08	-2,8	37,2	40,0

Note: The estimates for 2023-2025 used projections for revenues and expenditures as a share in GDP and economic growth of the Economic Research Institute at the BAS.
Source: Own estimates.

The cyclical position of the economy, which is formed by the negative deviation from the potential and the sensitivity of the budget position to the economic cycle (0.3%), is reflected

in a correction to a higher value of the structural budget balance. In 2023, the negative deviation from potential is expected to narrow further, with the economy approaching its potential and the cyclical component making very little positive contribution. The econometric estimates for the structural components of the budget parameters and, accordingly, the primary structural fiscal balance, which reflects the government's medium-term intentions and their trend, show that in the period 2020-2023, their trend is expected to correspond to changes in business activity, which is also positive for the implementation of green policies (Figure 5).

Figure 5. Bulgaria: Primary structural fiscal balance and output gap (Ygap)



Note: Ygap represents the direction of the deviation of the actual GDP from the potential GDP and characterizes the phase of the business cycle in which the economy is located. Conceptually, the main reason to worry about the primary structural deficit is when it is projected to grow faster than the economy. On the other hand, fiscal policy can contribute to economic recovery when it is countercyclical in the medium term, which is when changes in the structural balance and the output gap, such as the deviation of actual GDP from potential GDP, move in the same direction.
Source: Own estimates.

The main fiscal measures to cope with the consequences of COVID-19 in 2020 had an additional negative impact on the fiscal deficit and at the same time were insufficient to support businesses. As a result, in 2020 GDP growth rate shrunk to 3.4%. In 2021, additional fiscal measures together with other factors, such as improvement in economic activity and exports, positively impacted economic growth, surging to 7.6%. The fiscal measures have been continued in 2022 as a derogation from the fiscal rules for compliance with the Maastricht criteria for the fiscal deficit. As a result, Bulgaria generated a cumulative fiscal deficit, which is mainly due to the government's active spending policy for businesses and

households. These trends threaten fiscal sustainability in the long term if new sustainable revenue sources with low cyclical dependence are not introduced.[35]

In 2022 expenses for acquisition of military equipment and related infrastructure had an additional negative effect on the fiscal balance on an accrual basis. The fiscal deficit on an accrual basis for 2022 (in the ESA 2010 terms) amounted to 2.8% of GDP, while the deficit on a cash basis was 0.8% of GDP. The deficit of the central government decreased on an annual basis, mainly due to the low implementation of the EU investment-related projects and the limited capital expenditure with national funding. The surplus of social security funds was a result of larger transfers from the central government.

Our estimates show that the one-off fiscal expenditures will be gradually phased out in order for the primary structural deficit to return to the medium-term budgetary objective of 1%. Introducing economic instruments as part of a wider package of measures can provide an opportunity to establish them and ensure coherence with other policies.

The average level of public expenditure for the period 2021-2025, including payments from the RRF, is projected to be around 40% of GDP compared to the reference level of 37% for the period 2017-2019.[36] This is a significant increase, implying fiscal consolidation of expenditures, and elimination of one-off expenditures and diversification of VAT for some sectors. The priority for Bulgaria remains the fiscal consolidation in the coming years and the successful implementation of the projects with European funding, through which sustainable economic growth and green transition can be achieved.

Table 4. Forecast of the consolidated government debt until 2025 (% of GDP)

	2018	2019	2020	2021	2022	2023	2024	2025
Gross public debt ratio	22.1	20.0	24.5	23.9	22.9	24.5	26.0	27.0
Budget balance (1-2)	2,3	2.1	-3.7	-3.9	-2.9	-3.0	-3.0	-2.8
(1) Primary budget balance	2.8	2.6	-3.3	-3.4	-2.5	-2.5	-2.4	-2.2
(2) Interest expense	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.6
Net impact of green policies financed with EU funding and national co-financing (+)	0.6	0.6	0.6	0.8	0.8	1.0	1.0	0.6

Source: Own estimates.

	2018	2019	2020	2021	2022	2023
Government debt in BGN million	24305	24078	29595	33267	37848	42785
% of GDP	22.1	20.0	24.5	23.9	22.9	23.2
GDP	109964	120396	120553	139012	165384	184486

Note: Consolidated government debt includes the debt of central, local governments, and social security funds.
Source: Eurostat, Fiscal Notification April 2023.

The impact of the green policies on primary structural deficit shows that they will not have a direct impact on government debt. Our 2023-2025 government debt forecast shows that the debt level will continue to rise to a level of 27.0% by the end of 2025, doubling from its

[35] See also Economic Research Institute of the Bulgarian Academy of Sciences. Annual report for 2022, 2023. Economic development and policies in Bulgaria: Assessments and expectations.
[36] See also Economic Research Institute of the Bulgarian Academy of Sciences. Annual report for 2022, 2023. Economic development and policies in Bulgaria: Assessments and expectations.

lowest level of 13% of GDP in 2008, when after the introduction of the currency board in 1997 governments pursued strict fiscal discipline and used realized budget surpluses to reduce government debt. The results of our research show that the increase in government debt is not due to the green transition policies as part of the medium-term fiscal framework, as European funding for green policies will improve the fiscal position for the period in consideration.[37]

The assumption for a gradual increase of government debt leads to a slight increase of projected interest expenditures for its servicing, which will inevitably limit the fiscal space for other budget expenditures, if there is no change in the fiscal policy or if the implementation of the NRRP and the operational programs under the Partnership Agreement for 2021-2027 have not been accelerated. The strict fiscal discipline in Bulgaria built buffers that were used during periods of sudden macroeconomic shocks. However, the fiscal discipline was broken during the pandemic crisis and the expenses related to the decarbonisation of the economy in Bulgaria must be done effectively, using the possibilities of European funding and returning to the medium-term budgetary objective for fiscal deficit.

There are a number of internal and external risks in the implementation of green policies which may have a negative impact on fiscal balance. The main internal risks are political, administrative, economic and institutional, while the external ones are mainly related to the disruption of supply chains, the war in Ukraine and the EU's economic sanctions against Russia.

Administrative risks to the implementation of the NRRP relate to a lack of capacity, understanding and ability to prepare the reforms and implement the projects because the funds from the RRF will be provided only if the MS carry out the relevant structural reforms to decarbonise the economy. Problems with planning, awarding and execution of public procurement can put a large part of investment projects in difficulty.

In addition to political and administrative risks, purely economic risks such as high inflation and increased costs for electricity and labour could have a serious negative impact on the implementation of the NRRP. Inflation increases project costs, which will put both the European and national co-financing under pressure. Higher costs limit the number of quality contractors and suppliers of goods and services who can implement the projects. Another internal risk is the uncoordinated actions of state institutions and stakeholders regarding certain projects for the decarbonisation of the energy sector, which creates a negative public response and unpredictability for those employed in this sector.

The external risks relate to the economic and energy crises, wars, bankruptcies of enterprises and banks, bankruptcies of countries, problems in the supply chains of goods, geographical relocation of production and pandemics. The macroeconomic problems of countries that are important trading partners of Bulgaria could be another harmful factor.

[37] See the assessment in Table 1.

Conclusion

The study's assessments of the challenges of fiscal policy in the transition to a green economy led to the conclusion that the European funding and national co-financing for green public projects under the NRRP and the Partnership Agreement for 2021-2027 are expected to have a positive effect on budget revenues between 0.7 to 1.3% of GDP. The negative impact on the fiscal deficit of the national co-financing would be within 0.1-0.3% of the GDP, but it would be compensated by the income from the grants from the EU. Thus, the net impact of EU-financed green policies on the fiscal balance is expected to be positive between 0.6% and 1% of GDP in both program periods 2014-2020 and 2021-2027.

On the other hand, the failure to meet the targets of the green transition projects in accordance with the established EC rules for the RRF by 2026 and the Partnership Agreement for 2021-2027, could put pressure on spending and increase fiscal deficit because European funding could be replaced by a national resource. Problems with planning, awarding and execution of public procurement should be addressed.

Over the following years, the revenue side of the budget is also expected to be enhanced by fiscal instruments for climate change mitigation, including proceeds from the sales of greenhouse emission allowances (with around 1.2% of GDP) and environmental taxes with (around 3% of GDP) on an annual basis. The proceeds from sales of greenhouse emissions and environmental taxes and fees should finance measures to reduce greenhouse emissions and increase renewable energy sources and other policies related to green transition. The climate change adaptation actions should be strengthened as public expenditures to cover the damage from crisis phenomena are expected to increase, having a negative impact on fiscal balance.

The government should manage the internal and external risks identified in the study, and the emphasis should be placed on climate adaptation and mitigation projects, as well as projects for the decarbonization of the energy sector, which create a negative public response and unpredictability for those employed in this sector.

European procedures and regulations are complex and difficult to apply in the development and implementation of projects with European funding and assume good institutional support for the beneficiaries. Bulgaria needs to improve its institutional capacity to offer good projects and coherence of public and private sectors during the 2021-2027 EU programming period.

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