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COMMISSION STAFF WORKING DOCUMENT

2023 Country Report - Belgium

Accompanying the document

Recommendation for a COUNCIL RECOMMENDATION

on the 2023 National Reform Programme of Belgium and delivering a Council opinion on the 2023 Stability Programme of Belgium

{COM(2023) 601 final} - {SWD(2023) 600 final}

European Commission

Belgium

2023 Country Report

ECONOMIC AND EMPLOYMENT SNAPSHOT

A resilient Belgian economy…

Belgium recovered quickly from the COVID-19 crisis, but growth has slowed as a result of high energy prices and inflation. Quarterly GDP growth weakened in the second half of 2022 but showed more resilience than initially expected. In the short term, the automatic indexation of wages and social benefits has largely protected households' purchasing power but may weigh on competitiveness. According to the Commission's Spring 2023 Economic Forecast, headline inflation is projected to slow, private consumption is expected to continue expanding and real GDP (adjusted for inflation) is expected to grow by 1.2% in 2023 and by 1.4% in 2024.

Headline inflation reached record highs in 2022, hitting 10.3% after 3.2% in 2021. This was mainly driven by exceptionally high energy prices, but also high food prices and rising core inflation. According to the Commission's Spring 2023 Economic Forecast, headline inflation is projected to fall to 3.4% in 2023 and to 3.5% in 2024, due to the fast transmission of the decline in wholesale gas and electricity prices to retail prices and the effect of government measures to limit prices. Core inflation is projected to remain elevated in the first half of 2023, before slowly falling as pressures ease.

Private debt remains high, **even though credit growth has slowed recently.** The sharp increase in mortgage rates since March 2022 has slowed down the surge in house prices. Together with measures introduced by the National Bank of Belgium to bolster banks' resilience, it should reduce risks related to the housing market ([1]).

… but persisting public finances challenges

The government response to the energy and COVID-19 crises have put public finances under continued pressure in the last 3 years. By 2022, the government deficit was still high at 3.9%, affected by various support measures related in particular to reducing the impact of high energy prices and the war in Ukraine. These are set to continue weighing on public finances in 2023, albeit to a lower extent. According to the Commission's Spring 2023 Forecast, the government deficit will reach 5% in 2023 (see Annex 20).

The high government budget deficits projected in 2023 and in 2024 reflect Belgium's structural fiscal challenges. In 2024, the expected withdrawal of energy crisis measures (see Box 1.1) will ease budgetary pressures somewhat. However, the projected budget deficit remains elevated, at 4.7% of GDP, as permanent current spending is expected to grow rapidly in 2023-2024. This reflects the impact of soaring ageing costs, which are estimated to increase by between 0.1 and 0.2% of GDP per year on average in the coming years according to the 2021 Ageing Report ([2]). This is compounded by multiple government spending indexations in 2022-2023 and by the additional budgetary impact of permanent measures adopted in recent years (including an increase in the

([1]) European Systemic Risk Board, 2022.

([2]) European Commission, 2021 Ageing Report

minimum pension). Furthermore, an energy tax reform concerning residential gas and electricity contracts is estimated to be deficit increasing in 2023 and 2024. A lack of significant compensatory budgetary measures and structurally increasing current spending will weigh increasingly on government finances in future years, while higher interest rates will gradually increase the cost of servicing public debt, thereby limiting fiscal space further.

Belgium's high debt-to-GDP ratio is not expected to stabilise in the medium term. While high inflation allowed for a reduction of the government debt ratio in 2022, at unchanged policy government debt would increase over the next decade, reaching about 126% of GDP in 2033 from 105.1% in 2022 (see Annex 21).

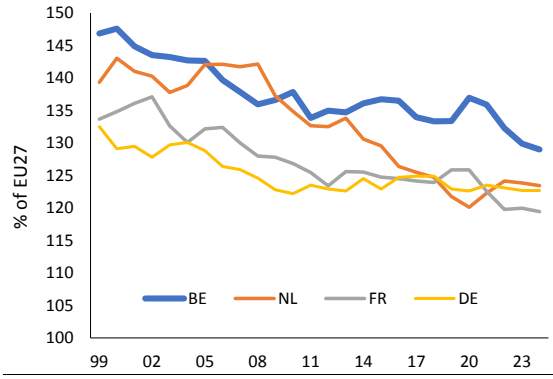
Improving the design of its fiscal framework will help Belgium address the enduring fiscal challenges. The need to finance the green and digital transition will require it to increase its level of public investment. While this is going up, it remains comparatively low among EU countries. Improving fiscal coordination, strengthening the medium-term framework and reviewing the design, number and coverage of fiscal rules may provide a useful framework for tackling the enduring fiscal challenges.

... and some structural challenges remain

Low labour market participation (people working or looking for a job) and regional disparities in labour market outcomes remain structural challenges. While Belgium performs well overall in implementing the European Pillar of Social Rights (see Annex 14), the high level of inactivity among older workers and disadvantaged groups constitutes a considerable challenge in Belgium, also in view of the green and digital transition. Moreover, unemployment shows marked regional disparities, peaking at 11.4% in the Brussels-Capital Region compared to 5.6% for Belgium as a whole in 2022 (see Annex 17).

Labour productivity remains relatively high, despite the sharp slowdown in productivity growth. While labour productivity per person is still around 130% of the EU average (see Graph 1.1), productivity growth has been lower in Belgium than the euro area and most of its neighbouring countries ([3]). This may be explained in part by the lack of business dynamism and a comparatively high level of regulation in services, as well as insufficient diffusion of innovation and shortage of STEM workers (see Annexes 11 and 15).

Graph 1.1: **GDP in current purchasing power standards per hour worked and in percentage of the EU**



Source: AMECO database, European Commission

Wage and social benefit indexation bolstered purchasing power in 2022-2023 but resulted in high labour costs for employers. The projected increase in 2022 and 2023 in nominal compensation per employee, almost exclusively driven by the impact of automatic indexation in line with inflation, is likely to outpace that in the three main neighbouring countries ([4]). Following the implementation of the legal framework to guide wage negotiations in Belgium, which aims to help firms stay cost competitive while safeguarding households' purchasing power, there will be no room for real wage increases in the new wage norm

([3]) 2022 Report from the National Productivity Board.

([4]) National Bank of Belgium, Economic projections for Belgium, December 2022.

Box 1.1:

Energy policy response in Belgium

Belgium has adopted several support measures to cushion the impact of energy price inflation on households and businesses. The Commission's 2023 Spring Economic Forecast projects the country's gross budgetary costs to amount to 0.6% of GDP in 2023 ([5]). Most measures do not target the most vulnerable but most of them preserve the price signal in 2023. Most energy support measures were phased out at the end of Q1-2023.

While not counted explicitly as a support measure, Belgium's mechanism of automatic indexation of wages and social benefits helped preserve the purchasing power of a large part of the population during the energy crisis. Key measures adopted by the government include the energy package, which provides monthly lump sum transfers to most households (up to EUR 196 for households using electricity and gas) between November 2022 and April 2023, and other lump sum transfers to households using heating oil, propane, butane or fuel pellets. The criteria to be eligible for the social tariff for electricity and gas was extended, which allowed a larger group of vulnerable households to benefit from lower electricity and gas prices. In addition, the government cut excise duties on petrol and lowered the VAT rate on electricity and gas from 21% to 6% between April 2022 and April 2023.

Belgium applies a national measure in application of Council Regulation (EU) 2022/1854, namely a special contribution from the international gas network system operator Fluxys in 2023. A contribution rate of EUR 6.9 per tonne of crude oil processed is applied to the petroleum sector in the fiscal years 2022 and 2023 ([6]), as well as a cap on market revenues for electricity producers over the same period.

Belgium postponed the phase-out date of two of its nuclear power plants by 10 years, raised awareness of energy consumption through an energy savings campaign and provided several new financial incentives for carrying out energy efficiency renovations.

(extent to which the average salary cost of a company may increase) for 2023-2024 (see Annex 12).

Belgium faces significant challenges in moving to a green and climate-resilient economy. Given its strong reliance on imported fossil fuels, further efforts are needed for Belgium to become climate-neutral in 2050. Additional investments and measures to remove bottlenecks to the expansion of renewable energy sources and to the modernisation of the grid would help decarbonise electricity production and cope with increased electrification. There is still considerable scope for increasing energy efficiency in buildings and also in industry there is room for reaching higher efficiency. Promoting clean mobility solutions and reducing vulnerabilities to climate change will contribute to the green transition (see Annexes 6, 7, 8 and 9).

Belgium scores quite well on the UN's Sustainable Development Goals (SDGs), although challenges remain in certain areas such as affordable and clean energy (SDG 7). The country is also lagging behind on SDG 15 (Life on land). It performs very well and is making further progress on all SDGs on productivity (SDGs 4, 8 and 9). Belgium also made progress on several indicators related to employment (SDG 8). However, on reducing inequalities (SDG 10), it is lagging

([5]) For 2022, gross budgetary costs of measures amounted to 0.6% of GDP. All of the measures outlined in this box were already in place in 2022.

([6]) Member States can keep or introduce national measures that are equivalent to the solidarity contribution set in Council Regulation (EU) 2022/1854 provided they are compatible with the objectives of the Regulation and generate higher or comparable proceeds. These measures must also cover the extraordinary and unexpected profits of businesses active in the crude petroleum, natural gas, coal and refinery sectors.

behind on ensuring that people with a migrant background participate in the labour market and on tackling inequalities in educational outcomes linked to socio-economic background (see Annex 1).

THE RECOVERY AND RESILIENCE PLAN IS UNDERWAY

Belgium's recovery and resilience plan (RRP) aims to address key challenges related to mobility and public works, productivity, sustainability and innovation, and digital and social inclusion. It consists of 35 reforms and 105 investments that are supported by EUR 5.9 billion in grants, representing 1.2% of GDP (see Annex 3 for more details) ([7]). Complementary recovery plans were adopted at different levels of government.

The implementation of Belgium's recovery and resilience plan is underway, however with increasing risk of delays. Belgium has not yet submitted a payment request. An effective governance will be needed to allow for a swift and steady implementation. The plan is expected to be revised in 2023, to include among others a REPowerEU chapter, while taking into account the downward revision of the RRF maximum grant allocation to Belgium resulting from the general update of grant allocations to Member States in 2022. Belgium also expressed its intention on 31 March 2023 to request EUR 1,024,900,000 of additional loan support. The following, more detailed review of measures being implemented under the RRP in no way implies formal Commission approval or rejection of any payment requests.

Measures to boost the digital transition are being implemented. Belgium's RRP supports the digital transition with investments in the digitisation of public administration, in skills and digital inclusion, in cybersecurity and in connectivity. In view of the first payment request, Belgium has started the reforms needed to enable the digitisation of public administration and 5G roll-out. In particular, the federal government has worked on introducing a program management office with a clear governance structure to digitalise the FPS Justice. The Brussels-Capital Region has also taken initial steps to set up regional data exchange platforms. One of them will enable urban 'digital twins' to be established (virtual representations of a city's physical assets), while the other will facilitate interactions between the administration and individuals/businesses. Belgium has also worked on adopting a plan to implement EU Connectivity Toolbox best practices, including a roadmap for simplifying the licensing and permitting procedures relevant for the roll-out of 5G and very high capacity networks.

Belgium is making progress on implementing measures that contribute to the green transition. The RRP supports the green transition through investments and reforms in areas such as sustainable mobility, energy-efficient renovation of buildings, industry decarbonisation and the circular economy. Several measures in the plan aim to invest in the hydrogen value chain. As part of the first set of milestones and targets, the federal government has revised the preferential tax scheme for company cars, limiting it to cars with zero emissions from 2026 onwards. It has also amended the 'mobility budget' to promote alternatives to company cars for employees. Flanders has worked on adopting a framework to deploy charging infrastructure, whereas the federal government has worked on adopting a tax incentive to install private and semi-public charging points across the country.

Measures that strengthen social resilience are underway. The RRP

([7]) In line with Article 11(2) of the Recovery and Resilience Facility regulation, the maximum financial contribution for Belgium was also updated on 30 June 2022 to EUR 4.5 billion in grants.

Box 2.1: **Key deliverables under the RRP in 2023-2024**

- Adoption of pension system reform
- Integration of spending reviews into the budgetary process
- Delivery of instruments to raise cybersecurity awareness and increase cyber resilience
- Award of contracts for hydrogen projects
- Investments to make public and private buildings more energy efficient
- Award of contracts for recycling facilities and circular projects
- Start of 'Blue Deal' projects to increase water availability and resilience to climate change
- Upgrade of railways and works to make stations more accessible
- Deployment of charging stations for electric vehicles
- Digitisation of the justice system
- Digitisation of administrative and tendering procedures
- Equipping schools with ICT infrastructure and devices
- Adoption of legislation to fight discrimination and promote labour market integration of vulnerable groups

strengthens social resilience with measures that promote inclusive education systems, the participation of vulnerable groups in the labour market, and an increase in social housing and early childcare. The RRP also includes measures to reform the end of career rules and the pension system in order to (i) address social and financial sustainability challenges; (ii) increase the employment rate of older workers; (iii) increase the solidarity role of the pension system; and (iv) ensure convergence between and within the different pension systems. In the field of education, the Brussels-Capital Region has started equipping schools/institutions with suitable ICT devices and infrastructure. The French Community has developed a response to the psychosocial, educational and pedagogical problems of pupils in primary and secondary schools and to combatting early school leaving by deploying additional resources (such as teachers, educators, psychological support staff). In the field of social infrastructure, Wallonia has started to develop public housing and housing for vulnerable people.

Measures to strengthen economic resilience are ongoing. The RRP aims to improve the labour market with measures focused on skills acquisition in line with current and future labour market needs, including the green and digital transition. It also includes measures to help develop the circular economy, address climate and environmental risks and strengthen resilience to foreign supply disruptions. Since the plan was adopted, the federal government has also worked on reforms to ensure that all workers are entitled to an average of 5 days of training a year and that companies have incentives to provide training. Wallonia has also adopted the necessary legal framework to provide coaching and solutions-based support for jobseekers. To support the development of the circular economy, Flanders has appointed a steering group for its governance and adopted a roadmap and work agendas for guiding circular economy projects.

Belgium is implementing measures to improve the quality and composition of public expenditure. The RRP also includes reforms to make public spending more efficient and sustainable. In view of the systematic integration of spending reviews in their budgetary process, the

Walloon Region, Brussels-Capital Region and the federal government have worked on implementing pilots, while Flanders has modified its budgetary framework and introduced an expenditure norm (maximum growth path).

FURTHER PRIORITIES AHEAD

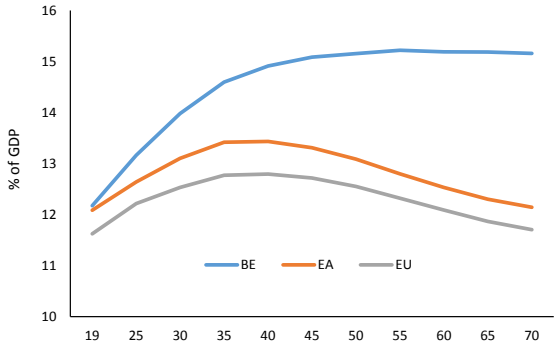
Beyond the challenges tackled in its RRP, Belgium faces additional ones. These include addressing fiscal sustainability issues, improving the tax and benefits system to boost employment, addressing skills mismatches and taking resolute steps towards achieving climate neutrality. Addressing these challenges will also help Belgium make further progress in achieving the SDGs where there is currently room for further improvement, in particular SDG 7 (Affordable and clean energy) and SDG 10 (Reduced inequalities) on labour market participation and educational inequalities. Moreover, closing the gap in regional disparities would stimulate long-term sustainable and inclusive growth, boosting the country's economic potential.

Ensuring the sustainability of public finances as the population ages

Belgium's fiscal sustainability challenges remain substantial (see Annex 21). These relate to both the high level of government debt and the projected increase in ageing costs, mostly due to pension and long-term care spending.

The 2022 Annual Report of the Study Committee ([8]) on Ageing projects pension spending to increase by 3.1 percentage points (pps) of GDP between 2019 and 2070. This is almost fully in line with the projected increase of 3 pps of GDP in the Commission's 2021 Ageing Report ([9]). Over the same time span, the Commission projects pension spending in the euro area to increase by 0.1 pps on average. The bulk of the projected increase would already occur by 2040 (see Graph 3.1), when pension spending would increase by 2.7 pps of GDP to 14.7% of GDP. It will steadily continue to increase to hit 15.2% of GDP in 2070. Belgium's RRP includes a pension reform that aims to help address this issue, alongside other objectives such as improving the social sustainability of the pension system and ensuring greater convergence between and within pension systems.

Graph 3.1: **Gross public pension spending in Belgium, 2019-2070 (% of GDP)**



Source: European Commission, 2021 Ageing Report

The 2021 Ageing Report also points to major challenges to the fiscal sustainability of long-term care in both the medium and long term. In 2019, public spending on long-term care amounted to 2.2% of GDP (EU average

([8]) The Study Committee ('Comité d'etude sur le vieillissement') has been created by law in 2001. It publishes an annual report on the budgetary and social consequences of ageing in Belgium.

([9]) Note that the pension projections of the Study Committee and the Ageing Report are not fully comparable due to different demographic and macroeconomic assumptions. Moreover, the 2021 Ageing Report projections did not account, contrary to 2022 projections of the Study Committee, for measures adopted by the government at the end of 2020, the cost of which was roughly estimated at 0.9 pps of GDP annually by 2070.

1.7%), which made Belgium one of the countries with the highest long-term care spending in the EU. By 2070, long-term care spending is projected to increase further to between 4.1% and 6.0% of GDP, depending on the hypotheses of each scenario.

Some evidence suggests a possible overuse of residential care and unnecessary or premature institutionalisation. Available data suggest that unnecessary or at least premature institutionalisation (in a residential care facility) remains high, although decreasing over recent years ([10]). In particular, the share of individuals affected by this issue was high in Brussels-Capital and Walloon Region. The overuse of residential care suggests that there may be room to improve the cost-efficient use of the different care settings, including by strengthening community-based services.

The policy response to long-term care does not focus sufficiently on addressing the fiscal sustainability challenge. Some measures have been adopted by the federated entities to which responsibility on long-term care has been devolved since 2019. In Wallonia, these measures focus on improving the quality of long-term care spending but fail to address the envisaged cost increase in the medium and long term. In Flanders, long-term care spending falls under the spending norm. ([11]) However, it fails to point to concrete policy measures to contain spending in the medium to long term, while ensuring a high level of quality services. In the Brussels-Capital Region, the focus has been on promoting services as an alternative to residential care.

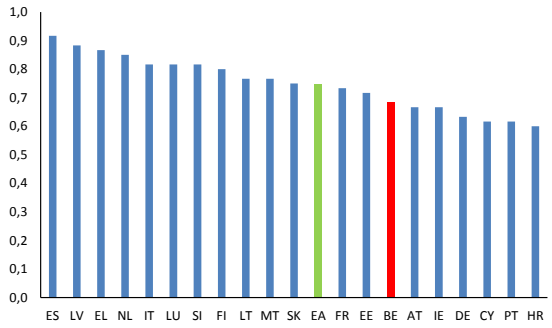
([10]) Available at https://www.healthybelgium.be/en/health-system-performance-assessment/specific-domains/care-for-the-elderly#ELD-1.

([11]) A spending norm was included for the first time in the Flemish Multi-Year Estimate 2022-2027. It aims at guaranteeing the sustainability of the public finances by maintaining expenditure growth below a determined threshold.

Improving the quality of the fiscal framework

Strengthening and adapting the fiscal framework could facilitate coordinated fiscal consolidation. As described in previous country reports (see in particular the 2020 country report), the provisions of the 2013 Cooperation Agreement, signed by the federated entities and the federal government to ensure effective budgetary coordination, have not been fully implemented (see Annex 13). In 2022, as in previous years, the Consultative Committee did not approve but merely took note of the overall fiscal trajectory presented in the stability programme. The lack of agreement on the targets at each level of government prevents the 'Public sector borrowing requirement' section of the High Council of Finance from effectively monitoring compliance with these targets. This also undermines the credibility of the overall fiscal consolidation trajectory.

Graph 3.2: **Index of quality of the medium-term budgetary framework process, 2021**



Source: European Commission

Belgium performs below the EU average on the quality of its medium-term budgetary framework (see Graph 3.2). Although multiannual fiscal planning exists for local authorities and to a certain extent for some Regions and Communities, there is no fully developed multiannual fiscal planning at national level ([12]). While Belgium's stability programme outlines

([12]) National Bank of Belgium, 2020, Belgium's fiscal framework: what is good and what could be better?

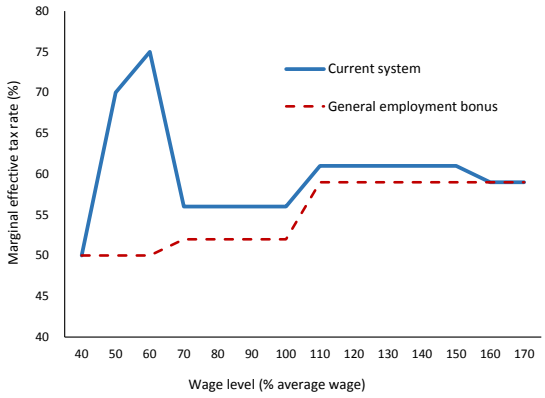
fiscal trajectories that extend beyond the traditional one-year period, their level of detail is limited, and the targets are not stable and reliable as they may be revised as time goes by. Moreover, there is no obligation for the government to justify publicly (before Parliament), through a 'comply or explain' mechanism, discrepancies between the budget trajectory and the High Council of Finance's recommendations.

The design, number and coverage of fiscal rules can be improved. According to the Commission fiscal governance database, existing fiscal rules in Belgium cover the federal government, the social security sector and local authorities. Despite the regions' high share in general government expenditure, there are no fiscal rules governing the regional level. Flanders' 2022-2027 multiannual budget factored in the implementation of a spending norm for the first time. Moreover, in Belgium there is a lack of green budgetary practices to help increase the accountability and transparency of the budget's contribution towards the country's green objectives.

Reforming the tax and benefits system to reduce disincentives to work

High labour taxes create sizeable disincentives to work. The tax wedge (social security contributions and taxation of labour income) remains well above the EU average at all wage levels, except for very low wage earners (50% of the average; see Annex 19). Some measures, such as the job bonus in Flanders and in-work benefits for the long-term unemployed or interregional mobility (federal), have been introduced to increase the net income of low wage earners. However, they also further increase the high marginal tax rate for lower middle income earners – the 'low wage trap' – (see Graph 3.3). The High Council of Finance estimates that the very high marginal pressure on low-wage earners could be eliminated by adopting a general employment bonus ([13]). Low wage traps may discourage investments in lifelong learning as well as increases in the number of hours worked.

Graph 3.3: **Marginal effective tax rate per wage level, 2020**



Source: High Council of Finance (2020)

The social benefits system is complex and lacks transparency, which contributes to existing disincentives to work. The benefits system includes several non-cash social benefits, with some linked to the unemployment status of beneficiaries. While they help tackle poverty for those on low incomes, non-cash benefits may contribute to existing inactivity, unemployment and low wage traps, and could make the benefits system more complex and less transparent in terms of work incentives. Unemployment benefits are also unlimited in time and not means-tested for the long-term unemployed, which may reduce the effectiveness of activation policies (policies to encourage more people to work or look for a job) in combination with lenient job search and availability conditions ([14]). A recent evaluation of the 2012 reform, which increased the degressivity of unemployment benefits, provides little

([13]) Extending the in-work tax credit and social security reduction to all private sector employees, irrespective of the wage level (budgetary cost of 2.5% of GDP), would bring the tax burden on labour in Belgium close to the euro area average.

([14]) OECD, 2018, How Demanding are Activation Requirements for Jobseekers?

ground to further increase it, though the evaluation suggests that the system could be simplified to make it easier for jobseekers to understand and make it easier to administrate ([15]).

The extensive use of tax deductions and special tax schemes leads to inefficiencies and distortions. The heavy tax burden on labour is offset by many wage subsidies. Special schemes like meal vouchers, commuting subsidies or withholding tax exemption for overtime, R&D work and night/shift work are costly for the budget and tend to create inefficiencies. Moreover, some personal income tax deductions (e.g. interest deduction for second home mortgages, deduction for service vouchers to pay for household services like cleaning) disproportionally benefit high-income earners. These tax features also favour certain types of remuneration and expenses, leading to economic, social and environmental distortions. The corporate tax system includes special tax schemes (e.g. R&D tax credit, tax shelter for audiovisual and film productions), which do not seem to be the most cost-efficient means to support specific sectors. The widespread application of reduced VAT rates and exemptions also increases the risk of VAT non-compliance (see Annex 19).

Capital taxation is complex and distorts investment behaviour. Capital income is excluded from the personal income tax base but is subject to a final withholding tax rate. However, reduced rates apply to several types of investment like certain pension schemes and interest income from savings accounts. This distorts resource allocation and potentially generates tax-induced overinvestment in certain types of assets. Moreover, there are still tax incentives for immovable property investments at federal level (cadastral values that underestimate the actual rental income, interest deductibility for second home mortgages) and regional level ('Chèque Habitat' in Wallonia). Financial investments continue to be distorted by the tax on securities accounts (see Annex 18).

While reforming energy taxation, Belgium is increasing environmentally harmful subsidies. Faced with spiking inflation and energy prices, Belgium permanently reduced the VAT rate on electricity and gas for residential contracts and reformed excise duties on energy products (see Box 1.1). While providing household support, reduced VAT rates continue to favour fossil fuels in the long term and discourage further diversification and energy savings (see next section). Against the background of increasing traffic congestion and air pollution issues, transport taxes and pollution taxes still seem to be underused.

Belgium is considering a first step towards a broader tax reform to reduce labour taxes. The reform would increase the tax-free allowance as well as the upper limit of the 45% personal income tax bracket and extend the employment bonus. Moreover, some work disincentives for second income earners would be reduced by abolishing the marital quotient. A 9% reduced VAT rate would be introduced to replace the 6% and 12% VAT rates. Some environmentally harmful subsidies would be removed, including the partial refund of excise duties on diesel for professional use and the reduced VAT rate for coal. This first step of the reform would be budget-neutral when considering payback effects and would be phased in as of 2024. A second step is expected by the end of 2023.

Addressing skills mismatches and education inequalities to decrease labour shortages

Although the employment rate increased to an all-time high, labour market participation is well below the 2030 national target of an 80% employment rate (72.3% in Q4-2022), with considerable regional differences. This is

([15]) Salvatori, A., 2022, The effect of declining unemployment benefits on transitions to employment: Evidence from Belgium, OECD.

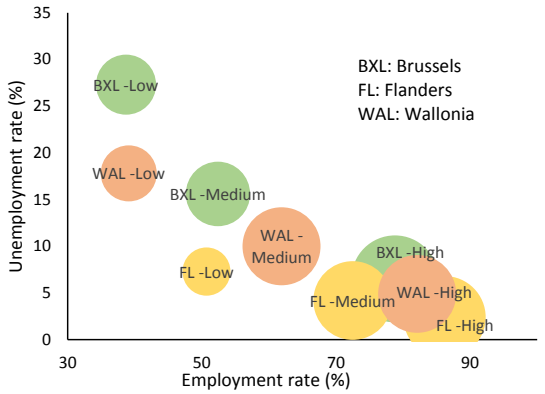
mainly driven by the low activity rate (aged 20-64), which is well below the EU average at 76.0% (versus 79.4% in 2022).

There is a high level of inactivity in particular among workers aged over 60 who leave the labour market early. The number of workers on long-term sick leave now exceeds the number of unemployed (471 000 vs 303 000 in 2021), with burnout and depression representing about 25% of the cases. The federal government adopted measures to improve the reintegration of workers with long-term health issues by making dismissal more difficult and using financial incentives to place more responsibility on employers and on workers who are on long-term sick leave but refuse to cooperate in the reintegration process.

Disadvantaged groups are less integrated in the labour market. These include people with low education attainment, a migrant background or with disabilities (see Annex 14). There is also evidence of discrimination against people with a migrant background, who represent around one-third of the working age population ([16]). Regional disparities in the unemployment rate are significant (see Graph 3.4 and Annex 17).

The level of labour shortages and skills mismatches have further increased. The vacancy rate reached 4.5% by the end of 2022, one of the highest in the EU. There are increasing shortages in both low- and high-skilled occupations, with the biggest shortages in catering, ICT, professional, technical and scientific jobs, and healthcare (see Annex 16). In addition, the lack of relevant skills for the green transition creates bottlenecks in the transition to a net zero economy. In 2022, labour shortages were reported in particular for 103 occupations ([17]) that require specific green skills or knowledge, including civil engineering technicians, civil engineers and power plant operators. While demand for science, technology, engineering and mathematics (STEM) skills is particularly high on the labour market, the number of STEM graduates in Belgium remains below the EU average, especially for women (see Annexes 11 and 15).

Graph 3.4: **Employment and unemployment rates by region and by education level**



Bubble size corresponds to the size of the working age population with a given level of educational attainment (high, medium or low) relative to the total working age population in the region.
Source: European Commission

Increased participation of adults in training and education activities could support up- and reskilling and improve employability. Available evidence from the OECD regarding Flanders suggests that work, childcare and family responsibilities prevent more than 40% of people from participating in adult learning (10.3% of those aged 25-64 in 2022), especially among low-qualified people. Adult learning could be further hampered by employment and low wage traps, seniority payments and shorter working careers. The current incentives for adult learning may not reach those that would benefit the most from upskilling, such as the low-educated and older workers. In addition, upskilling and reskilling for the green transition are

([16]) FOD WASO & Unia, 2022, Arbeidsmarkt en origine, Socio-economische monitoring

Baert, S. and S. Vujić, 2016, *Immigrant volunteering: A way out of labour market discrimination?*, IZA Discussion Paper No. 9763, Bonn.

([17]) European Labour Authority, 2023, *EURES Report on labour shortages and surpluses 2022*. Skills and knowledge requirements are based on the ESCO (European Skills Competences and Occupations) taxonomy of skills for the green transition (for occupations at ISCO 4-digit level of which there are 436 in total). Examples are identified based on their ESCO 'greenness' score and relevant sectors.

essential to accelerate the transition to a net zero economy (see Annex 8). The RRP and the regional European Social Fund Plus programmes focus heavily on adult learning, with particular attention on disadvantaged groups and digital skills (see Annex 4), while Belgium set itself a target of 60.9% of all adults in learning by 2030 (see Annex 14).

Addressing educational inequalities could also help reduce labour shortages. About one out of five pupils aged 15 fails to perform basic mathematics, reading or science tasks (OECD Pisa Results 2018). Students with a low socio-economic background are underachieving in reading, maths and science (see Annex 15). In addition, children with parents with a low level of education and young people with disabilities are more likely to leave school early. Disadvantaged students have less access to experienced teachers than the EU average. Against this background, the growing shortage of qualified teachers risks further exacerbating educational inequalities. Pursuing the reforms planned by the respective Communities to ensure suitable training and career pathways for teachers and improving the attractiveness of the teaching profession will be key. With a third of students aged 16-19 still lacking basic digital skills, digital skills training for teachers will also be crucial. The quality and labour market relevance of vocational education and training remains a concern (see 2022 Belgium Country Report).

More effective and targeted activation measures could help unlock the large untapped labour potential and alleviate the growing labour shortages. Low transition rates of disadvantaged groups from unemployment or inactivity to employment suggest there is scope for strengthening the effectiveness of active labour market policies. This includes the more systematic evaluation of existing activation measures and better integrated pathways for disadvantaged jobseekers, who often face several barriers to finding a job. Furthermore, there is still scope for more interregional mobility. The 2022 public employment service reform in Wallonia, supported by the Recovery and Resilience Facility, is an example of a step in the right direction as it strengthened the provision of more personalised support to disadvantaged jobseekers.

Advancing the green transition

More action is needed to put Belgium on the path to climate neutrality. Even with planned additional measures, Belgium will fall short of meeting its new 2030 climate target for the effort sharing sectors ([18]), achieving a reduction of only 38% instead of 47% compared to 2005 (see Annex 6). Further policy reforms and additional investments to reduce greenhouse gas emissions in the energy, industry, building and transport sectors would also help reduce Belgium's high dependency overall on fossil fuel imports and help ensuring security of supply. Belgium has made significant progress in reducing its dependency on Russian gas and is expected to continue its diversification efforts. Moreover, while energy prices have decreased, uncertainty remains regarding next winter, which requires continued efforts to structurally reduce gas demand. The REPowerEU initiative provides an opportunity to support energy-related measures and scale up existing ones to further Belgium's decarbonisation objectives.

The energy transition in Belgium is progressing but needs to accelerate to keep in pace with EU climate and energy targets. With a share of renewable energy in final energy consumption of 13% in 2021, the deployment of renewables remains on the low side. Belgium will need to significantly increase its renewable energy target, currently 17.5% by 2030, to reflect the more ambitious EU targets (see Annex 6). To achieve climate targets, the decarbonisation of electricity production will

([18]) Regulation (EU) 2023/857 (the Effort Sharing Regulation) amending Regulation (EU) 2018/842, sets targets in line with the European Climate Law's objective to reduce greenhouse gas emissions by 55% below 1990 levels by 2030.

be crucial. Belgium intends to partly compensate the planned decreased share of nuclear in the electricity mix in 2025 by building additional gas-fired power plants, with a requirement for operators to finalise an emission reduction plan containing intermediate targets for 2035 and 2045 with a view to achieving zero or negative emissions by 2050. In addition, to meet the rise in electricity demand, the share of electricity from renewable sources will need to increase.

Belgium has ambitious objectives for further developing offshore wind (see Annexes 6 and 7). It is a front runner in this field, which has led to the creation of a value chain in this industry on an international scale. The further development of onshore wind power is still being hampered by low public acceptance and long delays (up to 9 years) related to permit-granting procedures, due to repetitive and lengthy appeal procedures.

Further steps can be taken to facilitate the deployment of onshore wind power. Spatial planning and a review of the minimum distance rules of wind turbines from airports, radars and military zones could free up more space for wind energy. Other possible reforms include granting wind and grid infrastructure projects the status of overriding public interest and speeding up the processing of appeals at the Council of State. Getting municipalities and citizens to participate in new renewable generation projects could increase local acceptability. Several initiatives have already been launched or are underway, such as at federal level on the reform of the Council of State and the review of distance rules. There are also initiatives in Flanders and Wallonia to reduce the hurdles to onshore wind projects (see Annex 7).

The limited capacity of the onshore electricity network is a cause for concern given the increasing use of variable energy sources and increased electrification. The length of the permit-granting procedure at regional level for transmission lines is a serious obstacle that undermines timely network reinforcement, as evidenced by the Ventilus and Boucle de Hainaut projects. Both projects should be ready in time to ensure the inland distribution of additional offshore wind power. The proactive development of more integrated and consistent ten-year network investment plans could avoid delays in connecting new wind energy projects (and other renewable sources) as well as end users (heat pumps, charging points for electric cars), and should anticipate the expected surge in industrial electricity consumption ([19]).

Energy efficiency gains in industry can be further incentivised. In 2020, oil and natural gas together covered almost 70% of industrial energy demand. While policy measures have recently been decided or are underway, there is, in addition to improving voluntary agreements, mandatory energy savings and decarbonisation plans for the largest fossil fuel users, still scope for further stimulating electrification and the deployment of industrial heat pumps in factories with low heat demand.

Rooftop solar power capacity is on the rise, but there is still considerable scope for further expansion. The year 2022 saw a record solar power production of 6 412 GWh, or 37% more than in 2021 ([20]). In March 2022, the federal government reduced the VAT rate for solar panel installations from 21% to 6% also for houses less than 10 years old (until the end of 2023). While the market situation is now favourable for installing solar panels, further possible measures include binding requirements for large public and commercial buildings, incentives for landlords, and legal frameworks that facilitate energy sharing and promote self-consumption and demand side flexibility.

The renovation challenge of reducing fossil fuel demand in buildings is still huge. Overall, 11% of oil demand and 37% of gas consumption in 2020 involve heating

([19]) Industrial electricity consumption in Belgium is expected to grow by 50% by 2030. Elia, 2022, *Powering Industry towards Net Zero*.

([20]) Elia, 2023, Belgium's 2022 electricity mix.

buildings. Belgium's housing stock includes a high share of old buildings. Around 80% of the building stock is still not energy efficient (EPC label C or lower). In addition to the reforms and investments included in the RRP, the regional governments have adopted or are planning complementary measures to make buildings more energy efficient. This includes a ban on fossil fuels in new builds, mandatory energy-efficient renovations, phasing out financial support for fossil fuel-based heating and shifting incentives towards low carbon heating solutions such as heat pumps and heat networks supplied with renewable or recovered energy. At the same time, education and training will have to be aligned with the emerging skills needed by technicians and construction workers to work on this energy transition.

The transport sector accounts for a large share of oil consumption and road congestion costs remain high. The number of passenger cars has steadily increased in the last 10 years by 0.8% per year on average, adding to road congestion and air pollution. While on the rise, the number of hybrid and electric cars made up only 7.5% of the passenger car fleet in 2022 (see Annex 6). According to the Belgian Mobility Dashboard, the cost of congestion in 2022 was more than EUR 4.1 billion. Policy options to discourage individual car use include the introduction of road charging for cars (and vans), encouraging forms of soft mobility such as car sharing and cycling and promoting public transport. While the RRP includes investments in cycling infrastructure and public transport, more can be done to develop clean mobility solutions, while improving suburban and intercity public transport.

Reducing the vulnerabilities of the economy to the effects of climate change requires sustained action. In the face of extreme weather events, ecosystems need to be made more robust and resilient by reducing pollution and ensuring sustainable water management. Tackling drought as well as flood risks requires that diversified structural measures, such as those included in the Blue Deal programme in Flanders supported by the RRP, are rolled out on a broad scale. Particularly in Flanders, but also in Wallonia, high levels of nitrogen pollution compromise the quality of groundwater and surface waters (see Annex 6). Implementing a robust framework of measures to reverse this trend will contribute to greater climate resilience.

KEY FINDINGS

Belgium's RRP includes measures to address a series of structural challenges through:

- a reform to improve the sustainability of the pension system;
- measures to improve the efficiency and quality of public spending thanks to spending reviews;
- investments in the digitalisation of public administration and education and a reform to enable 5G deployment;
- investments in the energy-efficient renovation of buildings, clean mobility, the circular economy and the hydrogen value chain.

Belgium should ensure an effective governance to allow for a swift and steady implementation of its recovery and resilience plan. Belgium should also swiftly finalise the REPowerEU chapter with a view to rapidly starting its implementation.

Beyond the reforms and investments in the RRP, Belgium would benefit from:

- strengthening the quality and design of its fiscal framework;
- improving the effectiveness and efficiency of its long-term care systems, contributing to the country's fiscal sustainability;
- reforming the tax and benefits system to reduce disincentives to work, by shifting the tax burden away from labour and by simplifying the tax and benefits system;
- reviewing tax expenditure with a view to reduce their economic, social and environmental harmful impact;
- addressing labour shortages and skills mismatches, in particular for the green transition, notably by strengthening activation policies for disadvantaged groups in the labour market;
- improving the performance and equity of the education and training systems and continue reforms to strengthen the teaching profession;
- phasing out subsidies for fossil fuel use in buildings, introducing the gradual phasing out of fossil fuel use in new buildings and accelerating energy-efficient renovations;
- further stimulating decarbonisation and energy efficiency in industry;
- addressing road congestion by further developing cycling and public transport solutions, as well as introducing road user charging for cars;
- accelerating the deployment of renewable energies and related grid infrastructures by streamlining the permitting procedures and adopting legal frameworks to boost investments in renewable energy installations and facilitate energy sharing.
- improving climate resilience through more robust ecosystems by ensuring sustainable water management and tackling nitrogen emissions.

ANNEXES

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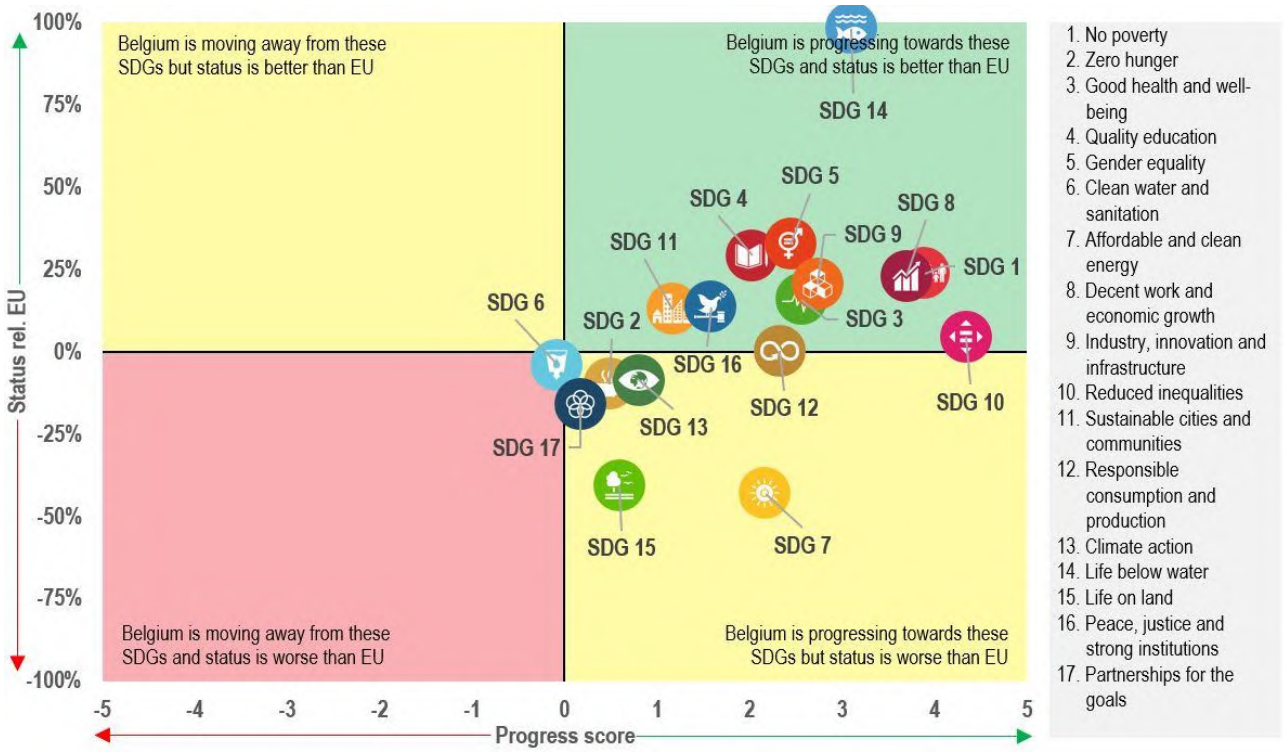
ANNEX 1: SUSTAINABLE DEVELOPMENT GOALS

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

While Belgium performs well or is improving on most of the SDG indicators related to *environmental sustainability*, it needs to catch up with the EU average, in particular on SDG 2 (Zero hunger), 6 (Clean water and sanitation), 7 (Affordable and clean energy) and SDG 15 (Life on land). Belgium has made some progress on energy consumption indicators, including the share of renewable energy in gross final energy consumption (SDG 7), which increased from 8.7% in 2016 to 13.0% in 2021. Nevertheless, it remains below the EU average (21.8% in 2021). Belgium's recovery and resilience plan (RRP) includes measures that aim to support the shift from fossil fuels, in particular for the energy renovation of buildings, decarbonisation of industrial production, and sustainable transport. Emissions from agriculture (ammonia, nitrates) are above the EU average (SDG 2 and 6) and this is also the case for the indicator phosphate in rivers (SDG 15). On SDG 12, the circular material use rate improved from 17.6% in 2016 to 20.5% in 2021 and is well above the EU average (11.7%).

Graph A1.1: **Progress towards the SDGs in Belgium in the last 5 years**



For detailed datasets on the various SDGs, see the annual Eurostat report 'Sustainable development in the European Union'; for details on extensive country-specific data on the short-term progress of Member States: Key findings – Sustainable development indicators – Eurostat (europa.eu). The status of each SDG in a country is the aggregation of all indicators for the specific goal compared to the EU average. A high status does not mean that a country is close to reaching a specific SDG, but signals that it is doing better than the EU on average. The progress score is an absolute measure based on the indicator trends over the past 5 years. The calculation does not take into account any target values as most EU policy targets are only valid for the aggregate EU level. Depending on data availability for each goal, not all 17 SDGs are shown for each country.

Source: Eurostat, latest update of early April 2023, except for the EU Labour Force Survey (LFS) indicators released on 27 April 2023. Data mainly refer to 2016-2021 or 2017-2022.

Belgium performs well or is improving on most SDG indicators related to *fairness* (SDGs 1, 3, 4, 5, 7, 8, 10). The country performs better than the EU average on poverty and inclusive growth (SDGs 1 and 8). This relates to the high redistributive impact of the tax and benefits system. The share of people at risk of poverty or social exclusion fell in 2021 to 18.8%, below the EU average of 21.7%. Belgium has made progress on various employment indicators. This includes indicators like the long-term unemployment rate (3.7% in 2016, 2.6% in 2021) or the number of young people neither in employment nor in education and training (12.2% in 2016, 10.1% in 2021). Several measures in the RRP aim to further tackle unemployment, in particular by improving training and life-long learning. However, despite these measures the employment rate remains well below the 2030 national target, held back by a low activity rate (see Annex 12). In particular for vulnerable groups, such as low-educated adults, people with a migrant background and people with disabilities, labour market participation remains low.

Belgium performs well and is making further progress on all SDGs on *productivity* (SDGs 4, 8, 9). It performs strongly in particular on innovation, with R&D intensity of 3.19% of GDP in 2021, well above the EU average (2.27%). The share of households with a high-speed internet connection in 2021 (68.9%) is still slightly below the EU average (70.2%). Belgium is performing well on education indicators overall, although there are still concerns over high inequalities in educational outcomes linked to the socio-economic background of pupils. The share of adults with at least basic digital skills was slightly above the EU average in 2021 at 54.2% (EU 53.9%). Nevertheless, the country still faces a significant challenge to improve digital skills. The RRP includes large investments to improve digital infrastructure and equipment in schools.

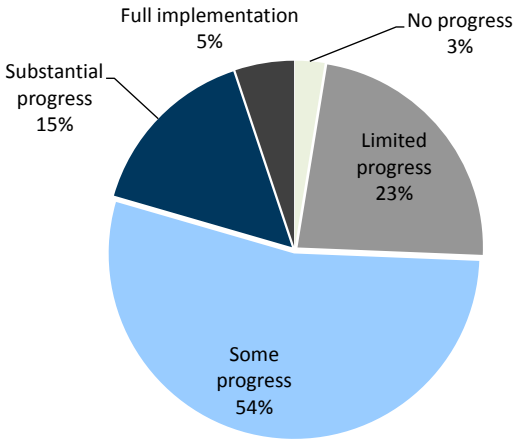
Belgium is improving on SDG indicators related to *macroeconomic stability* (SDGs 8, 16, 17). It performs well on the quality of its institutions (SDG 16), in particular on access to justice and personal security. However, trust in institutions is declining. The share of the population with confidence in the European Parliament decreased from 60% in 2017 to 51% in 2022 (EU: increase from 47% to 50%). Belgium performs better than the EU average on indicators related to SDG 8 (Decent work and economic growth).

As the SDGs form an overarching framework, any links to relevant SDGs are either explained or depicted with icons in the other Annexes.

ANNEX 2: PROGRESS IN THE IMPLEMENTATION OF COUNTRY-SPECIFIC RECOMMENDATIONS

The Commission has assessed the 2019-2022 country-specific recommendations (CSRs) ([21]) addressed to Belgium as part of the European Semester. These recommendations concern a wide range of policy areas that are related to 14 of the 17 Sustainable Development Goals (see Annexes 1 and 3). The assessment considers the policy action taken by Belgium to date ([22]) and the commitments in its recovery and resilience plan (RRP) ([23]). At this stage of RRP implementation, 74% of the CSRs focusing on structural issues from 2019-2022 have recorded at least 'some progress', while 23% recorded 'limited progress' (see Graph A2.1). As the RRP is implemented further, considerable progress in addressing structural CSRs is expected in the years to come.

Graph A2.1: **Belgium's progress on the 2019-2022 CSRs (2023 European Semester)**



Source: European Commission

([21]) 2022 CSRs: EUR-Lex - 32022H0901(01) - EN - EUR-Lex (europa.eu)
2021 CSRs: EUR-Lex - 32021H0729(01) - EN - EUR-Lex (europa.eu)
2020 CSRs: EUR-Lex - 32020H0826(01) - EN - EUR-Lex (europa.eu)
2019 CSRs: EUR-Lex - 32019H0905(01) - EN - EUR-Lex (europa.eu)

([22]) Including policy action reported in the national reform programme and in Recovery and Resilience Facility (RRF) reporting (twice a year reporting on progress in implementing milestones and targets and resulting from the payment requests assessment).

([23]) Member States were asked to effectively address all or a significant subset of the relevant country-specific recommendations issued by the Council in 2019 and 2020 in their RRPs. The CSR assessment presented here considers the degree of implementation of the measures included in the RRP and of those carried out outside of the RRP at the time of assessment. Measures laid down in the Annex of the adopted Council Implementing Decision on approving the assessment of the RRP, which are not yet adopted or implemented but considered credibly announced, in line with the CSR assessment methodology, warrant 'limited progress'. Once implemented, these measures can lead to 'some/substantial progress or full implementation', depending on their relevance.

Table A2.1:**Summary table on 2019-2022 CSRs**

Belgium	Assessment in May 2023*	RRP coverage of CSRs until 2026	Relevant SDGs
2019 CSR 1	**Limited progress**		
Ensure that the nominal growth rate of net primary government expenditure does not exceed 1,6 % in 2020, corresponding to an annual structural adjustment of 0,6 % of GDP.	Not relevant anymore	Not applicable	SDG 8, 16
Use windfall gains to accelerate the reduction of the general government debt ratio.	Not relevant anymore	Not applicable	SDG 8, 16
Continue reforms to ensure the fiscal sustainability of the long-term care	Limited Progress		SDG 3
and pension systems, including by limiting early exit possibilities from the labour market.	Limited Progress	Relevant RRP measures planned as of 2021	SDG 8
Improve the composition and efficiency of public spending, in particular through spending reviews,	Some Progress		SDG 8, 16
and the coordination of fiscal policies by all levels of government to create room for public investment.	Limited Progress		SDG 8, 16
2019 CSR 2	**Some progress**		
Remove disincentives to work and strengthen the effectiveness of active labour market policies, in particular for the low-skilled, older workers and people with a migrant background.	Limited Progress	Relevant RRP measures planned as of 2021, 2023, 2024.	SDG 8, 10
Improve the performance and inclusiveness of the education and training systems	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024, 2025, 2026	SDG 4, 8, 10
and address skills mismatches.	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024, 2025, 2026	SDG 4
2019 CSR 3	**Some progress**		
Focus investment-related economic policy on sustainable transport, including upgrading rail infrastructure,	Some Progress	Relevant RRP measures planned as of 2022, 2023, 2024	SDG 10, 11
the low carbon and energy transition	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024, 2026	SDG 7, 9, 10, 11, 13
and research and innovation, in particular in digitalisation, taking into account regional disparities.	Substantial Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024, 2025,	SDG 9, 10, 11
Tackle the growing mobility challenges, by reinforcing incentives and removing barriers to increase the supply and demand of collective and low emission transport.	Some Progress	Relevant RRP measures planned as of 2021,2022, 2023, 2024, 2025, 2026	SDG 11
2019 CSR 4	**Some progress**		
Reduce the regulatory and administrative burden to incentivise entrepreneurship	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024	SDG 8, 9
and remove barriers to competition in services, particularly telecommunication, retail and professional services.	Some Progress		SDG 9
2020 CSR 1	**Substantial progress**		
Take all necessary measures, in line with the general escape clause of the Stability and Growth Pact, to effectively address the COVID-19 pandemic, sustain the economy and support the ensuing recovery. When economic conditions allow, pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment.	Not relevant anymore	Not applicable	SDG 8, 16
Reinforce the overall resilience of the health system and ensure the supply of critical medical products.	Substantial Progress	Relevant RRP measures planned as of 2022, 2023	SDG 3
2020 CSR 2	**Some progress**		
Mitigate the employment and social impact of the COVID-19 crisis, notably by promoting effective active labour market measures	Substantial Progress	Relevant RRP measures planned as of 2023, 2024	SDG 1, 2, 8, 10
and fostering skills development.	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024, 2025	SDG 4
2020 CSR 3	**Some progress**		
Ensure effective implementation of the measures to provide liquidity to assist SMEs and the self-employed	Full Implementation		SDG 8, 9
and improve the business environment.	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024	SDG 8, 9
Front-load mature public investment projects	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024, 2025, 2026	SDG 8, 16
and promote private investment to foster the economic recovery.	Some Progress	Relevant RRP measures planned as of 2022	SDG 8, 9
Focus investment on the green and digital transition, in particular on infrastructure for sustainable transport,	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024, 2025, 2026	SDG 11
clean and efficient production and use of energy,	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024	SDG 7, 9, 13
the circular economy,	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024	SDG 6, 12, 15
digital infrastructure, such as 5G and Gigabit Networks,	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2025, 2026	SDG 9
and research and innovation.	Substantial Progress	Relevant RRP measures planned as of 2022, 2023	SDG 9

(Continued on the next page)

Table (continued)

2021 CSR 1	**Some progress**		
In 2022, use the Recovery and Resilience Facility to finance additional investment in support of the recovery while pursuing a prudent fiscal policy. Preserve nationally financed investment.	Full Implementation	Not applicable	SDG 8, 16
When economic conditions allow, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring fiscal sustainability in the medium term.	Some Progress	Not applicable	SDG 8, 16
At the same time, enhance investment to boost growth potential. Pay particular attention to the composition of public finances, on both the revenue and expenditure sides of the budget, and to the quality of budgetary measures in order to ensure a sustainable and inclusive recovery. Prioritise sustainable and growth-enhancing investment, in particular investment supporting the green and digital transition.	Substantial Progress	Not applicable	SDG 8, 16
Give priority to fiscal structural reforms that will help provide financing for public policy priorities and contribute to the long-term sustainability of public finances, including, where relevant, by strengthening the coverage, adequacy and sustainability of health and social protection systems for all.	Limited Progress	Not applicable	SDG 8, 16
2022 CSR 1	**Limited progress**		
In 2023, ensure prudent fiscal policy, in particular by limiting the growth of nationally financed primary current expenditure below medium-term potential output growth, taking into account continued temporary and targeted support to households and firms most vulnerable to energy price hikes and to people fleeing Ukraine. Stand ready to adjust current spending to the evolving situation.	No Progress	Not applicable	SDG 8, 16
Expand public investment for the green and digital transitions, and for energy security taking into account the REPowerEU initiative, including by making use of the Recovery and Resilience Facility and other Union funds.	Substantial Progress	Not applicable	SDG 8, 16
For the period beyond 2023, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring credible and gradual debt reduction and fiscal sustainability in the medium term through gradual consolidation, investment and reforms.	Limited Progress	Not applicable	SDG 8, 16
Prioritise reforms to improve the fiscal sustainability of long-term care, including by promoting a cost efficient use of the different care settings.	Limited Progress		SDG 3
Reform the taxation and benefit systems to reduce disincentives to work by shifting the tax burden away from labour and by simplifying the tax and benefit system. Reduce tax expenditures and make the tax system more investment-neutral.	Limited Progress		SDG 8, 10, 12
2022 CSR 2			
Proceed with the implementation of its recovery and resilience plan, in line with the milestones and targets included in the Council Implementing Decision of 13 July 2021.	RRP implementation is monitored by assessing RRP payment requests and analysing reports published twice a year on the achievement of the milestones and targets. These are to be reflected in the country reports.		
Submit the 2021-2027 cohesion policy programming documents with a view to finalising their negotiations with the Commission and subsequently starting their implementation.	Progress on the cohesion policy programming documents is monitored under the EU cohesion policy.		
2022 CSR 3	**Some progress**		
Address labour shortages and skills mismatches, notably by improving the performance and inclusiveness of the education and training system, enhancing the quality and labour market relevance of the vocational education and training and developing more flexible and attractive career paths and training for teachers.	Some Progress	Relevant RRP measures planned as of 2021, 2022, 2023, 2024, 2025, 2026	SDG 4
2022 CSR 4	**Some progress**		
Reduce overall reliance on fossil fuels	Limited Progress	Relevant RRP measures planned as of 2022, 2023	SDG 7, 9, 13
by stepping up energy efficiency improvements and the reduction of fossil fuel use in buildings,	Some Progress	Relevant RRP measures planned as of 2022, 2023, 2024	SDG 7
promoting the use and supply of public transport as well as soft mobility	Some Progress	Relevant RRP measures planned as of 2021,2022, 2023, 2024, 2025, 2026	SDG 11
and accelerating the deployment of renewable energies and related grid infrastructure by further streamlining the permitting procedures including by reducing the length of appeal procedures and adopting framework conditions to boost investments in solar energy installations	Some Progress	Relevant RRP measures planned as of 2022, 2023	SDG 7, 8, 9, 13

Note: * See footnote ([23]).
** RRP measures included in this table contribute to the implementation of CSRs. Nevertheless, additional measures outside the RRP are necessary to fully implement CSRs and address their underlying challenges. Measures indicated as 'being implemented' are only those included in the RRF payment requests submitted and positively assessed by the European Commission.
Source: European Commission

The Recovery and Resilience Facility (RRF) is the centrepiece of the EU's efforts to help it recover from the COVID-19 pandemic, speed up the twin green and digital transition and strengthen resilience against future shocks. The RRF also helps implement the UN Sustainable Development Goals and address the country-specific recommendations (see Annex 2). Belgium submitted its current recovery and resilience plan (RRP) on 30 April 2021. The Commission's positive assessment on 23 June 2021 and Council's approval on 13 July 2021 paved the way for disbursing EUR 5.9 billion in grants under the RRF over 2021-2026.

Since the RRF Regulation entered into force and the national RRPs were assessed, geopolitical and economic developments have caused major disruptions across the EU. To effectively address these disruptions, the (adjusted) RRF Regulation allows Member States to amend their RRPs for a variety of reasons. In line with Article 11(2) of the RRF Regulation, the maximum financial contribution for Belgium was also updated on 30 June 2022 to EUR 4.5 billion in grants.

Belgium's progress in implementing its plan is published in the Recovery and Resilience Scoreboard. The Scoreboard also gives an overview of the progress made in implementing the RRF as a whole, in a transparent manner.

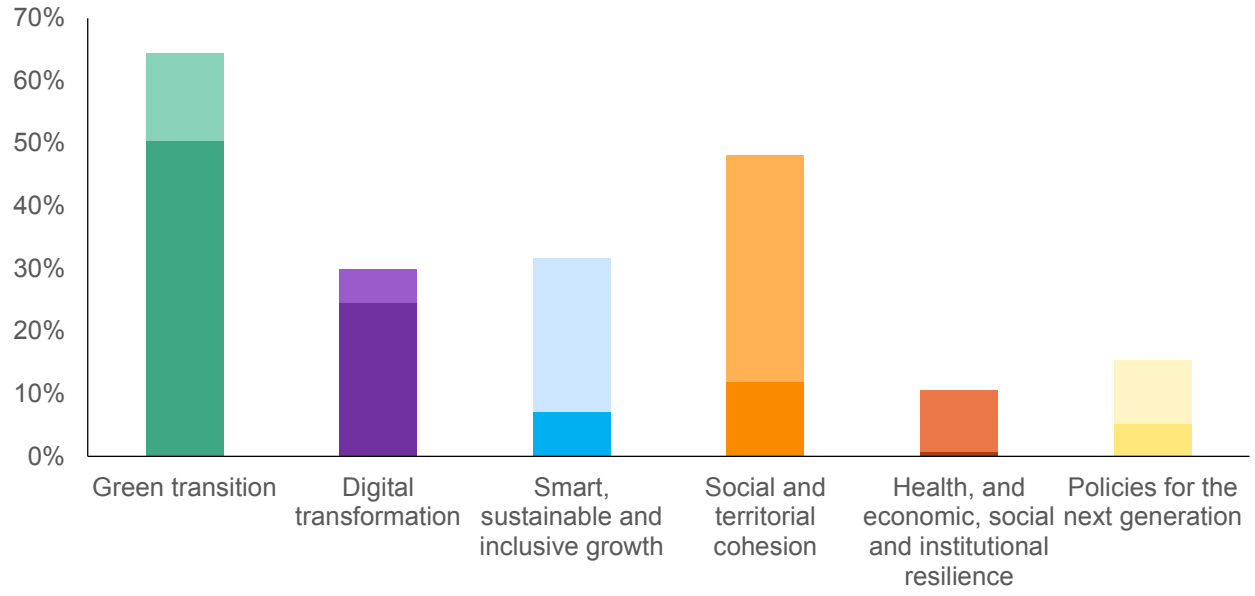
Table A3.1:**Key elements of the Belgian RRP**

	Current RRP
Scope	Initial plan
CID adoption date	13 July 2021
Total allocation	EUR 5.9 billion in grants (1.2% of 2021 GDP)
Investments and reforms	105 investments and 35 reforms
Total number of milestones and targets	210

Source: Recovery and Resilience Scoreboard

Under the RRF, EUR 770 million has so far been disbursed to Belgium. It received this amount in pre-financing on 3 August 2021, equivalent to 13% of the financial allocation.

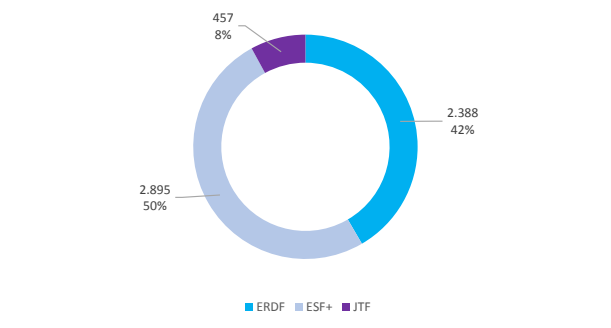
Graph A3.1: **Share of RRF funds allocated to each policy pillar**



Note: Each measure contributes to two policy areas of the six pillars. The total allocation to all pillars displayed here therefore amounts to 200% of the estimated cost of the RRP. The bottom part represents the amount of the primary pillar, the top part the amount of the secondary pillar.
Source: Recovery and Resilience Scoreboard – https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

The EU budget of over EUR 1.2 trillion for 2021-2027 is geared towards implementing the EU's main priorities. Cohesion policy investment amounts to EUR 392 billion across the EU and represents almost a third of the overall EU budget, including around EUR 48 billion invested in line with REPowerEU objectives.

Graph A4.1: **Cohesion policy funds 2021-2027 in Belgium: budget by fund**

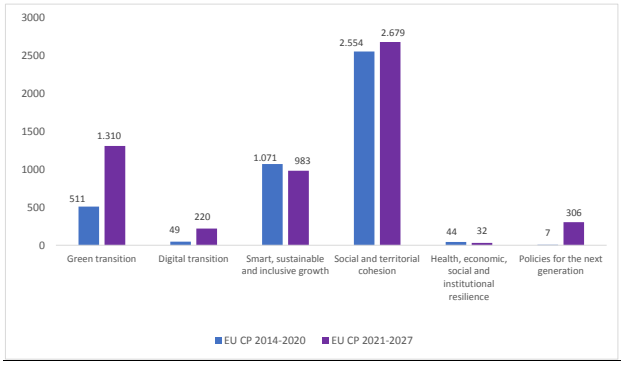


(1) million EUR in current prices, % of total; (total amount including EU and national co-financing)
Source: European Commission, Cohesion Open Data

In 2021-2027, in Belgium, cohesion policy funds ([24]) will invest EUR 1.3 billion in the green transition and EUR 220 million in the digital transformation as part of the country's total allocation of EUR 5.7 billion. In particular, the European Regional Development Fund (ERDF) will boost research and innovation and foster the transfer of advanced technologies. It will support more than 10 000 companies in total, with a focus on digitalisation of small and medium enterprises. Investment in greenhouse gas emission reduction, energy efficiency and renewable energy are at the centre of ERDF funding in Belgium and is expected to improve energy performance of more than 230 000 square meters of public buildings. Strategies for integrated territorial development will contribute to improve the lives of more than 1.2 million individuals. The Just Transition Fund (JTF) will set up a decentralised production system for green energy and energy recovery from local renewable resources in Wallonia. The JTF will also deliver further economic diversification and modernisation by investing in SMEs and in the industrial sector as part of its support to local industries. Under the European Social Fund Plus (ESF+), Belgium allocates EUR 421 million to social inclusion, with a focus on vulnerable groups, strengthening their position in the labour market and society. It includes support for re- and upskilling in the green and digital economy and for more inclusive working environments.

Of the investments mentioned above, EUR 407 million will be invested in line with REPowerEU objectives. This is on top of the EUR 119 million dedicated to REPowerEU under the 2014-2020 budget**.** EUR 349 million (2021-2027) and EUR 100 million (2014-2020) is for improving energy efficiency; and EUR 58 million (2021-2027) and EUR 19 million (2014-2020) for renewable energy and low-carbon R&I.

Graph A4.2: **Synergies between Cohesion policy funds and RRF six pillars in Belgium**



(1) million EUR in current prices (total amount, including EU and national co-financing)
Source: European Commission

In 2014-2020, cohesion policy funds made EUR 2.3 billion available to Belgium ([25]), with an absorption of 70% ([26]). Including national financing, the total investment amounts to EUR 4.4 billion - around 0.1% of GDP for 2014-2020.

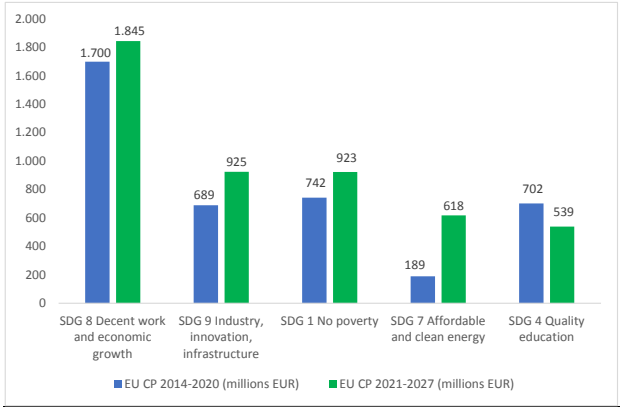
([24]) European Regional Development Fund (ERDF), Cohesion Fund (CF), European Social Fund+ (ESF+), Just Transition Fund (JTF), excluding Interreg programmes. The total amount includes national and EU contributions. Data source: Cohesion Open Data.

([25]) Cohesion policy funds include the ERDF, ESF and the Youth Employment Initiative (YEI). ETC programmes are excluded here. According to the 'N+3 rule', the funds committed for 2014-2020 must be spent by 2023. REACT-EU is included in all figures. The total amount includes EU and national co-financing. Data source: Cohesion Open Data.

([26]) 2014-2020 Cohesion policy EU payments by MS is updated daily on Cohesion Open Data.

Belgium continues to benefit from cohesion policy flexibility to support economic recovery, step up convergence and provide vital support to regions following the COVID-19 pandemic. The Recovery Assistance for Cohesion and the Territories of Europe instrument (REACT-EU) ([27]) under NextGenerationEU provides EUR 330 million on top of the 2014-2020 cohesion policy allocation for Belgium. REACT-EU provided over EUR 45 million to improve SMEs' energy efficiency and transition to e-commerce. Over EUR 39 million went towards the purchase of medical equipment and health-related innovation. In addition, nearly EUR 387 million was provisionally allocated to Belgium through the Brexit Adjustment Reserve (BAR). With SAFE (Supporting Affordable Energy), the 2014-2020 cohesion policy funds may also be mobilised by Belgium to support vulnerable households, jobs and companies particularly affected by high energy prices.

Graph A4.3: **Cohesion policy funds contribution to the SDGs in 2014-2020 and 2021-2027 in Belgium**



(1) 5 largest contributions to SDGs in million (EUR) current prices
Source: European Commission

In both 2014-2020 and 2021-2027, cohesion policy funds have contributed substantially to the Sustainable Development Goals (SDGs). These funds support 11 of the 17 SDGs, notably SDG 8 'Decent work and economic growth" and SDG 9 'Industry, innovation and infrastructure' ([28]).

Other EU funds make significant support available to Belgium. The common agricultural policy (CAP) made EUR 5.8 billion available in 2014-2022 and will keep supporting Belgium with EUR 3.2 billion in 2023-2027. The two CAP Funds (European Agricultural Guarantee Fund and European Agricultural Fund for Rural Development), contribute to the European Green Deal while ensuring long-term food security. They promote social, environmental and economic sustainability and innovation in agriculture and rural areas, in coordination with other EU Funds. The European Maritime and Fisheries Fund made EUR 42 million available to Belgium in 2014-2020 and the European Maritime, Fisheries and Aquaculture Fund allocates EUR 40 million in 2021-2027.

Belgium also benefits from other EU programmes, notably the Connecting Europe Facility, which under CEF 2 (2021-2027) has so far allocated EUR 297 million to 17 specific projects on strategic transport networks. Similarly, Horizon Europe has so far allocated nearly EUR 838 million for Belgian R&I on top of the EUR 3.4 billion earmarked under the previous programme (Horizon 2020). The Public Sector Loan Facility set up under the Just Transition Mechanism makes EUR 14 million of grant support from the Commission available for 2021-2027, which will be combined with loans from the EIB to support investments by public sector entities in just transition regions.

Belgium received support under the European instrument for temporary support to mitigate unemployment risks in an emergency (SURE) to finance short-time work schemes and other similar measures, including an ancillary health-related measure, to soften the impact of COVID-19. The Council granted financial assistance to Belgium of EUR 8 197 billion in loans, which supported around 29% of workers and 42% of firms in 2020, and around 10% of workers and 22% of firms in 2021.

The Technical Support Instrument (TSI) supports Belgium in designing and implementing growth-enhancing reforms, including those set out in its recovery and resilience plan (RRP). Belgium has received significant support since 2018. Examples ([29])

([27]) REACT-EU allocation on Cohesion Open Data.

([28]) Other EU funds contribute to the implementation of the SDGs. In 2014-2022, this includes both the European Agricultural Fund for Rural Development (EARDF) and the European Maritime and Fisheries Fund (EMFF).

([29]) Country factsheets on reform support are available here.

include support to identify the most suitable reforms and investments for decreasing its dependency on fossil fuels from Russia in line with the REPowerEU plan, to facilitate energy efficient renovation of private housing, and for the digital transformation of the education system.

This Annex illustrates Belgium's relative resilience capacities and vulnerabilities using the Commission's resilience dashboards (RDB) ([30]). Comprising a set of 124 quantitative indicators, the RDB provide broad indications of Member States' ability to make progress across four interrelated dimensions: social and economic, green, digital, and geopolitical. The indicators show vulnerabilities ([31]) and capacities ([32]) that can become increasingly relevant, both to navigate ongoing transitions and to cope with potential future shocks. To this end, the RDB help to identify areas that need further efforts to build stronger and more resilient economies and societies. They are summarised in Table A5.1 as synthetic resilience indices, which illustrate the overall relative situation for each of the four dimensions and their underlying areas for Belgium and the EU-27 ([33]).

According to the set of resilience indicators under the RDB, Belgium generally displays a similar level of vulnerabilities compared to the EU average. Belgium shows medium vulnerabilities in all dimensions of the resilience dashboards: social and economic, green, digital and geopolitical. It has higher vulnerabilities than the EU average in the areas 'climate change mitigation and adaptation', 'ecosystems, biodiversity, sustainable agriculture', 'cybersecurity', 'raw material and energy supply' and 'financial globalisation'. Belgium has relatively low vulnerabilities in relation to the 'digitalisation of personal space', 'health, education and work', and 'inequalities and social impact of the transitions' ([34]).

Compared to the EU average, Belgium shows an overall similar yet slightly higher level of capacities across all RDB indicators. It has high capacities in the social and economic dimension and medium-high capacities in the green, digital and geopolitical dimensions. Belgium shows stronger capacities than the EU average in the areas of 'inequalities and social impact of the transitions', 'ecosystems, biodiversity and sustainable agriculture', 'industry digitalisation', 'raw material and energy supply', and 'value chains and trade'. There is room for improving capacities compared to the EU in 'climate change mitigation and adaptation' and 'sustainable use of resources'.

([30]) For details see https://ec.europa.eu/info/strategy/strategic-planning/strategic-foresight/2020-strategic-foresight-report/resilience-dashboards_en; see also 2020 Strategic Foresight Report (COM(2020) 493).

([31]) Vulnerabilities describe features that can exacerbate the negative impact of crises and transitions, or obstacles that may hinder the achievement of long-term strategic goals.

([32]) Capacities refer to enablers or abilities to cope with crises and structural changes and to manage the transitions.

([33]) This Annex is linked to Annex 1 on SDGs, Annex 6 on the green deal, Annex 8 on the fair transition to climate neutrality, Annex 9 on resource productivity, efficiency and circularity, Annex 10 on the digital transition and Annex 14 on the European pillar of social rights.

([34]) This is driven by Belgium's low income quintile share ratio and AROPE. At the same time Belgium has a high employment gap EU vs non-EU nationals in the area of 'security and demography'.

Table A5.1:**Resilience indices summarising the situation across RDB dimensions and areas**

Dimension/Area	Vulnerabilities		Capacities	
	BE	EU-27	BE	EU-27
Social and economic				
Inequalities and social impact of the transitions				
Health, education and work				
Economic & financial stability and sustainability				
Green				
Climate change mitigation & adaptation				
Sustainable use of resources				
Ecosystems, biodiversity, sustainable agriculture				
Digital				
Digital for personal space				
Digital for industry				
Digital for public space				
Cybersecurity				
Geopolitical				
Raw material and energy supply				
Value chains and trade				
Financial globalisation				
Security and demography				

Vulnerabilities Index
High
Medium-high
Medium
Medium-low
Low
Not available

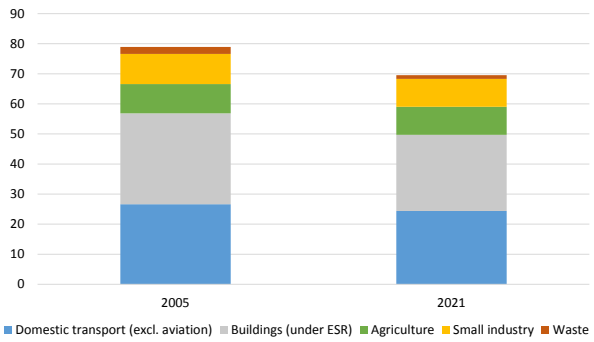
Capacities Index
High
Medium-high
Medium
Medium-low
Low
Not available

(1) Data are for 2021, and EU-27 refers to the value for the EU as a whole. Data underlying EU-27 vulnerabilities in the area 'value chains and trade' are not available as they comprise partner concentration measures that are not comparable with Member States' level values.
Source: JRC Resilience Dashboards - European Commission

The green transition in Belgium requires continued action in several areas, including renewable energy, energy efficiency, and sustainable transport. Implementation of the European Green Deal is underway in Belgium; this Annex provides a snapshot of the key aspects involved ([35]).

Belgium has not yet defined all the climate policy measures it needs to reach its new 2030 climate target for the effort sharing sectors ([36]). Data for 2021 on Belgium's greenhouse gas emissions in these sectors are expected to show the country generated slightly less than its annual emission allocations ([37]). Current policies in Belgium are projected to reduce these emissions by 14% relative to 2005 levels in 2030, not sufficient to reach the effort sharing target even before the target was raised in line with the EU's 55% objective. Additional measures planned would reduce emissions further by 38%, exceeding the current target but not reaching Belgium's new target reduction of 47% ([38]). Belgium allocated 50% of its Recovery and Resilience Facility grants to key reforms and investments to attain climate objectives ([39]).

Graph A6.1: **Thematic – greenhouse gas emissions from the effort sharing sectors in Mt CO2eq, 2005-2021**



Source: European Environmental Agency.

Belgium is not on track to meet its 2030 net carbon removals target for its land use sector. Greenhouse gas emissions from Belgium's land use, land use change and forestry sector (LULUCF) are relatively high. Its forests and grassland achieve a major share of net carbon removals through land use. For 2030, Belgium's LULUCF net removals target implies to remove 1 352 kt CO_2eq (see Table A6.1) ([40]). Net removals have fallen since 2013. Both the Walloon and Flemish common agricultural policy strategic plans include several measures related to carbon farming.

([35]) The overview in this Annex is complemented by Annex 7 on energy security and affordability, Annex 8 on the fair transition to climate neutrality and environmental sustainability, Annex 9 on resource productivity, efficiency and circularity, Annex 11 on innovation, and Annex 19 on taxation.

([36]) Member States' greenhouse gas emission targets for 2030 ('effort sharing targets') were increased by Regulation (EU) 2023/857 (the Effort Sharing Regulation) amending Regulation (EU) 2018/842, aligning the action in the concerned sectors with the objective to reach EU-level, economy-wide greenhouse gas emission reductions of at least 55% relative to 1990 levels. The Regulation sets national targets for sectors outside the current EU Emissions Trading System, notably: buildings (heating and cooling), road transport, agriculture, waste, and small industry. Emissions covered by the EU ETS and the Effort Sharing Regulation are complemented by net removals in the land use sector, regulated by Regulation (EU) 2018/841 (the Land Use, Land Use Change and Forestry (LULUCF) Regulation) amended by Regulation (EU) 2023/839.

([37]) Belgium's annual emission allocations for 2021 were some 70.1 Mt CO_2eq, and its approximated 2021 emissions were 69.5 Mt. See European Commission, *Accelerating the transition to climate neutrality for Europe's security and prosperity: EU Climate Action Progress Report 2022*, SWD(2022)343.

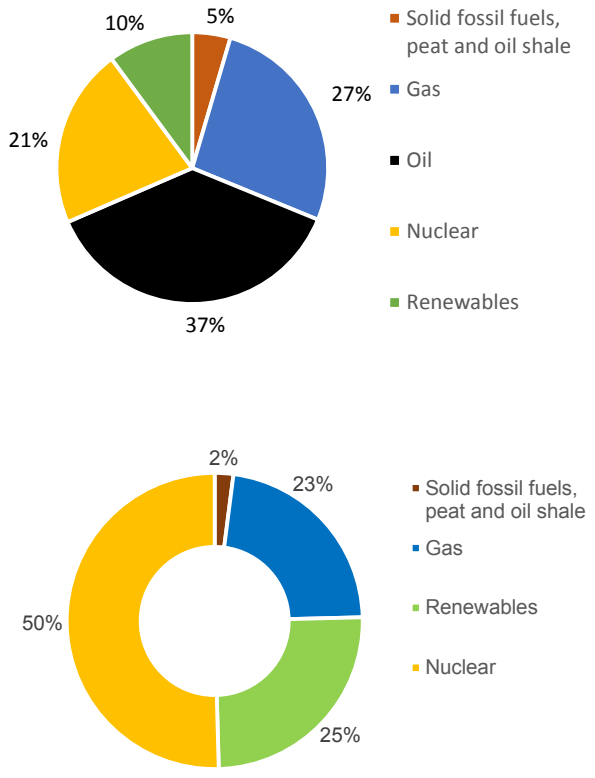
([38]) See the information on the distance to the 2030 climate policy target in Table A6.1. Existing and additional measures as of 15 March 2021. See also Annex 2 on progress in implementing the country-specific recommendations for a complementary, more near-term perspective on climate policy measures.

([39]) For example, investment in the energy-efficient renovation of buildings, including social housing, and sustainable mobility (railway infrastructure, green public buses, electric charging stations, urban public transport and creating or refurbishing cycling pathways). The plan also includes an important reform to promote electric road transport by limiting preferential tax rates for company cars to zero-emission vehicles by 2026. It supports the decarbonisation of the energy sector by promoting the use of hydrogen as an energy source. On biodiversity and climate change adaptation, investments include reconnecting ecosystems, enhancing protected natural areas, forests and wetlands and structural measures to sustainably manage water availability.

([40]) This value is indicative and will be updated in 2025 (as mandated by Regulation (EU) 2023/839).

Fossil fuels still play a strong role in Belgium's energy mix and the gradual nuclear power phase-out is to be compensated by additional capacity remunerated by the capacity remuneration mechanism (CRM) including demand-side management and by increasing renewables. In 2021, oil provided 37% of Belgium's energy mix (gross inland consumption), natural gas 27%, and renewable sources 10% (see Graph A6.2). Belgium's electricity mix is highly decarbonised, with 50% from nuclear and 25% from renewable sources in 2021 (see Graph A6.2). The energy and climate plan envisaged phasing out the 6GW nuclear capacity by 2025, but in April 2022, Belgium decided to extend the use of 2GW of nuclear power. The Belgian government negotiates with the owner of the two plants their extension for 10 years.

Graph A6.2: **Energy mix (top) and Electricity mix (bottom), 2021**



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

In order to compensate for the partial nuclear phase-out, efforts for a higher deployment of renewables would allow Belgium to reach its targets. Deployment of renewable energy remains limited – the share of renewable energy in final energy consumption has reached 13.0% in 2021, including 0.57% statistical transfers (compared to an EU average of 21.8%). Belgium's target of 17.5% share of energy from renewable sources in gross final energy consumption by 2030 included in the national energy and climate plan (NECP) was considered unambitious in the 2020 assessment by the Commission. Belgium will need to substantially strengthen its renewable energy target in the updated NECP to reflect the more ambitious EU climate and energy targets in the Fit for 55 Package and in the REPowerEU Plan. According to IRENA ([41]), the Belgium's solar PV capacity increased from 4.6 (2019) to 5.6 (2020) to 6.0 (2021) to 6.9 (2022) GW, i.e. the annual growth increased in 2022 (+15%) compared to 2021 (+8%), but not yet up to 2019 level (+20%). On February 17, 2023, The Flemish government approved a photovoltaic solar panel obligation for buildings with a significant electricity offtake from the grid: electricity consumers with a yearly electricity offtake from the grid of more than 1 GWh and buildings of public organisations with an offtake of more than 250 MWh will be required to install solar panels on a minimum portion of their roofs by 2025 (and with a strengthening path for 2030 and 2035). Belgium's recovery and resilience plan includes EUR 100 million for an offshore energy island with transmission infrastructure. This will enable the connection of an additional 3.5 GW of planned offshore electricity produced in wind parks in the Princess Elisabeth zone (above the currently installed 2.3 GW), to reach 5.8 GW by 2030 ([42]) and interconnections with Denmark and the UK. The island will contribute to the goals set by the North Sea Energy Cooperation and to the ambitious combined targets for offshore wind.

Belgium's planned energy efficiency measures call for swift implementation. Belgium's NECP targets for primary and final energy consumption were considered of low ambition in the 2020 Commission assessment. Based on the energy consumption trajectory

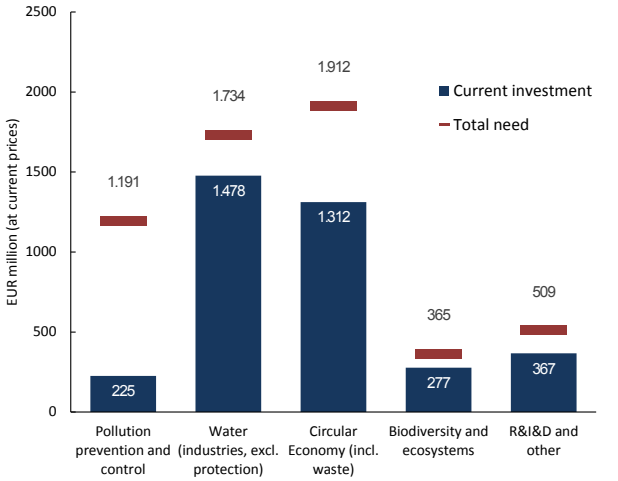
([41]) IRENA Renewable capacity statistics 2023

([42]) Federal government commitment, April 2022

for 2018-2021, Belgium is not expected to be on track to meet its 2030 target for both primary and final energy consumption, as these were notified in its NECP ([43]). Its recovery and resilience plan supports this target by allocating EUR 1 billion for energy efficient renovations of over 200 000 private and social housing units and over 1 million m² of public buildings. The plan includes a reform to bring in one-stop-shops to help people apply for these subsidies. The Flemish government has recently approved several measures to further stimulate the energy efficiency and electrification in industry.

Belgium's transport sector generates significant greenhouse gas and nitrogen oxide emissions. The share of electric vehicles and the density of public charging points is increasing fast but is still below the EU average. Belgium has the second highest share of electrified railway lines in the EU. Nonetheless, individual passenger transport remains dominant: four fifths of the passenger-kilometres are performed by car ([44]). This adds to traffic congestion and exacerbates seasonal air pollution, with significant health and economic costs in six air quality zones. Actions to discourage individual car use and to invest in sustainable transport would help bringing down these costs. The high share of passenger cars in daily passenger traffic has remained stable since 1999 ([45]). The use of public transport has not yet fully recovered after the COVID-19 crisis. Much more can be done to promote public transport, such as improving suburban and intercity services, investments in fleet renewal and increased service frequency. In 2022, cycling has increased as a commuting mode of transport, particularly in Flanders and Brussels-Capital Region, thanks to continuous investments in cycling infrastructure, promotion initiatives and targeted incentives. However, there is still scope for further acting on investments in cycling infrastructure and in road safety for cyclists. The measures under the air pollution control programme remain insufficient.

Graph A6.3: **Thematic – environmental investment needs and current investment, p.a. 2014-2020**



Source: European Commission.

Belgium would benefit from investing more in environmental protection and in measures to tackle pollution ([46]). Between 2014 and 2020, the environmental investment needs were estimated to be at least EUR 5.7 billion, while investment stood at about EUR 3.7 billion, leaving a gap of at least EUR 2 billion per year (see Graph A6.3) ([47]). Belgium's land Natura 2000 network covers 13% of its land ([48]). Biodiversity faces particular challenges with nearly all habitats in unfavourable conservation status. Conservation in marine sites often means setting fishing restrictions, which is challenging. Belgium has yet to allocate sufficient resources to biodiversity protection.

([43]) After the conclusion of the negotiations for a recast Energy Efficiency Directive, the ambition of both the EU and national targets as well as of the national measures for energy efficiency to meet these targets is expected to increase.

([44]) European Commission, Directorate-General for Mobility and Transport, EU transport in figures : statistical pocketbook 2022, Publications Office of the European Union, 2022.

([45]) Monitor survey, 2017.

([46]) Environmental objectives include pollution prevention and control, water management and industries, circular economy and waste, biodiversity and ecosystems (European Commission, 2022, Environmental Implementation Review, country report Belgium).

([47]) When also accounting for needs estimated at EU level only (e.g., water protection, higher circularity, biodiversity strategy).

([48]) In 2021, Belgium had 14.7% terrestrial protected areas (Natura 2000 and nationally designated areas), against the EU average of 26.4% (European Environment Agency, 2023, Natura 2000 Barometer).

Climate change implies many challenges for Belgium, including on water management. Ecosystem pressure from pollution continue ([49]). Extreme climate-related weather events between 1980 and 2020 caused EUR 3 billion in economic damages ([50]). The fluvial floods in 2021 caused over EUR 2 billion in damages, with only half of the assets insured. Climate change affects mobility, energy, the built environment, agriculture, finance, and tourism. These sectors are susceptible to increased water scarcity and flooding risks. The recovery and resilience plan has measures on water retention, retracing waterways, creating floodplains, and protecting ecosystems. Challenges remain in water management, however. Infrastructure investment is needed in wastewater collection and treatment in Wallonia. On 10 March 2023, the Flemish government reached a political agreement about the approach to reduce nitrogen emissions. In Wallonia, nitrate-compliance action programmes are long overdue. Agriculture remains the main source of ammonia emissions and intensive agriculture in Flanders exerts strong pressure on ecosystems. Flanders' and Wallonia's common agricultural policy strategic plans contain some measures to tackle these issues. Belgium has the potential to rely more on tax measures to internalise the cost of air pollution and to limit water pollution, in particular through an expanded use of environmental taxes ([51]) (see Annex 19). For instance, the current pesticide tax has scope for extension, as it only covers five substances.

Belgium provides fossil fuel and other environmentally harmful subsidies that could be considered for reform, while ensuring food and energy security and mitigating social effects. It provided more than EUR 4 billion in fossil fuel subsidies in 2020 ([52]), mainly through tax exemptions and reduced excise duty or VAT rates, putting low-carbon alternatives to a disadvantage. Belgium will gradually phase out the company car tax scheme for fossil fuel cars, but results are yet to materialise. Environmentally harmful subsidies have been identified, via an initial assessment, in the agriculture, forestry and fishing, electricity, gas, steam and air conditioning, transportation and storage, manufacturing services and water supply and sewerage sectors. Examples of such subsidies include the reduced VAT rate for fertilisers and pesticides, the excise tax refund for diesel fuel used in agriculture and tax relief for gas oil, the reduced energy tax rate for light fuel oil used in mobile machinery, the reimbursement of excise duty on diesel used in freight and other categories of passenger transport or the excise tax exemption and tax relief for natural gas for industrial consumers ([53]). A mapping of all environmentally harmful subsidies by Belgium would help prioritise candidates for reform.

By earmarking a higher share of Emissions Trading System revenue for climate action, Belgium could reduce its exposure to the cost of carbon. In 2021, its revenue from the EU Emissions Trading System amounted to some EUR 533 million. Of this, it has allocated only 14% to climate and energy-related purposes, far below the minimum recommended 50% set by the ETS Directive.

([49]) European Environmental Agency, *Advancing towards climate resilience in Europe*, forthcoming.

([50]) See European Environmental Agency, Economic losses from climate-related extremes in Europe, published on 03/02/2022.

([51]) European Commission, 2021, Green taxation and other economic instruments – Internalising environmental costs to make the polluter pay, Ensuring that polluters pay.

([52]) The information on the fossil fuel subsidies of 2020 is in EUR of 2021, from the 2022 State of the Energy Union report. A more recent national study finds that Belgium provided fossil fuel subsidies worth EUR 11 bn in 2021 (FOD Financiën (2021) "Federale inventaris van subsidies voor fossiele brandstoffen", wettelijk depot D/2021/2196/15.).

([53]) Initial assessment of environmentally harmful subsidies done by the Commission in the 2022 toolbox for reforming environmentally harmful subsidies in Europe, using OECD definitions, and based on the following datasets: OECD Agriculture Policy Monitoring and Evaluations; OECD Policy Instruments for the Environment (PINE) Database; OECD Statistical Database for Fossil Fuels Support; IMF country-level energy subsidy estimates. Annex 4 of the toolbox contains detailed examples of subsidies on the candidates for reform.

Table A6.1:**Indicators tracking progress on the European Green Deal from a macroeconomic perspective**

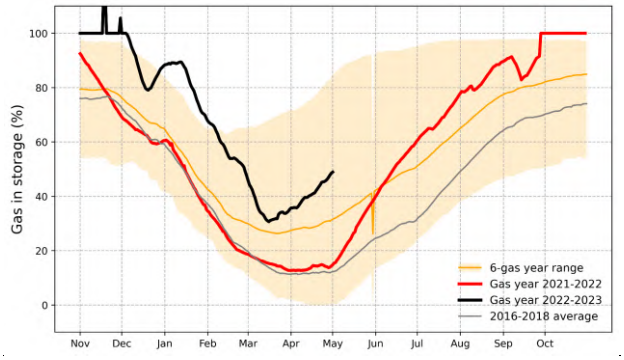
									'Fit for 55' 2030 target/value	'Fit for 55' Distance WEM	'Fit for 55' Distance WAM
			2005	2017	2018	2019	2020	2021			
Progress to policy targets	Greenhouse gas emission reductions in effort sharing sectors [1]	Mt CO2eq; % pp	80,29	-12%	-8%	-10%	-19%	-	-47%	-33	-9
	Net carbon removals from LULUCF [2]	kt CO2eq	-1.765	-645	-608	-480	-335	-324	-1352	n/a	n/a
			2005	2017	2018	2019	2020	2021	National contribution to 2030 EU target		
	Share of energy from renewable sources in gross final consumption of energy [3]	%	2%	9%	9%	10%	13%	13%	17,5%		
	Energy efficiency: primary energy consumption [3]	Mtoe	51,6	48,5	46,5	48,4	43,9	48,8	42,7		
	Energy efficiency: final energy consumption [3]	Mtoe	36,8	36,1	36,4	35,8	33,2	35,9	35,2		
			Belgium						EU		
			2016	2017	2018	2019	2020	2021	2019	2020	2021
Fiscal and financial indicators	Environmental taxes (% of GDP)	% of GDP	2,7	2,7	2,7	2,6	2,5	2,5	2,4	2,2	2,2
	Environmental taxes (% of total taxation) [4]	% of taxation	6,0	6,0	6,0	6,1	5,8	5,7	5,9	5,6	5,5
	Government expenditure on environmental protection	% of total exp.	2,2	2,4	2,5	2,5	2,5	2,4	1,7	1,6	1,6
	Investment in environmental protection [5]	% of GDP	0,5	0,6	0,6	0,6	-	-	0,4	0,4	0,4
	Fossil fuel subsidies [6]	EUR2021bn	2,9	3,1	3,4	3,6	4,0	-	53,0	50,0	-
	Climate protection gap [7]	score 1-4					1,7	1,2			1,5
Climate	Net greenhouse gas emissions	1990 = 100	80,0	82,0	83,0	82,0	76,0	77,0	76,0	69,0	72,0
	Greenhouse gas emission intensity of the economy	kg/EUR10	0,31	0,30	0,29	0,29	0,28	-	0,31	0,30	-
	Energy intensity of the economy	kgoe/EUR10	0,14	0,14	0,13	0,13	0,13	-	0,11	0,11	-
Energy	Final energy consumption (FEC)	2015=100	101,3	100,4	101,2	99,5	92,3	99,8	102,9	94,6	101,1
	FEC in residential building sector	2015=100	100,5	99,0	98,0	95,6	95,6	104,2	101,3	101,3	106,8
	FEC in services building sector	2015=100	100,6	100,4	100,8	99,6	95,3	98,4	100,1	94..3	100,7
Pollution	Smog-precursor emission intensity (to GDP) [8]	tonne/EUR10	0,50	0,48	0,47	0,44	0,42	-	0,93	0,86	-
	Years of life lost due to air pollution by PM2.5	per 100.000 inh.	560,4	535,4	548,3	424,1	313,9	-	581,6	544,5	-
	Years of life lost due to air pollution by NO_2	per 100.000 inh.	223,0	206,0	194,4	159,0	84,8	-	309,6	218,8	-
	Nitrates in ground water	mg NO3/litre	30,3	29,4	28,6	28,3	28,7	-	21,0	20,8	-
Biodiversity	Land protected areas	% of total	21,5	24,9	-	14,5	14,6	14,7	26,2	26,4	26,4
	Marine protected areas	% of total	36,8	-	-	36,8	-	37,8	10,7	-	12,1
	Organic farming	% of total utilised agricultural area	5,8	6,3	6,6	6,9	7,3	7,5	8,5	9,1	-
			2017	2018	2019	2020	2021	2022	2020	2021	2022
Mobility	Share of zero-emission vehicles [9]	% in new registrations	0,5	0,7	1,6	3,5	5,8	9,5	5,4	8,9	10,7
	Number of AC/DC recharging points (AFIR categorisation)		-	-	-	8.826	11.996	20.012	188.626	330.028	432.518
	Share of electrified railways	%	86,0	86,1	86,4		n/a	87,7	56,6	n/a	56,6
	Hours of congestion per commuting driver per year		39,4	40,1	41,0	40,6	n/a	n/a	28,7	n/a	n/a

Sources: (1) Historical and projected emissions, as well as Member States' climate policy targets and 2005 base year emissions under the Effort Sharing Decision (for 2020) are measured in global warming potential (GWP) values from the 4th Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC). Member States' climate policy targets and 2005 base year emissions under the Effort Sharing Regulation (for 2030) are in GWP values from the 5th Assessment Report (AR5). The table above shows the base year emissions 2005 under the Effort Sharing Decision, using AR4 GWP values. Emissions for 2017-2021 are expressed in percentage change from 2005 base year emissions, with AR4 GWP values. 2021 data are preliminary. The table shows the 2030 target under Regulation (EU) 2023/857 that aligns it with the EU's 55% objective, in percentage change from 2005 base year emissions (AR5 GWP). Distance to target is the gap between Member States' 2030 target (with AR5 GWP values) and projected emissions with existing measures (WEM) and with additional measures (WAM) (with AR4 GWP values), in percentage change from the 2005 base year emissions. Due to the difference in global warming potential values, the distance to target is only illustrative. The measures included reflect the state of play as of 15 March 2021.
(2) Net removals are expressed in negative figures, net emissions in positive figures. Reported data are from the 2023 greenhouse gas inventory submission. 2030 value of net greenhouse gas removals as in Regulation (EU) 2023/839 amending Regulation (EU) 2018/841 (LULUCF Regulation) – Annex IIa, kilotons of CO2 equivalent, based on 2020 submissions.
(3) Renewable energy and energy efficiency targets and national contributions are in line with the methodology established under Regulation (EU) 2018/1999 (Governance Regulation).
(4) Percentage of total revenue from taxes and social contributions (excluding imputed social contributions). Revenue from the EU Emissions Trading System is included in environmental tax revenue.
(5) Expenditure on gross fixed capital formation for the production of environmental protection services (abatement and prevention of pollution) covering government, industry, and specialised providers.
(6) European Commission, Study on energy subsidies and other government interventions in the European Union, 2022 edition.
(7) The climate protection gap refers to the share of non-insured economic losses caused by climate-related disasters. This indicator is based on modelling of the current risk from floods, wildfires and windstorms as well as earthquakes, and an estimation of the current insurance penetration rate. The indicator does not provide information on the split between the private/public costs of climate-related disasters. A score of 0 means no protection gap, while a score of 4 corresponds to a very high gap (EIOPA, 2022).
(8) Sulphur oxides (SO2 equivalent), ammonia, particulates < 10 µm, nitrogen oxides in total economy (divided by GDP).
(9) Battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV).

Before Russia invaded Ukraine, Belgium had limited exposure to Russian gas and moderate exposure to oil compared to the EU averages. However, it is still importing Russian LNG and it is highly dependent on imported fossil fuels in general. This dependence from fossil fuels makes its economy particularly sensitive to global price developments, requiring it to step up efforts on the energy transition. This Annex ([54]) sets out actions carried out by Belgium to achieve the REPowerEU objectives, including through the implementation of its recovery and resilience plan (RRP), in order to improve energy security and affordability while accelerating the clean energy transition, and contributing to enhancing the EU's competitiveness in the clean energy sector ([55]).

Belgium had a high level of gas supply security in the face of challenging circumstances. Its liquefied and natural gas pipeline infrastructure can contribute to the overall security of supply in Europe. Belgium operates one underground storage facility ([56]) with a total capacity of around 0.8 billion cubic metres (bcm), representing only 4% of its total yearly demand. Belgium reached 100% of its underground storage level by 1 November 2022 and ended the heating season with a filling gas storage at 40% at 15 April 2023 ([57]) (see Graph A7.1). Belgium has gas pipeline connections to six countries ([58]): Netherlands, Germany, Norway, United Kingdom, Luxembourg and France. It has a large liquefied natural gas (LNG) terminal gasification capacity in Zeebrugge ([59]). As a result, Belgium could increase the LNG imports and export gas to neighbouring countries in 2022. Part of the cited LNG imports are from Russia.

Graph A7.1: **Underground gas storage levels in Belgium**



Source: JRC calculation based on AGSI+ Transparency Platform, 2022 (Last update 2 May 2023)

Belgium has taken measures to reduce gas consumption and its continuous efforts would help to prepare for next winter. Over the period August 2022-March 2023, 15% of gas consumption has been saved in Belgium compared to the previous 5-years average, thereby meeting the 14% reduction target. Belgium took measures that led to a gas demand reduction including national awareness-raising campaigns, measures in the public sector (reduced lighting, temperature control, energy efficiency of heating, ventilation and air conditioning systems, insulation), in the private sector (higher premiums for renovation, insulation, hybrid heat pumps), and in industry (demand side management, fuel switch).

Electricity security has been ensured by the large capacities of base load (nuclear) and dispatchable (gas) power plants, and a high

([54]) It is complemented by Annex 6 as the European Green Deal focuses on the clean energy transition, by Annex 8 on the actions taken to mitigate energy poverty and protect the most vulnerable ones, by Annex 9 as the transition to a circular economy will unlock significant energy and resource savings, further strengthening energy security and affordability, and by Annex 12 on industry and single market complementing ongoing efforts under the European Green Deal and REPowerEU.

([55]) in line with the Green Deal Industrial Plan COM(2023) 62 final, and the proposed Net-Zero Industry Act COM(2023) 161 final

([56]) Belgium has one underground storage facility: Loenhout managed by Fluxys.

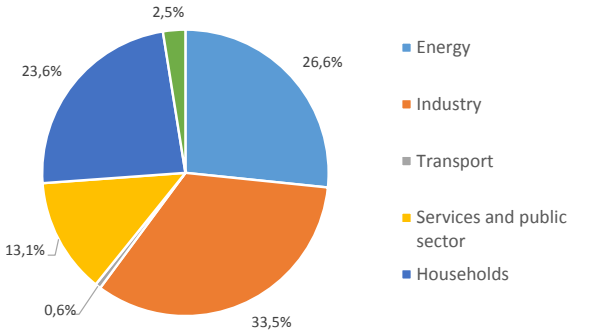
([57]) Regulation of the European Parliament and of the Council amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage and Implementing Regulation (EU) 2022/2301 of 23 November 2022 setting the filling trajectory with intermediary targets for 2023 for each Member State with underground gas storage facilities on its territory and directly interconnected to its market area.

([58]) Gas pipeline connections to : Netherlands (49 bcm/year for imports, 12 bcm/year for exports), Germany (10 bcm/year), the UK (20 bcm/25 bcm), Norway (import capacity of 15 bcm/year), Luxembourg (export capacity of 1.5 bcm/year) and France (export capacity of 28.5 bcm/year).

([59]) Existing gasification capacity in Zeebrugge: 2 million cubic metres/hour; 11.4 bcm/year; two more units under construction (3.9 bcm/year in 2024; 1.8 bcm/year in 2026).

level of grid interconnection with neighbouring countries, but the gradual phasing out of nuclear requires action to maintain supply security. In terms of electricity generation, Belgium still relied heavily on a combination of nuclear (51%) and gas-fired combined cycle power plants (23%) in 2021 (see Annex 6). Nuclear capacity (6 GW in 2021) was initially set to be phased out completely by 2025. However, in April 2022 the Belgium government decided to continue operating 2 GW until 2035. Negotiations with the plants owner are ongoing. The partial, then complete, nuclear phase-out and expected electricity consumption growth are to be covered by a capacity remuneration mechanism which aims at maintaining and attracting sufficient generation, storage and demand side management capacity in addition to the increased renewable resources and remaining nuclear generation, to ensure security of supply as from the winter 2025-2026 and beyond.

Graph A7.2: **Share of gas consumption per sector, 2021**



Source: Eurostat

Belgium is upgrading its grid infrastructure, and further infrastructure investments would allow it to accommodate a higher share of renewable electricity. Belgium´s high-voltage grid requires investment due to growing electrification and offshore wind development. Difficulties in expanding overhead lines mean delays in the final approval. Flanders decided on 31 March on the Ventilus final trajectory, which includes 10 km of underground cables. Flanders and Brussels have phased out net metering and introduced a different tariff for injection of power in the grid, to foster self-consumption and ease the integration of renewable energy sources. Belgium has a good cross-border electricity interconnection level, in compliance with the interconnection 2030 target of 15%.

Despite the mechanisms introduced by Belgium to mitigate soaring energy prices, retail prices have risen significantly due to the increase in wholesale electricity prices. For households, the average price of gas and electricity increased by 101% and 21% respectively between the first half of 2021 and the second half of 2022 (see Graph A7.3). To mitigate the impact on households, Belgium reduced VAT on electricity and gas from 21% to 6% and introduced energy bill support; the eligibility for social tariff was extended (during the COVID-19 crisis), increasing the number of protected consumers to approximately 1 million households. In response to these energy price surges, the Belgium's solar PV capacity increased from 6.0 GW in 2021 to 6.9 GW in 2022, the annual growth rate increased in 2022 (+15%) compared to 2021 (+8%), but not yet up to 2019 level (+20%) ([60]). For industry, the average price of gas and electricity increased by 152% and 59% respectively between the first half of 2021 and the second half of 2022 (see Graph A7.3). The surge in energy prices has had a considerable impact on Belgian industry, which accounted for 33.5% of gas consumption in the country in 2021 (see Graph A7.2).

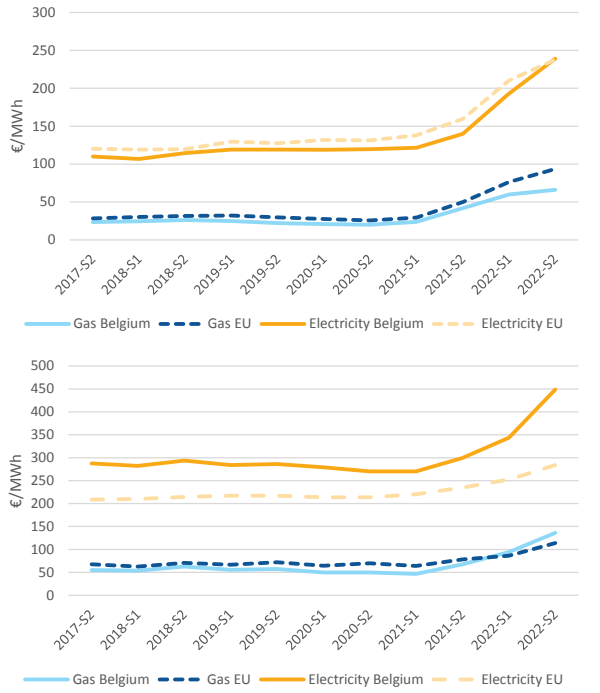
Belgium has taken advantage of the RRP to accelerate the renovation of buildings, but this will not be sufficient to reach its renovation and energy efficiency targets. Belgium faces pressure to deliver on the energy efficiency and savings measures planned as part of the national climate and energy plan and RRP, especially on the financing of a renovation wave across regions to increase the energy efficiency of public buildings, social housing and residential buildings. Belgium is carrying out a low number of checks on products covered by eco-design and energy labelling. This generates concerns with respect to the level playing field among economic operators and uncertainty as to the compliance levels of the concerned products, and therefore possible missed energy and CO2 savings ([61]).

([60]) IRENA Renewable capacity statistics 2023.

([61]) Internet-supported information and communication system for the pan-European market surveillance

Belgium aims to transform its energy system against the background of a gradual phase-out of nuclear energy by 2025/2035 and growing electricity demand. Deployment of renewable energy remains limited (see Annex 6). The share of renewables in the heating and cooling sector is particularly low (9.2% compared to an EU average of 22.9% in 2021). Belgium is a front runner in the deployment of offshore wind energy and aims to further increase its offshore capacities in close cooperation with other countries in the North Sea region. A wider uptake of decentralised renewable resources is supported by reduced VAT (from 21% to 6%) on solar panels and heat pumps.

Graph A7.3: **Belgium´s retail energy prices for industry (top) and households (bottom)**



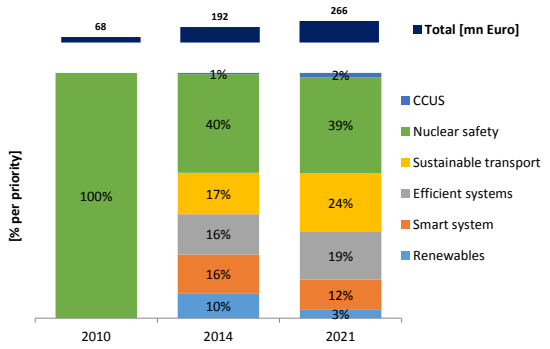
(1) On electricity, the band consumption is DC for households and ID for industry; (2) On gas, the band consumption is D2 for households and I4 for industry
Source: Eurostat

Public acceptance of large-scale onshore renewables and grid infrastructure deployment remains a challenge. The Belgian authorities are taking measures to reduce the duration of permit-granting procedures for renewables, with variable progress. The federal government has initiated the screening of barriers to the deployment of renewables, in particular in relation to aviation security rules; the Council of Ministers approved on 18 November 2022 in first reading a proposal of draft law, to enable priority treatment and an accelerated procedure in the Council of State, for files relating to the use of renewable energy sources and the energy transition. Flanders has taken measures to reinforce the capacity of appeal bodies through the nomination of additional judges, to speed up the procedure and reduce the number of appeals, notably by shifting competence for wind energy permitting from the municipal to the regional level. Wallonia adopted a revised plan to facilitate the deployment of wind turbines, including a review of distance rules to residential buildings. In September 2022, Brussels-Capital Region, has opened the digital platform MyPermit to individuals, companies or administrations, for easier submission, follow-up or processing of files.

Belgium has developed an ecosystem for offshore wind and smart grids, as well as for components for batteries, and is strengthening and decarbonising its hydrogen ecosystem. Belgian companies are members of the Hy2Use and Hy2Tech Important Projects of Common European Interest for the development of the hydrogen value chain, with some projects funded by the RRP. The deployment of offshore wind parks has contributed to the creation in Belgium of an ecosystem capable of supplying components for wind energy across the world. The RRP will fund an energy island to interconnect wind parks across borders. Public investment in research and innovation (R&I) as an EU Energy Union priority ([62]) increased from 0.048% in 2014 to 0.053% in 2021 (as a share of GDP), which is above the EU-27 average. Over the same period, however, private R&I investment in Energy Union priorities fell from 0.072% to 0.054%. The number of patent families in Energy Union priorities also decreased from 12.0 per million inhabitants in 2014 to 9.2 in 2019.

([62]) Renewables, smart systems, efficient systems, sustainable transport, carbon capture, utilisation and storage (CCUS) and nuclear safety, COM(2015) 80 final (Energy Union Package).

Graph A7.4: **Public investment in Energy Union R&I priorities**



Source: JRC SETIS (2022)

Table A7.1: **Key Energy Indicators**

		BELGIUM				EU			
		2018	2019	2020	2021	2018	2019	2020	2021
ENERGY DEPENDENCE	**Import Dependency [%]**	**83%**	**78%**	**78%**	**71%**	**58%**	**61%**	**57%**	**56%**
	of Solid fossil fuels	104%	102%	102%	92%	44%	44%	36%	37%
	of Oil and petroleum products	101%	101%	103%	96%	95%	97%	97%	92%
	of Natural Gas	101%	102%	99%	100%	83%	90%	84%	83%
	Dependency from Russian Fossil Fuels [%]								
	of Hard Coal	40%	40%	39%	43%	40%	44%	49%	47%
	of Crude Oil	39%	32%	30%	29%	30%	27%	26%	25%
	of Natural Gas	12%	17%	7%	12%	40%	40%	38%	41%

		2015	2016	2017	2018	2019	2020	2021	2022
ELECTRICITY	**Gross Electricity Production (GWh)**	69,708	85,610	86,619	75,040	93,646	89,455	100,465	-
	Combustible Fuels	33,088	31,558	32,615	33,171	34,497	35,277	30,667	-
	Nuclear	26,103	43,523	42,227	28,597	43,524	34,435	50,326	-
	Hydro	1,418	1,489	1,397	1,308	1,181	1,315	1,350	-
	Wind	5,574	5,420	6,521	7,574	9,755	12,819	11,998	-
	Solar	3,057	3,095	3,308	3,903	4,253	5,112	5,618	-
	Geothermal	0	0	0	0	0	0	0	-
	Other Sources	469	524	551	487	436	498	507	-
	Net Imports of Electricity (GWh)	20,999	6,183	6,022	17,328	-1,855	-333	-7,877	-
	As a % of electricity available for final consumption	25.3%	7.4%	7.2%	20.6%	-2.2%	-0.4%	-9.4%	-
	Electricity Interconnection (%)	-	-	-	-	18.30%	14.20%	16.08%	14.83%

		2015	2016	2017	2018	2019	2020	2021	2022
DIVERSIFICATION OF GAS SUPPLIES	**Gas Consumption (in bcm)**	16.8	17	17.8	18.3	18.4	18.2	18.3	15.7
	Gas Imports - by type (in bcm)	21.3	19.2	19.0	22.3	30.0	26.3	25.6	-
	Gas imports - pipeline	18.8	18.2	17.9	19.8	23.2	21.7	21.4	-
	Gas imports - LNG	2.5	1.0	1.1	2.5	6.7	4.7	4.2	-
	Gas Imports - by main source supplier (in bcm)* **								
	Norway	5.5	5.7	10.1	10.4	9.1	11.1	12.2	-
	Qatar	5.0	2.0	2.3	4.0	9.0	5.0	5.1	-
	Russia	0.0	0.0	1.4	2.8	5.8	4.4	3.9	-
	Netherlands	7.6	8.3	3.7	3.8	3.8	3.0	3.2	-
	Others	3.2	3.2	1.5	1.2	2.3	2.7	1.2	-

		2019	2020	2021	2022
	LNG Terminals				
	Number of LNG Terminals (FSRU[1])	1	1	1	1
	LNG Storage capacity (m3 LNG)	566,000	566,000	566,000	566,000
	Underground Storage				
	Number of storage facilities	1	1	1	1
	Operational Storage Capacity (bcm)	0.8	0.8	0.8	0.8

		2019	2020	2021	2022
CLEAN ENERGY	**VC investments in climate tech start-ups and scale-ups (EUR Mln)**	16.10	45.34	23.68	n.a.
	as a % of total VC investments in Belgium	0.01	0.04	0.02	n.a.
	Research & Innovation spending in Energy Union R&i priorites (2)				
	Public R&I (EUR mln)	249.0	304.1	265.8	n.a.
	Public R&I (% GDP)	0.052%	0.066%	0.053%	n.a.
	Private R&I (EUR mln)	254.1	n.a.	n.a.	n.a.
	Private R&I (% GDP)	0.05%	n.a.	n.a.	n.a.

Footnote: Venture Capital investments include Venture Capital deals (all stages) and Private Equity Growth/Expansion deals (for companies that have previously been part of the portfolio of a VC investment firm).

Source: Eurostat, JRC elaboration based on PitchBook data (06/2022)

Note*: The ranking of the main supliers is based on the latest available figures (for 2021)

Note*: Information about 2021 LNG imports from Norway, Netherlands, United Kingdom, Germany and France are unavailable.

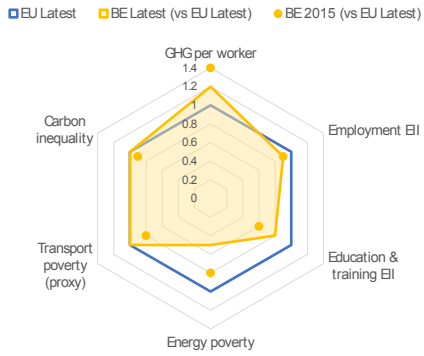
(1) The ranking of the main suppliers is based on the latest available figures (for 2021)
(2) Information about 2021 LNG imports from Norway, Netherlands, United Kingdom, Germany and France are unavailable.
(3) Venture Capital investments include Venture Capital deals (all stages) and Private Equity Growth/Expansion deals (for companies that have previously been part of the portfolio of a VC investment firm).
Source: Eurostat, Gas Infrastructure Europe, JRC elaboration based on PitchBook data (6/2022)

This Annex monitors Belgium's progress in ensuring a fair transition towards climate neutrality and environmental sustainability, notably for workers and households in vulnerable situations. In 2021-22, the number of jobs in the green economy rose in Belgium. Green skills are key to support the fair green transition, in line with the Council Recommendation ([63]), and the implementation of REPowerEU. Belgium's recovery and resilience plan (RRP) as well as the European Social Fund Plus (ESF+), outline important reforms and investments for a fair green transition ([64]). The RRP supports training and labour market reforms aimed at increasing training for the unemployed and improving efficiency in activating jobseekers.

While the green economy is expanding, employment in Belgium's sectors most affected by the green transition remains stable, but workers in declining activities need active support. The employment rate in Belgium is at 71.9% in 2022, well below its 2030 target of 80%. The greenhouse gas (GHG) emissions intensity of Belgium's workforce declined from 19.2 to 16.6 tonnes per worker between 2015 and 2021, still above the EU average of 13.7 tonnes (see Graph A8.1). Employment in Belgium's energy-intensive industries (EII) represented a stable share of 2.6% of total employment in 2021 (in 2020: 2.6% vs 3.0% in the EU), with 44 300 jobs in the manufacture of fabricated metal products. Total jobs in the environmental goods and services sector grew by 17.1% (to 48 000) during 2015-19 (EU: +8.3%), reaching 1% of total employment (the EU average is 2.2%, see Annex 9 for circular jobs specifically). The job vacancy rate in construction, which is a key sector for the green transition, stands at 5.9%, above the EU average (4.0%) ([65]), indicating a tight labour market in this sector that risks creating bottlenecks in the green transition. To respond to those challenges, 16% of the ESF+ funding contributes to green skills and jobs, including support for self-employment in the green economy.

Upskilling and reskilling in declining and transforming sectors slightly increased, but skills mismatches remain important. An increasing job vacancy rate coupled with low employment and high inactivity rates suggest that there are substantial skills mismatches including in sectors requiring low- to middle-levels of skills. Skills are key for smooth labour market transitions and preserving jobs in transforming sectors. In energy-intensive industries, workers' participation in education and training increased from 6.1% in 2015 to 8.5% in 2022 (EU: 10.4%), while 40% of citizens believe they do not have the necessary skills to contribute to the green transition (EU: 38%) ([66]). To address this challenge, the RRP invests in training infrastructure related to the green transition (in Wallonia).

Graph A8.1: **Fair transition challenges in Belgium**



Source: Eurostat, EMPL-JRC GD-AMEDI/AMEDI+ projects and World Inequality Database.

Energy poverty indicators have improved in recent years, but the spike in energy prices reversed this positive trend. The share of the population unable to keep their homes adequately warm declined to 3.5% in 2021, before returning to pre-crisis level of 5.1% in 2022 ([67]). In particular, 12% of the population at risk of poverty were affected in 2022 (EU: 16.4% in 2021), and 3.2% of lower middle-income households (in deciles 4-5) in 2021

([63]) Council Recommendation of 16 June 2022 on ensuring a fair transition towards climate neutrality, 2022/C 243/04 covers employment, skills, tax/benefit and social protection systems, essential services and housing.

([64]) See 2022 Country Report (Annex 6) and Annex 3 for an overview.

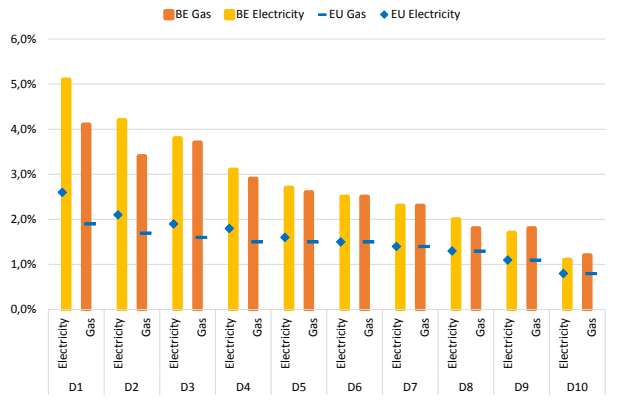
([65]) Eurostat (JVS_A_RATE_R2)

([66]) Special Eurobarometer 527. Fairness perceptions of the green transition (May – June 2022).

([67]) Energy poverty is a multi-dimensional concept. The indicator used focuses on an outcome of energy poverty. Further indicators are available at the Energy Poverty Advisory Hub.

(EU: 8.2% in 2021). Before the energy price hikes, an estimated 23.2% of the total population and 57.9% of the (expenditure-based) at-risk-of-poverty (AROP) population had residential expenditure budget shares on electricity, gas, and other fuels ([68]) above 10% of their household budget (in comparison with the estimated EU average of 26.9% and 48.2%, respectively).

Graph A8.2: **Distributional impacts of energy prices due to rising energy expenditure (2021-2023)**



Mean change of energy expenditure as a percentage (%) of total expenditure per income decile (D) due to observed price changes (August 2021 – January 2023 relative to the 18 months prior), excl. policy support and behavioural responses.
Source: EMPL-JRC GD-AMEDI/AMEDI+ projects, based on Household Budget Survey 2015 and Eurostat inflation data for CP0451 and CP0452.

The impact of rising energy prices in 2021-23, linked to Russia's war against Ukraine, on purchasing power of households has been largely mitigated by the automatic indexation of wages and benefits. However, the impact is not even across the income distribution, benefitting in particular households with a high income ([69]). On the other hand, low-income households benefitted proportionally more from targeted government support. As a result of energy price changes during the August 2021 to January 2023 period relative to the 18 months prior (see Annex 7), in the absence of policy support and behavioural responses, the fraction of individuals living in households spending more than 10% of their budget on energy would have increased by 35.2 pps for the whole population and by 32.5 pps among the (expenditure-based) AROP population (16.4 pps and 19.1 pps in the EU, respectively) ([70]). For electricity and gas, expenditure shares of low and lower-middle income groups would have increased the most, in line with EU-wide effects, as shown in Graph A8.2. Among the (expenditure-based) AROP population, the share of individuals living in households with budget shares for private transport fuels ([71]) above 6% would have increased more than the EU average (8.8 pps vs 5.3 pps in the EU) to 37.1% in January 2023 due to the increase in transport fuel prices. According to Special Eurobarometer 527, almost all citizens (96%) consider rising energy prices to be a serious problem ([72]). Looking to promote energy efficiency, the RRP aims to renovate 200 000 residential and social dwellings across regions.

Access to public transport displays an urban-rural divide. Overall, citizens perceive public transport to be fairly available (53% vs 55% in the EU), affordable (52% vs 54% in the EU) and of good quality (54% vs 60% in the EU). As regards these perceptions, rural areas in Belgium perform worse than urban areas, on average at the same level as rural areas in the EU overall. The share of employees in the private sector with a company car is high (22%) and continues to increase (+26.1% as compared to 2016) ([73]). This limits the attractiveness of public transport. The average carbon footprint of the top 10% of emitters among the population in Belgium is 4.8 times higher than that of the bottom 50%, in line with the EU average (5.0 times higher). The average levels of air pollution in 2020 stood below the EU average (9.4 vs 11.2 µg/m PM2.5), with 38% of the population living in regions exposed to critical levels of air pollution ([74]), leading to significant health

([68]) Products defined according to the European Classification of Individual Consumption according to Purpose (ECOICOP): CP045.

([69]) Capéau et al. (2022)

([70]) EMPL-JRC GD-AMEDI/AMEDI+ ; see details in the related technical brief.

([71]) ECOICOP: CP0722.

([72]) Special Eurobarometer 527.

([73]) Acerta (2022)

([74]) Two times higher than the recommendations in the WHO Air Quality Guidelines (annual exposure of 5µg/m3).

Table A8.1:**Key indicators for a Fair Transition**

Indicator	Description	BE 2015	BE Latest	EU Latest
GHG per worker	Greenhouse gas emissions per worker - CO2 equivalent tonnes	19,2	16.6 (2021)	13.7 (2021)
Employment EII	Employment share in energy-intensive industries, including mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24), automotive (C29) - %	2,8	2.6 (2020)	3 (2020)
Education & training EII	Adult participation in education and training (last 4 weeks) in energy-intensive industries - %	6,1	8.5 (2022)	10.4 (2022)
Energy poverty	Share of the total population living in a household unable to keep its home adequately warm - %	5,2	3.5 (2021)	6.9 (2021)
Transport poverty (proxy)	Estimated share of the AROP population that spends over 6% of expenditure on fuels for personal transport - %	28,4	37.1 (2023)	37.1 (2023)
Carbon inequality	Average emissions per capita of top 10% of emitters vs bottom 50% of emitters	4,7	4.8 (2020)	5 (2020)

Source: Eurostat (env_ac_ainah_r2, nama_10_a64_e, ilc_mdes01), EU Labour Force Survey (break in time series in 2021), EMPL-JRC GD-AMEDI/AMEDI+ projects and World Inequality Database (WID).

impacts, in particular on vulnerable groups, and 3 927 premature deaths annually ([75]).

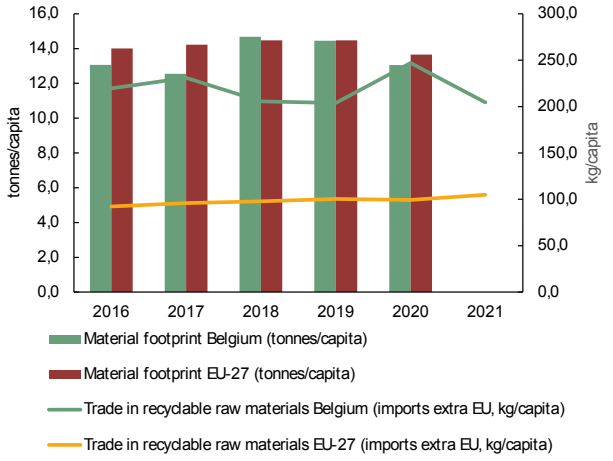
([75]) EEA- Air Quality Health Risk Assessment.

The circular economy transition is key to delivering on the EU's climate and environmental goals and provides large socio-economic benefits. It spurs job growth, innovation and competitiveness and fosters resilience and resource security. The circularity transition of industry, the built environment and agri-food can generate significant environmental improvements (see Annex 6), as they rank among the most resource-intensive systems.

Belgium is on track to meet the EU's circular economy goals. The EU's 2020 circular economy action plan (CEAP) aims at doubling the circular material use rate between 2020 and 2030. Belgium's use of circular materials increased from 17.6% in 2016 to 20.5% in 2021, well above the EU 2020 average of 11.7%. In 2020, Belgium's material footprint was below the 2020 EU-27 average. The labour market benefits of the circular transition are not being realised, despite its potential ([76]); direct circular jobs only account for 1% of employment and have decreased since 2015 (see Table A.9.1). Belgium lagged behind other EU countries for socioeconomic outcomes from eco-innovation in 2019 (e.g. exports of products from eco-industries).

Belgium recently adopted new policies to address circular economy challenges and has made progress in strengthening its circular economy policy framework. In 2021 the federal government adopted a comprehensive action plan for the circular economy 2021-2024; the 'Circular Wallonia' regional strategy ([77]) was adopted in 2021; the Brussels Capital Region adopted its regional strategy for the economic transition 'Shifting Economy' with a five-year action plan in 2022 and Flanders set out the 'Vision 2050' strategy in 2016. Circular economy is also included in the Flemish 'Energy and Climate Plan (VEKP) 2021-2030', policy programme 'For circular construction 2022-2030', 'Action Plan Circular Food Loss and Biomass Flows 2021-2025', 'Bioeconomy policy plan' and the 'Action Plan on Plastics 2020-2025'. In 2021 a new 2050 roadmap and an updated governance structure for 'Circular Flanders' were put in place to accelerate the circular transition ([78]) with its Circular Economy Monitor to keep track of progress. The federal plan aims to boost research and innovation, job creation and competitiveness, via policies for product, consumers, public procurement, taxes.

Graph A9.1: **Trend in material use**



Source: Eurostat

Changes in statistical methodology have altered Belgium's top position in the EU in terms of volumes of waste produced. Indeed, Belgium has one of the highest rates of municipal waste generation per head in the EU, with 759 kg/year/head in 2021 (EU average 530 kg/year/head); it is also overly reliant on waste incineration, with almost half of its municipal waste being incinerated (47.5% in 2021) compared to the EU average of 26% (2019). It met the EU's 2020 target to recycle 50% of municipal waste, reaching 52.8% in 2021, of which 21% is composted. Further efforts are needed to meet the ambitious recycling targets by 2035, reducing municipal waste incineration ([79]), via prevention and

([76]) King Baudouin Foundation's study (2019): 262 000 jobs in Belgium can be related to the circular economy (Flanders 148 000 or 7% of the regional total, Brussels 58 000 or 8.1%, Wallonia 56 000 or 6.8%).

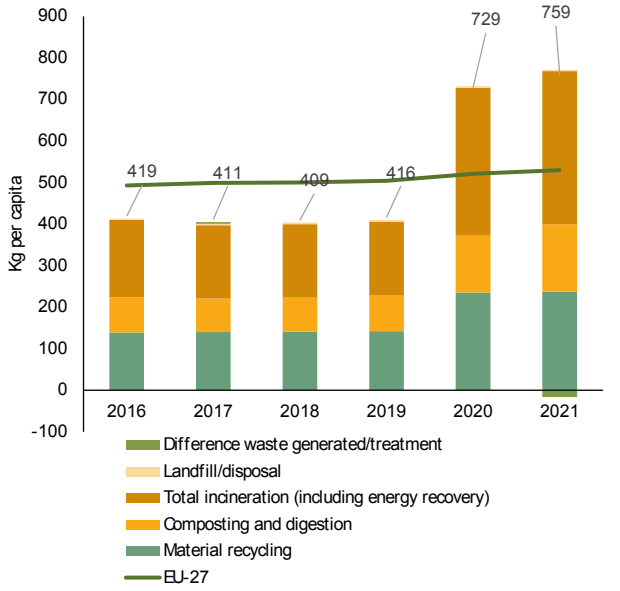
([77]) The Wallonia circular economy strategy aims to increase Walloon jobs directly and indirectly linked to the CE by 20% by 2025, i.e. an increase from 6.8 % (2017) to 8.2% (2025)

([78]) Circular Flanders aims to decouple the material footprint of Flemish consumption from economic growth and reduce that footprint by 30% by 2030.

([79]) Defined in the National Plan for Energy and Climate 2021-2030, and in the basic regional political documents: (e.g. Déclaration de politique régionale pour la Wallonie (2019-

improvements in separate waste collection and treatment for reuse and recycling.

Graph A9.2: **Treatment of municipal waste**



Source: Eurostat

The Belgian industrial system's circularity transition is relatively static. Business dynamism in the innovation ecosystem remains low (see Annex 11). The economy, particularly industry, was more efficient at using materials than the EU average in 2021, in terms of resource productivity, consumption footprint and material input dependency further increasing Belgium's resilience. The market for recycled products is limited. A financing gap of EUR 568 million per year (2014-2020) remains in the circular economy (see Annex 6).

The built environment system in Belgium is on the way to integrating circular economy principles. The recovery rate of construction and demolition waste (CDW) has increased since 2016 and remains well above the EU average (99% vs 89% in 2020). This mainly involves downcycling in road and building foundations, metals and wood to a lesser extent, largely sorted on site or in sorting centres. Backfilling was a small share at 274 kg/cap, whereas the EU average was 603 kg/cap in 2021. There is scope for renovating existing buildings and improving their use instead of building new ones, increasing the share of secondary raw materials used in construction taking into account the Level(s) framework for sustainable buildings. Brussels Capital Region supports reuse of CDW through the development of tools (Opalis), support for pilot projects, training.

The agri-food system has scope for reducing pollution from nutrients and managing water resources more efficiently. Nutrient losses and water pollution by nitrates from agriculture remain a major cause of

Table A9.1:**Overall and systemic indicators on circularity**

AREA	2016	2017	2018	2019	2020	2021	EU-27	Latest year EU-27
Overall state of the circular economy								
Material footprint (tonnes/capita)	13,1	12,6	14,7	14,4	13,0	-	13,7	2020
YoY growth in persons employed in the circular economy (%)[1]	-4,3	-0,9	2,7	-10,6	-	-	2,9	2019
Water exploitation index plus (WEI+) (%)	3,8	5,8	3,9	5,8	-	-	3,6	2019
Industry								
Resource productivity (purchasing power standard (PPS) per kilogram)	2,5	2,5	2,7	2,7	2,8	2,8	2,3	2021
Circular material use rate (%)[2]	17,6	18,5	19,9	23,5	21,5	20,5	11,7	2021
Recycling rate (% of municipal waste)	53,5	53,9	54,4	54,7	51,4	53,3	49,6	2021
Built environment								
Recovery rate from construction and demolition waste (%)[3]	95,0	-	97,0	-	99,0	-	89,0	2020
Soil sealing index (base year = 2006)[4]	102,7	-	106,5	-	-	-	108,3	2018
Agri-food								
Food waste (kg per capita)[5]	-	-	-	-	250,0	-	131,0	2020
Composting and digestion (kg per capita)	85,0	81,0	82,0	86,0	137,0	163,0	100,0	2021

(1) Persons employed in the circular economy only tracks direct jobs in selected sub-sectors of NACE codes E, C, G and S; (2) the circular material use rate measures the share of material recovered and fed back into the economy in overall material use, including composting and digestion; (3) the recovery rate of construction and demolition waste includes waste which is prepared for reuse, recycled or subject to material recovery, including through backfilling operations; (4) soil sealing: 2016 column refers to 2015 data; (5) food waste includes primary production, processing and manufacturing, retail and distribution, restaurants and food services, and households.

2024), Langetermijnvisie eindverwerking for Flanders, etc.)

Source: Eurostat, European Environment Agency

concern (see Annex 6).

Digital transformation is key to ensuring a resilient and competitive economy. In line with the Digital Decade Policy Programme, and in particular with the targets in that Programme for digital transformation by 2030, this Annex describes Belgium's performance on digital skills, digital infrastructure/connectivity and the digitalisation of businesses and public services. Where relevant, it makes reference to progress on implementing the Recovery and Resilience Plan (RRP). Belgium allocates 27% of its total RRP budget to digital (EUR 1.6 billion) ([80]).

The Digital Decade Policy Programme sets out a pathway for Europe's successful digital transformation by 2030. The Programme provides a framework for assessing the EU's and Member States' digital transformation, notably via the Digital Economy and Society Index (DESI). It also provides a way for the EU and its Member States to work together, including via multi-country projects, to accelerate progress towards the Digital Decade digital targets and general objectives ([81]). More generally, several aspects of digital transformation are particularly relevant in the current context. In 2023, the European Year of Skills, building the appropriate skillset to make full use of the opportunities that digital transformation offers is a priority. A digitally skilled population increases the development and adoption of digital technologies and leads to productivity gains ([82]). Digital technologies, infrastructure and tools all play a role in the fundamental transformation needed to adapt the energy system to the current structural challenges ([83]).

Overall, Belgium has a mixed performance on digital skills, with some significant challenges remaining. Although the share of individuals employed as ICT specialists is above the EU average, demand for ICT specialists remains high – the share of enterprises reporting difficulties in recruiting ICT specialists is above the EU average (69% vs 63%). However, the share of ICT graduates remains low. Furthermore, increasing the share of women among ICT specialists remains a challenge for Belgium, although their share is slightly above the EU average. To address this challenge, Belgium has set up an inter-federal strategy on women in digital ([84]). The proportion of people with at least basic digital skills matches the EU average. However, it is below the EU average for young people (aged 16-24), in particular for those with a low level of education.

Belgium presents mixed results in terms of digital infrastructure/connectivity. It scores higher than the EU average in terms of very high-capacity network (VHCN) coverage (78% of households were covered in 2022, compared to the EU average of 73%), thanks to its extensive cable network. However, it still lags significantly behind in terms of fibre deployment (17% of households were covered with fibre to the premises (FTTP) in 2022 compared to the EU average of 56%). The RRP includes measures to support the roll-out of fibre. Belgium's performance is also far below the EU average when it comes to overall 5G deployment with a 30% coverage compared to the EU average of 81%. 5G coverage on the 3.4-3.8 GHz spectrum band is at 6% compared to the European average of 41%. This is expected to improve following the allocation of 5G spectrum in the multiband spectrum auction which took place in July 2022.

Belgium performs most solidly on the digitalisation of businesses. It scores above the EU average in all the indicators and fares particularly well with regard to the share of enterprises using big data and cloud (8, 9 and 13 percentage points above the EU average respectively).

Belgium performs moderately well in relation to digital public services, both in public services

([80]) The share of financial allocations that contribute to digital objectives has been calculated using Annex VII of the RRF Regulation.

([81]) The Digital Decade targets as measured by DESI indicators and complementary data sources are integrated to the extent currently available and/or considered particularly relevant in the MS-specific context.

([82]) See for example OECD (2019): OECD Economic Outlook, Digitalisation and productivity: A story of complementarities, OECD Economic Outlook, Volume 2019 Issue 1 | OECD iLibrary (oecd-ilibrary.org).

([83]) The need and possible actions for a digitalisation of the energy system are laid out in the Communication 'Digitalisation the energy system – EU action plan' (COM(2022)552.

([84]) 'Women in Digital National and Intersectoral Strategy' for 2020-2025 https://news.belgium.be/fr/plan-interfederal-et-intersectoriel-women-digital

for businesses and for citizens. The large share of digital investment dedicated to this dimension in the Belgian RRP provides an opportunity to improve these results. When it comes to electronic identification (eID), three schemes are notified to the European Commission under the eIDAS Regulation. One of those schemes (itsme) that is widely used is issued by a private entity in collaboration with the government. On access to electronic health records, Belgium performs well with a score of 84 compared to an EU average of 71.

Table A10.1: **Key Digital Decade targets monitored by DESI indicators**

	Belgium			EU	Digital Decade target by 2030 (EU)
	DESI 2021	DESI 2022	DESI 2023	DESI 2023	
Digital skills					
At least basic digital skills	**NA**	**54%**	**54%**	**54%**	**80%**
% individuals		2021	2021	2021	2030
ICT specialists ([1])	**5.0%**	**5.6%**	**5.6%**	**4.5%**	**20 million**
% individuals in employment aged 15-74	2020	2021	2021	2021	2030
Digital infrastructure/connectivity					
Fixed Very High Capacity Network (VHCN) coverage	**68%**	**69%**	**78%**	**73%**	**100%**
% households	2020	2021	2022	2022	2030
Fibre to the Premises (FTTP) coverage ([2])	**7%**	**10%**	**17%**	**56%**	**-**
% households	2020	2021	2022	2022	2030
Overall 5G coverage	**4%**	**4%**	**30%**	**81%**	**100%**
% populated areas	2020	2021	2022	2022	2030
5G coverage on the 3.4-3.8 GHz spectrum band	**NA**	**NA**	**6%**	**41%**	**-**
% populated areas			2022	2022	2030
Digitalisation of businesses					
SMEs with at least a basic level of digital intensity	**NA**	**NA**	**77%**	**69%**	**90%**
% SMEs			2022	2022	2030
Big data ([3])	**23%**	**23%**	**23%**	**14%**	**75%**
% enterprises	2020	2020	2020	2020	2030
Cloud ([3])	**NA**	**47%**	**47%**	**34%**	**75%**
% enterprises		2021	2021	2021	2030
Artificial Intelligence ([3])	**NA**	**10%**	**10%**	**8%**	**75%**
% enterprises		2021	2021	2021	2030
Digitalisation of public services					
Digital public services for citizens	**NA**	**72**	**81**	**77**	**100**
Score (0 to 100)		2021	2022	2022	2030
Digital public services for businesses	**NA**	**81**	**88**	**84**	**100**
Score (0 to 100)		2021	2022	2022	2030
Access to e-health records	**NA**	**NA**	**84**	**71**	**100**
Score (0 to 100)			2023	2023	2030

(1) The 20 million target represents about 10% of total employment.
(2) The Fibre to the Premises coverage indicator is included separately as its evaluation will also be monitored separately and taken into consideration when interpreting VHCN coverage data in the Digital Decade.

(3) At least 75 % of Union enterprises have taken up one or more of the following, in line with their business operations: (i) cloud computing services; (ii) big data; (iii) artificial intelligence.

Source: Digital Economy and Society Index

This Annex provides a general overview of the performance of Belgium's research and innovation system, which is essential for delivering the twin green and digital transition.

Thanks to a very strong R&D system, Belgium is among Europe's 'innovation leaders' according to the 2022 edition of the European Innovation Scoreboard ([85]). Its innovation performance relative to the EU average has steadily risen over the last decade, as did its total R&D intensity ([86]), which reached 3.22% of GDP in 2021 (compared with just 2.06% in 2010), well above the EU average of 2.26%. This growth has mainly been achieved thanks to a very substantial increase of the business R&D intensity, now the highest in the EU (2.42% in 2021). As shown in a recent study ([87]), the R&D tax credit and the tax deduction of patent income are questionable, while other R&D public support was found to be more efficient.

The very good science base is a major asset, with world-class universities well-connected internationally and to the business sector. The share of the country's international co-publications in its total number of publications has gradually increased, from 55.8% in 2010 to 70.2% in 2021, well above the EU average of 55.4%. The share of joint public-private publications has also increased over the last decade (10.8% in 2021 compared to 9.3% in 2010) and Belgium scores second in the EU in terms of public R&D financed by businesses as a percentage of GDP.

There is potential for strengthening the contribution of the Belgian research and innovation (R&I) system to environmental sustainability. While the Belgian public science base has a good position in green research (as shown by the share of highly-cited publications in this field), the share of environment-related patents in total Belgian patent applications is lower than the EU average ([88]). Complementing various initiatives taken in recent years by the Belgian authorities at all levels of governance ([89]), the Belgian recovery and resilience plan (RRP) will enable further R&I mobilisation for the green transition. R&I investments in green-related areas (notably bio-economy, hydrogen and the circular economy) account for almost 60% of the total R&I investments under the plan.

Shortages of skilled human resources hinder the Belgian economy's green and digital transitions. While the proportion of tertiary education graduates is high in Belgium, the proportion of graduates in science and technology is still below the EU average. The share of computing higher education graduates is also well below the EU average. Skills shortages, including in relation to the green and digital transitions, is a significant challenge for Belgium's competitiveness and position as innovation leader ([90]). The Belgian RRP contains several measures aimed at developing digital skills.

Business dynamism in the innovation ecosystem remains low. The business creation rate is still among the lowest in the EU and is accompanied by a low destruction rate. In 2019, high-growth businesses accounted for just 7.3% of employment in Belgium – far below the EU average of 15.9%. Also, fast-growing companies' share of employment in the most innovative sectors is less than half of the EU average. This points to some weaknesses in the Belgian economy in generating new growing businesses that can accelerate the renewal of its economic fabric towards new growth areas. While all three

([85]) 2022 European Innovation Scoreboard, Country profile: Belgium. Web page: https://ec.europa.eu/assets/rtd/eis/2022/ec_rtd_eis-country-profile-be.pdf. The EIS provides a comparative analysis of innovation performance in EU countries, including the relative strengths and weaknesses of their national innovation systems (also compared to the EU average).

([86]) R&D intensity is R&D expenditure as a percentage of GDP

([87]) Bureau fédéral du Plan (2022) Nouvelle évaluation de l'aide publique en faveur de la recherche et du développement en Belgique

([88]) OECD (2021) Environmental Performance Reviews: Belgium 2021. Web page: https://www.oecd.org/belgium/oecd-environmental-performance-reviews-belgium-2021-738553c5-en.htm.

([89]) Belgian Report on Science Technology and Innovation (BRISTI) 2021, pages 193-194. Web page: FWB_rapport_2021_en.pdf (belspo.be)

([90]) COM(2022) 783 final. 2023 European Semester: Proposal for a Joint Employment Report; From the Commission and the Council. Web page: https://commission.europa.eu/publications/2023-european-semester-proposal-joint-employment-report_en .

Table A11.1: **Key innovation indicators**

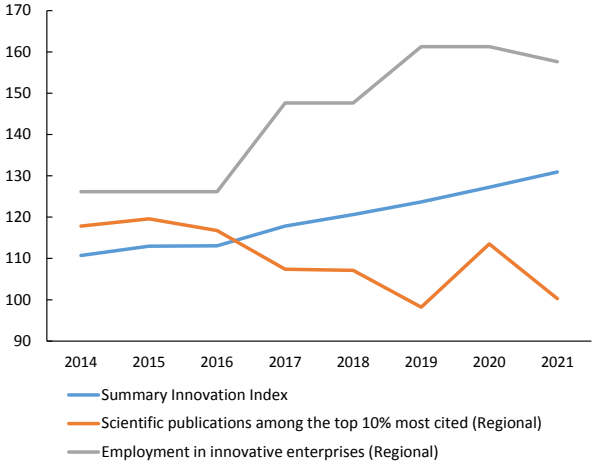
Belgium	2010	2015	2019	2020	2021	EU average (1)
Key indicators						
R&D intensity (GERD as % of GDP)	2.06	2.43	3.16	3.35	3.22	2.26
Public expenditure on R&D as % of GDP	0.66	0.72	0.8	0.85	0.77	*0.76*
Business enterprise expenditure on R&D (BERD) as % of GDP	1.38	1.7	2.33	2.48	2.42	*1.49*
Quality of the R&I system						
Scientific publications of the country within the top 10% most cited publications worldwide as % of total publications of the country	13.1	13.7	12.08	:	:	*9.8*
PCT patent applications per billion GDP (in PPS)	3.8	3.3	3	:	:	*3.3*
Academia-business cooperation						
Public-private scientific co-publications as % of total publications	9.3	10.4	10.9	10.7	10.8	*7.1*
Public expenditure on R&D financed by business enterprise (national) as % of GDP	0.061	0.077	0.008	:	:	*0.054*
Human capital and skills availability						
New graduates in science & engineering per thousand pop. aged 25-34	11.9	12.1	11.9	13.1	:	*16*
Public support for business enterprise expenditure on R&D (BERD)						
Total public sector support for BERD as % of GDP	0.227	0.263	0.335	:	:	*0.194*
Business enterprise expenditure on R&D (BERD) financed by the public sector (national and abroad) as % of GDP	0.118	0.12	0.126	:	:	*0.104*
Green innovation						
Share of environment-related patents in total patent applications filed under the Patent Cooperation Treaty (%)	13.9	12	10.6	:	:	*13.3*
Finance for innovation and economic renewal						
Venture capital (market statistics) as % of GDP	0.035	0.028	0.061	0.073	0.077	*0.074*
Employment in fast-growing enterprises in 50% most innovative sectors	2.4	2.7	2.2	:	:	*5.5*

(1) EU average for the latest available year or the year with the highest number of country data.
Source: Eurostat, OECD, DG JRC, Science-Metrix (Scopus database and EPO's Patent Statistical database), Invest Europe

regions have a variety of measures in place to support entrepreneurship, there is less emphasis in their policies on scale-up and growth ([91]).

In addition, differences persist across regions in terms of innovation performance. While Brussels and Flanders are among 'innovation leader' regions according to the Regional Innovation Scoreboard 2021, Wallonia is classified as a 'strong innovator'. A major difference in the innovation ecosystem of the three regions is public research intensity, much weaker in Wallonia (0.61%) than in the two other regions (Brussels: 0.77%, Flanders: 0.85%) ([92]). However, Wallonia's performance is clearly improving; the Regional Innovation Index shows a strong increase between 2014 and 2021, in line with the other regions. A driver of this increasing performance has been a widening of the innovation base, with more innovative small and medium-sized enterprises (SMEs). Still, Wallonia seems at risk of losing its edge (compared to the EU average) in terms of the excellence of its public science base (see Graph A11.1).

Graph A11.1: **Innovation indicators Wallonia**



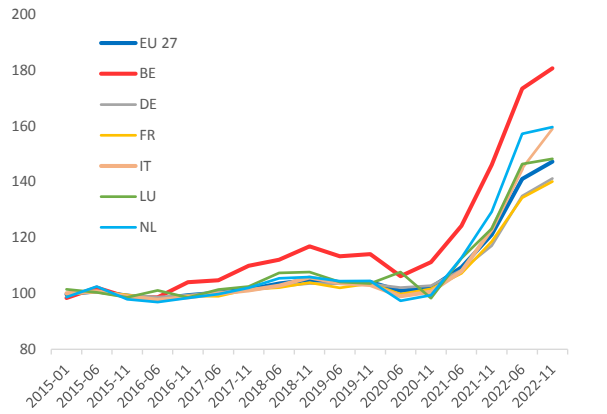
Source: Regional Innovation Scoreboard database

([91]) Report on Science Technology and Innovation (BRISTI) 2021, page 192. Web page: FWB_rapport_2021_en.pdf (belspo.be).

([92]) 2021 Regional Innovation Scoreboard, Country profile: Belgium 2021.

While the openness of the Belgian economy is an asset, the current world economic context highlights some of its structural weak points: its high dependencies in the energy field and its rigid labour market and business environment. On average, intra-EU imports and intra-EU exports make up 62.5% of Belgium's GDP, one of the highest shares in the EU . Belgium's largest imports from non-EU countries are mainly fossil fuels and gas. Being one of the most energy-dependent European countries ([93]), the rise in energy prices has hit the Belgian economy hard. Driven by the energy price increases, it experienced an inflation rate well above Euro area average ([94]) in 2022. The industrial sector, having a comparatively high share of energy intensive industries, shows one of top three increases in prices since 2015 ([95]). Food products, electrical equipment and chemicals products were also particularly impacted by the increase in energy prices ([96]).

Graph A12.1: **Producer prices in industry**



Source: Eurostat, monthly data

The disruptions in supply chains shed light on the Belgian economy's critical dependencies on strategic products. A study by the Belgian ministry of economy ([97]) identified 158 strategic dependent products. The strategic products are defined as the products mainly from the chemicals and metals, mainly in the health, defence, digital and green sectors. In quantity, the US, the UK and China are the main partners for these products. By value, Singapore ([98]) and the United States are the top partners, with Russia playing a major role in third place.

The vacancy rate in Belgium is one of the highest in the EU ([99]), despite a low employment rate ([100]). While energy costs in 2022 were quoted by 83% of firms as long-term barriers to investment, the top concern for 91% of firms remains the availability of skilled staff ([101]). People have moved away from low-skilled jobs in sectors such as horeca, manufacturing, health, considered badly paid and/or with bad working conditions towards other occupations ([102]). In addition, there remain disincentives to work stemming for the tax and benefit system. Belgium has one of the highest EU unemployment traps (91.60%) (see Annex 14).

High inflation has also triggered an unprecedented increase in the cost of labour via automatic wage indexation. In Belgium, the wage setting system is governed by the "Wage Law". This law obliged social partners to negotiate salary increases over a two-year period within the bounds of an upper limit set by anticipated hourly wage developments in its neighbouring countries and a floor determined by expected inflation in Belgium. In addition, wages in Belgium are adjusted for inflation in a mechanical way to the "health index" through indexation clauses in sectoral collective bargaining agreements. With the strong inflationary surge, nominal wage increases following automatic indexation in Belgium are expected to substantially outpace those in the three main neighbouring countries in 2022 and

([93]) Analyse : Dépendance énergétique de la Belgique (gaz naturel et mix énergétique) | SPF Economie (fgov.be)

([94]) Spring forecast 2023..

([95]) Producer prices in industry, total - monthly data [STS_INPP_M__custom_5216060] Eurostat

([96]) Producer prices in industry, total - monthly data [STS_INPP_M__custom_4382559]

([97]) Carrefour de l'Économie 2022 28 | SPF Economie (fgov.be)

([98]) Singapore here, most probably, playing the role of a hub.

([99]) Job vacancy rate by NACE Rev. 2 activity - annual data [JVS_A_RATE_R2__custom_4188223] Eurostat

([100]) Employment and activity by sex and age - annual data [LFSI_EMP_A]

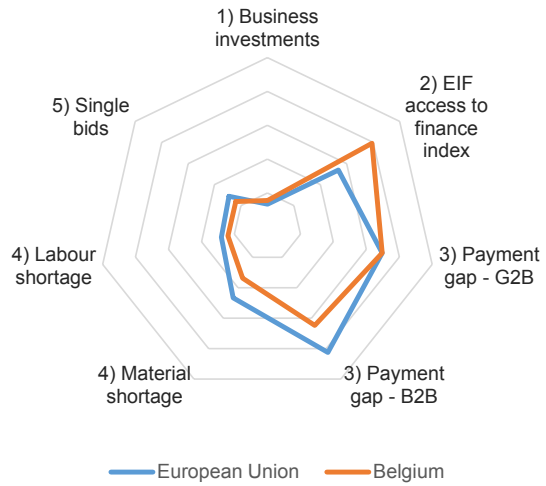
([101]) EIB Investment Survey 2022: European Union overview

([102]) Conseil supérieur de l'emploi - Rapport de juillet 2022 État des lieux du marché du travail en Belgique et dans les régions

2023 ([103]). This may lead to a competitiveness loss for Belgian companies and increases the need to be vigilant for a so-called wage/price spiral ([104]).

While the Belgian wage-setting system did not lead to excessive wage growth in past years compared to its neighbour countries, it may raise concerns in times of high inflation. While the high corporate profit margins in some sectors have helped absorbing higher labour costs, the profit margins in many industries have decreased in 2022 although heterogeneously ([105]). Moreover, high inflation further limits the scope for adjustment through real wages in the medium run, adding to the rigidities of the Belgian labour market, which is characterised by a high regulatory complexity and low job mobility.

Graph A12.2: **Business environment and productivity drivers**



Source: 1) % of GDP, 2021 Eurostat;
2) composite indicator, 2021 European Investment Fund access to finance index;
3) average payment delay in number of days, 2022 Intrum;
4) % of firms in manufacturing facing constraints, 2022 European Commission business consumer survey;
5) proportion of contracts awarded with a single bidder, 2022 Single Market Scoreboard.

Access to finance in Belgium is above the EU average, but Belgium lags behind on late payments by public bodies. Access to finance remains easier in Belgium than the EU average and venture capital investment shares to GDP are high in Belgium. Moreover, Belgium has one of the shortest payment delays between businesses, but it could perform better regarding late payments by public bodies, particularly those in Wallonia. The share of SMEs experiencing late payments in the past six months was 50 %, slightly worse than the EU average (43%).

Despite some progress in recent years, Belgium remains a regulated market. The percentage of firms reporting an impact of regulation on long-term investment is below EU average (19.4% vs 28%). However, the ratio between business registration and bankruptcies, shows one of the lowest low churn rates of the EU, which points to low business dynamism. The RRP proposes a reform aiming to simplify the administrative burden on businesses by fully digitalising the procedure for creating, modifying and

([103])National Bank of Belgium, Economic projections for Belgium, December 2022.

([104]) International Monetary Fund (2023) Belgium: 2022 Article IV Consultation Staff Report

([105])National Bank of Belgium, Rapport 2022, March 2023.

dissolving legal persons ([106]). It also proposes further digitalisation of government administration to allow authorities to access data directly based on the 'Once only principle' ([107]). Completing these measures could lower Belgium's score on the OECD's product market regulation (PMR) indicators ([108]).

Other weaknesses regarding retail distribution, retail sales of medicines, telecommunications and professions have not yet been addressed. The retail sector remains highly regulated ([109]). While the entry of new players on the market may have had a positive effect on competition in the supermarket segment, retail remains one of the sectors with an increased risk of competition distortions ([110]). Labour market regulations add to a complex operational environment and may result in an uneven playing field between retailers. Regional supply constraints continue to affect consumer choice and prices. In 2021, Belgium doubled its share of single market-related directives not transposed into national law. Belgium faces more infringement procedures than the EU average.

As regards regulated professions, most regulatory burdens pointed out in the 2021 Communication ([111]) remain. Lawyers, architects, accountants, real estate agents and tourist guides (in Wallonia) are more regulated than the EU average. Restrictions such as the proportionality of shareholding or voting rights for real estate agents and architects remain. Lawyers in Belgium are subject to incompatibility rules and multidisciplinary restrictions that could affect the potential of this sector to innovate and roll out digital solutions and new business models.

([106]) Reform R-2.01.

([107]) Investment I – 2.05-S10 – Single Digital Gateway.

([108]) Assessment of the links between the European National Recovery and Resilience Plans and the OECD Product Market Regulation Indicators

([109]) Retail Restrictiveness Indicator, European Commission 2022.

([110]) Observatoire des prix : Fonctionnement du marché en Belgique : un screening horizontal des secteurs marchands (2020).

([111]) Communication on updating the reform recommendations for regulation in professional services, COM(2021)385

Table A12.1:**Industry and the Single Market**

	POLICY AREA	INDICATOR NAME	2018	2019	2020	2021	2022	EU27 average (*)
HEADLINE INDICATORS	Economic Structure	Net private investment, level of private capital stock, net of depreciation, % GDP [1]	4.5	5.2	3.7	4.2	3.8	**3.7**
		Net public investment, level of public capital stock, net of depreciation, % GDP [1]	0.4	0.4	0.4	0.5	0.4	**0.4**
		Real labour productivity per person in industry (% yoy)[2]	-1.9	3.7	-2.4	0.6	-1.5	**1.4**
	Cost competitive-ness	Nominal unit labour cost in industry (% yoy)[2]	3	-1.5	-1	5.3	n.a.	**2.9**
RESILIENCE	Shortages	Material shortage (industry), firms facing constraints, % [3]	11	7	9	19	34	**47**
		Labour shortage using survey data (industry), firms facing constraints, % [3]	12	11	12	16	24	**28**
		Vacancy rate (business economy)[4]	4.5	4.2	3.6	5.2	5.9	**3.1**
	Strategic dependencies	Concentration in selected raw materials, Import concentration index based on a basket of critical raw materials [5]	0.21	0.18	0.17	0.17	0.19	**0.18**
		Installed renewables electricity capacity, % of total electricity produced [6]	27.1	29.7	32.9	34.4	n.a.	**50.9**
SINGLE MARKET	Single Market integration	EU trade integration, % [7]	54.2	53.4	51.3	56.7	62.5	**45.8**
	Restrictions	EEA Services Trade Restrictiveness Index [8]	0.06	0.06	0.06	0.06	0.06	**0.05**
	Public procurement	Single bids, % of total contractors [9]	22	21	21	22	24	**29**
BUSINESS ENVIRONMENT - SMEs	Investment obstacles	Impact of regulation on long-term investment, % of firms reporting business regulation as major obstacle [10]	27.3	25.5	25.7	19.4	24.5	**29.6**
	Business demography	Bankruptcies, Index (2015=100)[11]	101.6	108.2	73.5	66.6	94.7	**86.8**
		Business registrations, Index (2015=100) [11]	112.3	126.3	123.4	138.5	122.8	**121.2**
	Late payments	Payment gap - corporates B2B, difference in days between offered and actual payment [12]	9	7	3	12	11	**13**
		Payment gap - public sector, difference in days between offered and actual payment [12]	21	22	6	12	16	**15**
		Share of SMEs experiencing late payments in past 6 months, % [13]	n.a.	43.8	42	42.4	50	**43**
	Access to finance	EIF Access to finance index - Loan, Composite: SME external financing over last 6 months, index values between 0 and 1 [14]	0.79	0.73	0.6	0.67	n.a.	**0.46**
		EIF Access to finance index - Equity, Composite: VC/GDP, IPO/GDP, SMEs using equity, index values between 0 and 1 [14]	0.22	0.14	0.29	0.27	n.a.	**0.23**

(*) Last available year

Source: (1) AMECO, (2) Eurostat, (3) ECFIN BCS, (4) Eurostat, (5) COMEXT and Commission calculations, (6) Eurostat, (7) Eurostat, (8) OECD, (9) Single Market Scoreboard, (10) EIB survey, (11) Eurostat: (12) Intrum, (13) SAFE Survey, (14) EIF SME Access to Finance Index.

ANNEX 13: PUBLIC ADMINISTRATION

This Annex outlines the performance of Belgium's public administration, which is essential for providing services and carrying out reforms. Belgium scores above the EU average ([112]) on overall administrative effectiveness. However, coordination between the different levels of government poses a significant challenge to making more progress on government efficiency. The main priority of the federal government is to advance in digitalising the administration's work and the public services it provides. This is reflected in the recovery and resilience plan (RRP), which aims to reinforce cybersecurity and the provision of digital public services. The RRP will also help improve the energy efficiency of public buildings and support federal and regional government spending reviews.

The institutional structure of Belgium where policy action is distributed across several governmental levels increases the importance of effective coordination. Several waves of regionalisation have notably posed significant challenges for public sector efficiency and policy consistency. Avoiding duplication of structures and looking for synergies, notably for ensuring cost-efficiency of policies, requires close coordination between the competent authorities (federal, regional/community and local level). Different sets of territorial legislation can also add to the complexity of the business environment (see Annex 12).

Effective evaluation in the policy-making process could help reduce the administrative and regulatory burden. While impact assessments are done for all primary and some secondary legislation, these do not systematically consider policy alternatives. The very detailed coalition agreements drawn up by parties often contain pre-defined policy solutions. Consultations and stakeholder engagement take place on an ad hoc basis. The consultation process is made less transparent because relevant documents are published on the websites of different ministries. In its report on the Federal evaluation capacity, the Court of Auditors recommended integrating evaluations as an essential part in the policy cycle ([113]). Evaluations facilitate evidence-based policy design and increase accountability by assessing policy performance. The social partners have jointly urged the federal authorities to introduce a comprehensive strategy to improve the policy evaluation framework and the quality of regulation to reduce the administrative and regulatory burden in Belgium ([114]).

Public employment in Belgium is high (see Graph A13.1a) and the cost of public employees' pay is increasing ([115]). As for the age structure, the Belgian public administration has a relatively young workforce (see Table A13.1). The share of staff with tertiary education is also relatively high and increased in 2022. The participation of civil servants in adult learning, however, is lower than the EU average. The gender gap in senior civil service positions has been closing but remains among the largest in the EU (see Graph A13.1b).

Belgium is one of EU's good performers in e-Government. The share of citizens interacting with the government online is also very high and has been increasing since 2018 (see Table A13.1). The RRP is expected to further digitalise public services and reinforce cybersecurity.

The lack of human and financial resources remains a challenge for the justice system, which would benefit from improved digitalisation ([116]). The RRP investments are aimed at increasing the level of digitalisation. By 2026, these initiatives should result in: (i) the introduction of a single online justice portal for citizens and businesses; (ii) a single case management system for the courts, facilitating the digital submission of cases and consultation of files; (iii) publication of most case law online; and (iv) resource management based on real-time data. The 2021 data show that administrative cases are being resolved more quickly at first instance

([112]) Worldwide governance indicators, 2021 data.

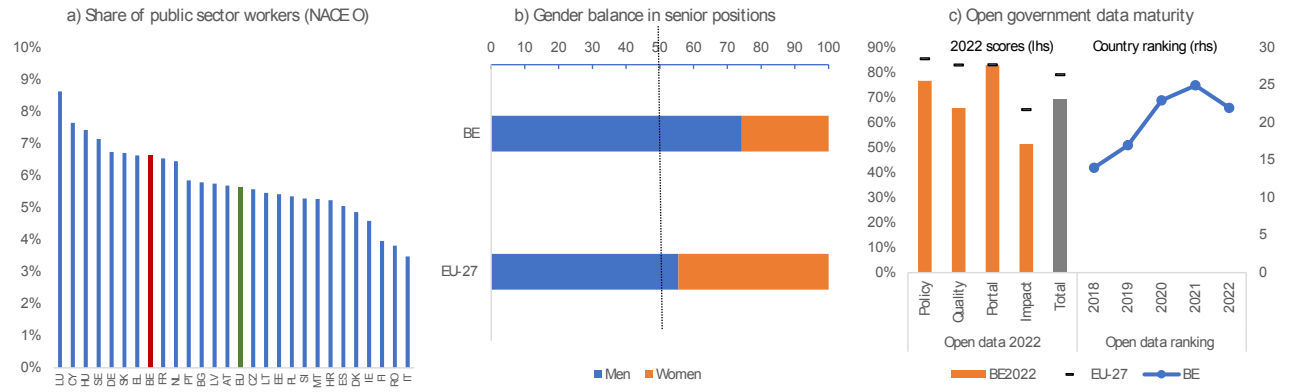
([113]) Court of Auditors, 2018.

([114]) Central Economic Council, 2020.

([115]) OECD (2022), OECD Economic Surveys: Belgium 2022, OECD Publishing, Paris, https://doi.org/10.1787/01c0a8f0-en, page 38, figure 1.17.

([116]) For a more detailed analysis of the performance of the justice system in Belgium, see the 2023 EU Justice coreboard (forthcoming) and the country chapter for Belgium in the 2023 Rule of Law Report (forthcoming.

Graph A13.1: **a) Share of the working age population who are public sector workers; b) share of women and men in senior positions; c) open government data maturity indicator: 2022 scores (% of the total maximum score) (left side); country ranking, overall score (right side)**



(1) chart c), right-hand chart: low values denote a good performance
Source: Eurostat; b) European Institute for Gender Equality; c) Open Data Maturity | data.europa.eu

(235 days compared to 399 days in 2020), but a persistent lack of data prevents a full overview of the efficiency of the system. No systemic deficiencies have been reported on judicial independence.

Despite recent improvements, Belgium scores below the EU average on open data maturity. (see Graph A13.1c). The measures on open data in Belgium's RRP relate to a target to train regional and local managers and elected officials in the Walloon Region by Q4-2024 on digital issues, including open data.

Table A13.1:**Public administration indicators**

BE Indicator ([1])		2017	2018	2019	2020	2021	2022	EU-27([2])
E-government and open government data								
1	Share of individuals who used the internet within the last year to interact with public authorities (%)	62.1	62.8	64.1	66.1 (u)	74.4	n/a	64.8
2	E-government benchmark overall score ([3])	n/a	n/a	n/a	71.7	74.1	77.5	72.9
3	Open data and portal maturity index	n/a	0.7	0.6	0.6	0.6	0.7	0.8
Educational attainment level, adult learning, gender parity and ageing								
4	Share of public administration employees with tertiary education (levels 5-8, %)	45.4 (b)	45.3	46.6	48.0	53.0 (b)	55.5	52.0
5	Participation rate of public administration employees in adult learning (%)	9.8 (b)	9.5	8.5	7.8	11.4 (b)	11.4	16.9
6	Gender parity in senior civil service positions ([4])	62.8	61.2	57.2	55.2	49.4	48.6	11.0
7	Ratio of 25-49 to 50-64 year olds in NACE sector O	1.8 (b)	1.7	1.6	1.7	1.7 (b)	1.7	1.5
Public financial management								
8	Medium term budgetary framework index	0.7	0.7	0.7	0.7	0.7	n/a	0.7
9	Strength of fiscal rules index	1.2	1.2	1.2	1.2	1.2	n/a	1.5
Evidence-based policy making								
10	Regulatory governance	1.93	n/a	n/a	n/a	1.82	n/a	1.7

([1]) High values denote a good performance, except for indicator # 6. ([2]) 2022 value. If not available, the 2021 value is shown. ([3]) Measures the user centricity (including for cross-border services) and transparency of digital public services as well as the existence of key enablers for the provision of those services. ([4]) Defined as the absolute value of the difference between the percentage of men and women in senior civil service positions.
Flags: (b) break in time series; (d) definition differs; (u) low reliability.
Source: ICT use survey, Eurostat (# 1); E-government benchmark report (# 2); Open data maturity report (# 3); Labour Force Survey, Eurostat (# 4, 5, 7), European Institute for Gender Equality (# 6); Fiscal Governance Database (# 8, 9); OECD Indicators of Regulatory Policy and Governance (# 10).

ANNEX 14: EMPLOYMENT, SKILLS AND SOCIAL POLICY CHALLENGES IN LIGHT OF THE EUROPEAN PILLAR OF SOCIAL RIGHTS

The European Pillar of Social Rights is the compass for upward convergence towards better working and living conditions in the EU. This Annex provides an overview of Belgium's progress in implementing the Pillar's 20 principles and EU headline and national targets for 2030 on employment, skills and poverty reduction.

Table A14.1: **Social scoreboard for Belgium**

Policy area	Headline indicator	
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24, 2022)	6,4
	Share of individuals who have basic or above basic overall digital skills (% of population aged 16-74, 2021)	54,23
	Youth NEET rate (% of population aged 15-29, 2022)	9,2
	Gender employment gap (percentage points, 2022)	7,6
	Income quintile ratio (S80/S20, 2021)	3,42
Dynamic labour markets and fair working conditions	Employment rate (% of population aged 20-64, 2022)	71,9
	Unemployment rate (% of active population aged 15-74, 2022)	5,6
	Long term unemployment (% of active population aged 15-74, 2022)	2,3
	GDHI per capita growth (2008=100, 2021)	105,25
Social protection and inclusion	At risk of poverty or social exclusion rate (% of total population, 2021)	18,8
	At risk of poverty or social exclusion rate for children (% of population aged 0-17, 2021)	20,5
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP, 2021)	53,31
	Disability employment gap (percentage points, 2021)	38
	Housing cost overburden (% of total population, 2021)	7,5
	Children aged less than 3 years in formal childcare (% of population under 3-years-old, 2021)	51,7
	Self-reported unmet need for medical care (% of population 16+, 2021)	1,7

Critical situation | To watch | Weak but improving | Good but to monitor | On average | Better than average | Best performers

Update of 27 April 2023. Members States are classified on the Social Scoreboard according to a statistical methodology agreed with the EMCO and SPC Committees. It looks jointly at levels and changes of the indicators in comparison with the respective EU averages and classifies Member States in seven categories. For methodological details, please consult the Joint Employment Report 2023. Due to changes in the definition of the individuals' level of digital skills in 2021, exceptionally only levels are used in the assessment of this indicator; NEET: neither in employment nor in education and training; GDHI: gross disposable household income.
Source: Eurostat

The Belgian economy and labour market proved to be resilient in 2022, but significant challenges remain, including high levels of inactivity, growing labour shortages and big regional disparities. Despite a record high vacancy rate and a historic low unemployment rate, the employment rate (20-64 age group) only reached 71.9% in 2022, below the EU average of 74.6%. Employment growth was held back by an overall low activity rate (76.0% vs EU 79.4% in 2022). Amid regional disparities, there are high activity and employment gaps for specific disadvantaged groups. And, although declining to 11.5% in 2022, the share of those living in a very low work intensity household remained high at 11.9% in 2021, well above the EU average of 8.9%. The 2022 Belgium labour market deal set out measures to boost employment, such as by increasing flexibility on night work in e-commerce and introducing activating measures for dismissed workers. This deal also included measures to improve work-life balance, such as the possibility to request a 4-day working week or an alternating work schedule and the right to disconnect. Nevertheless, there remains scope for greater and more targeted policy action, notably to tackle the existing tax and benefits disincentives to work as Belgium still having some of the highest unemployment and low-wage traps in the EU (see Annex 12).

Further increasing the employment rate of disadvantaged groups will be needed to achieve the Belgian 2030 national employment target of 80% (HRW, 2022). The employment gap between persons with and without disabilities is one of the highest in the EU and continues to increase (38 percentage points (pps) in 2021 vs 32 pps in 2018). There was a large increase in the number of workers on long-term sick leave from 4.5% of the working age population (20-64 age group) in 2013 to 6.7% in 2021 (national statistics). Several measures were recently announced to improve reintegrating workers on long-term sick leave, including making it more difficult to dismiss them and using financial penalties on employers and employees to place greater responsibility on both. The employment rate of older workers (60-64 years) improved, but the gap with the EU average is still high (9.7 pps in Q4-2022). In 2022, the employment rate of low-educated people (46.2%) and non-EU-born people (57.3%) was significantly lower than the overall employment rate, in particular among non-EU-born women (47.0%). In addition, for people born in Belgium with non-EU born parents, the employment rate remains lower

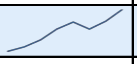
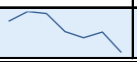
than for those with Belgium-born parents (FOD WASO & Unia, 2022). To address this issue, the Belgian recovery and resilience plan (RRP) includes reforms to strengthen discrimination tests and support a sector-based discrimination policy (in Flanders). The European Social Fund Plus (ESF+) will focus on active social inclusion of disadvantaged groups by rolling out more integrated insertion itineraries, including for persons with disabilities.

The COVID-19 crisis has exacerbated the existing high labour shortages and skills mismatches in the Belgian labour market. In Q4-2022, more than 29% of Belgian employers in the services sector reported labour shortages. Labour shortages in both low- and high-skilled occupations continue to increase in all regions. Depending on occupation, shortages can reflect unattractive working conditions, insufficient graduates or insufficient skills. Significant shortages are linked to the low number of graduates in science, technology, engineering and mathematics, and there are concerns over the attractiveness and labour market relevance of vocational education and training. To tackle labour shortages, Belgium's federal bodies have introduced financial incentives to encourage people to take up jobs in shortage professions. In addition, under the RRP, the country has implemented a reform that allows long-term unemployed people to combine the first 3 months of employment in a job in a shortage profession with a partial unemployment benefit.

Low skills levels are a major barrier to employment, and limited participation of low-educated people in adult learning poses a serious issue for up- and reskilling. The share of adults (aged 25-64) participating in learning activities over the past 4 weeks was 10.3% in 2022, below the EU average of 11.9%. It was particularly low among low-qualified people (3.9% vs 4.7% in the EU). The RRP includes several reforms to boost participation in adult learning, including introducing an individual right of 5 days of training per year for employees and setting up individual learning accounts. Furthermore, the plan provides for a major investment in training infrastructure to support the green and digital transitions. For example, Flanders will invest in 'Digibanks', a digital training project for vulnerable groups. The ESF+ boosts the RRPs' reforms and investments by strongly supporting training activities targeted at disadvantaged groups in every region. These measures are expected to help Belgium meet its 2030 national target on adult learning of 60.9%.

The effectiveness of social transfers in reducing poverty and income inequality is comparatively high in Belgium. The widespread use of the job retention scheme during the COVID-19 crisis softened the impact on household incomes, although with diverse effects (Coppens, et al. 2021). The share of people at risk of poverty or social exclusion (AROPE) fell in 2021 to 18.8%, below the EU average of 21.7%, and stands in 2022 at 18.7%. Nevertheless, significant regional disparities remain, mirroring those in labour market outcomes. During the energy crisis, automatic indexation of wages and benefits protected households' purchasing power relatively well (Capeau et al., 2022).

Table A14.2:**2030 National targets for Belgium**

Indicators	Latest data	Trend (2015-2022)	National target by 2030	EU target by 2030
Employment (%)	71.9 (2022)		80	78
Adult learning[1] (%)	39.4 (2016)		60.9	60
Poverty reduction[2] (thousands)	-116 (2022)		-279	-15 000

(1) Adult Education Survey, adults in training in the past 12 months. (2) Number of persons at risk of poverty or social exclusion (AROPE), reference year 2019.
Source: Eurostat, DG EMPL

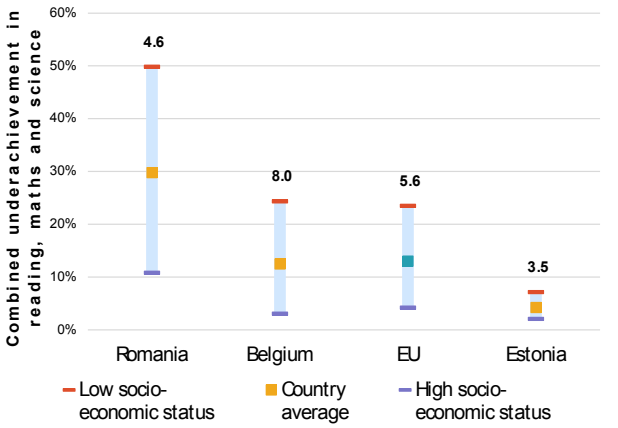
Belgium's overall good performance on social outcomes hides an uneven distribution of economic opportunities. Significant disparities in social outcomes exist across groups based on socio-economic, migrant and parental backgrounds. There are still major poverty risks for those groups who are under-represented in the labour market, and upward income mobility is very low for low-income groups (OECD, 2022). Inequalities of opportunities for young people are reflected in the large gap in the AROPE rates of children of high- and low-educated parents (63.8 pps vs 52.7 pps in the EU in 2021) and high inequalities in educational outcomes linked to socio-economic background (see Annex 13). These factors limit opportunities for intergenerational economic and social mobility. Better support for active social inclusion and inclusive education, helped by the RRP and

ESF+, are expected to help Belgium achieve its national target of 279 000 fewer people at risk of poverty or social exclusion by 2030 (compared to 2019), including 93 000 children.

This Annex outlines the main challenges for Belgium's three education and training systems in light of the EU-level targets and other contextual indicators under the European Education Area strategic framework, based on the 2022 Education and Training Monitor.

Belgium performs above the EU average on most EU-level targets, but its education systems fail to provide equal opportunities for all (see Graph A15.1). Socio-economic disadvantage, often mediated through education, has important and long-lasting effects on children's lives, leading to future losses in employment, earnings and health ([117]). Belgium is among the best performers in the EU on participation in early childhood education and care (ECEC), but participation of disadvantaged children under 3 years lags behind ([118]). 15-year-old students of low socio-economic status are 8 times (EU 5.6 times) more likely to underachieve in reading, maths and science (combined) in school education than students of high socio-economic status (see Table A15.1). Parental education also has a high impact on the risk of leaving school early. Young people whose parents have a low level of education leave prematurely 10.5 times more often than those with highly educated parents (EU average 9.1 times, 2021). More than one in three young adults with disabilities do not finish secondary education and their limited participation in higher education is one of the reasons for their low employment rate ([119]). There are also concerns about the quality of vocational education ([120]) and training and participation of low-skilled in adult education (see Annex 14). Modernisation of VET and VET infrastructure under the Flemish Recovery plan aims to improve the quality and attractiveness of the programmes. The communities are taking some measures to address inequalities in education, including through systemic school reforms.

Graph A15.1: **Underachievers in reading, maths and science (combined) by socio-economic status, PISA 2018**



Source: JRC's calculation on OECD (PISA 2018). Note: Figures on top of each bar denote the ratio between the two values.

The shortage of well-qualified teachers risks further challenging the performance and equity of the Belgian education systems. Disadvantaged students have less access to experienced teachers than on average in the EU (BEfl -13 pps; BE -10 pps; EU-23 -4.7 pps) ([121]). The current teacher shortage and teacher absenteeism affect the educational outcomes of all students. Recent research ([122]) shows that the best-performing students experienced the highest learning loss in primary education as a result of the pandemic disruptions; and the deterioration of results was more pronounced in schools with high levels of teacher shortage. Primary schools with a high number of disadvantaged students also have greater teacher shortages than schools with advantaged students. Faced with a general tight labour market, an

([117]) Clarke, C., et al. (2022), "The economic costs of childhood socio-economic disadvantage in European OECD countries", *OECD Papers on Well-being and Inequalities*, No. 9, OECD Publishing, Paris

([118]) European Commission (2022), Education and Training Monitor 2022, Country report Belgium.

([119]) European Commission (2022b), '*2022 Country Report – Belgium'*, Staff Working Document (2022) 602 final, European Commission, Brussels. https://ec.europa.eu/info/sites/default/files/2022-european-semester-country-report-belgium_en.pdf.

([120]) European Commission (2022), Education and Training Monitor 2022, Country report Belgium.

([121]) OECD (2022a), Mending the Education Divide: Getting Strong Teachers to the Schools That Need Them Most, TALIS, OECD Publishing, Paris, https://doi.org/10.1787/92b75874-en.

([122]) Gambi, L. & De Witte, K. (2023). The uphill battle: The amplifying effects of negative trends in test scores, COVID-19 school closures and teacher shortages. Discussion Paper Series, KU Leuven Department of Economics (forthcoming).

increasing and more diverse student population, and rising difficulties to recruit qualified teachers, stakeholders question if the recent and planned measures to improve the teaching profession by the respective communities will be sufficient. Finding additional well-qualified teachers in the French Community for the new differentiation practices and earlier second-language courses in primary education from 2023/2024 (Pact for excellence in education) will also be a challenge, due to the shortage of qualified candidates. The French Community will reform its initial teacher training from 2023/2024. The Flemish Community will roll out induction programmes for new teachers.

Strengthening digital education is high on the policy agenda, but teacher training will be key for success. The Belgian recovery and resilience plan focuses strongly on digital infrastructure and equipment, digital education and skills at all levels of education. In 2021, one third of 16- to 19-year-olds reported not having at least basic overall digital skills, which is close to the EU average (see Annex 10). Teachers are encouraged to take part in training, but it remains important to convince them also to use ICT in class, as shown by TALIS 2018 data Belgian teachers reported the lowest use of ICT for projects or class work (BE 28.9%; BEfl 37.8%; BEfr 18.8%; EU-22 46.9%) (TALIS 2018). Comprehensive action plans to improve the ICT skills of pupils and teachers, such as the Digisprong (BEfl), are expected to accelerate the digital transformation in education.

While participation in tertiary education is high, the number of science, technology, engineering and mathematics (STEM) graduates falls short in meeting labour market needs. More than half of the young people aged 25-34 (51.4%; EU 42%) held a tertiary education degree in 2022. But only one in four secondary vocational graduates (25.4%; EU 36.9%) and less than one in five tertiary graduates (17.6%; EU 24.9%) are STEM graduates. Their share is increasing only slowly despite dedicated STEM action plans. The particularly low share of female STEM graduates (4.6%; EU: 8.1%) is a major challenge. The share of ICT higher education graduates is the second lowest in the EU (2.2%; EU: 3.9%). Shortages of skilled human resources hinder the green and digital transitions of the Belgian economy (see Annex 11).

Table A15.1: **EU-level targets and other contextual indicators under the European Education Area strategic framework**

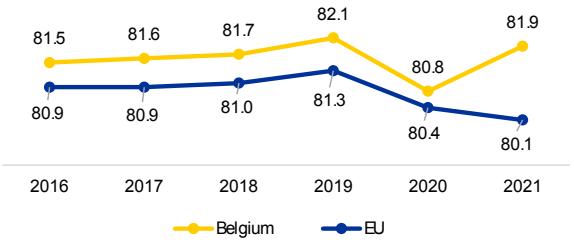
				2015		2022	
Indicator			Target	Belgium	EU27	Belgium	EU27
[1] Participation in early childhood education (age 3+)			96%	98.2% [d]	91.9%	98.5% [2020]	93.0% [2020]
[2] Low achieving 15-year-olds in:		Reading	< 15%	19.5%	20.0%	21.3% [2018]	22.5% [2018]
		Mathematics	< 15%	20.1%	22.3%	19.7% [2018]	22.9% [2018]
		Science	< 15%	19.8%	21.1%	20.0% [2018]	22.3% [2018]
Early leavers from education and training (age 18-24)	[3] Total		< 9 %	10.1%	11.0%	6.4%	9.6%
	[3] By gender	Men		11.6%	12.5%	8.0%	11.1%
		Women		8.6%	9.4%	4.8%	8.0%
	[4] By degree of urbanisation	Cities		13.6%	9.6%	7.6%	8.6%
		Rural areas		9.5%	12.2%	4.8%	10.0%
	[5] By country of birth	Native		9.0%	10.0%	5.6%	8.3%
		EU-born		16.6%	20.7%	6.5% [u]	20.3%
		Non EU-born		19.1%	23.4%	15.2%	22.1%
[6] Equity indicator (percentage points)				:	:	21.3 [2018]	19.3 [2018]
[7] Exposure of VET graduates to work based learning	Total		≥ 60% (2025)	:	:	49.0%	60.1%
Tertiary educational attainment (age 25-34)	[8] Total		45%	43.1%	36.5%	51.4%	42.0%
	[8] By gender	Men		37.1%	31.2%	44.1%	36.5%
		Women		49.2%	41.8%	58.6%	47.6%
	[9] By degree of urbanisation	Cities		45.7%	46.2%	52.2%	52.2%
		Rural areas		39.1%	26.9%	46.5%	30.2%
	[10] By country of birth	Native		45.3%	37.7%	53.3%	43.0%
		EU-born		46.3%	32.7%	55.3%	39.5%
		Non EU-born		27.6%	27.0%	37.4%	35.7%
[11] Share of school teachers (ISCED 1-3) who are 50 years or over				27.8%	38.3%	28.3% [2020]	39.2% [2020]

Source: (1,3,4,5,7,8,9,10,11) = Eurostat; 2 = OECD (PISA); 6 = European Commission (Joint Research Centre). Notes: Data is not yet available for the remaining EU-level targets under the European Education Area strategic framework, covering underachievement in digital skills and participation of adults in learning. The equity indicator shows the gap in the share of underachievement in reading, mathematics and science (combined) among 15-year-olds between the lowest and highest quarters of socio-economic status.

A healthy population and an effective, accessible and resilient health system are prerequisites for a sustainable economy and society. This Annex provides a snapshot of population health and the health system in Belgium.

Life expectancy in Belgium is higher than the EU average and has rebounded to a large extent after it fell in 2020 (see Graph A16.1). This rebound reflects the decrease in COVID-19 mortality in 2021, which more than halved compared to 2020 ([123]). Belgium fares comparatively well in avoiding deaths from treatable causes (see Table A16.1). In 2020, the leading causes of death were cancer and diseases of the circulatory system ("cardiovascular diseases") followed by COVID-19.

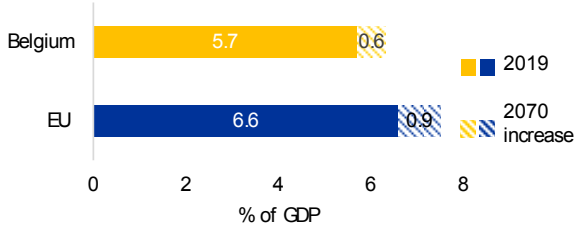
Graph A16.1: **Life expectancy at birth, years**



Source: Eurostat

Health spending relative to GDP in Belgium was slightly above the EU average in 2020. Spending per capita on inpatient care is above the EU average, whereas spending on outpatient care and on pharmaceuticals and medical devices is below. In 2020, total healthcare spending increased to 11.1% of GDP. This is in line with the upward trend in all Member States in 2020. In Belgium, this increase is entirely explained by the significant GDP contraction observed (by around 5.4%, compared to 5.6% in the EU overall), given that nominal spending on healthcare actually dropped in 2020 compared to 2019. However, as a share of total public spending, health spending increased slightly in 2020 to 15.0%, up from 14.6% in 2019. The public share of health expenditure in Belgium (79.2% in 2020) is slightly below the EU average. Based on the age profile of the Belgian population, public expenditure on health is projected to increase by 0.6 percentage points (pps) of GDP by 2070 (compared to 0.9 pps for the EU overall) (see Graph A16.2).

Graph A16.2: **Projected increase in public expenditure on healthcare over 2019-2070**



AWG reference scenario
Source: European Commission / EPC (2021)

Spending on prevention in Belgium amounted to 2.0% of total healthcare spending in 2020, compared to 3.4% for the EU overall. Between 2019 and 2020, spending on prevention in Belgium increased by 22%, compared to a 26% increase for the EU as a whole. Across the EU, this increase was primarily driven by spending on disease detection, surveillance, control and response programmes as part of the public health response to COVID-19. In 2020, Belgium reported the highest proportional increase of all Member States in spending on information, education and counselling programmes related to disease prevention.

There are concerns about possible shortages of health workers in the future. The number of 3.2 practising doctors per 1 000 inhabitants in Belgium in 2020 was below the EU average (3.9). The number of doctors in Belgium has increased at a slower pace than in most EU countries in the last decade. This, and the high share of active physicians over the age of 55 (43.3% in Belgium compared to an EU unweighted average of 35.9%), raise concerns about growing shortages in the future and the long-term accessibility of health services. In response, to increase the supply of doctors, the number of students admitted to medical schools has been increased in recent years. As a result, in 2019, the number of medical graduates (over 2 000) more than doubled compared to 2009 (around 850). The number of nurses has also increased over the

([123])Based on data provided directly by Member States to ECDC under the European Surveillance System (data current as of 13 April 2023).

Table A16.1:**Key health indicators**

	2017	2018	2019	2020	2021	EU average (latest year)
Treatable mortality per 100 000 population (mortality avoidable through optimal quality healthcare)	71.0	69.7	65.0	62.7	NA	91.7 (2020)
Cancer mortality per 100 000 population	238.5	230.8	229.0	223.2	NA	242.2 (2020)
Current expenditure on health, % GDP	10.8	10.8	10.7	11.1	NA	10.9 (2020)
Public share of health expenditure, % of current health expenditure	77.2	77.3	76.0	79.2	NA	81.2 (2020)
Spending on prevention, % of current health expenditure	1.5	1.5	1.7	2.0	NA	3.4 (2020)
Acute care beds per 100 000 population	500	497	500	496	493	387.4 (2019)
Doctors per 1 000 population *	3.1	3.1	3.2	3.2	NA	3.9 (2020)
Nurses per 1 000 population *	11.2	11.1	NA	NA	NA	8.3 (2020)
Consumption of antibacterials for systemic use in the community, daily defined dose per 1 000 inhabitants per day (toatl consumption for CY and CZ) **	21.1	20.7	19.8	15.3	16.0	14.5 (2021)

Note: The EU average is weighted for all indicators, except for (*) and (**), for which the EU simple average is used. The simple average for (*) uses data for 2020 or most recent year if former not available. Doctors' density data refer to practising doctors in all countries except EL, PT (licensed to practice) and SK (professionally active). Nurses' density data refer to practising nurses in all countries except FR, PT, SK (professionally active) and EL (nurses working in hospitals only).
Source: Eurostat; except: ** ECDC

past years and reached 11.1 per 1 000 inhabitants in 2018, well above the EU average (8.3 in 2020). Despite this, the patient-to-nurse ratio in hospitals is high and there are difficulties in recruiting nurses. During the COVID-19 pandemic, Belgium faced shortages of health workers, especially of intensive care nurses. Strategies to mitigate these shortages included using overtime, reallocating nurses, providing training in intensive care, and recruiting temporary nurses. Additional staff was recruited by using a 'health reserve' including health professionals, students and retired health professionals. Bonuses were also introduced for health professionals dealing with COVID-19 in hospitals. In relation to this, Belgium utilised support from the Coronavirus Response Investment Initiative to increase the apprenticeship premium for nursing students. The government has taken measures to increase the attractiveness of the nursing profession and improve the working conditions of nurses and other staff in acute and psychiatric hospitals and in community care. Since 2020, an investment of more than EUR 1 billion has been directed at increasing the remuneration of nurses (especially in hospitals) and creating additional jobs via a special healthcare staff fund. Part of this fund aims at attracting individuals from other sectors to consider a career as a nurse or healthcare assistant by providing them with a salary during their education. A first evaluation in 2020 demonstrated that the healthcare staff fund resulted in an additional recruitment of 4 250 full-time equivalents and 446 people starting nurse or health-care assistant education ([124]).

In its current recovery and resilience plan, Belgium plans to invest EUR 83 million (1.4% of the plan's total value) in healthcare. The investments relate to digital health services and health data, nuclear medicine for cancer treatment, and health research and innovation. More specifically, the investments in digital health and health data include, among other aspects, developing standardised care sets for patient data collection and storage, extending the e-prescription system, creating an integrated tracking system for medicine consumption, operationalising teleconsultations, and providing digital tools for integrated care teams. Belgium also intends to set up a health data authority, in line with the European Commission's proposal for a European Health Data Space.

([124]) Health and care workforce in Europe: time to act. Copenhagen: WHO Regional Office for Europe; 2022.

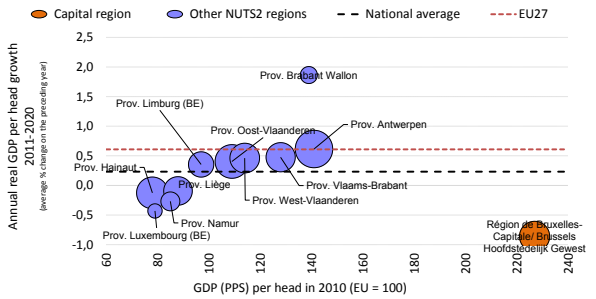
ANNEX 17: ECONOMIC AND SOCIAL PERFORMANCE AT REGIONAL LEVEL

This Annex showcases the economic and social regional dynamics in Belgium, providing an update on economic, social and territorial cohesion in and among the Belgian regions compared with the EU as a whole and the main regional economic recovery challenges. Regional disparities remain high in Belgium and have not fundamentally decreased in recent years.

Differences in GDP per capita remain high in Belgium. In 2021, GDP per capita of the Brussels-Capital Region was 204% of the EU average – down from 260% in 2000. The GDP of several southern provinces is lagging behind, particularly Hainaut (76%) and Luxembourg (75%). Liege (86%), Namur (81%) and Limburg (99%) are also below the EU average. By contrast, Antwerp, Brabant-Wallon, Vlaams-Brabant, West-Vlaanderen en Oost-Vlaanderen have an economic performance which exceeds the EU average (see Table A17.1). Disparities in GDP per capita between urban and rural areas also persist.

The COVID-19 pandemic and the associated lockdown measures sharply reduced GDP by 3.9% in 2020, as measured by purchasing power standard (PPS) per capita. West-Vlaanderen and Luxembourg were most affected. In these provinces, GDP (PPS per capita) dropped by over 5%. Brabant-Wallon's GDP fell by only 1.9%.

Graph A17.1: **GDP per capita (2010) and GDP growth (2010-2020) - Belgium**

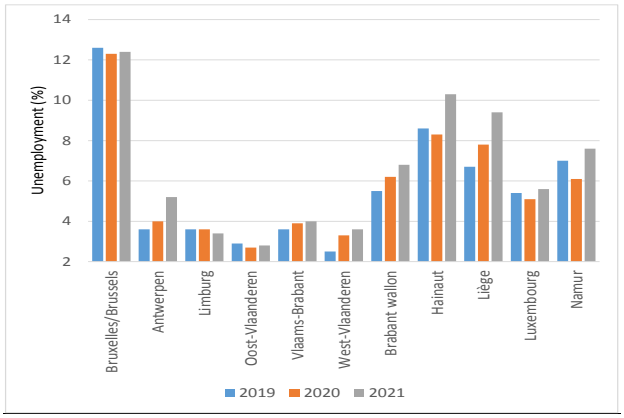


(1) Bubble size corresponds to population size
Source: Eurostat

Variation in GDP growth per capita within the country remains high and disparities between regions have been increasing (see Graph A17.1). Average annual real GDP growth per capita in Belgium was 0.23% over the period 2011-20, which is lower than the EU average (0.61%). In the Flemish provinces, real GDP growth per capita varied between 0.35% and 0.61%. Four provinces in Wallonia (Hainaut, Liège, Luxembourg, Namur) recorded negative growth per capita. In contrast, Brabant-Wallon has been the fastest growing province in Belgium with GDP growth per capita at 1.86%, which is well above the EU average. The Brussels-Capital Region had a negative GDP growth per capita (-0.86%), partly due to increasing population.

Belgium performs well in terms of innovation, but differences persist between Regions in terms of innovation performance (see Annex 11). A major difference in the innovation ecosystem of the three Regions is the intensity of public R&D, which is weaker in Wallonia (0.61%) than in the two other Regions (Brussels: 0.77%, Flanders: 0.85%). Belgium invested 3.2% of its GDP in R&D in 2019 (1.2% more than the EU average). This growth has mainly been achieved thanks to a very substantial increase in the intensity of business R&D, which is now the highest in the EU (2.42% of R&D expenditure in the business sector in 2021). R&D intensity appears to be among the factors that can explain the difference in performance in terms of competitiveness across provinces in Belgium. The three most competitive Belgian provinces are Brussels-Capital, Brabant-Wallon and Vlaams-Brabant followed by the Flemish provinces (see Table A17.1).

Graph A17.2: **Unemployment in Belgium regions in the period 2019-2021**



Source: Eurostat

Labour market outcomes are generally better in Flanders than in the rest of Belgium. The unemployment rate in Belgium was 6.3% in 2021. The unemployment rate in

Table A17.1:**Selected indicators at regional level**

NUTS 2 region	GDP per head(PPS)	Productivity (GVA (PPS) per person employed)	GDP per head growth	Unemployment rate	Employment in knowledge-intensive services	Employment in high-technology sectors	Regional competitiveness index (RCI)
	EU-27 = 100, 2021	EU-27 = 100, 2021	Average % change on the preceding year, 2011-2020	% of active population, 2021	% of total employment, 2021	% of total employment, 2021	EU-27 = 100, 2022
European Union	100.0	100.0	1.0	7.0	40.7	4.8	100.0
Belgique/België	120.0	129.0	0.2	6.3	51.4	5.7	125.7
Région de Bruxelles-Capitale	204.0	160.2	-0.9	12.3	50.4	7.6	136.3
Prov. Antwerpen	145.0	145.0	0.6	5.2	48.5	5.9	133.9
Prov. Limburg (BE)	99.0	111.1	0.4	3.4	46.5	4.6	125.8
Prov. Oost-Vlaanderen	112.0	123.0	0.4	2.8	51.3	5.8	134.6
Prov. Vlaams-Brabant	123.0	135.0	0.5	4.0	58.1	7.5	135.7
Prov. West-Vlaanderen	120.0	121.1	0.5	3.6	43.6	3.3	121.2
Prov. Brabant Wallon	143.0	157.1	1.9	6.8	59.9	9.9	136.3
Prov. Hainaut	76.0	103.8	-0.1	10.3	53.1	5.1	107.6
Prov. Liège	86.0	108.6	-0.1	9.4	55.0	4.4	111.7
Prov. Luxembourg (BE)	75.0	100.1	-0.4	5.6	53.0	4.3	104.9
Prov. Namur	81.0	104.5	-0.3	7.6	58.9	6.3	111.4

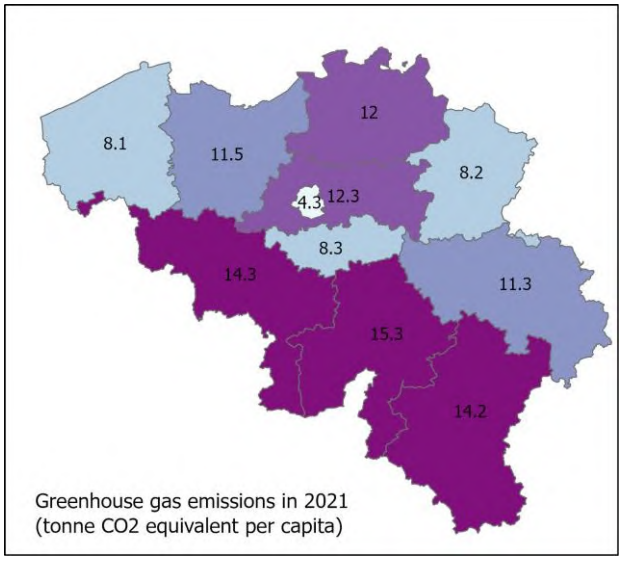
Source: EUROSTAT

Flemish provinces is systematically below the national average, whereas it is higher in all the Walloon provinces except the Belgian province of Luxembourg (see Graph A17.2). The unemployment rate in the Brussels-Capital Region is the highest at 12.3% in 2021.

Employment in knowledge-intensive and high technology varies across provinces. Brabant-Wallon, Vlaams-Brabant and the province of Namur have a high level of employment in knowledge-intensive and high technology whereas West-Vlaanderen and Limburg have lower employment in those sectors. The good performance of Brabant-Walloon and Vlaams-Brabant can be explained by the highly educated work force and the existence of a research-intensive university to which a science park is attached, attracting dynamic start-ups and high-tech companies. The employment in high technology sectors is also high in the Brussels-Capital Region.

Climate transition affects Belgian regions differently. The high greenhouse gas emission intensity of the Hainaut province (see Map A17.1), is due to its high industrial emission intensity (highest of all provinces), mainly from the production of cement, chemicals and electricity. In addition, Hainaut once depended on steel, textiles and coal production. Its industrial transition is still underway, which poses difficulties in terms of economic development and causes a relatively high unemployment. Furthermore, carbon-intensive sectors in the region employ more than 13 000 people.

Map A17.1:**Greenhouse gas emissions per capita in Belgium in 2021**



The financial sector appears relatively sound and moderately profitable. Bank solvency is satisfactory, with a relatively stable average capital-adequacy ratio of 19.8% in Q3-2022 (vs 18.6% in the EU). Credit quality is strong, with a record low non-performing-loan ratio of 1.4% in Q3-2022 (vs 1.8% in the EU). With return-on-equity of 9.5% in the first nine months of 2022, Belgian banks are quite profitable, and perform better, on average, than their EU peers (6.1%). Banks have ample liquidity, both from the ECB and depositors. Funding from the ECB is still substantial, and reached 7.6% of banks' total liabilities in December 2022 (vs 4.3% in the euro area), up from 2.1% in February 2020. Funding from depositors remains comfortable, with a loan-to-deposit ratio of 79.9% in September 2022 (vs 88.6% in the EU).

Belgium's financial system has withstood the immediate impact of the Russian invasion of Ukraine and the related sanctions. Although Belgium's direct exposure to Ukraine and Russia was very small and manageable, the impact of lower economic growth and higher inflation could be substantial. These indirect effects could affect the ability of financially vulnerable non-financial corporations and households to service their debts when business costs or living costs are rising strongly. Likewise, rising fiscal deficits, growing public debt, and the risk of political instability could combine to threaten the debt sustainability and credit worthiness of some public entities. Fortunately, Belgian banks have large capital buffers that could absorb unexpected losses while allowing the banks to continue providing key services to the real economy. However, maintaining this strong financial position will also require banks to continue to deal in an appropriate way with the structural challenges stemming from digitalisation and cost effectiveness. These challenges could put pressure on the profitability and business models of Belgian banks in the future. Finally, it remains a weakness that contributions to the Belgian Deposit Guarantee Scheme are not invested into a segregated and diversified portfolio of low-risk assets.

The residential real-estate market is showing medium vulnerabilities that are mitigated by appropriate and sufficient macroprudential policy measures ([125]). In 2022, the European Systemic Risk Board (ESRB) identified several key vulnerabilities: (i) signs of house-price overvaluation; (ii) elevated house-price growth; (iii) elevated and rising household indebtedness; (iv) strong growth in mortgage credit; and (v) loose – albeit gradually tightening – credit standards. According to the ESRB, the current policy mix in Belgium can be considered appropriate and sufficient and has been instrumental in mitigating risks. The borrower-based measures introducing loan-to-value thresholds for various sub-segments of loans have led to a marked improvement in the quality of new mortgage loans. Moreover, the conversion of the current Article 458 CRR measure into a sectoral systemic risk buffer of equivalent magnitude will continue to ensure an appropriate capital buffer against unexpected losses on the stock of loans. Finally, the National Bank of Belgium (NBB) has been more reluctant than other supervisors to increase its counter-cyclical risk buffer (CCyB). After having briefly contemplated in June 2022 a possible increase of the CCyB to 0.5%, it eventually decided to maintain it at 0% in September 2022 ([126]). Indeed, given the worsening macroeconomic context and the deteriorating growth forecasts, the NBB wants to 'ensure that Belgian banks have full flexibility to use their ample free capital resources to support the real economy'.

Belgian banks actively finance the economy at reasonably attractive conditions. In December 2022, year-on-year credit growth reached 6.6% (vs 5.5% in the euro area) for lending to non-financial corporations and 6.4% (vs 3.7% in the euro area) for lending to households. Since February 2022, interest rates have increased across the board, but Belgian banks continue to offer relatively attractive lending terms. In November 2022, mortgage loans for house purchases were slightly more expensive in Belgium than the euro-area average (3.16% vs 2.93% in

([125]) https://www.esrb.europa.eu/pub/pdf/reports/esrb.report220211_vulnerabilities_eea_countries~27e571112b.en.pdf?cb8132dc3e0f0f53a4fce3292a690bd6.

([126]) https ://www.nbb.be/doc/cp/eng/2023/20221216_bufferrate_2023q1_en.pdf.

Table A18.1: **Financial soundness indicators**

	2017	2018	2019	2020	2021	2022	EU	Median
Total assets of the banking sector (% of GDP)	229,2	217,8	215,2	242,2	231,2	231,7	276,8	207,9
Share (total assets) of the five largest banks (%)	68,8	73,4	74,0	75,3	75,7	-	-	68,7
Share (total assets) of domestic credit institutions (%)[1]	50,9	50,3	49,6	50,6	52,2	52,3	-	60,2
NFC credit growth (year-on-year % change)	6,4	9,5	7,5	2,0	2,8	6,6	-	9,1
HH credit growth (year-on-year % change)	5,2	5,7	7,0	4,7	6,6	6,4	-	5,4
Financial soundness indicators:[1]								
- non-performing loans (% of total loans)	2,7	2,3	2,1	2,1	1,6	1,4	1,8	1,8
- capital adequacy ratio (%)	19,0	18,8	18,7	20,3	20,4	19,8	18,6	19,8
- return on equity (%)[2]	8,8	8,2	8,6	5,9	9,9	9,5	6,1	6,6
Cost-to-income ratio (%)[1]	58,2	61,2	59,5	56,7	56,3	57,1	60,6	51,8
Loan-to-deposit ratio (%)[1]	90,2	93,2	93,4	79,0	79,3	79,9	88,6	78,0
Central bank liquidity as % of liabilities	2,9	2,7	2,2	8,4	8,6	4,5	-	2,9
Private sector debt (% of GDP)	185,5	180,1	178,3	180,9	169,0	-	-	120,7
Long-term interest rate spread versus Bund (basis points)	40,5	39,8	44,6	36,2	35,9	59,2	-	93,3
Market funding ratio (%)	65,0	63,7	62,6	62,3	61,0	-	50,8	40,0
Green bonds issued to all bonds (%)	-	1,7	1,7	1,8	2,1	2,8	3,9	2,3

1-3 | 4-10 | 11-17 | 18-24 | 25-27 — Colours indicate performance ranking among 27 EU Member States.

(1) Last data: Q3-2022.
(2) Data is annualized.
Source: ECB, Eurostat, S&P Global Capital IQ Pro.

November 2022), while corporate loans up to EUR 1 million were slightly cheaper (3.20% vs 3.32%).

The tax system is not neutral towards investment choices. Some features of the tax system serve to distort investment choices and lead to overinvestment in certain assets. Taxation of immovable property is a case in point, since the fictive cadastral value often underestimates the actual rental income and interest on loans for secondary residences are tax deductible. In Wallonia, homeowners continue to benefit from favourable tax treatment for their mortgage payments ('chèque habitat'). Moreover, some tax incentives favour specific pension schemes, creating obstacles to the better allocation of capital. Finally, the tax on securities accounts also introduces a bias against investment into securities. Belgium is one of the few Member States (CY, MT, IT, PL, PT) with a notional interest-deduction scheme aimed at reducing the current bias in favour of debt and making equity more attractive, but the magnitude of the notional interest rate is so low that the scheme is largely ineffective.

Sustainable finance is beginning to grow. Even though the absolute amounts remain modest, issuance of private 'green' bonds have significantly risen in recent years. Public green bonds experienced exceptionally large issuance of EUR 11bn in 2018, but issuance activity has sharply fallen since then. During the first quarter of 2022, investors continued to invest in ESG funds, while non-ESG funds witnessed net outflows amounting to EUR 2.3 bn, which seems to indicate increasing investor interest and participation in ESG funds.

Solvency in the insurance sector currently appears quite robust overall, but vulnerabilities can exist at an individual level. The overall solvency ratio of Belgian insurers slightly improved in 2021 and in the first half of 2022, rising from 201.3% in 2020 to 227.1% in Q2-2022. Insurers (and especially life insurers) benefited from the rise in risk-free rates which drove down the value of liabilities, but suffered (especially non-life insurers) from the rise in inflation and the severe floods that the country faced in July 2021. However, this relatively good performance at sector level differed from one company to another. Companies with a narrower scope of activities, a higher duration mismatch between assets and liabilities, or a less diversified investment portfolio generally faced greater volatility in terms of solvency.

Inflation represents a considerable challenge for non-life insurance. Like elsewhere, unexpectedly high inflation is likely to generate significant losses for the non-life business, especially for long-tail business. The fact that wages are automatically indexed in Belgium is an aggravating factor, since it leads to a faster increase in the cost of claims. Insurers have put measures in place to absorb this kind of shock as much as possible, such as: (i) indexation of premiums (to compensate for inflation of claims); (ii) targeted inflation

hedges (investment in inflation-linked bonds and/or inflation derivatives); and/or (iii) reinsurance treaties to cede the inflation risk to third parties.

This Annex provides an indicator-based overview of Belgium's tax system. It includes information on the tax structure (the types of tax that Belgium derives most of its revenue from), the tax burden on workers, and the progressivity and redistributive effect of the tax system. It also provides information on tax collection and compliance.

The overall tax burden in Belgium is high and the tax structure importantly relies on labour taxes. Belgium's tax revenue as a percentage of GDP was above the EU aggregate in 2021 (see Table A19.1). This should be viewed in the context of a high public deficit and large public debt-to-GDP ratio. While for most Member States, labour taxes are the most important source of tax revenue, they are particularly high in Belgium when expressed as a percentage of GDP. This runs counter the objective of increasing employment. On the other hand, revenues from consumption taxes, recurrent immovable property taxes and environmental taxes, which are among the taxes least detrimental to growth, were close to the EU aggregate (expressed as % of GDP). Hence, there seems to be scope to shift the tax burden away from labour to other tax bases. In a context of increasing traffic congestion and air pollution issues, transport taxes and pollution taxes seem to be underused. While excise duties on transport fuel are rather high for diesel and average for petrol, professional transporters and agriculture benefit from a reduced excise rate on diesel. Taxation of immovable property is characterised by high transaction tax rates in Brussels and Wallonia, hampering the functioning of the real estate market and restricting labour mobility. Reliance on transaction taxes generates a more volatile revenue stream compared to lower transaction combined with higher recurrent property taxes. Belgium announced the first step of a broader tax reform to reduce labour taxes. This reform is currently under discussion.

Belgium's labour tax burden is more progressive than the EU average, but the tax brackets are narrow. Graph A19.1 shows that, as a result of previous reforms, the labour tax wedge for Belgium in 2022 was close to the EU average for single people earning 50% of the average wage but much higher than the EU average at higher levels of income. For a single worker earning the average wage, the tax wedge is the highest in the EU. Although the personal income tax system offers several tax brackets, the latter are rather narrow. As a consequence, even average income earners are subject to the highest income tax rates (45% and 50%). There are high marginal tax rates for lower middle wage earners, leading to significant low-wage traps. Moreover, the tax wedge for second earners and specific tax features like the 'marital quotient' generate

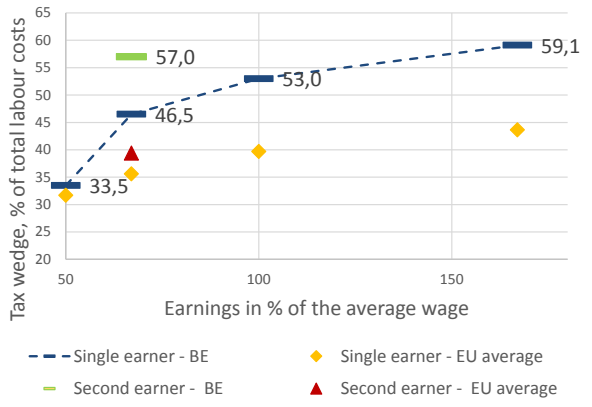
Table A19.1: **Taxation indicators**

		Belgium					EU-27				
		2010	2019	2020	2021	2022	2010	2019	2020	2021	2022
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	43,6	43,5	43,5	43,6		37,9	39,9	40,0	40,6	
	Labour taxes (as % of GDP)	23,7	22,0	22,9	22,0		20,0	20,7	21,3	20,9	
	Consumption taxes (as % of GDP)	10,9	10,8	10,4	10,9		10,8	11,1	10,7	11,2	
	Capital taxes (as % of GDP)	8,8	10,5	9,9	10,6		7,1	8,1	8,0	8,5	
	Total property taxes (as % of GDP)	3,1	3,5	3,5	3,7		1,9	2,2	2,2	2,2	
	Recurrent taxes on immovable property (as % of GDP)	1,3	1,3	1,3	1,2		1,1	1,2	1,2	1,1	
	Environmental taxes as % of GDP	2,4	2,6	2,5	2,5		2,4	2,4	2,2	2,2	
Progressivity & fairness	Tax wedge at 50% of average wage (Single person) (*)	41,8	33,1	32,8	33,4	33,5	33,9	32,3	31,9	32,1	31,7
	Tax wedge at 100% of average wage (Single person) (*)	55,9	52,3	52,2	52,4	53,0	41,0	40,1	39,9	39,6	39,7
	Corporate income tax - effective average tax rates (1) (*)		23,8	23,3	23,3			19,5	19,4	19,1	
	Difference in Gini coefficient before and after taxes and cash social transfers (pensions excluded from social transfers) (2) (*)	11,0	12,9	12,4	13,5		8,6	7,7	8,1	7,8	
Tax administration & compliance	Outstanding tax arrears: total year-end tax debt (including debt considered not collectable) / total revenue (in %) (*)		15,5	16,6				31,6	40,7		
	VAT Gap (% of VAT total tax liability, VTTL)		13,1	14,0				11,0	9,1		

(1) Forward-looking effective tax rate (OECD)
(2) A higher value indicates stronger redistributive impact of taxation
(*) EU-27 simple average
For more data on tax revenues as well as the methodology applied, see European Commission, Directorate-General for Taxation and Customs Union, Taxation trends in the European Union: data for the EU Member States, Iceland, Norway and United Kingdom: 2021 edition, Publications Office, 2021, https://data.europa.eu/doi/10.2778/843047 and the 'Data on Taxation' webpage (data https://ec.europa.eu/taxation_customs/taxation-1/economic-analysis-taxation/data-taxation_en). For more details on the VAT gap, see European Commission, Directorate-General for Taxation and Customs Union, 'VAT gap in the EU: report 2022', Publications Office, 2022, https://data.europa.eu/doi/10.2778/109823
Source: European Commission, OECD.

high work disincentives for second earners. In 2021, the tax-and benefit system performs better than the EU average to reduce income inequality, as measured by the Gini-coefficient (Table A19.1).

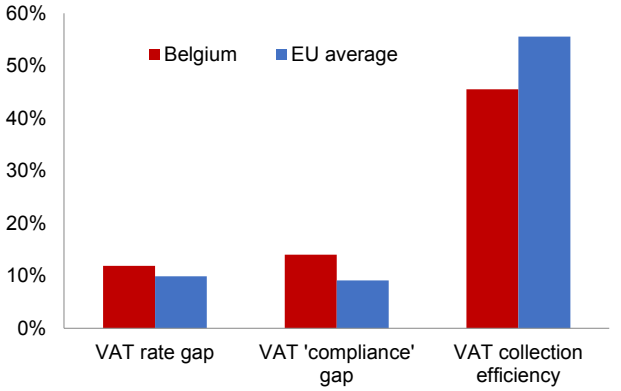
Graph A19.1: **Tax wedge for single and second earners as a % of total labour costs, 2022**



Second earner tax wedge assumes first earner at 100% of the average wage and no children.
Source: European Commission

Extensive use of tax expenditure hinders the business environment and efficient tax collection. To offset the heavy tax burden on labour, wage subsidies and other tax expenditure have been broadly used. Special schemes, like the company car scheme and the withholding tax exemption for overtime, R&D work and night/shift work, were introduced to compensate for the high tax burden on labour. Although these schemes are costly in budgetary terms and lead to inefficiencies, their use has been increasing over time. The complex tax system weighs on the business environment, despite Belgium's efforts in digitalising its tax administration. Moreover, Belgium was found to have a comparatively low share of successful tax audits ([127]), pointing to scope to improve the efficiency and effectiveness of the tax administration.

Graph A19.2: **VAT efficiency indicators, 2020**



Source: European Commission, VAT gap in the EU: report 2022

Consumption taxes are relatively low, due in part to the limited efficiency of the VAT system. Revenue from VAT is comparatively low as compared to the EU on average (6.4 vs. 6.9% of GDP in 2020). While the standard VAT rate is close to the EU average, Belgium applies reduced VAT rates more extensively than other Member States (see Graph A19.2). The use of reduced VAT rates and optional VAT exemptions negatively affects the VAT collection efficiency (45.5% vs. 55.5% in EU on average). Moreover, the VAT compliance gap (the gap between revenues actually collected and the theoretical tax liability) is among the highest in the EU (14.0% in 2020), significantly above the EU-wide VAT compliance gap which decreased to 9.1% in 2020.

([127])OECD Tax administration 2021 https://doi.org/10.1787/cef472b9-en

ANNEX 20: TABLE WITH ECONOMIC AND FINANCIAL INDICATORS

Table A20.1: **Key economic and financial indicators**

	2004-07	2008-12	2013-19	2020	2021	2022	forecast 2023	forecast 2024
Real GDP (y-o-y)	3.0	0.7	1.6	-5.4	6.3	3.2	1.2	1.4
Potential growth (y-o-y)	2.1	1.4	1.3	1.3	1.5	1.8	1.7	1.5
Private consumption (y-o-y)	1.6	1.5	1.6	-8.3	5.5	4.1	2.6	1.7
Public consumption (y-o-y)	1.4	1.3	0.9	0.1	5.0	3.2	0.7	0.7
Gross fixed capital formation (y-o-y)	6.0	0.2	2.9	-5.3	5.1	-0.8	0.7	2.0
Exports of goods and services (y-o-y)	5.7	0.8	3.5	-5.0	11.3	5.1	1.3	2.5
Imports of goods and services (y-o-y)	5.9	1.3	3.7	-5.6	10.7	4.9	1.6	2.7
Contribution to GDP growth:								
Domestic demand (y-o-y)	2.4	1.1	1.7	-5.5	5.2	2.6	1.6	1.5
Inventories (y-o-y)	0.5	0.0	0.0	-0.3	0.3	0.6	-0.1	0.0
Net exports (y-o-y)	0.2	-0.3	-0.1	0.4	0.7	0.2	-0.3	-0.2
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	0.6	0.6	0.4	0.6	0.7	1.0	0.9	0.7
Capital accumulation (y-o-y)	0.6	0.5	0.6	0.5	0.6	0.5	0.5	0.5
Total factor productivity (y-o-y)	0.8	0.4	0.3	0.3	0.2	0.2	0.2	0.3
Output gap	1.2	-0.5	0.1	-5.4	-1.0	0.5	0.0	-0.2
Unemployment rate	8.3	7.7	7.5	5.8	6.3	5.6	5.8	5.7
GDP deflator (y-o-y)	2.0	1.6	1.5	1.5	2.8	5.9	3.8	2.3
Harmonised index of consumer prices (HICP, y-o-y)	2.1	2.5	1.4	0.4	3.2	10.3	3.4	3.5
HICP excluding energy and unprocessed food (y-o-y)	1.6	1.9	1.7	1.5	1.4	4.9	7.7	3.2
Nominal compensation per employee (y-o-y)	2.7	2.5	1.4	-1.6	4.1	7.2	9.0	3.4
Labour productivity (real, hours worked, y-o-y)	1.8	0.0	0.7	3.2	-1.1	-0.8	0.1	-0.1
Unit labour costs (ULC, whole economy, y-o-y)	0.9	2.6	0.8	4.1	-0.2	5.9	8.3	2.9
Real unit labour costs (y-o-y)	-1.1	0.9	-0.7	2.5	-2.9	0.0	4.3	0.5
Real effective exchange rate (ULC, y-o-y)	-0.2	0.4	-0.4	-0.2	-0.6	2.3	2.7	-0.7
Real effective exchange rate (HICP, y-o-y)	0.6	0.1	0.6	0.7	0.7	0.6	.	.
Net savings rate of households (net saving as percentage of net disposable income)	10.7	9.9	5.6	14.2	10.3	.	.	.
Private credit flow, consolidated (% of GDP)	9.3	11.3	6.4	-3.0	3.5	4.3	.	.
Private sector debt, consolidated (% of GDP)	125.2	174.9	176.4	182.0	169.7	158.6	.	.
of which household debt, consolidated (% of GDP)	44.1	53.0	58.2	65.4	62.8	60.4	.	.
of which non-financial corporate debt, consolidated (% of GDP)	81.1	121.9	118.1	116.6	106.9	98.2	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (1)	2.6	4.2	2.9	1.8	1.4	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	1.3	1.5	1.5	3.5	2.2	0.1	0.9	1.1
Corporations, gross operating surplus (% of GDP)	24.2	23.6	25.0	26.2	27.4	27.6	25.7	25.5
Households, net lending (+) or net borrowing (-) (% of GDP)	3.6	3.8	1.3	6.5	4.0	1.2	2.4	1.9
Deflated house price index (y-o-y)	6.8	0.8	0.8	3.3	4.5	-2.8	.	.
Residential investment (% of GDP)	5.9	6.1	5.8	6.1	6.3	6.3	.	.
Current account balance (% of GDP), balance of payments	2.3	0.1	0.5	1.1	0.4	-3.6	-2.4	-2.5
Trade balance (% of GDP), balance of payments	2.5	-0.2	0.6	1.7	1.1	-3.9	.	.
Terms of trade of goods and services (y-o-y)	-0.5	-0.6	0.3	0.8	-1.5	-3.8	1.3	0.2
Capital account balance (% of GDP)	-0.2	0.0	0.0	-0.1	0.2	0.1	.	.
Net international investment position (% of GDP)	35.6	49.9	45.6	46.7	63.9	53.9	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (2)	.	58.4	47.1	34.4	37.6	25.4	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (2)	.	241.1	194.0	208.1	202.4	186.3	.	.
Export performance vs. advanced countries (% change over 5 years)	-0.8	-3.0	-5.7	10.7	7.1	.	.	.
Export market share, goods and services (y-o-y)	-2.5	-3.3	0.0	4.7	-0.5	1.1	-1.3	-1.3
Net FDI flows (% of GDP)	-2.0	-3.0	1.8	1.1	3.6	4.6	.	.
General government balance (% of GDP)	-0.7	-3.9	-2.1	-9.0	-5.5	-3.9	-5.0	-4.7
Structural budget balance (% of GDP)	.	.	-2.4	-5.8	-4.7	-4.2	-4.9	-4.5
General government gross debt (% of GDP)	92.8	100.4	103.2	112.0	109.1	105.1	106.0	107.3

(1) Domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.
(2) Net international investment position (NIIP) excluding direct investment and portfolio equity shares.
Source: Eurostat and ECB as of 2 May 2023, where available; European Commission for forecast figures (Spring forecast 2023).

This Annex assesses fiscal sustainability risks for Belgium over the short, medium and long term. It follows the same multi-dimensional approach as the European Commission's 2022 Debt Sustainability Monitor, updated based on the Commission 2023 spring forecast.

1 - Short-term risks to fiscal sustainability are low overall. The Commission's early-detection indicator (S0) does not signal major short-term fiscal risks (Table A21.2) ([128]). Gross financing needs are expected to remain large at around 19% of GDP in the short term (2023-2024), although below the peak in 2020 (Table 1 of A21.1). Financial markets' perceptions of sovereign risk are positive, as confirmed by the ratings of the main agencies.

2 - Medium-term risks to fiscal sustainability are high overall.

The baseline DSA for Belgium shows that the government debt ratio is projected to remain at a high level over the medium term, with a continuous increase over the next decade to about 126% of GDP by 2033 (Graph 1) ([129]) ([130]). The assumed structural primary balance (a deficit of 2.5% of GDP) contributes to these developments. It appears low compared with past fiscal performance, indicating that the country has room for corrective action. At the same time, the baseline projections up to 2033 benefit from a favourable (although declining) snowball effect, with real GDP growth averaging 1.1% in 2025-2033. Government gross financing needs are expected to remain high over the projection period, rising to about 24% of GDP in 2033, compared to 19% forecast for 2024.

The baseline projections are stress tested against four alternative scenarios to assess the impact of changes in key assumptions (Graph 1). For Belgium, reverting to historical fiscal trajectories under the 'historical structural primary balance (SPB)' scenario would lead to a lower government debt ratio. If the SPB gradually converged to a deficit of 0.1% of GDP (its historical 15-year average), the projected debt-to-GDP ratio would be around 15 pps. of GDP lower in 2033 compared with the baseline. A permanent worsening of the macro-financial conditions, as reflected under the 'adverse interest-growth rate differential' scenario (i.e. 1 pp. higher than the baseline) would result in a higher government debt-to-GDP ratio, by around 9 pps. of GDP by 2033 as compared with the baseline. A temporary worsening of financial conditions, as reflected in the 'financial stress' scenario, would lead to a slightly higher public debt-to-GDP ratio by 2033. The 'lower structural primary balance (SPB)' scenario (i.e. SPB forecast change permanently reduced by half of the cumulative forecast change), would lead to a similar government debt-to-GDP ratio by 2033 as the baseline.

Additionally, stochastic debt projections indicate high risks (Graph 2) ([131]). These stochastic simulations point to a 66% probability of the debt ratio in 2027 being greater than in 2022, entailing high risk given the initial high level of debt In addition, such shocks point to significant uncertainty (i.e. the difference between the 10th and 90th debt distribution percentiles) surrounding the government debt baseline projections.

([128]) The So is a composite indicator of short-term risk of fiscal stress. It is based on a wide range of macro-financial and fiscal variables that have proven to perform well in the past in detecting situations of upcoming fiscal stress.

([129]) The assumptions underlying the Commission's 'no-fiscal policy change' baseline notably comprise: (i) a structural primary deficit, before ageing costs, of 2.5% of GDP as of 2024; (ii) inflation converging linearly towards the 10-year forward inflation-linked swap rate 10 years ahead (which refers to the 10-year inflation expectations 10 years from now); (iii) the nominal short- and long-term interest rates on new and rolled over debt converging linearly from current values to market-based forward nominal rates by T+10 (as for all Member States); (iv) real GDP growth rates from the Commission 2023 spring forecast until 2024, followed by EPC/OGWG 'T+10 methodology projections between T+3 and T+10, i.e. for 2025-2033 (on average 1.1%); (v) ageing costs in line with the 2021 Ageing Report (European Commission, Institutional Paper 148, May 2021). For information on the methodology, see the 2022 Debt Sustainability Monitor (European Commission, Institutional Paper 199, April 2023).

([130]) Table 1 shows the baseline debt projections and its breakdown into the primary balance, the snowball effect (the combined impact of interest payments and nominal GDP growth on the debt dynamics) and the stock-flow adjustment.

([131]) These projections show the impact on debt of 2000 different shocks affecting the government's primary balance, economic growth, interest rates and exchange rates. The cone covers 80% of all simulated debt paths, therefore excluding tail events.

3 - Long-term risks to fiscal sustainability are high overall ([132]).

The S2 sustainability gap indicator (at 6.6 pps. of GDP) points to high risks, suggesting that Belgium would need to improve its structural primary balance substantially to ensure debt stabilisation over the long term. This results from the unfavourable initial budgetary position (3 pps. of GDP) and the projected increase in ageing costs, in particular for spending on pensions (1.6 pps.) and long-term care (1.8 pps.) (Table 2). Hence, additional measures may be required to further improve the efficiency and fiscal sustainability of the Belgian long-term care system.

Combined with debt vulnerabilities, as highlighted by the S1 indicator, overall long-term risks are assessed as high. Indeed, the S1 sustainability gap indicator signals that a significant consolidation effort of 5.9 pps. of GDP would be needed to reduce debt to 60% of GDP by 2070. This result is driven by the projected ageing costs (2.6 pps.) the unfavourable initial budgetary position (2.3 pps. of GDP), and the debt requirement (1 pp. of GDP) (Table 2).

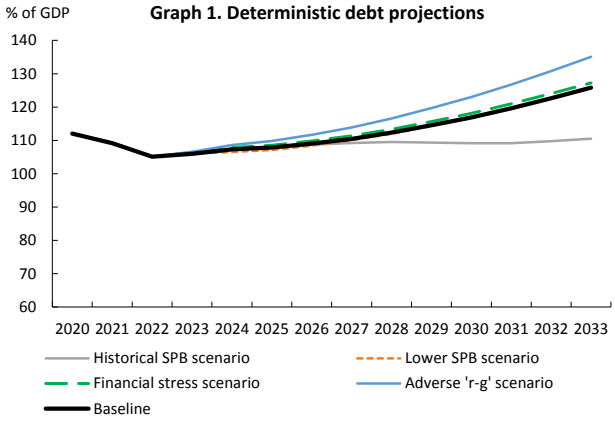
Finally, several additional risk factors need to be considered in the assessment. On the one hand, risk-increasing factors relate to the recent increase of interest rates, the share of short-term debt, high gross financing needs, the large share of government debt held by non-residents and the lack of fiscal coordination among the different government levels, with several of the federated entities displaying specific vulnerabilities. On the other hand, risk-mitigating factors include the lengthening of debt maturity in recent years, relatively stable financing sources (with a diversified and large investor base), government debt being fully denominated in euro and historically still low borrowing costs. In addition, the structural reforms under the NGEU/RRF, if fully implemented, could have a further positive impact on GDP growth in the coming years, and therefore help to mitigate debt sustainability risks.

([132])The S2 fiscal sustainability gap indicator measures the permanent fiscal effort (SPB adjustment) in 2024 that would be required to stabilise public debt over the long term. It is complemented by the S1 fiscal sustainability gap indicator, which measures the permanent fiscal effort required in 2024 to bring the debt-to-GDP ratio to 60% in the long term (by 2070). For both the S1 and S2 indicators, the risk assessment depends on the amount of fiscal consolidation needed: 'high risk' if the required effort exceeds 6 pps. of GDP, 'medium risk' if it lies between 2 pps. and 6 pps. of GDP, and 'low risk' if the effort is negative or below 2 pps. of GDP. The overall long-term risk classification brings together the risk categories derived from S1 and S2. S1 may notch up the risk category derived from S2 when it signals a higher risk than S2. See the 2022 Debt Sustainability Monitor for further details.

Table A21.1: Debt sustainability analysis - Belgium

Table 1. Baseline debt projections	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Gross debt ratio (% of GDP)	**112.0**	**109.1**	**105.1**	**106.0**	**107.3**	**107.9**	**109.0**	**110.4**	**112.3**	**114.5**	**116.9**	**119.7**	**122.7**	**125.8**
Changes in the ratio	14.4	-2.9	-4.0	0.8	1.4	0.6	1.1	1.4	1.9	2.2	2.4	2.8	3.0	3.2
of which														
Primary deficit	7.0	3.8	2.4	3.3	2.8	2.6	2.8	3.0	3.1	3.3	3.3	3.5	3.6	3.8
Snowball effect	6.0	-7.8	-7.8	-3.3	-1.8	-2.0	-1.7	-1.5	-1.2	-1.1	-0.9	-0.7	-0.6	-0.6
Stock-flow adjustments	1.4	1.1	1.4	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs (% of GDP)	23.5	20.2	18.5	19.3	18.9	18.7	19.3	19.9	20.6	21.3	22.0	22.8	23.7	24.4

Graph 1. Deterministic debt projections



Graph 2. Stochastic debt projections 2023-2027

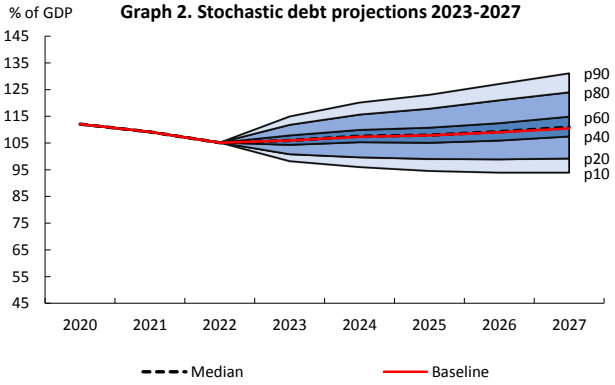


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

		S1	S2
Overall index (pps. of GDP)		**5.9**	**6.6**
of which			
Initial budgetary position		2.3	3.0
Debt requirement		1.0	
Ageing costs		2.6	3.7
of which	*Pensions*	1.4	1.6
	Health care	0.4	0.5
	Long-term care	1.1	1.8
	Others	-0.2	-0.2

Source: Commission services.

Table A21.2: Heat map of fiscal sustainability risks - Belgium

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
			Deterministic scenarios								
Overall (S0)	Overall		Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	HIGH	Overall	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM	HIGH
		Debt level (2033), % GDP	125.8	110.5	125.9	135.1	127.3				
		Debt peak year	2033	2033	2033	2033	2033				
		Fiscal consolidation space	93%	87%	93%	93%	93%				
		Probability of debt ratio exceeding in 2027 its 2022 level						66%			
		Difference between 90th and 10th percentiles (pps. GDP)						37.2			

(1) *Debt level* in 2033. Green: below 60% of GDP. Yellow: between 60% and 90%. Red: above 90%. (2) The *debt peak year* indicates whether debt is projected to increase overall over the next decade. Green: debt peaks early. Yellow: peak towards the middle of the projection period. Red: late peak. (3) *Fiscal consolidation space* measures the share of past fiscal positions in the country that were more stringent than the one assumed in the baseline. Green: high value, i.e. the assumed fiscal position is plausible by historical standards and leaves room for corrective measures if needed. Yellow: intermediate. Red: low. (4) *Probability of debt ratio exceeding in 2027 its 2022 level*. Green: low probability. Yellow: intermediate. Red: high (also reflecting the initial debt level). (5) The *difference between the 90th and 10th percentiles* measures uncertainty, based on the debt distribution under 2000 different shocks. Green, yellow and red cells indicate increasing uncertainty.

Source: Commission services.