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COVER NOTE

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COMMISSION STAFF WORKING DOCUMENT

2023 Country Report - Portugal

Accompanying the document

Recommendation for a COUNCIL RECOMMENDATION

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

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European
Commission

Portugal

2023 Country Report



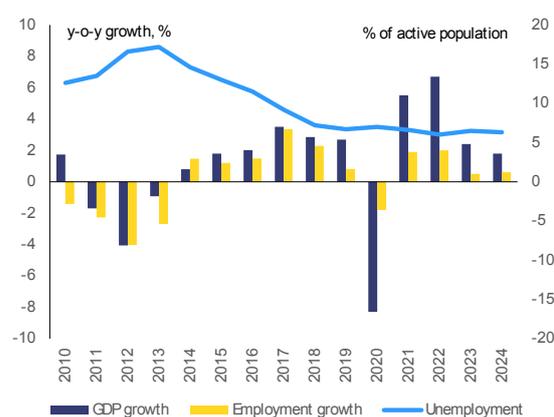
ECONOMIC AND EMPLOYMENT SNAPSHOT

Portugal stays on a strong recovery path

Portugal's significant post-pandemic economic recovery fuelled by a strong rebound in tourism has slowed. GDP growth increased from 5.5% in 2021 to 6.7% in 2022. By the first quarter of 2022, Portugal had already fully recovered the large loss in economic activity in 2020. However, after a peak in the first quarter of 2022, growth rates slowed down in the following quarters as Russia's war of aggression against Ukraine further disrupted global supply chains.

Growth is expected to moderate to 2.4% in 2023 and 1.8% in 2024. The uncertain global environment remains a main risk factor for Portugal's economic performance. In the long term, growth is also constrained by structural weaknesses.

Graph 1.1: Real GDP growth and selected labour market indicators



Source: European Commission

Macroeconomic vulnerabilities related to high private, government and external debt are receding but remain present. ⁽¹⁾

After a temporary interruption due to the outbreak of the pandemic, private sector and government debt ratios returned to declining paths in 2021 and are expected to continue declining, favoured by economic growth (see Annex 22). External indebtedness also improved. Yet, debt ratios remained elevated overall. The main risks to the further narrowing of vulnerabilities relate to the impact of the tightening of financial conditions and to an uncertain external environment, and their potential impact on economic growth.

There have been positive labour market developments, but youth unemployment remains high. Following their favourable evolution in 2021, the main labour market indicators strengthened further, in most

⁽¹⁾ European Commission (2023), In-Depth Review for Portugal, Commission staff working document (COM(2023) 641 final).

cases improving beyond pre-pandemic levels. In 2022, the unemployment rate stood at 6%, below the EU and euro area average. Similarly, the employment rate (age 20-64) was at historically high levels (77.5%).

Less positive developments were recorded for youth unemployment (age 15-24) which, although it improved, remained high (19%) and above pre-pandemic levels (see Annex 14). Additionally, young people in employment often face precarious job conditions. Reducing youth unemployment is key to reaching the national employment target by 2030.

Overall, the labour market remains relatively tight and labour shortages have been increasing in the last ten years, including in the construction, industry and services sectors. Unemployment rates are highest in the regions of Algarve and Madeira (see Annex 17).

Regional disparities persist. The pandemic led Portugal to diverge from the rest of the EU in terms of GDP per capita, interrupting a (slow) convergence since the sovereign debt crisis. GDP per capita as a percentage of the EU average declined from 78.6% in 2019 to 75.1% in 2021. GDP per capita is below the EU average in all regions of Portugal with the capital region recording the highest figure. Regional disparities mirror important gaps in labour productivity, innovation performance and competitiveness.

Portugal's regions have been converging in their GDP per capita since 2010, but mostly driven by economic contraction in the capital region, from above 121% of the EU average in 2006 to 96% in 2021 (see Annex 17). In this context, EU Cohesion Policy is key to helping Portugal's regions to resume convergence with the EU, promoting their competitiveness and

innovation performance. Portugal benefits from a significant volume of EU cohesion funds (EUR 28.9 billion) (see Annex 4).

Public finances improved, with persisting high inflation

Portugal's public finances improved in 2022. The general government balance recorded a deficit of 0.4% of GDP in 2022, from 2.9% of GDP in 2021. Government revenues benefited from the strong economic rebound and favourable labour market developments, with tax revenues being boosted by inflation. At the same time, the wind-down of COVID-19-related measures contributed to curb expenditure. The general government deficit is forecast to narrow in 2023 to 0.1% of GDP and remain unchanged in 2024 (see Annex 20). The rebound in public investment is expected to continue, propelled by the implementation of the Portuguese recovery and resilience plan (RRP) and other EU-funded programmes. The public debt-to-GDP ratio declined to 113.8% in 2022, already below pre-pandemic level, and it is projected to further decrease in 2023 and 2024. Pre-pandemic pressures on current spending, notably on social benefits and the public wage bill, are expected to persist. A robust budgetary framework and improving the financial sustainability of state-owned enterprises remains key to strengthening the sustainability of Portugal's public finances.

Portugal faces high inflation. Inflation rose from 0.9% in 2021 to 8.1% in 2022 (Euro area inflation 2.6% in 2021 and 8.4% in 2022). The main drivers of inflation were the steep rise in global energy and food prices, as well as the severe drought in Portugal until September 2022. In response, Portugal has adopted measures to counteract the impact of the rise in energy

prices (see Box 1). Inflation is projected to gradually diminish in 2023-24.

Despite limited direct effects, the indirect effects of Russia's invasion of Ukraine are significant. Portugal's dependency on Russian energy supply is very small but it is dependent on imported fossil fuels and is therefore exposed to global price volatilities. The overall trade volume between Portugal and both Russia and Ukraine is also small, but the indirect impact via global supply chain disruptions and high commodity prices constrain growth.

Sustainable Development Goals – a positive trend, but social and environmental challenges persist

Portugal improved in relation to the UN's Sustainable Development Goals (SDGs), but still needs to catch up in some areas. Most indicators evolved favourably in recent years (see Annex 1). The improvement is most marked in the security, justice, institutional and climate mitigation areas (SDG 16 Peace, justice and strong institutions and SDG 13 Climate action).

SDG 11 (Sustainable cities and communities) and SDG 12 (Responsible consumption and production) improved only slightly due to a mediocre performance in circular economy and waste management.

Progress is visible for SDG 9 (Industry, Innovation and Infrastructure) and SDG 3 (Good health and wellbeing) but indicators are still significantly below the EU average. Finally, the indicators for marine waters (SDG 14) and for inequalities and social inclusion (SDG 10) deteriorated, is the later

also being reflected in the Social Scoreboard (see below).

The Social Scoreboard accompanying the European Pillar of Social Rights flags various concerns. While Portugal continues to perform better than average in disability and gender employment gaps, youth employment is still highly precarious, and the country continues to face a structural skills deficit in the adult population (see Annex 14).

Portugal has a large share of people who have not completed more than lower secondary education (40% in 2021), alongside skills mismatches, whereby the technology and innovation intensive sector, because of its small size, absorbs only a fraction of the available high-skilled workers⁽²⁾.

Furthermore, social indicators show rising levels of poverty in 2020 and 2021. Income inequalities also rose during the same period. The coverage and adequacy of social protection is concerning, notably because of the complexity and relative inefficiency of the system. The share of people overburdened by housing costs has also risen, while the provision of social and affordable housing is still lagging.

Climate change is causing more frequent and intense heat waves, droughts and wildfires in Portugal. These particularly affect agriculture and forestry, biodiversity, energy, buildings, tourism and health (see Annex 6). And they create challenges for climate change adaptation, in particular forest and water management, as well as environmental protection.

More frequent droughts also risk impacting the supply of hydro-electric power. Further investment in the electricity grid, storage

⁽²⁾ [OECD, Skills for jobs Database](#)

Box on energy response in Portugal

Portugal adopted various support measures to cushion the impact of energy price inflation on households and businesses. For 2023, their gross budget costs are projected – in the Commission 2023 spring forecast – to amount to 0.8 % of GDP ⁽³⁾. Most measures remove the price signal as an incentive for consumers to use less energy and are not targeted at the most vulnerable. The energy support measures are assumed to fully phase-out in 2024.

Key energy measures in place in 2023 include lump-sum payments to low-income households, a reduction of the fuel tax, the suspension of the increase in the carbon tax and a reduction of the VAT for electricity. A transitional regime to stabilise gas prices paid by firms is to be in place, supported with an allocation of up to EUR 1 billion to the national gas system. Portugal has also implemented a cap on the price of gas used for electricity generation, known as the 'Iberian mechanism', starting in May 2022 and set to expire by the end of 2023 (see Annex 7).

Portugal applies a national measure (*contribuição de solidariedade temporária*) ⁽⁴⁾ in application of Council Regulation (EU) 2022/1854 ⁽⁵⁾ for the fiscal years 2022 and 2023, with a defined rate of 33%. The Portuguese national measure is levied on both the energy and food retail sectors ⁽⁶⁾.

To ensure a stable and uninterrupted supply of gas to all consumers, Portugal set a minimum global quantity of gas security reserves. Portugal also adopted a set of measures to reduce energy consumption (electricity and gas) in the sectors of public administration, industry, commerce, services and residential buildings. Measures to accelerate the green transition include the adoption of '*Simplex Ambiental*' on faster permitting and the establishment of a centralised purchase system for biomethane and renewable hydrogen.

and solar and wind installations would alleviate this problem in the future.

(3) For 2022, the gross budgetary costs of measures amounted to 2.0% of GDP. Some of the measures outlined in this box were already in place in 2022.

(4) [Law No 24-B/2022](#) of 30 December 2022 that regulates temporary solidarity contributions on the energy and food distribution sectors.

(5) [Council Regulation \(EU\) 2022/1854](#) of 6 October 2022 on an emergency intervention to address high energy prices.

(6) Member States can keep national measures that are equivalent to the solidarity contribution regulated 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 extraction of crude petroleum, natural gas, coal, and refining.

THE RECOVERY AND RESILIENCE PLAN IS UNDERWAY

Portugal's recovery and resilience plan (RRP) aims to address the key challenges related to social services, healthcare, financing of businesses, innovation, education and skills, fiscal sustainability and the digital and green transitions. It consists of 32 reforms and 83 investment strands that are supported by EUR 13.9 billion in grants and EUR 2.7 in loans, representing 7.9% of GDP (see Annex 3 for more details).

The implementation of Portugal's recovery and resilience plan is underway, however with risk of some delays.

Portugal submitted two payment requests, corresponding to 58 milestones and targets in the plan and resulting in an overall disbursement of EUR 2.98 billion. The Portuguese RRP is ambitious and complex in nature. Strong governance and continuous monitoring of the plan are essential to minimise the risk of delays. Milestones and targets related to large investments including in health, social housing and sustainable mobility, will be assessed in the next payment requests. Measures adopted since December 2021, which formed part of the second payment request, include reforms in the areas of managing public hospitals and the digital transition in the private and public sectors.

The Portuguese plan is expected to be revised with new measures, including a REPowerEU chapter, and will take into account the increased maximum financial contribution ⁽⁷⁾. The revision is

(7) The maximum financial contribution for Portugal was updated on 30 June 2022 to an amount of EUR 15.5 billion in grants, in line with Article 11(2) of the RRF Regulation (Regulation (EU) 2021/241).

also expected to include changes to the existing plan that are necessary due to objective circumstances. Portugal has communicated to the Commission its intention to request 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.

Strengthening the resilience of labour market and social services

The RRP addresses challenges in the labour market, which also helps implement the European Pillar of Social Rights. As part of the set of milestones and targets already met, Portugal completed a reform to incentivise public-private collaborative arrangements in education and training, to ensure that labour market needs are considered.

The RRP comprises further measures, yet to be implemented, to address labour market challenges, such as a reform to tackle gender imbalances. To help young people integrate into the labour market, employment support currently available focuses on workers under 35 years.

A law regulating platform work was approved at the beginning of 2023 to address the new challenges created by atypical labour relations.

Lastly, to boost access to the labour market, the RRP includes measures to strengthen participation in adult learning.

The RRP provides clear answers to several socio-economic challenges. It includes reforms and investment to supply more targeted social services. Portugal is upgrading and expanding its infrastructure for social care services, benefitting groups such as children, the elderly and those with disabilities.

It also combats poverty and social exclusion through action linked to specific needs in the most disadvantaged communities in the Metropolitan areas of Lisbon and Porto.

The RRP includes action that aims to make housing more affordable. The proportion of the Portuguese population overburdened by housing costs increased in 2021 and the provision of affordable social housing remains low (see Annex 14).

The RRP provides EUR 2.73 billion to increase the supply of permanent and temporary affordable housing. Construction work is underway, both in mainland Portugal and in the Azores and Madeira, to supply adequate housing solutions for the most vulnerable groups.

The RRP also aims to make Portugal's health and long-term care systems more resilient. Over the past year, as part of the set of milestones and targets it has already fulfilled, Portugal introduced a new management contract template for public managers of state-owned enterprises in the health system, to increase accountability and promote performance-based management practices.

Portugal also approved the Mental Health decree-law, which strengthens the response capacity of the National

Health Service in the field of mental health and defines the principles for organising mental healthcare services (see Annex 16).

Finally, as part of the Strategic Plan for the Regional Health System of Madeira, Portugal deployed a new classification system to simplify the referral process and to improve monitoring, with the goal of strengthening Madeira's regional model of integrated ongoing care services.

Improving education and skills

The RRP is expected to further improve education outcomes for all. Portugal is making progress in most education performance indicators (see Annex 15). However, the level of progress differs between the regions, and socio-economic background still plays a significant role in pupils' performance.

The RRP includes measures to help the digital transition in education. As part of the set of milestones and targets that have already been met, 600 000 laptops have been procured and are being distributed to teachers and pupils in public schools. Online courses and digital manuals are also currently being deployed in Azores and Madeira.

Portugal is introducing ambitious measures to address the overall low skill level of its adult population. Despite progress, Portugal still has a significant skills deficit relative to the EU (see Annex 14). As part of the set of milestones and targets it has already fulfilled, Portugal approved a law on creating special competitions for admission to higher education after completing vocational secondary education.

Moreover, a new legal framework governing the cooperation of higher education institutions with public administrations and businesses was approved.

These reforms are expected to adapt education and training to the changing needs of the labour market and the green and digital transitions.

As part of a comprehensive reform of its vocational education and training system, Portugal also reviewed the training content included in the National Qualifications Catalogue.

The RRP also includes targeted measures in early implementation stage to tackle the digital skills gap for various social and age groups, including civil servants.

Boosting competitiveness and innovation

The RRP also tackles shortcomings in the business environment. Heavy business regulations and judicial inefficiencies, notably for insolvency and civil enforcement proceedings, have been major obstacles to investment (see Annex 13).

The relatively high share of late payments, although on a declining trend, also remains a concern.

RRP reforms aim at upgrading the insolvency framework and increasing the efficiency of courts. These reforms are due between 2023 and 2025 but Portugal has already taken initial steps. The RRP also includes a reform of the self-regulated professions, which is currently under way. The main objective is to lower restrictions in the access and exercise of these professions, reduce the list of reserved

activities and allow multidisciplinary business services firms to operate.

The RRP also includes measures to contribute to structural improvements related to late payments by public buyers, and the removal of barriers to licensing. Access to equity finance and venture capital is still limited, especially for small and medium firms. To promote equity investment, the National Promotional Bank (Banco Português de Fomento) was recapitalised with EUR 250 million. In 2022 it also set up two capitalisation funds to allocate EUR 1.43 billion to companies in equity and quasi-equity.

Research and innovation are expected to be improved by the implementation of the RRP. Portugal classifies as a “moderate innovator” (see Annex 11), as its research and development intensity, albeit improving, is still well below the EU average. To address this long-standing issue, the RRP includes sizeable measures promoting public-private R&I projects.

Among them is the creation of new collaborative laboratories, as nine new entities were awarded with this title in 2021. It also includes the expansion of technology centres and the setting up of business-academia consortia, referred to as “mobilising agendas”. Portugal recently selected 53 of these agendas (10 of which are supported by the RRP), covering a wide range of fields, for a total investment of over EUR 3 billion.

Further RRP measures include the review of the 2018-30 Innovation Strategy, concluded in 2021, as well as reforms and investment to be implemented in sectoral R&I systems such as agriculture, the bioeconomy and the blue economy.

The RRP aims to accelerate the digital transition of the Portuguese economy

and society. Portugal is a medium performer in the digital area, with above average performance in fixed digital infrastructure and use of Artificial Intelligence by enterprises (see Annex 10). Digitalisation among local small and medium firms is low. As part of the set of milestones and targets it has already fulfilled, Portugal implemented measures to further digitalise public services such as developing the land registry, and other Justice services, including courts, secure mobile communications for civil servants, the online pre-filling of tax forms and the selection of Digital Innovation Hubs. Portugal also started the digitalisation of adult learning and education, cultural institutions, public administrations and businesses.

Reinforcing fiscal sustainability

A stronger budgetary framework will underpin the recovery. As part of the set of milestones and targets it has already fulfilled, Portugal implemented an online pre-filling option for the municipal immovable property tax declaration ('Imposto Municipal sobre Imóveis'). The RRP also includes decisive steps towards implementing the 2015 Budgetary Framework Law. Some of these measures are currently underway, such as:

- the secondary legislation regulating the specific revenue and expenditure items to be included in the budget of the State Accounting Entity;
- 1. the adoption of a model to monitor budgetary and financial execution;
- the adoption of new procurement models for the central public procurement system.

In addition, the RRP includes measures that aim to upgrade the information systems for public financial management and real estate taxation, a measure yet to be implemented.

Measures to improve the financial performance of state-owned enterprises are being taken. The RRP includes measures to swiftly identify and correct deviations from the approved budgets, to increase transparency and strengthen monitoring and governance.

A new management contract, anchored in performance-oriented incentives for public managers, was adopted in December 2021, alongside the one adopted in June 2022 for the public management of state-owned enterprises in the national health service. Other measures are also being implemented, such as the adoption of a new model to report on and analyse the financial situation of state-owned enterprises.

Supporting the green transition

Renewable energy production is progressing. As part of the set of milestones and targets it has already fulfilled, Portugal introduced important legislative amendments to set up the conditions for hydrogen and other renewable gases to be injected into the grid, to promote the gradual introduction of renewable hydrogen.

Portugal also launched two calls for supporting private projects to produce hydrogen and other renewable gases. Other measures in the Autonomous Regions of the Azores and Madeira will invest in renewables and storage solutions and will revamp the electricity grid.

Box on key deliverables in 2023-24

- Creation of at least 30 000 permanent jobs (hiring subsidy programme)
- Reform of the self-regulated professions
- Entry into force of the law regulating platform work
- 14 100 new or renovated vocational training stations
- Special lanes for zero emission buses in Porto and 145 zero emission buses
- Strengthening of the legal framework for developing the capital market
- Capitalisation support for Portuguese businesses (EUR 1.3 billion)
- 12 000 small and medium firms supported by digital commerce accelerators
- 3 000 dwellings for social housing and 12 500 student accommodation places
- Digitalisation measures in schools
- 179 firefighting and fire-prevention vehicles, machinery and equipment
- 830 000 m² of energy-efficiency renovation for private residential buildings
- Entry into force of the revised legal framework for insolvency and recovery
- Telemedicine appointments in the Azores' regional health service
- Digital information platform for people with disabilities
- 5 200 electric vehicle recharging points
- Modernisation and simplification of the national central public procurement system

Measures addressing the decarbonisation of the economy are in their first stages. The RRP contributes to climate change objectives through various measures (38% of the total allocation). As part of the set of milestones and targets Portugal has already fulfilled, Porto Metro signed the contract for the construction of a Rapid Bus Transit line, which will operate zero-emission buses to promote sustainable public transport.

Other measures, including the expansion of the metro in of Lisbon and Porto are currently under way, with the related contracts having been signed.

The RRP also includes reforms and investment to support decarbonisation and circular economy in industries.

Tenders to support at least 300 projects for the decarbonisation of industrial processes have been launched. Projects for improving the circular economy and bioeconomy in textile, shoe and resin production have been selected.

Furthermore, adaptation measures in the field of water efficiency and landscape management are included in the RRP, to help Portugal better deal with the current and future impacts of climate change.

The RRP also supports sizeable investment in the energy-efficiency renovation of buildings. Financing contracts for the renovation of some care facilities have already been awarded.

FURTHER PRIORITIES AHEAD

Beyond those tackled in the RRP, Portugal faces additional challenges.

Portugal's public finances remain sensitive to shocks, and the ageing population weighs on public spending. This also puts pressure on the social protection system, which is comparatively inefficient in limiting poverty. The tax and social protection systems are complex and impose a significant administrative burden. Strengthening and modernising the public administration is also a key priority.

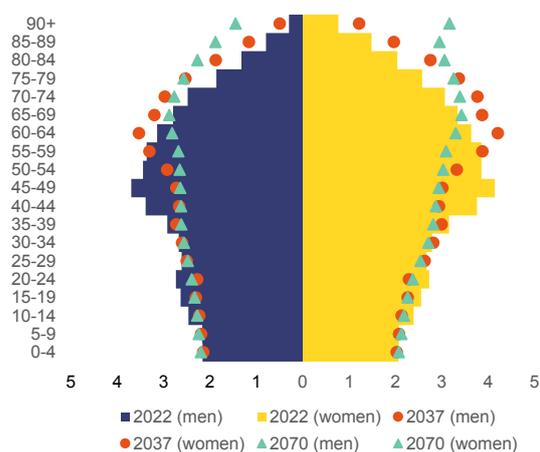
Similarly, the dependency on fossil fuels, and the limited internal electricity grid and energy interconnections constrain Portugal's competitive position in the green transition. Furthermore, Portugal is still lagging on the circular economy, a key aspect for sustainable growth. Addressing these challenges will also help to make further progress in achieving the SDGs, where Portugal currently shows room for further improvement, namely in areas such as innovation (SDG 9), sustainable cities (SDG 11), responsible consumption and production (SDG 12) and inequalities (SDG 10).

Ensuring the sustainability of public finances and the efficiency of the public sector as the population ages

Demographic ageing poses a challenge to Portugal's public finances. Ageing-related expenditure on pensions and health is set to become a decisive factor for Portugal's fiscal sustainability (see Annex 21). An increasingly ageing population, low

fertility rate, shrinking net migration and working-age population (see Graph 3.1) are expected to nearly double Portugal's old-age dependency ratio (the proportion of recipients to contributors in the pension system) by 2050. Estimates suggest this could reach 62.8%, the highest among EU Member States. This translates into increasing pension expenditure over the medium-term. Past reforms of Portugal's pension system helped strengthen its sustainability over the long term. However, the current rules on early retirement, which have been consecutively broadened since 2017, and the recurrent discretionary increases in pensions, are expected to have a lasting negative effect on Portugal's public finances.

Graph 3.1: Population pyramids for Portugal in 2022, 2037 and 2070



(1) Age group as a share of total population

Source: Eurostat

The Portuguese tax system is complex and not sufficiently transparent. Tax expenditures reached 6.4% of GDP in 2022 and are expected to increase further in

2023⁽⁸⁾. Their economic efficiency would benefit from being regularly monitored and assessed⁽⁹⁾. For direct taxation, pre-payments are often above taxpayers' final annual tax obligation, resulting in increasing costs for taxpayers. The structure of corporate income tax, compounded by state and municipal surcharges, creates an additional burden for the tax administration and businesses.

Strengthening the efficiency of Portugal's tax administration remains key to encouraging voluntary compliance, while helping reduce tax evasion and fraud and improving the business environment.

Portugal's administrative cost of tax collection increased in recent years and the time taken to pay taxes in Portugal appears longer than in its EU peers. Outstanding tax arrears have increased (see Annex 19) and are well above the EU average.

First steps have been taken to address some of these shortcomings in the Portuguese tax system⁽¹⁰⁾.

Improving the performance and attractiveness of public administration remains key. The number of public sector workers has been steadily increasing in recent years, reaching a peak in Q4 2022. This in turn exerts pressure on Portugal's public finances. In this context, in view of an ageing population the demand for administrative public services is expected to increase, notably in the areas of health and

(8) '[Analysis of the Draft State Budget for 2023](#)', Public Finance Council, October 2022

(9) '[Tax benefits in Portugal – concept, methodology and practice](#)', Working Group on Tax Benefits, May 2019

(10) On 29 September 2022, the government approved a draft Law aimed at reducing the number of tax benefits, but not including a regular review process. In addition, a new system for direct tax withholdings will apply as of July 2023 aimed at reducing the problem of often too high pre-payments.

long-term care. Worker shortages in these areas are already apparent (see Annex 16).

The share of employees in the public administration with higher education remains well below the EU average. At the same time, Portugal's public administration is ageing (see Annex 13), challenging the sustainability and accessibility to public services such as education (Annex 15), health and long-term care (Annex 16). Moreover, staff retention in strategic sectors (notably in health and long-term care), where the government competes with private employers, remains difficult.

Structural measures to improve the efficiency of the Portuguese public administration, while ensuring an effective wage setting, remain key.

Despite some improvements, the justice system still experiences challenges in its efficiency, especially in the number of pending administrative cases and disposition time.

Ensuring adequate social protection

The recent rise in poverty levels points to persisting limitations in the adequacy and coverage of the social protection system. The share of people at risk of poverty and social exclusion increased to 22.4% in 2021 (see Graph 3.2), in contrast to the general stability of this metric in the EU. This challenges Portugal's capacity to achieve its 2030 national poverty reduction target.

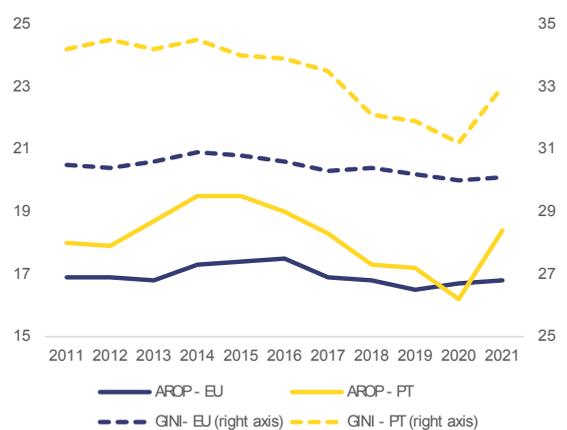
The capacity of social transfers (excluding pensions) to alleviate poverty is limited (see Annex 14). Moreover, future higher pension and health expenditure caused by the ageing population is putting the social protection system under pressure.

Inflation and the rise of mortgage interest rates in 2022 put an additional burden on families and, at 35% of the poverty threshold, the adequacy of the minimum income remains low.

The social protection system and the wide range of social benefits need to be further simplified and optimised to improve their effectiveness, adequacy, and coverage.

While the law regulating platform work will help (see Section 2), gaps remain in access to social protection for some categories of workers.

Graph 3.2: **Poverty (AROP) and inequalities (GINI) 2011-21 (%)**



Source: Eurostat, EU-SILC

The rise in energy prices affects the most vulnerable. Although energy poverty indicators have improved in recent years, they remain among the highest in the EU. Despite the positive effect of the 'Iberian mechanism' ⁽¹¹⁾ on energy prices, over one in three poor households experience energy poverty and more than 16% of the population were unable to keep their

⁽¹¹⁾ The implementation of the 'Iberian mechanism' (a cap on the price of gas used for electricity generation) has cut prices by around 20% in the first seven months of its application (see Annex 7). However, while helping to curtail the increase in wholesale electricity prices, this exception also reduced incentives to reduce gas consumption in the electricity generation sector.

homes adequately warm in 2021 (Annex 8). Energy-efficiency programmes in Portugal are still not targeted enough. The 'Vale Eficiência' programme in the RRP ⁽¹²⁾ has so far seen low take-up.

Strengthening environmental sustainability and resilience

Portugal needs to improve its circular economy and waste management. The average municipal recycling rate increased in 2021 but remains low at only 30%, far below the EU average, and with major regional disparities. The percentage of municipal waste that is still landfilled is more than double of the EU average. Furthermore, the circular material use rate (proportion of material recycled and fed back into the economy) is one of the lowest in the EU and has not significantly increased since 2015.

The Portuguese industry also uses more materials for its production than the EU average with a resource productivity of 1.4 purchasing power standard per kilogramme vs 2.3 for the EU in 2021 (Annex 9). While the RRP as well as Cohesion policy programmes include some relevant measures for industries (see Section 2), significant improvements in waste management and the circular economy in Portugal are necessary (see Annex 9). The recently adopted national waste management plan, as well as the new water and wastewater strategic plan to be adopted, will be instrumental in this regard

Portugal is facing more frequent and intense natural hazards. Heat waves, major rural fires and unpredictable extreme

⁽¹²⁾ Energy efficiency voucher programme aiming to provide 100 000 energy efficiency vouchers to vulnerable families.

local natural phenomena affect agriculture and forestry, biodiversity, the energy sector, buildings, tourism and health.

Between 1980 and 2020, only around 4% of disaster losses were insured for in Portugal. The rest of losses covered by the country's own economic resources⁽¹³⁾. Going forward, these natural phenomena, particularly wildfires, represent a relevant risk to Portugal's public finances⁽¹⁴⁾.

While the RRP and Cohesion policy programmes include some investment aimed at improving the prevention of and response to wildfires, the consequences of climate change, especially wildfires, threaten human life and pose a risk to public finances, especially if insurance coverage remains low. Emergency support linked to the provision of assistance to households or investment to ensure the replacement of damaged infrastructure result in additional public spending.

Wildfires also hamper the ability of Portugal's forests to act as a carbon sink (see Annex 6).

Despite recent progress and some measures in the RRP to increase the resilience of water resources in Algarve and Madeira, challenges remain in water management, especially in terms of governance, water body rehabilitation and water efficiency.

Portugal would benefit from improved water policies, notably wastewater collection and treatment, reducing leaks, improving water supply and monitoring

and introducing nature-based water management solutions. In addition, Portugal has potential to increase water reuse.

Ensuring energy security

Portugal is well on track to decarbonise its energy system but remains dependent on imported fossil fuels. The REPowerEU Initiative offers Portugal a unique opportunity to scale up and support energy-related measures, to make further progress on its decarbonisation objectives. Portugal has increased its share of renewable energy in recent years. Portugal has one of the most decarbonised energy systems in the EU, getting close to its renewable energy target for 2030⁽¹⁵⁾.

Imports of fossil fuels from Russia are negligible and Portugal's gas needs are covered by liquified natural gas from the U.S. and Nigeria. Portugal fulfilled its gas storage obligations last winter, reaching 98%. Portugal also reached the 15% target of gas demand reduction (see Annex 7) and continuous efforts, on the basis of structural measures to decrease gas demand, will help to prepare for next winter and stabilise energy prices.

However, Portugal's current energy mix is still mostly based on imported fossil fuels. Oil dependency is particularly high in transport, despite a sharp increase in zero-emission vehicles and recharging stations. The reliance on gas in the electricity sector poses risks in terms of security of supply, especially considering the more frequent droughts in recent years, which have been

⁽¹³⁾ D. Radu (2022) '[Disaster Risk Financing – Limiting the Fiscal Cost of Climate-Related Disasters](#)', European Commission, Discussion Paper 174, November 2022

⁽¹⁴⁾ Based on the climate protection gap. Please note that the indicator does not provide information on the split private/public cost of climate related disasters ([European Insurance and Occupational Pensions Authority \(EIOPA\)](#))

⁽¹⁵⁾ Renewables in gross final energy consumption should reach 47% by 2030 under the current NECP, while the share of renewables in power generation should reach 80%. Recently, Portugal has announced its ambition to bring the 80% target forward to 2026.

causing a shortfall of hydro-electric power in recent years.

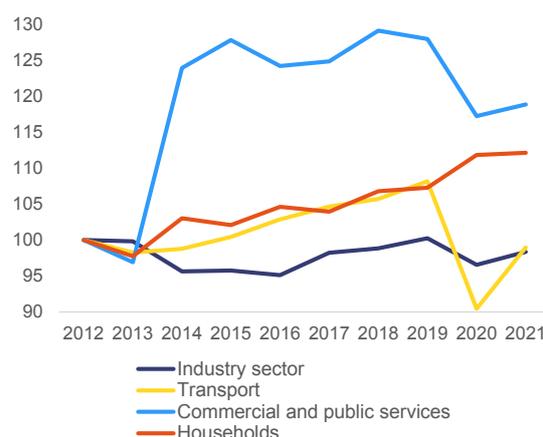
Further energy efficiency and decarbonisation measures would reduce Portugal's reliance on fossil fuels. Energy consumption in the residential building sector has been growing in the last 10 years (see Graph 3.3.), mainly due to poor heat-retention by the buildings, inefficient energy systems and an overall lack of maintenance.

While both the RRP and Cohesion policy programmes include sizeable renovation measures, Portugal would need to invest EUR 4.95 billion per year until 2050 to fully transform its building stock ⁽¹⁶⁾.

The lack of financing schemes to leverage private investment is a major impediment for energy efficiency renovations and leads to a significant investment gap. The lack of skilled workers for renovations is another point of concern (see below).

The shift towards the decarbonisation of transport is underway. However, prioritising public transport would help with heavy traffic in major metropolitan areas. Completing the TEN-T high-speed core would also reduce transport's reliance on fossil fuels.

Graph 3.3: **Energy consumption in key sectors 2012-21 (2012 = base year)**



Source: Eurostat

Strengthening Portugal's competitive position in the green transition

Portugal set itself ambitious goals for deploying renewable energy. Portugal still has under-exploited potential for offshore wind energy and solar energy (particularly decentralised solutions such as rooftop installations). Beyond the measures already included in the RRP and Cohesion policy programmes, Portugal has announced the preparation of a 10 GW auction for offshore wind planned for 2023 and plans to have 9 GW of installed solar capacity by 2026, compared to the 2.6 GW at the end of 2022. Considering its goal, Portugal has to increase its capacity by around 1.5 GW per year, from the beginning of this year until 2026.

It has also taken measures aimed at streamlining permitting processes for renewable energy production ⁽¹⁷⁾. However, obstacles remain in Portugal for issuing production licences and installing and

⁽¹⁶⁾ National Long-term Renovation Strategy (ELPRE), February 2021. 76% of the investment needs concern residential buildings.

⁽¹⁷⁾ As part of the 'Simplex' programme, Portugal modified its rules for developing hydrogen and renewable energy projects.

connecting plants to the electric grid, notably regarding spatial planning and digitalisation; and the number of permits necessary and bodies involved is large.

The number of self-consumption projects and renewable energy communities remains low⁽¹⁸⁾ and there is scope to facilitate licensing, create one-stop-shops and prioritise access to the grid for such projects. In addition, the share of smart meters in the country is relatively low (see Annex 7).

While the development of renewable hydrogen is quite advanced, biomethane is lagging. Portugal is already among the EU's front-runners in renewable hydrogen development, which is fundamental to reaching its decarbonisation goals, and plans to invest in renewable hydrogen infrastructure, notably to export and trade renewable hydrogen. However, there is still scope to further upscale its biomethane production, given its potential. Here a clear funding and incentives plan is needed (see Annex 7).

The status of the electricity grid and low level of interconnections are still limiting factors on renewables development. The level of electricity interconnection between Portugal and Spain in 2022 was around 10.9%. The national target for 2030 stands at 15%.

The REPowerEU Communication⁽¹⁹⁾ stresses that increasing the interconnection level between Portugal and Spain is critical⁽²⁰⁾. The status of the electricity grid

⁽¹⁸⁾ According to the Ministry of Environment, there are only four operational renewable energy communities in Portugal, with 372 pending applications: [Portugal ainda não chegou a uma mão-cheia de comunidades de energia renovável | Energia | PÚBLICO \(publico.pt\)](#)

⁽¹⁹⁾ COM(2022) 108 final, 8 March 2022

⁽²⁰⁾ In October 2022, the heads of state and government of France, Spain and Portugal proposed a Green Energy Corridor, which envisages the completion of

could be improved by additional infrastructure investment, including in batteries, pumped hydropower storage and internal grid reinforcement such as the Pedralva and Sobrado 'projects of common interest'. This, in turn, would increase the flexibility of the electricity system and facilitate the integration of more renewable energy sources into the grid. The Portuguese RRP does not include grid investment on the mainland. The Cohesion policy programmes will support energy storage systems and their integration into the transmission network but do not include a specific target for cross-border interconnections.

Portugal has untapped manufacturing potential in the cleantech industry.

Portugal is highly dependent on non-EU countries for cleantech that is key to the deployment of renewables and this heavy reliance on foreign technology may undermine the country's competitiveness in the green transition. Despite of its potential in manufacturing equipment like blades, generators, and nacelles for wind turbines, skilled labour shortages and a low level of private investment in electrical equipment manufacturing and R&D inhibit cleantech development and rollout. Supply chain bottlenecks also limit production potential, with one third of electrical equipment manufacturers currently reporting shortages.

In the context of the green transition, labour shortages in key sectors have increased in recent years. Shortages are linked to a lack of relevant skills. They create bottlenecks in the transition to a net-zero economy. In 2022, labour shortages were reported in Portugal for 22 occupations that required specific skills or

future interconnections between the three countries and the development of energy storage projects.

knowledge for the green transition, including building and related electricians, electrical mechanics and fitters⁽²¹⁾. The job vacancy rate increased across key sectors, such as construction (from 0.4% in 2015 to 1% in 2021) and manufacturing (from 0.5% in 2015 to 0.9% in 2021), with both sectors standing below the EU average of 3.6% and 1.9%, respectively, in 2021⁽²²⁾.

In 2022, labour shortages were reported as a factor constraining production in industry for 11.5% of firms and construction for 31.4% of firms⁽²³⁾. Upskilling and reskilling for the green transition, including for people most affected, and promoting inclusive labour markets, are essential policy levers to accelerate the transition to net zero and ensure it is fair (see Annex 8).

Improving productivity and the business environment

Over the past decade, productivity growth in Portugal has been low and the productivity gap to the EU average has been widening⁽²⁴⁾. Portugal faces challenges regarding its business

environment (see chapter 2) and productivity. R&D business investment remains low (see Annex 11) and varies greatly between regions (see Annex 17). Limited access to finance for small and medium firms, as well as long payment delays in business-to-business transactions, are a challenge for businesses, especially smaller ones.

Restrictions remain in place for regulated professions like civil engineers, lawyers, accountants, architects, and tourist guides (see Annex 12). Administrative and regulatory burdens for businesses remain an obstacle due to complex licensing requirements and challenges to the efficiency of the justice system.

Skills gaps and shortages of skilled workers also remain a barrier to investment in Portugal.

As Portugal is well integrated into the single market, trade with other EU Member States accounts for roughly 70% of all trade in goods and services and has continued rising over the past five years. However, opening up regulated professions and improvements in public procurement would help untap the full potential of the single market.

⁽²¹⁾ Data on shortages is based on European Labour Authority (2023), EURES Report on labour shortages and surpluses 2022. National authorities report via a questionnaire, based on administrative data and other sources as submitted by the EURES National Coordination Offices (definitions of shortages differ, thus data is not comparable across countries and covers a wide variety of sectors). Skills and knowledge requirements are based on the ESCO (European Skills Competences and Occupations) taxonomy on 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.

⁽²²⁾ Eurostat (JVS_A_RATE_R2)

⁽²³⁾ European Business and Consumer Survey

⁽²⁴⁾ Labour productivity (GDP per hour worked in PPP) regressed from 80% of the EU average in 2011 to 73% in 2021.

KEY FINDINGS

Portugal's Recovery and Resilience Plan includes measures to address a series of the country's structural challenges by:

- increasing employment, addressing youth unemployment and reducing labour market segmentation;
- improving education and the skills of the adult population, including those related to the digital transition;
- ensuring the resilience and inclusiveness of social protection and social housing, as well as health and long-term care systems, in view of the demographic shifts;
- strengthening the budgetary framework and the financial sustainability of state-owned enterprises;
- supporting the green transition by developing renewables, making energy-efficiency renovations and decarbonising industries;
- improving the business environment, including digitalisation, reducing restrictions in services, and improving firms' productivity, the R&I system, and firms' access to financing.

Portugal should accelerate the implementation of its recovery and resilience plan, also by ensuring an adequate administrative capacity, and swiftly finalise the REPowerEU chapter, with a view to rapidly starting its implementation.

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

- simplifying the tax system, to reduce the associated administrative burden and improve the business environment;
- improve the effectiveness of the social protection system with a particular focus on simplifying the framework, making the administration more efficient and reducing the administrative burden;
- improving productivity and the business environment through increased investment in innovation and reduced administrative and regulatory burden;
- improving the efficiency and performance of the public sector workforce;
- improved water management and environmental protection, to strengthen resilience against the effects of climate change;
- improved waste management, to support the transition to a circular economy;
- further reduce dependency on fossil fuels and reduce energy consumption in the transport, buildings and industry sectors – by stimulating investment in energy efficiency and clean energy sector;
- further deployment of wind and solar energy, including offshore and decentralised production, and

strengthening electricity
interconnections and the electric grid;

- improved level of green skills through targeted upskilling or reskilling programmes, to ease the deployment of renewable energy and energy-efficiency measures.

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CROSS-CUTTING INDICATORS

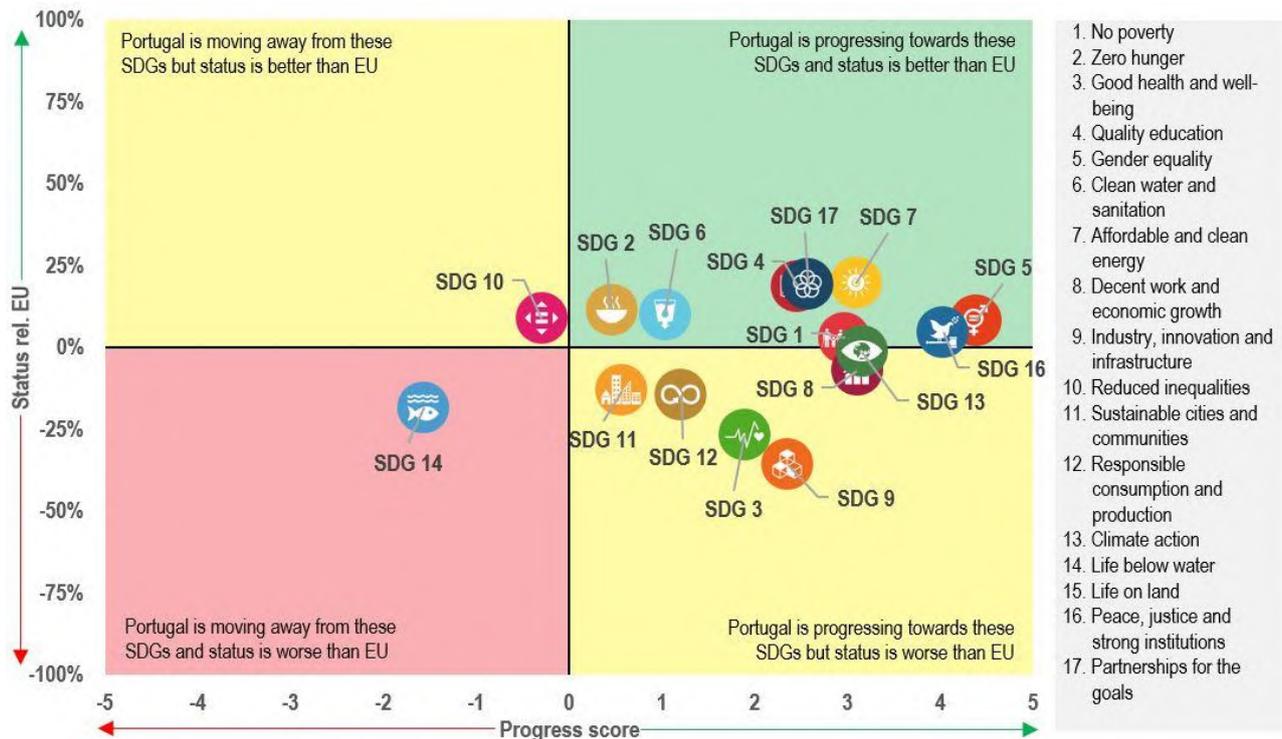
ANNEX 1: SUSTAINABLE DEVELOPMENT GOALS

This Annex assesses Portugal’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.

indicators related to environmental sustainability. It performs well on **SDG 7 (Affordable and clean energy)** but needs to **catch up with the EU average on maritime waters (SDG 14) and sustainable cities (SDG 11)**. Portugal increased the share of renewable energy in gross final energy consumption from 30.9% in 2016 to 34% in 2021 (same as 2020), which is high compared to the EU average (21.8% in 2021). The environmental impact of agriculture is lower than the EU average but the level of nitrate in ground water is increasing (from 17.4 mg NO3 per litre in 2015 to 19.3 mg in 2020). Eutrophication is also increasing in marine waters and Portugal protects less than 5% of its marime areas (EU: 12%). Circular economy indicators are well below EU average with a low rate of recycling

Portugal is improving overall on the SDG

Graph A1.1: Progress towards the SDGs in Portugal 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 the 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.

of municipal waste, which stood at 30.5% in 2021 (against 49.6% for the EU) and a circular material use rate representing only one fifth of the EU average. The share of public transport (buses and trains) in total passenger transport and the use of rail and inland waterways in freight transport are well below the EU average. Noise pollution is also an issue for 25.1% of the population (17.6% in the EU). Climate change is a challenge for Portugal with a high water exploitation index, which stood at 11.4% of renewable water resources in 2019 (EU: 3.6%) and high climate-related economic losses at more than EUR 40.6 per inhabitant in 2020 (EU: 33.9). Various measures in Portugal's recovery and resilience plan (RRP), such as energy efficiency renovations, the extension of metro lines, increased use of bioproducts in industry, and the decarbonisation of industry, aim to further contribute to general greenhouse gas emission savings.

While Portugal is improving on most SDG indicators assessing the *fairness* of society and the economy, it is moving away from SDG 10 on reduced inequalities, and also needs to catch up with the EU average on health and well-being (SDG 3). While poverty indicators improved consistently until 2020, the poverty rate (people at risk of poverty or social exclusion) is again above the EU average in 2021 (22.4% against 21.7% for the EU), including after social transfers (18.4% against 16.8% for the EU) or for people with a job (in-work at risk of poverty: 11.2% against 8.9% for the EU). The difference between cities and rural areas (urban-rural gap) increased very significantly and remains way above the EU average. This is also the same for energy poverty with 16.4% of the Portuguese population unable to keep their homes adequately warm in 2021 against 6.4% for the EU. Since 2016, the citizenship gap (difference between EU and non-EU nationals) narrowed for the poverty rate but increased for employment and training. Despite some improvements, most of the health and well-being indicators are still far from the EU average, in particular, those on noise pollution,

road deaths, the obesity rate and healthy life years at birth (59.7 years in 2020 against 64 years for the EU). Education and training indicators are now better than the EU average. In 2021, the tertiary education attainment rate (population aged 25-34) in Portugal increased from 34.0% in 2017 to 44.4%, while the participation of adults in learning now stands at 13.8%. While Portugal performs generally better than the EU on gender equality, particularly on employment, the gender pay gap is still above 10% and the share of women in government and parliament has not progressed in the last few years. The Portuguese RRP includes far-reaching measures to progress towards a more equal and healthy society, such as a reform of primary care services and investments in community-based social services, social housing and student accommodation. The RRP also includes household support for energy efficiency renovation.

Portugal is improving on SDG indicators related to *productivity* but still needs to catch up with the EU average regarding innovation and industry (SDG 9). Basic digital skills among the adult population are progressing (55.3% in 2021) and are on par with the EU average. The Portuguese labour market is performing relatively well compared with the EU average, with a high employment rate (77.5% in 2022) and a sharp decrease in long-term unemployment falling to 2.7% in 2022. However, despite improving, the area of R&D and innovation remains a concern. Only 1.69% of GDP was allocated to R&D in 2021 (EU: 2.26%). Despite increasing in recent years, the number of patent applications submitted to the European Patent Office (EPO) per million inhabitants remains very low: 30 in 2022 (EU: 151). Nevertheless, the ambitious RRP measures to improve the business-academia link, increase R&D, and reform vocational education and training have the potential to transform the Portuguese business sector and the R&I system. The RRP also includes the lifting of some restrictions on self-regulated professions.

Portugal is improving on SDG indicators related to *macroeconomic stability (8, 16, 17)*. It is closing its gap with the EU in terms of the investment share of GDP with 20.3% in 2022 (EU: 23.2%). The expenditure on law courts from central government is advancing in line with the rest of the EU. The share of the population reporting crime, violence or vandalism dropped to 6.6% in 2020 (EU: 10.7%). However, the official development assistance reaches only 0.18% of GNI, while the public debt remains high: 113.9% of GDP in 2022. The RRP includes measures to modernise administrative and tax courts.

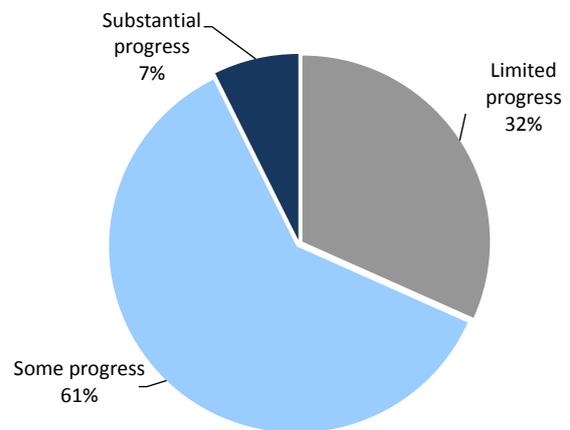
As the SDGs form an overarching framework, any links to relevant SDGs are either explained or depicted with icons in the other Annexes.



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

The Commission has assessed the 2019-2022 country-specific recommendations (CSRs) ⁽²⁵⁾ addressed to Portugal 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 Portugal to date ⁽²⁶⁾ and the commitments in its recovery and resilience plan (RRP) ⁽²⁷⁾. At this stage of RRP implementation, 68% of the CSRs focusing on structural issues from 2019-2022 have recorded at least 'some progress', while 32% 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: **Portugal's progress on the 2019-2022 CSRs (2023 European Semester)**



Source: European Commission.

⁽²⁵⁾ 2022 CSRs: [EUR-Lex - 32022H0901\(22\) - EN - EUR-Lex \(europa.eu\)](#)

2021 CSRs: [EUR-Lex - 32021H0729\(22\) - EN - EUR-Lex \(europa.eu\)](#)

2020 CSRs: [EUR-Lex - 32020H0826\(22\) - EN - EUR-Lex \(europa.eu\)](#)

2019 CSRs: [EUR-Lex - 32019H0905\(22\) - EN - EUR-Lex \(europa.eu\)](#)

⁽²⁶⁾ 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).

⁽²⁷⁾ Member States were asked to effectively address all or a significant subset of the relevant country-specific recommendations issued by the Council in 2019 and 2020 in their RRP. The CSR assessment presented here 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

Portugal	Assessment in May 2023*	RRP coverage of CSRs until 2026**	Relevant SDGs
2019 CSR 1	Some Progress		
Achieve the medium-term budgetary objective in 2020, taking into account the allowance linked to unusual events for which a temporary deviation is granted. Use windfall gains to accelerate the reduction of the general government debt ratio.	Not relevant anymore	Not applicable	SDG 8, 16
Improve the quality of public finances by prioritising growth-enhancing spending while strengthening overall expenditure control, cost efficiency and adequate budgeting, with a focus in particular on a durable reduction of arrears in hospitals.	Limited Progress	Relevant RRP measures implemented as of 2022 and being planned as of 2022, 2023 and 2025	SDG 3, 8, 16
Improve the financial sustainability of State-owned enterprises, while ensuring more timely, transparent and comprehensive monitoring.	Some Progress	Relevant RRP measures being implemented as of 2021 and 2022	SDG 9
2019 CSR 2	Some Progress		
Adopt measures to address labour market segmentation.	Some Progress	Relevant RRP measures being implemented as of 2023	SDG 8
Improve the skills level of the population, in particular their digital literacy, including by making adult learning more relevant to the needs of the labour market.	Some Progress	Relevant RRP measures being implemented as of 2021 and 2022, and planned as of 2022, 2023 and 2025	SDG 4
Increase the number of higher education graduates, particularly in science and information technology.	Some Progress	Relevant RRP measures being implemented as of 2021 and planned as of 2022 and 2025	SDG 4
Improve the effectiveness and adequacy of the social safety net.	Some Progress	Relevant RRP measures being implemented as of 2021 and 2022 and planned for 2022, 2023 and 2024	SDG 1, 2, 10
2019 CSR 3	Some Progress		
Focus investment-related economic policy on research and innovation,	Some Progress	Relevant RRP measures being implemented as of 2021 and 2022 and planned for 2022	SDG 9, 10, 11
railway transport and port infrastructure,	Limited Progress	Relevant RRP measures being planned as of 2022 and 2025	SDG 10, 11
low carbon and energy transition and extending energy interconnections, taking into account regional disparities.	Limited Progress	Relevant RRP measures being implemented as of 2021 and planned as of 2022, 2023 and 2024	SDG 7, 9, 10, 11, 13
2019 CSR 4	Some Progress		
Allow for a swifter recovery of the collateral tied to non-performing loans by increasing the efficiency of insolvency and recovery proceedings.	Some Progress	Relevant RRP measures being planned as of 2023	SDG 8
Reduce the administrative and regulatory burden on businesses, mainly by reducing sector-specific barriers to licensing.	Limited Progress	Relevant RRP measures being implemented as of 2021 and planned as of 2023	SDG 8, 9
Develop a roadmap to reduce restrictions in highly regulated professions.	Limited Progress	Relevant RRP measures being planned as of 2022	SDG 9
Increase the efficiency of administrative and tax courts, in particular by decreasing the length of proceedings.	Some Progress	Relevant RRP measures being planned as of 2023	SDG 8, 16
2020 CSR 1	Some Progress		
In line with the general escape clause, take all necessary measures to effectively address the pandemic, sustain the economy and support the ensuing recovery. When economic conditions allow, pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment.	Not relevant anymore	Not applicable	SDG 8, 16
Strengthen the resilience of the health system	Some Progress	Relevant RRP measures being implemented as of 2021 and planned as of 2022 and 2025	SDG 3
and ensure equal access to quality health and long-term care.	Limited Progress	Relevant RRP measures being implemented as of 2021 and planned as of 2022 and 2025	SDG 3, 8, 10
2020 CSR 2	Some Progress		
Support employment and prioritise measures to preserve jobs.	Some Progress	Relevant RRP measures being planned as of 2023	SDG 8
Guarantee sufficient and effective social protection and income support.	Some Progress	Relevant RRP measures being implemented as of 2021 and 2022 and planned for 2022, 2023 and 2024	SDG 1, 2, 10
Support the use of digital technologies to ensure equal access to quality education and training	Some Progress	Relevant RRP measures being implemented as of 2021 and 2022, and planned as of 2022, 2023 and 2025	SDG 4, 8, 10
and to boost firms' competitiveness	Some Progress	Relevant RRP measures being implemented as of 2021 and 2022 and planned as of 2023 and 2025	SDG 8, 9
2020 CSR 3	Some Progress		
Implement the temporary measures aimed at securing access to liquidity for firms, in particular small and medium-sized enterprises.	Substantial Progress	Relevant RRP measures being implemented as of 2021	SDG 8, 9
Front-load mature public investment projects and	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 8, 16
promote private investment to foster the economic recovery.	Some Progress	Relevant RRP measures being implemented as of 2021 and planned as of 2023	SDG 8, 9
Focus investment on the green and digital transition, in particular on clean and and efficient production and use of energy,	Some Progress	Relevant RRP measures being implemented as of 2021 and 2022 and planned as of 2023 and 2024	SDG 7, 9, 13
rail infrastructure	Limited Progress	Relevant RRP measures being implemented as of 2021	SDG 11
and innovation.	Some Progress	Relevant RRP measures being implemented as of 2021 and planned as of 2022	SDG 9
2020 CSR 4	Some Progress		
Increase the efficiency of administrative and tax courts	Some Progress	Relevant RRP measures being planned as of 2023	SDG 8, 16

(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. Limit the growth of nationally financed current expenditure.	Some Progress	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.	Substantial 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, both on the revenue and expenditure sides of the budget, and to the quality of budgetary measures, to ensure a sustainable and inclusive recovery. Prioritise sustainable and growth-enhancing investment, notably supporting the green and digital transition.	Some 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 by strengthening the coverage, adequacy, and sustainability of health and social protection systems for all.	Some Progress	Not applicable	SDG 8, 16
2022 CSR 1	Some 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.	Limited 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.	Some 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.	Substantial Progress	Not applicable	SDG 8, 16
Improve the effectiveness of the tax and social protection systems, in particular by simplifying both frameworks, strengthening the efficiency of their respective administrations, and reducing the associated administrative burden.	Limited Progress	Relevant RRP measures being implemented as of 2022 and being planned for 2025	SDG 1, 2, 8, 10, 12, 16
2022 CSR 2	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.		
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.	Progress on the cohesion policy programming documents is monitored under the EU cohesion policy.		
Swiftly finalise the negotiations with the Commission on the 2021-2027 cohesion policy programming documents with a view to starting their implementation.			
2022 CSR 3	Limited Progress		
Enhance the conditions for a transition towards a circular economy, in particular by increasing waste prevention, recycling and reuse to divert waste away from landfills and incinerators.	Limited Progress	Relevant RRP measures being implemented as of 2021	SDG 6, 12, 15
2022 CSR 4	Some Progress		
Reduce overall reliance on fossil fuels,	Some Progress	Relevant RRP measures being implemented as of 2021, 2022 and are being planned for 2023	SDG 7, 9, 13
including in the transport sector.	Some Progress	Relevant RRP measures being implemented as of 2022 and are being planned for 2023	SDG 11
Accelerate the deployment of renewables by upgrading electricity transmission and distribution grids, enabling investments in electricity storage	Limited Progress	Relevant RRP measures are being planned for 2023	SDG 7, 9, 13
and streamlining permitting procedures to allow for further development of wind, particularly offshore, and solar electricity production, as well as renewable hydrogen production.	Some Progress	Relevant RRP measures being implemented as of 2021	SDG 7, 8, 9, 13
Strengthen the incentives framework for energy efficiency investments in buildings.	Limited Progress	Relevant RRP measures are being planned for 2024 and 2025	SDG 7
Increase energy interconnections.	Limited Progress		SDG 7, 9, 13

Note:

* See footnote (26).

** 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 RRP payment requests assessed by the European Commission.

Source: European Commission.



ANNEX 3: RECOVERY AND RESILIENCE PLAN - OVERVIEW

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 transition and strengthen resilience against future shocks. The RRF also contributes to implementation of the SDGs and helps to address the Country Specific Recommendations (see Annex 2).

Portugal submitted its current recovery and resilience plan (RRP) on 22 April 2021. The Commission’s positive assessment on 16 June 2021 and Council’s approval on 13 July 2021 paved the way for disbursing EUR 13.9 billion in grants (and EUR 2.7 billion in loans) under the RRF over the 2021-2026 period.

Since the entry into force of the RRF Regulation and the assessment of the national recovery and resilience plans, geopolitical and economic developments have caused major disruptions across the EU. In order to effectively address these disruptions, the (adjusted) RRF Regulation allows Member States to amend their recovery and resilience plan for a variety of reasons. In line with article 11(2) of the RRF, the maximum financial contribution for Portugal was moreover updated on 30 June 2022 to an amount of EUR 15.5 billion in grants. No revision was submitted at the time of publication of this country report yet.

Portugal’s progress in implementing its plan is published in the Recovery and Resilience Scoreboard⁽²⁸⁾. The Scoreboard also gives an overview of the progress made in implementing the RRF as a whole, in a transparent manner. The graphs below show the current state of play as reflected on the Scoreboard.

EUR 5.14 billion has so far been disbursed to Portugal under the RRF. The Commission disbursed EUR 2.1 billion to Portugal in pre-financing on 3 August 2021, equivalent to 13% of the financial allocation. Portugal’s first

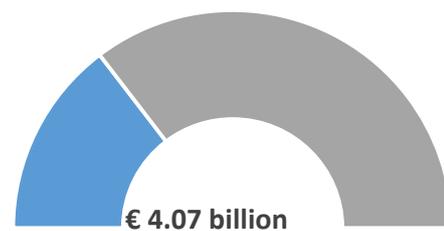
payment request was positively assessed by the Commission, taking into account the opinion of the Economic and Financial Committee, leading to EUR 1.2 billion being disbursed in financial support (net of pre-financing) on 9 May 2022. The related 20 milestones and targets cover reforms and investments in the areas of health, social housing, social services, investment and innovation, qualifications and skills, forestry, the blue economy, bio-economy, renewable gases (including hydrogen), public finances and public administration

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

	Current RRP
Scope	Initial plan
GD adoption date (date of submission)	13 July 2021
Total allocation	EUR 13.9 billion in grants and EUR 2.7 billion in loans (7.9% of 2021 GDP)
Investments and reforms	83 investments and 32 reforms
Total number of milestones and targets	341

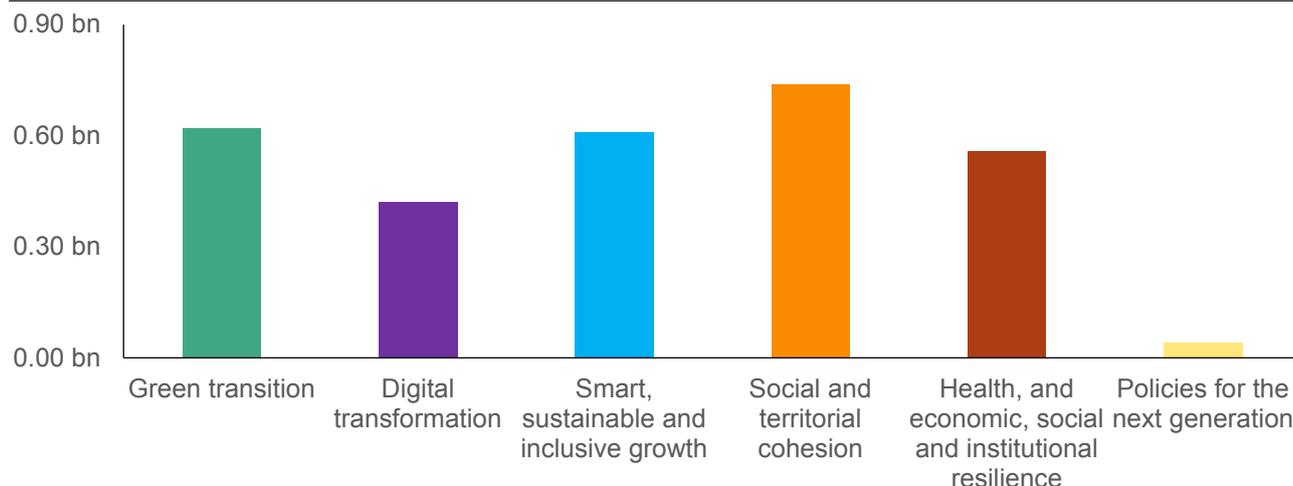
Source: RRF Scoreboard

Graph A3.1: **Total grants disbursed under the RRF**



⁽²⁸⁾ https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

Graph A3.2: Disbursements per pillar



Note: Each disbursement reflects progress in the implementation of the RRF, across the six policy pillars. This graph displays how disbursements under the RRF (excluding pre-financing) relate to the pillars. The amounts were calculated by linking the milestones and targets covered by a given disbursement to the pillar tagging (primary and secondary) of their respective measures.

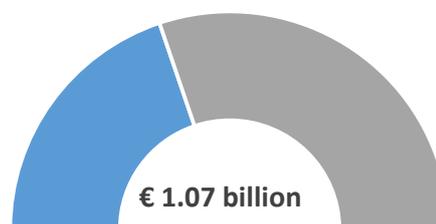
Source: RRF Scoreboard

Note: This graph displays the amount of grants disbursed so far under the RRF. Grants are non-repayable financial contributions. The total amount of grants given to each Member State is determined by an allocation key and the total estimated cost of the respective RRP.

Source: RRF Scoreboard

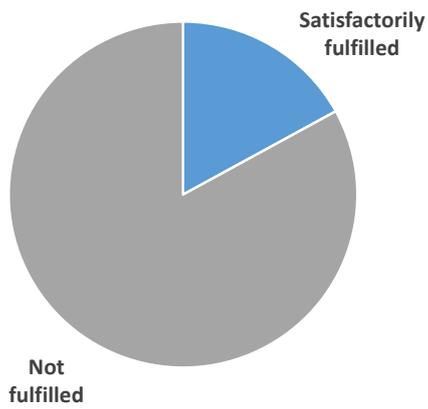
Portugal’s second payment request was positively assessed by the Commission, taking into account the opinion of the Economic and Financial Committee, leading to EUR 1.8 billion being disbursed in financial support (net of pre-financing) on 8 February 2023. The related 38 milestones and targets cover reforms in the management of public hospitals and the digital transition in the private and public sectors, as well as major investments in the areas of health, forestry, water management, social protection, innovation, sustainable mobility, digital skills, culture, public finances and public administration.

Graph A3.3: Total loans disbursed under the RRF



Source: RRF Scoreboard

Graph A3.4: **Fulfilment status of milestones and targets**



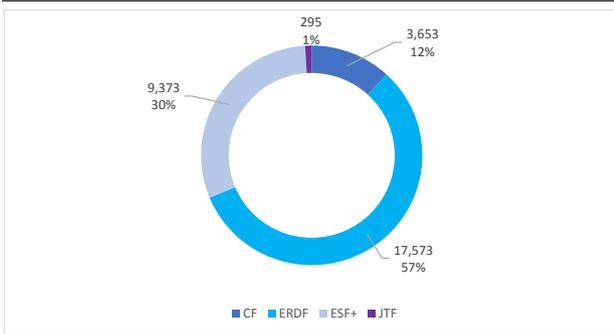
This graph displays the share of satisfactorily fulfilled milestones and targets. A milestone or target is satisfactorily fulfilled once a Member State has provided evidence to the Commission that it has reached the milestone or target and the Commission has assessed it positively in an implementing decision.

Source: RRF Scoreboard



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 Portugal: 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

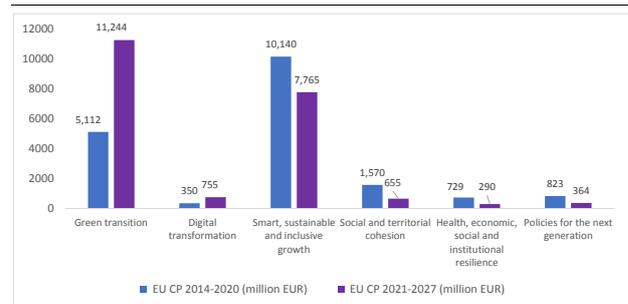
In 2021-2027, in Portugal, cohesion policy funds⁽²⁹⁾ will invest EUR 11.2 billion in the green transition and EUR 755 million in the digital transformation as part of the country’s total allocation of EUR 30.9 billion. In particular, the European Regional Development Fund (ERDF) will strengthen the R&D and innovation capacity of the private sector and foster digitalisation by supporting more than 16 000 companies. SMEs lie at the heart of ERDF support to companies, and smart specialisation is expected to continue to play a major role in regional development and cohesion. Investment in energy efficiency is expected to reduce energy use in public buildings, businesses and homes by 13.8 million MWh/year. Particular attention should be paid to monitoring the reduction of energy use, which is a priority for Portugal in 2021-2027. The Just Transition Fund will provide further economic diversification and foster job

⁽²⁹⁾ 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](#).

creation in three territories affected by the energy transition, following the closure of coal-fired power plants in Sines (Alentejo Litoral) and Pego (Médio Tejo), and the closure of a refinery in Matosinhos (Metropolitan Area of Porto), and also promote the up- and reskilling of workers. This will help Portugal fulfil its commitment to reduce greenhouse gas emissions by 2030 and achieve climate neutrality by 2050. Under the European Social Fund Plus (ESF+), Portugal allocates EUR 3.1 billion to skills, education and training. Benefits of this funding will include reducing the structural skills deficit and reducing the high share of adults that have not completed more than lower secondary education.

Of the investments mentioned above, EUR 2 billion will be invested in line with REPowerEU objectives. This is on top of the EUR 1 billion dedicated to REPowerEU under the 2014-2020 budget. EUR 1.5 billion (2021-2027) and EUR 0.8 billion (2014-2020) is for improving energy efficiency; and EUR 0.5 billion (2021-2027) and EUR 0.2 billion (2014-2020) is for renewable energy and low-carbon R&I.

Graph A4.2: Synergies between Cohesion policy funds and RRF pillars in Portugal



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

Source: European Commission

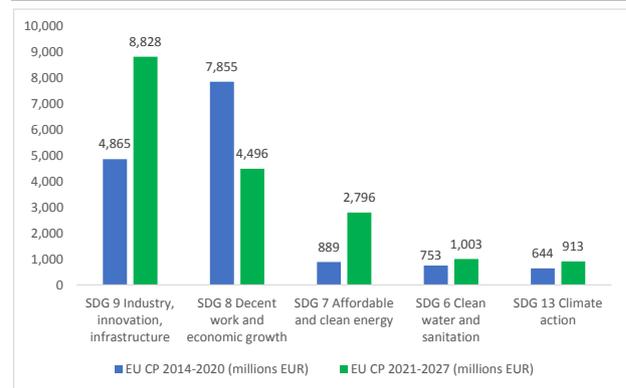
In 2014-2020, cohesion policy funds made EUR 23.5 billion available to Portugal⁽³⁰⁾,

⁽³⁰⁾ Cohesion policy funds include the ERDF, CF, 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](#).

with an absorption of 88% ⁽³¹⁾. Including national financing, the total investment amounts to EUR 29.8 billion - around 2.2% of GDP for 2014-2020.

Portugal 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) ⁽³²⁾ under NextGenerationEU provides EUR 2.1 billion on top of the 2014-2020 cohesion policy allocation for Portugal. REACT-EU helped support more than 76 000 SMEs in sectors most affected by the COVID-19. Funding was also provided for the digital transformation of companies, healthcare, employment activation measures, training and skills development, and for boosting investment in the climate transition. In addition, nearly EUR 81.4 million was provisionally allocated to Portugal through the Brexit Adjustment Reserve (BAR). With SAFE (Supporting Affordable Energy), the 2014-2020 cohesion policy funds may also be mobilised 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 Portugal



(1) 5 largest contributions to SDGs in million (EUR) current prices

Source: European Commission

In both the 2014-2020 and 2021-2027 periods, cohesion policy funds have contributed substantially to the Sustainable Development Goals (SDGs). These funds support 11 of the 17 SDGs, notably SDG 9 'Industry, innovation and infrastructure' and SDG 8 'Decent work and economic growth' ⁽³³⁾.

Other EU funds make significant resources available for Portugal. The common agricultural policy (CAP) made EUR 11.8 billion available in 2014-2022 and will continue to support Portugal with EUR 6.1 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 392 million available to Portugal in 2014-2020 and the European Maritime, Fisheries and Aquaculture Fund allocates EUR 379 million in 2021-2027.

⁽³¹⁾ 2014-2020 Cohesion policy EU payments by MS is updated daily on [Cohesion Open Data](#).

⁽³²⁾ REACT-EU allocation on [Cohesion Open Data](#).

⁽³³⁾ 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).

Portugal also benefits from other EU programmes, notably the Connecting Europe Facility, which under CEF 2 (2021-2027) has so far allocated EU funding of EUR 30.75 million to six specific projects on strategic transport networks. Similarly, Horizon Europe has so far allocated nearly EUR 267 million to Portuguese R&I actors on top of the EUR 1.2 billion earmarked under the previous programme (Horizon 2020). The Public Sector Loan Facility set up under the Just Transition Mechanism makes EUR 17 million of grant support from the Commission available for projects located in Portugal for 2021-2027, which will be combined with EIB loans to support investments by public sector entities in just transition regions.

Portugal received support under the European instrument for temporary support to mitigate unemployment risks in an emergency (SURE) to finance short-time work schemes, similar measures and as an ancillary, health-related measure to mitigate the impact of COVID-19. The Council granted financial assistance to Portugal of EUR 6.2 billion in loans, which supported around 24% of workers and 27% of firms in 2020, and around 16% of workers and 20% of firms in 2021.

The Technical Support Instrument (TSI) supports Portugal in designing and implementing growth-enhancing reforms, including those set out in its recovery and resilience plan (RRP). Portugal has received significant support since 2017. Examples include support for using artificial intelligence to audit the use of EU funds, for the pilot of the national plan for integrated wildland fire management and for reconfiguring its public hospital networks⁽³⁴⁾.

⁽³⁴⁾ Country factsheets on reform support are available [here](#).



ANNEX 5: RESILIENCE

This Annex illustrates Portugal's relative resilience capacities and vulnerabilities using the Commission's resilience dashboards (RDB) ⁽³⁵⁾. 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 ⁽³⁶⁾ and capacities ⁽³⁷⁾ 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 Portugal and the EU-27 ⁽³⁸⁾.

According to the set of resilience indicators under the RDB, Portugal generally displays a similar level of vulnerabilities compared to the EU average. Portugal shows medium-low vulnerabilities in the geopolitical dimension of the RDB and medium vulnerabilities in the social and economic, green and digital dimensions. It has clearly higher vulnerabilities than the EU average in the areas 'economic and financial stability and sustainability', 'sustainable use of resources', 'financial globalisation' and the 'digital for public space'. Portugal has relatively low vulnerabilities in relation to 'health, education and work', 'digital

for industry and personal space', 'cybersecurity', 'raw material and energy supply' and 'security and demography'.

Compared to the EU average, Portugal shows an overall lower level of capacities across all RDB indicators. It has medium-high capacities in the digital dimension, and medium capacities in the social and economic, green and geopolitical dimensions. Portugal shows stronger capacities than the EU average in the area 'digital for public space'. There is room for improving capacities compared to the EU in all areas of the social and economic dimension, 'financial globalisation', 'digital for industry', 'climate change mitigation and adaptation' as well as 'sustainable use of resources'.

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

Dimension/Area	Vulnerabilities		Capacities	
	PT	EU-27	PT	EU-27
Social and economic				
Inequalities and social impact of the transitions			High	
Health, education and work	Medium-low			
Economic & financial stability and sustainability	High	High		
Green				
Climate change mitigation & adaptation				
Sustainable use of resources	High		High	Medium-low
Ecosystems, biodiversity, sustainable agriculture				
Digital				
Digital for personal space	Medium-low		Medium-low	Medium-low
Digital for industry	Medium-low			
Digital for public space	High		Medium-low	
Cybersecurity	Low		Medium-low	
Geopolitical				
Raw material and energy supply	Medium-low			
Value chains and trade	Medium-low	Not available	High	High
Financial globalisation	High	Medium-low	High	Medium-low
Security and demography	Medium-low		Medium-low	

Vulnerabilities Index

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

Capacities Index

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

⁽³⁵⁾ 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).

⁽³⁶⁾ 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.

⁽³⁷⁾ Capacities refer to enablers or abilities to cope with crises and structural changes and to manage the transitions.

⁽³⁸⁾ 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.

(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.

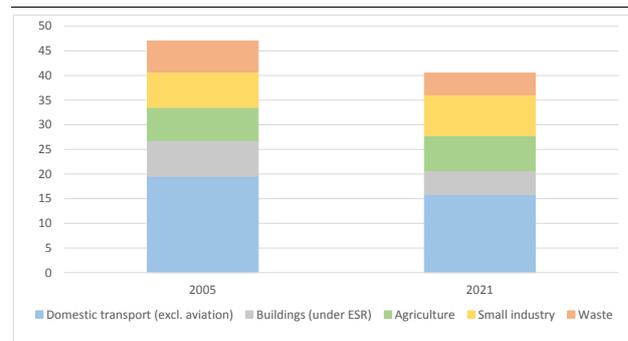
Source: JRC Resilience Dashboards - European Commission

Portugal's green transition requires continued action on several aspects including energy decarbonisation, sustainable water management, and its carbon sinks in the land use sector. Implementation of the European Green Deal is underway in Portugal; this Annex provides a snapshot of the key areas involved ⁽³⁹⁾.

Portugal is projected to meet its 2030 climate target for the effort sharing sectors by a comfortable margin ⁽⁴⁰⁾. In 2021, Portugal's greenhouse gas emissions in these sectors are expected to show the country generated less than its annual emission allocations ⁽⁴¹⁾. Current policies in Portugal are projected to reduce these emissions by 39% relative to 2005 levels in 2030, more than sufficient to reach both the effort sharing target set before the EU raised its aim to a 55% reduction and the new target to reduce emissions by 28.7%. The additional measures tabled would bring the emission reductions to

42% ⁽⁴²⁾. In its recovery and resilience plan, Portugal has attributed 37.9% of its Recovery and Resilience Facility allocation to key reforms and investments to attain the climate objectives ⁽⁴³⁾. As laid out in its roadmap for carbon neutrality 2050, Portugal is committed to reaching climate neutrality by 2050. It has set the intermediary target to reduce emissions by 45 to 55% by 2030 (compared to 2005) and by 65 to 75% by 2040 ⁽⁴⁴⁾. It will review the 2050 net neutrality target and the intermediary targets in light of the EU's higher ambition set under the Fit for 55 and RePowerEU initiatives.

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



Source: European Environmental Agency.

⁽³⁹⁾ The overview in this Annex is complemented by the information provided in 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.

⁽⁴⁰⁾ 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.

⁽⁴¹⁾ In terms of global warming potential of the IPCC's 4th assessment report (AR4), Portugal's annual emission allocations for 2021 were some 42.3 Mt CO₂eq, and its approximated 2021 emissions were 40.5 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).

Portugal is on track to meet its 2030 net carbon removals value for its land use sector. Portugal's forests achieve a major share of net carbon removals and seem to recover since 2018 from the decrease of the natural sink during the period 2009-2017 due to severe forest fires and other causes. Net removals were 6021 kt CO₂eq in 2021. For 2030, Portugal's target for net removals from the

⁽⁴²⁾ 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.

⁽⁴³⁾ For example, the accelerated roll-out of renewables and investments in the production of green hydrogen and other renewable gases will result in 2030 targets for renewable energy in general and solar photovoltaics in particular to be met early.

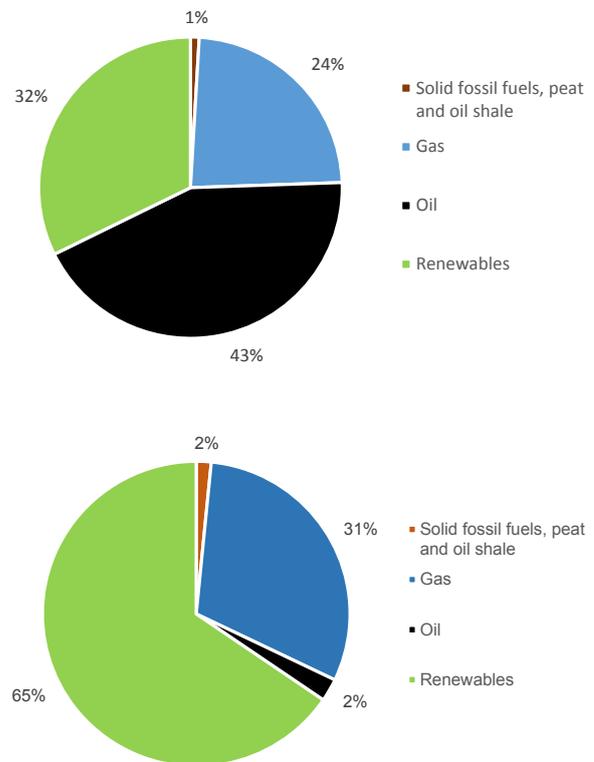
⁽⁴⁴⁾ According to Portugal's national energy and climate plan (NECP). An update of the plan, mandated by Regulation (EU) 2018/1999 (the Governance Regulation), is underway.



land use, land use change and forestry (LULUCF) sector implies to remove 1 358 ktCO₂eq (see Table A6.1) ⁽⁴⁵⁾).

Portugal is well on track to transform its energy system and speed up the roll-out of renewable energy. In 2021, with a 32% share of renewable energy in its energy mix and 65% of renewable electricity in its power mix, Portugal's energy system is one of the most decarbonised systems in the EU. In 2022, Portugal completely phase-out coal from its energy mix. Portugal has announced that it aims to meet the 80% renewable electricity target ahead of schedule in 2026 rather than in 2030.

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: Eurosta

Source:

Portugal continues to take actions to accelerate the roll-out of renewable energy, in particular photovoltaic energy. Portugal now has the goal to reach 9GW of solar capacity by 2026. To help achieve the roll-out of decentralised solar photovoltaics, the recovery and resilience plan allocates support for funding programmes for residential rooftop installations. Portugal's target of 47% of share of energy from renewable sources in gross final energy consumption by 2030 included in the NECP was considered sufficiently ambitious. Portugal will need to increase 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 as well as match its ambitions on hydrogen. Portugal also funds renewable

⁽⁴⁵⁾ This value is indicative and will be updated in 2025 (as mandated by Regulation (EU) 2023/839).

energy roll-out in the Azores and Madeira archipelagos and supports action to decarbonise industry, including measures to ramp up the uptake of renewable energy.

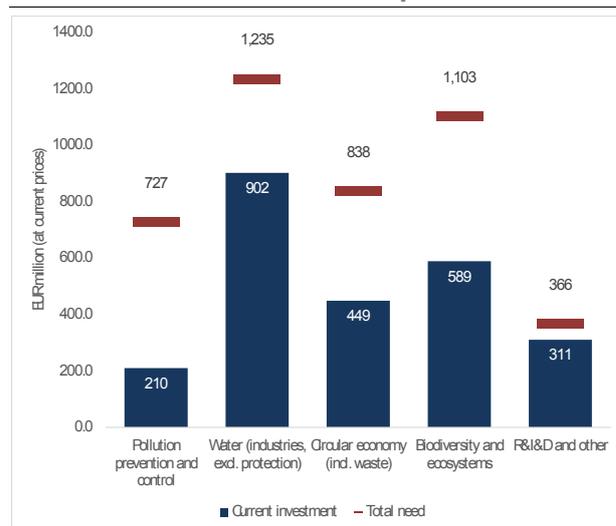
Though Portugal has put in place several incentive schemes to bridge investment gaps on energy efficiency, improving the design of financing schemes would yield higher energy savings. Portugal's NECP targets for primary and final energy consumption (PEC and FEC) were considered of modest ambition in the 2020 Commission assessment. Based on the energy consumption trajectory for 2018-2021, Portugal is expected to be on track to meet its 2030 target for PEC and for FEC, as these were notified in its NECP⁽⁴⁶⁾. The programme 'Edifícios Mais Sustentáveis' is in high demand, given the contribution of 85% (up to EUR 2 500) to install solar panels. By contrast, there is low demand for the 'Vale Eficiência' programme (an energy efficiency voucher programme) that aims to provide 100 000 vouchers worth EUR 1 300 to vulnerable families. The programme has design issues that reduce its potential to yield energy efficiency savings. Additional measures to structurally address technical and administrative bottlenecks and energy efficiency in buildings have the potential to speed up energy savings. They could include the creation and development of one-stop-shops in critical areas or sectors, the development of targeted financing schemes and campaigns to stimulate demand. *Banco de Fomento* could play a useful role in these measures.

The shift to sustainable transport is underway but problems remain in metropolitan areas. Both the share of zero-emission vehicles in new registrations and the number of public recharging stations have increased considerably in recent years. The electrification of the railway network is above

⁽⁴⁶⁾ After the conclusion of the negotiations for a recast EED, 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

the EU average. However, individual transport exacerbates seasonal problems with air pollution and traffic congestion in the major metropolitan areas, generating both health issues and economic costs. Portugal also needs to take further measures to comply with the Noise Directive.

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



Source: European Commission.

Portugal would benefit from investing more in environmental protection and in measures protecting biodiversity and addressing pollution. Between 2014 and 2020, the environmental investment needs⁽⁴⁷⁾ were estimated to be at least EUR 4.3 billion while investment was at about EUR 2.5 billion, leaving a gap of at least EUR 1.8 billion per year (see Graph A6.3)⁽⁴⁸⁾. 20.6% of land in Portugal is part of the EU Natura 2000 network⁽⁴⁹⁾. However, additional designations are warranted, particularly to protect marine sites.

⁽⁴⁷⁾ 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 Portugal](#)).

⁽⁴⁸⁾ When also accounting for needs estimated at EU level only (e.g. water protection, higher circularity, biodiversity strategy).

⁽⁴⁹⁾ In 2021, Portugal had 22.4% terrestrial protected areas (Natura 2000 and nationally designated areas), against the EU average of 26.4% (European Environment Agency, 2023, [Natura 2000 Barometer](#)).

Portugal also needs to adopt management plans for the Natura sites, identifying the conservation objectives and measures and providing sufficient resources. Portugal also has potential to make greater use of environmental taxes to further apply the polluter pays principle (see annex 19). Following up on a tax reform that took up the recommendations issued by an expert commission on green tax reform in 2015, the authorities are currently assessing how to extend environmental taxation.

Climate change is affecting many sectors in Portugal, including water management in particular ⁽⁵⁰⁾. Portugal is one of the countries that is most affected by drought in Europe ⁽⁵¹⁾). Lower levels and more variable annual precipitation variability are projected to reduce river flows, affect the recharge of aquifers, and increase the vulnerability to flooding. The new temperature and precipitation trends also mean more, longer, and more intense heat waves, major rural fires, and unpredictable extreme local phenomena such as torrential rain, hail, cyclones, and tornados. Agriculture and forestry, biodiversity, the energy sector, buildings, tourism, and health are all affected. Portugal has a high climate protection gap for wildfire, which could pose a risk to public finances if the insurance penetration rate remains low. Portugal's recovery and resilience plan has measures on forest fire and water management. Despite recent progress, challenges remain in water management, notably in terms of governance, water body rehabilitation and water efficiency. Policies related to the water cycle are not yet updated to respond to future climate impacts across the range of plausible scenarios in all sectors concerned. There is furthermore scope to improve water management including through

⁽⁵⁰⁾ European Environmental Agency, Advancing towards climate resilience in Europe, forthcoming.

⁽⁵¹⁾ [European Environmental Agency Dashboard Drought impact on ecosystems in Europe](#), 2000-2020. Portugal has the 4th highest average drought impact area as a percentage of the country in the EU 4th in the EU across all ecosystems.

better wastewater collection and treatment, reducing leaks, improving water supply and monitoring, and through nature-based solutions. Portugal also has further potential for water reuse.

Portugal provides fossil fuel and other environmentally harmful subsidies that could be considered for reform, while ensuring food and energy security and mitigating social effects. Fossil fuel subsidies in Portugal amounted to EUR 825 million in 2020, a 24% increase since 2015. 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, mining and quarrying and services sectors. The Portuguese government set up in 2014 a Commission for Green Tax Reform that worked on environmental taxation reform and a strategy for fiscal neutrality in 2015. The Commission worked on identifying exemptions and rebates to energy taxes and developed proposals for reforms of those exemptions. Examples of such subsidies include the reduced VAT rate for fertilisers and pesticides, the energy tax relief for companies in agriculture and forestry for gas oil, the reimbursement of excise duty on diesel used in freight and other categories of passenger transport or the refund scheme for energy-intensive industry under conditions ⁽⁵²⁾. Portugal could build on this mapping to prioritise candidates for reform.

⁽⁵²⁾ Fossil fuel figures in EUR of 2021 from the 2022 State of the Energy Union report. 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"			
			2005	2017	2018	2019	2020	2021	2030 target/value	Distance WEM	Distance WAM
Progress to policy targets	Greenhouse gas emission reductions in effort sharing sectors ⁽¹⁾	Mt CO ₂ eq. % pp	48.6	-17%	-17%	-15%	-21%	-	-28.7%	10.3	13.3
	Net carbon removals from LULUCF ⁽²⁾	kt CO ₂ eq	3,489	21,472	-3,497	-4,499	-4,707	-6,021	-1358	n/a	n/a
									National contribution to 2030 EU target		
	Share of energy from renewable sources in gross final consumption of energy ⁽³⁾	%	20%	31%	30%	31%	34%	34%	47%		
	Energy efficiency: primary energy consumption ⁽³⁾	Moe	24.9	22.8	22.6	22.1	19.5	19.5	21.5		
Energy efficiency: final energy consumption ⁽³⁾	Moe	19.0	16.6	16.9	17.1	15.0	15.6	14.9			
			Portugal					EU			
			2016	2017	2018	2019	2020	2021	2019	2020	2021
Fiscal and financial indicators	Environmental taxes (% of GDP)	% of GDP	2.6	2.6	2.6	2.5	2.4	2.3	2.4	2.2	2.2
	Environmental taxes (% of total taxation) ⁽⁴⁾	% of taxation	7.6	7.6	7.4	7.3	6.7	6.6	5.9	5.6	5.5
	Government expenditure on environmental protection	% of total exp.	1.3	1.3	1.4	1.5	1.4	1.7	1.7	1.6	1.6
	Investment in environmental protection ⁽⁵⁾	% of GDP	0.3	0.3	0.3	0.3	-	-	0.4	0.4	0.4
	Fossil fuel subsidies ⁽⁶⁾	EUR2021bn	0.6	0.7	0.7	0.8	0.8	-	53.0	50.0	-
	Climate protection gap ⁽⁷⁾	score 1-4					2.0	2.0			1.5
Climate	Net greenhouse gas emissions	1990 = 100	113.0	124.0	118.0	113.0	99.0	98.0	76.0	69.0	72.0
	Greenhouse gas emission intensity of the economy	kg/EUR10	0.39	0.40	0.37	0.34	0.35	-	0.31	0.30	0.26
	Energy intensity of the economy	kgoe/EUR10	0.13	0.13	0.12	0.12	0.12	-	0.11	0.11	-
Energy	Final energy consumption (FEC)	2015=100	101.2	103.5	105.5	107.1	93.5	98.0	102.9	94.6	-
	FEC in residential building sector	2015=100	102.5	101.8	104.6	105.1	109.5	109.8	101.3	101.3	106.8
	FEC in services building sector	2015=100	97.2	97.7	101.0	100.1	91.7	93.0	100.1	94.4	100.7
Pollution	Smog-precursor emission intensity (to GDP) ⁽⁸⁾	tonne/EUR10	1.46	1.45	1.39	1.34	1.25	-	0.9	0.9	-
	Years of life lost due to air pollution by PM _{2.5}	per 100,000 inh.	296.4	311.1	266.4	257.4	250.9	-	581.6	544.5	-
	Years of life lost due to air pollution by NO ₂	per 100,000 inh.	124.4	137.3	127.8	115.6	80.6	-	309.6	218.8	-
	Nitrates in ground water	mg NO ₃ /litre	19.3	18.5	18.3	18.5	21.9	-	21.0	20.8	-
Biodiversity	Land protected areas	% of total	22.2	22.3	-	22.3	22.3	22.4	26.2	26.4	26.4
	Marine protected areas	% of total	3.8	-	-	4.5	-	4.5	10.7	-	12.1
	Organic farming	% of total utilised agricultural area	6.7	6.8	5.7	7.4	8.1	19.3	8.5	9.1	-
Mobility	Share of zero-emission vehicles ⁽⁹⁾	% in new registrations	0.8	2.0	3.1	5.4	9.0	10.8	5.4	8.9	10.7
	Number of ACDC recharging points (AFRCategorisation)		-	-	-	2690	3897	6242	188626	330028	432518
	Share of electrified railways	%	64.4	64.4	67.1	67.1	67.1	67.1	56.6	n/a	56.6
	Hours of congestion per commuting driver per year		28.7	28.4	27.3	27.5	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).

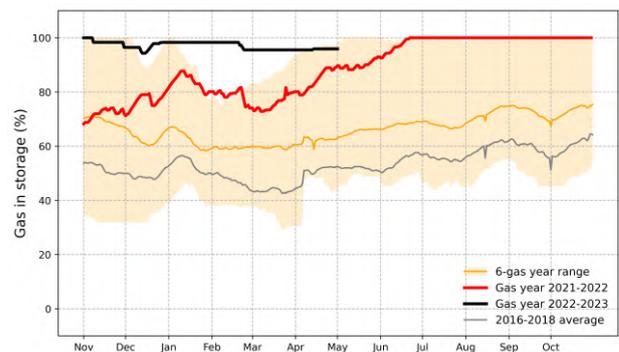
(9) Battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV).

Despite its low dependence on gas supplies from Russia, Portugal consumes most of its gas for the production of electricity. Continuing to rely on gas for electricity production may lead to increasing risks for electricity supply security, aggravated by more frequent extreme droughts. Further investments in the rollout of renewables, in financing energy efficiency projects, and investment in the grids would help to increase resilience in terms of electricity supply security. This Annex⁽⁵³⁾ sets out actions carried out by Portugal to achieve the REPowerEU objectives, including through the implementation of its recovery and resilience plan, 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⁽⁵⁴⁾.

Relying mostly on liquefied natural gas (LNG) supplies and from non-EU sources, Portugal's gas supply security is very resilient. It fulfilled its gas storage obligations last winter, reaching 98.32% by 1 November (well above the EU legal obligation of 80%), and ended the heating season with a filling gas storage at 95.90% at 15 April 2023⁽⁵⁵⁾ (see Graph A7.1). It has 3.97 TWh of underground

gas storage at the Carriço facility⁽⁵⁶⁾, with a total capacity of around 0.41 billion cubic metres (bcm), representing around 7% of its total yearly demand. In September 2022, a 1.2 TWh extension of this gas storage facility was announced⁽⁵⁷⁾. Despite its limited storage capacity, Portugal relies mostly on LNG supplies from the USA and Nigeria through the Sines LNG terminal. The deep-water port of Sines has the capacity to receive large LNG ships and an investment of EUR 4.5 million is planned to enable transshipment in the port⁽⁵⁸⁾. Portugal is supplied by two pipelines: one mostly to import gas from Algeria via Morocco and Spain, and another smaller one to connect Portugal to Galicia in Spain.

Graph A7.1: **Underground storage levels in Portugal**



Source: JRC calculation based on AGSI+ Transparency Platform, 2022-3 (Last update 2 May 2023)

A decarbonisation policy focused on broad electrification, if not accompanied by significant investment in renewables and transmission and distributions networks, could jeopardise Portugal's electricity supply security. With the phasing out of coal since November 2021, Portugal's electricity production is now split between renewables (wind, solar power and hydropower) and natural gas (Annex 6). Over half the natural gas consumed is for electricity production (see Graph A7.2). Portugal was a net importer of electricity from 2012 to 2021, having been only

⁽⁵³⁾ 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 to 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.

⁽⁵⁴⁾ in line with the Green Deal Industrial Plan COM(2023) 62 final, and the proposed Net-Zero Industry Act COM(2023) 161 final

⁽⁵⁵⁾ 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

⁽⁵⁶⁾ The Carriço UGS facility is managed by REM Armazenagem and it is composed by six salt caverns.

⁽⁵⁷⁾ Council of Ministers Decision 82/2022.

⁽⁵⁸⁾ Idem.



a net exporter in 2016, 2017 and 2018. As a result of the frequent droughts, hydropower ran low (10 pp lower in 2022 when compared with the previous year)⁽⁵⁹⁾, in particular during summer, limiting water use for electricity production. As a result, the share of gas consumption for electricity generation increased from 23% in 2021 to 32% in 2022⁽⁶⁰⁾. With droughts being more frequent, water for hydropower can be in short supply. Energy storage through pumped hydropower may increase the flexibility of the energy system. Portugal has adopted measures covering both the public and private energy, water and transport sectors⁽⁶¹⁾. Some of the most relevant actions include switching off lights in the evening in public and private buildings, communication and awareness campaigns aimed at public administration, and additional professional training and capacity building to increase expertise of public servants. Implementation of such measures led to a gas demand reduction of 16% over the period August 2022 - March 2023 when compared to the previous 5-years average⁽⁶²⁾. This gas demand reduction is mainly due to the decrease on consumption in industry, households and services. Unless these savings made structural through energy efficiency measures, there are increasing risks of demand destruction.

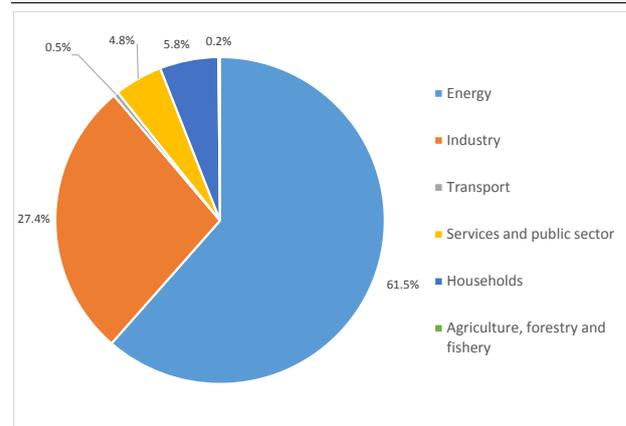
⁽⁵⁹⁾ REN, APREN Analysis.

⁽⁶⁰⁾ Idem.

⁽⁶¹⁾ Portuguese Energy Saving Plan 2022-2023

⁽⁶²⁾ EU countries agreed to reduce their gas demand by 15% compared to their average consumption in the past 5 years, between 1 August 2022 and 31 March 2023, with measures of their own choice. Spain benefits from a partial derogation and may limit the mandatory demand reduction by 8 percentage points.

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

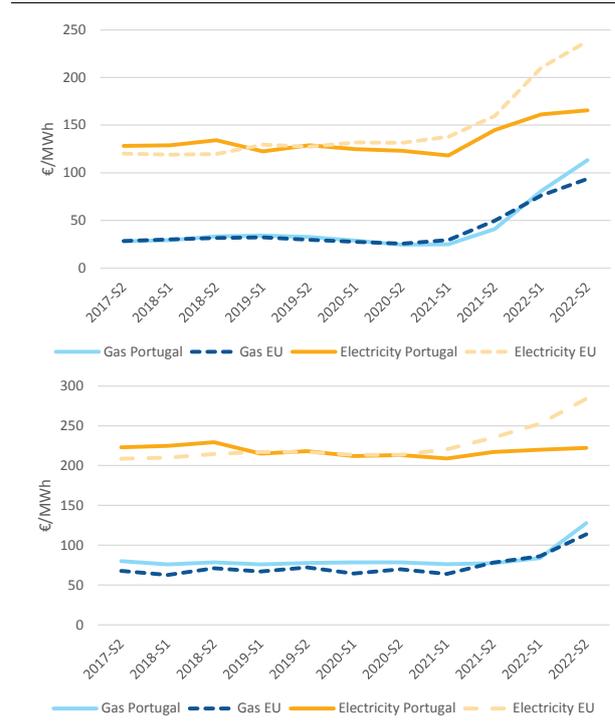


Source: Eurostat

Improving electricity grids and interconnection capacities would increase the resilience of the electricity system and make it possible to deploy renewable capacity more quickly. The current state of the electricity transmission and distribution grids limits the development of clean energies. Further energy infrastructure investments – including improvements in electricity storage – would make it easier to integrate more renewable energy sources into the grid. In 2022 the cross-border interconnection level of Portugal was 10.92% and Portugal is still behind on reaching the 15% electricity interconnection target for 2030. Significant progress is expected in the coming years in terms of interconnections, with commissioning of electricity projects of common interest in the Iberian Peninsula by 2030. Biscay Bay and the Pyrenees crossing projects will increase the interconnection level between Spain and France, making it important for Portugal to also increase in interconnection capacity through the Portugal-Spain interconnection between Beariz and Ponte de Lima and to strengthen the Pedralva-Sobrado grid. In October 2022, the heads of state and government of France, Spain and Portugal issued a joint statement underlining the importance of accelerating the development of energy interconnections, with a focus on electricity and hydrogen infrastructures.

Despite the high risks of a rise in energy prices for the most vulnerable people, the structure of Portugal's energy market and the measures put in place have made it possible to avoid price peaks, as in other EU countries. Portugal's energy poverty indicators are among the most worrying (see Annex 8), with over 1 in 3 poor households experiencing energy poverty. Even before the energy crisis, Portugal already had price intervention measures in place for vulnerable consumers – the social tariff for electricity and natural gas that provides discounts on parts of distribution tariffs to reduce the electricity and gas bills of households who meet certain socio-economic requirements. Most contracts are fixed-price contracts. However, when renewing contracts, some suppliers have stopped offering fixed-price contracts, offering only variable contracts instead. The implementation of the 'Iberian exemption' has brought significant benefits, cutting prices by 21.21% in the first 7 months than they would have been if the mechanism had not been applied. However, with the significant decrease of the gas prices, the mechanism has not been triggered in more recently (March and April 2023). The deployment rate for rolling out intelligent metering systems was of 52% in October 2022, relatively low for a country aiming to increase decentralised connected renewable electricity generation but a full rollout is expected by 2024.

Graph A7.3: Portugal's energy retail energy prices for industry (top) and households (bottom)



(1) On electricity, the band consumption is for DC for households and ID for industry

(2) On gas, the band consumption is D2 for households and I4 for industry

Source: Eurostat

There is still potential to see what more can be done in key sectors and technologies for Portugal to reach its renewables penetration and decarbonisation targets, but the lack of skilled and sufficient human resources to manage a growing number of renewable projects may make this hard to do. There is room to ramp up the deployment of PV energy (particularly decentralised solutions such as rooftop installations), which is underdeveloped compared to wind (2.5 GW installed capacity of PV energy versus 5.5 GW of wind energy in 2022⁽⁶³⁾). Particular attention should also be paid to offshore wind, which has big, unexploited potential in Portugal (only 25MW of installed capacity in 2022)⁽⁶⁴⁾. It has announced the preparation of a 10 GW auction for offshore wind planned for 2023. It has taken measures on permitting procedures for

⁽⁶³⁾ IRENA, Renewable capacity statistics 2023

⁽⁶⁴⁾ Iden

renewable energy sources by approving exceptional measures aimed at ensuring the simplification of energy production procedures from renewable sources and streamlining all licensing processes. It is also considering increasing human and technical resources in public administration to better respond to the demand for permits for renewable energy generation facilities.

Portugal is among the EU's front runners in hydrogen development, with ambitious targets in its hydrogen strategy and significant investments made as part of its recovery and resilience plan. There is still potential to tap into key sectors for Portugal to reach its renewables penetration and decarbonisation targets. This would include in particular further upscaling its biomethane production, where a clear funding and incentives plan is needed. Portugal's biomethane potential in 2030 is approximately 0.5 bcm/year. Its first biomethane plant started operations in 2021 and injected biomethane into the natural gas grid in 2022. In January 2023, Portugal announced the first tendering process, using a centralised purchasing system, for the supply of renewable hydrogen and biomethane ⁽⁶⁵⁾. The port of Sines is developing into an hub for exporting hydrogen to Western Europe.

Additional efforts of Portugal in energy efficiency would also contribute to further reduce the country's dependency from fossil fuels. Departing from grant-based public incentives, such as direct financial support, towards schemes that combine grants, financial instruments and technical assistance is essential to start leveraging private investment in energy efficiency. This is especially relevant for building renovation but also to facilitate SME's access to energy efficient solutions for their activities (e.g. through implementation of energy audits results). Given the significant financial needs of energy renovations, Portugal may need to dedicate additional resources to

this matter. Regarding market surveillance activities, Portugal is not carrying out checks on products covered by ecodesign and energy labelling. This may imply concerns with respect to the level playing field among economic operators and uncertainty as to the compliance levels of the concerned products, and therefore missed energy and CO2 savings and consumer trust ⁽⁶⁶⁾.

The training of new workers and the reskilling and upskilling of the existing workforce would contribute to timely implementation of Portugal's plans for the energy renovation of public, educational and residential buildings. Portugal lacks trained workforce in construction and integrated renovation services, including installers of heating appliances in sufficient numbers and with the relevant skillsets.

Portugal remains highly dependent on non-EU countries for clean energy technologies. Portugal imports most of its solar PV modules from China, and has limited manufacturing capabilities, with one module manufacturer (Open Renewable) located in the country. For wind, Portugal has manufacturing capacity for blades, generators and nacelles from two producers, and no manufacturing capacity for offshore wind components. In late 2022, a Chinese battery manufacturer signed the first agreement with the Agency for Investment and Foreign Trade of Portugal (AICEP) to set up a battery factory. Portugal is also awaiting the environmental impact assessment for two lithium mines before launching an auction of mining licenses. Employment in solid biomass, hydropower, solar photovoltaic and wind energy accounted for more than 90% of the renewable energy employment in 2021. Labour shortage in manufacturing of electrical equipment has significantly increased in the EU since 2020. With more than 30% of labour shortage in manufacturing of electrical

⁽⁶⁵⁾ Ordinance [No. 15/2023 of 4 January](#).

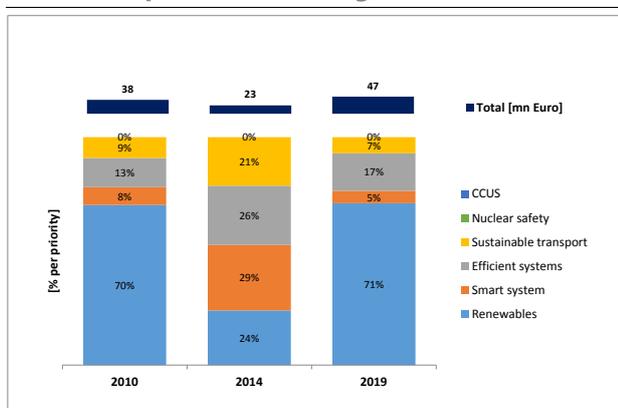
⁽⁶⁶⁾ The internet-supported information and communication system for the pan-European market surveillance

equipment in the first quarter of 2023, Portugal ranks above the EU average.

Despite of positive signs in the innovation ecosystem, Portugal still lags behind of other EU countries.

The latest research and innovation (R&I) trends are positive. However, private R&D spending on Energy Union priorities in Portugal (0.022% as a share of GDP), that mostly (71%) targeted investments in renewables, was significantly below the EU average in 2019. Portugal has developed pioneering projects for floating offshore wind and has two designated areas for testing innovative offshore energy technologies. Venture capital investments have also shown positive trends over the past years with EUR 5.1 million of investments in climate tech firm in 2021, all in the energy (generation and grid tech) sector. However, this only represents 1% of VC investments in Portugal and is below the EU’s overall figure of 10% of VC investments in energy firms.

Graph A7.4: Private R&I investment in Energy Union R&I priorities - Portugal



Source: JRC SETIS (2022)

Table A7.1: Key Energy Indicators

		Portugal				EU			
		2018	2019	2020	2021	2018	2019	2020	2021
ENERGY DEPENDENCE	Import Dependency [%]	76%	74%	65%	67%	58%	61%	57%	56%
	of Solid fossil fuels	99%	122%	-7%	5%	44%	44%	36%	37%
	of Oil and petroleum products	104%	98%	98%	98%	95%	97%	97%	92%
	of Natural Gas	101%	100%	99%	100%	83%	90%	84%	83%
	Dependency from Russian Fossil Fuels [%]								
	of Hard Coal	2%	6%	0%	0%	40%	44%	49%	47%
of Crude Oil	20%	11%	0%	0%	30%	27%	26%	25%	
of Natural Gas	0%	2%	10%	14%	40%	40%	38%	41%	
		2015	2016	2017	2018	2019	2020	2021	2022
ELECTRICITY	Gross Electricity Production (GWh)	52,420	60,329	59,432	59,636	53,154	53,078	50,980	-
	Combustible Fuels	30,005	29,903	38,344	32,155	27,687	25,214	21,894	-
	Nuclear	-	-	-	-	-	-	-	-
	Hydro	9,800	16,909	7,632	13,628	10,243	13,633	13,455	-
	Wind	11,607	12,474	12,248	12,617	13,667	12,299	13,216	-
	Solar	796	871	992	1,006	1,342	1,716	2,237	-
	Geothermal	204	172	217	230	215	217	179	-
	Other Sources	8	-	0	-	-	-	-	-
	Net Imports of Electricity (GWh)	2,266	5,085	2,684	2,657	3,399	1,456	4,753	-
	As a % of electricity available for final consumption	5%	-11%	-6%	-5%	7%	3%	10%	-
Electricity Interconnection (%)			8.70%	8.25%	9.2%	8.0%	13.7%	10.9%	
		2015	2016	2017	2018	2019	2020	2021	2022
DIVERSIFICATION OF GAS SUPPLIES	Gas Consumption (in bcm)	4.7	5.2	6.3	5.8	6.1	5.9	5.7	5.6
	Gas Imports - by type (in bcm)	6.3	6.6	10.0	9.7	11.7	11.4	11.3	n.a.
	Gas imports - pipeline	4.7	4.9	6.3	5.8	6.1	5.9	5.7	n.a.
	Gas imports - LNG	1.5	1.6	3.7	3.8	5.6	5.5	5.6	n.a.
	Gas Imports - by main source supplier (in bcm) (1)								
	Nigeria	1.8	1.8	4.3	4.7	6.5	6.2	5.9	n.a.
	United States	0.0	0.2	1.1	1.0	2.6	2.2	3.8	n.a.
	Russia	0.0	0.0	0.0	0.0	0.2	1.3	1.6	n.a.
	Algeria	2.7	2.7	2.4	1.7	0.5	0.6	0.1	n.a.
	Others	1.8	1.9	2.3	2.3	1.8	0.9	0.1	n.a.
		2019	2020	2021	2022				
DIVERSIFICATION OF GAS SUPPLIES	LNG Terminals								
	Number of LNG Terminals (2)	1	1	1	1				
	LNG Storage capacity (m3 LNG)	390,000	390,000	390,000	390,000				
	Underground Storage								
Number of storage facilities	1	1	1	1					
Operational Storage Capacity (bcm)	0.4	0.4	0.4	0.4					
		2019	2020	2021	2022				
CLEAN ENERGY	VC investments in climate tech start-ups and scale-ups (EUR Mln) (3)	4.2	0.4	5.1	n.a.				
	as a % of total VC investments in Portugal	1.1%	0.3%	1.0%	n.a.				
	Research & Innovation spending in Energy Union R&I priorities (2)								
	Public R&I (EUR mln)	54.0	62.7	n.a.	n.a.				
	Public R&I (% GDP)	0.025%	0.029%	n.a.	n.a.				
Private R&I (EUR mln)	46.5	n.a.	n.a.	n.a.					
Private R&I (% GDP)	0.02%	n.a.	n.a.	n.a.					

(1) The ranking of the main suppliers is based on the latest available figures (for 2021)

(2) FSRU included

(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).

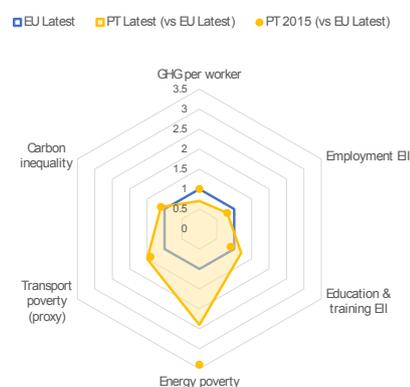
Source: Eurostat, Gas Infrastructure Europe (Storage and LNG Transparency Platform), JRC SETIS (2022), JRC elaboration based on PitchBook data (06/2022)

This Annex monitors Portugal's progress in ensuring a fair transition towards climate neutrality and environmental sustainability, notably for workers and households in vulnerable situations. To ensure a fair green transition in line with the Council Recommendation ⁽⁶⁷⁾, significant investments in skills will be crucial. Coupled with the relatively high level of energy poverty, this poses a challenge on the way to a fair green transition and the implementation of REPowerEU. Under the recovery and resilience plan (RRP), the modernisation of course content offered by vocational education and training institutions and the adult qualification and lifelong learning investments contributes to the green transition ⁽⁶⁸⁾. The European Social Fund Plus (ESF+) contributes to green skills and jobs through investments in education and access to employment.

Employment in sectors most affected by the green transition remains stable overall while the green economy is expanding strongly, with workers in declining activities still needing active support. The greenhouse gas (GHG) emissions intensity of Portugal's workforce fell from 13.2 to 9.7 tonnes between 2015 and 2021, and is below the EU average of 13.7 tonnes (see Graph A8.1 and Table A8.1). Employment in Portugal's energy-intensive industries represented 2.5% of total employment in 2020, which has been stable since 2018 and is below the EU average of 3.0%. Employment in mining and quarrying has remained broadly stable since 2015. However, the recent closure of the three largest CO₂-emitting plants in the country - the coal-fired plants in Sines and Pego and the oil refinery in Matosinhos - is not reflected in these figures. Workers in the affected regions need active support to acquire new qualifications and find

new employment opportunities. Total jobs in the environmental goods and services sector grew by 16.9% in 2015-19 (EU: +8.3%), reaching 2.3% of total employment, close to the EU average (see Annex 9 for circular jobs specifically). The job vacancy rate is relatively low, including in construction, a key sector for the green transition (1.5% vs 4.0% in EU in 2022) ⁽⁶⁹⁾. In Portugal, an investment plan will support the setting up of sections dedicated to renewable energies throughout the network of training centres managed by the Public Employment Services, in order to improve and to expand the training opportunities in this area.

Graph A8.1: Fair transition challenges in Portugal



Source: Eurostat, EMPL-JRC GD-AMEDI/AMEDI+ projects and World Inequality Database (see Table A8.1).

Upskilling and reskilling in declining and transforming sectors increased. In energy-intensive industries, workers' participation in education and training increased from 9.3% in 2015 to 12.1% in 2022 and is above the EU average (10.4%). In Portugal, 32% of citizens believe they do not have the necessary skills to contribute to the green transition (EU: 38%) ⁽⁷⁰⁾. Specific investments under the RRP aim to strengthen training and skills in the blue economy and the bio-economy. The Just Transition Fund provides training to help reskill workers in regions affected by the green transition, together with a broader training

⁽⁶⁷⁾ Council Recommendation of 16 June 2022 on ensuring a fair transition towards climate neutrality (2022/C 243/04) (2022/C 243/04) covers employment, skills, tax-benefit and social protection systems, essential services and housing.

⁽⁶⁸⁾ See 2022 Country Report (Annex 6) and Annex 3 for an overview.

⁽⁶⁹⁾ Eurostat (JVS_A_RATE_R2)

⁽⁷⁰⁾ Special Eurobarometer 527. Fairness perceptions of the green transition (May-June 2022).



Table A8.1: Key indicators for a fair transition in Portugal

Indicator	Description	PT 2015	PT Latest	EU Latest
GHG per worker	Greenhouse gas emissions per worker - CO2 equivalent tonnes	13.2	9.7 (2021)	13.7 (2021)
Employment EI	Employment share in energy-intensive industries, including mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24), automotive (C29) - %	2.3	2.5 (2020)	3 (2020)
Education & training EI	Adult participation in education and training (last 4 weeks) in energy-intensive industries - %	9.3	12.1 (2022)	10.4 (2022)
Energy poverty	Share of the total population living in a household unable to keep its home adequately warm - %	23.8	16.4 (2021)	6.9 (2021)
Transport poverty (proxy)	Estimated share of the AROP population that spends over 6% of expenditure on fuels for personal transport - %	51.4	55.7 (2023)	37.1 (2023)
Carbon inequality	Average emissions per capita of top 10% of emitters vs bottom 50% of emitters	5.5	5.4 (2020)	5 (2020)

Source: Eurostat (env_ac_ainah_r2, nama_10_a64_e, ilc_md501), EU Labour Force Survey (break in times series in 2021), EMPL-JRC GD-AMEDI/AMEDI+ projects and World Inequality Database (WID).

offer at national level and flexibility mechanisms to encourage in-company training. In particular, the EUR 223.8 million to be invested from the Just Transition Fund in Alentejo Litoral, Médio Tejo and the city of Matosinhos are expected to contribute to the creation of 490 new jobs, to finance the reskilling and training of 390 workers and support research and innovation in SMEs in emerging green sectors. For the period 2021-2027, ESF+ investments worth EUR 609 million will contribute to green skills and jobs under the 'Programme for Demography, Qualifications and Inclusion', out of which EUR 399 million will go directly to investments in education, training and lifelong learning, and EUR 41.4 million will improve access to employment.

While energy poverty indicators have improved in recent years, Portugal remains among the worst performers in the EU and the spike in energy prices can be expected to worsen the situation. The share of the total population unable to keep their homes adequately warm fell considerably from 23.8% in 2015 to 16.4% in 2021, while remaining well-above the EU average of 6.9%⁽⁷¹⁾. In particular, 27.9% of the population at risk of poverty were affected in 2021 (EU: 16.4% in 2021), as were 18.9% of lower middle-income households (in deciles 4-5) in 2021 (EU: 8.2% in 2021). Before the energy price hikes, an estimated 28.7% of the total population and 68% of the (expenditure-based) at-risk-of-poverty (AROP) population had residential expenditure budget

shares for electricity, gas and other fuels⁽⁷²⁾ above 10% of their household budget (still above the estimated EU average of 26.9 and 48.2%, respectively). A national strategy to fight energy poverty is being discussed⁽⁷³⁾.

The increased energy prices in 2021-2023 negatively affect households' budgets, in particular for low-income groups.

As a result of energy price changes during the August 2021 to January 2023 period relative to the prior 18 months (see Annex 7), in the absence of policy support and behavioural responses, the fraction of individuals living in households which spend more than 10% of their budget on energy would have increased by 10.8 percentage points (pps) for the whole population and by 13.1 pps among the (expenditure-based) AROP population, less than the EU-level increases (16.4 pps and 19.1 pps, respectively)⁽⁷⁴⁾. The expenditure shares of low and lower-middle income groups would have increased the most, for both electricity and gas, 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⁽⁷⁵⁾ above 6% would have increased by 4.3 pps (as the EU average), while remaining above the EU average in January 2023 (55.7% vs 37.9%) due to the increase in transport fuel prices. The RRP includes measures to support clean urban

⁽⁷²⁾ Products defined according to the European Classification of Individual Consumption according to Purpose (ECOICOP): CP045.

⁽⁷³⁾ Public consultation phase concluded on 3rd March 2023.

⁽⁷⁴⁾ [EMPL-JRC GD-AMEDI/AMEDI+](#); see details in the related technical brief.

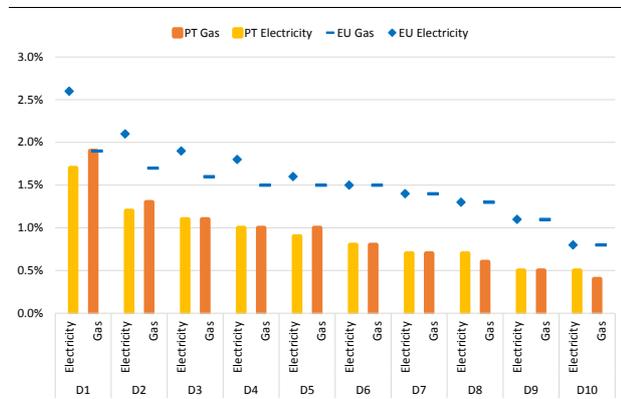
⁽⁷⁵⁾ ECOICOP: CP0722.

⁽⁷¹⁾ 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](#).

mobility and improve energy efficiency in social housing.

impacts, in particular on vulnerable groups, and 2 640 premature deaths annually ⁽⁷⁸⁾.

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



(1) 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.

Access to public transport displays a deep urban-rural divide. Just under half of the Portuguese population perceive public transport to be available (45% vs 55% in the EU) and affordable (46% vs 54% in the EU), while more citizens consider transport as being of good quality (58% vs 60% in the EU). As regards these perceptions, rural areas in Portugal perform worse than urban areas in all three aspects, scoring below the EU average of rural areas ⁽⁷⁶⁾. The average carbon footprint of the top 10% of emitters among the population in Portugal is about 5.4 times that of the bottom 50% (see Graph A8.1), i.e. slightly more pronounced than the EU average (5.1 times). In Portugal, the average levels of air pollution in 2020 stood below the EU average (8.1 vs 11.2 µg/m PM2.5), with 17% of the population living in regions exposed to critical levels of air pollution ⁽⁷⁷⁾. This has led to significant health

⁽⁷⁶⁾ EU (rural): 46%, 48%, 56% respectively. Special Eurobarometer 527.

⁽⁷⁷⁾ Double the recommendations in the WHO Air Quality Guidelines. (annual exposure of 5µg/m³)

⁽⁷⁸⁾ [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 socioeconomic 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.

Portugal's circular economy transition needs to be improved 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. Portugal's circular use of material was 2.1% in 2016 and 2.5% in 2021, compared to the EU average of 11.7%. Portugal is thus well below the EU average, with a slight increase in its performance. The CEAP also aims to significantly decrease the EU's material footprint. In 2020, Portugal's material footprint (17.1 tonnes per head) was above the 2020 EU-27 average (13.7 tonnes per head), which confirms the upward trend since 2016 (15 tonnes per head). The labour market benefits of the circular transition have considerably increased, with continuous growth in direct circular jobs from 2016 (0.6%) to 2019 (3.2%). As regards health and safety in circular jobs, fatal accidents in waste management and materials recovery are above the average of all economic sectors and above the EU average in Portugal ⁽⁷⁹⁾.

Portugal has adopted policies to address circular economy challenges, with results yet to materialise. Portugal adopted a national circular economy action plan in 2017 and a new one is being prepared. New national legislation on waste management was approved in 2020. The new national waste management plan

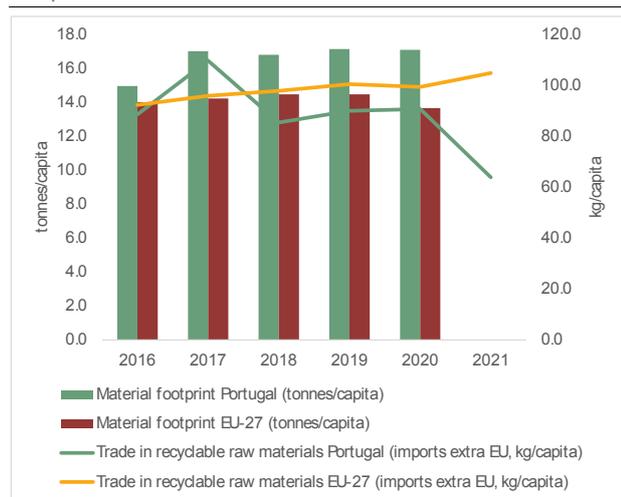
(PNGR 2030) and the Strategic Plan for Municipal Waste (PERSU 2030) have been adopted in March 2023. The new regional waste management plan for Azores is undergoing adoption. The progress in this field has overall been limited. Therefore, it is essential to adopt the pending measures, including additional efforts and further investments.

Portugal's recycling performance has stagnated over recent years, remaining well below the EU's binding targets. With a municipal waste recycling rate of 28.9%, Portugal missed the EU target for recycling of 50% by 2020. Portugal is at risk of missing the EU's recycling targets for several packaging fractions and municipal waste for 2025 and is at a significant distance from the landfill reduction target for 2035. In 2020, 51% of municipal waste was still being landfilled, more than double the EU average (23%). The situation varies by region, but Portugal will need to make considerable efforts to meet the EU's recycling targets for the period up to 2035 through improvements in separate collection and treatment of waste with a view to recycling, in particular for packaging and biowaste.

⁽⁷⁹⁾ Eurostat [HSW_N2_02] for NACE Rev. 2 sector E38; 7.11 fatal accidents p. 100 000 employed in 2018-2020 vs 2.32 for all sectors in PT; 6.33 in the EU-27 for sector E38



Graph A9.1: Trend in material use

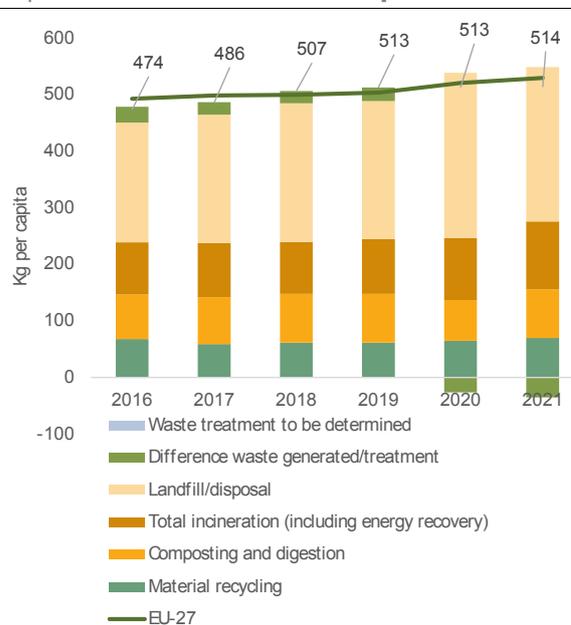


Source: Eurostat

The industrial system is yet to become circular. The economy, particularly industry, is less efficient at using materials than the EU average, with a resource productivity of 1.4 purchasing power standard per kilogramme vs 2.3 for the EU in 2021, undermining Portugal's resilience (see Annex 5). Furthermore, resource productivity has remained stable since 2016, indicating significant potential to boost repair, reuse and use of secondary raw materials. The Portuguese RRP has an investment focused on

the introduction of new technologies or improved production processes to decarbonise them, such as through the incorporation of new raw materials and circular economy measures (Investment TC-C11-i01).

Graph A9.2: Treatment of municipal waste



Source: Eurostat

The built environment system continues to exacerbate the depletion of resources. The

Table A9.1: Overall and systemic indicators on circularity

AFFA	2016	2017	2018	2019	2020	2021	EU-27	Latest year EU-27
Overall state of the circular economy								
Material footprint (tonnes/capita)	15.0	17.0	16.8	17.1	17.1	-	13.7	2020
YoY growth in persons employed in the circular economy (%) ¹	0.6	1.1	1.6	3.2	-	-	2.9	2019
Water exploitation index plus (ME+) (%)	13.1	23.3	21.3	11.4	-	-	3.6	2019
Industry								
Resource productivity (purchasing power standard (PPS) per kilogram)	1.5	1.4	1.4	1.5	1.4	1.4	2.3	2021
Circular material use rate (%) ²	2.1	2.0	2.2	2.3	2.3	2.5	11.7	2021
Recycling rate (% of municipal waste)	30.9	29.1	29.1	28.9	26.8	30.5	49.6	2021
Built environment								
Recovery rate from construction and demolition waste (%) ³	97.0	-	93.0	-	95.0	-	89.0	2020
Soil sealing index (base year = 2006) ⁴	104.3	-	108.4	-	-	-	108.3	2018
Agri-food								
Food waste (kg per capita) ⁵	-	-	-	-	184.0	-	131.0	2020
Composting and digestion (kg per capita)	79.0	83.0	86.0	86.0	72.0	86.0	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; (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.

Source: Eurostat, European Environment Agency

recovery rate of construction and demolition waste has slightly decreased since 2016 but remains above the EU average (95% vs 89%). Soil sealing is stable between 2016 and 2018 and is very similar to the EU average. In any event, there is scope for renovating existing buildings and improving their use and for increasing the share of secondary raw materials used in construction. The Portuguese RRP contains a series of measures that address the issue of circular economy in buildings, designed to support costs of projects promoting renovation, energy efficiency, decarbonisation, water efficiency and circular economy in buildings.

The agri-food system has yet to design out food waste. Portugal's composting and anaerobic digestion per head has fluctuated but remains below the EU average in 2021 at 86 kg per head vs 100 kg, which was also not in line with best practice. Increasing composting and anaerobic digestion could enhance Portugal's strategic autonomy by means of producing organic fertilisers and or biomethane.

There remains a financing gap in the circular economy, including waste management. Additional investments will be required to address growing needs. The financing gap was estimated at EUR 389 million per year between 2014 and 2020. Over this period, investment needs were estimated to be at least EUR 838 million per year while investment baselines were EUR 449 million per year (see Annex 6). Additional investments are necessary in improving separate waste collection and treatment infrastructure to divert waste from landfilling, with particular focus on packaging and biowaste.

Digital transformation is key to ensuring a resilient and competitive economy. In line with the Digital Decade policy programme, and in particular with its targets for digital transformation by 2030, this Annex describes Portugal's performance on digital skills, digital infrastructure/connectivity and the digitalisation of businesses and public services. Where relevant, it refers to progress on implementing the recovery and resilience plan (RRP). Portugal allocates 22% of its total RRP budget to digital (EUR 3.7 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 the EU and its Member States with a way 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 adoption of new technology 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⁾.

⁽⁸⁰⁾ The share of financial allocations that contribute to digital objectives has been calculated using Annex VII of the RRP 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 \(oecd-ilibrary.org\)](https://www.oecd-ilibrary.org/publications/oeecd-economic-outlook-volume-2019-issue-1_1).

⁽⁸³⁾ The need and possible actions for a digitalisation of the energy system are laid out in the Communication

Portugal has a medium performance on digital skills. It scores slightly above the EU average for both at least basic digital skills, as well as for the share of ICT specialists,, following an ascending trend. The proportion of female ICT specialists exceeds the EU average. However, Portugal has significant room to accelerate the implementation of its measures and amplify them, and catch up with the EU's top performers. Improving digital skills is a national priority reflected in its RRP with initiatives targeting various population groups.

On digital infrastructure/connectivity, Portugal shows mixed results. It performs well in fast broadband (NGA), fixed very high capacity network (VHCN) and fibre to the premises (FTTP) coverage, significantly surpassing the EU average. However, its overall 5G coverage, at 70%, is below the EU average of 81%. However, a large part of that is rolled out in the 3.4-3.8 GHz spectrum band, which is important for enabling advanced applications requiring large spectrum bandwidth. Additional work could ensure that fixed VHCN coverage and especially 5G mobile coverage reach all households, including those in rural areas.

There is room for improvement in the digitalisation of Portuguese businesses. The proportion of businesses with basic digital intensity (70%) is slightly above the EU average (69%). The usage of cloud computing and big data applications is below the EU averages. However, the use of artificial intelligence is far more prevalent in Portugal (17%) than in the EU overall (8%). Implementing the RRP measures efficiently could help SMEs to bridge the knowledge gaps in applying digital solutions, which in turn could enhance their ability to integrate them into their business processes.

Portugal is a good performer in providing digital public services. It is almost at par with the EU average in providing digital public services to businesses, and exceeds the EU

'Digitalisation the energy system – EU action plan' (COM(2022)552).

average for digital services for the public. Portugal has two eID schemes notified at level of assurance 'high': the Digital Mobile Key (Chave Móvel Digital) and the national identity card (eID card, Cartão de Cidadão). It is also involved in two pilot projects testing the European Digital Identity Wallet in everyday use funded by the Digital Europe Programme. Portugal places great emphasis on implementing 'digital by default' across its public sector services and IT systems. It has

allocated a substantial part of its digital RRP investment to the digitalisation of the state's finances, the business environment and improving the public administration's efficiency. In terms of access to e-health records Portugal scores with 62 out of 100 below the EU average score of 71.

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

	Portugal			EU	Digital Decade target by 2030 (EU)
	DESI 2021	DESI 2022	DESI 2023	DESI 2023	
Digital skills					
At least basic digital skills	NA	55%	55%	54%	80%
% individuals		2021	2021	2021	2030
ICT specialists ⁽¹⁾	4.0%	4.7%	4.7%	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	87%	91%	93%	73%	100%
% households	2020	2021	2022	2022	2030
Fibre to the Premises (FTTP) coverage ⁽²⁾	82%	88%	91%	56%	-
% households	2020	2021	2022	2022	2030
Overall 5G coverage	0%	0%	70%	81%	100%
% populated areas	2020	2021	2022	2022	2030
5G coverage on the 3.4-3.8 GHz spectrum band	NA	NA	48%	41%	-
% populated areas			2022	2022	2030
Digitalisation of businesses					
SMEs with at least a basic level of digital intensity	NA	NA	70%	69%	90%
% SMEs			2022	2022	2030
Big data ⁽³⁾	11%	11%	11%	14%	75%
% enterprises	2020	2020	2020	2020	2030
Cloud ⁽³⁾	NA	29%	29%	34%	75%
% enterprises		2021	2021	2021	2030
Artificial Intelligence ⁽³⁾	NA	17%	17%	8%	75%
% enterprises		2021	2021	2021	2030
Digitalisation of public services					
Digital public services for citizens	NA	79	78	77	100
Score (0 to 100)		2021	2022	2022	2030
Digital public services for businesses	NA	82	82	84	100
Score (0 to 100)		2021	2022	2022	2030
Access to e-health records	NA	NA	62	71	100
Score (0 to 100)			2023	2023	2030

(1) This 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:

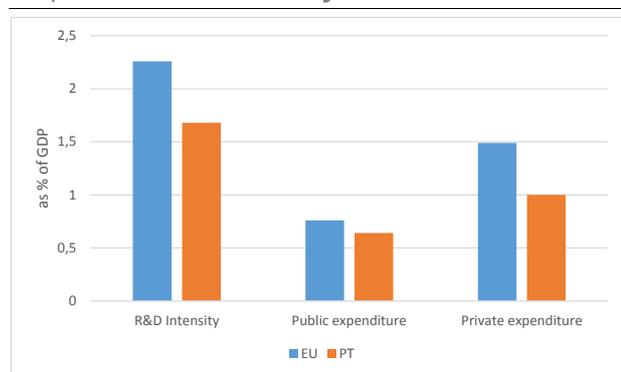
(i) cloud computing services; (ii) big data; (iii) artificial intelligence.

Source: Digital Economy and Society Index

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

Portugal is a 'moderate innovator' according to the 2022 edition of the European Innovation Scoreboard⁽⁸⁴⁾. Following a sharp decrease in 2020, Portugal's overall innovation performance increased in 2022 but still remains below the EU average (85.8% of the EU average compared to 89.7% of the moderate innovators).

Graph A11.1: R&D intensity in 2021



Source: Eurostat

Insufficient levels of public and private R&D investment continue to weigh on Portugal's research and innovation performance. While the country has set ambitious targets for R&D expenditure in the forthcoming years, including an R&D intensity⁽⁸⁵⁾ target of 2.4% by 2025, the goal is still far from being achieved. Despite a slow increase in recent years, total R&D intensity stood at 1.68% in 2021 against an EU average of 2.26%. Public expenditure on R&D has remained stagnant, at around 0.64% in the last decade. However, business enterprise expenditure on R&D is steadily increasing but

is still below the EU average (1% of GDP in 2021 against an EU average of 1.49%).

The low degree of public-private cooperation remains a major bottleneck.

While the share of public-private scientific co-publications has slightly increased over the last decade (5.7% of total publications in 2021), it remains well below the EU average (7.1%). Moreover, Portugal performs modestly in terms of the share of public expenditure on R&D financed by businesses (0.016% in 2019 compared to an EU average of 0.054%). The Portuguese recovery and resilience plan (RRP) addresses this challenge. Indeed, several measures, especially under Component 5 of the RRP⁽⁸⁶⁾, are aimed at improving public-private partnerships and fostering business-academia consortia and collaborative laboratories. The 'Collaborative Laboratories' (COLABs) are a promising initiative as they bring together higher education institutions, enterprises, technological centres, companies, business associations and other relevant partners.

Despite a high level of support for business innovation, businesses' innovation capacity remains limited.

The public system offers a high level of support for business R&D expenditure. Notably, tax incentives for business R&D expenditure as % of GDP rose from 0.09% in 2010 to 0.201% in 2019, well above the EU average. However, when looking at technology outputs, it can be observed that the country's overall patenting activity remains limited. Access to finance for young innovative firms still remains a challenge, as the availability of venture capital is still quite low and has decreased markedly since 2010 (0.021% in 2021 compared with 0.028% in 2010).

Portugal has a good public research system which attracts new talent but which also suffers from brain drain.

Indeed, the number of new graduates in science and engineering per thousand population aged 24-35 is one of

⁽⁸⁴⁾ 2022 European Innovation Scoreboard, Country profile: Portugal
https://ec.europa.eu/assets/rtd/eis/2022/ec_rtd_eis-country-profile-pt.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).

⁽⁸⁵⁾ Defined as gross domestic expenditure on R&D as a percentage of GDP.

⁽⁸⁶⁾ In Component 12 of the Portuguese RRP there is also a measure supporting business-academia cooperation in the field of bioeconomy (C12.i01).

Table A11.1: Key innovation indicators

Portugal	2010	2015	2019	2020	2021	EU average (1)
Key indicators						
R&D intensity (GERD as % of GDP)	1.54	1.24	1.4	1.61	1.68	2.26
Public expenditure on R&D as % of GDP	0.68	0.65	0.64	0.66	0.64	0.76
Business enterprise expenditure on R&D (BERD) as % of GDP	0.71	0.58	0.73	0.92	1	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	9.7	9	9.2	:	:	9.8
Patent Cooperation Treaty (PCT) patent applications per billion GDP (in PPS)	0.6	1.0	1.0	:	:	3.3
Academia-business cooperation						
Public-private scientific co-publications as % of total publications	4.4	4.8	5.5	5.6	5.7	7.1
Public expenditure on R&D financed by business enterprise (national) as % of GDP	0.008	0.012	0.014	0.016	:	0.054
Human capital and skills availability						
New graduates in science & engineering per thousand pop. aged 25-34	13	16.2	18.6	19.5	:	16.0
Public support for business enterprise expenditure on R&D (BERD)						
Total public sector support for BERD as % of GDP	0.128	0.155	0.264	:	:	0.194
R&D tax incentives: foregone revenues as % of GDP	0.09	0.11	0.201	:	:	0.1
Green innovation						
Share of environment-related patents in total patent applications filed under PCT (%)	22.0	15.3	9.6	:	:	13.3
Finance for innovation and economic renewal						
Venture capital (market statistics) as % of GDP	0.028	0.029	0.018	0.020	0.021	0.074
Employment in fast-growing enterprises in 50% most innovative sectors	3.1	5	6.9	:	:	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-Matrix (Scopus database and EPO's Patent Statistical database), Invest Europe

the highest in Europe (19.5 in 2020 compared to an EU average of 16) and the country is also able to attract foreign doctoral students (roughly 33% of the total number and the share has been steadily increasing since 2015⁽⁸⁷⁾). However, the country experiences substantial levels of brain drain⁽⁸⁸⁾. Different factors contribute to this phenomenon, including recruitment processes for researchers and academics, perceived as lacking transparency⁽⁸⁹⁾, and precarious work conditions⁽⁹⁰⁾. The academic sector often

offers unstable, fixed-term post-doctoral positions making it difficult to secure a permanent academic post. COLABs could be a tool for diminishing brain drain as they aim at consolidating research communities, and also for creating, directly and indirectly, qualified and scientific employment in Portugal through the implementation of research and innovation agendas. However, further efforts will be needed to retain talent and strengthen the attractiveness of academic careers in Portugal.

⁽⁸⁷⁾ Source: Eurostat

⁽⁸⁸⁾ Talent circulation and intersectoral mobility: analytical report with a mapping of talent mobility and causes of brain drain: [knowledge ecosystems in the new era-K10722381ENN.pdf](https://www.oecd-ilibrary.org/docserver/9789264308138-en.pdf?expires=1669907865&id=id&accname=oido31827&checksum=D62C22DB51A43DD26752612666522CBF).

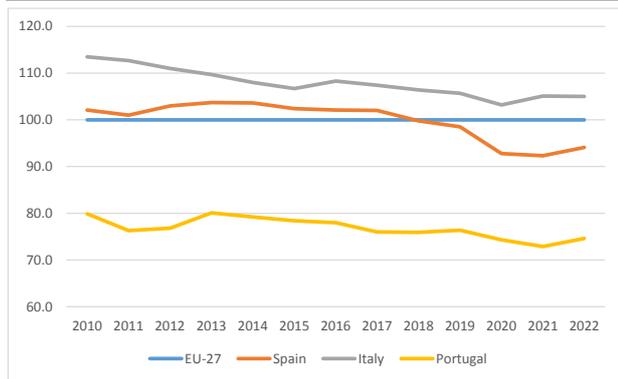
⁽⁸⁹⁾ Talent circulation and intersectoral mobility: analytical report with a mapping of talent mobility and causes of brain drain: [knowledge ecosystems in the new era-K10722381ENN.pdf](https://www.oecd-ilibrary.org/docserver/9789264308138-en.pdf?expires=1669907865&id=id&accname=oido31827&checksum=D62C22DB51A43DD26752612666522CBF).

⁽⁹⁰⁾ OECD Review of Higher Education, Research and Innovation: Portugal (2019):

<https://www.oecd-ilibrary.org/docserver/9789264308138-en.pdf?expires=1669907865&id=id&accname=oido31827&checksum=D62C22DB51A43DD26752612666522CBF>

Productivity growth remains a key challenge for the Portuguese economy. Real labour productivity per person employed increased by 4.6% in 2022 after the pandemic-related declines of 2020. However, productivity growth has been slow in the last decade, decreasing from around 80% in 2010 to 74.6% of the EU average in PPS in 2022. In industry, real labour productivity per person increased by 1.7% in 2022, slightly above the EU average of 1.4%. Moreover, Portugal displays relatively low levels of investment: gross fixed capital formation represented 20.3% of GDP in 2022, compared to 22.7% for the EU. Public investment, which dropped below 2% of GDP between 2016-19, has rebounded to 2.47% in 2022, boosted by EU funds, although it is still below Portugal's peer countries and the EU average level.

Graph A12.1: Labour productivity per person employed and hour worked in PPS (EU = 100)



Source: Eurostat

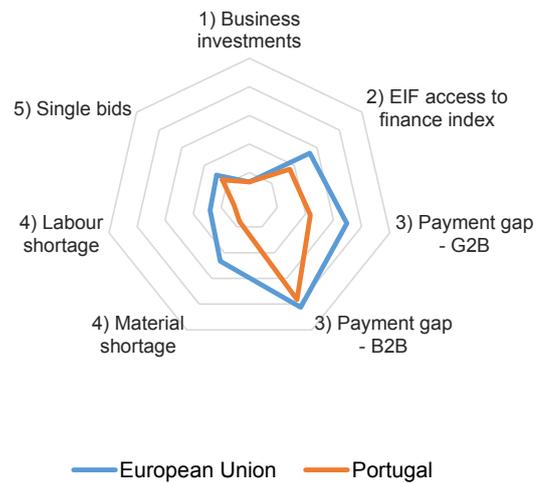
Some long-term barriers to investment remain. According to IMD⁽⁹¹⁾, Portugal was the 42nd most competitive economy in the world in 2022, falling from 36th in 2021. Availability of skilled staff, rising energy costs and uncertainty about the future are the three most cited barriers to investment in Portugal⁽⁹²⁾. After a rebound in 2021 (increasing by 8.7%), investment is expected to slow, growing only by 0.8% in 2022 due to supply constraints, rising production costs, worsening financing conditions and high

⁽⁹¹⁾ IMD, World Competitiveness Booklet, 2022

⁽⁹²⁾ EIB Investment Survey, European Union, 2022

uncertainty. Investment in construction, which accounts for almost half of the total, stands out, with its background of constraints related to the lack of skilled staff, materials and rising costs.

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.

The business environment shows room for improvement. The share of companies reporting business regulation as a major obstacle for their long-term investment is higher in Portugal than the EU average (46.2% vs 29.6% in 2022)⁽⁹³⁾. Inefficiencies in the Portuguese justice system may also hamper business activities: the proportion of companies that rate the independence of courts and judges as bad is 45%, one of the highest in the EU, and 54% of them do not feel confident that their investment is protected by the law and courts⁽⁹⁴⁾. The Portuguese RRP includes measures to modernise the justice and

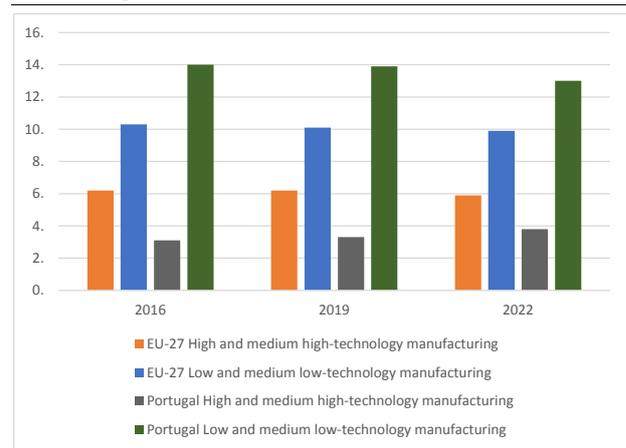
⁽⁹³⁾ European Investment Survey 2022

⁽⁹⁴⁾ 2022 Perceived independence of the national justice systems in the EU among companies

business environment by removing barriers to investment, increasing the efficiency of administrative and tax courts and simplifying the insolvency framework. Regarding barriers raised by burdensome licensing requirements, in December 2022 Portugal launched the “Simplex Ambiental” programme, a package of measures to change the environmental rules for developing hydrogen and renewable energy projects aiming to simplify administrative licensing processes for households and industry (See annex 7).

Access to finance remains a constraint for firms, mainly in terms of equity (see table of indicators). Bank finance is the preferred source of finance for about 80% of Portuguese firms using external finance, with most of the bank loans taken at a variable or mixed rate. However, venture capital investment represents just 0.02% of GDP. The RRP aims to improve the access to equity and quasi-equity investments for viable companies. On late payments, actual payment times remain rather high, particularly in the public sector (57 days for business transactions and 65 days for the public sector), particularly in some regions like Azores and Madeira. In June 2022, arrears from the National Health Service amounted to EUR 644.4 million, an increase of 4.4% compared to the previous year. 41.8% of SMEs experienced some payment delays in the last six months, in line with the EU average (see table of indicators). RRP reforms aimed at improving the governance model of public hospitals and modernising and simplifying public financial management should help improve the situation.

Graph A12.3: **Employment in technology and knowledge-intensive sectors**



Source: Eurostat

SME growth is hampered by low R&D investment and digital uptake. According to the 2022 Innovation Scoreboard, Portugal is classified as a moderate innovator but underperforming relative to its European peers (85.8% of the EU average) with the gap widening. R&D business expenditure is highlighted as a relative weakness as well as the number of innovative SMEs collaborating with each other (see Annex 11). Moreover, in 2022 the share of employment in high and medium high-technology manufacturing out of those employed in manufacturing is 3.8% (compared to the EU average of 5.9%) and the labour force is concentrated in low and medium low-technology sectors (13% in Portugal compared to the EU average of 9.9%). Additionally, SMEs face many challenges in digitalisation, being below the EU average in digital intensity and in the usage of big data, cloud technologies and online selling⁽⁹⁵⁾ (see Annex 10).

The Portuguese economy is well integrated into the single market. Despite Portugal’s trade integration in the single market for goods and services being below the EU average (34.4 vs 45.8), almost 70% of exports and 68% of Portuguese imports resulted from intra-EU trade in 2022. In services, tourism exports continued to rebound in 2022, to about 4%

⁽⁹⁵⁾ Digital Economy and Society Index (DESI) 2022

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⁾	0.8	1.2	0	0.9	1	3.7
		Net public investment, level of public capital stock, net of depreciation, % GDP ⁽¹⁾	-0.8	-0.8	-0.5	-0.2	-0.3	0.4
	Cost competitiveness	Real labour productivity per person in industry (% yoy) ⁽²⁾	1.3	1	-4.9	3.7	1.7	1.4
RESILIENCE	Shortages	Material shortage (industry), firms facing constraints, % ⁽³⁾	8	6	5	8	16	47
		Labour shortage using survey data (industry), firms facing constraints, % ⁽³⁾	8	8	7	9	11	28
	Strategic dependencies	Vacancy rate (business economy) ⁽⁴⁾	1.2	1.3	0.9	1.3	2	3.1
SINGLE MARKET	Single Market integration	Concentration in selected raw materials, Import concentration index based on a basket of critical raw materials ⁽⁵⁾	0.17	0.18	0.18	0.18	0.21	0.18
		EU trade integration, % ⁽⁷⁾	29.4	29.5	27.0	30.3	34.4	45.8
	Restrictions	EEA Services Trade Restrictiveness Index ⁽⁸⁾	0.05	0.05	0.05	0.05	0.05	0.05
BUSINESS ENVIRONMENT - SMES	Public procurement	Single bids, % of total contractors ⁽⁹⁾	21	38	24	20	24	29
	Investment obstacles	Impact of regulation on long-term investment, % of firms reporting business regulation as major obstacle ⁽¹⁰⁾	45.5	45.3	48.1	45.8	46.2	29.6
		Business demography	Bankruptcies, Index (2015=100) ⁽¹¹⁾	54.3	49.7	51.1	44.8	36.7
	Late payments	Business registrations, Index (2015=100) ⁽¹¹⁾	125.6	137.2	104.4	115.5	134.2	121.2
		Payment gap - corporates B2B, difference in days between offered and actual payment ⁽¹²⁾	12	17	18	12	13	13
		Payment gap - public sector, difference in days between offered and actual payment ⁽¹²⁾	32	28	24	12	10	15
Access to finance	Share of SMEs experiencing late payments in past 6 months, % ⁽¹³⁾	n.a.	40.3	41.6	38.1	41.8	43	
	EIF Access to finance index - Loan, Composite: SME external financing over last 6 months, index values between 0 and 1 ⁽¹⁴⁾	0.56	0.55	0.65	0.46	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⁾	0.07	0.07	0.07	0.09	n.a.	0.23

(1) 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

below pre-pandemic levels; their share in GDP, relatively high by European standards, dropped from 8.1% in 2019 to 3.7% in 2020, rebounding to 7.9% in the first half of 2022. Some structural barriers hamper competition in the provision of business services, in particular restrictions in 2021 on highly regulated professions like civil

engineers, tourist guides, lawyers, accountants/tax advisers and architects ⁽⁹⁶⁾.

⁽⁹⁶⁾ Commission's Communication on taking stock of and updating the reform recommendations for regulation in professional services of 2017.

This Annex outlines the performance of Portugal's public administration, which is essential for providing services and carrying out reforms. Overall, Portugal scores slightly below the average of the EU-27 on government effectiveness (Portugal: 0.99, EU-27: 1.02)⁽⁹⁷⁾. Portugal has launched several reforms under its recovery and resilience plan, keeping up the momentum of reform in key policy areas, including the digital transition in the private and public sectors, public finance, and public administration.

The ageing of the public administration and the attractiveness of public employment are significant risks for Portugal. The ratio of 25-49 to 50-64 year-olds is relatively low in the public administration (Portugal: 1.3, EU-27: 1.5), and in other public sector areas such as education. This represents a risk to continuity and capacity. The share of employees in the public administration with higher education remains below the EU-27 average (Portugal: 38.4%, EU-27: 52%) (Table A13.1). The government's reform efforts focus on speeding up the recruitment process⁽⁹⁸⁾, investing in training for senior civil servants, improving integrity, creating a better work-life balance and building an innovation culture⁽⁹⁹⁾.

Portugal ranks below the EU-27 average on regulatory governance indicators. Recent reforms made regulatory impact assessments obligatory for primary and secondary legislation. An oversight body monitors their quality and provides guidance to ministries. However, the focus is on simplification. Evaluation of impact and regulatory *ex post* assessments are not well established. Consultations with stakeholders take place at a late stage in the process, which keeps

Portugal's performance on the OECD indicators on regulatory governance and policy well below the EU average (Portugal: 1.27, EU-27: 1.68) (Graph A13.1)⁽¹⁰⁰⁾.

The overall performance on e-government maturity is high. However, the share of individuals using the internet to interact with the government is below the EU average (Portugal: 59%; EU-27 65%) and has seen only a slow increase since 2018. Portugal's recovery and resilience plan contains a range of measures to accelerate the digital transformation of the public administration between 2022 and 2026.

The efficiency of the justice system continues to face challenges, especially in the administrative and tax courts. In administrative cases, the time it takes to hand down a decision remains long, having registered a slight increase in delays in first instance cases, and further delays in second instance. Although the number of pending administrative cases in first instance remains high, a significant improvement can be seen in the rate of resolving cases, which is above 120%. The overall quality of the justice system is good. The level of digitalisation is advanced, with procedural rules allowing the use of digital technology in courts for civil, commercial, administrative and criminal cases. Although gaps remain, digital technology is being used by courts and prosecution services for a significant number of procedures. Measures are being taken to address the lack of staff, although some concerns remain, in particular regarding non-judicial staff and public prosecutors. As regards judicial independence, no systemic deficiencies have been reported⁽¹⁰¹⁾.

⁽⁹⁷⁾ Worldwide Governance Indicators, 2021.

⁽⁹⁸⁾ Diário da República, Portaria No 12-A/2021 de 11 de Janeiro (<https://dre.pt/dre/detalhe/portaria/12-a-2021-153519418>).

⁽⁹⁹⁾ AMA, Axis 1 - Investing in People - 1 year of the Strategy for Innovation and Modernisation of the State and Public Administration, 2021 (<https://www.youtube.com/watch?v=OGSZBRv98ow>).

⁽¹⁰⁰⁾ OECD, Better Regulation Practices across the European Union 2022.

⁽¹⁰¹⁾ For a more detailed analysis of the performance of the justice system in Portugal, see the 2023 [EU Justice Scoreboard](#) (forthcoming) and the country chapter for Portugal in the 2023 [Rule of Law Report](#) (forthcoming).

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

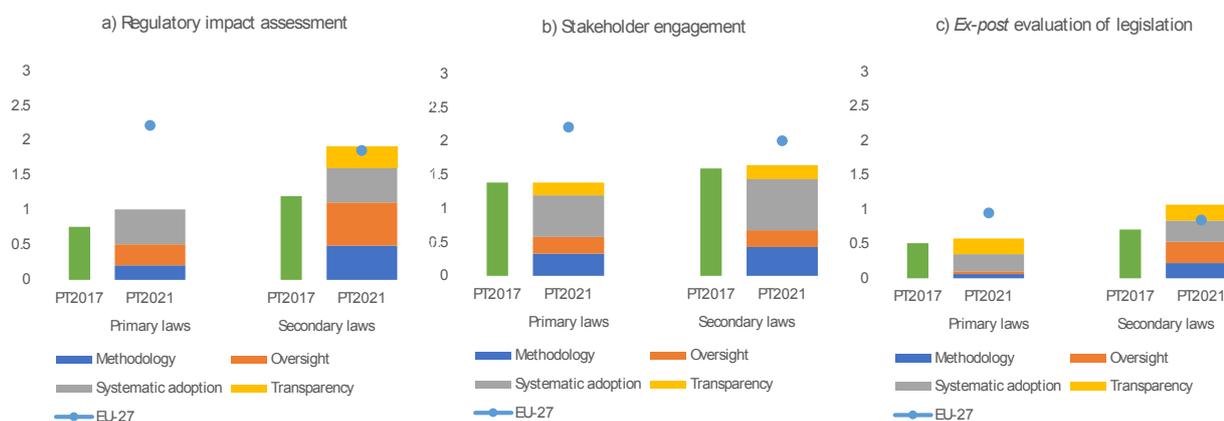
PT Indicator (¹)	2017	2018	2019	2020	2021	2022	EU-27(²)
E-government and open government data							
1 Share of individuals who used the internet within the last year to interact with public authorities (%)	61.3	55.2	53.8	56.9	58.9	n/a	64.8
2 E-government benchmark overall score (³)	n/a	n/a	n/a	82.3	78.4	79.1	72.9
3 Open data and portal maturity index	n/a	0.5	0.4	0.5	0.7	0.8	0.8
Educational attainment level, adult learning, gender parity and ageing							
4 Share of public administration employees with tertiary education (levels 5-8, %)	32.8	32.0	32.8	34.8	37.4 (b)	38.4	52.0
5 Participation rate of public administration employees in adult learning (%)	12.8	13.2	13.1	13.4	17.0 (b)	17.7	16.9
6 Gender parity in senior civil service positions (⁴)	15.6	5.0	7.8	1.0	1.6	6.6	11.0
7 Ratio of 25-49 to 50-64 year olds in NACE sector O	1.5	1.4	1.3	1.4	1.3 (b)	1.3	1.5
Public financial management							
8 Medium term budgetary framework index	0.6	0.6	0.6	0.6	0.7	n/a	0.7
9 Strength of fiscal rules index	2.0	2.0	2.0	2.0	2.0	n/a	1.5
Evidence-based policy making							
10 Regulatory governance	1.03	n/a	n/a	n/a	1.27	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).

Graph A13.1: **Portugal. a) Regulatory impact assessment, b) Stakeholder engagement and c) Ex post evaluation of legislation**



Source: Indicators of Regulatory Policy and Governance Surveys 2017 and 2021, (<http://oe.cd/ireg>).

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 Portugal's progress in implementing the Pillar's 20 principles and EU headline and national targets for 2030 on employment, skills and poverty reduction.

Despite the overall positive developments in the Portuguese labour market following the pandemic, youth employment remains highly precarious. The employment rate has been increasing throughout 2021 and 2022, in line with economic growth, and reached 77.5% in 2022, above the EU average (74.7%). Conversely, the unemployment rate continues to fall, standing at 6% in 2022, just below the EU average of 6.1%. However, the tightening of the labour market throughout 2021 was relatively mild, and the job vacancy rate remained below the EU average at 1.5% in 2022. Long-term unemployment is slightly above the EU average (2.7% against 2.4% in 2022), while the rate of young people neither in employment nor in education and training (NEET) is lower than the EU average (8.4% versus 11.7% in 2022). Nevertheless, the youth unemployment rate (15-24 age group) continues to be one of the highest in the EU and stood at 19% in 2022 (EU: 14.5%), confirming a worrying long-term trend. Additionally, young people are still faced with precarious job conditions: 59.6% of workers in the 15-24 age group were on temporary contracts in 2022 (45.1% for 15-29), significantly above the EU average (49.5% and 35.6% respectively). Policy developments such as the decent work agenda reform approved by the national parliament in February 2023, the medium-term agreement on improving income, wages and competitiveness (signed with social partners in October 2022) and a new hiring support measure targeting young people could play a major role in tackling youth unemployment. Addressing this long-

standing challenge is important to achieve the national employment rate target of 80% by 2030.

Table A14.1: **Social Scoreboard for Portugal**

Policy area	Headline indicator	
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24, 2022)	6.0
	Share of individuals who have basic or above basic overall digital skills (% of population aged 16-74, 2021)	55.3
	Youth NEET rate (% of population aged 15-29, 2022)	8.4
	Gender employment gap (percentage points, 2022)	5.6
	Income quintile ratio (S80/S20, 2021)	5.66
Dynamic labour markets and fair working conditions	Employment rate (% of population aged 20-64, 2022)	77.5
	Unemployment rate (% of active population aged 15-74, 2022)	6.0
	Long term unemployment (% of active population aged 15-74, 2022)	2.7
	GDHI per capita growth (2008=100, 2021)	108.45
Social protection and inclusion	At risk of poverty or social exclusion rate (% of total population, 2021)	22.4
	At risk of poverty or social exclusion rate for children (% of population aged 0-17, 2021)	22.9
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP, 2021)	20
	Disability employment gap (percentage points, 2021)	16.2
	Housing cost overburden (% of total population, 2021)	5.9
	Children aged less than 3 years in formal childcare (% of population under 3-years-old, 2021)	50.4
Self-reported unmet need for medical care (% of population 16+, 2021)	2.3	
<div style="display: flex; justify-content: space-between; font-size: 0.8em;"> Critical situation To watch Weak but improving Good but to monitor On average Better than average Best performers </div>		

Update of 27 April 2023. Member States are classified on the Social Scoreboard according to a statistical methodology agreed with the EMCO and SPC Committees. It looks jointly at levels and changes of the indicators in comparison with the respective EU averages and classifies Member States in seven categories. For methodological details, please consult the Joint Employment Report 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

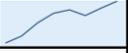
Portugal continues to face challenges stemming from the structural skills deficit of the adult population. The share of the adult population (aged 25-64) that has not completed more than lower-secondary education stands significantly above the EU average (39.7% in 2022 compared to 20.5%).



Regional disparities on this indicator are substantial. In 2022, it ranged from 28.9% in the Área Metropolitana de Lisboa to 58.7% in the Região Autónoma dos Açores. The rate of early leavers from education and training fell sharply in recent years (see Annex 15). Low-skilled adults (aged 25-64) are less willing to participate in education and training than other groups (5.4% of adults with less than upper secondary education vs 24% of adults with tertiary educational attainment in 2022). As part of its recovery and resilience plan, Portugal will invest significantly in vocational education and training (VET), notably by financing the construction/renewal of 365 technological centres, which is accompanied by an update of the national catalogue of qualifications and an agreement signed in 2021 with social partners to improve VET and qualifications. On adult learning, the *Qualifica* flagship initiative can play a large role, notably by setting out appropriate pathways for providing basic skills to adults (numeracy, literacy and digital). Ensuring the complementary use of EU and national funds in the coming years will be key to correcting structural skills deficits. Investing in adult learning will also be essential to achieve the 2030 headline national target on participation in education and training (60%).

of poverty or social exclusion increased by 2.4 percentage points (pps) between 2020 and 2021 to reach 22.4%, breaking a positive downward trend in the previous 5 years and placing Portugal above the EU average (21.7%). This deterioration was one of the most serious in the EU (against a backdrop of overall stability across most Member States), and it shows the need for a speedy implementation of the delayed national strategy to combat poverty. The percentage of expenditure on social protection over GDP remains lower than the EU average (27.5% against 31.7%). Moreover, the capacity of social transfers (excluding pensions) to reduce poverty fell to 20% in 2021, a drop of 6 pps from 2020. This reversed improvements made over the 3 previous years and contrasted with the overall EU trend in 2021. The adequacy of minimum income is low and has been eroding since 2009, standing now at 35% of the at-risk-of-poverty threshold. The share of people in quasi-jobless households on social benefits is below the EU average (88.9% vs. 96.4% in the EU in 2021) and has deteriorated since 2009. Gaps remain in formal access to social protection for several categories of non-standard workers (seasonal workers, trainees, some domestic workers), in particular with respect to unemployment and sickness benefits. Effective access was low, in particular for workers on temporary contracts (12.6% compared to 41.4% in EU) and for self-employed people (3.4% vs 10.8%). Emerging risks related to high inflation and the energy crisis add to structural deficits, in particular on energy poverty (see Annex 8). This raises new challenges on Portugal's capacity to achieve its national 2030 poverty reduction target (765 000 fewer people at risk of poverty or social exclusion than in 2019). Despite reforms and investments under the country's recovery and resilience plan and European Social Fund Plus, improving the coverage and adequacy of the social protection system, in particular by rationalising and better tailoring their delivery remains of utmost importance to ensure social inclusion and reduce poverty levels.

Table A14.2: **Situation of Portugal on 2030 employment, skills and poverty reduction targets**

Indicators	Latest data	Trend (2015-2022)	National target by 2030	EU target by 2030
Employment (%)	77.5 (2022)		80	78
Adult learning ¹ (%)	38.0 (2016)		60	60
Poverty reduction ² (thousands)	+139 (2021)		-765	-15 000

(1) Adult Education Survey, adults in learning in the past 12 months

(2) Number of persons at risk of poverty or social exclusion (AROPE), reference year 2019

Source: Eurostat, DG EMPL

Social indicators show rising levels of poverty and persisting limitations on the adequacy and coverage of the social protection system. The share of people at risk

Providing affordable social housing and long-term care services remain insufficient in face of growing demand.

The housing cost overburden rate increased in 2021, particularly amongst the poorest ⁽¹⁰²⁾, while the property rental market remains very tight ⁽¹⁰³⁾. This puts pressure on access to housing and further accentuates the need to speed up the delivery of affordable and social housing. Access to long-term care services, even if improving, remains insufficient in face of the growing demand triggered by adverse demographic developments. Public spending on long-term care is also very low – less than a quarter of the EU average (0.4% v 1.7% of GDP in 2019).

⁽¹⁰²⁾ 22.3% with house cost overburden among the first quintile of income (the poorest 20%), against 14.4% the year before; among the general population, the figure is 5.9% against 4.1% in 2020.

⁽¹⁰³⁾ The median rent of new contracts increased 7.6% in Q3-2022 year-on-year (INE, provisional data).

This Annex outlines the main challenges for Portugal's education and training system 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.

Portugal is taking steps to extend its preschool network and make attendance of early childhood education and care (ECEC) universal. Supported by its national recovery and resilience plan (RRP), the Portuguese government plans to expand its preschool network, aiming to provide free access to ECEC to all children above 3 years. In 2020, participation of children between the age of 3 to compulsory schooling age in Portugal was at the EU average (92.9% vs 93.0%), but still below the EU-level target (96%). ECEC attendance of children aged 3 is below the EU average (83.2% vs 87.8% in 2020), but above average for children aged 4 and 5. 99.1% of ECEC teachers are women (against the EU-27 average of 95.7%). The teaching population is also ageing. On average, the ratio of teachers aged over 50 to those under 35 years old is 7 to 1.

The number of students leaving education without completing upper secondary education is decreasing. In 2021, the rate of students leaving education and training early (ELET) was 6.0%, similar to 2021 when it reached a historic low of 5.9%. However, regional disparities continue, ranging from over 20% in the Azores and the Algarve to a level below national average in the Norte region. The implementation of comprehensive policies, such as the priority intervention educational territories programme (TEIP)⁽¹⁰⁴⁾ and the national programme for school success promotion (PNPSE)⁽¹⁰⁵⁾, especially helped to reduce ELET rates (from 23% in 2011, to 14% in 2016 and 8.9% in 2020).

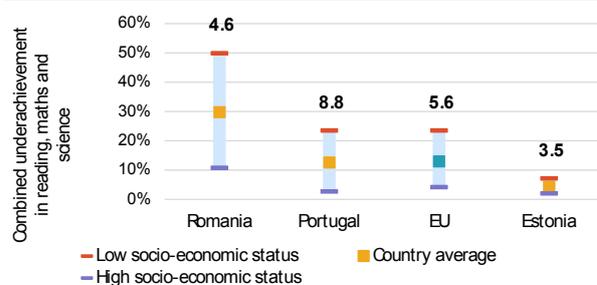
Despite major progress in improving education outcomes, equity challenges are

⁽¹⁰⁴⁾ <https://www.dge.mec.pt/teip>

⁽¹⁰⁵⁾ <https://pnpse.min-educ.pt/programa>

ongoing. Recent education policy reforms and measures seem to have helped reduce the rate of ELET, improving basic skills and fostering higher education enrolment. However, the level of progress differs across Portuguese regions, and socio-economic background still plays a relevant role in student performance. Students of low socio-economic status are 8.8 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 figure). The COVID-19 pandemic may have increased educational inequalities among Portuguese students⁽¹⁰⁶⁾.

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



Source: JRC's calculation on OECD (PISA 2018)

Ageing of the teacher population and teacher shortages in certain fields are becoming major educational challenges. In 2020, 48.4% of schoolteachers (ISCED 1-3) were over 50 (EU average 39.2%). 20% of today's teachers will retire within the next 5 years and 58% within 10 years. Currently, there is already a lack of qualified teachers for various subjects (especially in Portuguese, geography, history, biology, mathematics, physical chemistry, ICT, English, and philosophy). This is particularly relevant in the metropolitan area of Lisbon, in Setubal and the Algarve. By 2030/2031, around 34 500 new teachers will be needed to avoid a

⁽¹⁰⁶⁾ CNE (2021). Efeitos da pandemia COVID-19 na educação: Desigualdades e medidas de equidade [Effects of the COVID-19 pandemic on education: Inequalities and equity measures] Lisboa: CNE. https://www.cnedu.pt/content/noticias/estudos/Estudo_A_ssembleiaRepublica-Efeitos_da_pandemia_COVID-19.pdf.

shortage of qualified teachers⁽¹⁰⁷⁾. The Ministry of Education is preparing a proposal to amend the law on professional qualification. With this, the government is seeking to remedy teacher shortages, for example by creating scope to recruit professionals with a relevant academic background. In addition, the abuse of fixed-term teacher contracts in public schools and differences in working conditions between teachers of basic and secondary education remain key challenges.

The attainment of tertiary education is increasing, underpinned by measures to support access to higher education.

The tertiary education attainment (TEA) rate in 2022 was 44.4%, 3.1 pps less than in 2021 when reached a record high (47.5%), above the EU average (42.0%) and EU-level target (45%). Yet large regional differences in TEA exists, with the highest TEA rate in the metropolitan area of Lisbon and the lowest in the Azores. TEA rates also differ according to country of origin (see Table A15.1). In Portugal, the gender gap⁽¹⁰⁸⁾ in favour of women is above the EU average (20.7% vs 11.1%). To expand access to tertiary education, tuition fees were reduced and more students were granted scholarships, notably students from disadvantaged backgrounds. In addition, the government has taken a range of measures to widen higher education enrolment in less densely populated regions and increased the offer of two-year short-cycle higher education professional courses.

Portugal is increasing the share of tertiary graduates in ICT.

The percentage of science, technology, engineering and mathematics (STEM) graduates among all graduates in 2020 was 27.8% (almost the same as in 2015). However, the share of ICT graduates (2.6%) doubled compared with 2015 (1.2%), while the share of graduates in natural science,

mathematics and statistics (6.2%) remained at the 2015 level.

⁽¹⁰⁷⁾[https://www.dgeec.mec.pt/np4/%7B\\$clientServletPath%7D/?newsId=1304&fileName=DGEEC_Estud_o_Diagnostico_de_Necessidade_.pdf](https://www.dgeec.mec.pt/np4/%7B$clientServletPath%7D/?newsId=1304&fileName=DGEEC_Estud_o_Diagnostico_de_Necessidade_.pdf)

⁽¹⁰⁸⁾ The gender gap is the difference between the proportion of women and men tertiary graduates according to Eurostat [educ_uae_grado2].

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

Indicator	Target	2015		2022			
		Portugal	EU27	Portugal	EU27		
¹ Participation in early childhood education (age 3+)	96%	88.7% ^d	91.9%	92.9% ^{d,2020}	93.0% ²⁰²⁰		
² Low achieving 15-year-olds in:	Reading	< 15%	17.2%	20.0%	20.2% ²⁰¹⁸	22.5% ²⁰¹⁸	
	Mathematics	< 15%	23.8%	22.3%	23.3% ²⁰¹⁸	22.9% ²⁰¹⁸	
	Science	< 15%	17.4%	21.1%	19.6% ²⁰¹⁸	22.3% ²⁰¹⁸	
Early leavers from education and training (age 18-24)	³ Total	< 9%	13.7%	11.0%	6.0%	9.6%	
	³ By gender	Men		16.4%	12.5%	7.9%	11.1%
		Women		11.0%	9.4%	3.9%	8.0%
	⁴ By degree of urbanisation	Cities		11.8%	9.6%	4.9%	8.6%
		Rural areas		17.3%	12.2%	7.9%	10.0%
	⁵ By country of birth	EU-born		13.5%	10.0%	5.9%	8.3%
		Non EU-born		16.1%	23.4%	: ^u	22.1%
⁶ Equity indicator (percentage points)			:	:	20.8 ²⁰¹⁸	19.3 ²⁰¹⁸	
⁷ Exposure of VET graduates to work based learning	Total	≥ 60% (2025)	:	:	74.3%	60.1%	
Tertiary educational attainment (age 25-34)	⁸ Total	45%	33.1%	36.5%	44.4%	42.0%	
	⁸ By gender	Men		25.4%	31.2%	36.9%	36.5%
		Women		40.6%	41.8%	51.9%	47.6%
	⁹ By degree of urbanisation	Cities		40.5%	46.2%	48.9%	52.2%
		Rural areas		24.1%	26.9%	35.8%	30.2%
	¹⁰ By country of birth	Native		33.4%	37.7%	44.9%	43.0%
		EU-born		40.1%	32.7%	48.4%	39.5%
	Non EU-born		26.3%	27.0%	39.1%	35.7%	
¹¹ Share of school teachers (ISCED 1-3) who are 50 years or over			36.0%	38.3%	48.4% 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.

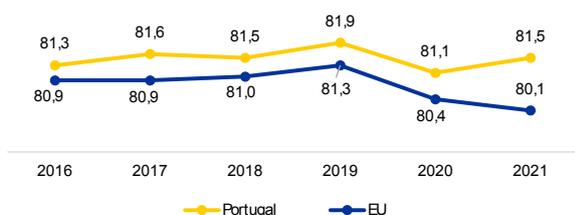
Higher education institutions need investment in teaching capacities. There is a clear need for pedagogical training for higher education teachers to make higher education more attractive to students and to prevent dropout⁽¹⁰⁹⁾. Academic staff is ageing and predominantly male. Around 5% of tertiary-level staff are under 30 while 47% are 50 or older. Women make up 44% of the teaching staff at tertiary level.

(109) Alarcão, T. (2015). Supervisão da Prática Pedagógica-Uma Perspectiva de Desenvolvimento e Aprendizagem-2a Edição. Leya; Xavier, ARC and Leite, C. (2019). Mapping of pedagogical training of university professors in Portuguese public universities. Revista Lusofona de Educacao, v 45, n. 45, p. 109-123, 2019. <http://hdl.handle.net/11449/199996>.

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 Portugal.

Life expectancy in Portugal is slightly higher than in the EU overall and has rebounded to some extent after it fell in 2020. An increase in life expectancy was observed in Portugal in 2021 despite a further increase in COVID-19 mortality compared to 2020⁽¹¹⁰⁾. Portugal fares comparatively well in avoiding deaths from treatable causes. In 2020, diseases of the circulatory system (“cardiovascular diseases”) and cancer were the leading causes of death.

Graph A16.1: Life expectancy at birth, years



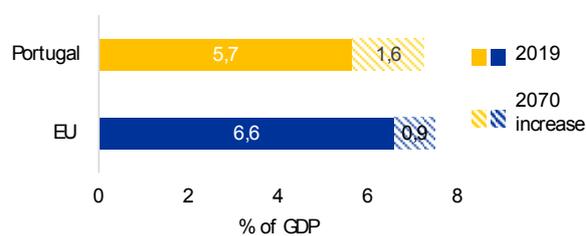
Source: Eurostat

Health spending relative to GDP in Portugal was slightly below the average across the EU in 2020. Spending per capita on outpatient care is comparable to the EU average, whereas spending on inpatient care, pharmaceuticals and medical devices is below the EU average. In 2020, total healthcare spending increased to 10.6% of GDP. This is in line with the upward trend in all Member States in 2020. In Portugal, this increase largely reflects the significant GDP contraction (by around 8.3%, compared to 5.6% in the EU overall). This is also corroborated by the fact that, as a share of total public spending, health spending in 2020 remained relatively stable at around 15.2%. The public share of health expenditure is comparatively low in Portugal (64.5% in 2020).

⁽¹¹⁰⁾Based on data provided directly by Member States to ECDC under the European Surveillance System (data current as of 13 April 2023).

This translates into one of the highest proportions of out-of-pocket payments for healthcare in the EU, which in Portugal is almost twice the EU average level. Based on the age profile of the Portuguese population, public expenditure on health is projected to increase by 1.6 percentage points of GDP by 2070 (compared to 0.9 percentage points for the EU overall), which may add to possible fiscal sustainability challenges in the long term.

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



AWG reference scenario

Source: European Commission / EPC (2021)

In 2020, spending on prevention in Portugal amounted to 1.9% of total spending on healthcare, compared to 3.4% for the EU overall. This is comparatively low, with six other Member States also reporting a level below 2%. Between 2019 and 2020, spending on prevention in Portugal increased by around 10%, compared to a 26% increase for the EU overall. 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.

Portugal faces shortages and an uneven distribution of health workers. Despite the rise in recent years, the number of practising nurses per 1 000 inhabitants (7.3 in 2020) remains below the level across the EU. There are also shortages in other medical specialties and in certain regions. Working conditions are an important issue, with low remuneration being a deterrent, in particular for nurses. The share of active physicians over the age of 55 in Portugal (40%, compared to an EU unweighted

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)	84.0	82.9	79.0	79.1	NA	91.7 (2020)
Cancer mortality per 100 000 population	243.5	243.3	244.8	240.5	NA	242.2 (2020)
Current expenditure on health, % GDP	9.3	9.4	9.5	10.6	NA	10.9 (2020)
Public share of health expenditure, % of current health expenditure	61.2	61.2	60.9	64.5	NA	81.2 (2020)
Spending on prevention, % of current health expenditure	1.8	1.8	1.8	1.9	NA	3.4 (2020)
Acute care beds per 100 000 population	325	329	333	334	NA	387.4 (2019)
Doctors per 1 000 population *	5.0	5.2	5.3	5.5	NA	3.9 (2020)
Nurses per 1 000 population *	6.7	6.9	7.1	7.3	NA	8.3 (2020)
Consumption of antibacterials for systemic use in the community, daily defined dose per 1 000 inhabitants per day (total consumption in CY and CZ) **	16.9	17.7	17.9	13.7	13.7	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

average of 35.9%) raises concerns about the long-term accessibility of health services. In an attempt to address geographical disparities in the availability of physicians, Portugal has put in place a programme of incentives for doctors (including a remuneration bonus) to take up positions in areas with a shortage of practitioners. To increase the capacity of the health workforce during the COVID-19 pandemic, hiring health workers (including retired health workers, without age limit) under exceptional contractual conditions was facilitated and caps on overtime payments were removed.

Through its recovery and resilience plan (RRP), Portugal plans to invest EUR 1.383 billion (8.3% of the RRP's total value) in healthcare. The RRP includes a set of mutually supporting reforms and investments to strengthen the response capacity of the National Health Service (NHS) in the fields of primary, mental and long-term healthcare, combined with efficiency-oriented measures to improve the governance, cost-effectiveness, accessibility and quality of public hospital services. Investments are also geared towards digitalising the NHS as a whole, with specific measures targeting also the outermost regions of Madeira and the Azores. The government has already adopted a decree-law on mental health, which sets out the principles for organising, managing and evaluating mental health services. A new performance-based management contract template has been

introduced for managers in state-owned enterprises in the NHS. Furthermore, a referral mechanism has been set up to direct inappropriate or avoidable cases from emergency services in NHS hospitals to primary healthcare services. The process of decentralising health responsibilities (for example responsibility for planning, management and investment decisions in primary healthcare units) to municipalities is ongoing. Work on digitalising the health system is progressing too, for example in terms of upgrading local information technology networks and implementing telehealth and telemonitoring.

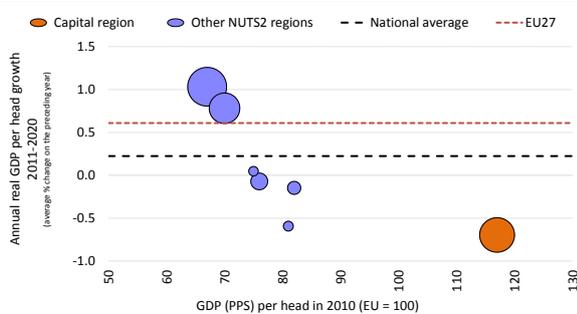
This Annex showcases the economic and social regional dynamics in Portugal, providing an update on economic, social and territorial cohesion in and among the Portuguese regions compared with the EU as a whole and the main regional economic recovery challenges.

Portugal is diverging from the EU as a whole in terms of GDP per capita as it continues growing at a slower pace. In 2021, GDP per capita was below the EU average in all regions (with disparities between the capital region and other regions). In the metropolitan area of Lisbon GDP per capita was 96% of the EU average but below 75% in all other regions (except Algarve at 76%).

Portugal's regions are converging on each other, but this convergence is mainly driven by economic contraction in the capital region. Regional disparities in GDP per capita remained roughly constant in 2000-2009 but have been decreasing since 2010, mostly due to a steady and substantial loss in the capital region.

Norte and Centro were the only Portuguese regions growing faster than the EU average in 2011-2020. The capital region's GDP per capita contracted in the same period and other regions experienced zero or negative growth (Graph A17.1).

Graph A17.1: GDP per capita (2010) and GDP growth (2011-2020) - Portugal



(1) Bubble size corresponds to population size, 2020
 Source: Eurostat, DG REGIO elaboration

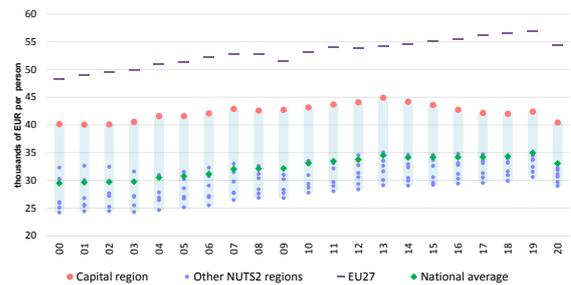
Endogenous factors and processes have been the main drivers in regional economic

growth (above the EU average) in Norte and Centro. In Norte, the highest growth was recorded in Ave, where manufacturing is the main activity; Cávado and Alto Minho, which have more diverse economic activities; and Douro, where tourism is gaining ground.

In Centro, Aveiro performed above the regional average thanks to dynamic businesses and innovation; and Viseu, which is a regional economic hub where several industries are located.

Disparities in GDP per capita mirror important labour productivity gaps. Regional inequalities in labour productivity decreased in 2000-2020 and particularly in the second half of the last decade (see Graph A17.2).

Graph A17.2: Labour productivity (real GVA per worker), EU-27 and Portugal, 2000-2020



Source: Eurostat, DG REGIO elaboration

The employment and unemployment rates are slightly better than the EU average, with some regional differences. In 2021, the lowest employment rates (from 20 to 64 years) were in the two autonomous regions and outermost regions of Azores and Madeira (69% and 70%). The unemployment rate was highest in Algarve (8.2%), Madeira (7.9%) and the Azores (7.2%).

The level of human capital varied considerably. The share of the population aged 30-34 with a high level of education was higher than the EU average of 42% in the capital region (50%) and Centro (46%) in 2021 but lower in the Azores (23%), Algarve (30%) and Madeira (35%).



Table A17.1: Selected indicators at regional level

Region name	GDP per head (PPS)	Productivity (GVA (PPS) per person employed)	Real productivity growth	GDP per head growth	Population growth	Unemployment rate	At-risk-of-poverty or social exclusion	Population with high educational attainment	R&D expenditure
	Index, EU27 = 100, 2021	Index, EU27 = 100, 2021	Average % change on the preceding year, 2011-2020	Average % change on the preceding year, 2011-2020	Average annual change per 1000 residents, 2011-2020	% of active population, 2021	% of population, 2021	% of population aged 30-34, 2021	% of GDP, 2020
European Union	100	100.0	0.2	0.6	1.7	7.0	21.7	41.6	2.3
Portugal	75	70.0	0.0	0.2	-2.6	6.6	22.4	43.7	1.6
Norte	65	61.5	0.4	1.0	-3.5	6.6	25.8	42.5	1.8
Algarve	76	67.7	-0.4	-0.1	-3.0	8.2	25.4	29.6	0.5
Centro (PT)	66	65.1	0.7	0.8	-4.5	5.8	22.6	46.3	1.4
Área Metropolitana de Lisboa	96	85.0	-0.7	-0.7	1.6	6.8	17.2	50.0	2.0
Alentejo	71	68.4	-0.6	-0.1	-8.1	6.6	20.3	38.2	0.9
Região Autónoma dos Açores	66	62.4	0.1	0.0	-1.9	7.2	27.5	22.6	0.3
Região Autónoma da Madeira	70	67.2	0.3	-0.6	-5.4	7.9	29.2	34.7	0.5

Source: Eurostat, EDGAR database

Leveraging the innovation potential to improve regional economic performance and competitiveness.

Despite a positive general trend in R&D investment over the last decade, the low level of science-industry co-operation remains a key challenge (see Annex 11). The innovation performance and competitiveness also still differs significantly at the regional level. In the capital region R&D investment represented 2.0% of GDP in 2020, followed by Norte (1.8%), and Centro (1.4%) but below 1% in all other regions.

In 2020, the highest share of innovation sales (new to market) was in Norte (16.3%), followed by the capital region and Centro (both with 13.3%). The regions with the lowest shares of innovation sales were the autonomous and outermost regions of Madeira and the Azores (6.8% and 7.2% respectively).⁽¹¹¹⁾ The capital region is the most competitive among the Portuguese regions, with a score above the EU average (110), followed by Norte (92.1), Centro (89.0), and Algarve (81.9). The level of competitiveness is significantly lower in Alentejo and Madeira (both 79.1 and 77.9 respectively), and the Azores (66.2).⁽¹¹²⁾

The population shrank in almost all Portuguese regions in 2011-2020. The only exception was the capital region, whose

population grew by 1.6%. Alentejo had the largest decrease in population (8.1%), while Centro and Madeira both decreased by around 5%.

The ratio of the number of persons aged 65 and above to the number of persons working age 15-64 increased in all regions in 2011-2021. This share ranges from 44.5% in Centro to 24.5% in the Azores. Norte, Centro, and Madeira recorded the highest increase by 10.1 pps, 9.6 pps and 8.6 pps, respectively.⁽¹¹³⁾

The autonomous and outermost regions of the Azores and Madeira are facing particular challenges, due to their territorial specificities.

In 2021, GDP per capita in the Azores was 66% of the EU average and 70% in Madeira. Madeira showed negative GDP per capita growth (-0.6%) and slightly above zero in the Azores in 2011-2020. Both regions had one of the highest unemployment rates in 2021.

The share of the population with a high level of education in the Azores was 22.6% (the lowest in Portugal) and in Madeira it was one of the lowest. Both regions also continue to exhibit lower innovation performance.

In addition, the population at risk of poverty or social exclusion (ARPE) in Madeira and the Azores was significantly higher than in Portugal

⁽¹¹¹⁾The Community Innovation Survey – 2020.

⁽¹¹²⁾The Regional Competitiveness Index – 2022.

⁽¹¹³⁾Statistics Portugal – 2021.

as a whole and reached 29% and 27% respectively in 2021.

The social-economic consequences of the COVID-19 pandemic have been particularly severe in some regions. All Portuguese regions recorded a decrease in terms of GDP per head capita in 2019-2020. Algarve and Madeira were the Portuguese regions which experienced the highest contraction in 2019-2021 (by -10.5 pps and -5.5 pps respectively).

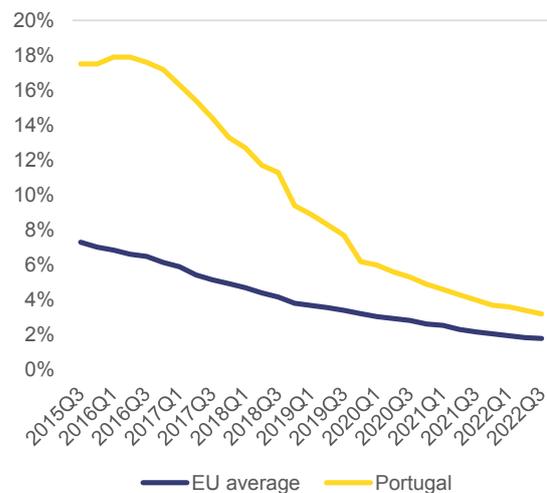
In contrast to the upward trend in 2015-2019, the employment rate fell in all regions in 2020. Employment recovered in most regions in 2021, but not in the Azores and Madeira, where employment continued to decrease by 2.0 pps and 0.4 pps respectively. Unemployment rates, which rose in most regions in 2020 have only recovered significantly in the capital region and remain above the 2019 value in Algarve, Madeira and Centro.

The banking sector is concentrated and includes relevant foreign players. The size of the Portuguese banking sector, equivalent to twice Portugal's GDP, is relatively small compared with the EU average. The sector is concentrated, with the five largest banks in control of three quarters of banking assets. The state plays a significant role in the sector as it owns the biggest credit institution in the country. Another salient structural feature of the Portuguese banking system is the prevalence of foreign players among the top five lenders, and the fact that just one bank is publicly listed on the local stock market.

The Portuguese banking sector has come a long way since the financial crisis of 2008-2009 but it underperforms European peers in a number of key indicators. As a result of the financial assistance granted to Portugal in 2011, which entailed an ambitious plan to modernise its domestic financial sector, the banks' capital positions and non-performing-loan (NPL) ratios have improved considerably in recent years. In addition, most banks have made great progress in digitalisation and cost-efficiency. Portuguese banks have also strengthened their capital ratios lately, although the sector's average is still below the EU average (17.2% capital adequacy ratio in Q3-2022 compared to an EU average of 18.6%). It is also noteworthy that there are major differences in capital ratios among Portuguese lenders. As reflected in the 2022 EU-wide transparency exercise by the European Banking Authority, the weakest Portuguese bank covered by this exercise had a capital ratio of only 8.9%, whereas the strongest one had a far more comfortable ratio of 17.8%. Moreover, despite the noteworthy efforts of Portuguese banks to continue downsizing their stock of NPLs, the NPL ratio is still one of the highest in the EU (3.2% in Q3-2022 against an EU average of 1.8%). Moreover, these weaknesses hinder the ability of banks to effectively support economic growth and efficiently allocate capital to the economy.

Rising interest rates are boosting banks' revenues. The impact of rising interest rates on banks' balance sheets has not yet been fully felt, but most indicators and estimates suggest it will have a positive net effect on banks overall. Higher interest rates have boosted banks' net-interest income. As a result, the profitability of Portuguese banks has been rising consistently in

Graph A18.1: Banks' NPL ratio



Source: ECB.

recent quarters and now stands well above the EU average (8.2% return on equity as of Q3-2022 compared with an EU average of 6.1%). This should allow banks to strengthen their capital ratios and deal more rapidly with legacy issues so they can focus on funding the real economy. In addition, neither higher interest rates nor the reduction in real household disposable income due to high inflation have yet to translate into an increase in corporate and household defaults. Banks seem to be reasonably well prepared (through provisions) to counter most potential vulnerabilities that originate from inflation and the normalisation of monetary policy.

The housing market and its implications for financial stability remain an area of concern. Given that 90% of mortgages in Portugal are at variable rates, the rise in Euribor may increase monthly loan payments substantially.

Households under financial stress may end up defaulting on their mortgage loans. However, there are some mitigating factors. For example, the proportion of disposable income required to cover the average monthly mortgage payment in Portugal is still bearable for most households ⁽¹¹⁴⁾ and well below the level seen a decade ago. Moreover, the macroprudential borrower-based measures adopted in Q3-2018 by Portugal's central bank, Banco de Portugal, have increased the resilience of households. This has in turn increased the resilience of the banking system. For the most indebted households, struggling to cope with their monthly mortgage bills, a recently adopted law ⁽¹¹⁵⁾ recommends that banks renegotiate their mortgage contracts to deal with rising interest rates and pre-emptively avoid defaults.

Inflation and the economic slowdown have not yet translated into defaults. Both banks and the financial authorities need to closely monitor the impact of rising interest rates on credit institutions. They also need to pay particular attention to the performance of credit to the companies and households most exposed to energy and commodity price increases. In that respect, the reform of the insolvency regime and the transposition of Directive (EU) 2019/1023 will have a positive impact on the existing restructuring mechanisms and procedures. The intention of this Directive remains: (i) to provide companies and creditors with legal tools that allow them to efficiently manage financially distressed companies; and (ii) by the same token, increase the survival rate or preserve the liquidation value of failing firms. Other reforms included in component 18 of Portugal's RRP will also help increase the efficiency of insolvency and company-recovery procedures.

Appropriately disclosing and managing climate risk is essential. According to the Portuguese central bank, about 60% of banks' exposures to non-financial corporations are in

climate-policy-relevant sectors, primarily in: (i) construction; (ii) the transaction in and use of buildings; (iii) the production and use of means of transportation; and (iv) energy-intensive industries. This is a significant exposure to carbon-intensive sectors. As the transition to a low-carbon economy accelerates, banks need to assess the different industries that they finance. Lenders also need to evaluate: (i) the impact of policies addressing climate change; and (ii) how the transition to a less emissions-intensive economy will impact banks' business models.

Insurance companies are sensitive to a rise in inflation and market risks. Despite inflationary pressures, growth in premium revenue is supporting the sector's profitability in 2022-2023, but in the non-life part of the insurance sector, profits are coming under pressure. As is the case elsewhere, the unexpectedly high inflation is likely to generate some losses for non-life businesses in Portugal. The sector remains exposed to natural catastrophes, including low-frequency catastrophes such as wildfires, earthquakes and – increasingly – floods, particularly in the southern part of the country.

⁽¹¹⁴⁾90% of the mortgage loans have an effort rate below 27%.

⁽¹¹⁵⁾Decreto-Lei n.º 80-A/2022, de 25 de novembro.

Table A18.1: Financial soundness indicators

	2017	2018	2019	2020	2021	2022	EU	Median
Total assets of the banking sector (% of GDP)	200.8	190.8	181.2	206.3	204.5	182.3	276.8	207.9
Share (total assets) of the five largest banks (%)	73.1	73.0	73.3	73.6	73.9	-	-	68.7
Share (total assets) of domestic credit institutions (%) ¹	69.7	68.3	68.4	68.5	69.3	68.9	-	60.2
NFC credit growth (year-on-year % change)	-0.3	1.8	0.9	9.5	4.5	0.8	-	9.1
HH credit growth (year-on-year % change)	-0.2	0.9	1.2	1.6	3.8	3.4	-	5.4
Financial soundness indicators:¹								
- non-performing loans (% of total loans)	13.3	9.4	6.1	4.9	3.6	3.2	1.8	1.8
- capital adequacy ratio (%)	15.2	15.2	16.7	18.1	18.0	17.2	18.6	19.8
- return on equity (%) ²	-0.8	2.7	4.3	0.0	4.9	8.2	6.1	6.6
Cost-to-income ratio (%)¹	52.9	60.2	59.2	56.0	51.6	47.5	60.6	51.8
Loan-to-deposit ratio (%)¹	78.9	76.2	76.4	72.1	68.9	78.9	88.6	78.0
Central bank liquidity as % of liabilities	6.9	5.8	5.4	9.2	11.0	4.3	-	2.9
Private sector debt (% of GDP)	163.0	155.1	149.5	163.7	156.9	-	-	120.7
Long-term interest rate spread versus Bund (basis points)	273.4	144.3	101.0	92.6	66.8	102.8	-	93.3
Market funding ratio (%)	42.8	43.7	45.2	45.8	45.9	-	50.8	40.0
Green bonds issued to all bonds (%)	-	-	0.4	1.0	1.7	2.0	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 annualised.

Source: ECB, Eurostat, S&P Global Capital IQ Pro**Source:**

Table A19.1: Taxation indicators

		Portugal					EU-27				
		2010	2019	2020	2021	2022	2010	2019	2020	2021	2022
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	30.4	34.5	35.2	35.3	36.4	37.9	39.9	40.0	40.6	
	Labour taxes (as % of GDP)	12.6	14.8	16.3	16.2		20.0	20.7	21.3	20.9	
	Consumption taxes (as % of GDP)	11.4	12.8	12.1	12.6		10.8	11.1	10.7	11.2	
	Capital taxes (as % of GDP)	6.4	7.0	6.7	6.5		7.1	8.1	8.0	8.5	
	Total property taxes (as % of GDP)	1.7	2.2	2.3	2.4		1.9	2.2	2.2	2.2	
	Recurrent taxes on immovable property (as % of GDP)	0.6	0.8	0.8	0.7		1.1	1.2	1.2	1.1	
	Environmental taxes as % of GDP	2.4	2.5	2.4	2.3		2.4	2.4	2.2	2.2	
Progressivity & fairness	Tax wedge at 50% of average wage (Single person) (*)	28.1	28.1	28.1	35.1	35.3	33.9	32.3	31.9	32.1	31.7
	Tax wedge at 100% of average wage (Single person) (*)	37.1	41.4	41.5	41.9	41.9	41.0	40.1	39.9	39.7	39.7
	Corporate income tax - effective average tax rates (1) (*)		25.0	25.1	25.1			19.5	19.4	19.1	
	Difference in Gini coefficient before and after taxes and cash social transfers (pensions excluded from social transfers) (2) (*)	8.4	8.3	8.5	8.4		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 %) (*)		36.7	45.9				31.6	40.7		
	VAT Gap (% of VAT total tax liability, VTTL)		8.2	8.0				11.0	9.1		

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

(2) A higher value indicates a 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 of the European Union, 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 of the European Union, 2022, <https://data.europa.eu/doi/10.2778/109823>.

Source: European Commission, OECD.

This Annex provides an indicator-based overview of Portugal's tax system. It includes information on the tax structure (the types of tax that Portugal derives most 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.

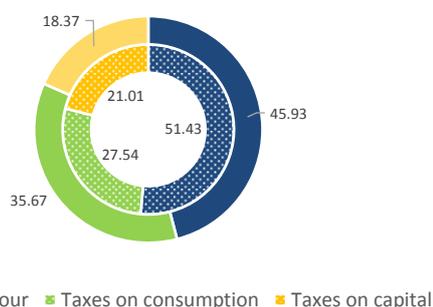
Portugal's tax revenue is relatively low in proportion to its GDP. Labour taxes contribute the most in terms of tax revenue, although labour tax revenue as a percentage of GDP (and also as a percentage of total taxation) was below the EU-27 average in 2021. Revenue from consumption taxes as a percentage of GDP was relatively high and environmental tax revenue was slightly above the EU-27 average. Capital tax revenue was below the EU-27 average and has been steadily declining since 2019. Revenue from property taxes was above the EU-27 average, but revenue from recurrent property taxes, which are generally among the taxes least detrimental to growth, was lower than the EU-27 average.

Portugal's labour tax burden is slightly more progressive than the EU average. Graph A19.2 shows that the labour tax wedge for Portugal in 2022 was considerably higher than the EU average for single people at the average wage, but also for low income earners at 50% and 67% of the average wage and high income earners at 167 % of the average wage. Second earners at a wage level of 67% of the average wage, whose spouses earn the average wage, were subject to a tax wedge that was significantly higher than the EU average. Portugal's system of tax benefits under personal income tax helped reduce inequality (as measured by the difference in GINI coefficients before and after taxes and benefits, see Table A19.1) by more than the EU average in 2021⁽¹¹⁶⁾. Nevertheless, Portugal's tax

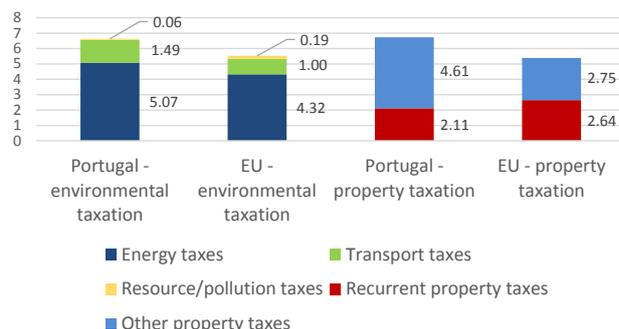
⁽¹¹⁶⁾However, evidence suggests that recent reforms to the personal income tax, consisting of updates in the tax brackets or reduction of marginal tax rates, could have nonetheless contributed to increase inequality in Portugal. A JRC analysis, based on EUROMOD, simulating the distributional and poverty impact of the personal income tax reform introduced by the Portuguese State Budget for 2023, concludes that while the impact of the reform in

Graph A19.1: Tax revenues from different tax types as % of total taxation

Tax revenue shares in 2021, Portugal (outer ring) and the EU (inner ring)



Environmental and property taxation as % of total tax revenue, Portugal and the EU



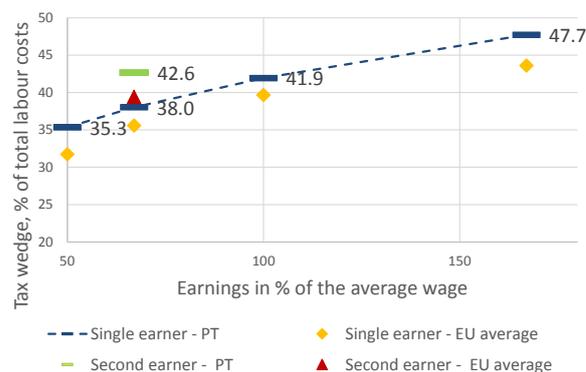
Note: Values for EU are GDP-weighted EU averages (EU aggregates)

Source: European Commission

benefit system remains complex (see Section 3). Furthermore, the average forward-looking effective corporate income tax rates were considerably above the EU average in 2021.

There is scope to improve Portugal's tax administration performance. Its Recovery and Resilience Plan (RRP) includes measures to combat fraud and evasion in social security contributions and benefits, and measures to modernise tax courts. Portugal has also increased the digitalisation of its tax administration in the areas of taxpayer services, IT systems and compliance. Tax arrears increased in 2020 by 9.2 pps to 45.9% of total net revenue, from an already significantly high level, 5.2 pps above the EU average in 2021. The VAT gap (the gap between revenues actually collected and the theoretical tax liability) has steadily been decreasing since 2016, reducing by nearly 4 pps until 2019. In 2020, the estimated VAT tax base for Portugal declined in parallel with VAT revenue, as in most Member States. The VAT gap in 2020 therefore remained broadly unchanged at 8% of the total VAT liability (below the EU-wide gap of 9.1%). However, Portugal's VAT policy gap (which is an estimate of revenue loss due to the use of reduced VAT rates and exemptions) increased in 2020 to 53.01% and remained well above the EU average of 45.77%.

Graph A19.2: 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. For the methodology of the tax wedge for second earners see OECD (2016) "Taxing Wages 2014-2015"

Source: European Commission

poverty would be limited, inequality (as measured by the Gini coefficient) would likely worsen.



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	2024
Real GDP (y-o-y)	1.7	-1.4	1.8	-8.3	5.5	6.7	2.4	1.8
Potential growth (y-o-y)	0.9	-0.4	0.7	1.3	2.0	1.8	2.0	2.1
Private consumption (y-o-y)	2.0	-1.6	2.0	-7.0	4.7	5.8	0.5	1.5
Public consumption (y-o-y)	1.4	-1.1	0.3	0.3	4.6	1.7	2.7	1.3
Gross fixed capital formation (y-o-y)	0.6	-7.7	4.0	-2.2	8.7	3.0	2.9	3.6
Exports of goods and services (y-o-y)	5.6	1.5	5.5	-18.6	13.4	16.7	5.4	3.2
Imports of goods and services (y-o-y)	5.7	-2.6	6.2	-11.8	13.2	11.1	3.3	3.6
Contribution to GDP growth:								
Domestic demand (y-o-y)	1.8	-2.8	2.0	-4.9	5.5	4.6	1.4	1.9
Inventories (y-o-y)	0.3	-0.1	0.0	-0.5	0.3	0.0	0.0	0.0
Net exports (y-o-y)	-0.4	1.5	-0.3	-3.0	-0.2	2.0	1.0	-0.2
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	-0.3	-1.1	0.3	0.2	0.5	0.2	0.5	0.6
Capital accumulation (y-o-y)	0.8	0.3	-0.1	-0.1	0.1	0.1	0.1	0.2
Total factor productivity (y-o-y)	0.4	0.4	0.6	1.1	1.4	1.5	1.4	1.3
Output gap	-1.0	-1.7	-0.7	-6.6	-3.4	1.3	1.7	1.3
Unemployment rate	8.9	12.6	11.3	7.0	6.6	6.0	6.5	6.3
GDP deflator (y-o-y)	3.0	0.6	1.7	2.0	1.5	4.4	5.8	2.3
Harmonised index of consumer prices (HICP, y-o-y)	2.5	1.9	0.6	-0.1	0.9	8.1	5.1	2.7
HICP excluding energy and unprocessed food (y-o-y)	2.2	1.4	0.7	0.0	0.3	6.2	5.9	3.0
Nominal compensation per employee (y-o-y)	3.3	0.4	2.0	1.5	4.1	6.1	5.7	2.9
Labour productivity (real, hours worked, y-o-y)	1.7	1.1	0.4	0.3	2.4	3.6	1.0	0.5
Unit labour costs (ULC, whole economy, y-o-y)	1.4	-0.2	1.3	8.7	0.6	1.5	3.7	1.7
Real unit labour costs (y-o-y)	-1.5	-0.8	-0.4	6.6	-0.9	-2.9	-2.0	-0.6
Real effective exchange rate (ULC, y-o-y)	-0.2	-1.9	0.3	3.8	0.3	-1.6	-1.5	-1.5
Real effective exchange rate (HICP, y-o-y)	0.6	-0.5	-0.2	0.2	-1.7	-1.4	.	.
Net savings rate of households (net saving as percentage of net disposable income)	1.8	1.5	-1.3	2.1	-0.6	-5.4	.	.
Private credit flow, consolidated (% of GDP)	13.8	4.4	-0.8	4.4	4.1	2.8	.	.
Private sector debt, consolidated (% of GDP)	173.6	203.4	172.6	163.7	157.0	142.7	.	.
of which household debt, consolidated (% of GDP)	81.5	90.6	73.8	69.1	66.4	61.5	.	.
of which non-financial corporate debt, consolidated (% of GDP)	92.1	112.8	98.8	94.6	90.6	81.1	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (1)	1.2	4.1	10.5	3.9	3.0	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	-4.5	-1.7	2.3	0.4	0.4	-0.7	1.2	1.2
Corporations, gross operating surplus (% of GDP)	19.8	20.9	21.9	19.4	20.6	21.4	23.2	23.3
Households, net lending (+) or net borrowing (-) (% of GDP)	1.3	3.0	2.4	5.2	3.4	0.5	1.0	0.7
Deflated house price index (y-o-y)	-1.6	-2.9	4.9	8.1	7.9	5.9	.	.
Residential investment (% of GDP)	5.7	3.7	2.7	3.4	3.8	4.0	.	.
Current account balance (% of GDP), balance of payments	-9.4	-8.0	0.8	-1.0	-0.8	-1.3	1.1	1.0
Trade balance (% of GDP), balance of payments	-7.8	-5.4	1.3	-1.9	-2.6	-2.1	.	.
Terms of trade of goods and services (y-o-y)	-0.1	0.0	1.0	1.4	-1.2	-3.2	3.1	0.3
Capital account balance (% of GDP)	1.4	1.5	1.1	1.0	1.7	0.9	.	.
Net international investment position (% of GDP)	-77.1	-107.8	-112.9	-104.6	-95.0	-83.9	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (2)	-44.3	-71.3	-64.7	-46.7	-36.5	-29.4	.	.
IIPLiabilities excluding non-defaultable instruments (% of GDP) (2)	175.7	213.4	189.4	183.5	170.4	148.6	.	.
Export performance vs. advanced countries (% change over 5 years)	5.5	-3.3	4.1	-1.0	-0.8	.	.	.
Export market share, goods and services (y-o-y)	-2.4	-3.7	2.2	-10.2	0.3	12.4	2.7	-0.6
Net FDI flows (% of GDP)	0.6	-2.4	-3.0	-2.5	-3.4	-2.0	.	.
General government balance (% of GDP)	-4.8	-7.8	-3.1	-5.8	-2.9	-0.4	-0.1	-0.1
Structural budget balance (% of GDP)	.	.	-1.7	-1.6	-1.3	-0.8	-0.8	-0.8
General government gross debt (% of GDP)	71.4	101.4	127.3	134.9	125.4	113.9	106.2	103.1

(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 Portugal 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's 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).⁽¹¹⁷⁾ Gross financing needs are expected to remain moderate at around 10% of GDP in the short-term (i.e. over 2023-2024), although declining compared with the recent peak in 2020 (Table A21.1, Table 1). Financial markets' perceptions of sovereign risk are investment grade, as confirmed by the spread and the 'BBB' (or equivalent) rating that the three main rating agencies have assigned to the Portuguese government debt.

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

The DSA for Portugal shows that, under the baseline, the government debt-to-GDP ratio is expected to remain at a high level over the medium-term (at 91.8% of the GDP in 2033), despite being on a continuously declining path (Graph 1).^{(118), (119)} The

assumed structural primary balance (a surplus of 1.9% of GDP) seems ambitious compared to past fiscal performance. At the same time, the baseline projections up to 2033 benefit from a favourable (although diminishing) snowball effect until 2030, notably thanks to the favourable impact of NextGenerationEU, with real GDP growth at around 0.8% of GDP over 2025-2033. Government gross financing needs are expected to slightly increase over the projection period, reaching 11% of GDP in 2033, slightly above the level 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 Portugal, all the stress tests scenarios would lead to worse results as compared to the baseline, with particularly adverse developments under the 'historical structural primary balance (SPB)' scenario. If the SPB gradually converged to a surplus of 0.4% of GDP (its historical 15-year average), it would result in a persistently higher projected debt-to-GDP ratio (about 9 pps.) higher than in the baseline in 2033. 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 also lead to higher government debt-to-GDP ratio (around 8 pps.) by 2033, as compared with the baseline. As for the 'lower structural primary balance' scenario (i.e. SPB level permanently reduced by half of the cumulative forecast change), it would also provide to a higher government debt-to-GDP ratio by 2033 (about 4 pps.) compared with the baseline. A temporary worsening of financial conditions, as reflected in the 'financial stress' scenario (i.e. temporarily increase of interest rates by 2.4 pps.), would also lead a slightly higher public debt-to-GDP ratio by 2033 (about 2 pps.) compared with the baseline.

⁽¹¹⁷⁾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.

⁽¹¹⁸⁾The assumptions underlying the Commission's 'no-fiscal policy change' baseline notably comprise: (i) a structural primary surplus, before ageing costs, of 1.9% 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; (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 0.8%); (v) ageing costs in line with the 2021 Ageing Report (European Commission, Institutional Paper 142, November 2020). For information on the methodology, see the 2022 Debt Sustainability Monitor.

⁽¹¹⁹⁾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.

Additionally, stochastic projections show a medium sensitivity of these projections against plausible unforeseen events (Graph 2). ⁽¹²⁰⁾ These stochastic simulations point to a 22% probability of the debt ratio in 2027 being greater than in 2022, entailing medium risk given the initial high level of debt. In addition, such shocks point to substantial uncertainty (i.e. the difference between the 10th and 90th debt distribution percentiles) surrounding the government debt baseline projections.

3 - Long-term risks to fiscal sustainability are low overall. ⁽¹²¹⁾

The S2 indicator points to low fiscal sustainability risks. The indicator shows that, relative to the baseline, the SPB would not need to improve to ensure debt stabilisation over the long term. This result is underpinned by a favourable initial budgetary position (-1.5 pps. of GDP) and the projected decrease in ageing-related costs (contribution of -1.1 pps. of GDP). Ageing costs' developments are primarily driven by the projected decrease of public pension expenditure (contribution of -2.9 pps. of GDP), though pension spending will continue to increase over the next decade to reach a peak of 14.6% of GDP in 2035 before starting to decrease. Health and long-term care spending is projected to increase over the projection period (joint contribution of 1.7 pps.

⁽¹²⁰⁾ The stochastic projections show the joint impact on debt of 2000 different shocks affecting the government's budgetary position, economic growth, interest rates and exchange rates. The cone covers 80% of all the simulated debt paths, therefore excluding tail events.

⁽¹²¹⁾ 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.

of GDP) (Table 2). However, a number of investments and reforms in the RRP contribute to supporting the efficiency of the Portuguese health-care system, so it will be important to carefully monitor their implementation.

Combined with the S1 indicator, long-term risks are assessed as low. Indeed, the S1 sustainability gap indicator signals that no consolidation effort would be needed to reduce debt to 60% of GDP by 2070. This result is driven by the favourable initial budgetary position (-1.8 pps. of GDP), which is partially offset by the high Portuguese government debt ratio (contribution of 0.9 pp. of GDP), and the projected ageing-related public spending (contribution by 0.8 pp. of GDP) (Table 2).

Finally, several additional risk factors need to be considered in the assessment. On one hand, risk-increasing factors are related to the recent increase in interest rates, contingent liability risks linked to State guaranteed credit lines, including those granted to firms and the self-employed during the COVID-19 crisis, and the negative net international investment position. On the other-hand, risk-mitigating factors include Portugal's comfortable cash buffer, relatively stable financing sources (with a diversified and large investor base) and the currency denomination of debt, as well as a debt management strategy targeting the smoothening of the debt redemption profile. 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.

Table A21.1: Debt sustainability analysis - Portugal

Table 1. Baseline debt projections	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Gross debt ratio (% of GDP)	134.9	125.4	113.9	106.2	103.1	100.1	97.7	96.0	94.4	93.2	92.3	91.9	91.8	91.8
Changes in the ratio	18.3	-9.5	-11.5	-7.7	-3.1	-3.0	-2.3	-1.7	-1.6	-1.2	-0.8	-0.5	-0.1	0.0
of which														
Primary deficit	2.9	0.5	-1.6	-2.0	-2.6	-2.2	-1.8	-1.3	-1.1	-0.9	-0.7	-0.5	-0.3	-0.1
Snowball effect	10.9	-6.5	-10.9	-6.6	-1.5	-0.8	-0.6	-0.4	-0.5	-0.3	-0.2	0.0	0.2	0.1
Stock-flow adjustments	4.4	-3.5	1.0	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs (% of GDP)	20.8	12.2	11.1	10.6	9.8	9.5	10.1	10.3	10.2	10.0	9.6	11.8	11.6	11.4

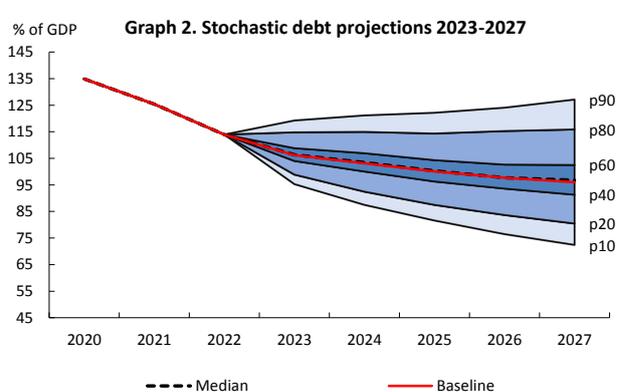
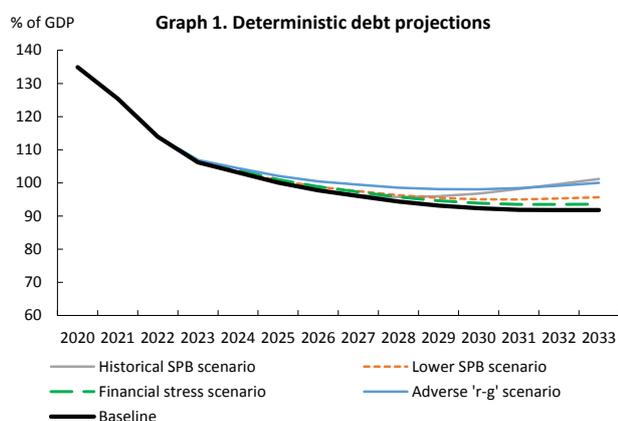


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

	S1	S2
Overall index (pps. of GDP)	-0.1	-2.6
of which		
Initial budgetary position	-1.8	-1.5
Debt requirement	0.9	
Ageing costs	0.8	-1.1
of which		
Pensions	-0.6	-2.9
Health care	1.0	1.3
Long-term care	0.3	0.4
Others	0.1	0.2

Source: Commission services.

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

Short term	Medium term - Debt sustainability analysis (DSA)							Long term			
	Overall (S0)	Overall	Deterministic scenarios					Stochastic projections	S2	S1	Overall (S1 + S2)
			Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress				
LOW	HIGH	Overall	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW	LOW	LOW
		Debt level (2033), % GDP	91.8	101.2	95.7	100.0	93.6				
		Debt peak year	2022	2022	2022	2022	2022				
		Fiscal consolidation space	24%	41%	33%	24%	24%				
		Probability of debt ratio exceeding in 2027 its 2022 level						22%			
		Difference between 90th and 10th percentiles (pps. GDP)					54.8				

(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 (for further details on the Commission's multidimensional approach, see the 2022 Debt Sustainability Monitor).

The Macroeconomic Imbalance Procedure matrix presents the main elements of the in-depth review undertaken for Portugal ⁽¹²²⁾. The country was selected for an in-depth review in the 2023 Alert Mechanism Report. This in-depth review on the prevention and correction of macroeconomic imbalances presents the main findings on the gravity and evolution of the challenges identified, as well as policy responses and potential policy needs. Findings cover all areas of vulnerability assessed in the in-depth review.

Portugal has made substantial progress in reducing its vulnerabilities related to public, private and external indebtedness. After a temporary interruption due to the outbreak of COVID-19 in 2020, public, private and external debt to GDP ratios resumed their declining trend. All debt ratios improved to levels below those in the pre-pandemic period. The adverse energy price developments led to a modest deterioration in the current account balance in 2022. The ratio of the country's NIIP relative to GDP remains very negative, at -83.9%, but improved substantially, helped by strong economic growth. Similar improvements were observed in the private and public debt ratios. The external debt structure remained overall favourable as a substantial part of the NIIP is composed of non-defaultable debt instruments. NPLs continued to decline. In nominal terms, house prices increased by 12.6% in 2022 and the average valuation gap increased to around 24%. The banking sector proved resilient over 2022, as profitability increased and non-performing loans continued to decline.

Going forward, the country's public, private and external indebtedness is projected to continue its favourable trajectory supported by economic growth. Although real economic

growth is forecast to moderate, nominal GDP is still expected to continue to increase at a relatively high rate. In the external sector, the expected global correction in energy prices and a further increase in foreign tourism revenues are set to improve the current account balance to around 1% in 2023, and to further support the adjustment in the NIIP. House prices are projected to continue growing, but at a lower rate, with a marked reduction of housing prices being unlikely.

Policy progress has been made with a particular focus on RRP implementation. The ongoing implementation of Portugal's RRP is expected to have a significant impact on the country's energy efficiency, production of renewables and export potential that ultimately support the country's external position. Large investments in digital technologies and skills as well as measures to increase liquidity and capitalisation of vulnerable firms are set to improve the country's productivity. Most of the measures included in the Portuguese RRP remain to be implemented until mid-2026. Authorities took steps to address issues related to housing affordability resulting from the continuous growth in house prices. Fiscal-structural reforms are key to strengthen Portugal's medium-term fiscal sustainability. Portugal has made limited progress in improving the effectiveness of the tax and social protection systems.

Based on this assessment, the Commission considered in its communication European Semester – 2023 Spring Package (COM(2023) 600 final) that Portugal continues to experience imbalances.

⁽¹²²⁾ European Commission (2023), In-Depth Review for Portugal, Commission staff working document (COM(2023) 641 final), in accordance with Article 5 of Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances.

Table A22.1: Assessment of macroeconomic imbalances matrix

	Gravity of the challenge	Evolution and prospects	Policy response
Unsustainable trends, vulnerabilities and associated risks			
External balance	The net international investment position (NIIP) is estimated at -84% of GDP at the end of 2022, standing beyond the estimated prudential threshold of -55%. Non-defaultable instruments account for about 60% of the NIIP, reducing risks associated to external debt. The current account balances, at -1.3% of GDP in 2022, was below the country-specific norm due to temporary factors mainly related to the exceptionally high prices of energy imports.	After a temporary deterioration in 2020, driven by the negative impact of COVID-19, the NIIP improved markedly for a second year in a row from -105% of GDP at the end of 2020 to -95% at the end of 2021 and -84% at the end of 2022. Going forward, the NIIP is projected to retain a sound pace of improvement. The current account deficit widened from 0.8% of GDP in 2021 to 1.3% in 2022, driven by exceptionally high prices of energy imports. In real terms, exports grew much faster than imports due mainly to the strong recovery in tourism. The current account balance is forecast at around 1% of GDP for 2023 and 2024.	Some policy needs remain to reduce Portugal's energy import dependency and are being addressed by ongoing reforms and investments, including the RRP. Reducing the country's net energy imports is key to reduce Portugal's negative trade balance in the medium term. Ongoing policy actions are related to energy efficiency and increased use of renewable energy.
Private debt	The high stock of private debt is mainly a legacy of the past in Portugal. Private debt is estimated at 143% of GDP at the end of 2022. Both household and corporate debt to GDP ratios are above the estimated country specific fundamentals and prudential benchmarks. The stock of non-performing loans is estimated at 3.1% at the end of 2022 and poses a considerably lower risk than some years ago.	Helped mainly by the strong nominal growth in GDP, the private debt-to-GDP ratio fell from 157% at the end of 2021 to 143% at the end of 2022. The ratio thus moved below its pre-pandemic level of 149% at the end of 2019 and well below its peak of 211% in 2012. With the projected growth in nominal GDP in 2023-2024, the private debt ratio is set to move close to the indicative scoreboard threshold of 133% by the end of 2024.	The policy setting is overall consistent with a further unwinding of the private debt stock. Portugal introduced new measures for boosting liquidity and capital to companies. The state-owned promotional bank, Banco Português de Fomento (BPF), was set up in 2020. Since then, the bank issued a wide range of funds and guarantee lines to support companies in vulnerable sectors, as well as to address the issue of undercapitalisation of the Portuguese corporate sector.
Public debt	The government debt-to-GDP ratio is estimated at 114% of GDP in 2022. The high government debt-to-GDP ratio makes Portugal vulnerable to changes in economic and financing conditions, which translate into certain fiscal sustainability risks. However, risks are mitigated by Portugal's comfortable cash buffer, favourable maturity structure of its debt and stable financing sources.	Portugal's public debt-to-GDP ratio further decreased in 2022. After reaching a peak of 134.9% in 2020, the Portuguese public debt-to-GDP ratio resumed its downward trend and reached 113.9% in 2022, benefitting from the high inflation environment. It is projected to continue declining, to 103% in 2024. The fiscal balance improved to -0.4% in 2022 and is forecast to be close to balance in 2023 and 2024.	Fiscal-structural reforms are key to strengthen Portugal's medium-term fiscal sustainability. The full and effective implementation of the 2015 Budgetary Framework Law would provide for a stronger budgetary framework. As part of the Portuguese RRP, Portugal also envisages measures to strengthen the spending efficiency and to enable appropriate budgeting with the integration, among others, of spending reviews and the development of programme budgeting. Portugal has made limited progress in improving the effectiveness of the tax and social protection systems.
Productivity	Low labour productivity hinders competitiveness and potential growth. Total factor productivity was a major contributor to Portugal's potential growth in 2022 while the contributions of labour and capital were much smaller. Low productivity growth also limits the prospects of deleveraging and income convergence. On the other hand Portugal's potential growth exceeds the euro average.	After a drop in labour productivity and export market shares in 2020 due to the pandemic-driven contraction in tourism, Portugal marked a significant improvement in both indicators in 2021-2022. The economy expanded much faster than employment and exports rose faster than the growth of Portugal's export markets. Total factor productivity is projected to remain broadly stable over the forecast period, while labour productivity growth is set to slow down.	Policy progress has been made in areas related to productivity. Specific actions in the area refer to the digital transformation and business environment with the entry into force of the review of the training content in the field of digital skills and the legislation for the creation of digital signatures. Furthermore, authorities launched the digital academy and employment programmes with the aim to increase the digital skills of employees and managers with a particular focus on enterprises in industry, commerce, services, tourism and agriculture sectors. Investments are expected to contribute to the development of life-long vocational skills and training practices.
Housing	Over the last decade, house prices in Portugal have doubled in nominal terms with the last three years, 2020 to 2022, witnessing an increase of around 34%. In nominal terms, house prices increased at around 13% in 2022. The average valuation gap increased to 24% in 2022.	House price growth is expected to moderate going forward, as interest rates are on the rise. Certain supply constraints will continue to exist and reduce the scope for a substantial reduction in house prices in a context of strong property demand by foreign investors.	Some measures were taken in response to recent house price developments. The central bank adopted a macroprudential recommendation, lowering as of 2023 the average maturity for mortgage-backed loans to 30 years. This came on top of existing macroprudential measures. The government approved a draft programme targeting the Portuguese housing market (Programa Mais Habitação) in February 2023 with a draft Law proposal pending discussion and approval in the Portuguese Parliament.

Source: European Commission

