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2023 Country Report - Greece

Accompanying the document

Recommendation for a COUNCIL RECOMMENDATION

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

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European
Commission

Greece

2023 Country Report



ECONOMIC AND EMPLOYMENT SNAPSHOT

Economic growth is set to slow down amid a challenging global environment

The Greek economy was among the most severely hit by the COVID-19 crisis in the EU but it recovered swiftly.

After contracting by 9% in 2020, Greece's GDP grew by 8.4% in 2021 and by 5.9% in 2022. The recession in Greece was deeper than in the EU on average (-5.6%) but was followed by a more dynamic recovery. This pattern is largely explained by the reopening of the economy after containment measures were lifted and the strong responsiveness of the tourism sector, which accounts for a sizeable share of Greek GDP. By early 2022, Greece had recovered the output losses it had incurred since the end of 2019.

When the energy crisis hit, the recovery slowed down.

While strong growth was recorded in the first half of 2022, rising inflation took its toll on the economy in the second half of the year, mainly by weakening private consumption growth.

Greece exhibits several macroeconomic vulnerabilities which are assessed in the in-depth review.

⁽¹⁾ These are linked to the high level of public debt, a widened current account deficit (though partly driven by the energy crisis), a still large stock of non-performing loans, and high unemployment (Annex 22). However, the public debt-to-GDP ratio fell sizeably in 2022 (and is set to fall further). Bank exposures to non-performing loans decreased significantly, although a large

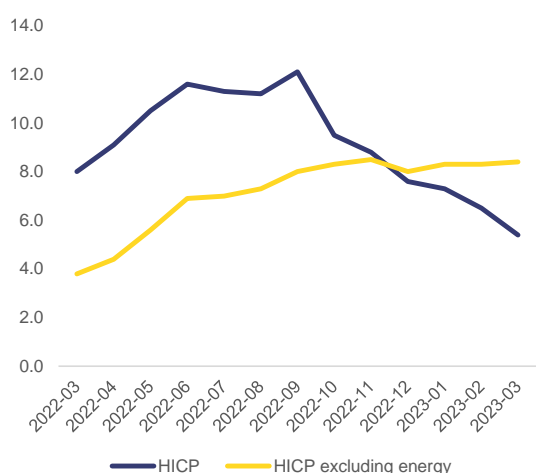
share of impaired assets has been transferred to credit servicers and thus remains in the economy. Unemployment has been steadily declining, and employment has fully recovered from the pandemic and is above pre-pandemic levels. Reforms and investments to increase productivity, competitiveness, and export capacity, for example those undertaken in the context of the recovery and resilience plan, are crucial in gradually reducing vulnerabilities.

Greece was affected by soaring energy prices, just like other EU Member States.

Headline inflation averaged 9.3% in 2022 (Graph 1.1). For the first three quarters until its peak in September 2022, inflation was driven by the surge in energy prices, which has started to pass through to other prices, especially of services. Headline consumer price inflation is set to moderate in the years ahead, while food price inflation is set to remain more persistent, given the lagged impact of high energy costs on food production.

⁽¹⁾ European Commission (2023), In-Depth Review for Greece, Commission staff working document (COM(2023) 631 final),

Graph 1.1: **Energy and non-energy inflation, %**



Source: Eurostat. HICP stands for the Harmonised Index of Consumer Prices which is a measure of inflation. It reflects the change over time of prices paid by households for a representative basket of goods and services.

Bank profitability has increased, but challenges remain. The profitability of banks increased on the back of lower provisions for potential losses, new more profitable lending in 2022 and one-off trading gains. This has helped restore the banks’ capital position as of end-September 2022 back to end-2021 levels, although capital quality, albeit improving, remains weak. Going forward, rising interest rates risk reducing the repayment capacity of debtors and put pressure on asset quality and credit demand. Rising rates also increase banks’ funding costs, given that banks need to issue long-term debt (at higher rates) to meet minimum regulatory requirements. On the positive side, the planned repayments of previous longer-term funding granted by the European Central Bank ⁽²⁾, have already started and are likely to be completed without major effects on liquidity ratios. Net lending to non-financial corporations picked up in 2022, while net lending to households was still declining. The cost of borrowing is higher than the average in the euro area, particularly for households and small businesses, and is further increasing due to rising interest rates. At the same time, business access to non-bank

⁽²⁾ Under the targeted longer-term refinancing operations (TLTRO III).

financing remains limited, despite the progress in recent years (see Annex 18).

Economic growth mitigated the impact of crisis-related spending on public debt.

Greece’s public debt rose to a record high of 206.3% of GDP in 2020 and remains the highest in the euro area, although it has a favourable profile and repayment structure. However, strong nominal GDP growth, driven by both real GDP growth and inflation, helped bring down the debt-to-GDP ratio to 171.3% in 2022.

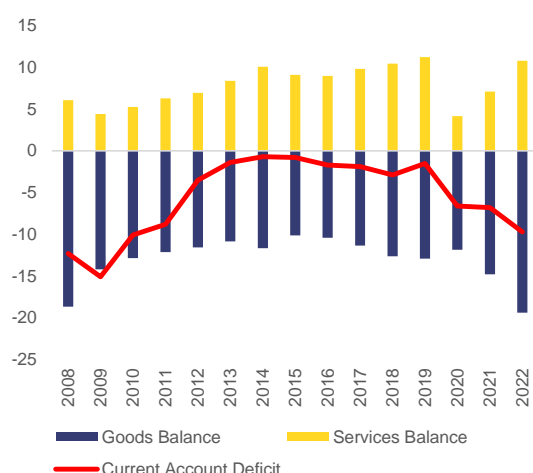
The current account deficit continued to increase last year, and stabilisation of the net international investment position remains a challenge.

The current account deficit has widened since 2020, mainly due to the deteriorating balance of trade in goods that was only partially offset by the marked improvement in the balance of trade in services (Graph 1.2). Despite recent improvements, Greece’s net international investment position stood at -141.3% of GDP in 2022, below the EU average. Net liabilities are mainly composed of public debt instruments held by official creditors, but the share of private sector debt also recently rose.

The labour market has weathered the health and energy crisis well.

Since 2020, public support measures have helped prevent major job losses. Combined with the economic recovery that followed, they have led the employment rate to increase to a record high of 66.8% by the fourth quarter of 2022, albeit still 8 percentage points below the EU average. Meanwhile, the unemployment rate continued to decline reaching a 12-year low (11.8% by the end of 2022), yet remained among the highest in the EU; joblessness disproportionately affected young people (aged 15-29) and women 24.9% and 15.6% respectively. Nominal compensation per employee increased by 5.1% in 2022, which is below the rate of inflation, resulting in a decline in real wages of 4.7%. The government has announced a further increase in the minimum wage by 9.4% as from 1 April 2023. This is expected to partially offset the further decline in real wages in 2023.

Graph 1.2: **Current account balance**



Source: AMECO database

The economy is becoming more energy efficient and adjusting to higher energy prices

In response to the energy crisis, energy demand has fallen sharply. Since the outbreak of the crisis, retail electricity prices for households have been increasing but have been kept below the EU average level, while retail gas prices for industry have been moving close to the EU average overall. On the contrary, since mid-2021, retail electricity prices for industry have been increasing to levels that exceeded the EU average, while retail gas prices for households have converged to EU average levels only more recently. Domestic gas consumption fell by 19% in 2022 and gas imports from Russia through pipelines was more than halved. Since Russia's war of aggression against Ukraine, consumption of natural gas and electricity have been significantly reduced. Greece's consumption of natural gas has dropped by 22% in the period August 2022-March 2023, compared with the average over that same period in the last 5 years (above the 15% reduction target), while the reduction in electricity consumption was 11.6%⁽³⁾. This

⁽³⁾ For consumption of electricity, the data in the comparison runs only until February 2023.

follows a period of energy efficiency gains for the economy as reflected in the 21% energy intensity reduction between 2012-2021.

The government took temporary measures to cushion the impact of soaring energy prices. These included subsidies to energy users, social transfers to vulnerable households, subsidies for fuels, and cuts to indirect taxes on transport services (Box 1).

Greece has made progress in diversifying its sources of energy. In 2022, for the first time, renewables accounted for the largest share in the country's electricity production (42%). Gas exports rose by 289% in 2022, mainly to Bulgaria. Electricity imports increased slightly in 2022 compared with 2021 (by 2%), with Bulgaria providing the largest share. Greece remains committed to phasing out lignite-based electricity production by 2028 and to further increasing the use of renewable sources of energy.

Box 1: Economic and fiscal aspects of energy measures taken

Greece has adopted several support measures to cushion the impact of energy price inflation on households and businesses. The Commission's 2023 Spring Economic Forecast projects the country's gross budgetary costs to amount to 0.9% of GDP in 2023 ⁽⁴⁾. Most measures do not preserve the price signal and do not target the most vulnerable. Nevertheless, both gas and electricity consumption have fallen more than the EU average in the period August 2022–January 2023. The energy support measures are expected to be phased out by the end of 2023, depending on energy price developments.

Specifically, the principal vehicle of support is a price subsidy on electricity consumption to which all households and firms are eligible irrespective of their consumption or income. Through this subsidy, which has become scaled to consumption and has an estimated budgetary cost of 4.1% of GDP in 2022 and 0.9% of GDP in 2023, the Greek state covers a significant part of the electricity price increase, thereby reducing the effectiveness of price incentives to limit energy consumption. Similarly, the subsidies given in response to high fuel prices were also not targeted as they benefited the vast majority of households. Some more targeted income support measures have also been adopted albeit of a smaller size. These included a temporary increase in the heating oil subsidy, increased income transfers to low-income pensioners and vulnerable households, and additional disbursements of child benefits.

Greece applied the EU solidarity contribution in application of Council Regulation (EU) 2022/1854 ⁽⁵⁾ at a rate of 33% for the fiscal year 2022. In addition, an extraordinary 90% levy on the windfall revenues of energy producers for the period October 2021 to June 2022 was applied. As of July 2022, a price cap has been introduced for each type of electricity producer. Excess revenues, i.e. the profits due to the difference between the market price at which producers continue to sell electricity and the set price cap, are transferred to the government and used to finance the price subsidy on electricity consumption.

Greece managed to ensure a high level of gas supply security in 2022. Liquefied natural gas (LNG) imports increased considerably; Revythousa was the main entry point (44% of imports) and the US the main supplier accounting for over 50% of Greece's total LNG imports. Given the fact that Greece has no underground storage facilities, it procured a floating storage unit connected to Revythousa, increasing the capacity from 225 to 375 million cubic metres. Moreover, in 2022 the Greece-Bulgaria gas interconnector was commissioned and both countries continue working to maximise gas reverse flows. While energy prices have decreased, uncertainty remains regarding next winter, which requires continued efforts to structurally reduce gas demand.

⁽⁴⁾ For 2022, the gross budgetary cost of measures amounted to 4.8% of GDP. Some of the measures outlined in this box were already in place in 2021.

⁽⁵⁾ That is the application of a mandatory temporary solidarity contribution at a rate of at least 33% to the extraordinary and unexpected profits of businesses active in the extraction of crude petroleum, natural gas, coal, and refinery sectors. It is calculated on taxable profits, as determined under national tax rules in the fiscal year starting in 2022 and/or in 2023, which are above a 20% increase of the average yearly taxable profits in 2018-2021.

The energy crisis increases the urgency of addressing economic and social challenges

Greece's investment rate remains low, although EU resources and increasing FDI

inflows are helping to reduce the gap with EU peers. Between 2010-2019, investment fell sharply, reaching 10.7% of GDP in 2019. This reflected both cyclical and structural factors and was largely driven by a marked reduction in private investment. However, investment rates have been rising since 2019 to reach 13.7% of GDP in 2022, also because of the Recovery and Resilience Facility (RRF), other EU funds, and increasing FDI inflows, thereby reducing Greece's investment gap relative to the EU average from 11.5% of GDP in 2019 to 8.7% of GDP in 2022.

Labour productivity falls short of the EU average and the gap has widened in the last decade. R&I expenditure by businesses was below the EU average in 2022. Real productivity per hour worked remained below 2010 levels, largely due to slow productivity growth in the last 12 years in key sectors, such as services and construction. Productivity levels in the manufacturing sector are in line with the EU average, but the share of industry in the economy has been on a declining trend for many years. Meanwhile, there has been a steady decline in real unit labour costs during the last decade, as the decline in wages more than offset the weak productivity performance. Regulatory restrictions in the access to and exercise of certain business services are higher than in the EU on average, resulting in lower competition, higher average costs and hence lower competitiveness (Annex 12). Looking ahead, ensuring competitiveness by fostering labour productivity remains key.

While living and working conditions, as reflected in the European Pillar of Social Rights, are better overall than 5 years ago, significant social challenges remain. While the share of children that leave school early is among the lowest in the EU, access to the labour market and further upskilling opportunities remains difficult. Unemployment is gradually decreasing, but there remains a high share of young people not in employment, education or training. Also, only around half of women are employed as opposed to more than 70% of men, one of the largest employment gaps in the EU. Nearly one third of children are at risk of poverty or social

exclusion and a relatively high share of the population reports unmet medical care needs (Annex 14).

Regional disparities remain significant. With more than half of its population and a little less than two thirds of its economy concentrated in the regions of Attica and Central Macedonia, Greece features a rather disparate economic development model. The large disparities in GDP per capita are notably due to cross-region inequalities in innovation performance, digital integration and skills (see Annexes 11, 15, 17).

With support from EU funds, the country is gradually moving towards a more sustainable development model. Greece is improving on almost all United Nations Sustainable Development Goals (SDGs) related to environmental sustainability, although it needs to catch up with the EU average. Albeit starting from a relatively low position, over the last 5 years Greece has brought the use of renewable energy sources to the EU average, and it significantly reduced greenhouse gas emissions. Nonetheless, access to affordable and green energy remains challenging with 17.5% of its population being unable to keep their home adequately warm (2021 data). Greece also fares better than in the past in several dimensions of fairness, productivity and macroeconomic stability. Nevertheless, there is room for further improvement, including to tackle unemployment, inequalities and poverty, especially in rural areas (see Annex 1). EU funds such as the Recovery and Resilience Facility and the cohesion policy funds provide key support to Greece's efforts to meet its SDGs (Annex 3, 4) and its 2030 national targets on employment, skills, and poverty reduction (Annex 5, 14).

THE RECOVERY AND RESILIENCE PLAN IS UNDERWAY

Greece's recovery and resilience plan (RRP) aims to address the key challenges related to the green and digital transitions, employment, skills and social cohesion, private investment, and economic and institutional transformation. It consists of 68 reforms and 106 investments that are supported by EUR 17.4 billion in grants and EUR 12.7 billion in loans (in 2018 constant prices), representing 14.5% of GDP in 2022 (see Annex 3 for more details).

The implementation of Greece's recovery and resilience plan has so far been well underway, however it is facing some challenges going forward. Greece submitted 3 payment requests for non-repayable financial support⁽⁶⁾ and 2 payment requests for loan support, corresponding to 85 milestones and targets in the plan. To date, Greece has received an overall disbursement of EUR 7.1 billion for two approved payment requests, excluding pre-financing. (see Annex 3). Whilst Greece is off to a strong start, there are substantial risks going forward, which warrant continuous efforts to maintain and enhance the implementation momentum. The plan contains a significant number of reforms and investments which by its sheer size represents a large administrative burden. At this stage, the implementation of the plan is reaching a phase that will rely on regional and local administrations, whose administrative and implementation capacity is generally weak. The completion of a number of measures in the plan requires a series of preparatory steps, including public procurement procedures. Ensuring timely progress with those will require continuous strong coordination of and assistance to local and regional implementing bodies.

⁽⁶⁾ Greece submitted its third payment request for non-repayable financial support on 16 May 2023 and the assessment by the Commission is ongoing.

Greece has not yet submitted an amendment of its plan. The plan is expected to be revised in 2023 to include, among others, additional reforms and investments in the REPowerEU chapter. However, discussions with Greece on the REPowerEU chapter are still at an initial stage. In March 2023, Greece communicated to the Commission its intention to request an additional loan of EUR 5 billion, with the aim to bring its total loan envelope to EUR 17.7 billion. Going forward, it would be important for Greece to swiftly finalise the addendum to the plan, including the additional loan request, and the REPowerEU chapter with a view to rapidly starting its implementation.

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.

Investments and reforms to support the green transition are making progress. Greece launched calls for the renovation of more than 100 000 residential properties to improve energy efficiency, with some funds earmarked for energy-poor households. This investment is expected to yield significant primary energy savings (on average 30%). To increase the share of renewables in the energy mix, Greece introduced a new framework for the licensing of renewables, including offshore wind parks and a new support scheme for renewable energy production⁽⁷⁾. Moreover, Greece introduced a 'Guarantee of Origin' system, encouraging consumers and businesses to use energy from renewable sources in their energy mix. In addition, Greece

⁽⁷⁾ The latter is expected to add an additional 3 gigawatts to the electricity production capacity from renewable energy sources.

introduced a new waste management framework to support the transition towards a circular economy. A framework contract law will enable the land rehabilitation of Greece's former lignite mines in Western Macedonia and Megalopolis, building on its national energy and climate plan. The Just Transition Fund will follow up with the repurposing of the land upon its rehabilitation.

To promote sustainable transport, key reforms were put in place paving the way for investments in railways, urban public bus transport and electromobility. Greece adopted legislation for the reorganisation of the companies owning and managing the railway infrastructure. Once fully implemented, the reform is expected to help Greece develop, operate and maintain a modern and safe railway network. Greece also adopted a modern legal framework for public bus transport services, aimed at promoting competition, enabling bus companies to invest in greener vehicles, and increasing the quality and affordability of consumer services. Lastly, Greece adopted a comprehensive regulatory framework to promote the installation and operation of charging stations for electric vehicles across Greece, putting the country on a path to reach the target of 30% electric vehicle usage by 2030.

Greece has launched projects to digitalise the public administration and the broader economy. Greece began to digitalise its public administration, making it more efficient and accessible for citizens. This includes the digitalisation of archives, the development of IT and IT security infrastructure, and the simplification of administrative processes. Greece has also launched a scheme to support SME adoption of digital technologies. Upon completion, the project is expected to help at least 100 000 SMEs in purchasing general digital tools and services and at least 500 000 SMEs in upgrading their cash registers to computer-based solutions. Greece also launched a training programme for judges to improve their digital skills relevant for judicial duties.

To improve the functioning of the labour market and promote social integration,

Greece has reformed labour legislation, upgraded its lifelong learning system and modernised public employment services.

The labour law of June 2021 modernised individual and collective labour legislation as well as the framework for work-life balance. It was followed by a thorough organisational reform of the public employment service, a revision of the obligations that apply to the service and to jobseekers, and a reform of the national lifelong learning system to improve the quality and labour market relevance of training programmes. The latter reform also sets the basis for delivering training programmes, including on highly demanded digital and green skills, to more than half a million people until 2025. With support from the RRF, Greece has also embarked on the digital transformation of employment and social security services and it has introduced a personal assistance pilot scheme for people with disabilities that applies a new disability assessment approach in line with EU best practices.

Greece completed key reforms to stimulate private investment, particularly related to the green and digital transitions, and to bolster the competitiveness of its economy. A law was adopted to tackle weaknesses related to the predominantly small size of Greek enterprises. Specifically, the law introduced tax and other incentives to encourage the self-employed and SMEs to increase their size and to benefit from economies of scale through business transformations and cooperation schemes, such as joint ventures and clusters. Greece also introduced tax incentives for green and digital investments by SMEs. Lastly, a comprehensive, clear and more attractive legal framework was put in place for investments of strategic importance to the Greek economy. This includes support for the transition to a low-carbon economy and promoting innovation and technology diffusion.

Greece pursued specific reforms and investments to strengthen the resilience of key sectors of its economy. It launched subsidy schemes to promote the development of next generation industrial parks and the deployment of smart technologies in

manufacturing sector SMEs. Greece also launched a support programme to modernise its agricultural sector through innovation, the green transition of agricultural units, and the development of agritourism. Furthermore, an improved regulatory framework is in place for the licensing and operation of tourism facilities, including tourist ports, which is expected to contribute to the development of the tourism sector, which is an area of great potential for Greece. To promote research and development, Greece launched the procedures for the creation, expansion and upgrade of infrastructures of research centres and technological institutions across Greece.

To improve access to finance and support private investments, in particular in the green and digital areas, Greece has enacted the loan facility under the RRF.

The loan facility⁽⁶⁾ facilitates access to affordable credit for Greek businesses amidst heightened economic uncertainty and it aims to leverage private investment.

⁽⁶⁾ The loan facility framework concerns the provision of loans through international financial institutions and commercial banks (EUR 11.7 billion), the establishment of an equity instrument to provide equity support to dynamic mid-caps and SMEs through two Fund-of-Funds schemes (EUR 500 million), and the mobilisation of additional funds for Greece's part of the InvestEU Programme, through the provision of guarantees to companies in the areas of green and sustainable transformation, competitiveness, innovation and digitalisation (EUR 500 million).

Box 2: Key deliverables under the RRP in 2023-24

- Completion of renovations of at least 8 000 residential buildings to improve their energy efficiency, and approval of at least 9 700 companies for energy efficiency renovations.
- Start of the projects to promote resilience and environmental protection of the electricity network, overhead networks in forest areas, and capacity increases of high- and medium-voltage substations.
- Implementation of organisational reform in the rail sector and full operationalisation of the new Hellenic Railway Organisation (OSE) and its construction manager (ERGOSE), and full deployment of the European Rail Traffic Management System (ERTMS) in the core railway network.
- Completion of digitisation of at least 30% of total archives across all 9 subprojects in the public administration.
- Adoption of primary legislation establishing the rewarding system in the public administration.
- Adoption of legislation providing for professional work streams for staff dealing with public procurement.
- Simplification and codification of tax legislation, and launching of an IT platform to fully automate VAT refunds.
- Modernisation of justice, through upskilling of judges, upgrading of the record-keeping and IT systems in courts, adoption of legislation to monitor and improve the performance of judicial clerks, and starting the construction and renovation of energy-efficient court buildings. Revision of the judicial map for all branches of the judiciary, for the reorganization of judicial districts across Greece and the rational distribution of judicial structures in these districts, with at least 70% of administrative courts, and at least 40% of civil and criminal courts fully operational and functional.
- Modernisation and digitalisation of the public health sector, including through starting the project for the energy-efficiency renovation of at least 156 health centres, the full operation of an additional 56 mental health units, and completing the national digital health record and cancer digital health projects.
- Completion of digital and green upskilling programmes for nearly 150 000 people.
- Advancing on the de-institutionalisation of children, notably through the placement of minors with severe disability and/or mental disorders in the care of professional foster carers and the placement of adolescents in semi-independent living apartments.
- Signing of loan agreements for a total EUR 5.9 billion under the loan facility.

Specifically, it supports investments related to the green transition and digitalisation (37% and 20% of the total allocation), thereby encouraging economies of scale and innovation and increasing export capacity. To this end, the Greek authorities took all the necessary actions to fully establish the loan facility framework. So far, the take-up of RRF-financed loans has been significant. Namely, loan agreements for a total EUR 5.74 billion have been signed up to April 2023 to finance

investments in clean and efficient production and use of energy, sustainable transport, very high-capacity networks, and digitalisation of enterprises.

FURTHER PRIORITIES AHEAD

Greece faces challenges beyond those tackled in the recovery and resilience plan.

Despite the sharp fall last year, public sector indebtedness remains high and taxation of businesses remains complex, while there is evidence of low tax compliance, particularly among the self-employed. The public sector wage bill in terms of GDP has been broadly aligned with the EU average and Greece continues to take steps to modernise the public administration. Still, its overall performance remains low, partly due to the challenge of attracting and maintaining high-calibre staff. The healthcare sector is characterised by high direct payments for services outside the benefits package and the primary healthcare system does not sufficiently fulfil its role as the first entry point into the system for patients. Despite a series of adopted reforms and progress in certain aspects of the business environment, doing business remains hampered by constraints on access to finance and public administration inefficiencies. The cadastral mapping remains to be finalised. While the share of non-performing loans in bank balance sheets has decreased markedly, the effective workout of both new and legacy non-performing loans by banks and credit servicers remains key for the resilience of the financial sector. Providing effective activation support to the unemployed depends on administrative capacity constraints. Greece remains highly dependent on fossil fuels and existing storage and network capacities are not enough to enable the smooth integration of expanding renewables in the coming years. Energy efficiency actions should be strengthened to ensure that set objectives are met, including the swift roll-out of smart meters. Addressing these challenges will also help to make further progress in achieving the SDGs where Greece currently shows room for further improvement, namely those related to environmental sustainability (SDGs 2, 6, 7, 9, 11, 12, 13, 15), fairness (SDGs 1, 3, 4, 5, 7)

productivity (SDGs 4, 8, 9) and macroeconomic stability (SDGs 8, 16, 17).

Sustainability of public finances remains a priority

High public sector debt calls for prudent fiscal policies in the medium term.

In 2022, government debt fell sharply relative to GDP (from 194.6% of GDP in 2021 to 171.3% in 2022), while it is forecast to drop further to 160.2% in 2023. Government debt is primarily held by official sector creditors on concessional terms and the financing needs of the public sector are expected to be manageable in the coming years. Meanwhile, the Commission's debt sustainability analysis⁽⁹⁾ indicates that risks to debt sustainability are low in the short term, high in the medium term and low in the long term.

Modifications in Greece's tax policy framework and continuing efforts to strengthen tax administration could help address the investment gap and enforce tax compliance.

The introduction of an advance tax ruling system could strengthen legal certainty for investors and reinforce ongoing efforts to simplify the tax system. There is also scope to enlarge the tax base and enforce tax compliance of the self-employed. Data suggest that the turnover generated by the self-employed has increased rapidly, while their declared incomes have hardly risen⁽¹⁰⁾. This discrepancy is likely to point to substantial tax evasion and a loss of

⁽⁹⁾ Post programme surveillance report, Greece, May 2023.

⁽¹⁰⁾ [Based on the 2021 tax returns, more than 67% of the self-employed declared an annual income of below EUR 10 000. Overall declared income was EUR 4.2 billion, compared with EUR 48.6 billion of sales turnover.](#)

fiscal revenues. The situation could be improved by reviewing the existing tax system of the self-employed and making increased use of the information from electronic payments. This is consistent with the ongoing digitalisation of the Independent Authority for Public Revenue (IAPR), which continues to roll out new digital tools and services to citizens and businesses. Enhancing IAPR's autonomy to manage and develop its human resources and IT infrastructure will also be key for the successful implementation of ongoing investments under Greece's recovery and resilience plan, such as the replacement of its core tax information system.

Improving the efficiency of the public administration remains key. The public wage bill remained stable in 2022 at 10.8% of GDP, broadly aligned with the EU average (10.2% of GDP)⁽¹¹⁾. Greece is phasing in its human resource management system, including goal-setting, with the aim to ensure an efficient allocation of resources and to provide incentives to maintain a high-quality workforce. Going forward, possible adjustments made to the remuneration of civil servants, for example by incentivising managers to take up additional responsibilities linked to the new appraisals and reward systems, is expected to maintain the integrity of the unified wage grid across the public administration. In addition, despite some progress on improving good law-making procedures, timely and genuine stakeholder consultation prior to new legislative initiatives remains suboptimal.

Public spending on healthcare is below the EU average and major expenditure is on pharmaceuticals. Public healthcare spending reached 5.9% of GDP in 2020 which compares with an EU average of 8.9% of GDP. However, out-of-pocket payments by patients in Greece (as a share of GDP) are the second highest in the EU. Spending on curative care and pharmaceuticals represents the biggest share of public healthcare spending (59% and

27% respectively), while spending on long-term and preventive care remains among the lowest in the EU (0.1% and 0.2% of GDP in 2020 vs 1.5% and 0.3% in the EU respectively). Also, no comprehensive national strategy on long-term care is yet in place. Hospitals are the main providers of curative care, while ambulatory care receives only little public funding. At the same time, public spending on pharmaceuticals is the highest in the EU relative to GDP (1.6% in 2020 vs 1.1% in the EU).

The primary healthcare reform is expected to ensure full and equal access to healthcare but it suffers from a shortfall in doctors. The newly adopted primary healthcare system provides incentives for patients to use their family doctors as the first point of contact to help them navigate through the healthcare system. In July 2022, citizens started to register in the new system and 4.8 million citizens had registered to a family doctor (55% of the total eligible population) by end-April 2023. By contrast, the number of family doctors enrolled in the public healthcare system is not sufficient to cover the entire population⁽¹²⁾. The goal is to reach a number of doctors that covers the entire population by September 2023. This calls for additional measures to strengthen existing incentives to create the basis for comprehensive primary healthcare, such as limiting reimbursement of services and prescriptions by general practitioners and internists not enrolled in the system.

A sound financial sector is crucial for promoting economic growth

The stock of non-performing loans fell markedly, making use of securitisations. The non-performing loan ratio⁽¹³⁾ has

⁽¹¹⁾ Greece's wage bill amounted to EUR 22.73 billion in 2022 (compared with EUR 22.52 billion in 2021), accounting for 19.9% of public expenditure.

⁽¹²⁾ So far, about 3 400 general practitioners and internists have registered as personal doctors which covers only 72% of the population with an unequal geographical coverage across the country.

⁽¹³⁾ Non-performing loans (NPLs) as a share of total gross loans as reported by the European Central Bank. This

continued to fall, reaching 6.4% of total loans in September 2022, down from 8.6% in 2021, and 26.5% in 2020. Nevertheless, it remains the highest in the EU, where the average is 1.8%. State-supported securitisations under the Hercules Scheme (expired in October 2022) were a key driver behind the sharp reduction in the stock of non-performing loans.

The effective workout of both legacy and new non-performing loans by banks and credit servicers remains key for the resilience of the financial sector. Going forward, bank in-house management of loans is expected to be the main driver in reducing non-performing loans closer to the EU average. At the same time, a large amount of legacy non-performing private debt, which exited bank balance sheets, remains in the economy and is held by credit servicers (see Graph 3.1), who are expected also to proceed with its resolution and restructuring. A number of these securitised portfolios have been underperforming their initial objectives, mainly due to lower recoveries from collateral liquidations. This is partly the result of the suspension of enforcement proceedings and delays in court procedures during the COVID-19 pandemic, but it also reflects the still high ratio of unsuccessful auctions, despite the increase in conducted auctions in 2022. Credit servicers are taking targeted actions to gradually meet their initial objectives. These include sales of non-performing loan portfolios on the secondary market, enabling credit servicers to frontload cash flows, albeit at a potential cost to future performance. To effectively improve performance and improve the sale value of the underlying portfolios, such transactions would need for example to increasingly involve loans that have undergone restructuring and have become performing again.

An efficient debt enforcement process remains crucial for a smooth functioning of the non-performing loan secondary market. This may require further improving

figure is different to the one reported under post-programme surveillance, which follows NPLs as a share of total gross customer loans on a solo basis, as reported by the Bank of Greece.

debt enforcement, including through a more streamlined and effective post-auction process and a speed-up of cadastre registration procedures. The Supreme Court plenary decision published on 16 February 2023 acknowledged the legal standing of credit servicers to initiate enforcement proceedings also under the 2003 securitization law⁽¹⁴⁾. This decision creates a precedent resolving the previous legal uncertainty, averting a standstill in debt enforcement and facilitating amicable restructuring solutions with debtors. Additional tools, such as the new insolvency code and its out-of-court workout framework, are already bringing in first results. These mechanisms are expected to help debtors, banks and credit servicers in tackling the accumulation of private debt through more effective restructuring solutions.

Improving the business environment is crucial to boost productivity and competitiveness

Fostering external sector sustainability through competitiveness gains remains key. The energy crisis and the increased import bill have led to a widening external trade deficit, notably in goods, and have widened the deficit in the net foreign investment position. At the same time, efforts to attract foreign direct investment have started to bear fruit but the stock remains low. In 2022, inflows stood below the EU average at 3.2% of GDP, albeit sectors with productivity growth potential, such as manufacturing and energy, have seen higher rates. Cost competitiveness has been improving over the adjustment programme years, and exports have increased and diversified. Unit labour costs slightly rebounded in 2020 and 2021, but dropped below 2015 levels in 2022. At the same time, Greece's comparative advantage is concentrated in products with low

⁽¹⁴⁾ This is in addition to the proceeding being initiated under the 2015 law on the licensing and regulation of non-bank service providers and loan transfers.

technological sophistication, although it has been exporting increasing volumes of high-tech goods more recently. Efforts to enhance competitiveness through productivity gains as opposed to cost reduction remain essential to ensure external sector sustainability.

Despite a series of adopted reforms and progress in certain respects, the business environment is still weighing down on competitiveness. In 2020, Greece introduced a new insolvency framework which entered into force in 2021, and reformed the requirements for the licensing of economic activities. Greece has also adopted a new law and a national strategy to improve public procurement. A legislative reform has helped liberalise business services and other regulated professions and activities. However, limited access to finance remains a key barrier to private investment and restrictions to enter certain key professional services, such as legal services, appear to be higher than the EU average, weighing on competitiveness. According to the latest Single Market Scoreboard⁽¹⁵⁾, Greece performs relatively poorly in terms of correct transposition of EU directives into national law, the impact of regulation on investment, and the time needed to resolve insolvency cases (3.5 years, compared with an average of 2 years in the EU). More systematic provision of consolidated legislation would also enable businesses to comply with regulatory requirements (see Annex 12).

The cadastral mapping is expected to be completed by the end of this year. So far, 72% of property rights in the country have been mapped. In total, 99.2% of the country's mapping is either completed or contracted and under implementation, with the full mapping planned to be completed by end-2023. The 392 old mortgage offices are progressively being closed and replaced by 17 cadastral offices and 75 branches with digitalised procedures. At this stage, 12 cadastral offices and 49 branches are in operation. However, the registration of property rights in the mortgage and cadastral offices is showing

⁽¹⁵⁾ https://single-market-scoreboard.ec.europa.eu/home_en

extensive delays in some cases, which affect negatively property transactions and auctions. Meanwhile, the forest mapping for the entire country has been completed.

Slow environmental licensing and the lack of spatial plans impede investment.

Despite reforms to expedite the issuance and renewal of environmental permits, administrative deadlines are often not respected in practice, partly due to capacity constraints. Furthermore, the relevant registry for the certification of private sector environmental assessors⁽¹⁶⁾ is not yet activated. The still incomplete legislative framework for the protection of Natura 2000 areas⁽¹⁷⁾ poses significant risks to Greece's rich natural ecosystem, and it also stifles economic activity. Specifically, the issuance of implementing acts⁽¹⁸⁾ for the protection and management of environmentally sensitive areas would provide legal certainty for the types of permissible investments in 30% of Greece's territory, but this is now missing. In addition, it is important to complete the special spatial frameworks for renewables, industry, tourism and aquaculture, as these acts would ensure effective environmental permitting.

Getting more people to work remains key

While the labour market has so far weathered the health and energy crisis well overall, it remains marked by high unemployment. Net job creation has continued since the end of 2019 bringing total employment to 4.1 million people (and the employment rate to 66.8%) by the end of 2022. The unemployment rate (15-74 age cohort) has continued to fall and reached a twelve-year low of 11.4% by February 2023, 5.6 percentage points below its pre-pandemic

⁽¹⁶⁾ As per Law 4014/2011, Presidential Decree 50/2021 and Joint Ministerial Decision 17185/2022.

⁽¹⁷⁾ As per Law 4685/2020.

⁽¹⁸⁾ Presidential Decrees or Joint Ministerial Decisions.

level. This is partly thanks to the introduction of the short-time work scheme supported by SURE ⁽¹⁹⁾ that helped prevent large lay-offs. Nevertheless, the unemployment rate remains more than 6 percentage points above the EU average and it disproportionately affects women, young people and third-country nationals who also face higher poverty risks. In 2021, the share of people at risk of poverty or social exclusion (AROPE) (based on incomes of 2020) stood at 28.3%, well above the EU average of 21.7%, and even higher for children (32%).

Providing effective activation support to jobseekers with a particular focus on vulnerable groups remains a challenge.

Through its 118 local offices, the public employment service has to serve around 1 million jobseekers, of which two thirds are women and 12% are third-country nationals. During the last 2 years, the service went through a major organisational reform; this included shifting administrative staff towards counselling functions, establishing group counselling services and intensifying cooperation with employers. The service further revised the framework of mutual obligations it has with jobseekers, while putting in place financial incentives for the latter to take up work. Nonetheless, the service continues to face human resource constraints (with each employment counsellor serving more than 2 000 jobseekers) and heavy administrative procedures, despite the fact that many of them have been digitalised in recent years. Between 2021 and 2027, the European Social Fund Plus and the Recovery and Resilience Facility will facilitate the recruitment of 540 employment counsellors on a temporary basis, increase the supply of activation and training programmes for jobseekers, and expand the use of IT tools. Beyond these measures, more structured actions, including intensifying the individualised assessment of jobseeker skills needs, and further streamlining administrative and staff management procedures, could help

⁽¹⁹⁾ Council Regulation (EU) 2020/672 of 19 May 2020 on the establishment of a European instrument for temporary support to mitigate unemployment risks in an emergency (SURE) following the COVID-19 outbreak.

the service achieve even better outcomes in job matching.

Reducing fossil fuel dependency requires accelerating the green transition

Greece remains highly dependent on fossil fuels and further efforts are required to step up the energy transition.

Fossil fuels still account for a major part of Greece's energy mix, with oil covering 52% and gas reaching 24% in 2021 (see figures in Annex 7). There is scope to further decarbonise the transport sector, in particular through further investments in sustainable mobility. While Greece has made some progress in encouraging the uptake of electric vehicles, the availability of publicly accessible charging points is one of the lowest in the EU ⁽²⁰⁾. The REPowerEU Initiative provides a unique opportunity to scale up and support energy-related measures to further enhance Greece's decarbonisation objectives. Reducing the country's overall reliance on fossil fuels is an essential part of ensuring security of supply.

Further investments in storage and network capacity will be needed to safeguard the grid's balance, as more renewables will be integrated.

With new renewable energy source (RES) installations in the pipeline, which would double the current RES capacity, there remains a need to continue expanding the grid, including interconnections (e.g. Euro-Asia). Increasing Greece's storage capacity is a priority, including the introduction of common remuneration schemes for stand-alone storage facilities and behind-the-meter storage systems, which could contribute to addressing challenges linked to the high volatility of renewable energy sources. Recent initiatives to expand their use include self-consumption schemes (e.g. photovoltaic system on rooftops with a battery), while a

⁽²⁰⁾ <https://theicct.org/wp-content/uploads/2023/01/ICCT-European-Vehicle-Market-Statistics-Pocketbook-2022-23.pdf>.

recently adopted legal framework aims to promote energy communities; however, steps to bring further clarity and incentives are needed. In 2022, Greece adopted a legal framework for the development of offshore wind farms with key elements, such as the allocation of specific slots, expected to be in place soon. While the potential for offshore wind is significant for Greece, the lead times are typically long. This means that the further development of onshore wind capacity to complement solar power will remain important. As concerns speeding up the installation of new renewable energy sources, it will be important to fully enforce the new legal framework adopted in 2022, which provides that the required licences for renewable energy sources and storage projects can be in place within 14 months.

Continued efforts are needed for Greece to achieve its 2030 energy efficiency targets. Greece is making progress, for example, through the successful renovation programme ‘Exoikonomo’ (Annex 6), towards its target of keeping annual primary and final energy consumption below 20.6 Mtoe and 16.5 Mtoe, respectively, by 2030, as set out in its national energy and climate plan. However, considering Greece’s old building stock, more energy savings could be unlocked with further renovation efforts. The introduction of new financial instruments (e.g. energy efficiency auctions) and the development of the energy services market could expand the coverage of existing support programmes and leave more space for public funds to target energy-poor households and to extend the scope to cover public and commercial buildings. Greece’s share of smart meters, which enable consumers to actively participate in the market and support demand-side response, is well below the EU average (3% compared with 54%, 2021 figures). In addition, specific sectors, such as the transport and water sectors, have significant scope for energy savings.

There is room to increase the use of renewable energies in industry to accelerate efforts towards net-zero. Compared with most other Member States, Greece’s industry is, to a large degree,

electrified. This makes it well-placed to expand its renewable energy consumption, including use of renewable hydrogen, if there is secure supply at affordable prices. Targeted financial support, complemented by a regulatory framework that promotes power purchase agreements, notably for renewable energy production, could speed up the industry’s efforts to decarbonise. Greece’s plans to put in place a legal framework to promote the development of a market for renewable hydrogen and biomethane production could also contribute to this goal.

Accelerating the green energy transition depends on the availability of appropriate skills, including to promote innovation. During the period 2015–2021, the job vacancy rate increased in construction, (from 0.2% in 2015 to 4.3% in 2021, above the EU average of 3.6%) pointing to possible labour shortages in a sector that is highly relevant for the green transition ⁽²¹⁾. In 2022, labour shortages were reported in three occupations that required skills and knowledge relevant for the green transition, including plumbers, pipe fitters, and building and related electricians ⁽²²⁾. Also in 2022, labour shortages were reported as a factor constraining production in a large proportion of firms in construction and manufacturing (43.9% and 8.8% respectively) ⁽²³⁾. Upskilling and reskilling for the green transition and net-zero industry, including for people most affected, and promoting inclusive labour markets are essential to ensure a fair transition to a net-zero economy (see Annex 8). Furthermore, the acceleration in innovation and R&D remains a pivotal factor in fostering the development and deployment of breakthrough clean energy technologies.

⁽²¹⁾ Eurostat (JVS_A_RATE_R2).

⁽²²⁾ Data on shortages is based on European Labour Authority (2023), *EURES Report on labour shortages and surpluses 2022*. Skills and knowledge requirements are based on the ESCO (European Skills Competences and Occupations) taxonomy of skills for the green transition (for occupations at ISCO 4-digit level of which there are 436 in total). Examples are identified based on their ESCO ‘greenness’ score and relevant sectors.

⁽²³⁾ European Business and Consumer Survey.

Greece is facing more frequent and intense natural hazards than other EU countries. The country appears to be particularly vulnerable to floods. Between 1980 and 2020, only around 15% ⁽²⁴⁾ of disaster losses were insured in Greece. The current protection gap for wildfires and earthquakes suggests that the insurance coverage ⁽²⁵⁾ remains low compared to projected risk, and this could result in losses to be covered by the public sector, potentially posing a risk to public finances.

⁽²⁴⁾ [Disaster Risk Financing: Limiting the Fiscal Cost of Climate-Related Disasters \(Radu, 2022\)](#).

⁽²⁵⁾ The climate protection gap refers to the share of non-insured economic losses caused by climate-related disasters. This indicator is based on the modelling of the current risk from floods, wildfires, and windstorms as well as earthquakes, and the estimation of the current insurance penetration. The indicator does not provide information on the split private/public cost of climate related disasters. A score of 0 means no protection gap, while a score of 4 corresponds to a very high gap. EIOPA considers that a score below 3 is not a relevant protection gap but that countries with a score of 2.5 need to be monitored ([EIOPA, 2022](#)).

KEY FINDINGS

Greece's recovery and resilience plan includes measures to address a series of structural challenges through the following:

- Upgrading the energy efficiency performance of public and private buildings with the aim to address energy poverty and achieve energy savings.
- Supporting the phasing out of lignite-based power generation, the use of renewable energy sources, and the expansion of energy storage capacities.
- Promoting sustainable transport, and sustainable waste and water management, through comprehensive reforms and investments.
- Facilitating the digital transformation of public administration and private sector companies, including SMEs, and expanding connectivity infrastructure and digital skills.
- Upgrading public administration, tax administration and justice systems.
- Fostering labour market activation and upskilling and supporting the social integration of vulnerable groups by means of employment and training opportunities.
- Modernising the entire education system and expanding the supply of early childhood education and care.
- Upgrading the national healthcare system.
- Providing favourable finance and tax incentives to private sector companies to undertake green and digital investments and help them grow.

Greece should maintain the momentum in the steady implementation of the recovery and

resilience plan, and swiftly finalise the REPowerEU chapter with a view to rapidly starting its implementation. Continued sufficient administrative capacity should be ensured in view of the size of the plan.

Beyond the reforms and investments in the RRP, Greece would benefit from the following.

- Enlarging the tax base and strengthening tax compliance, including by introducing a comprehensive advance tax ruling system, considering the use of information from electronic payments to review the taxation of the self-employed, and enhancing the autonomy of the tax administration authority.
- Safeguarding the efficiency of the public administration by ensuring it can attract the right skills, while maintaining its human resource costs at pre-pandemic levels.
- Enhancing the efficiency of healthcare and long-term care spending, including by completing the roll-out of the primary healthcare system with sufficient staffing to ensure full population coverage, and by developing a comprehensive strategy for long-term care.
- Accelerating the reduction of non-performing loans held by banks and credit services, including by increasing the effectiveness of debt enforcement, improving the functioning of the non-performing loan secondary market and by implementing all the available tools under the new insolvency code.
- Further improving the business environment by completing the cadastre project, expediting environmental permitting procedures, completing special spatial frameworks in key sectors, and

ensuring the effective application of environmental legislation.

- Ensuring effective labour market activation support with a particular focus on young people and women, and further enhancing social policies, so as to contribute to the 2030 EU headline targets on employment and poverty reduction.
- Reducing dependence on fossil fuels by: a) reducing overall fossil fuel use and further expanding the deployment of renewable energy, including development of hydrogen infrastructure and offshore wind, thereby supporting the decarbonisation of the Greek economy and reaching national targets; b) ensuring sufficient capacity of electricity networks and storage and continuing to diversify energy supply routes; and c) strengthening the energy services market framework and stepping up delivery on measures to improve energy efficiency, including better targeting of vulnerable households and specific sectors (e.g. water) and speeding up the roll-out of smart meters.
- Promoting skills needed for the green transition.

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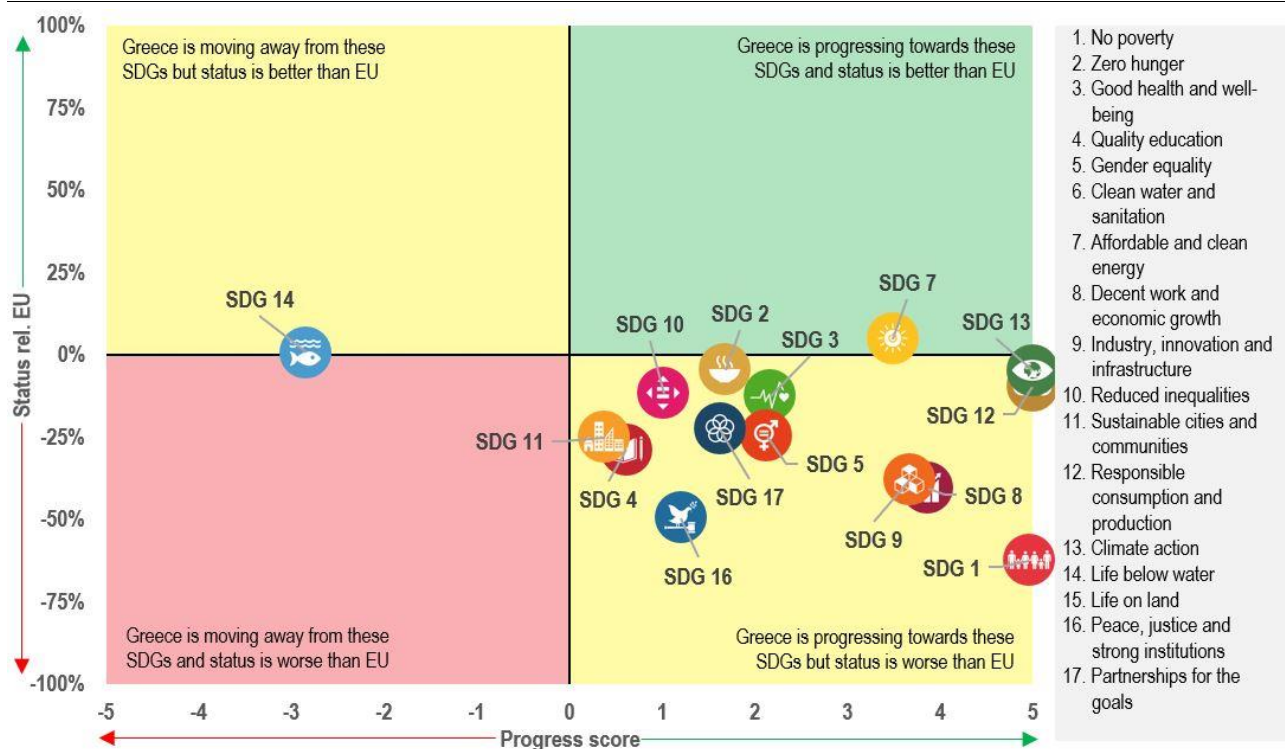


This Annex assesses Greece’s progress on the Sustainable Development Goals (SDGs) along the four dimensions of competitive sustainability. The 17 SDGs and their related indicators provide a policy framework under the UN’s 2030 Agenda for Sustainable Development. The aim is to end all forms of poverty, 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.

Greece is improving on SDG indicators related to environmental sustainability (SDGs 2, 6, 7, 9, 11, 12, 13, 15), although it needs to catch up with the EU average on all of them. The country has taken important steps

to meet goals related to SDGs 12 and 13 (Responsible consumption and production and Climate action). By 2021, the share of renewable energy in gross final energy consumption had reached the EU average (21.9%), albeit starting from a lower level, while energy productivity had increased by 11%. Over the last 5 years, Greece has also fared particularly well when it comes to net greenhouse gas emissions. These fell by 19% between 2016 and 2021, putting Greece in a better position than the EU average. Meanwhile, access to affordable and clean energy (SDG 7) remains challenging, with 17.5% of Greece’s population unable to keep their homes adequately warm compared to just 6.9% in the EU. On SDG 14 (Life below water), while Greece’s performance is close to the EU average, it is moving away from the goal, in particular due to a lower share of coastal water bathing sites with excellent water quality and a higher share of marine waters affected by eutrophication. In 2021-26, the EU Recovery and Resilience Facility will support a series of measures to promote environmental

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



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

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

sustainability and the fight against energy poverty, including through investments in renewable energy sources, sustainable means of transport and energy efficiency infrastructures.

While Greece is improving on SDG indicators related to *fairness* (SDGs 1, 2, 3, 4, 5, 7, 10), it needs to catch up with the EU average on almost all of them.

While the labour market and social situation has improved in the last 5 years, it remains less favourable overall than in the EU as a whole. Around 13.9% of people were materially and socially deprived in 2021 compared to only 6.3% in the EU, while 28.8% of Greece's population was overburdened with housing costs compared to only 8.3% in the EU (SDG 1). Greece continues to improve on certain equality aspects (SDGs 5 and 10), but these remain less positive overall than in the EU as a whole. In 2021, the employment rate of women was almost 20 percentage points lower than that of men (compared to only 10.8 percentage points in the EU). Women held only 24% of senior management positions and 19% of political positions (against 32.2% and 32.5% respectively in the EU). People in rural areas in Greece face a disproportionately higher risk of poverty or social inclusion than people in rural areas of the rest of the EU. Concerning health aspects (SDG 3), while healthy life expectancy (65.9 years) is slightly higher than in the EU (64 years) and more people report being healthy (78.3% vs 69%), a higher and increasing share of people smoke (42% in 2021 vs 25% in the EU). Despite improving over time, access to healthcare remains challenging, with 6.4% of the population reporting unmet medical needs in 2021 due to costs, distance or waiting times, against only 2.0% in the EU. Up until 2026, the EU Recovery and Resilience Facility will support a wide range of measures to promote employment, including among women, the long-term unemployed and people with disabilities, and upgrade the national healthcare system.

Greece is improving on SDG indicators related to *productivity* (SDGs 4, 8, 9), although it needs to catch up with the EU average on all of them.

Greece's education and innovation performance (SDGs 4 and 9) is mixed, with better-than-EU average results in early school leaving (3.2% vs 9.7% in the EU in 2021) and tertiary educational attainment (44.2% vs 41.2% in 2021), but with significant challenges in reading underachievement (30.5% vs 22.5% in 2018), early childhood education attendance (71.3% vs

93% in 2021), adult learning participation (3.5% vs 10.8% in 2021), basic digital skills (52.5% vs 53.9% in 2021) and R&D spending (1.45% of GDP vs 2.26% in 2021). Decent work and economic growth indicators (SDG 8) continue to improve, but remain less positive than in other Member States, as reflected in the low employment rate (62.6% vs 73.1%), the still high share of long-term unemployed (9.2% vs 2.8%) and young people who are not in employment, education or training (17.2% vs 13.1%). With support from the EU Recovery and Resilience Facility, Greece will upskill a large part of its working population, expand childcare facilities and upgrade its university education and research system.

While Greece is improving on SDG indicators related to *macroeconomic stability* (SDGs 8, 16, 17), it needs to catch up with the EU average on all of them.

Greece's GDP per capita was EUR 17 610 in 2021, corresponding to around 63% of the EU average (EUR 27 880). Despite increasing, investment continues to be relatively low (SDG 8; 13.3% of GDP in 2021 vs 22.4% in the EU). Some 11.3% of Greece's working population was at risk of poverty in 2021 compared to 8.9% in the EU, while only 19.8% of households have a high-speed internet connection according to the latest data, against 70.2% in the EU. A higher share of the population (18.1% vs 11.4% in the EU) report crime, violence or vandalism in their area (SDG 16). The Recovery and Resilience Facility will help bridge a large part of Greece's investment gap and support broad-based structural reforms that are expected to improve the functioning of the economy at large.

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

Table A2.1: Summary table on 2019–2022 CSRs

Greece	Assessment in May 2023*	RRP coverage of CSRs until 2026**	Relevant SDGs
2019 CSR 1	Substantial progress		
<i>Achieve a sustainable economic recovery and tackle the excessive macroeconomic imbalances by continuing and completing reforms in line with the post-programme commitments given at the Eurogroup of 22 June 2018.</i>	Substantial progress	Relevant RRP measures being implemented as of 2021.	SDG 1, 2, 8, 9, 10, 16
2019 CSR 2	Some progress		
<i>Focus investment-related economic policy on sustainable transport and logistics,</i>	Limited progress	Relevant RRP measures being implemented as of 2021.	SDG 10, 11
<i>environmental protection, energy efficiency, renewable energy and interconnection projects,</i>	Some progress	Relevant RRP measures being implemented as of 2021.	SDG 6, 7, 9, 10, 11, 12, 13
<i>digital technologies,</i>	Some progress	Relevant RRP measures being implemented as of 2021.	SDG 9, 10, 11
<i>R&D,</i>	Some progress	Relevant RRP measures being planned as of 2022.	SDG 9, 10, 11
<i>education,</i>	Some progress	Relevant RRP measures being planned as of 2023.	SDG 4, 10, 11
<i>skills,</i>	Some progress	Relevant RRP measures being planned as of 2022.	SDG 4, 10, 11
<i>employability,</i>	Some progress	Relevant RRP measures being planned as of 2022.	SDG 8, 10, 11
<i>health,</i>	Limited progress	Relevant RRP measures being implemented as of 2021.	SDG 3, 10, 11
<i>and the renewal of urban areas, taking into account regional disparities and the need to ensure social inclusion.</i>	Limited progress	Relevant RRP measures being planned as of 2022.	SDG 1, 2, 10, 11
2020 CSR 1	Limited progress		
<i>In line with the general escape clause, take all necessary measures to effectively address the pandemic, sustain the economy and support the ensuing recovery. When economic conditions allow, pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment.</i>	Not relevant anymore	Not applicable	SDG 8, 16
<i>Strengthen the resilience of the health system and</i>	Limited progress	Relevant RRP measures being planned as of 2022.	SDG 3
<i>ensure adequate and equal access to healthcare.</i>	Limited progress	Relevant RRP measures being planned as of 2025.	SDG 1, 2, 3, 10
2020 CSR 2	Substantial progress		
<i>Mitigate the employment and social impacts of the crisis, including by implementing measures such as short-time work schemes and</i>	Full implementation	Relevant RRP measures being planned as of 2023.	SDG 1, 2, 8, 10
<i>ensuring effective activation support.</i>	Some progress	Relevant RRP measures being planned as of 2023.	SDG 8
2020 CSR 3	Some progress		
<i>Swiftly deploy measures to provide liquidity and continued flow of credit and other financing to the economy, focusing in particular on small and medium-sized enterprises most affected by crisis.</i>	Substantial progress	Relevant RRP measures being implemented as of 2021.	SDG 8, 9
<i>Front-load mature public investment projects and</i>	Substantial progress	Relevant RRP measures being planned as of 2022.	SDG 8, 16
<i>promote private investment to foster the economic recovery.</i>	Some progress	Relevant RRP measures being implemented as of 2021.	SDG 8, 9
<i>Focus investment on the green and digital transition, in particular on safe and sustainable transport and logistics,</i>	Limited progress	Relevant RRP measures being implemented as of 2021.	SDG 11
<i>clean and efficient production and use of energy,</i>	Some progress	Relevant RRP measures being implemented as of 2021.	SDG 7, 9, 13
<i>environmental infrastructure and</i>	Limited progress	Relevant RRP measures being implemented as of 2021.	SDG 6, 12, 15
<i>very-high capacity digital infrastructure and</i>	Some progress	Relevant RRP measures being planned as of 2022.	SDG 9
<i>skills.</i>	Some progress	Relevant RRP measures being planned as of 2022.	SDG 4
<i>Improve the effectiveness and digitalisation of the public administration and</i>	Substantial progress	Relevant RRP measures being implemented as of 2021.	SDG 9, 16
<i>promote digital transformation of businesses.</i>	Some progress	Relevant RRP measures being planned as of 2022.	SDG 9
2020 CSR 4	Substantial progress		
<i>Continue and complete reforms in line with the post-programme commitments given at the Eurogroup of 22 June 2018 to restart a sustainable economic recovery, following the gradual easing up of constraints imposed due to the COVID-19 outbreak.</i>	Substantial progress	Relevant RRP measures being implemented as of 2021.	SDG 1, 2, 8, 9, 10, 16
2021 CSR 1	Substantial progress		
<i>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.</i>	Full implementation	Not applicable	SDG 8, 16
<i>When economic conditions allow, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring fiscal sustainability in the medium term.</i>	Substantial progress	Not applicable	SDG 8, 16

(Continued on the next page)



Table (continued)

At the same time, enhance investment to boost growth potential. Pay particular attention to the composition of public finances, on both the revenue and expenditure sides of the budget, and to the quality of budgetary measures in order to ensure a sustainable and inclusive recovery. Prioritise sustainable and growth-enhancing investment, in particular investment supporting the green and digital transition.	Substantial progress	Not applicable	SDG 8, 16
Give priority to fiscal structural reforms that will help provide financing for public policy priorities and contribute to the long-term sustainability of public finances, including, where relevant, by strengthening the coverage, adequacy and sustainability of health and social protection systems for all.	Limited progress	Not applicable	SDG 8, 16
2022 CSR 1	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.	Full implementation	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.	Limited 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
Building on reforms undertaken as part of the recovery and resilience plan, improve the investment-friendliness of the taxation system by introducing a wider advance tax-ruling system	No progress	Not applicable	SDG 8, 10, 12
and review the structure of the tax burden on the self-employed.	Some progress	Relevant RRP measures being implemented as of 2022.	SDG 8, 10, 12
Safeguard the efficiency of the public administration while ensuring it can attract the right skills and preserving consistency with the unified wage grid.	Some progress	Relevant RRP measures being implemented as of 2022.	SDG 16
2022 CSR 2	Substantial progress		
Proceed with the implementation of its recovery and resilience plan, in line with the milestones and targets included in the Council Implementing Decision of 13 July 2021.	RRP implementation is monitored by assessing RRP payment requests and analysing reports published twice a year on the achievement of the milestones and targets. These are to be reflected in the country reports.		
Swiftly finalise the negotiations with the Commission on the 2021–2027 cohesion policy programming documents with a view to starting their implementation.	Progress on the cohesion policy programming documents is monitored under the EU cohesion policy.		
Complete outstanding reforms that have been pursued under enhanced surveillance, including the cadastre reform.	Substantial progress	Relevant RRP measures being implemented as of 2022.	SDG 3, 8, 9
2022 CSR 3	Limited progress		
With a view to ensuring adequate and equal access to healthcare, complete the rollout of the primary healthcare reform in line with the framework amended under enhanced surveillance, including staffing of all primary healthcare units, implementing population registration and introducing effective gatekeeping by general practitioners.	Limited progress	Relevant RRP measures being planned as of 2023.	SDG 3
2022 CSR 4	Some progress		
Reduce overall reliance on fossil fuels, and diversify imports of fossil fuels	Limited progress	Relevant RRP measures being implemented as of 2022.	SDG 7, 9, 13
by accelerating deployment of renewable energy and the development of infrastructure that would enable renewable hydrogen.	Some progress	Relevant RRP measures being implemented as of 2022.	SDG 7, 9, 13
Also address dependency through ensuring sufficient capacity of electricity networks and interconnections as well as gas interconnections and diversifying gas supply routes.	Some progress	Relevant RRP measures being planned as of 2023.	SDG 7, 9, 13
Strengthen the energy services market framework	No progress	Relevant RRP measures being implemented as of 2022.	SDG 7, 9, 13
and step up energy efficiency-enhancing measures through reforms and market incentives to support the decarbonisation of the building sector	Some progress	Relevant RRP measures being implemented as of 2022.	SDG 7
and the transport sector, particularly by promoting electric mobility.	Some progress	Relevant RRP measures being implemented as of 2022.	SDG 11

Note:

* See footnote ⁽⁵¹⁾.

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

Source: European Commission.

The Commission has assessed the 2019-2022 country-specific recommendations (CSRs) ⁽⁵⁰⁾

⁽⁵⁰⁾ 2022 CSRs: [EUR-Lex - 32022H0901\(08\) - EN - EUR-Lex \(europa.eu\)](#)

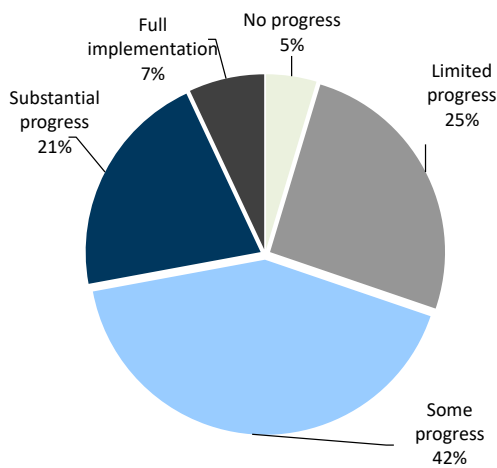
2021 CSRs: [EUR-Lex - 32021H0729\(08\) - EN - EUR-Lex \(europa.eu\)](#)

2020 CSRs: [EUR-Lex - 32020H0826\(08\) - EN - EUR-Lex \(europa.eu\)](#)

2019 CSRs: [EUR-Lex - 32019H0905\(08\) - EN - EUR-Lex \(europa.eu\)](#)

addressed to Greece 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 Greece to date ⁽⁵¹⁾ and the commitments in its recovery and resilience plan (RRP) ⁽⁵²⁾. At this stage of RRP implementation, 70% of the CSRs focusing on structural issues from 2019-2022 have recorded at least 'some progress', while 25% 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: **Greece's progress on the 2019-2022 CSRs (2023 European Semester)**



Source: European Commission.

⁽⁵¹⁾ 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).

⁽⁵²⁾ 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.



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 4). Greece submitted its initial recovery and resilience plan (RRP) on 27 April 2021. The Commission’s positive assessment on 17 June 2021 and Council’s approval on 13 July 2021 paved the way for disbursing EUR 17.8 billion in grants and EUR 12.7 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 Greece was moreover updated on 30 June 2022 to an amount of EUR 17.4 billion in grants. No revision was submitted at the time of publication of this country report.

Table A3.1: Key elements of the Greek RRP('s)

	Current RRP
Scope	Initial plan
CID adoption date	13 July 2021
Total allocation	EUR 17.8 billion in grants and EUR 12.7 billion in loans (16.68% of 2021 GDP)
Investments and reforms	106 investments and 68 reforms
Total number of milestones and targets	331

Source: European Commission

Greece’s progress in implementing its plan is published in the Recovery and Resilience

Scoreboard ⁽²⁹⁾. The Scoreboard also gives an overview of the progress made in implementing the RRF as a whole, in a transparent manner. The graphs in this Annex show the current state of play of the milestones and targets to be reached by Greece and subsequently assessed as satisfactorily fulfilled by the Commission.

EUR 11.10 bn has so far been disbursed to Greece under the RRF. The Commission disbursed EUR 3.96 bn to Greece in pre-financing on 9 August 2021, equivalent to 13% of the financial allocation.

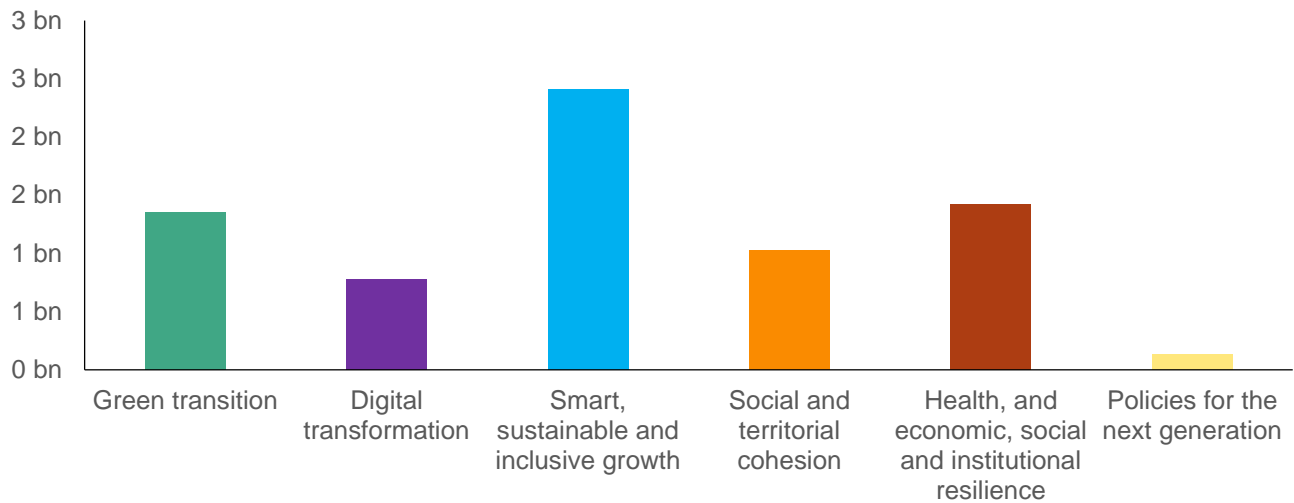
Greece’s first payment request was positively assessed by the Commission, taking into account the opinion of the Economic and Financial Committee, leading to EUR 3.6 billion being disbursed in financial support (net of pre-financing) on 8 April 2022. The related 15 milestones and targets cover reforms and investments in the areas of energy efficiency, sustainable mobility, waste management, labour market, taxation policy, the business environment, healthcare, public transport and Greece’s audit and control system for the implementation of the RRF.

Greece’s second payment request was positively assessed by the Commission, taking into account the opinion of the Economic and Financial Committee, leading to EUR 3.6 billion being disbursed in financial support (net of pre-financing) on 19 January 2023. The related 28 milestones and targets cover reforms and investments promoting the use of renewable energy, re-organising the railways sector, and opening up the public bus transportation market to improve services and to promote a greener bus fleet. Further, three of the milestones and targets concerned the loan part of the Facility.

On 16 May 2023, Greece submitted its third payment request, for which the Commission’s assessment is ongoing. Overall, Greece reports a timely implementation of the milestones and targets covered by the third payment request, which does not however prejudice the timing of the submission of subsequent payment requests or

⁽²⁹⁾ https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

Graph A3.1: **Disbursements per pillar**

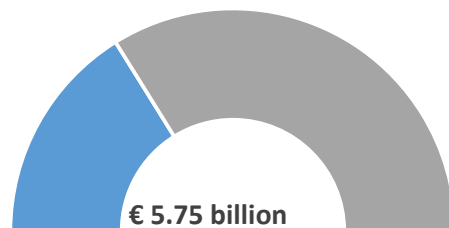


Note: Each disbursement reflects progress in the implementation of the RRF, across the six policy pillars. This graph displays how disbursements under the RRF (excluding pre-financing) relate to the pillars. The amounts were calculated by linking the milestones and targets covered by a given disbursement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

Source: Recovery and Resilience Scoreboard

the Commission's formal assessment of the fulfilment of the relevant milestones and targets.

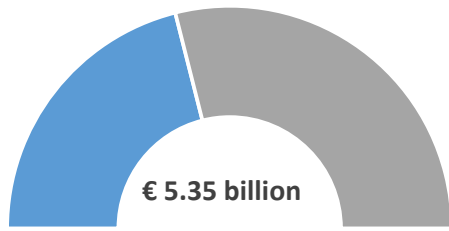
Graph A3.2: **Total grants disbursed under the RRF**



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: Recovery and Resilience Scoreboard

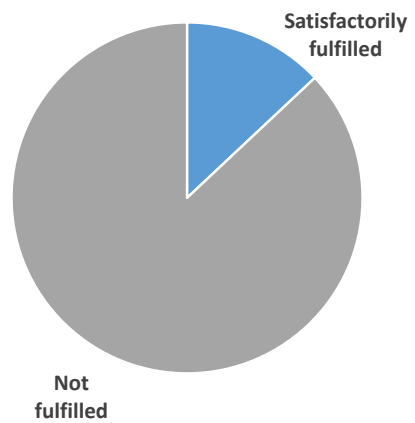
Graph A3.3: **Total loans disbursed under the RRF**



Note: This graph displays the amount of loans disbursed so far under the RRF. Loans are repayable financial contributions. The total amount of loans given to each Member State is determined by the assessment of its loan request and cannot exceed 6.8% of its 2019 GNI.

Source: Recovery and Resilience Scoreboard

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



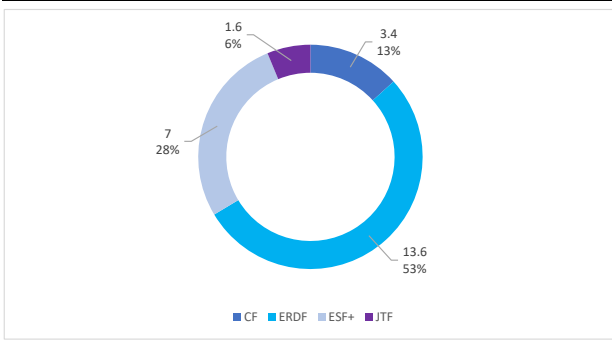
Note: This graph displays the share of satisfactorily fulfilled milestones and targets. A milestone or target is satisfactorily fulfilled once a Member State has provided evidence to the Commission that it has reached the milestone or target and the Commission has assessed it positively in an implementing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

Source: Recovery and Resilience 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 Greece: budget by fund



(1) billion EUR in current prices, % of total; (total amount including EU and national co-financing)

Source: European Commission, Cohesion Open Data

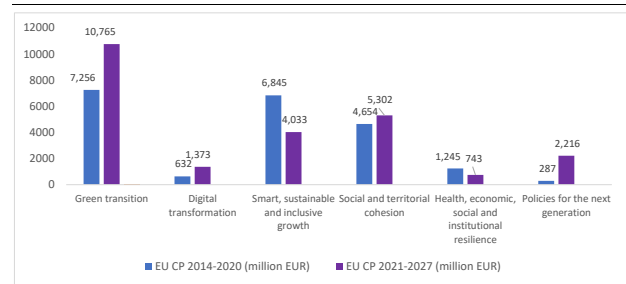
In 2021-2027, in Greece, cohesion policy funds ⁽³⁰⁾ will invest EUR 10.8 billion in the green transition and EUR 1.4 billion in the digital transformation as part of the country’s total allocation of EUR 25.7 billion. In particular, the European Regional Development Fund (ERDF) will boost research and innovation and help at least 34 160 companies grow in sectors directly linked to the smart specialisation strategy (digital technologies, sustainable energy and tourism, culture, creative industries). Greece is expected to achieve a minimum of 30% primary energy savings in around 80 000 dwellings in the coming years. In addition, EUR 769 million and EUR 995 million will improve solid waste and water resources management, respectively. These investments, together with further reforms to comply with the Urban Wastewater Directive, will help ensure the sustainability of Greece’s water sector. The Just Transition Fund (JTF) will promote economic diversification, upskilling and re-skilling of workers, and job creation in geographical areas most affected by the energy transition. This will help Greece fulfill its commitment to phase out

⁽³⁰⁾ 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](#)

the use of lignite for electricity generation by 2028. The European Social Fund Plus (ESF+) allocates EUR 2.2 billion to employment, of which EUR 750 million will help boost youth employment. EUR 1.28 billion will contribute to improving educational outcomes and promoting sustainable lifelong learning. Over EUR 57 million will go towards capacity building for social partners and civil society organisations, EUR 672 million towards tackling child poverty and EUR 360 million towards helping vulnerable groups overcome material deprivation.

Of the investments mentioned above, EUR 1.8 billion will be invested in line with REPowerEU objectives. This is on top of the EUR 1.1 billion dedicated to REPowerEU under the 2014-2020 budget. EUR 1.3 billion (2021-2027) and EUR 0.6 billion (2014-2020) is for improving energy efficiency; EUR 0.1 billion (2021-2027) and EUR 0.5 billion (2014-2020) is for renewable energy and low-carbon R&I; and EUR 0.4 billion (2021-2027) is for smart energy systems.

Graph A4.2: Synergies between cohesion policy funds and the RRF with its six pillars in Greece



(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 18 billion available to Greece ⁽³¹⁾ with an absorption of 92% ⁽³²⁾. Including national financing, the total investment amounted to EUR 22.2 billion - around 1.8% of GDP for 2014-2020.

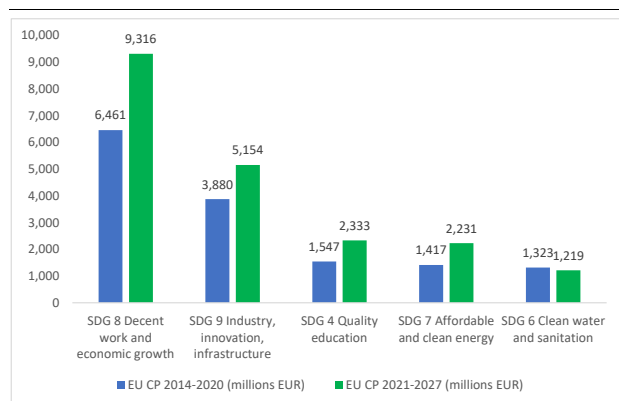
⁽³¹⁾ Cohesion policy funds include the ERDF, CF, ESF and the Youth Employment Initiative (YEI). ETC programmes are excluded here. According to the ‘N+3 rule’, the funds committed for 2014-2020 must be spent by 2023. REACT-EU is included in all figures. The total amount includes EU and national co-financing. Data source: [Cohesion Open Data](#).

⁽³²⁾ 2014-2020 Cohesion policy EU payments by MS is updated daily on [Cohesion Open Data](#).

Greece continues to benefit from cohesion policy flexibility to support 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)⁽³³⁾ under NextGenerationEU provides EUR 2 billion on top of the 2014-2020 cohesion policy allocation for Greece. It is expected that REACT-EU will deliver support to firms affected by COVID-19 and help households improve their energy consumption classification. Some 272 000 firms and 24 000 households benefit from this support. With SAFE (Supporting Affordable Energy), the 2014-2020 cohesion policy funds may also be mobilised by Greece 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 Greece



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

Source: European Commission

In both 2014-2020 and 2021-2027, cohesion policy funds have contributed substantially to the Sustainable Development Goals' (SDGs). These funds support 11 of the 17 SDGs, notably SDG 8 'decent work and economic growth' and SDG 9 'industry, innovation and infrastructure'⁽³⁴⁾.

Other EU funds make significant resources available for Greece. The common agricultural policy (CAP) made available EUR 23.5 billion in

2014-2022, and it will continue to support Greece with EUR 13.5 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 380 million available to Greece in 2014-2020 and the European Maritime, Fisheries and Aquaculture Fund makes EUR 375 million available in 2021-2027.

Greece 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 167.9 million to six specific projects on strategic transport networks. Similarly, Horizon Europe has so far allocated nearly EUR 41.5 billion for Greek R&I actors, while in the previous programming period, Horizon 2020 earmarked EUR 1.7 billion. The Public Sector Loan Facility established under the Just Transition Mechanism makes EUR 63 million of grant support from the Commission available for projects in 2021-2027, which will be combined with loans from the EIB to support investments by public sector entities in just transition regions.

Greece received support under the European instrument for temporary support to mitigate unemployment risks in an emergency (SURE) to finance short-time work schemes and similar measures to mitigate the impact of COVID-19. The Council granted financial assistance to Greece of EUR 6.2 billion in loans, which supported around 41% of workers and 45% of firms in 2020, and around 17% of workers and 29% of firms in 2021.

The Technical Support Instrument (TSI) supports Greece in designing and implementing growth-enhancing reforms, including those set out in its recovery and resilience plan (RRP). Greece has received significant support since 2015. Examples⁽³⁵⁾ include promoting inclusive education by addressing challenges in legislation, educational policy and practice and supporting the efficiency

⁽³³⁾ REACT-EU allocation on [Cohesion Open Data](#).

⁽³⁴⁾ Other EU funds contribute to the implementation of the SDGs. In 2014-2022, this includes both the European Agricultural Fund for Rural Development (EARD) and the European Maritime and Fisheries Fund (EMFF).

⁽³⁵⁾ Country factsheets on reform support are available here.

and resilience of the Greek administration by strengthening evidence-based policymaking.



This Annex illustrates Greece’s relative resilience capacities and vulnerabilities using the Commission’s resilience dashboards (RDB) ⁽³⁶⁾. 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 ⁽³⁷⁾ and capacities ⁽³⁸⁾ 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 Greece and the EU-27 ⁽³⁹⁾.

According to the set of resilience indicators under the RDB, Greece generally displays a similar, but somewhat higher level of vulnerabilities compared to the EU average. Greece exhibits medium-high vulnerabilities in the social and economic dimension of the RDB, medium vulnerabilities in the geopolitical and digital dimensions, and medium-low vulnerabilities in the green dimension. Compared to the EU average, Greece faces higher vulnerabilities in the areas ‘economic and financial stability and sustainability’, ‘health, education and work’, digitalisation of personal space and industry, as well as ‘financial globalisation’. It displays lower vulnerabilities than the EU average in the areas ‘sustainable use of resources’, ‘ecosystems, biodiversity and sustainable agriculture’ and ‘cybersecurity’.

Compared to the EU average, Greece shows an overall lower level of capacities across all RDB indicators. It has overall medium-low resilience capacities in the social and economic and digital dimensions, and medium capacities in the green and geopolitical dimensions. Greece shows stronger capacities than the EU average in the areas ‘ecosystems, biodiversity and sustainable agriculture’ and ‘value chains and trade’. It has significant room for improving capacities compared to the EU in the areas ‘inequalities and the social impact of the transitions’, ‘climate change mitigation and adaptation’, ‘digitalisation for public space’, and ‘financial globalisation’, among others

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

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

Vulnerabilities Index

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

Capacities Index

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

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

Source: JRC Resilience Dashboards - European Commission

⁽³⁶⁾ 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).

⁽³⁷⁾ 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.

⁽³⁸⁾ Capacities refer to enablers or abilities to cope with crises and structural changes and to manage the transitions.

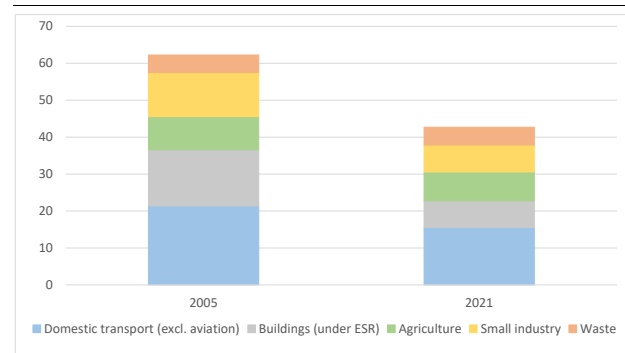
⁽³⁹⁾ This Annex is linked to Annex 1 on SDGs, Annex 6 on the green deal, Annex 8 on the fair transition to climate neutrality, Annex 9 on resource productivity, efficiency and circularity, Annex 10 on the digital transition and Annex 14 on the European pillar of social rights.

Greece's green transition requires continued action on several aspects including renewables and energy efficiency. Implementation of the European Green Deal is underway in Greece; this Annex provides a snapshot of the key areas involved ⁽⁴⁰⁾.

Greece is projected to meet its 2030 climate policy target for the effort sharing sectors by a comfortable margin ⁽⁴¹⁾. Data for 2021 on the greenhouse gas emissions generated by Greece in these sectors are expected to show that the country generated less than its annual emission allocations ⁽⁴²⁾. Current policies are projected to reduce these emissions by -27% relative to 2005 levels in 2030, more than sufficient to reach both the effort sharing target and Greece's new target, in line with the EU's 55% objective, of a -22.7% reduction. The additional measures tabled would bring a sharper reduction in emissions of -36% ⁽⁴³⁾. In its recovery and resilience plan, Greece has attributed 37.5% of its Recovery and Resilience Fund allocation to key reforms and investments to attain the climate

objectives ⁽⁴⁴⁾. In May 2022, the parliament passed a national climate law, aligned with the EU objective of cutting greenhouse emissions by at least 55% by 2030, 80% by 2040 and the aim to achieve climate neutrality by 2050. The law also strengthens climate goals on adaptation, carbon budgeting and mitigation in electricity production, transport and buildings.

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



Source: European Environmental Agency.

⁽⁴⁰⁾ 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.

⁽⁴¹⁾ 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.

⁽⁴²⁾ Greece's annual emission allocations for 2021 were some 45.8 Mt CO₂eq, and its approximated 2021 emissions were 42.7 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).

⁽⁴³⁾ 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.

Greece is on track to meet its net carbon removals target for 2030 in the land use sector. Greece's mitigation action in the land use, land use change and forestry (LULUCF) sector has remained very stable for over a decade, removing about 5 000 kt CO₂eq a year (see Table A6.1) ⁽⁴⁵⁾. Greece could further increase its carbon removals through carbon farming, the sustainable management of existing forests and prompt replacement of harvested or damaged forests.

Fossil fuels still play an important role in Greece's energy mix but it expects to phase out coal and oil gradually. In the last decade, coal share in the energy mix reduced sharply from 26% in 2011 to 8% in 2021, while in the case of oil only a slight reduction from 56% in 2011 to 48% in 2021. On the other hand, gas share in the energy mix has been increasing to reach 26% in 2021 (an increase of 13pp when compared with 2011). Greece has an ambitious plan to decommission its lignite plants by 2028, a target

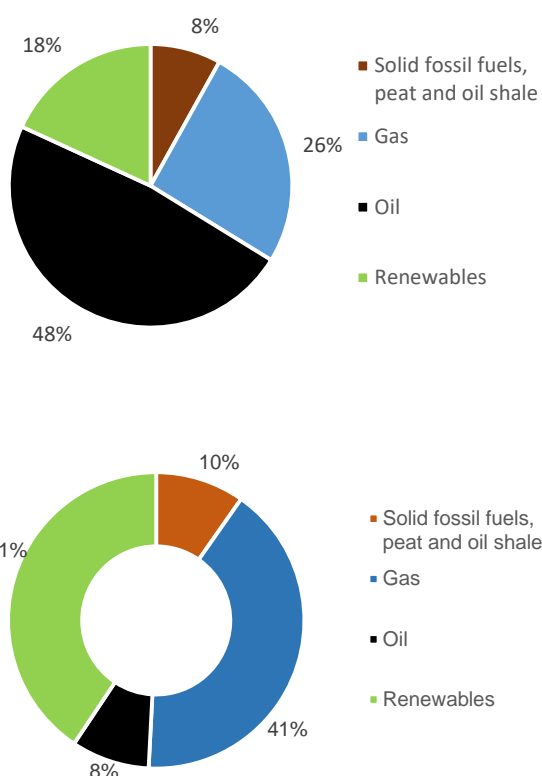
⁽⁴⁴⁾ For example, significant investments in irrigation and flood mitigation with measures for sustainable water management, as well as on the renovation of buildings.

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



enshrined in the national energy and climate plan and Greece's first ever Climate law. By 2030, Greece expects to increase the share of natural gas and renewables in the energy mix, with coal disappearing and oil falling considerably. In 2021, renewable energy and natural gas made up the bulk of Greece's electricity mix, at 41% each.

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



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

Source: Eurostat

Source:

Renewable energy sources play an important role in Greece's energy system. In 2021, Greece's share of renewable energy sources in gross final energy consumption was 21.93% (an increase of almost 12pp when compared with 2011). Greece's target of 35% of share of energy from renewable sources in gross final energy consumption by 2030 included in the NECP was considered sufficiently ambitious. Greece 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. Greece's recovery and resilience plan includes the installation of 3GW of new renewable energy (wind and solar) by the end of 2025 and the installation of storage systems (1380MW) to facilitate the integration of new renewable energy capacity. In 2022, Greece has taken steps to streamline the licensing framework for renewable energy and recently adopted laws laying down the first legal framework for the development of offshore wind farms as well as establishing a framework for Guarantees of Origin. The electricity interconnection of the Cyclades islands and upgrades to the electricity network will further boost the penetration of renewable energy in Greece's electricity mix.

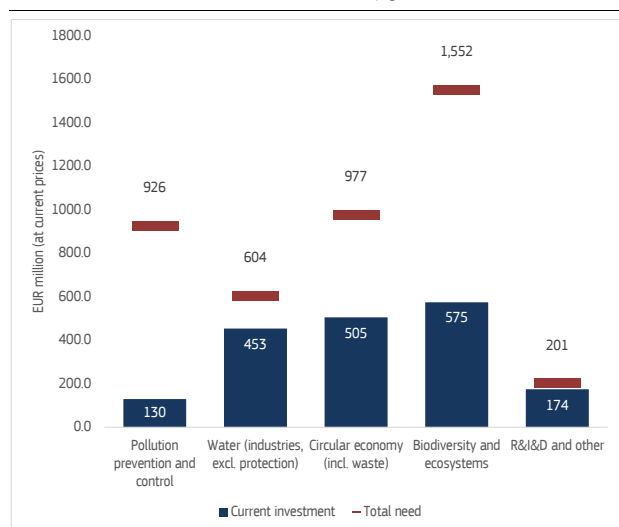
Greece has a high untapped potential to make energy savings. Greece's NECP targets for primary and final energy consumption (PEC and FEC) were considered of modest and low ambition respectively in the 2020 Commission assessment. Based on the energy consumption trajectory for 2018-2021, Greece is expected to be on track to meet its 2030 target for PEC and for FEC, as these were notified in its NECP⁽⁴⁶⁾. Despite the action taken on energy efficiency, Greece needs to further unlock its potential for energy efficiency. Its recovery and resilience plan includes projects to improve energy efficiency by renovating private-sector and public-sector buildings, notably through loans for private sector investments enhancing actions from the Loan Facility. The national energy and climate plan proposes additional actions that could be taken, especially in the buildings, water and transport sectors, promoting energy services, market mechanisms and innovative financial instruments for energy efficiency.

The transition to a sustainable transport system remains a key challenge. The take-up of electric vehicles is still very slow, though accelerating. The market is undeveloped, reflecting the lack of charging infrastructure. Investments and reforms included in the recovery and resilience plan such as the installation of publicly accessible charging stations aim to help overcome these

⁽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"

challenges. Greece has one of the highest congestion rates in the EU. The railways sector is small and the main line between Athens and Thessaloniki, which could substitute the very lucrative short-haul flights between the two cities, is underused. There are no zero-emission passenger ships between the islands and the mainland. Individual transport exacerbates seasonal problems with air pollution and leads to significant health and economic costs, in Athens and Thessaloniki in particular.

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



Source: European Commission.

Greece would benefit from investing more in environmental protection, in protecting biodiversity and in tackling pollution.⁽⁴⁷⁾ Between 2014 and 2020, the environmental investment needs were estimated to be at least EUR 4.3 billion while investment was at about EUR 1.8 billion, leaving a gap of at least EUR 2.4 billion per year (see Graph A6.3)⁽⁴⁸⁾. Greece's Natura 2000 network covers 27.3% of its land area⁽⁴⁹⁾ and 19.6% of its sea area. It has yet to

⁽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 Greece](#)).

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

⁽⁴⁹⁾ In 2021, Greece had 35.0% terrestrial protected areas (Natura 2000 and nationally designated areas), against the EU average of 26.4% (European Environment Agency, 2023, [Natura 2000 Barometer](#)).

allocate sufficient resources to the protection and management of these sites. Site-specific conservation objectives, conservation measures, and management plans have yet to be drawn up for several sites.

Climate change is affecting many sectors in Greece, with adaptation challenges concerning water management in particular⁽⁵⁰⁾. Affected sectors include energy supply, the built environment, agriculture, and tourism. These all depend on water, which is becoming increasingly scarce⁽⁵¹⁾. Heat-related mortality and morbidity rates are projected to rise significantly. Greece's recovery and resilience plan includes measures on reforestation, water management, and the protection and restoration of biodiversity and ecosystems. It also has renovation measures that aim to increase the resilience of cities and their building stocks to climate change. Greece has a wide insurance protection gap for wildfires, which could pose a risk to public finances if the insurance coverage remains low⁽⁵²⁾.

Greece 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 amounted to EUR 1.3 billion in 2021, putting low carbon alternatives at a disadvantage. 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, mining and quarrying, manufacturing, water supply and sewerage, accommodation and food services sectors. Examples of such subsidies include the excise tax refund for diesel fuel used in agriculture, the reduced energy tax rate for light fuel oil used in mobile machinery, the excise tax exemption on the use of natural gas, the reimbursement of excise duty on diesel used in freight and other categories of passenger transport, the excise duty exemption for natural

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

⁽⁵¹⁾ According to the [6th IPCC climate adaptation report](#), in southern Europe, more than a third of the population will be exposed to water scarcity at global warming of 2°C.

⁽⁵²⁾ [European Insurance and Occupational Pensions Authority \(EIOPA\) dashboard on insurance protection gap for natural catastrophes](#).

gas used as motor fuel or the excise tax exemption and tax relief for natural gas for industrial consumers⁽⁵³⁾. A mapping of all environmentally harmful subsidies by Greece would help prioritise candidates for reform.

Greece is taking steps to align environmental taxation with the polluter pays principle.

Greece's revenues from environmental taxes have been above the EU average (see Annex 19). Under the reform of the waste sector in its recovery and resilience plan, Greece reintroduced a landfill tax, expected to improve waste management and recycling rates. Its application was scheduled for 2022 but it has not yet been enforced. Greece also recently brought in a resource charge for water, with tariffs differentiated by types of use and sources. The recovery and resilience plan also includes establishing a national waste regulatory authority, to reform the regional and local waste management bodies and bring in sound costing and pricing policies, and the creation of a regulatory authority for streamlining the management of water resources. A single Regulatory Authority for Energy, Waste and Water was established through Law 5037/2023, in March 2023.

⁽⁵³⁾ 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	62.6	-27%	-29%	-28%	-31%	-	-22.7%	4.3	13.3
	Net carbon removals from LULUCF ⁽²⁾	kt CO ₂ eq	-3,529	-4,111	-4,945	-5,401	-5,416	-5,476	-4373	n/a	n/a
								National contribution to 2030 EU target			
	Share of energy from renewable sources in gross final consumption of energy ⁽³⁾	%	7%	17%	18%	20%	22%	22%	35%		
	Energy efficiency: primary energy consumption ⁽³⁾	Mtoe	30.3	23.2	22.6	22.3	19.2	20.3	20.6		
Energy efficiency: final energy consumption ⁽³⁾	Mtoe	21.0	16.4	15.9	16.2	14.5	15.2	16.5			
		Greece						EU			
Fiscal and financial indicators	Environmental taxes (% of GDP)	% of GDP	3.8	4.0	3.8	3.9	3.8	3.9	2.4	2.2	2.2
	Environmental taxes (% of total taxation) ⁽⁴⁾	% of taxation	9.8	10.2	9.5	9.8	9.7	10.0	5.9	5.6	5.5
	Government expenditure on environmental protection	% of total exp.	3.0	2.9	2.9	2.9	2.7	2.1	1.7	1.6	1.6
	Investment in environmental protection ⁽⁵⁾	% of GDP	0.2	0.2	0.2	0.2	0.0	-	0.4	0.4	0.4
	Fossil fuel subsidies ⁽⁶⁾	EUR2021bn	1.5	1.7	1.6	1.9	1.4	1.3	53.0	50.0	-
Climate protection gap ⁽⁷⁾	score 1-4					2.2	2.4			1.5	
Climate	Net greenhouse gas emissions	1990 = 100	89.0	94.0	91.0	85.0	72.0	73.0	76.0	69.0	72.0
	Greenhouse gas emission intensity of the economy	kg/EUR 10	0.56	0.59	0.57	0.53	0.50	-	0.31	0.30	0.26
	Energy intensity of the economy	kgoe/EUR 10	0.13	0.13	0.13	0.12	0.12	-	0.11	0.11	-
Energy	Final energy consumption (FEC)	2015=100	101.2	99.1	96.1	97.8	87.3	91.8	102.9	94.6	-
	FEC in residential building sector	2015=100	97.5	98.9	87.8	92.2	96.2	95.1	101.3	101.3	106.8
	FEC in services building sector	2015=100	108.7	116.9	111.7	113.9	101.5	109.1	100.1	94.4	100.7
Pollution	Smog-precursor emission intensity (to GDP) ⁽⁸⁾	tonne/EUR 10	3.7	3.9	4.1	3.9	3.9	-	0.9	0.9	-
	Years of life lost due to air pollution by PM _{2.5}	per 100,000 inh.	1205.0	1926.7	1086.7	883.6	804.3	-	581.6	544.5	-
	Years of life lost due to air pollution by NO ₂	per 100,000 inh.	229.1	309.5	255.1	216.5	171.4	-	309.6	218.8	-
	Nitrates in ground water	mg NO ₃ /litre	-	-	-	-	-	-	21.0	20.8	-
Biodiversity	Land protected areas	% of total	34.1	34.8	-	30.2	34.8	35.0	26.2	26.4	26.4
	Marine protected areas	% of total	6.5	-	-	19.7	-	19.8	10.7	-	12.1
	Organic farming	% of total utilised agricultural area	6.5	8.0	9.3	10.3	10.2	-	8.5	9.1	-
Mobility	Share of zero-emission vehicles ⁽⁹⁾	% in new registrations	0.0	0.1	0.2	0.8	2.2	2.6	5.4	8.9	10.7
	Number of AC/DC recharging points (AFIR categorisation)		-	-	-	286	626	926	188626	330028	432518
	Share of electrified railways	%	23.8	29.6	32.1	n/a	n/a	31.2	56.6	n/a	56.6
	Hours of congestion per commuting driver per year		36.3	37.7	36.1	36.9	n/a	n/a	28.7	n/a	n/a

Sources: (1) Historical and projected emissions, as well as Member States' climate policy targets and 2005 base year emissions under the Effort Sharing Decision (for 2020) are measured in global warming potential (GWP) values from the 4th Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC). Member States' climate policy targets and 2005 base year emissions under the Effort Sharing Regulation (for 2030) are in GWP values from the 5th Assessment Report (AR5). The table above shows the base year emissions 2005 under the Effort Sharing Decision, using AR4 GWP values. Emissions for 2017-2021 are expressed in percentage change from 2005 base year emissions, with AR4 GWP values. 2021 data are preliminary. The table shows the 2030 target under Regulation (EU) 2023/857 that aligns it with the EU's 55% objective, in percentage change from 2005 base year emissions (AR5 GWP). Distance to target is the gap between Member States' 2030 target (with AR5 GWP values) and projected emissions with existing measures (WEM) and with additional measures (WAM) (with AR4 GWP values), in percentage change from the 2005 base year emissions. Due to the difference in global warming potential values, the distance to target is only illustrative. The measures included reflect the state of play as of 15 March 2021.

(2) Net removals are expressed in negative figures, net emissions in positive figures. Reported data are from the 2023 greenhouse gas inventory submission. 2030 value of net greenhouse gas removals as in Regulation (EU) 2023/839 amending Regulation (EU) 2018/841 (LULUCF Regulation) – Annex IIa, kilotons of CO₂ equivalent, based on 2020 submissions. (3) Renewable energy and energy efficiency targets and national contributions are in line with the methodology established under Regulation (EU) 2018/1999 (Governance Regulation).

(4) Percentage of total revenue from taxes and social contributions (excluding imputed social contributions). Revenue from the EU Emissions Trading System is included in environmental tax revenue.

(5) Expenditure on gross fixed capital formation for the production of environmental protection services (abatement and prevention of pollution) covering government, industry, and specialised providers.

(6) European Commission, Study on energy subsidies and other government interventions in the European Union, 2022 edition.

(7) The climate protection gap refers to the share of non-insured economic losses caused by climate-related disasters. This indicator is based on modelling of the current risk from floods, wildfires and windstorms as well as earthquakes, and an estimation of the current insurance penetration rate. The indicator does not provide information on the split between the private/public costs of climate-related disasters. A score of 0 means no protection gap, while a score of 4 corresponds to a very high gap (EIOPA, 2022).

(8) Sulphur oxides (SO₂ equivalent), ammonia, particulates < 10 µm, nitrogen oxides in total economy (divided by GDP).

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

Before Russia invaded Ukraine, Greece had a relatively medium exposure to Russian gas and oil, slightly below the EU average. However, it is highly dependent on imported fossil fuels in general. This makes its economy particularly sensitive to global price developments, requiring it to step up efforts on the energy transition. This Annex⁽⁵⁴⁾ sets out the actions carried out by Greece 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⁽⁵⁵⁾.

Greece has showed a high level of gas supply security in the face of challenging circumstances that the EU faced, contributing to the overall European security of supply. In 2022, domestic gas demand amounted to nearly 4.9 billion cubic metres (bcm)/year. 73% of these volumes were used to generate electricity. The Greek gas transmission system is interconnected to the Central and South Eastern Europe energy connectivity (CESEC) system, to the Turkish one through Kipoi and the Trans Adriatic Pipeline (TAP) and to the Italian gas system through TAP. Greece is a liquefied natural gas (LNG) entry point thanks to the terminal at Revythousa. Revythousa is a significant supply entry point that covers around 44% of imports. In terms of the remaining entry points, the entry point of Sidirokastro covers 35% of imports, followed by the Nea Mesimvria entry point (where supply increased by 18% compared to the same period in 2021). The interconnection point in Kipoi, Evros covers 2.5% of imports. On top of Russian pipeline gas imported, Greece imported 2.03 TW of Russian LNG in 2022⁽⁵⁶⁾.

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

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

⁽⁵⁶⁾ Greek TSO (DESF) Natural Gas Data 2022

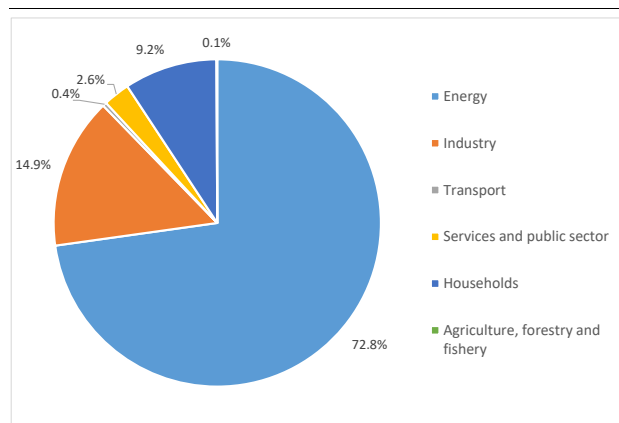
Despite not having underground storage facilities, Greece has been taking measures to safeguard its gas security of supply. To minimise any potential disruption to Russian supplies in winter 2022-2023, the Greek Transmission System Operator (TSO) procured and put into operation a floating storage unit in November 2022, for 12 to 18 months, in Revythousa. In February 2022, Greece and Bulgaria signed a Memorandum of Understanding including an agreement on storage.

The commissioning of the Gas Interconnector Greece Bulgaria (IGB) has improved the diversification of supply in Bulgaria. IGB is part of the Vertical Gas Corridor Greece-Bulgaria-Romania-Hungary. It provides access to natural gas from the Southern Gas Corridor and LNG to South Eastern and Central Europe as well as Ukraine. The IGB expansion project is crucial for increasing IGB transmission capacity from 3 bcm/year to 5 bcm/year. The expansion project has been recognised as one of the most efficient solutions for removing bottlenecks between Greece, TAP systems and Bulgaria as it will deliver gas from TAP to the Bulgarian system. The increase in IGB capacity is listed in Annex 3 of the REPowerEU action plan.

Greece managed to reduce energy consumption in 2022. In the period August 2022-March 2023, Greece reduced its natural gas consumption by almost 22%, compared when compared to the previous 5-years average⁽⁵⁷⁾. Then, based on data from the power grid operator IPTO's monthly reports, Greece appears to be on the right path to achieving its electricity energy-saving goals. This downward trend highlights the efforts being made by consumers to keep their energy costs down. It is also boosted by national measures that envisage among other things further subsidies in residential electricity tariffs for households that reduce their average daily consumption by 15% compared to last year.

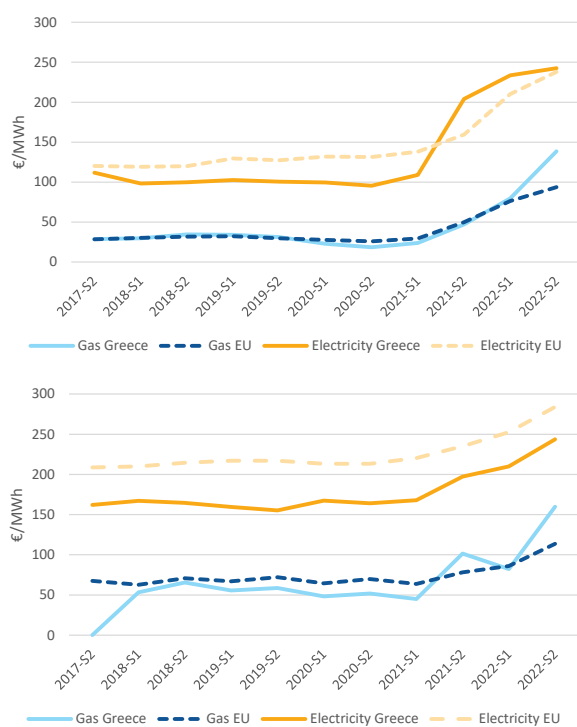
⁽⁵⁷⁾ EU countries agreed to reduce their gas demand by 15% compared to their average consumption in the past 5 years, between 1 August 2022 and 31 March 2023, with measures of their own choice.

Graph A7.1: Share of gas consumption per sector, 2021



Source: Eurostat

Graph A7.2: Greece's retail energy prices for industry (top) and households (bottom)



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

Source: Eurostat

Final energy prices charged to Greek consumers were significantly reduced thanks to public support measures. During the first half of 2022, retail electricity prices for the industry in Greece were higher than the EU average level. By contrast, household electricity prices (though increasing) were well below the EU average. During the same period, household gas prices increased above the EU average, but more

recently reverted to the EU average level. Final prices charged to Greek consumers were significantly lowered, for instance by over 50% for residential gas customers and up to 90% for electricity customers. This was thanks to supporting measures funded primarily by the newly established Energy Transition Fund and secondarily by the state budget amounting to around EUR 8 billion. In addition, Greece introduced a retroactive 90% windfall profit tax on energy companies. The proceeds of this scheme were used to provide relief to energy consumers. Despite the support offered, industry and low-income families could be severely impacted. The latter in particular could find it even harder to cover their basic needs such as keeping their homes adequately warm and could find themselves at higher risk of falling into arrears with their energy bills (see Annex 8).

Greece is lagging behind on certain aspects related to the electricity market that could potentially deprive consumers of access to more affordable energy and undermine their ability to participate in the energy transition.

As shown in the latest report published by the EU Agency for the Cooperation of Energy Regulators (ACER) ⁽⁵⁸⁾, Greece was one of the countries with the least penetration of smart meters in 2021 (only 3% compared to the EU average of 54%). Smart meters are a tool that enable consumers to actively participate in the market and support demand response. Along with demand reduction, they play an important role in combating the current crisis and the high energy prices faced by consumers, as highlighted by ACER ⁽⁵⁹⁾. The Greek network operator HEDNO plans to roll out some 7.5 million smart meters across the country by 2030, replacing standard meters; a tender for this project is currently ongoing ⁽⁶⁰⁾. Public Power Cooperation's market share in the retail market is presently around 60% ⁽⁶¹⁾, with low voltage customers accounting for 65% of the share. This is still well above the 50% target mandated by national legislation. To further bolster competition and encourage investment in the sector, the

⁽⁵⁸⁾ ACER/CEER (2022), Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2021.

⁽⁵⁹⁾ Idem.

⁽⁶⁰⁾ HEDNO communication.

⁽⁶¹⁾ IPTO Monthly Energy Report, January 2023

energy markets could be strengthened by increasing the use of renewables and making available storage and demand response programmes for market participants. Such measures would have a positive impact on households and businesses. Indeed, Greece has already introduced demand response in its wholesale market

In recent years, Greece has taken important steps to support the deployment of renewable energy. Renewables consumption in Greece reached 21.9% in 2021, compared to 21.7% in 2020 and 19.6% in 2019 ⁽⁶²⁾. In 2022, it is estimated that Greece had almost 1.7 GW of new installed RES capacity driven primarily by the installation of an additional 1.3 GW of solar energy and 230 MW of onshore wind ⁽⁶³⁾. Greece's recovery and resilience plan includes the installation of 3GW of new renewable energy (wind and solar) by the end of 2025 and the installation of storage systems (1380MW) to facilitate the integration of new renewable energy capacity. In 2022, Greece has taken steps to streamline the licensing framework for renewable energy, but further streamlining of the permitting procedures as well as clear remuneration system for storage are needed in order to further facilitate the RES deployment. Greece also recently adopted a law laying down, for the first time, the legal framework for the development of offshore wind farms as well as to establishing a framework for Guarantees of Origin. In addition, Greece has adopted some measures to support the deployment of smaller-scale RES-E systems in homes and communities. For example, net metering support schemes have been put in place for prosumers ⁽⁶⁴⁾. Greece shows potential for becoming a strong market for the use of PPAs and will need to take regulatory and market measures in order to support their use. The electricity interconnection of the Cyclades and the necessary upgrade of the overall electricity network will further facilitate the penetration of renewables in the Greek electricity mix.

In order for Greece to achieve its climate targets and in line with the REPowerEU Plan, there is still room for further expansion in a

⁽⁶²⁾ Eurostat – SHARES.

⁽⁶³⁾ IRENA, Renewable capacity statistics 2023

⁽⁶⁴⁾ COM (2022) 639 final.

number of key sectors. Hydrogen is considered an important field and promising solution in Greece, but is currently in the early stages of development. The government has unveiled the National Strategy for Hydrogen and Other Renewable Gases. On its implementation, the project involving technical support for the implementation of the National Hydrogen Strategy was launched in early 2023. The strategy will also help promote the deployment of biomethane in Greece.

On energy efficiency, Greece has been successfully using the Recovery and Resilience Facility to fund the expansion of a large-scale programme to make residential buildings more energy-efficient. In the meantime, Greece is working on a similar programme for public buildings as well as the wider introduction of energy services and the successful continuation of the Greek Energy Efficiency Obligation Scheme ⁽⁶⁵⁾. However, mobilization of additional private funds for energy renovations, the continuation of actions that will mitigate energy poverty and the creation of a functioning market for energy services remain among the challenges that Greece should tackle. Regarding market surveillance activities, Greece is carrying out a low number of checks on products covered by ecodesign and energy labelling. This generates concerns with respect to the enforcement of market surveillance obligations and the compliance levels of the concerned products, and therefore missed energy and CO2 savings ⁽⁶⁶⁾.

Greece is one of the Member States that has increased its innovation performance the most in 2015-2021, from 48.7/100 to 56.2/100, above the EU average rate of improvement during the same period. Still, the total R&I expenditure was 0.94% of the GDP in 2020 which is below the EU average of 2.19% ⁽⁶⁷⁾. Concerning the quality of the scientific production in the clean energy technology sector (CET), Greece, with 17%, comes fourth within the EU countries (EU average 12%) and one of the four (Luxembourg, Denmark, the

⁽⁶⁵⁾ <https://ypen.gov.gr/energeia/energeiaki-exoikonomisi/metropolitikis/kathestota/>

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

⁽⁶⁷⁾ European Innovation Scoreboard 2021

Netherlands and Greece) ranking amongst the top 10 global in 2018. The average of scientific publications related to CETs in Greece in the period 2015–2020 was 847 (EU27 30.160). Greece's share of highly cited publications in the total of publications related to clean energy technologies was 18, 65% in 2018 (EU27 13, 27%). The average number of CET inventions per year the period 2015-2018 was 7 (EU27 26.259).

The Recovery and Resilience Plan “Greece 2.0” dedicates 37, 5% of grants and loans to green objectives. Overall, EUR 6.2 billion (3% of 2021 GDP) are budgeted for the green transition which are expected to mobilize a total of EUR 11.6 billion (6% of 2021 GDP)⁽⁶⁸⁾. The estimated exports of products related to CETs for Greece was EUR 321 million (EU27 35.528 million) in 2019 with increasing trend since 2015. The Clean Energy Innovation Index score for Greece was 0,326 (EU27 0,429) in 2018⁽⁶⁹⁾. Venture capital investments in climate tech start-ups and scale-ups in Greece in 2020 was EUR 4,5 million, (0,8% of EU27). Greece has experienced no growth of job ads in energy supply sector, which is also relevant for the clean energy deployment.

⁽⁶⁸⁾ OECD Economic survey Greece, January 2023

⁽⁶⁹⁾ Tracking research and innovation performance in the clean energy sector, European Commission, October 2022

Table A7.1: Selected indicators on energy mix

	GREECE				EU				
	2018	2019	2020	2021	2018	2019	2020	2021	
ENERGY DEPENDENCE	Import Dependency [%]	71%	74%	81%	74%	58%	61%	57%	56%
	of Solid fossil fuels	5%	6%	10%	10%	44%	44%	36%	37%
	of Oil and petroleum products	98%	96%	106%	93%	95%	97%	97%	92%
	of Natural Gas	101%	99%	101%	99%	83%	90%	84%	83%
	Dependency from Russian Fossil Fuels [%]								
	of Hard Coal	89%	89%	87%	96%	40%	44%	49%	47%
	of Crude Oil	11%	10%	18%	13%	30%	27%	26%	25%
of Natural Gas	66%	32%	39%	41%	40%	40%	38%	41%	
	2015	2016	2017	2018	2019	2020	2021	2022	
ELECTRICITY	Gross Electricity Production (GWh)	51,874	54,439	55,266	53,263	48,626	48,252	54,715	-
	Combustible Fuels	37,203	39,798	41,698	37,412	32,880	31,055	33,020	-
	Nuclear	0	0	0	0	0	0	0	-
	Hydro	6,150	5,565	4,040	5,760	4,051	3,440	5,961	-
	Wind	4,621	5,146	5,537	6,300	7,266	9,310	10,483	-
	Solar	3,900	3,930	3,991	3,791	4,429	4,447	5,251	-
	Geothermal	0	0	0	0	0	0	0	-
	Other Sources	0	0	0	0	0	0	0	-
	Net Imports of Electricity (GWh)	9,608	8,796	6,237	6,278	9,944	8,864	3,684	-
	As a % of electricity available for final consumption	18%	16%	11%	12%	19%	18%	7%	-
Electricity Interconnection (%)	-	-	10.60%	9.70%	9.8%	9.9%	6.3%	6.3%	
	2015	2016	2017	2018	2019	2020	2021	2022	
DIVERSIFICATION OF GAS SUPPLIES	Gas Consumption (in bcm)	3.2	4.1	4.9	4.9	5.3	5.8	6.5	5.6
	Gas Imports - by type (in bcm)	3.8	4.9	6.4	5.9	8.0	8.9	8.7	-
	Gas imports - pipeline	3.2	4.1	5.0	4.9	5.2	5.9	6.4	-
	Gas imports - LNG	0.6	0.8	1.5	1.0	2.8	3.0	2.2	-
	Gas Imports - by main source supplier (in bcm) (1)								
	Russia	1.9	2.6	2.9	3.2	1.7	2.3	2.6	-
	United States	0.0	0.0	0.0	0.2	0.5	3.0	2.3	-
	Azerbaijan	0.0	0.0	0.0	0.0	0.0	0.0	1.2	-
	Algeria	0.7	1.4	2.5	1.7	1.1	0.5	1.0	-
	Others	1.1	0.8	1.1	0.8	4.8	3.1	1.6	-
	2019	2020	2021	2022					
LNG Terminals	Number of LNG Terminals (2)	1	1	1	1				
	LNG Storage capacity (m3 LNG)	225,000	225,000	225,000	225,000				
	Underground Storage								
	Number of storage facilities	0	0	0	0				
Operational Storage Capacity (bcm)	0	0	0	0					
	2019	2020	2021	2022					
CLEAN ENERGY	VC investments in climate tech start-ups and scale-ups (EUR Mln) (3)	0.1	4.5	0.0	n.a.				
	as a % of total VC investments in Greece	0.1%	0.8%	0.0%	n.a.				
	Research & Innovation spending in Energy Union R&I priorities								
	Public R&I (EUR mln)	102.1	84.9	n.a.	n.a.				
	Public R&I (EUR mln)	0.008%	0.007%	n.a.	n.a.				
	Private R&I (EUR mln)	329.8	n.a.	n.a.	n.a.				
Private R&I (% GDP)	0.03%	n.a.	n.a.	n.a.					

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

(2) includes FSRU

(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).

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

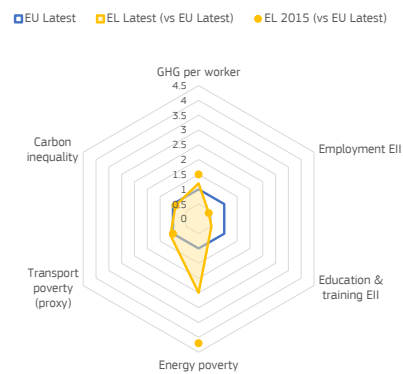
This Annex monitors Greece's progress in ensuring a fair transition towards climate neutrality and environmental sustainability, notably for workers and households in vulnerable situations. The number of jobs in the green economy has risen, but further efforts are needed to support this trend. The provision of skills relevant for the green transition will contribute to the effective implementation of REPowerEU in Greece, also in line with the Council Recommendation.⁽⁷⁰⁾ Greece's recovery and resilience plan (RRP) outlines crucial reforms and investment for a fair green transition, complementing the territorial just transition plans and actions by the European Social Fund Plus (ESF+).

Employment in Greece's sectors most affected by the green transition presents challenges, while workers in declining activities need active support. The greenhouse gas (GHG) emissions intensity of Greece's workforce declined from 20.8 to 16.1 tonnes per worker between 2015 and 2021, but it is still above the EU average of 13.7 tonnes in 2021 (see Graph A8.1 and Table A8.1). Employment in Greece's energy-intensive industries (EII) reached 1.2% of total employment in 2021 (1.1% in 2020, compared to 3.0% on average in the EU) and remained broadly stable compared to 2015 (1.1%). Employment in mining and quarrying decreased by 4.1% since 2015 (to around 10 000 workers). The job vacancy rate in construction, a key sector for delivering on the green transition, is higher than the EU average (6.7% v 4.0% in the EU in 2022)⁽⁷¹⁾. Following the strong labour market changes, there is a need to provide targeted employment support based on the individual needs of each stakeholder and in line with the transition plans and labour market needs.

Upskilling and reskilling are key for supporting jobs in transforming sectors and ensuring a smooth and socially fair transition. In the energy-intensive industries, workers' participation in education and training increased from 3.5% in 2017 to 4.8% in 2018

(latest available data), though this was still well below the EU average for that year. In 2022, 63% of Greek citizens believed they lacked the necessary skills to contribute to the green transition (vs 38% on average in the EU)⁽⁷²⁾ (see Annex 14 and 15). In this context, the Just Transition programme for Greece (worth EUR 1.63 billion) will devote 20.4% of its funding to upskilling and reskilling for workers in regions most affected by the transition, in synergy with an enhanced offer of training at a national level, including in-work training envisaged in the RRP. In Greece, 6.2% of ESF+ funding helps promote green skills and jobs, as well as create employment opportunities for the workers affected by the green transition.

Graph A8.1: Fair transition challenges in Greece



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

The spike in energy prices can worsen the progress achieved by Greece in recent years. The share of the total population unable to keep their homes adequately warm declined from 29.2% in 2015 to 17.1% in 2020, but it increased slightly to 17.5% in 2021 (still above EU average of 6.9%)⁽⁷³⁾. The share of the population at risk of poverty (AROP) unable to keep their homes adequately warm decreased from 50.9% in 2015 to 36.8% in 2021 (above the EU average at 16.4%). All income groups were affected in 2021, including 30.9% of low-income households (in deciles 1-4) (vs 13.4% in the EU). Before the energy price hikes, an estimated 26.7% of the total population and 51.9% of the (expenditure-

⁽⁷⁰⁾ Council Recommendation of 16 June 2022 on ensuring a fair transition towards climate neutrality (2022/C 243/04) covers employment, skills, tax-benefit and social protection systems, essential services, and housing.

⁽⁷¹⁾ Eurostat (JVS_A_RATE_R2)

⁽⁷²⁾ Special Eurobarometer 527. Fairness perceptions of the green transition (May – June 2022).

⁽⁷³⁾ 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](https://www.eurostat.ec.europa.eu/en/themes/energy-poverty).



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

Indicator	Description	EL 2015	EL Latest	EU Latest
GHG per worker	Greenhouse gas emissions per worker - CO2 equivalent tonnes	20.8	16.1 (2021)	13.7 (2021)
Employment EII	Employment share in energy-intensive industries, including mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24), automotive (C29) - %	1.1	1.1 (2020)	3 (2020)
Education & training EII	Adult participation in education and training (last 4 weeks) in energy-intensive industries - %		4.8 (2018)	10.4 (2022)
Energy poverty	Share of the total population living in a household unable to keep its home adequately warm - %	29.2	17.5 (2021)	6.9 (2021)
Transport poverty (proxy)	Estimated share of the AROP population that spends over 6% of expenditure on fuels for personal transport - %	37	41.9 (2023)	37.1 (2023)
Carbon inequality	Average emissions per capita of top 10% of emitters vs bottom 50% of emitters	4.6	4.3 (2020)	5 (2020)

Source: Eurostat (env_ac_ainah_r2, nama_10_a64_e, ilc_mdcs01), EU Labour Force Survey (break in time series in 2021), EMPL-JRC GD-AMEDI/AMEDI+ projects and World Inequality Database (WID).

based) AROP population had residential expenditure budget shares on electricity, gas, and other fuels⁽⁷⁴⁾ above 10% of their household budget (above the EU average of 26.9% and 48.2%, respectively).

The increased energy prices in 2021-2023 risk negatively affecting household incomes, notably for low-income groups. As a result of energy price changes during the August 2021 to January 2023 period relative to the 18 months prior (cf. Annex 7), in the absence of policy support and behavioural responses, the fraction of individuals living in households spending more than 10% of their budget on energy would have increased by 22.2 pps for the whole population and by 26.5 pps among the (expenditure-based) AROP population, which constitute increases higher than average impacts in the EU (by 16.4 pps and 19.1 pps, respectively).⁽⁷⁵⁾ The shares of expenditure of residential energy of low and lower-middle income groups would have increased the most, in particular for electricity compared to the EU-wide effects (see Graph A8.2). Among the (expenditure-based) AROP population, the share of individuals living in households with budget shares for private transport fuels⁽⁷³⁾ above 6% would have increased less than the EU average (4.9 pps vs 5.3 pps in the EU), reaching 41.9% in January 2023 (vs 37.1% in the EU) due to the increase in transport fuel prices.

Access to public transport is perceived to be greater in rural areas, while some regions rank high in terms of air pollution. While citizens perceive public transport to be relatively affordable (51% vs 54% in the EU), Greece performs worst on perceptions of availability (39%

vs 55% in the EU) and quality (43 vs 60% in the EU). As regards these perceptions, rural areas in Greece perform better than urban areas, and better in terms of affordability and quality when compared to rural areas in the EU overall. The average carbon footprint of the top 10% of emitters is about 4.5 times higher than that of the bottom 50% (see Graph A8.1). The Greek region of Western Macedonia ranks among the worst performers in terms of air quality in the EU, which calls for further efforts to protect citizens from air pollution and reduce environmental inequalities, with a specific focus on the most vulnerable. In Greece, the average levels of air pollution in 2020 stood above the EU average (14.5 vs 11.2 µg/m PM2.5), almost all regions exposed to critical levels of air pollution,⁽⁷⁶⁾ leading to significant health impacts, in particular on vulnerable groups, and 8 843 premature deaths annually.⁽⁷⁷⁾

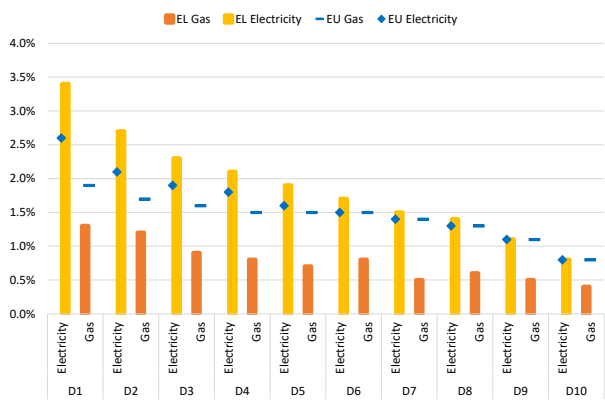
⁽⁷⁴⁾ Products defined according to the European Classification of Individual Consumption according to Purpose (ECOICOP): CPO45.

⁽⁷⁵⁾ [EMPL-JRC GD-AMEDI/AMEDI+](#); see details in the related technical brief.

⁽⁷⁶⁾ Two times higher than the recommendations in the WHO Air Quality Guidelines (annual exposure of 5µg/m³)

⁽⁷⁷⁾ [EEA- Air Quality Health Risk Assessment](#)

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



Mean change of energy expenditure as a percentage (%) of total expenditure per income decile (D) due to observed price changes (August 2021 – January 2023 relative to the 18 months prior), excl. policy support and behavioural responses.

Source: EMPL-JRC GD-AMEDI/AMEDI+ projects, based on Household Budget Survey 2015 and Eurostat inflation data for CP0451 and CP0452.

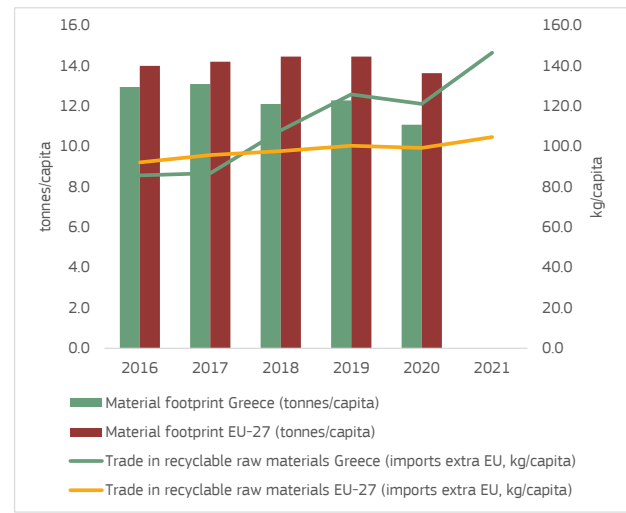
The circular economy transition is key to delivering on the EU’s climate and environmental goals and provides large socio-economic benefits. It spurs job growth, innovation and competitiveness and fosters resilience and resource security. The circularity transition of industry, the built environment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

Greece’s circular economy transition is insufficient and needs accelerating to meet the EU’s circular economy goals. The EU’s new circular economy action plan (CEAP) aims at doubling circular material use by 2030 vs 2020. Greece’s circular material use stood at 2.3% in 2016 and at 3.4% in 2021, far below the EU average of 11.7% despite the increase in recent years. The CEAP also aims to significantly decrease the EU’s material footprint. Greece’s material footprint (11.1%) was below the 2020 EU-27 average (13.7%). The labour market benefits of the circular transition remain limited, with a decrease in terms of direct circular jobs since 2016. As regards health and safety in circular jobs, fatal accidents in waste management and materials recovery are above the average of all economic sectors but below the EU average in Greece ⁽⁷⁸⁾.

Greece recently adopted new policies to address circular economy challenges, but more measures are needed. In November 2021 Greece approved its national circular economy action plan (CEAP) for the implementation period 2021-2025, with a corresponding roadmap approved by the Council of Ministers. Greece’s new national waste management plan (2020) and the regional waste management plans are currently under revision. The Greek RRP includes reforms aiming at setting up a national waste regulatory authority; reforming the regional and local waste management bodies; introducing sound costing and pricing policies in line with the ‘pay as you throw’ and ‘polluter pays’ principles; and establishing a Water Regulatory Authority,

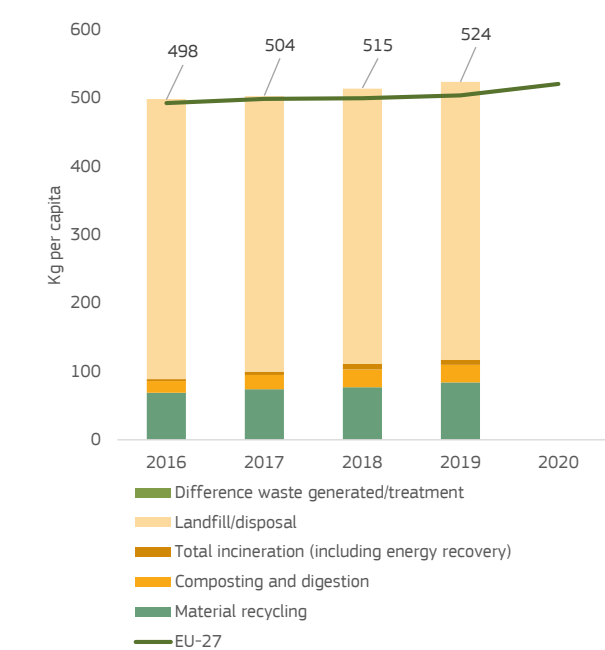
responsible for the rational management of water resources.

Graph A9.1: Trend in material use



Source: Eurostat

Graph A9.2: Treatment of municipal waste



Source: Eurostat; 2020 data unavailable

The treatment of municipal waste has been progressing at a slow pace since 2016. Greece missed the EU target for recycling 50% of municipal waste by 2020. Greece is at risk of missing the 2025 recycling targets both for municipal and for packaging waste. 77.7% of Greece’s municipal waste was still landfilled in 2019, significantly more than the EU average

⁽⁷⁸⁾ Eurostat [HSW_N2_02] for NACE Rev. 2 sector E38; 2.88 fatal accidents p. 100 000 employed in 2018-2020 vs 0.92 for all sectors in EL; 6.33 in the EU-27 for sector E38



(23% in 2019). Illegal or sub-standard landfilling is still widespread.

The industrial system is increasingly circular.

The economy, particularly industry, is close to reaching the EU average with a resource productivity of 2.1 purchasing power standard per kilogramme vs 2.3 for the EU, steadily increasing Greece's resilience (see Annex 5). There is still significant potential to boost repair, reuse and the use of secondary raw materials, particularly taking into account that Greece's recyclable material import dependency is almost twice as high as the EU average (43.4 vs 22.9 in 2021). Existing policies provide positive examples and need to be scaled up. The new national circular economy action plan aims at increasing the environmental performance of industrial processes and industrial symbiosis. Legislative measures have been introduced to promote the circularity of products, especially plastics (Laws 4736/2020 and 4819/2021).

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

The recovery rate of construction and demolition waste has increased since 2016 and is above the EU average (100% vs 89%). While Greece's recovery and resilience plan focuses on energy efficiency in residential buildings, there is scope for renovating existing buildings and improving their use instead

of building new ones, as well as increasing the share of secondary raw materials in construction.

The agri-food system has yet to design out food waste and efficiently manage water resources.

Greece's composting and anaerobic digestion per head has increased since 2016 but remained well below the EU average in 2019 (last data available) at 26 kg per head vs 100 kg for the EU-27 in 2021. Several initiatives of the national CEAP are being implemented to advance circularity at the national level, such as drafting a food-waste prevention programme as part of the 2030 national waste prevention programme.

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 472 million per year between 2014 and 2020. Over this period, investment needs were estimated to be at least EUR 977 million per year, while investment baselines were EUR 505 million per year (see Annex 6). Greece is already using funds from the ERDF, but further investments are needed, including from the national budget. The new waste management law provides for the introduction of a landfill tax, the proceeds of which will be used for recycling projects, but the enforcement of the tax faces delays and its implementation is at risk.

Table A9.1: Overall and systemic indicators on circularity

AREA	2016	2017	2018	2019	2020	2021	EU-27	Latest year EU-27
Overall state of the circular economy								
Material footprint (tonnes/capita)	13.0	13.1	12.1	12.3	11.1	-	13.7	2020
YoY growth in persons employed in the circular economy (%) ¹	12.7	-6.0	4.2	-2.0	-	-	2.9	2019
Water exploitation index plus (WEI+) (%)	14.8	19.6	11.8	13.3	-	-	3.6	2019
Industry								
Resource productivity (purchasing power standard (PPS) per kilogram)	1.5	1.6	1.6	1.8	1.9	2.1	2.3	2021
Circular material use rate (%) ²	2.3	2.8	3.3	4.1	4.4	3.4	11.7	2021
Recycling rate (% of municipal waste)	17.2	18.9	20.1	21.0	-	-	49.6	2021
Built environment								
Recovery rate from construction and demolition waste (%) ³	88.0	-	97.0	-	100.0	-	89.0	2020
Soil sealing index (base year = 2006) ⁴	103.7	-	109.5	-	-	-	108.3	2018
Agri-food								
Food waste (kg per capita) ⁵	-	-	-	-	191.0	-	131.0	2020
Composting and digestion (kg per capita)	17.0	21.0	26.0	26.0	-	-	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

to be fully equivalent to paper documents for any legal use within the Greek territory, but not cross-border. Greece has not yet notified an electronic identification (eID) scheme under the eIDAS Regulation. In terms of access to electronic health records, Greece scores below the EU average in the composite indicator. In 2022, a mobile application, Myhealth, has been released, but although 80-100% of citizens can already access the online service to their health data, the scope of data accessible is somewhat limited.

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

	Greece			EU	Digital Decade target by 2030 (EU)
	DESI 2021	DESI 2022	DESI 2023	DESI 2023	
Digital skills					
At least basic digital skills	NA	52%	52%	54%	80%
% individuals		2021	2021	2021	2030
ICT specialists ⁽¹⁾	2.1%	2.4%	2.4%	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	10%	20%	28%	73%	100%
% households	2020	2021	2022	2022	2030
Fibre to the Premises (FTTP) coverage ⁽²⁾	10%	20%	28%	56%	-
% households	2020	2021	2022	2022	2030
Overall 5G coverage	0%	66%	86%	81%	100%
% populated areas	2020	2021	2022	2022	2030
5G coverage on the 3.4-3.8 GHz spectrum band	NA	NA	37%	41%	-
% populated areas			2022	2022	2030
Digitalisation of businesses					
SMEs with at least a basic level of digital intensity	NA	NA	41%	69%	90%
% SMEs			2022	2022	2030
Big data ⁽³⁾	13%	13%	13%	14%	75%
% enterprises	2020	2020	2020	2020	2030
Cloud ⁽³⁾	NA	15%	15%	34%	75%
% enterprises		2021	2021	2021	2030
Artificial Intelligence ⁽³⁾	NA	3%	3%	8%	75%
% enterprises		2021	2021	2021	2030
Digitalisation of public services					
Digital public services for citizens	NA	52	65	77	100
Score (0 to 100)		2021	2022	2022	2030
Digital public services for businesses	NA	48	74	84	100
Score (0 to 100)		2021	2022	2022	2030
Access to e-health records	NA	NA	60	71	100
Score (0 to 100)			2023	2023	2030

(1) The 20 million target represents about 10% of total employment.

(2) The Fibre to the Premises coverage indicator is included separately as its evaluation will also be monitored separately and taken into consideration when interpreting VHCN coverage data in the Digital Decade.

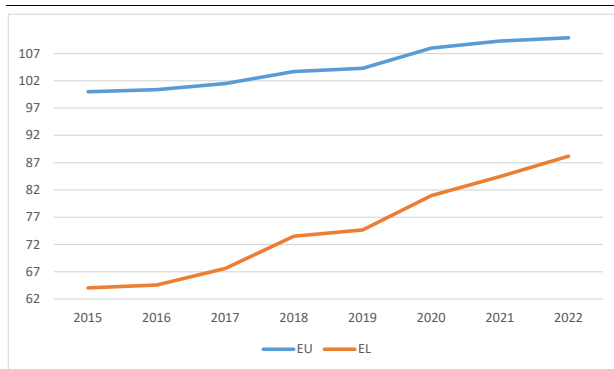
(3) At least 75 % of Union enterprises have taken up one or more of the following, in line with their business operations: (i) cloud computing services; (ii) big data; (iii) artificial intelligence.

Source: Digital Economy and Society Index

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

Greece is a 'moderate innovation performer' with continuous performance improvement and a clear upward trend. According to the 2022 edition of the European Innovation Scoreboard⁽⁸³⁾, the country's overall performance is slightly better than in 2021. It is still below the EU average (89.7%), but the gap is shrinking.

Graph A11.1: Innovation performance 2015-2022



Source: European Innovation Scoreboard, 2022

R&D intensity⁽⁸⁴⁾ was 1.45% in 2021, significantly below the European average (2.26%)⁽⁸⁵⁾. A major driver behind the upward trend in R&D intensity in recent years (9.5% compound annual growth rate from 2010 to 2020), has been the strong increases in public R&D expenditure (0.76% of GDP in 2021, which is also the EU average). However, while R&D accounts for an increasing share of private investment, its share continues to lag markedly behind the EU average (0.69%, compared to the EU average of 1.49% in 2021). The Greek recovery and resilience plan (RRP) aims to increase public and private research and innovation (R&I) investment through, for example, investment in research centre infrastructure and in basic and applied research. However, ensuring the long-term

⁽⁸³⁾ 2022 European Innovation Scoreboard, Country profile: Greece https://ec.europa.eu/assets/rtd/eis/2022/ec_rtd_eis-country-profile-el.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).

⁽⁸⁴⁾ Defined as gross domestic expenditure on R&D as a percentage of GDP

⁽⁸⁵⁾ European benchmark target for R&D intensity: 3%.

sustainability of these investments is a key challenge⁽⁸⁶⁾.

Improvements in a number of areas would help the Greek economy to fulfil its technological and innovation potential. Greek firms have tended to gravitate towards low-knowledge-intensive activities and to have limited capacity to absorb innovative and technological advances. These are the main factors that have hampered or severely limited demand for specialised knowledge⁽⁸⁷⁾. Greek small and medium-sized enterprises' (SMEs') expenditure on R&D (BERD) as a percentage of GDP (0.26% for 2020) is somewhat below the EU average (0.34%). Venture capital availability (0.021%) is also on the low side and below the EU average (0.074% in 2021). This is also reflected in terms of innovation outputs, with 0.6 patent applications per billion GDP compared to the EU average of 3.5 (for 2019), pointing to weaknesses with commercialisation. The RRP includes investment to address innovation uptake, for example by supporting applied research projects and SMEs awarded with the Horizon 2020 'Seal of Excellence' quality label.

Cooperation between public research bodies and the private sector is insufficient to effectively support knowledge and technology transfer. The number of public-private scientific co-publications as a percentage of total publications was, at 8.1%, above the EU average (7.1%) in 2021, but still ranks Greece 17th amongst Member States. Also, public expenditure on R&D financed by business enterprise (5.12% of total public expenditure of R&D in 2020) is lagging behind the EU average (7.45%). In the 2014-2020 programming period, the cohesion policy invested EUR 606.5 million under the 'research-create-innovate' scheme, aimed at strengthening the link between the public science sector and businesses. In the 2021-2027 programming period, this scheme will continue, with an expected investment of some EUR 376 million, complemented by investment from the RRP.

⁽⁸⁶⁾ Particularly considering that total Recovery and Resilience Facility funding for R&I amounted to 93% of Greece's public R&D expenditure in 2020.

⁽⁸⁷⁾ http://www.gsrt.gr/Financing/Files/ProPeFiles15/Final_Study_InnoBarriers_September_2020.pdf.

Strong regional inequalities in research performance affect the diffusion of innovation. The distribution of national R&D expenditure across the Greek regions is uneven, with a high concentration in Attiki, which accounts for 61.1% of spending. This is much higher than the second-highest region, Kentriki Makedonia, with 12.1% of national expenditure. Most of the remaining 11 regions have shares below 4% ⁽⁸⁸⁾. Institutions from Attiki also account for the biggest proportion of scientific publications in each region and in the country as a whole (53.1% of the total), followed by institutions based in Kentriki Makedonia (22.0%).

Investment under the RRP supports higher R&I uptake, but addressing the regional disparity remains a key challenge. To this end, the cohesion policy will assist Greece to redress the main regional imbalances, prioritising investment in sectors with regional competitive advantages, identified in the process of entrepreneurial discovery (EDP) in every region.

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

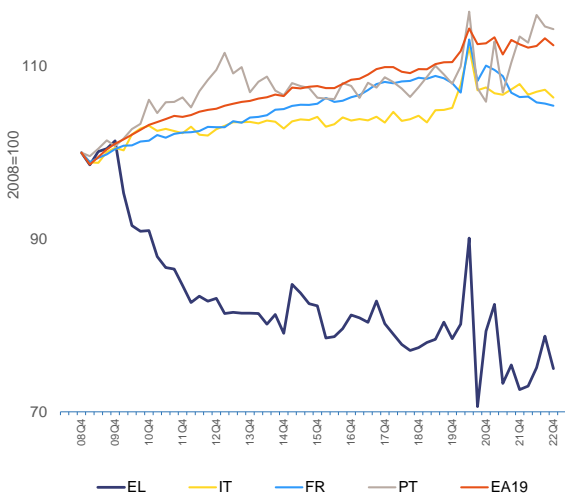
Greece	2010	2015	2019	2020	2021	EU average (1)
Key indicators						
R&D intensity (GERD as % of GDP)	0.60	0.97	1.28	1.51	1.45	2.26
Public expenditure on R&D as % of GDP	0.36	0.64	0.68	0.80	0.76	0.76
Business enterprise expenditure on R&D (BERD) as % of GDP	0.24	0.32	0.59	0.70	0.69	1.49
Business enterprise expenditure on R&D (BERD) performed by SMEs as % of GDP	:	0.11	0.21	0.26	:	0.34
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	8.5	9.0	8.9	:	:	9.8
Patent Cooperation Treaty patent applications per billion GDP (in PPS)	0.4	0.5	0.6	:	:	3.5
Academia-business cooperation						
Public-private scientific co-publications as % of total publications	5.3	7.0	8.4	8.5	8.1	7.1
Public expenditure on R&D financed by business enterprise (national) as % of GDP	:	0.040	0.041	0.041	:	0.054
Public expenditure on R&D financed by business enterprise (national) as % of total public expenditure on R&D	:	6.26	6.0	5.12	:	7.45
Human capital and skills availability						
New graduates in science & engineering per thousand pop. aged 25-34	10.9	13.4	14.4	14.2	:	16.0
Public support for business enterprise expenditure on R&D (BERD)						
Total public sector support for BERD as % of GDP	:	0.049	0.085	:	:	0.194
R&D tax incentives: foregone revenues as % of GDP	0.003	0.005	0.008	:	:	0.100
Green innovation						
Share of environment-related patents in total patent applications filed under the Patent Cooperation Treaty (%)	20.3	11.2	8.1	:	:	13.3
Finance for innovation and economic renewal						
Venture capital (market statistics) as % of GDP	0.008	0.010	0.013	0.015	0.021	0.074
Employment in fast-growing enterprises in 50% most innovative sectors	5.7	5.7	7.5	:	:	5.5

(1) EU average for the latest available year or the year with the highest number of country data

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

Greece’s labour productivity recovered faster than EU average, but productivity remains one of the lowest of the EU. GDP growth was of 8.4% in 2021 against 5.4% for the EU⁽⁸⁹⁾ and is estimated to have increased by 5.9% in 2022 (compared to 3.5% for the EU). Performance varied at sectoral level, with construction exhibiting the strongest rebound between 2021 and 2022, whilst industry productivity declined over the said period, as shown in graph A12.2. However, despite the high percentage of the Greek population with a tertiary education level⁽⁹⁰⁾, Greece’s productivity still only makes up 68.6% of EU average, placing the country on the lower half of performers (see graph A12.1). Ineffective labour market regulation, labour skills mismatches (see annex 14), low government effectiveness⁽⁹¹⁾ and, an insufficient level of digitalisation in both public administration and businesses negatively weigh on labour productivity (see annexes 10 and 13).

Graph A12.1: Labour productivity, whole economy



Source: European Commission, AMECO

The increase in industry products’ prices⁽⁹²⁾ induced by the supply chain disruptions and rises in energy prices is impacting net investment. Greece’s investment-to-GDP reached

⁽⁸⁹⁾ EC Spring 2023 forecast

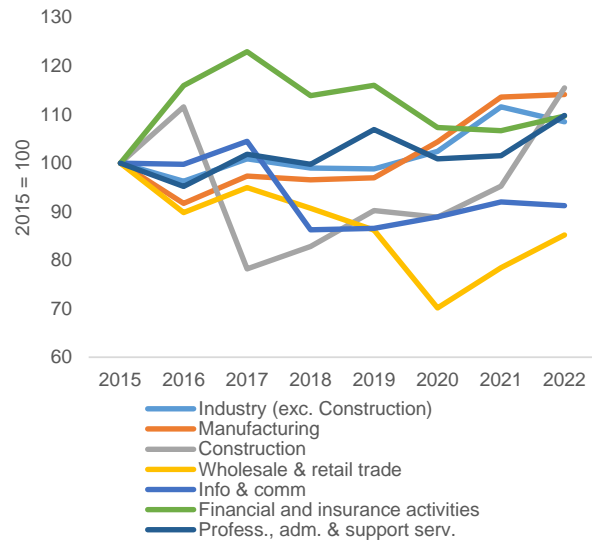
⁽⁹⁰⁾ [Population by educational attainment level, sex and NUTS 2 regions \(%\) \[EDAT_LFSE_04_custom_4425865\]](#)

⁽⁹¹⁾ Greece ranks 55th in the latest IMD report 2022 regarding government efficiency.

⁽⁹²⁾ [Producer prices in industry, total - monthly data \[STS_INPP_M_custom_4422681\]](#)

13.7% in 2022, but still remains the lowest in the EU. Net public investment is less affected, in part due to the implementation of investments under the recovery and resilience plan (RRP). (See graph A12.3).

Graph A12.2: Labour productivity by sectors



Source: Eurostat

Greece’s energy mix is still dependent on fossil fuels (82% in 2022)⁽⁹³⁾, but development of renewable energy resources is above average. Following the war in Ukraine, and the energy crisis, postponement of the lignite withdrawal plan was allowed in order to help the energy intensive industries face the huge increases in gas prices and its possible scarcity. While the potential of renewables in Greece is important, investment in R&D, still weak (Table A11.1), appears as a crucial element to boost the decarbonisation of industry. (See annexes 6 and 7). 37.5% of the RRP is dedicated to measures supporting climate objectives.

Greece could further benefit from the advantages of the Single Market. Greece is one of the EU countries that is least integrated into the Single Market, with average intra-EU imports and average intra-EU exports representing only 22.7% of GDP in 2021 (against an EU average of 45.8%). The Single Market Scoreboard indicates scope for improvement⁽⁹⁴⁾. The capacity of the Greek public administration to apply EU

⁽⁹³⁾ [Total energy supply by sources, IEA](#)

⁽⁹⁴⁾ Single Market Scoreboard 2022.

rules on the Single Market could be improved by staffing the national SOLVIT centre sufficiently.

Greece is making significant efforts to improve the public procurement system, though these have yet to bear fruit. Greece continues to underperform in public procurement compared to EU peers. In 2022, 85% of public procurement procedures were awarded based on the cheapest available offer and Greece had the longest award decision-making period in the EU. Also, the number of single-bid procedures remains high and increased in recent years (48% of contracts awarded in 2022, vs 40% in 2021). Further efforts to increase competition and improve data quality would benefit EU-funded projects and public investment budget. Greece is expected to benefit from relevant RRP investment and reforms, including the professionalisation of staff involved in public contracts, improvements in the digital tools for public procurement processes and the implementation of a recently adopted new national public procurement strategy.

The Greek regulatory environment can be further improved to facilitate business activity. While the requirements for setting up a business are among the least-stringent in Europe ⁽⁹⁵⁾, the subsequent regulations and market barriers make it difficult for Greek firms to develop and expand. 58.4% of firms report business regulation as major obstacle, which is well above the EU average (28%). Greek legislation is drafted in a complex way and there is no online provision of consolidated legislation for the citizens. Legislation planning, however, is now published on a yearly basis (see annex 13). Having said that, Greece has recently adopted legislation to incentivise business scale-ups in the framework of the RRP, and plans to further reform licensing legislation for economic activities.

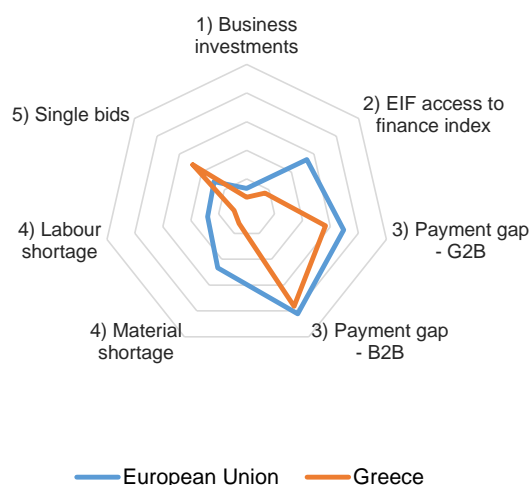
Access to finance remains difficult for businesses, in particular small- and medium-sized enterprises (SMEs). Both EIF loan and equity access to finance indexes for Greece are well below EU average (see table below). For 24% of SMEs, their loan was refused or rejected (well above EU average) while for 57% of the SMEs surveyed ⁽⁹⁶⁾, grants or subsidised loans are the

⁽⁹⁵⁾ OECD, [2018 Product Market Regulation Country Note: Greece by OECD - Issuu](#)

⁽⁹⁶⁾ SAFE survey

most relevant source of financing. Greece made substantial use of the temporary state aid framework during COVID-19. ⁽⁹⁷⁾ Some Reforms under the RRP aim at facilitating access to finance, but measurements of their impact are yet to come, (see also annex 18).

Graph A12.3: **Business 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 persistence of late payments weighs negatively on business liquidity. In 2021, 52% of Greek companies declared that they experienced problems due to late payments from private or public bodies in the past six months, versus the EU average of 43% ⁽⁹⁸⁾.

Access to and exercise of certain regulated professions is still restricted, which may be detrimental to a dynamic business environment. Specifically, architects, civil engineers, patent agents, tourist guides, lawyers and accountants are more regulated than the EU average ⁽⁹⁹⁾. Lawyers in Greece are subject to restrictions concerning the legal form of their

⁽⁹⁷⁾ https://competition-policy.ec.europa.eu/state-aid/coronavirus/temporary-framework_en

⁽⁹⁸⁾ [Data and surveys - SAFE \(europa.eu\)](#)

⁽⁹⁹⁾ [Communication on updating the reform recommendations for regulation in professional services, COM\(2021\)385.](#)

Table A12.1: Industry and the Single Market

POLICY AREA		INDICATOR NAME	2018	2019	2020	2021	2022	EU27 average (*)
HEADLINE INDICATORS	Economic Structure	Net private investment, level of private capital stock, net of depreciation, % GDP ⁽¹⁾	-3.7	-2.9	-3.2	-1.3	-0.1	3.7
		Net public investment, level of public capital stock, net of depreciation, % GDP ⁽¹⁾	-0.5	-1.1	-0.8	0	0.3	0.4
		Real labour productivity per person in industry (% yoy) ⁽²⁾	-1.9	-0.2	3.7	8.9	-2.8	1.4
	Cost competitiveness	Nominal unit labour cost in industry (% yoy) ⁽²⁾	-2.6	2.5	-5.5	-5.4	5.4	2.9
RESILIENCE	Shortages	Material shortage (industry), firms facing constraints, % ⁽³⁾	8	6	5	9	12	47
		Labour shortage using survey data (industry), firms facing constraints, % ⁽³⁾	2	4	4	6	9	28
		Vacancy rate (business economy) ⁽⁴⁾	0.8	0.7	0.4	0.7	1.3	3.1
	Strategic dependencies	Concentration in selected raw materials, Import concentration index based on a basket of critical raw materials ⁽⁵⁾	0.13	0.13	0.13	0.13	0.12	0.18
		Installed renewables electricity capacity, % of total electricity produced ⁽⁶⁾	47	49.4	53.5	61.3	n.a.	50.8
SINGLE MARKET	Single Market integration	EU trade integration, % ⁽⁷⁾	17.4	17.8	16.4	20.2	22.7	45.8
	Restrictions	EEA Services Trade Restrictiveness Index ⁽⁸⁾	0.05	0.05	0.05	0.05	0.05	0.05
	Public procurement	Single bids, % of total contractors ⁽⁹⁾	33	40	42	40	48	29
BUSINESS ENVIRONMENT - SMEs	Investment obstacles	Impact of regulation on long-term investment, % of firms reporting business regulation as major obstacle ⁽¹⁰⁾	78.7	86.3	59.3	58.4	70.6	29.6
	Business demography	Bankruptcies, Index (2015=100) ⁽¹¹⁾	n.a.	n.a.	n.a.	n.a.	n.a.	86.8
		Business registrations, Index (2015=100) ⁽¹¹⁾	n.a.	n.a.	n.a.	n.a.	n.a.	121.2
	Late payments	Payment gap - corporates B2B, difference in days between offered and actual payment ⁽¹²⁾	-1	19	17	13	13	13
		Payment gap - public sector, difference in days between offered and actual payment ⁽¹²⁾	8	35	16	12	13	15
		Share of SMEs experiencing late payments in past 6 months, % ⁽¹³⁾	n.a.	62	63.6	54.9	52.3	43
	Access to finance	EIF Access to finance index - Loan, Composite: SME external financing over last 6 months, index values between 0 and 1 ⁽¹⁴⁾	0.24	0.21	0.2	0.13	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⁾		0.25	0.08	0.09	0.12	n.a.	0.23	

(*) last available year

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

business, whilst it is considered incompatible for a lawyer to engage in certain other activities. This could affect the potential of this sector to innovate and roll out digital solutions and new business models. As regards civil engineers, different categories of activity exist and additional authorisation is required to undertake public works or studies. Such restrictions, impacts the efficiency of service provision. A more proportional approach to regulation for such professions would make the respective sectors more competitive.

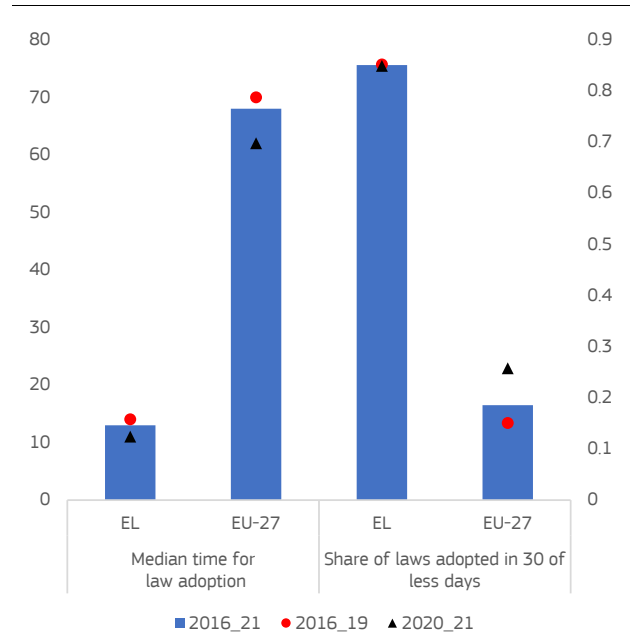
This Annex outlines the performance of Greece’s public administration, which is essential for providing services and carrying out reforms. Overall, Greece’s administrative effectiveness ranks below the EU-27 average ⁽¹⁰⁰⁾. Greece has launched key reforms under its recovery and resilience plan that are aimed at resolving long-standing issues, such as (i) streamlining the allocation of responsibilities between the different levels of government; (ii) introducing strategic workforce planning; (iii) modernising hiring procedures; (iv) reskilling and upskilling the workforce in the public sector; (v) introducing a reward system for public entities and civil servants.

The Greek public administration has a good age and higher education profile. However, participation in adult learning is well below the EU average. In 2022, gender parity in senior administrative positions was below the EU-27 average (Table A13.1). In June 2022, a law on human resources management in the Greek public sector was adopted. It provides for: (i) a new skills framework for all public servants; (ii) a new system for setting objectives for administrative units and employees; (iii) a new self-assessment framework common to all public services to analyse their operation and performance; (iv) financial bonuses for public servants in selected public services. Based on the new skills framework, the Greek authorities have streamlined the job classification system, leading to 550 different job classifications, down from approximately 2700. The streamlining was accompanied by assigning specific skills to each job classification, thus contributing to a more targeted hiring of public servants. Lastly, in March 2023 the authorities applied for the first time the new selection process of public servants set out by law 4765/2021, based on knowledge, skills and efficiency tests.

Greece has made considerable progress in regulatory management since adopting legislation on improving regulation in 2019 ⁽¹⁰¹⁾. Since 2021, legislative planning takes place on a yearly basis through the publication of the Consolidated Government Policy Plan in December, upon approval by the Ministerial Council. In addition, *ex ante* regulatory impact

assessments are carried out when primary laws are produced. Specific steps have been taken to improve the capacity for *ex post* evaluations. Despite this progress, Greece is still below the EU average on stakeholder consultation and *ex post* evaluation of both primary and secondary legislation ⁽¹⁰²⁾. In general, the Greek Parliament adopts legislation quite rapidly following their introduction to the Parliament. Unlike in other EU countries, the COVID-19 pandemic led to no increase in the use of urgent legislative procedures (Graph A13.1). Overall, some steps have been taken to improve the quality of law making, including the establishment of a committee assessing the quality of draft bills before they are tabled in Parliament. In addition, the new job classification of “legal drafters” to be appointed in each ministry is expected to contribute to further improvement of the quality of law.

Graph A13.1: Greece. Median time for the adoption of laws, and share of laws adopted in 30 days or less



Source: European Commission based on national parliament’s websites

Greece is less advanced than most other Member States in the provision of open data (Graph A13.2). Over the past 3 years, Greece’s performance in the open government data indicator has deteriorated and now ranks among the bottom 20% of countries. Against this

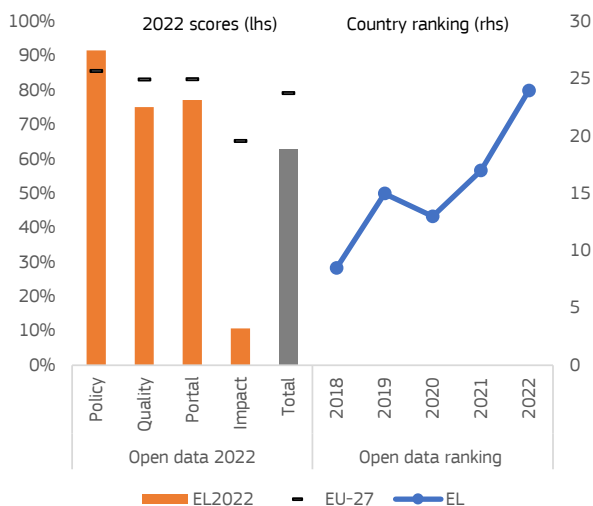
⁽¹⁰⁰⁾Worldwide Governance Indicators, 2021 data.

⁽¹⁰¹⁾Law 4622/2019

⁽¹⁰²⁾OECD, Better Regulation Practices across the European Union 2022

backdrop, the recovery and resilience plan targets the completion of the data governance strategy by the 4th quarter of 2025.

Graph A13.2: **Open government data maturity indicator: 2022 scores (% of the total maximum score) (lhs); country ranking, overall score (rhs)**



(1) right hand side chart: low values denote a good performance.

Source: Open Data Maturity | data.europa.eu

The justice system continues to face challenges as regards its overall efficiency.

The time it takes to resolve litigious civil disputes in first instance has continued to increase, to 728 days in 2021 compared to 637 days in 2019 (no data are available for 2020). The recovery and resilience plan includes reforms to accelerate the administration of justice including by revising the judicial map and setting up a temporary bonus system for judicial clerks. It also includes reforms to increase the digital transformation of justice (E-justice), where considerable improvements are needed, although certain digital tools are already used in courts. No systemic deficiencies in judicial independence have been reported ⁽¹⁰³⁾.

⁽¹⁰³⁾For a more detailed analysis of the performance of the justice system in Greece, see the 2023 [EU Justice Scoreboard](#) (forthcoming) and the country chapter for Greece in the 2023 [Rule of Law Report](#) (forthcoming).

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

EL 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 (%)	67.2	67.8	68.2	67.3	69.5	n/a	64.8
2 E-government benchmark overall score (³)	n/a	n/a	n/a	52.2	52.3	60.4	72.9
3 Open data and portal maturity index	n/a	0.7	0.7	0.9	0.8	0.6	0.8
Educational attainment level, adult learning, gender parity and ageing							
4 Share of public administration employees with tertiary education (levels 5-8, %)	53.1	55.2	53.0	53.1	52.5 (b)	53.7	52.0
5 Participation rate of public administration employees in adult learning (%)	5.9	6.2	4.3	4.4	3.2 (b)	2.5	16.9
6 Gender parity in senior civil service positions (⁴)	2.8	4.8	4.8	7.6	12.8	15.8	11.0
7 Ratio of 25-49 to 50-64 year olds in NACE sector O	2.8	2.5	2.0	1.9	1.8 (b)	1.7	1.5
Public financial management							
8 Medium term budgetary framework index	0.9	0.9	0.9	0.9	0.9	n/a	0.7
9 Strength of fiscal rules index	0.7	0.7	0.9	0.9	0.9	n/a	1.5
Evidence-based policy making							
10 Regulatory governance	0.98	n/a	n/a	n/a	1.25	n/a	1.7

(¹) High values denote a good performance, except for indicator # 6. (²) 2022 value. If not available, the 2021 value is shown.

(³) Measures the user centricity (including for cross-border services) and transparency of digital public services as well as the existence of key enablers for the provision of those services. (⁴) Defined as the absolute value of the difference between the percentage of men and women in senior civil service positions.

Flags: (b) break in time series; (d) definition differs; (u) low reliability.

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

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

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

The labour market continued to recover from the COVID-19 crisis, although significant challenges persist, particularly for women, young people, and vulnerable groups. In response to the economic recovery, the employment rate (66.8% in Q4-2022) is now 5.5 percentage points (pps) above its pre-pandemic level but remains among the lowest in the EU. The unemployment rate decreased in late 2020 and 2021, reaching 11.8% in Q4-2022, which is a 12-year low. The long-term unemployment rate remains one of the highest in the EU (7.7% in 2021 vs 2.4%), disproportionately affecting women (10.5%). The gender employment gap is among the largest at 21 pps in 2022. In 2021, Greece had the highest unemployment rate in rural areas (15.2%), with women being disproportionately affected (19.3% vs 12.5% of men). Moreover, the share of young people not in employment, education, and training, 15.4% in 2022, remained higher than the EU average (11.7%). In 2022, youth unemployment was among the highest in the EU (31.4% vs 14.5%). There is room to make outreach measures and active labour market policies more effective. The disability employment gap was also slightly above the EU average (23.8 pps in 2021 vs 23.1 pps), and persons with disabilities find it difficult to access training. Involuntary part-time employment also remained high (49.4% in 2022), with 21% of those concerned experiencing in-work poverty.

Efforts to strengthen active labour market policies and public employment services are key to fostering labour market participation. Targeted employment subsidies and other activation measures are critical to strengthening employment. The potential of the social economy is also still untapped, and there is scope for getting social partners more involved in policy design and implementation. Efforts in all these areas can support progress towards the national employment rate target of 71.1% by 2030.

Table A14.1: Social Scoreboard for Greece

Policy area	Headline indicator	
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24, 2022)	4.1
	Share of individuals who have basic or above basic overall digital skills (% of population aged 16-74, 2021)	52.48
	Youth NEET rate (% of population aged 15-29, 2022)	15.4
	Gender employment gap (percentage points, 2022)	21
Dynamic labour markets and fair working conditions	Income quintile ratio (S80/S20, 2021)	5.79
	Employment rate (% of population aged 20-64, 2022)	66.3
	Unemployment rate (% of active population aged 15-74, 2022)	12.5
	Long term unemployment (% of active population aged 15-74, 2022)	7.7
Social protection and inclusion	GDHI per capita growth (2008=100, 2021)	79.32
	At risk of poverty or social exclusion rate (% of total population, 2021)	28.3
	At risk of poverty or social exclusion rate for children (% of population aged 0-17, 2021)	32
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP, 2021)	20.65
	Disability employment gap (percentage points, 2021)	23.8
	Housing cost overburden (% of total population, 2021)	28.8
	Children aged less than 3 years in formal childcare (% of population under 3-years-old, 2021)	32.3
	Self-reported unmet need for medical care (% of population 16+, 2021)	6.4

(1) 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; NEET: neither in employment nor in education and training; GDHI: gross disposable household income.

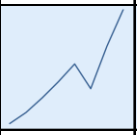

Source: Eurostat

Skills mismatches remain high, and the skills supply still has to better meet the labour market’s needs. The employment rate of recent graduates (60.1% in 2021) is lower than the overall employment rate, which suggests school-to-work transition challenges. While the job vacancy rate is relatively low in Greece compared to the EU average (1.0% vs 2.9% in Q4-2022), sectors such as trade, transport and accommodation have difficulties in filling certain vacancies. The share of individuals having at least basic digital skills stood at 52.5% in 2021, slightly below the EU average (54%). Vocational education and training remain an unattractive option for upper-secondary students; only 31.9% of pupils were enrolled in upper-secondary vocational education in 2020. In addition, 3.5% of adults participated in learning over the past 4 weeks in 2021 (vs 10.8% in the EU). With the support from



the ESF+ and the RRF, the planned reform of adult learning can improve the quality and take-up of up- and reskilling programmes and contribute to achieving the national target of 40% of all adults participating in education, training, and learning every year by 2030. The implementation of a comprehensive skills forecasting system using the upgraded labour market diagnosis mechanism, coupled with curricula relevant to the labour market can improve employment outcomes (see Annex 15).

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

Indicators	Latest data	Trend (2015-2022)	National target by 2030	EU target by 2030
Employment (%)	66.3 (2022)		71	78
Adult learning ¹ (%)	16.0 (2016)		40	60
Poverty reduction ² (thousands)	-88 (2021)		-860	-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. Base values are 2019 for employment rate, 2016 for adult participation in learning, and the reference year for AROPE is 2019. Latest values are 2021 for employment rate (annual), 2016 for adult participation, and 2021 for AROPE. AROPE reduction does not include population projections.

Source: Eurostat, DG EMPL

Despite improvements, the risk of poverty in 2021 remains high in Greece, and children are disproportionately affected. The share of people at risk of poverty or social exclusion stood at 28.3% in 2021, 0.9 pps higher than in 2020 and well above the EU average (21.7%). In 2021, the share of the population affected by energy poverty (17.5%) and excessive housing costs (28.8%) was among the highest in the EU (see Annex 8). The proportion of children experiencing poverty peaked in 2021, with almost one in three children affected. The share of children experiencing severe material and social deprivation (16.1% in 2021) was also high. Territorial disparities are large, with people living in insular, rural, and sparsely populated areas heavily affected by poverty risks (see Annex 17). The ESF+ and RRF will provide substantial funding to tackle child poverty and reform child protection services. Further efforts to strengthen social policy are key to achieving, by 2030, the national target of lifting 860 000 people

out of poverty and social exclusion and the complementary child poverty target of 24.2%.

There is room to improve the capacity of the social benefits system to reduce poverty and inequalities in Greece. The impact of social transfers (excluding pensions) on reducing poverty decreased from 24.7% in 2020 to 20.6% in 2021 (vs 37.1% in the EU). In 2021, the income share of the richest 20% of the population was 5.8 times that of the poorest 20%, which is among the highest in the EU. The adequacy of the minimum income scheme is below the EU average, and gaps persist in access to social protection for non-standard workers, notably the self-employed (26.8% of the working-age population in 2021), non-EU-born people and Roma. The social benefit recipients' rate was 66% among people living in very low work-intensity households and below the poverty line, while it stood at 82% in the EU. In-work poverty increased to 11.3% in 2021, which is above the EU average of 8.9%.

The scope of social, healthcare, and long-term care services to improve the situation of vulnerable groups is limited. The deinstitutionalisation process for children and persons with disabilities saw little progress in 2021. Coordinated action at national and regional levels is key to coupling the implementation of substantial funding with effective social reforms. Adverse demographic trends and the estimated increase in the old-age dependency ratio (from 34.6% in 2019 to 41.9% in 2030) highlight the need for making more long-term care services available. Public expenditure on long-term care in Greece is considerably lower than the EU average (0.14% versus 1.81% of GDP in 2020). The governance system for long-term care is fragmented, and there is no strategy or comprehensive mapping of needs. The system relies primarily on informal family carers, with nearly three out of ten adults in Greece providing informal care at least once a week⁽¹⁰⁴⁾. Rural areas are much worst off in terms of distance to healthcare facilities (32 km) than cities (4 km) and towns and suburbs (19 km). Albeit decreasing, self-reported unmet needs for medical care persist (see Annex 16).

⁽¹⁰⁴⁾Source: European Commission (2021), [Study on exploring the incidence and costs of informal long-term care in the EU](#), VC/2019/0227.

This Annex outlines the main challenges for Greece'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.

Greece takes measures to address teacher shortages. Greece has qualified and committed teachers but, in 2021, more than half were above 50 years old. The government attempted to anticipate the challenge of teacher shortages by appointing, during the last 2 years, 25 000 permanent teachers for all levels of compulsory education, including for special needs education. In addition, an even higher number of substitute teachers were appointed during this period. Law 4589/2019 changed the conditions for appointing teachers. The previously obligatory exams on subject and pedagogical knowledge were abolished; the new hiring system relies solely on a credit-point system based on academic credentials, years of service and social criteria. With the new regulations, the law focuses primarily on regularising the situation of substitute teachers. Based on GDP per capita, teachers in Greece receive low salaries⁽¹⁰⁵⁾, also compared with other professionals of similar qualifications. Despite the low salaries, the teaching profession is attractive in terms of teaching hours and the low ratio of students per teaching staff (OECD). Opportunities and incentives to improve their career prospects are being gradually provided to teachers, based on law 4823/2021 on "Schools' upgrade and teachers' empowerment". Teacher evaluation, at the top of the national political agenda, is underway.

Educational outcomes are not satisfactory. Greece has the highest shares of low-performing young people in the Programme for International Student Assessment (PISA). One in five pupils do not reach a minimum level in any of the three subject areas tested (maths, reading, science). In addition, in all three subjects, the number of low-performing pupils increased between 2009 and 2018, while the share of top achievers for the same period decreased. Socio-economic status and migrant background greatly affect educational results. Almost half of students from the lowest socio-economic quartile or migrant background

lack basic reading skills compared with only one in seven students from the highest quartile. One in three disadvantaged pupils underperform in all three subjects simultaneously. Migrant children's limited access to post-secondary and tertiary education also gives cause for concern. Educational outcomes of Roma pupils lag far behind those of their peers. In order to improve educational outcomes, formative tests are being introduced in the final years of primary and lower-secondary education in the form of a programme for system-level evaluation of 12 000 pupils in Greek and mathematics.

Greece ranks last in the EU in participation in early childhood education and care (age 3+), but performs better for the 4+ age bracket.

Greece has a differentiated system of early childhood education and care (ECEC), which distinguishes non-compulsory early childhood care (ECC) for children aged 0-3 years and compulsory early childhood education (ECE) for children aged 4-5 years. Regarding ages 3+ and 4+, Greece recorded one of the best improvements⁽¹⁰⁶⁾ in the EU, with an increase of 2.5 percentage points (pps) compared with 2019. Yet, in 2020, only 71.3% of children aged 3 to the starting age of compulsory education participated in early childhood education. Most children start attending school at age 4, the age that constitutes the start of compulsory pre-primary education in Greece, fully in practice since the school year 2021/2022. Between 2019 and 2020, for those at risk of poverty or social exclusion, the participation of children aged less than 3 in formal childcare dropped in Greece by 11.5 pps. Low participation in early childhood education and care, especially of disadvantaged children under the age of 4, contributes to educational inequalities. Capacity constraints and teacher shortages are ongoing for this level of education.

The share of young individuals aged 16 to 19 with at least basic digital skills stands high in Greece⁽¹⁰⁷⁾. At 89%, against an EU-level average of 69% (DESI, 2022), Greece is among the highest performers in the EU. Digital education

⁽¹⁰⁶⁾Education and Training Monitor 2022, Volume I.

⁽¹⁰⁷⁾OECD (2021), Suarez-Alvarez, J. (2021), 'Are 15-year-olds prepared to deal with fake news and misinformation?', PISA in Focus, No 113, OECD Publishing, Paris, <https://doi.org/10.1787/6ad5395e-en>.

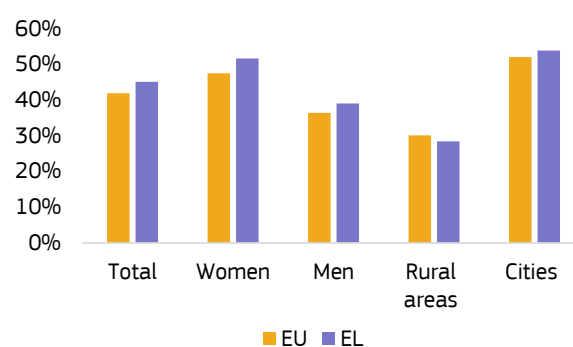
⁽¹⁰⁵⁾Eurydice, Teachers' and school heads' salaries and allowances in Europe 2019/2020.

is on track since the pandemic. However, the share of 15-year-olds being able to clearly distinguish facts from opinions when searching information on the internet is below the OECD average: 40.5% in Greece vs an OECD average of 47%. The socio-economic background of students also comes into play here. The development of digital skills is a political priority in Greece and is supported under the Greek recovery and resilience plan. Through the Recovery and Resilience Facility, students have been equipped with digital devices and their digital skills are being further improved. Teachers could also buy digital devices through vouchers distributed to all, and teacher training in digital technology is ongoing.

Tertiary education attainment is high, but a significant gender gap persists. With 45.2% of young people aged 25-34 holding a tertiary education degree, Greece is close to the EU-level target of 45% by 2030 and surpassing the EU average (42%.) However, there is a significant gender gap in favour of women (12.7 pps vs the

EU average of 11.1 pps), with 51.8% of all graduates being women. At 38.4%, the overall proportion in Greece of female graduates in science, technology, engineering and mathematics is also above the EU average of 33.2% (OECD). Participation in adult learning remains limited (see Annex 14).

Graph A15.1: Tertiary educational attainment rate (25-34), 2022



Source: Eurostat

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

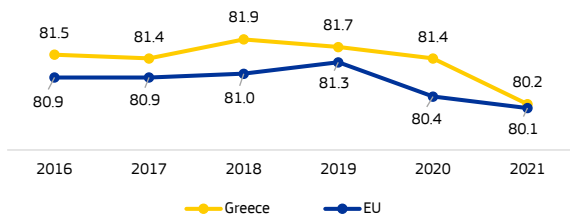
Indicator	Target	2015		2022			
		Greece	EU27	Greece	EU27		
¹ Participation in early childhood education (age 3+)	96%	63.0% ^d	91.9%	71.3% ^{2020, de}	93.0% ²⁰²⁰		
² Low achieving 15-year-olds in:	Reading	< 15%	27.3%	20.0%	30.5% ²⁰¹⁸ 22.5% ²⁰¹⁸		
	Mathematics	< 15%	35.8%	22.3%	35.8% ²⁰¹⁸ 22.9% ²⁰¹⁸		
	Science	< 15%	32.7%	21.1%	31.7% ²⁰¹⁸ 22.3% ²⁰¹⁸		
Early leavers from education and training (age 18-24)	³ Total	< 9%	7.9%	11.0%	4.1%	9.6%	
	³ By gender	Men		9.4%	12.5%	3.8%	11.1%
		Women		6.4%	9.4%	4.5%	8.0%
	⁴ By degree of urbanisation	Cities		4.7%	9.6%	3.2%	8.6%
		Rural areas		13.3%	12.2%	4.6%	10.0%
		Native		6.8%	10.0%	3.7%	8.3%
	⁵ By country of birth	EU-born		20.6%	20.7%	: ^u	20.3%
Non EU-born			24.8%	23.4%	24.1% ^u	22.1%	
⁶ Equity indicator (percentage points)		:	:	25 ²⁰¹⁸	19.3 ²⁰¹⁸		
⁷ Exposure of VET graduates to work based learning	Total	≥ 60% (2025)	:	:	35.7%	60.1%	
Tertiary educational attainment (age 25-34)	⁸ Total	45%	40.1%	36.5%	45.2%	42.0%	
	⁸ By gender	Men		34.0%	31.2%	39.1%	36.5%
		Women		46.3%	41.8%	51.8%	47.6%
	⁹ By degree of urbanisation	Cities		47.1%	46.2%	54.0%	52.2%
		Rural areas		27.1%	26.9%	28.5%	30.2%
		Native		43.6%	37.7%	47.4%	43.0%
	¹⁰ By country of birth	EU-born		14.1% ^u	32.7%	38.4%	39.5%
Non EU-born			10.1%	27.0%	14.0%	35.7%	
¹¹ Share of school teachers (ISCED 1-3) who are 50 years or over			39.1%	38.3%	52.3% ²⁰²⁰	39.2% ²⁰²⁰	

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

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

Life expectancy in Greece is above the EU average, although it has dropped significantly since 2019. This reflects the effect of COVID-19, which caused almost three times more deaths in 2021 than in 2020⁽¹⁰⁸⁾. Greece fares comparatively well in avoiding deaths from treatable causes. In 2020, the leading cause of mortality was cardiovascular diseases, but malignant neoplasms were also major contributors.

Graph A16.1: Life expectancy at birth, years



Source: Eurostat

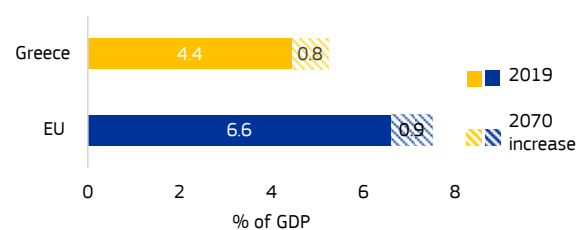
Total health spending relative to GDP in Greece was below the EU average in 2020. In 2020, total healthcare spending increased to 9.5% of GDP (EU 10.9%). This is in line with the upward trend in all Member States in 2020. In Greece, this increase is largely due to the severe GDP contraction (by 9%, compared to 5.7% in the EU overall). This is also corroborated by the fact that the share of health spending in total public spending was reduced by 6.7% between 2019 and 2020. The amounts spent per capita on inpatient care (EUR 605), pharmaceuticals (EUR 443) and outpatient care (EUR 241) are all below the EU average (EUR 863, EUR 457 and EUR 737, respectively). However, for spending on inpatient care and pharmaceuticals as a share of GDP, Greece ranks first among all Member States. By contrast, Greece's spending on outpatient care as a share of GDP is among the lowest of all Member States.

⁽¹⁰⁸⁾Based on data provided directly by Member States to ECDC under the European Surveillance System (data current as of 13 April 2023)

Spending on preventive care, disease detection, surveillance and control programmes has increased, but it is below the EU average of 3.4%. This is reflected in a significant rise in the share of total spending on preventive care in 2020 (1.8%, up from 1.3% in 2019), which is largely due to a 124% increase (from EUR 59 million to EUR 132 million) in epidemiological surveillance and risk and disease control programmes. The public health response to COVID-19 has led to similar budget developments across the EU. Another action to safeguard public health is the ongoing rationalisation of the use of antimicrobials, as part of broader efforts to foster the rational use of medicines. The situation in Greece has improved significantly, with the daily consumption in 2021 falling to 67% of that in 2019. This decrease exceeds the decrease noted across the EU on average by more than 18%, most likely because of the COVID-19 pandemic. However, Greece is still one of the four Member States with the highest use of antibiotics. A comprehensive public health system reform, entitled the Spyros Doxiadis programme, includes reforms of the delivery of public health services, of population health and environmental health monitoring, and of the rapid response services. It also includes the overall digital transformation of the public health sector.

The public share of health spending is comparatively low (61.8% in 2020). The share of out-of-pocket payments is very high (33.4%, the second highest in the EU). Public spending on health is projected to increase by 0.8 percentage points (pps) of GDP by 2070 (compared to 0.9 pps for the EU overall) (see Annex 21).

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



AWG reference scenario

Source: European Commission / EPC (2021)

Greece has the highest number of doctors and the lowest number of nurses per capita of all EU countries.

However, these numbers include all doctors who are licensed to practice rather than just those who are professionally active, and only nurses in hospitals are counted. The overwhelming majority of doctors are specialists, with general practitioners accounting for only 7% of all doctors, compared to the EU average of 26%. Since the start of the COVID-19 pandemic, special recruitment schemes have largely responded to the surge in demand. Scheduled leave and planned retirement of staff were suspended and retired or non-practising health workers were invited to re-join the workforce. Health professionals working in the private sector were offered temporary contracts to work in public hospitals, with added incentives to attract candidates to vacant positions. Health services and facilities are heavily concentrated in urban areas. Before the pandemic, there were 364 hospital beds per 100 000 population on average – well below the EU average rate of 387. During the second wave of the COVID-19 pandemic, in 2020, when cases spiked significantly, some of the worst affected regions did not have enough hospital beds and sought capacity in the private sector.

Through its recovery and resilience plan (RRP), Greece plans to invest EUR 1 486 million (4.9% of the RRP’s total value).

These investments are planned against the backdrop of overall low historical investment levels in healthcare, measured as a share of gross fixed capital formation in GDP. The reforms focus on primary healthcare, pharmaceutical funding, public health, mental health, and the hospital remuneration scheme. The investments target the infrastructure and digitalisation of hospitals and

aim to introduce home nursing and to set up a radiotherapy centre and a haematological clinic for cell and genetic therapy.

Policies to keep public spending on pharmaceuticals under control face challenges.

These policies include ‘claw-backs’, which are repayment orders against the industry in case of budget overshoots. For 2023, pre-agreed budget ceilings will probably be complied with, as authorities negotiated higher rebates. However, there seem to be difficulties, both in outpatient and inpatient settings, in controlling demand through compulsory prescribing protocols and rational prescribing practices (e.g. to prevent excessive use of antibiotics).

Reforms to strengthen primary care rely on achieving appropriate numbers of doctors and nurses.

Recent reform measures focus on doctors. A new remuneration package was offered to doctors and now 3385 doctors are working in primary healthcare, enabling more than 50% of the population to be registered with a doctor. The aim is to reach a stock of doctors that covers the entire population and activate gatekeeping. Currently, coverage is still insufficient, and this acts as a bottleneck for the full implementation of the reform, the aim of which is to ensure full and equal access to the healthcare system through primary healthcare. This calls for additional measures to strengthen existing incentives to create the basis for comprehensive primary healthcare, such as limiting reimbursement of services and prescriptions by social providers that are not affiliated with the national organisation for the provision of healthcare services (EOPYY).

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)	94.2	90.0	93.1	92.4	NA	91.7 (2020)
Cancer mortality per 100 000 population	245.4	241.7	241.0	240.8	NA	242.2 (2020)
Current expenditure on health, % GDP	8.1	8.1	8.2	9.5	NA	10.9 (2020)
Public share of health expenditure, % of current health expenditure	60.6	59.2	61.5	61.8	NA	81.2 (2020)
Spending on prevention, % of current health expenditure	1.3	1.2	1.3	1.8	NA	3.4 (2020)
Acute care beds per 100 000 population	360	363	364	NA	NA	387.4 (2019)
Doctors per 1 000 population *	6.1	6.1	6.2	6.2	NA	3.9 (2020)
Nurses per 1 000 population *	3.3	3.4	3.4	NA	NA	8.3 (2020)
Consumption of antibacterials for systemic use in the community, daily defined dose per 1 000 inhabitants per day (total consumption for CY and CZ) **	32.1	32.5	32.4	26.4	21.8	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).

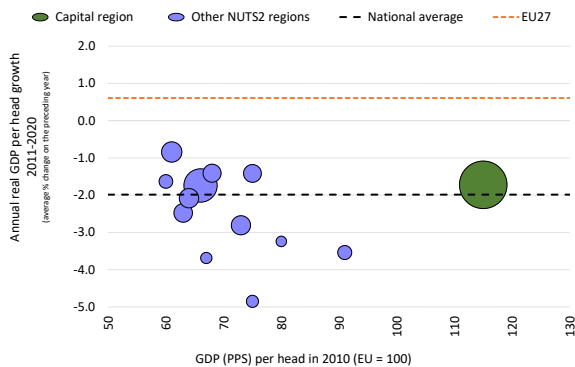
Source: Eurostat; ** ECDC

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

Regional disparities in Greece increased between 2011 and 2020. In 2020, all Greek regions were below 90% of the EU average in terms of GDP per capita in purchasing power standard (PPS) terms. Attiki and Notio Aigaio, were 'transition regions' while all regions are categorised as 'less developed regions' in 2021-2027.

Five Greek regions ranked below 50% of the EU average in terms of GDP per capita in 2021. This includes Voreio Aigaio, Anatoliki Makedonia-Thraki, Ipeiros, Thessalia and Dytiki Ellada. GDP per capita in Attiki (86% of the EU average) was more than twice that of Voreio Aigaio (42%) and almost twice that of Anatoliki Makedonia-Thraki (45%) and Ipeiros (46%). Internal convergence in Greece has therefore not advanced.

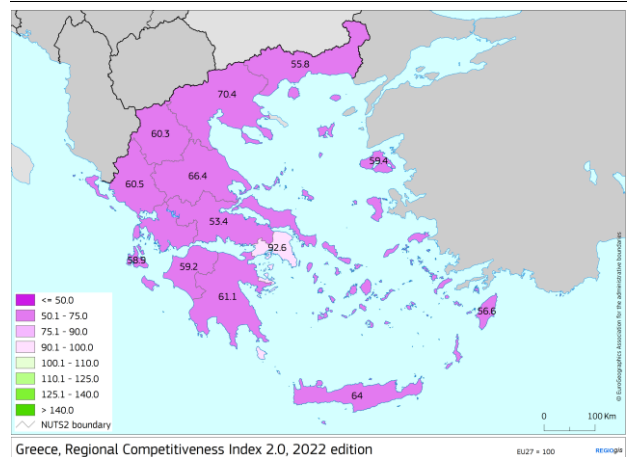
Graph A17.1: GDP per head (2010) and GDP growth (2011-2020) in Greece



Source: EUROSTAT

There has been a generalised trend of decreasing labour productivity despite a recent increase in 2021. Labour productivity (measured as gross value added (GVA) per person employed) was 66% of the EU average in 2021. Attiki and Sterea Ellada remained the leaders in labour productivity (82% and 73% of the EU average respectively).

Map A17.1: Regional Competitiveness Index in Greek regions (2022)



Greek regions rank below the EU average on competitiveness. The vast majority ranks below 75% of the EU average, with the exception of Attiki (92.6) who is the forerunner (Map A17.2)

Despite an overall improvement since 2014 and a recent increase, regional innovation performance remains low in Greece (Map A17.1). All the Greek regions rank below the EU average in terms of competitiveness. Attiki (the capital region) is the frontrunner, performing four times better than Voreio Aigaio.

R&D expenditure has increased in recent years, but 2020 expenditure was lower than the EU average. Leaders in R&D expenditure were Attiki (1.89% of GDP) and Kriti (1.88%) whilst Notio Aigaio came last (0.27%).

Greece has made good progress in the digital economy and society index (DESI) in recent years in comparison with other EU Member States. According to the 2022 DESI, the number of active users of e-government services (69%) had increased on the previous year by 67% and was 4 percentage points above the EU average (65%). Greece also made progress in terms of its population having at least basic digital skills (52%, which is very close to the EU average of 54%).



Table A17.1: Selected indicators at regional level in Greece

NUTS region name	GDP per head (PPS) (2021)	Productivity (GVA (PPS) per person employed) (2021)	Unemployment rate (2021)	At-risk-of-poverty or social exclusion (2021)	Population aged 30-34 with high educational attainment (2021)	R&D expenditure (2019)
EU average	100.0	100.0	7.0	21.7	41.6	2.3
Elláda	64.0	66.3	14.7	28.3	44.3	1.3
Attiki	86.0	81.6	11.9	21.6	51.5	1.6
Voreio Aigaio	42.0	55.0	13.8	28.1	40.9	0.7
Notio Aigaio	64.0	60.1	18.8	23.2	29.7	0.2
Kriti	52.0	54.5	16.3	28.8	36.3	1.5
Anatoliki Makedonia, Thraki	45.0	51.3	18.5	35.3	38.0	0.8
Kentriki Makedonia	50.0	56.2	16.1	33.7	49.0	1.1
Dytiki Makedonia	53.0	62.6	19.7	28.9	45.7	0.4
Ipeiros	46.0	52.2	15.1	28.0	37.4	1.5
Thessalia	49.0	53.2	16.6	26.1	36.0	1.0
Ionia Nisia	57.0	54.2	13.2	29.4	34.7	0.4
Dytiki Elláda	48.0	53.8	17.4	42.0	40.8	1.4
Sterea Elláda	65.0	72.9	17.2	30.8	39.2	0.6
Peloponnisos	56.0	59.1	12.7	35.8	37.3	0.6

Source: EUROSTAT

Despite improving post-COVID-19 trends, integration in the labour market remains a challenge, particularly for people aged 15-29, with the majority of Greek regions being well above the EU average. Around one in five young people living in the capital region were unemployed in 2020 (21.3% of the active population aged 15-24) and two out of three were unemployed in Sterea Ellada (63.6%). Moreover, in 2021, Greece had the highest unemployment rate in rural areas.

Harnessing talent remains a challenge in several Greek regions as a result of a declining working age population, a low share of people with tertiary education and significant numbers of young people moving away. In fact, low educational attainment is high and remains above the EU average in all the regions but the capital region of Attiki. Indeed, Attiki is the only region where more than 50% of young people (aged 30-34) have completed tertiary education (the national average is 43.7%, which is slightly above the EU average for 2017-2019). The share of early school leavers is low for Greece as a whole (3.2% in 2021) but significantly higher in Central Greece 11.1%), Western Greece (6.9%) and the Aegean islands (above 8%).

Greek regions and particularly those with remote and island areas are facing important challenges related to low accessibility to healthcare within their communities. For example, 10.9% of citizens in Anatoliki Makedonia-Thraki reported that they had foregone medical consultations due to high costs, long travelling distances or waiting lists.

On average, slightly less than 30% of the Greek population was at risk of poverty or social exclusion (AROPE) in 2020. There were significant variations across the country. The capital region of Attiki had the lowest rate of AROPE in the country (21.8%) while the western region of Dytiki Ellada had the highest (almost 44%). The risk of poverty or social exclusion remains high. 34% of people living in rural areas at risk in 2021⁽¹⁰⁹⁾. This was the third highest rate in the EU and the EU average was 22.5%.

⁽¹⁰⁹⁾source: Eurostat
(https://ec.europa.eu/eurostat/databrowser/view/ILC_PEPS13N__custom_3944756/default/table?lang=en).



Greece's predominantly bank-based financial sector has a high concentration rate and low foreign ownership.

Following the substantial consolidation that took place during the Greek economic adjustment programmes (2010–2018), the four domestic systemically important banks have a market share of around 95% of banking-sector assets, one of the highest concentrations in the EU. These four banks also have a considerable presence in Bulgaria, Romania and Cyprus. The banks are mainly privately-owned. However, the previous crisis and its aftermath left a legacy of sizeable State participation in the top five banks through the Hellenic Financial Stability Fund, which recently approved its strategy to divest these holdings.

Banks' asset quality and profitability have continued to improve, supporting the gradual restoration of capital ratios.

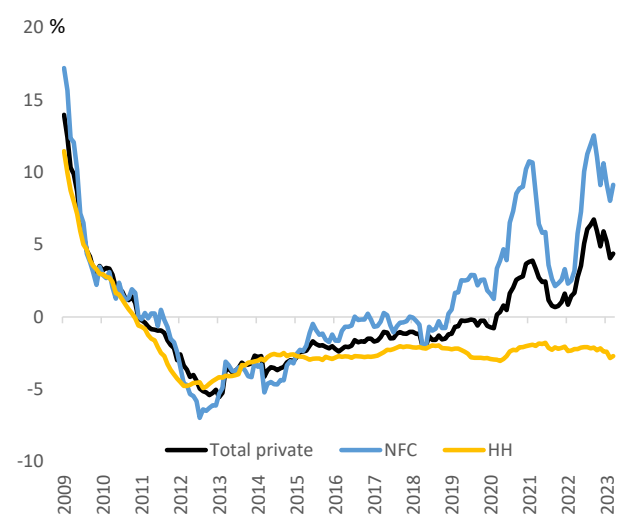
The non-performing-loan (NPL) ratio has continued to improve, falling to 6.4% of total loans in the first nine months of 2022, compared to 26.5% in 2020. This sharp reduction in legacy NPLs was largely due to: (i) state-sponsored securitisations of NPLs under the Hellenic Asset Protection Scheme, which expired in October 2022; and (ii) outright loan disposals. In the future, banks' in-house management of loans is expected to be the main driver in reducing NPL ratios closer to the EU average. This may prove challenging, particularly for some less-significant institutions carrying many NPLs. The core profitability of banks has improved thanks to: (i) lower provisioning needs; (ii) cost control; (iii) sustained growth in fees and commissions; and (iv) new, more profitable lending in 2022. In parallel, systemically important banks have taken measures to shield their balance sheets from volatility in sovereign yields, given their significant holdings of domestic sovereign bonds. The prudential phase-in of the International Financial Reporting Standards 9 (IFRS9) accounting rules adversely affected banks' capital positions in the first quarter of the year. However, this negative effect was fully offset by profits in the first nine months of 2022. Nevertheless, Greek banks' capital position remains among the lowest in the EU, while the quality of regulatory capital also remains a concern, given the high share of deferred tax credits. Systemically important banks have comfortable liquidity coverage ratios on the back of sustained deposit growth, while their sizeable reliance on European Central Bank (ECB)

financing was markedly reduced in December 2022, as banks started the gradual repayment of amounts borrowed under ECB's targeted longer-term refinancing operations (TLTRO III).

Energy costs and rising interest rates could affect debtors and increase the cost of funding for banks.

Rising interest rates have started to improve banks' profitability in the short term. However, given the banks' predominantly variable-interest loan book, rising interest rates combined with higher energy prices and a gradually worsening macroeconomic outlook, risk eroding the repayment capacity of debtors, with potential adverse impact on the banks' asset quality. To tackle this risk, the majority of Greek banks recently announced a new reward program to "freeze" for 12 months the interest rate of variable-rate mortgage loans of all performing debtors. The inflow of new NPLs so far remains modest, albeit with some net inflows on loans to households. Banks' profitability could also come under pressure from the further increase in their cost of funding, given: (i) their need for future issuances of long-term debt to meet the minimum requirement for own funds and eligible liabilities (MREL); and (ii) the recalibration and gradual phasing out of targeted longer-term refinancing operations. A further downside risk stems from a potential retrenchment of credit demand if there is a recession.

Graph A18.1: Evolution of credit activity



Adjusted for loan sales and securitisations.

Source: ECB.

Lending growth picked up in 2022 for businesses but remains negative for

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

	2017	2018	2019	2020	2021	2022	EU	Median
Total assets of the banking sector (% of GDP)	170.4	163.0	168.9	203.2	180.7	156.2	276.8	207.9
Share (total assets) of the five largest banks (%)	97.0	96.8	97.4	97.0	98.0	-	-	68.7
Share (total assets) of domestic credit institutions (%) ¹	97.9	98.0	98.7	98.7	98.6	98.6	-	60.2
NFC credit growth (year-on-year % change)	0.0	0.2	1.8	10.2	3.3	11.6	-	9.1
HH credit growth (year-on-year % change)	-2.0	-2.2	-2.8	-2.0	-2.0	-1.6	-	5.4
Financial soundness indicators:¹								
- non-performing loans (% of total loans)	45.0	41.6	35.5	26.5	8.6	6.4	1.8	1.8
- capital adequacy ratio (%)	17.1	16.0	17.3	16.7	16.2	16.2	18.6	19.8
- return on equity (%) ²	-1.3	-0.4	0.7	-7.9	-20.1	14.9	6.1	6.6
Cost-to-income ratio (%)¹	52.7	55.2	52.1	42.6	64.4	37.0	60.6	51.8
Loan-to-deposit ratio (%)¹	83.5	74.7	74.8	63.9	56.9	57.1	88.6	78.0
Central bank liquidity as % of liabilities	16.2	5.2	3.2	15.3	17.9	12.6	-	2.9
Private sector debt (% of GDP)	120.4	119.1	110.3	124.9	120.7	-	-	120.7
Long-term interest rate spread versus Bund (basis points)	566.1	378.8	283.8	178.2	125.8	234.5	-	93.3
Market funding ratio (%)	21.5	23.2	25.6	25.9	32.2	-	50.8	40.0
Green bonds issued to all bonds (%)	0.0	0.0	0.2	0.7	1.7	1.6	3.9	2.3
	1-3	4-10	11-17	18-24	25-27			

Colours indicate performance ranking among 27 EU Member States.

(1) Last data: Q3-2022.

(2) Data is annualized.

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

households. Net lending to non-financial corporations accelerated in 2022, registering an average annual growth rate of 8.3%, in comparison to 5.7% a year earlier. The pick-up in lending was mainly driven by flows to large firms. Lending to households continued to fall, as the increase in gross new lending to households was more than offset by repayments of existing mortgages. The weighted average cost of bank lending to businesses has risen significantly since August, reaching 4.6% in December 2022 compared to 2.9% at end-2021. However, this is still substantially lower than the weighted average cost of bank lending to micro firms and individual entrepreneurs (6.7%) and households (5.6%). The COVID-19 Enterprise Guarantee fund concluded its operations in June 2022, with a total of EUR 6.2 billion in loans disbursed since its inception in 2020. New lending programmes by the Hellenic Development Bank targeting small and medium-sized enterprises (SMEs) will be activated in late 2022 and 2023. Other EU financial instruments and European Investment Bank programmes continue to account for a large part of SME lending by banks. Loan disbursements linked to the RRF Loan Facility are showing good progress and are expected to accelerate significantly as of 2023. All this should support credit demand, which may nevertheless suffer in the short term from the worsening macroeconomic outlook.

The property market has seen continued price growth on the back of foreign direct investment. The strong rebound in the price of apartments, following the large fall in the 2008-

2017 period, continued in 2022 with a 12.2% year-on-year increase by the fourth quarter. This increase was partly driven by foreign direct investment (FDI) linked to the country's golden visa programme. Price-to-rent and price-to-income ratios have also rebounded significantly. However, prices remain 18% below their peak 2008 levels, and net credit growth for mortgages is persistently negative. Moreover, new gross mortgage loan volumes are still much lower than in the pre-2009 period, despite steady growth over the past two years. For commercial real estate, price growth for the first 6 months of 2022 was less pronounced, at only 0.7% for offices and 2.5% for retail stores. Overall, there are no indications of an overvaluation of house prices that would require a tighter macro-prudential policy stance, despite the real-estate market's over-reliance on FDI flows. The Bank of Greece has maintained the countercyclical capital buffer at zero.

The Greek capital market remains underdeveloped, despite progress in recent years. The market-funding ratio has improved steadily since 2016 but remains low, reaching 32.2% in 2021 compared to an EU average of 50%. This low ratio led the authorities to recently draw up a national strategy to strengthen the Greek capital market. The set-up of the equity platform instrument of the RRF Loan Facility also aims to provide equity financing to dynamic SMEs and start-ups. After a decade of underperformance, IPOs and bond-issuance activity rebounded in 2021. The Athens stock exchange is still far from its pre-2008 levels, in terms of both market capitalisation and daily

turnover. The market-cap-to-GDP ratio was 27.2% at the end of 2021, as opposed to an EU average of 85.5%. Sustainable finance in Greece still lags behind EU peers, despite a pick-up in green bond issuance over the last two years. The FinTech industry is in the early stages of development in Greece, while banks are investing in digital and mobile distribution channels and FinTech solutions, often in partnership with local FinTechs.

The Greek insurance sector is highly concentrated and smaller than its EU peers.

Total assets held by Greek insurers represented 8.8% of GDP as of 30 September 2022, compared to an EU average of 58.3%, while the sector has undergone some consolidation in recent years. The solvency ratio at the end of September 2022 remained robust, albeit lower than the EU average. The rising interest rates are expected to lead to asset devaluations for Greek insurers, which should be partly offset by reductions in the amount of technical provisions. However, as elsewhere in the EU, the higher-than-expected inflation may generate short-term losses for non-life business in Greece, due to increases in claim costs, triggering the need for a rise in premiums to counteract them. Greece has one of the highest insurance protection gaps in Europe for natural disasters, particularly earthquakes and wildfires. ⁽¹¹⁰⁾

⁽¹¹⁰⁾According to EIOPA's dashboard on insurance protection gap for natural catastrophes.

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

Greece's tax revenues remain close to the EU aggregate in relation to GDP. In terms of structure, important steps have been taken since 2020 to improve the mix of revenues by reducing corporate and personal income tax and social security contribution rates. Compared to the EU aggregate, tax revenues (expressed as % of GDP and as % of total taxation) in Greece in 2021 tended to rely more on growth-friendly taxes (i.e. consumption taxes rather than labour taxes). Revenues from environmental taxes (expressed as % of GDP) have increased significantly in recent years. Greece's energy and transport tax revenues (expressed as total tax revenues) are significantly above the EU aggregate (see Table A19.1). A new green tax reform with the technical assistance of Commission's services is underway in order to support the green transition in Greece. Overall revenues from taxes and social security contributions (expressed as % of GDP) have been increasing since the global financial crisis, but collection remains a challenge.

Recent reforms have lowered Greece's labour tax burden, which is currently lower than the EU average at various wage levels. Graph A19.2 shows that the labour tax wedge for Greece in 2022 was lower than the EU average at various wage levels. Second earners at a wage level of 67% of the average wage, whose spouses earn the average wage, are subject to a tax wedge that is also lower than the EU average. Greece is planning to further lower the tax wedge by suppressing the special solidarity contribution income tax surcharge for all employment and pension income from 2023. This cut follows temporary and permanent reductions in the social contribution rates over recent years. Despite the fact that the progressivity of the tax system is in line with the EU average, the tax and benefit system reduces income inequality, as measured by the Gini coefficient, by less than the EU average in 2021 (Table A19.1).

Greece is continuing to digitalise its tax administration, with the aim to combat tax evasion, reduce tax arrears and reduce compliance costs for taxpayers. Outstanding tax arrears increased by 36.7 pps between 2019 and 2020 to 228.3% of total net revenue, in line with the EU trend for the same period and before the implementation of recent measures. The impact of measures taken in light of the COVID-19 pandemic to support taxpayers should be taken

Table A19.1: Taxation indicators

	Greece					EU-27					
	2010	2019	2020	2021	2022	2010	2019	2020	2021	2022	
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	32.3	39.5	38.8	39.4	37.9	39.9	40.0	40.6		
	Labour taxes (as % of GDP)	13.7	16.4	17.4	17.1	20.0	20.7	21.3	20.9		
	Consumption taxes (as % of GDP)	12.0	14.9	14.1	14.5	10.8	11.1	10.7	11.2		
	Capital taxes (as % of GDP)	6.6	8.2	7.3	7.7	7.1	8.1	8.0	8.5		
	Total property taxes (as % of GDP)	2.0	3.3	3.4	3.2	1.9	2.2	2.2	2.2		
	Recurrent taxes on immovable property (as % of GDP)	1.0	2.4	2.6	2.4	1.1	1.2	1.2	1.1		
	Environmental taxes as % of GDP	2.7	3.9	3.8	3.9	2.4	2.4	2.2	2.2		
Progressivity & fairness	Tax wedge at 50% of average wage (Single person) (*)	34.4	32.6	32.1	29.9	29.7	33.9	32.3	31.9	32.1	31.7
	Tax wedge at 100% of average wage (Single person) (*)	40.0	40.4	38.9	37.1	37.1	41.0	40.1	39.9	39.6	39.7
	Corporate income tax - effective average tax rates (1) (*)		23.0	23.0	21.0		19.5	19.4	19.1		
	Difference in Gini coefficient before and after taxes and cash social transfers (pensions excluded from social transfers) (2) (*)	5.5	4.2	4.4	3.7		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 %) (*)		191.5	228.3			31.6	40.7			
	VAT Gap (% of VAT total tax liability, VTTL)		23.4	19.7			11.0	9.1			

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

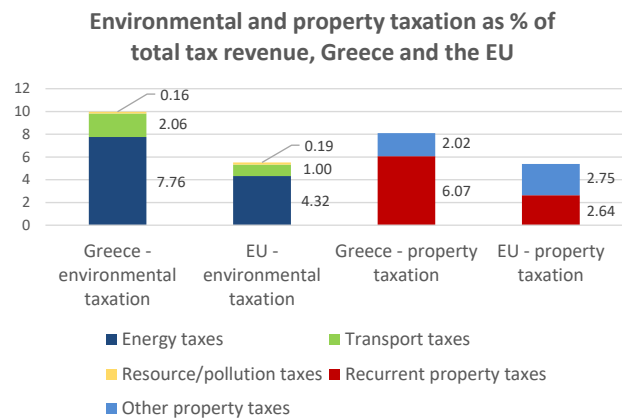
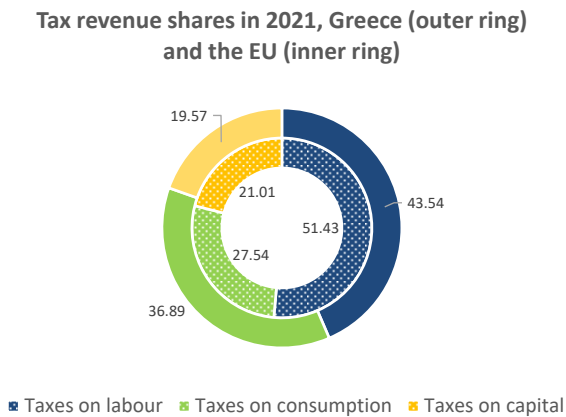
(2) A higher value indicates a stronger redistributive impact of taxation.

(*) 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, 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.

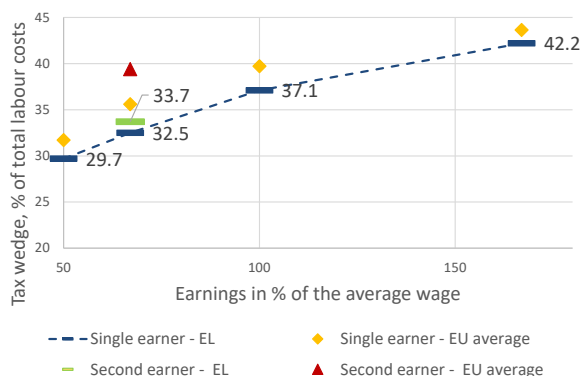
Graph A19.1: Tax revenues from different tax types as % of total taxation



Source: European Commission

duly into account in interpreting these figures. The VAT gap (the gap between revenues actually collected and the theoretical tax liability) remains high but declined from 23.4% in 2019 to 19.7% in 2020. However, it remained well above the EU-wide gap of 9.1%. Moreover, when analysing the drivers behind the improvement in the VAT gap in the recent years, the loss of revenues from reduced rates and exceptions more than offset the improvements in compliance. To improve tax compliance, the Greek RRP includes specific measures for the modernisation and digitalisation of the tax administration, including tax collection and incentives to increase electronic transactions. The digitalisation of tax audits and controls could, when combined with the planned acceleration of VAT refunds, improve tax collection.

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.

Source: European Commission



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)	3.6	-5.5	0.3	-9.0	8.4	5.9	2.4	1.9
Potential growth (y-o-y)	3.0	-1.0	-1.7	-0.8	-0.3	0.4	1.0	1.5
Private consumption (y-o-y)	3.4	-4.3	0.2	-7.7	5.8	7.8	1.6	1.4
Public consumption (y-o-y)	5.1	-3.3	-1.1	2.6	2.2	-1.6	-0.2	-1.4
Gross fixed capital formation (y-o-y)	5.8	-17.7	-0.9	1.1	20.0	11.7	7.2	6.0
Exports of goods and services (y-o-y)	9.3	-1.9	5.3	-21.5	24.1	4.9	6.5	5.2
Imports of goods and services (y-o-y)	8.3	-7.8	4.4	-7.3	17.7	10.2	4.7	3.8
Contribution to GDP growth:								
Domestic demand (y-o-y)	4.6	-7.0	-0.2	-4.7	6.9	6.5	2.1	1.6
Inventories (y-o-y)	-0.3	-0.7	0.3	1.3	0.8	2.4	-0.1	-0.1
Net exports (y-o-y)	-0.8	2.1	0.2	-5.6	0.7	-3.0	0.5	0.4
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	0.7	0.9	-0.2	-0.7	-0.7	-0.3	0.1	0.3
Capital accumulation (y-o-y)	0.9	0.1	-0.4	-0.3	-0.1	0.0	0.1	0.2
Total factor productivity (y-o-y)	1.3	-2.0	-1.1	0.2	0.5	0.7	0.8	0.9
Output gap	1.7	-8.3	-12.5	-13.8	-6.3	-1.1	0.3	0.8
Unemployment rate	9.7	14.7	23.2	17.6	14.7	12.5	12.2	11.8
GDP deflator (y-o-y)	3.1	1.5	-0.6	-0.9	1.3	8.1	4.7	2.9
Harmonised index of consumer prices (HICP, y-o-y)	3.2	2.9	-0.1	-1.3	0.6	9.3	4.2	2.4
HICP excluding energy and unprocessed food (y-o-y)	3.2	2.0	-0.1	-1.0	-0.7	5.7	5.7	2.5
Nominal compensation per employee (y-o-y)	5.1	-0.9	-2.8	-0.6	2.3	0.3	3.6	2.8
Labour productivity (real, hours worked, y-o-y)	1.7	-3.5	-0.5	2.6	-1.4	0.3	1.1	1.1
Unit labour costs (ULC, whole economy, y-o-y)	3.1	2.8	-1.8	7.2	-3.1	-1.7	1.9	1.5
Real unit labour costs (y-o-y)	0.0	1.3	-1.1	8.2	-4.3	-9.1	-2.6	-1.3
Real effective exchange rate (ULC, y-o-y)	1.4	0.6	-3.0	2.9	-3.3	-5.3	-3.6	-2.0
Real effective exchange rate (HICP, y-o-y)	0.8	0.2	-0.5	-0.3	-1.1	-0.3	.	.
Net savings rate of households (net saving as percentage of net disposable income)								
Private credit flow, consolidated (% of GDP)	-0.7	-6.8	-13.2	-5.1	-3.2	.	.	.
Private sector debt, consolidated (% of GDP)	14.4	1.8	-2.2	5.1	-0.1	.	.	.
of which household debt, consolidated (% of GDP)	88.7	125.6	124.5	124.9	120.7	.	.	.
of which non-financial corporate debt, consolidated (% of GDP)	38.1	59.2	60.9	59.5	55.5	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (1)	50.6	66.5	63.6	65.4	65.2	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	.	9.1	35.0	22.2	7.1	.	.	.
Corporations, gross operating surplus (% of GDP)	5.1	7.2	6.5	2.3	0.9	-0.5	-0.4	-0.1
Households, net lending (+) or net borrowing (-) (% of GDP)	19.0	18.0	16.6	15.0	16.9	18.6	18.9	19.0
Deflated house price index (y-o-y)	-7.9	-4.7	-4.0	1.7	1.2	-5.0	-4.1	-3.7
Residential investment (% of GDP)	4.6	-6.5	-1.9	5.7	6.6	3.3	.	.
Current account balance (% of GDP), balance of payments	9.9	5.6	1.0	1.1	1.3	1.6	.	.
Trade balance (% of GDP), balance of payments	-10.8	-10.0	-1.6	-6.6	-6.8	-9.7	-7.3	-6.0
Terms of trade of goods and services (y-o-y)	-9.1	-7.2	-1.3	-6.8	-7.6	-9.4	.	.
Capital account balance (% of GDP)	-0.1	-0.3	0.8	-0.8	-1.1	4.6	1.9	1.0
Net international investment position (% of GDP)	1.4	1.2	0.8	1.7	2.2	1.5	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (2)	-79.7	-94.2	-140.8	-173.8	-171.9	-141.3	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (2)	.	-96.2	-130.6	-155.1	-150.2	-118.2	.	.
Export performance vs. advanced countries (% change over 5 years)	.	189.9	240.3	300.8	304.8	260.2	.	.
Export market share, goods and services (y-o-y)	12.7	-5.1	-8.0	-10.2	14.6	.	.	.
Net FDI flows (% of GDP)	0.9	-5.9	1.1	-19.7	20.1	1.0	3.8	1.4
General government balance (% of GDP)	0.1	-0.1	-1.3	-1.4	-2.4	-2.2	.	.
Structural budget balance (% of GDP)	-6.9	-11.3	-2.9	-9.7	-7.1	-2.3	-1.3	-0.6
General government gross debt (% of GDP)	.	.	5.0	-3.1	-4.7	-2.2	-1.5	-1.0
	104.2	144.2	180.3	206.3	194.6	171.3	160.2	154.4

(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 Greece over the short, medium and long term. It follows the same multi-dimensional approach as the European Commission's 2022 Debt Sustainability Monitor, updated based on the Commission 2023 spring forecast.

1 - Short-term risks to fiscal sustainability are low overall. The Commission's early-detection indicator (S0) does not signal major short-term fiscal risks (Table A21.2)⁽¹¹¹⁾. Government gross financing needs are expected to decrease to around 10% of GDP in the short term (i.e. over 2023–2024) (Table A21.1, Table 1). Greece's sovereign credit rating has been steadily improving but remains below investment grade reflecting the financial markets' perceptions of sovereign risk.

2 - Medium-term fiscal sustainability risks appear high overall.

The DSA for Greece, under the baseline, shows that the government debt-to-GDP ratio is expected to decline but remain at a high level over the medium term (at 126.1% in 2033) (Graph 1)⁽¹¹²⁾⁽¹¹³⁾. The assumed structural primary balance (SPB) (a surplus of 2.1% of GDP) supports these developments, and it appears ambitious compared with past fiscal performance, suggesting limited room for policy

action⁽¹¹⁴⁾. At the same time, the baseline projections up to 2033 benefit from a still favourable snowball effect until 2030, notably thanks to the impact of Next Generation EU (NGEU), with real GDP growth at around 0.8% of GDP over 2025–2033. Government gross financing needs are expected to remain broadly stable over the projection period; they are projected at around 11.5% on average over the projection period, 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 Greece, reverting to historical fiscal trajectories under the 'historical structural primary balance' scenario would support the reduction of the government debt ratio. If the SPB gradually converged its historical 15-year average (3.3% of GDP), the projected debt-to-GDP ratio would be about 8 pps. lower 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 result in a persistently higher government debt-to-GDP ratio, by around 10% of GDP by 2033, as 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 5.9 pps.), would lead to a slightly higher public debt-to-GDP ratio by 2033 (around +9% of GDP) compared with the baseline. The 'lower structural primary balance' scenario (i.e. the forecast improvement in the SPB over 2023–2024 is reduced by half of the cumulative forecast change) would also lead to a significantly higher government debt-to-GDP ratio by 2033 (about +11% of GDP) compared with the baseline.

Stochastic projections show a medium sensitivity of these projections against plausible unforeseen events⁽¹¹⁵⁾. These stochastic simulations point to a 10% probability

⁽¹¹¹⁾The S0 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.

⁽¹¹²⁾The assumptions underlying the Commission's 'no-fiscal policy change' baseline notably comprise: (i) a structural primary surplus, before ageing costs, of 2.1% 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 (average of 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.

⁽¹¹³⁾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.

⁽¹¹⁴⁾This assessment is based on the consolidation space indicator, which takes into account all available data from 1980 to 2021. The structural primary balance of +2.1% of GDP would be considered much less ambitious if compared with a shorter time horizon, for instance of the last 15 years.

⁽¹¹⁵⁾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. This covers 80% of all the simulated debt paths, therefore excluding tail events.

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 (Graph 2).

3 - Long-term fiscal sustainability risks for Greece appear low overall ⁽¹¹⁶⁾.

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 the projected decrease in ageing-related costs (contribution of -1.8% of GDP) and a favourable initial budgetary position (-0.9% of GDP). Ageing costs' developments are primarily driven by the projected decrease of public pension expenditure (contribution of -1.9% of GDP), which is only partly offset by the projected increase in health care spending (contribution of +0.6% of GDP) (Table A21.1, Table 2).

When combined with long-term debt vulnerabilities, as highlighted by the S1 indicator, overall long-term risks are assessed as low. Indeed, the S1 sustainability gap indicator (at -1.5% of GDP) signals that the country doesn't need to further improve its fiscal position to reduce its debt to 60% of GDP by 2070. This result is mainly driven by the current very favourable initial budgetary position (contribution of -2.4 pps.) and the projected decline in ageing-related public spending (contribution by -1.1% of GDP). However, the current distance of the Greek government debt ratio from the 60% reference value partially

reduces the fiscal space (contribution of +2.0% of GDP) (Table A21.1, Table 2). This assessment is conditional to the country maintaining a high structural primary balance over the long term.

Finally, several additional risk factors need to be considered in the assessment. On the one hand, risk-increasing factors are related to the recent increase in interest rates, in particular the state guarantees granted recently, also in the context of the COVID-19 crisis. Significant contingent liability risks continue to stem from the still relatively high share of non-performing loans in the banking sector (although the share of non-performing loans witnessed a sharp reduction in the previous years), and the costs linked to pending legal cases against the state also pose fiscal risks. On the other hand, risk-mitigating factors are related to the structure of the debt. In particular, the major share of debt is held by official lenders at low interest rates and has a particularly long maturity structure compared with peer countries. The currency denomination of debt also mitigates risks. 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.

⁽¹¹⁶⁾The S2 fiscal sustainability indicator measures the permanent SPB adjustment in 2024 that would be required to stabilise public debt over the long term. It is complemented by a revised S1 indicator, which measures the fiscal gap in 2024 to bring the debt-to-GDP ratio to 60% in the long term. For both S1 and S2 indicators, the risk assessment depends on the amount of fiscal consolidation needed: 'high risk' if the required effort exceeds 6 pps. of GDP, 'medium risk' if it lies between 2 pps. and 6 pps. of GDP, and 'low risk' if the effort is negative or below 2 pps. of GDP. The overall long-term risk classification brings together the risk categories derived from S1 and S2. S1 may notch up the risk category derived from S2 when it signals a higher risk than S2. See the 2022 Debt Sustainability Monitor for further details.

Table A21.1: Debt sustainability analysis - Greece

Table 1. Baseline debt projections	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Gross debt ratio (% of GDP)	206.3	194.6	171.3	160.2	154.3	149.2	144.8	140.2	135.1	130.4	126.1	122.1	118.3	126.1
Changes in the ratio	25.7	-11.7	-23.3	-11.0	-5.9	-5.1	-4.4	-4.6	-5.1	-4.7	-4.3	-4.0	-3.8	7.8
of which														
Primary deficit	6.7	4.7	-0.1	-1.9	-2.5	-2.6	-2.7	-2.7	-2.7	-2.7	-2.8	-2.7	-2.7	-2.9
Snowball effect	22.6	-16.0	-22.2	-8.3	-4.3	-2.9	-2.2	-1.6	-1.3	-0.8	-0.4	0.0	0.2	-0.1
Stock-flow adjustments	-3.6	-0.4	-0.9	-0.8	1.0	0.4	0.3	-0.6	-1.1	-1.2	-1.2	-1.2	-1.3	10.8
Gross financing needs (% of GDP)	17.8	18.9	13.3	9.6	11.0	10.0	11.3	11.5	11.6	11.5	11.8	12.0	11.6	13.8

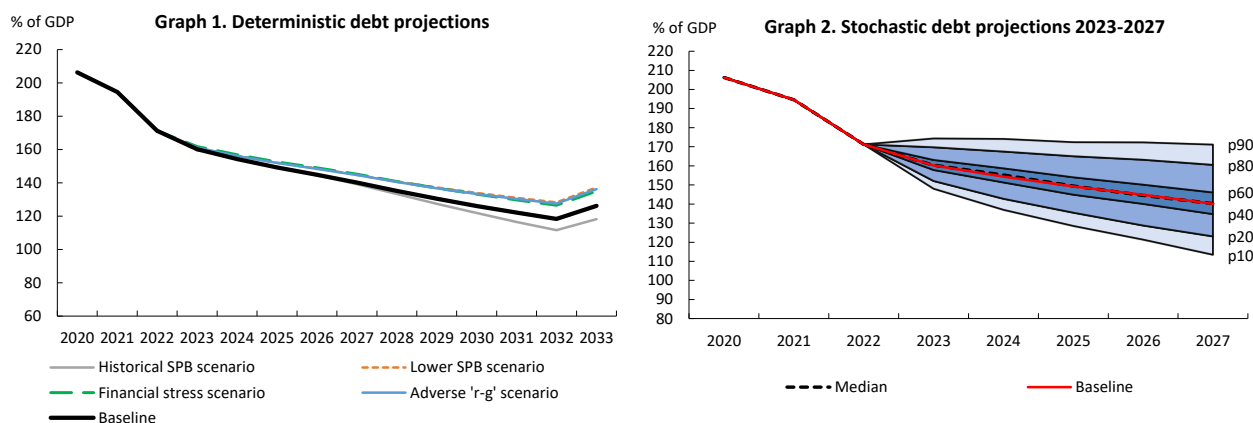


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

	S1	S2
Overall index (pps. of GDP)	-1.5	-2.8
of which		
Initial budgetary position	-2.4	-0.9
Debt requirement	2.0	
Ageing costs	-1.1	-1.8
of which		
Pensions	-1.2	-1.9
Health care	0.5	0.6
Long-term care	0.0	0.0
Others	-0.4	-0.5

Source: Commission services.

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

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	126.1	118.2	137.2	136.3	135.0				
		Debt peak year	2022	2022	2022	2022	2022				
		Fiscal consolidation space	23%	22%	38%	23%	23%				
		Probability of debt ratio exceeding in 2027 its 2022 level						10%			
							57.7				

(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.



The Macroeconomic Imbalance Procedure matrix presents the main elements of the in-depth review undertaken for Greece ⁽¹¹⁷⁾.

Greece 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.

Greece's long standing vulnerabilities relating to high public debt and a high stock of non-performing loans in the context of high unemployment have been receding, but its external position is deteriorating.

Greece continues to face fiscal sustainability risks, and an increased level of public debt, which, however, remains on a downward trajectory. The ratio of non-performing loans (NPL) dropped significantly in 2022, but still remains high, while a large amount of legacy non-performing private debt is in the hands of credit servicers and thus remains in the economy. The current account balance deteriorated further, to -11.8% of GDP in 2022, primarily as a result of declines in trade of both, the energy and non-energy goods. Greece's stock of net external liabilities remains high, mainly composed of public debt instruments held by official sector creditors. At the same time, Greece's economy recorded a significant private consumption and investment growth during its recovery from the pandemic. This translated into faster growth in domestic demand than in output in 2022, leading to a widening trade deficit. Despite the fact that the labour market has absorbed the slack it accumulated during the pandemic, the unemployment rate remains among the highest in the EU, disproportionately affecting the youth and women.

The authorities continue to take relevant measures to facilitate economic adjustment, including in the context of the Recovery and Resilience Plan (RRP) implementation. On the financial sector front, efforts continue to address relevant deficiencies. The recently phased out

Hercules scheme has strongly contributed to the clean-up of banks' balance sheets and to the development of the secondary NPL market, while the impact of other reforms is gradually materializing. Efforts to step up tax collection and to reinforce payment discipline, in conjunction with the moderation of energy prices, which lowered the fiscal cost of the energy support measures, contributed to a better than expected fiscal primary balance already in 2022. On the labour market front, measures to enhance job creation, improve job quality and invest in learning and education have started to benefit the resilience of the job market.

Going forward, the country's imbalances are projected to continue their correction supported by economic growth, although Greece would benefit from further policy action.

Greece's fiscal policy objectives target at maintaining primary surpluses in 2023 and beyond. Further measures would contribute to addressing imbalances. These include inter alia, enlarging the tax base and strengthening tax compliance, including by introducing a comprehensive advance tax ruling system. Safeguarding the efficiency of the public administration can attract the right skills, while maintaining its human resource costs at pre-pandemic levels. Enhancing the efficiency of healthcare and long-term care spending. Accelerating the reduction of non-performing loans held by banks and credit servicers, by improving debt enforcement and the functioning of the non-performing loan secondary market. Further measures could be considered to improve the business environment. Labour market activation support could be made more effective, with a particular focus on young people and women. Further policy actions, including on the fiscal side, should ensure that external balances are put on firmly improving path, while promoting balanced growth. Investment spending should be carefully focussed on productive investment, to ensure the sustainability of the country's borrowing.

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

⁽¹¹⁷⁾ European Commission (2023), In-Depth Review for Greece, Commission staff working document (COM(2023) 631 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		
Public debt	Greece has a high level of public debt, amounting to over 171% of GDP in 2022. The Commission's fiscal sustainability assessment shows that Greece faces high fiscal sustainability risks over the medium term and low ones in the long run. Greece's debt is largely extended to official creditors at long maturities and concessional rates, which – together with the large cash buffer – insulates Greek public finances from short-term fluctuations.	The debt-to-GDP ratio dropped by almost 25 pps. in 2022, compared to 2021, on the back of the strong increase of nominal GDP and is expected to decrease further in 2023 to 160.2% of GDP and 154.4% in 2024, also reflecting the improvement of the primary fiscal balance. Interest spending going forward will benefit from limited risks due to the majority of creditors being official lenders holding debt at concessional rates.	Some policy progress has been made to address the identified public debt vulnerabilities, but further efforts seem warranted. Greece reached high primary surpluses in the years before the pandemic, which were restored in 2022 and are envisaged to remain in 2023 and beyond. Actions to strengthen tax collection and compliance have contributed to this positive development, including under the RRP, but further efforts are needed.
Financial sector	The banking sector is burdened by a high, albeit considerably reduced, non performing loans ratio (6.4% in September 2022). Banks' core profitability has improved and supports the banks' capital position, which remains the lowest in the euro area (16.2% as of September 2022). The quality of capital remains weak and the link to the Greek sovereign persists. In addition, a large amount of legacy non-performing debt is now in the hands of servicers and its workout remains a challenge for the economy. While domestic government bond holdings are significant, banks have largely protected their balance sheet from sovereign yield volatility by valuing 84% of their sovereign portfolio at amortised cost and applying hedging strategies.	Rising interest rates and prices risk eroding borrowers' debt repayment capacity, posing a risk for banks' asset quality. Although subject to downside risks, banks' improved profit outlook is expected to assist a gradual restoration of capital ratios. It is supported by lower impairments, given the strong fall in non-performing loans, as well as new lending and higher interest rate margins. However, they face funding cost increases, while any deterioration in asset quality or retrenchment in credit demand would pose challenges for their profitability.	The policy setting is overall consistent with an improvement in financial sector stability. The recently phased out Hercules scheme strongly contributed to the clean-up of banks' balance sheets, while the impact of other reforms is gradually materializing. The use of out-of-court restructurings by banks and borrowers has picked up but remains modest. The clearance of the dual backlogs of household insolvency cases and called state guarantees has accelerated. The number of e-auctions has risen to the highest number in years, while the still high share of failed auctions is slowly improving, partly as a result of past policy actions.
External sustainability and competitiveness	The large current account deficit deteriorated further reaching 11.8% of GDP in 2022, and remains much larger than before the pandemic. A key driver was a faster growth of domestic demand compared to economy's output. The balance of trade in energy goods also deteriorated markedly on the back of surging energy prices. The current account levels are below what would be required to stabilise Greece's net international investment position, which improved in 2022 and stood at -141% of GDP. The liabilities are mainly composed of public debt instruments held by official creditors.	The current account deficit is forecast to improve in 2023 to 9.2% of GDP in 2023 and 7.8% in 2024, while the net international investment position is expected to remain broadly unchanged in 2023 and 2024.	Some policy progress has been made in response to external sustainability and competitiveness vulnerabilities. However, energy measures taken to address the energy crisis supported buoyant domestic demand. The phase-out of these measures throughout 2023 are expected to reduce the stimulus to domestic demand, although further action would be needed to ensure that domestic demand growth is more in line with output to facilitate sustainable external deficits.
Potential growth and productivity	Potential GDP growth has been negative since 2010, on account of weak total factor productivity growth, declining capital stock and an erosion of the country's human capital. The large share of micro and small businesses is an aggravating factor as most small and medium-sized enterprises struggle with regulatory barriers and access to finance.	Investment, also supported by the funds under the RRP that is currently being implemented, is expected to yield significant gains in the following years. According to Commission's estimates, an increase in GDP growth of 2.1 to 3.3 pps over the period 2021-2026 is expected from the combined effect of the RRP grants and loans is expected, without considering the potential positive impact from the structural reforms. This is reflected in the potential growth turning positive in 2022 and estimated at 1.0% and 1.5% in 2023 and 2024.	A series of measures to enhance the growth potential and incentive productivity growth are envisaged, mainly in the context of the RRP. Further measures could be considered to improve the business environment, for instance by completing the cadastre project and expediting the environmental permitting procedures.
Labour market and unemployment	At 12.5% in 2022, unemployment remains among the highest in the EU and it disproportionately affects the youth (24.2%) and women (15.2%). Long-term unemployment (9.2% in 2021) is also among the highest in the EU. Despite gradually increasing, the employment rate stood at 66.1% in Q3 2022, 8.6 percentage points below the EU average.	Unemployment has been decreasing almost steadily since mid-2013, including during the pandemic. It is expected to decrease further in 2023. Employment has fully recovered the losses it suffered during the pandemic, standing almost 6 pps. above its pre-pandemic level, and is expected to increase further in 2023, also supported by the RRP implementation and the continued good performance in the tourism sector.	The labour market is expected to benefit from the various measures of Greece's RRP, including from a sizeable increase in activation programmes and the administrative upgrading of the Greek public employment service. Nevertheless, there remains scope to further increase the employability of young people and women who face higher unemployment rates.

Source: European Commission