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2024 Country Report - Poland

Accompanying the document

Recommendation for a COUNCIL RECOMMENDATION

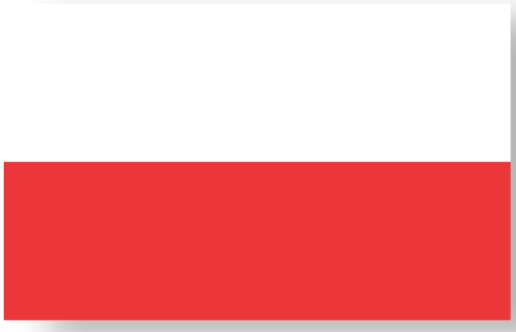
on the economic, social, employment, structural and budgetary policies of Poland

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European Commission

Poland

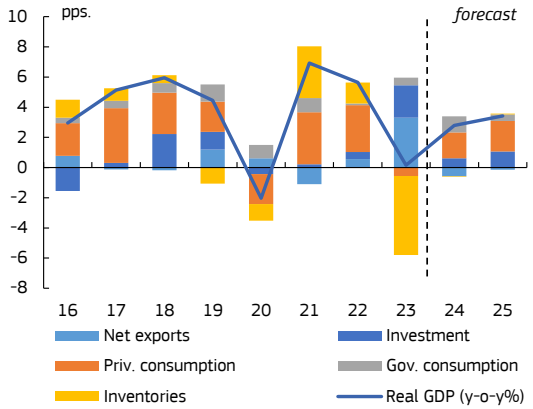
2024 Country Report



The Polish economy shows signs of recovery after recent headwinds

The Polish economy slowed down in 2023 but is projected to rebound in 2024 and 2025 ([1]). In 2023, GDP growth reached 0.2%, supported by investments and an improved trade balance, as imports shrank and exports continued to increase. Looking ahead, growth is set to rebound faster than in most EU countries boosted by private consumption and investment, the latter being strengthened by Poland's acceleration in implementing the recovery and resilience plan (RRP). Risks to this economic growth outlook relate mainly to possible delays in implementing EU-funded investments.

Graph 1.1: **Poland – real GDP growth and contribution**



Source: AMECO

Price pressures eased in the second half of 2023, but inflation in Poland is set to remain among the highest in the EU over the following years. On average, prices in Poland increased by 10.9% in 2023, well above the EU average of 6.4% ([2]), putting a strain on Poland's competitive advantage. In 2024, the price pressures are expected to come from nominal wage growth given the 20% increase in minimum wage and large public sector wage hikes. Gradual withdrawal of government measures, including the electricity and gas price freezes and zero VAT on food, will also contribute to a slower fall of inflation.

Despite the economic slowdown in 2023, labour market developments in Poland are broadly positive, although labour shortages persist. A decline in the working-age population, as well as the low number of people working or looking for work within some population groups, particularly women, people with a disability and older people, keep weighing on labour supply. Regional disparities are also substantial. The employment rate in Poland for people aged 20-64 reached 76.7% in 2022 ([3]), which is above the EU average of 74.6%, and close to the 78% target set by the European Pillar of Social Rights action plan. However, compared to other Member States, the Polish labour market was among those most affected by labour shortages. The share of employers reporting that labour shortages are a factor limiting their production was 72% in construction, 67% in industry and 55% in services in Q4-2023, significantly above the EU averages for these sectors (28% in construction, 22% in industry, 30% in services) ([4]). Furthermore, skills mismatches

([1]) The cut-off date for the data used to prepare the 27 Country Reports was 15 May 2024.

([2]) Eurostat HICP annual.

([3]) Based on Eurostat's Employment - annual statistics 2022 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Employment_-_annual_statistics#Employment_in_2022_compared_with_the_EU_target.

([4]) Based on the European Labour Authority's 2024 EURES Report on labour shortages and surpluses in 2023, i.e.

remain a pressing challenge, particularly for younger workers and those with high levels of education. The horizontal skills mismatch ([5]) has been increasing for workers with at least post-secondary education: in 2022, 34.7% were employed outside their field of study, above the EU average (28.3%). Despite the slowdown in economic growth, the unemployment rate remained largely unchanged, as companies were reluctant to lay off workers in 2023 given the difficulties they face in hiring and reduced working hours. Displaced persons from Ukraine were able to join the Polish labour market and help alleviate shortages. According to the estimates by the National Bank of Poland ([6]), around 62% of displaced persons from Ukraine living in Poland aged 18 and over were employed in July 2023. However, without a comprehensive and long-term migration policy this may not be sufficient to address the significant labour shortages ([7]). Skills shortages, the deterioration in basic skills, and educational inequalities risk holding back productivity, competitiveness, labour supply and the green and digital transitions (see Annex 15).

Public finances remain sound despite fiscal expansion

Despite a large fiscal deficit in 2023, the ratio of public debt to GDP is set to remain below 60% until 2025. According to the Commission's forecast, the budget deficit is expected to decrease from 5.1% of GDP in 2023 to 5.4% of GDP in 2024. Increased spending on defence, which is mostly driven by cash payments for future deliveries of military equipment, is slowing down the consolidation of government finances. The government also added new fiscal measures reflecting its economic programme, including (i) a 30% salary increase for teachers; (ii) a 20% general salary increase in the public administration; and (iii) a new family benefit to support working parents. Meanwhile other social policies will be continued (13th and 14th pensions ([8]), family allowances). Energy support measures are assumed to be fully phased out by mid-2025.

Challenges persist in the sustainability, efficiency and transparency of public finances. Retaining the very low retirement age (for women and some professional groups) amid a rapidly ageing population brings risks of either a future increase in old-age poverty or substantial increases in future government spending on pensions, which could put pressure on the sustainability of government finances. Based on the projection of the 2024 Ageing Report, the pension expenditure-to-GDP ratio remains broadly stable in the long term, while the benefit ratio ([9]) decreases by around 20 pps of GDP to around 25% in 2070. Considerable scope remains to increase the efficiency of public spending on social benefits, public investment and public procurement. More integrated and coherent planning of public investment can also provide much-needed transparency and predictability for private sector investments. This can be achieved through: (i) stronger coordination across government levels; (ii) alignment with long-term strategic goals; and (iii) more standardised assessment and selection procedures The broadening of the coverage of fiscal rules to off-budget funds as part of the implementation of the RRP increased public finance transparency and strengthened the fiscal framework.

data submitted by the EURES national coordination offices.

([5]) The discrepancy between a person's current occupation and their field of education.

([6]) NBP (2024) Sytuacja życiowa i ekonomiczna migrantów z Ukrainy w Polsce w 2023 roku. Raport z badania ankietowego raport_migranci_z-Ukrainy_2023.pdf (nbp.pl).

([7]) Ministry of Family, Labour and Social Policy 'Barometr Zawodów 2024'.

([8]) An extra yearly payment made in addition to the standard monthly pension payment.

([9]) Average pensions as a share of average gross wage.

Box 1:

Poland's competitiveness in brief

Poland's competitiveness has improved in recent years. Poland ranks 43rd (out of 64 countries) in the IMD World Competitiveness Ranking 2023, moving up seven places compared to 2022. Poland has successfully integrated itself into global supply chains. The foreign content of Poland's exports is estimated to have increased from 29.5% in 2008 to 30.2% in 2020 (above the OECD average of 27.6%). Since 2015, total factor productivity ([11]) has grown at an average rate of 2.2% (4.2% in 2022), against an average of 0.8% in the EU (see also Annex 12).

However, competitiveness challenges remain:

- **Issues need to be addressed in relation to the investment climate**, notably the instability and unpredictability of regulations and insufficient long-term strategic planning, which hold back the green and digital transitions.
- **Effective management of public finances** is needed to ensure targeted support to those in need, reduce administrative burden for businesses, increase innovations, as well as to continue with strategic investments.
- **An ageing society, needs in healthcare and LTC**, an insufficient quality of education and labour shortages undermine productivity as well as put pressure on available resources.
- **The country's high reliance on fossil fuels**, which restrains Poland's ability to meet climate targets and keep its economy competitive, requires further action as regards decarbonisation.

Challenges persist in the area of social inclusion

The availability of long-term care (LTC) services remains insufficient given the increasing old-age dependency ratio. The share of the population aged 65 and over with LTC needs exceeds the EU average (34.8% vs 26.6% in the EU in 2019; Annex 14) and population ageing is expected to increase this need, while government spending on LTC is one third the EU average (0.5% vs 1.7% of GDP in 2022). Poland's LTC governance system is underdeveloped and fragmented across health and social sectors. Lack of coordination between these two sectors hinders a coherent policy approach and negatively affects the delivery of LTC services in Poland. Public home care coverage (13% of those aged 65 and over in need of LTC vs 30% in EU in 2022) as well as publicly provided or funded residential care coverage rates (10% vs 18% in EU in 2022) ([10]) are well below the EU average and unevenly distributed across the country. The number of formal LTC workers is low and so are their wages. Therefore, the responsibility for care often falls on the family members, particularly women, who do not receive adequate support in their duties (see Annex 14).

There is insufficient access to social protection for workers on non-standard contracts and the self-employed. The at-risk-of-poverty rate is much higher for people in non-standard forms of work such as part-timers (19.4%), workers with temporary contracts (7.8%) and the self-employed (29.8%), compared to people with permanent full-time contracts (4.2%). Further action is needed to ensure adequate protection against life risks and reduce their poverty and deprivation rates, in line with the poverty reduction goal of the European Pillar of Social Rights action plan (see Annex 14).

([10]) European Commission, 2024 Ageing Report. Economic and Budgetary Projections for the EU Member States (2022-2070).

Box 2:

UN Sustainable Development Goals (SDGs)

Poland is making progress in almost all SDGs. The exceptions are environmental sustainability indicators related to SDG 2 (Zero hunger, which includes indicators on sustainable agricultural production and the environmental impacts of agriculture), SDG 6 (Clean water and sanitation) and SDG 15 (Life on land). For these SDGs, Poland has moved away from the targets, due in particular to increased obesity rates, the lowered common farmland bird index, worsened inland water quality, and a significantly increased impact from drought on ecosystems. Poland is improving on SDG indicators related to macroeconomic stability (SDGs 8, 16, 17), and productivity (SDGs 4, 8 and 9). Regarding fairness, Poland is improving on most indicators (SDGs 1, 3, 4, 5, 7, 8, 10), and on SDG 1 (No poverty), SDG 4 (Quality education), and SDG 10 (Reduced inequalities) its result is above the EU average.

Out of the 17 indicators, 10 SDGs remain below the EU average. These relate to environmental sustainability (SDGs 2, 6, 9, 11, 12, 13), fairness (SDGs 3, 5, 8), productivity (SDGs 8 and 9), and macroeconomic stability (SDGs 8 and 16).

([11]) A measure of productivity accounting for effects in total output not caused by traditionally measured inputs of labour and capital.

IMPLEMENTATION OF KEY REFORMS AND INVESTMENTS USING EU INSTRUMENTS

Funding from the Recovery and Resilience Facility (RRF) and cohesion policy are mutually reinforcing Poland's efforts to boost its competitiveness and stimulate sustainable growth. In addition to the EUR 59.8 billion of RRF funding described in Annex 3, cohesion policy funding provides Poland with EUR 75.5 billion for the 2021-2027 period. Combined support from these two instruments represents approximately 18.02% of the country's GDP in 2023, compared to the EU average of 5.38% of GDP (see Annex 4).

Under its recovery and resilience plan (RRP), Poland has launched important policy measures that are expected to improve its competitiveness. In particular, the RRP envisages major reforms in the areas of judicial independence, renewable energy sources, clean air, labour market (early childhood education and care (ECEC)), sustainable transport, public spending, and digital transition. Poland has also started making investments in the agricultural sector, ECEC facilities and in clean air, which aim to replace fossil-based heating systems in residential housing.

The implementation of Poland's recovery and resilience plan is underway, however timely completion requires increased efforts. Poland has submitted one payment request, corresponding to 38 milestones and targets in the plan and resulting in an overall disbursement of EUR 6.3 billion on 15 April 2024 (see Annex 3). The size and complexity of the plan, and challenges linked to absorption capacity, call for accelerating investments and addressing emerging delays while strengthening administrative capacities to ensure that reforms and investments can be completed on time. While Poland is taking some measures to address the lack of administrative capacity, challenges remain in particular in terms of finishing the largest investments within the lifetime of the RRF.

Cohesion policy funding helps tackle Poland's growth and competitiveness challenges and reduce the country's territorial and social disparities. Under the 2014-2020 cohesion programming period, support focused on the areas of entrepreneurship, transport, the green transition, childcare, and education. For the current 2021-2027 programming period, support is focused on strengthening Poland's competitiveness, accelerating the decarbonisation of the economy, increasing social cohesion, and improving the overall living and working conditions for people.

Unlocking investments for the green and digital transitions

A diverse set of funding sources can help Poland tackle the challenges associated with the green transition. This transition lies at the heart of Poland's RRP, with almost half of its total allocation geared towards achieving green objectives (EUR 27.8 billion). In addition, over the 2021-2027 period, cohesion policy will invest more than EUR 20 billion in the green transition. Together, these EU funds represent significant support for investments in the green transition, particularly in green mobility, renewable energy and transmission networks.

The combined funding provided through cohesion policy and the RRP will support different renewable energy source technologies. These include onshore and offshore wind energy and photovoltaics. In particular, the Polish government has introduced a reform enabling the construction

of wind turbines across more areas of the country, while ensuring public participation in the permitting process. Poland has already achieved 18GW of installed onshore wind and photovoltaic capacity, marking progress made towards fulfilling decarbonisation objectives and supporting the economy with a sizeable volume of clean, affordable electricity. Looking ahead, Poland is well on track to achieving 30GW capacity by mid-2026. Cohesion policy programmes will invest in other energy transition aspects. This will create a synergy in supporting a wide range of renewable energy source technologies. In the area of electricity infrastructure, the RRP focuses on transmission lines, while distribution grids will benefit from cohesion policy funding (with some targeted support for distribution grids and storage under the RRP's REPowerEU chapter). This combined support is expected to help expand and upgrade the national grid network, integrate renewables and effectively decarbonise the electricity supply.

Also with the help of cohesion funds, Poland will support the development and application of innovations in the field of environmental technologies and the circular economy. This is in line with the national and regional smart specialisation strategies. The RRP, on the other hand, will focus on the deployment of technologies supporting the environmental transformation and circular economy measures in SMEs.

Reforms under the RRP bolster EU investments for the sustainable development of key sectors in the Polish economy. The reform to help develop and implement of sustainable urban mobility plans underpins cohesion initiatives to increase sustainable public transport and promote active mobility options within functional urban areas, including suburban rail, urban public transport, cycling, and walking.

As part of the RRP reform agenda, Poland also adopted its updated National Air Protection Programme. This lays down comprehensive and coordinated measures for public authorities at various levels to improve air quality. Under the programme, public subsidies for coal-fired heat sources will be discontinued.

The RRP and cohesion policy funding are driving the digital transition. Poland has already implemented three reforms under the RRP to facilitate the development and access to wired and wireless communication. Funding under the RRP and cohesion policy is also used to support investments to expand coverage of ultra-fast broadband internet for households and schools in areas where there has been market failure. Support will be provided for companies to: (i) invest in advanced technologies, cloud technologies and artificial intelligence in manufacturing and business processes; (ii) implement smart production lines and construct smart factories; and (iii) deploy digital technologies to reduce the environmental impact of manufacturing.

The implementation of the RRP and cohesion policy will help increase the efficiency of the public administration. This will occur through investing in interoperable and secure e-services that individuals and businesses can access at local, regional, national and EU level.

Investing in people for economic growth and resilience

Funding under the RRF and cohesion policy has been providing support for ECEC. Under the RRP, the Polish government introduced a reform that aims to improve the labour market situation for parents by increasing access to ECEC for children up to 3 years of age. Under the 2014-2020 cohesion policy programme, nearly 500 000 individuals benefited from the renovation of ECEC infrastructure facilities. Looking ahead, the RRP and cohesion policy for 2021-2027 will support the new edition of the 'Toddler+' programme under which the EU will provide funding to create more than 100 000 new childcare places (47 500 from the RRF) in municipalities across Poland between 2022 and 2029.

Box 3:

Combined action for more impactful EU funds

To boost economic growth and maximise the impact of EU funding, Poland's RRP includes reforms that support investments under other EU instruments, creating significant synergies and complementarities between the various funds.

For example, RRF funding will help create 47 500 new places in childcare facilities. This will be achieved by developing infrastructure in the field of ECEC for children up to 3 years of age: This will involve: (i) building or renovating nurseries and children's clubs; and (ii) purchasing real estate and infrastructure (the purchase of land or premises). Complementary to the RRP support, the cohesion policy will help provide an additional 55 077 new places either in existing facilities or in newly established premises, using resources for the European Social Fund Plus.

In addition to implementing a legal framework for developing the social economy, RRP funding will provide support for social economy entities so they can make investments. The funding will cover these entities' investment costs and current operating costs of modernising including costs for expansion of the scale or industry change. Cohesion policy will complement the RRP by providing repayable support for social economy entities (including social enterprises). This includes support for start-up loans and development loans, for creating new jobs in social enterprises and for providing training support for social enterprise managers.

To address challenges faced by the agricultural sector, particularly due to Russia's war of aggression against Ukraine, the Polish government implemented a support scheme under the RRP. Valued at EUR 1.4 billion, this initiative stands as one of the largest investments in the Polish plan, benefiting farmers, fishers, SMEs in the agricultural sector, distribution and storage centres, food banks, and other NGOs focused on food distribution and waste reduction.

Removing regulatory barriers to improve business environment

The RRP includes reforms to reduce the administrative and regulatory burden, improve the quality of law-making, and revise the spatial planning law. These reforms aim to: (i) increase the role of impact assessments and involve social partners and stakeholders more in the policy and law-making processes; (ii) simplifying administrative and legal procedures, i.e. via digitisation: (iii) minimising legal requirements for businesses and entrepreneurs; and (iv) speeding up administrative decision-making.

Poland has taken measures to improve the business environment by strengthening important aspects of the independence and impartiality of courts through the reform of the disciplinary system applicable to judges. This reform has remedied the situation for judges affected by decisions of the now dismantled Disciplinary Chamber of the Supreme Court. Following these reforms, Poland now also fulfils the horizontal enabling conditions related to the EU Charter of Fundamental Rights and therefore has access to the Cohesion Policy, Maritime and Fisheries, and Home Affairs funds. Furthermore, in February 2024, Poland presented an action plan on the 'rule of law' to the General Affairs Council. This action plan aims to address concerns raised by the Commission under the Article 7(1) TEU procedure (related to the independence of the Polish judiciary). Consequently, on 29 May 2024, the Commission withdrew its reasoned proposal under the Article 7(1) TEU procedure.

FURTHER PRIORITIES AHEAD

Although many challenges are to be addressed by the recovery and resilience plan (RRP) and cohesion funds, Poland faces further challenges related to the investment climate, business environment, effectiveness of public finance, population ageing and energy transition. Tackling these challenges will help increase Poland's long-term competitiveness and ensure the resilience of the economy. It will also help the country make further progress in achieving the SDGs ([12]).

It is important that the identified challenges are addressed both at national and regional level. This will help reduce regional disparities and improve the administrative and absorption capacity in a balanced way across the country. To improve productivity, the business environment in Poland would benefit from further action to pursue a coherent economic strategy, better social dialogue and good quality law making. Effective public finances are needed for sustainable growth, and sound public governance is critical for the effective management of state-owned enterprises. The ageing society puts pressure on the healthcare and long-term care sectors, which suffer from labour shortages. Furthermore, the green transition remains a challenge for Poland despite ambitious plans under the RRP and cohesion policy funding programmes, as reflected in particular through the current high share of fossil fuels in the energy mix.

Improving the business environment, investment climate and productivity

Higher private investment rates would boost Poland's long-term growth potential and shift the production to higher-value goods and services. Private investment as a percentage of GDP was low at 12.7% in 2022, well below the EU average (19.6%) and that of regional peers such as Czechia (22.1%) and Hungary (22.8%). Substantial investment needs persist across the economy, particularly for the green transition. While access to finance is not an issue - more than half (54%) of local firms financed at least some of their investment through external funding (EU average: 43%) – the prevalence of bank funding (80% of all external funding) points to further development needs in financing through the capital market. The capital market remains essential for financing modern and innovative companies and for boosting the international expansion of well-established firms. Overall, increasing capital investments in high-productivity sectors (see Annex 12) will be crucial for sustaining Poland's strong economic performance and facilitating the green and digital transition. Poland's performance in the area of digitalisation of business is lagging behind. 61% of Polish SMEs have at least a basic level of digital intensity, which is slightly below the EU average of 69% ([13]). The investment performance is further hampered by: (i) skills mismatches and labour shortages that drive up unit labour costs; (ii) low levels of R&D expenditure and science-business cooperation; (iii) a burdensome regulatory environment; and a (iv) deterioration in

([12]) Sustainable Development Goals.

([13]) European Commission: 2023 Report on the state of the Digital Decade.

Poland's governance and public administration hat increases uncertainty for investors.

Despite significant progress being made in recent years, there is substantial scope to further improve the digital skills of the labour force, which would therefore improve Polish productivity and competitiveness. Only 18% of companies provide dedicated ICT training to their employees. The low propensity of management to invest in training for employees results in them having low levels of digital skills ([14]). In 2023, 44.3% of people aged 16-74 had at least basic digital skills (vs 56% in the EU). Poland has been implementing some programmes as part of cohesion policy funding to increase the digital skills of managers ([15]). However, there is scope for further policy action to improve the digital competences of employees in a more systemic way. The deteriorating quality of basic skills and increased educational inequalities (as demonstrated by the most recent survey under the Programme for International Student Assessment (PISA) (see Annex 15) are a further source of concern and a barrier to Poland's competitiveness. These need to be addressed by improving equity and ensuring access to high-quality education throughout the population in the long term, as well as improving its inclusiveness. Teacher shortages persist, likely affecting the quality of education. Moreover, the decreasing proportion of students studying in the fields of science, technology, engineering and mathematics (STEM) as well as in IT, and the low proportion of doctorate students (see Annex 11 and 15) create a shortage of high-skilled workers, which can further hinder Poland's innovation capacity. Boosting key competences in school education, inclusiveness, ensuring a sufficient and well-qualified teaching workforce, as well as increasing the attractiveness of STEM and doctoral studies could help reverse this trend.

Poland's R&I performance has been steadily improving but still faces persisting bottlenecks. Public R&D expenditure as % of GDP is stagnating below the EU average which is reflected in the weak quality of the public science output (scientific publications). Investments in innovation and its commercialisation (e.g. as measured by spending on R&D or the number of patents per capita) is much lower than in the rest of the EU (see Annex 11). According to the Business environment benchmarking framework, Poland ranks third lowest in the EU in the average score for innovation ([16]). According to the European Innovation Scoreboard 2023, the percentage of small and medium-sized enterprises (SMEs) with product innovations was 43.5% of EU average, while the rate of SMEs with business process innovation was 39.6% of EU average. Also, firms in Poland have one of the lowest average shares of investment in intangible assets. One of the underlying factors is poor links between science and business, which limits the uptake of research output in the economy. The level of business financing for public R&D ([17]) and the share of public-private scientific co-publications as a share of all scientific publications ([18]) are both well below the EU average. Poland is trying to tackle these challenges through, among other things, initiatives like the 'Key National Clusters' ([19]), via the European Funds for the Modern Economy of the Agency for Enterprise Development ([20]), as well as measures under the Polish RRP focused on strengthening: (i) cooperation mechanisms between science and industry; and (ii) investments in the development of research capacities. Also, the new Unitary Patent (created in June 2023) could help stimulate investment in innovation as the system ends complex validation requirements and reduces litigation costs.

([14]) Digital Economy and Society Index (DESI).

([15]) PARP „Akademia Menadżera MMŚP – kompetencje w zakresie cyfryzacji – oferta dla przedsiębiorców".

([16]) Business environment benchmarking framework – European Semester 2024, p. 15.

([17]) Source: Eurostat, (0.014% of GDP in Poland, 0.054% in the EU in 2021).

([18]) Source: Eurostat, OECD (5.4% in Poland against 7.6% in the EU in 2022).

([19]) Source: European Cluster Collaboration Platform. ECCPfactsheet_Poland_2022_final.pdf (clustercollaboration.eu).

([20]) Source: STIP Compass, OECD.

Further action may be needed though to further address to the challenge.

Poland's governance and public administration need further improvement as regards policy making and the business environment. Since 2017, Poland scores have deteriorated in all six governance dimensions measured by the World Bank's World Governance Indicators ([21]). Social dialogue is perceived as insufficient. In 2023, Poland did not take any measures to help strengthen consultations with - and the involvement of - social partners in the legislative process, nor to help improve the overall quality of social dialogue. The limited scope and duration of consultations on legislative proposals has not changed yet, and collective bargaining coverage remains one of the lowest in the EU. The RRP includes reforms to improve the quality of law making and enhance the involvement of social partners in the legislative process, but no concrete steps have been taken so far. The time for companies to prepare for changes in the law was reduced. In 2022, laws dealing with business regulations entered into force with a *vacatio legis* (i.e. the period between the announcement of a legal act and its entering into force) lasting on average 31 days, down from 53.2 in 2011. While Poland already strengthened the independence and impartiality of courts through a reform of the disciplinary regime for judges, it has committed to implementing further reforms in an Action Plan on the rule of law. In addition, a longer-term perspective and stability in the governance of state-owned enterprises would ensure investments were better allocated and unrecoverable costs linked to fast-changing priorities were avoided ([22]). Moreover, Poland's overall performance in public procurement is below the EU average: it attracts too few bidders, especially for a large country, and the procedures can be lengthy and complex. The public procurement law that entered into force in January 2021 did not immediately address the key weaknesses in public procurement in Poland. One way to improve the situation may be to strengthen the digitisation of the public procurement process and to develop the training offer for the SME sector ([23]). Furthermore, perceived government effectiveness in Poland scores significantly below the EU average and continues to decrease (see Annex 13). There is no comprehensive approach to modernising civil service management and there also continued to be a decline in gender parity in senior civil service positions in 2023.

Ensuring effective public spending and fiscal institutions

Improving the efficiency of public spending and the targeting of social benefits remains a challenge. The Polish government decided to expand universal social programmes such as the family allowance '500+' (increasing it and renaming '800+'), and maintain the so-called 13th pension (an extra payment made in addition to the standard monthly pension payment). There is scope to prioritise the efficiency of public spending by focusing new social programmes on lower-income and at-risk groups to avoid unnecessary spending on high-income groups and putting additional inflationary pressure on the economy. The role of spending reviews in the budget remains limited.

The efficiency of public investment could be strengthened across the investment cycle. The planning of public investment would benefit from an integrated and comprehensive document, including investments by state-owned enterprises, anchored into the long-term strategy and aligned with the medium-term fiscal plan. Such a document, when made public and maintained up-to-date, could offer

([21]) The six indicators are: (i) voice and accountability; (ii) political stability and absence of violence/terrorism; (iii) government effectiveness; (iv) regulatory quality; (v) rule of law; and (vi) control of corruption. World Bank, *World Governance Indicators 2022*.

([22]) OECD 'Improving the business regulatory environment in Poland', 10 July 2023.

([23]) 'Report of the President of the Public Procurement Office on the functioning of the public procurement system in 2022', June 2023.

transparency and predictability to the private sector. It would help if standardised methodologies for project assessments were extended beyond EU co-financed projects, and if standard procedures for project selection were developed at the central level (see Annex 13). The public investment system can also benefit from stronger monitoring oversight over large infrastructure projects, including those involving public corporations and public-private partnerships, more systematic *ex post* reviews and enhanced IT systems in Public Investment Management ([24]). More generally, a longer-term perspective and stability in the governance of state-owned enterprises would ensure investments are better allocated and fast-changing priorities are avoided.

The implementation of government plans to introduce a fiscal council will strengthen independent fiscal oversight. Poland does not have a fully-fledged independent fiscal institution (IFI), and activities related to the monitoring of fiscal rules are scattered among several bodies, with the Supreme Audit Office (NIK) taking a central role. Compliance with fiscal rules can currently be assessed by three public institutions, each of which use different methodologies with conflicting conclusions and communications. The NIK's mandate does not cover macroeconomic or budgetary forecasting, and there is no independent institution tasked with assessing the long-term sustainability of public finances or with providing costing estimates to the parliament. Establishing an IFI will be important, fulfilling all the tasks required by the amended National Budgetary Framework Directive, with a strong set of independence safeguards and with sufficient resources. Government plans to establish a fiscal council in 2026 to assess macroeconomic forecasts and the draft budget act are a step in the right direction.

The centralisation of policymaking at national level in recent years has raised concerns over whether investment policy at local level is effective. According to the Self-Government Index, Poland fell from 73.58 points in 2014 to 56.68 in 2021 ([25]). The largest hit to local government revenues came with the Polish Deal, which decreased income tax rates – a main source of financing for local governments. Instead, the government introduced numerous extra-budgetary financial support programmes run by the Chancellery of the Prime Minister, which were highly prone to being distributed without reflecting actual financial needs. According to the Institute of Public Finance (2024) ([26]), during 2019-2023, municipalities governed by the ruling coalition (United Right) were receiving 2.35 times more funds per capita than those governed by the opposition (Senate Pact). The indicators measuring government effectiveness in Poland continue to decrease, as evidenced by the Government effectiveness index by the World Bank, which captures elements such as the quality of public services, policy formulation and implementation. The percentile rank of Poland declined from 74th in 2015 to 61st in 2022 ([27]). As such, the ability of the local government to pursue sound policies and implement quality public services and investments has deteriorated. Reversing the centralising trend and building an independent and highly qualified civil service at both national and regional levels would ensure effective policymaking, efficient public investments, and quick absorption of the EU funds.

Demographic projections put pressure on the future sustainability of the pension system. The statutory retirement age in the Polish system is 60 years for women and 65 years for men. Despite measures under the RRP to incentivise the postponement of the effective retirement age ([28]), recent legislative

([24]) International Monetary Fund (2022) Poland: Technical assistance report – Public Investment Management Assessment.

([25]) https://www.batory.org.pl/publikacja/indeks-samorzadnosci-1/.

([26]) https://www.ifp.org.pl/dlaswoich/.

([27]) https://www.worldbank.org/en/publication/worldwide-governance-indicators.

([28]) As of 1 January 2022, women who reach 60 years of age and men who reach 65 years of age can befit from tax allowance up to PLN 85.5 thousand of taxable

initiatives on working-age pensions ('emerytury stażowe') allowing men and women to retire after 40 years and 35 years of work, respectively, and on significantly increasing benefits for widows by introducing the 'widow's pension' are likely to decrease the incentive to stay longer on the labour market. This may have a negative impact on the sustainability of the pension system, which is characterised by a broadly stable pension expenditure-to-GDP ratio in the long term. However, the baseline projections for Poland imply a sharp worsening in pension adequacy since the sustainability factor embedded in Poland's pension system automatically adjusts pension benefits for the decline in contributions due to a shrinking working-age population. If the current benefit ratio (average pension benefit vs average wage) is maintained and with worsening demographic projections that indicate a larger group of pensioners in the future, pension expenditure would increase by an additional 2.5 percentage points of GDP by 2045. The recently introduced 13th and 14th pension benefits ([29]) that aim to mitigate the declining replacement rate, increased annual old-age pension spending by 0.5% of GDP and 0.6% GDP in 2023, respectively. Benefits from voluntary saving schemes ([30]) under the so-called third pension pillar are likely insufficient to compensate for the loss of old-age income, especially for low-income groups given the low contributions made to these voluntary saving schemes. Overall, Poland would benefit from the increase of the effective retirement age, especially for women, which remains lower than the OECD average (61.2 vs 63.1 in 2022). Pension benefits for farmers are largely subsidized by the state, amounting to 0.6% of GDP in 2023, and the method of calculating collected insurance contributions does not encourage them to move to the general pension system. A reform of the special scheme for farmers, combined with an active employment policy, could increase the shift from inactivity to employment in more profitable sectors of the economy.

Addressing challenges linked to the ageing society, healthcare, long-term care and labour shortages

The ageing society poses challenges in many policy areas. Poland is affected by an increasing old-age dependency ratio (ratio of the number of people aged 65 and over compared to the number of people of working age). The country is projected to have an old-age dependency ratio (65+/20-64) of almost 64% by 2070 (above the EU average of 59%). An ageing and shrinking population require appropriate measures to increase the availability of workers as well as to strengthen the healthcare and long-term care services.

The Polish labour market is one of those most affected by shortages in the EU. The share of employers who report that labour shortages are a factor limiting their production was 72% in construction, 67% in industry and 55% in services in Q4-2023. A large decrease of the working-age population (18-59/64) is expected. Statistics Poland projects that by 2030 their number will decrease by 800 000 compared to 2022 ([31]). In a labour market with high employment already, as is the case in Poland, there is a strong need to tap into the potential of groups still not present enough in the labour market, particularly women, people with a disability and older people. The Polish migration policy focuses on the current needs of employers, as reported to the labour offices. Poland is working on a comprehensive strategy for its migration policy, including the integration aspect, which is currently

income if they decide to continue their professional activity and do not receive an old-age pension.

([29]) Since 2019, the 13th month pension payment has been paid to all pensioners at the level of the minimum pension. Since 2021, a 14th month pension has also been paid at the level of the minimum pension, with higher-income pensioners receiving a reduced amount.

([30]) Savings schemes include: PPE – pracownicze programy emerytalne; IKE – indywidualne konto emerytalne; IKZE – indywidualne konto zabezpieczenia emerytalnego.

([31]) Resident population projection for Poland 2023-2060, Statistics Poland, 2023.

neglected. However, the details of this strategy are still in the making.

Poland is struggling with a shortage of medical and long-term care staff. Poland has among the lowest numbers of health professionals in Europe with 3.4 doctors per 1 000 population compared to 4.1 per 1 000 across the EU. The number of nurses in Poland is also one of the lowest in the EU, at 5.7 per 1 000 population compared to 8.5 per 1 000 across the EU ([32]). The Polish 'Barometr Zawodów' survey lists nurses and midwives among eight permanently understaffed professions in Poland ([33]). For the academic years 2022/2023 and 2023/2024, 19 new medical faculties were approved by the then Minister of Education and Science. However, 12 of them were opened, although they were the subject of a negative opinion of the Polish Accreditation Commission (PKA). Currently, all 14 medical study programmes launched in the academic year 2023/2024 are undergoing a re-evaluation process of PKA ([34]). Poland's level of staffing for long-term care (LTC) is low. The number of LTC patients per nurse working in LTC inpatient or home care in Poland is relatively low compared to other European countries. Due to the insufficient provision of residential and non-residential services, the care for older people and people with a disability is mostly carried out informally and falls on family members, especially women.

Public expenditures on healthcare and LTC are low. General health spending has been gradually increasing in Poland, but it stands at 6.4% of GDP, among the lowest in the EU, where the average spending amounts to 10.9% of GDP (2021 data) ([35]). Both preventable and treatable mortality rates in Poland are higher than in the EU overall. Despite this, Poland has decreased the share of spending on preventive care in current health expenditure over the last years, contrary to the trend observed in most Member States (2022 data). The share of out-of-pocket payments for healthcare is high at 19.9%, above the EU average of 14.5%. Public spending on LTC is more than three times lower than the EU average (0.5% vs 1.7% of GDP in 2022). LTC services are severely underfunded, and many people with needs cannot access them (see Annex 14). The coverage of publicly funded home care is one of the lowest in the EU (used by 13% of those aged 65 and over in need of LTC vs 30% in EU in 2022) ([36]). Coverage of publicly provided or funded residential care fares equally badly (10% vs 18% in EU in 2022) ([37]). Ensuring stable and adequate public financing of health and care services is crucial given the rapid demographic changes Poland is facing.

Green transition

Poland is accelerating its deployment of renewables, but the country remains heavily reliant on coal and lignite. In 2022, coal accounted for 70.7% of the electricity generation, weighing down the competitiveness and sustainability of the Polish economy. However, the share of renewable energy sources in electricity generation is increasing, reaching 20.6% in 2022 thanks to investments in solar, onshore wind and biomass. Recent reforms, also as part of the RRP, are expected to further accelerate the investment in renewable energy sources, and planned reforms and investments in energy infrastructure should help address the grid-related bottlenecks to the decarbonisation of the electricity mix, especially if they are coupled with measures

([32]) Country Health Profile Poland 2023 p. 10, OECD.

([33]) Barometr Zawodów 2024. Ministry of Family, Labour and Social Policy,

([34]) https://www.rynekzdrowia.pl/Nauka/9-uczelni-z-negatywna-ocena-PKA-ksztalci-lekarzy-Trzy-kolejne-dostaly-zgode-na-uruchomienie-nowych,255502,9.html.

([35]) Eurostat, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Healthcare_expenditure_statistics_-_overview.

([36]) European Commission, 2024 Ageing Report. Economic and Budgetary Projections for the EU Member States (2022-2070)

([37]) European Commission, 2024 Ageing Report. Economic and Budgetary Projections for the EU Member States (2022-2070)

to improve the flexibility of demand to ensure the grids are used more effectively. There is nonetheless room for further action to meet climate and energy objectives, particularly in the buildings, transport and industry sectors. This action would benefit from being guided by long-term policy planning aligned with the EU objectives. Given the high needs for green skills and competences, Poland would also benefit from a national green skills strategy to boost policy focus and monitor the progress made.

Targeted efforts are needed to reduce carbon emissions from buildings, with a particular focus on decarbonising district heating. District heating systems provide heat to 42% of the population but remain heavily dependent on coal while a clear decarbonisation pathway is yet to be proposed. Poland has started work on a Heating Strategy, which offers an opportunity to address the sector's challenges: (i) the need for a robust financial model; and (ii) new, more diversified business models for district heating companies that encompass energy efficiency improvements, heat storage and grid-balancing services. While current policies assume a shift to natural gas and biomass, the new strategy presents an opportunity to outline a decarbonisation pathway that prioritises energy efficiency, sustainable renewable heat sources and the use of waste heat. Poland has implemented a set of national policies to promote residential building renovations, including major subsidy schemes financed under the RRP. However, these policies need to be further strengthened and aligned with the EU 2030 climate objectives.

Further steps in decarbonising the transport sector will be essential to reduce greenhouse-gas emissions. Emissions from road transport almost doubled in 2022 compared to 2005 levels and currently account for 34.4% of all emissions in the effort-sharing sectors (road transport, buildings, agriculture, waste and small industries). The uptake of electric vehicles is still at an early stage with a share of only 0.1% in 2022 accompanied by delays in the investments in zero and low-emission public transport. Between 2016 and 2021, the share of buses and trains in total passenger transport in Poland decreased to 13.7%, which is the EU average. There is scope to accelerate the development of the network of charging stations for electric vehicles to promote their use in individual and public transport.

Poland is vulnerable to events linked to the impacts of climate change, facing in particular increased risks of drought and flooding. While the RRP includes measures to improve water retention in rural areas, other national policies and practices in agriculture, forestry and water management still undermine adaptation objectives and exacerbate the risk of drought and flooding, such as conversion of peatlands and grasslands into arable land, intensive logging in water-protecting forests or unsustainable maintenance works on rivers. More climate change-resilient water management could be achieved through closer co-ordination between the different institutions in charge of relevant policies, more mainstreamed understanding of how nature-based adaptation solutions provide benefits to the economy as well as implementation of sustainable water retention policies such as those formulated in the Programme for the Prevention of Water Scarcity.

Box 4:

The mid-term review of cohesion policy funds for Poland

The mid-term review of the cohesion policy funds is an opportunity to assess cohesion policy programmes and tackle emerging needs and challenges in EU Member States and their regions. Member States are reviewing each programme taking into account, among other things, the challenges identified in the European Semester, including in the 2024 country-specific recommendations. This review forms the basis for a proposal by the Member State for the definitive allocation of 15% of EU funding included in each programme.

Poland has made progress in implementing cohesion policy programmes and the European Pillar of Social Rights, but challenges remain as outlined in this report, including in Annexes 14 and 17. In particular, regional disparities in Poland in terms of GDP per capita have continuously widened for the past decade as disparities between eastern regions and the rest of the country, as well intra-regional disparities, persist. Against this background, it is still important to continue implementing planned priorities, paying particular attention to: (i) investment in innovative and smart economic transformation, based on R&D activities, implementation of new technologies and strengthened cooperation between science and business; (ii) shifting away from coal, speeding up the green transition, clean energy production as well as net-zero technologies manufacturing and reducing energy consumption and air pollution; (iii) investments in skills, particularly in adult learning, and digital and green skills, based on a comprehensive strategy and Strengthening measures that help women and people with a disability find work', including through tapping into the full potential of the social economy; (iv) closing territorial gaps in the access to quality and affordable childcare, including investments in increasing the workforce in childcare, as well as boosting their qualifications and improving their working conditions; (v) increasing access to high-quality, affordable and accessible community-based long-term care services, while improving working conditions and the work-life balance for carers.

Given the unprecedented inflow of refugees from Ukraine, the support system for non-EU country nationals and opportunities for their comprehensive integration merit specific consideration as Poland prepares for the mid-term review. Poland could also benefit from the opportunities provided by the Strategic Technologies for Europe Platform initiative (STEP) ([38]) to support the transformation of the economy, especially in terms of clean and resource efficient technologies.

([38]) Regulation (EU) 2024/795.

KEY FINDINGS

With its wide policy scope and substantial financial envelope, Poland's recovery and resilience plan (RRP) includes measures to address a series of structural challenges, in synergy with other EU funds by:

- **Supporting the green transition** by significantly accelerating investments in decarbonisation, energy transformation, and sustainable transport;
- **Accelerating the digital transition** by improving the digitalisation of schools, businesses, and public administration, e.g., by developing appropriate infrastructure;
- **Improving the labour market** by increasing access to early childhood education and care for children up to 3 years of age, strengthening public employment services and fostering quality education;
- **Supporting social protection** by providing investment support for social economy entities and reforming fragmented long-term care systems;
- **Improving the business environment** by strengthening cooperation between researchers and businesses, as well as ensuring effective public consultations and involving social partners in the policy-making process;
- **Strengthening the independence and impartiality of courts** through the reform of the disciplinary system that applies to judges.

The implementation of Poland's recovery and resilience plan is facing increasing challenges. Renewed efforts are key for a successful implementation of all the measures of Poland's recovery and resilience plan by August 2026.

Beyond the reforms and investments in the RRP and cohesion-policy programmes, Poland would benefit from:

- **Ensuring sustainability of government finances** by: (i) addressing challenges linked to an ageing population, including the pension system; (ii) improving the functioning of healthcare and long-term care; and (iii) addressing labour shortages, e.g., by attracting skilled workers and unlocking the potential of inactive population;
- **Ensuring government finances are effective** by: (i) better targeting social benefits and ensuring stable financing for local government to pursue efficient public investments; and (ii) improving the governance of state-own enterprises to ensure their efficient performance in the longer term;
- **Improving the investment climate to increase private investment** by: (i) ensuring a stable legal environment; (ii) developing its capital market; (iii) facilitating innovations; (iv) speeding up the digitisation of businesses; (v) strengthening the social dialogue; and (vi) taking further steps to tackle skills mismatches;
- **Strengthening the planning and selection of public investments** by: (i) supporting the annual and medium-term planning process with a comprehensive and reliable overview of investment spending by the central government and (ii) improving the procedures for the assessment and selection of projects and the public procurement electronic means;

- **Accelerating the green transition** by: (i) better policy planning, taking further measures to reduce reliance on fossil fuels: (ii) improving energy efficiency, including in the district heating sector: (iii) further developing sustainable transport; and (iv) increasing efforts to improve water management policy to address the growing risk of drought and floods.

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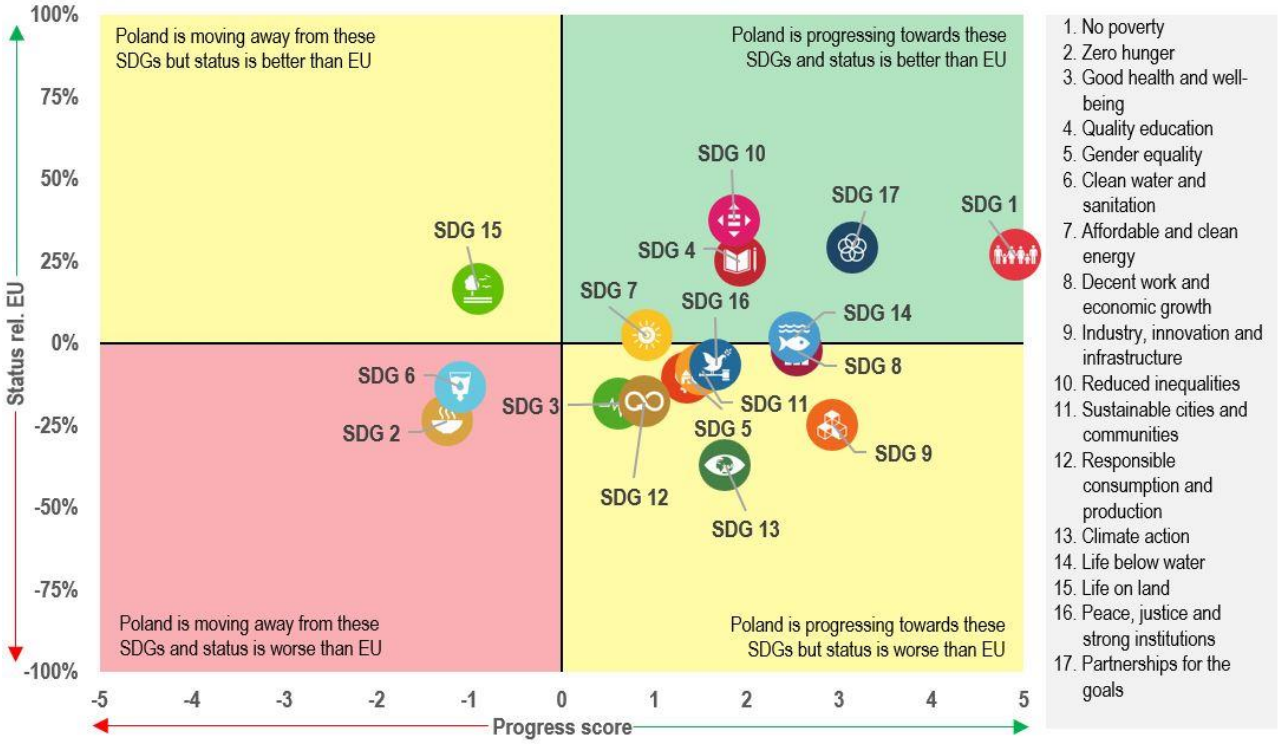
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This Annex assesses Poland's progress on the Sustainable Development Goals (SDGs) along the four dimensions of competitive sustainability. The 17 SDGs and their related indicators provide a policy framework under the UN's 2030 Agenda for Sustainable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

While Poland is improving on some of the SDG indicators related to *environmental sustainability* (SDGs 7, 9, 11, 12, 13, 14), it is moving away from the targets for SDG 2 (Zero hunger), which includes indicators on sustainable agricultural production and the environmental impacts of agriculture), SDG 6 (Clean water and sanitation) and SDG 15 (Life on land). Under SDG 2, the area under organic farming in Poland (3.8% of the utilised agricultural area in 2021) is below the EU average (9.9% in 2021), while government support to agricultural R&D was only EUR 0.1 per inhabitant in Poland in 2022, compared to the EU average of EUR 8. As for SDG 6, the percentage of inland water bathing sites with excellent water quality in Poland decreased from 83.3% in 2017 to 57.7% in 2022 and was below the EU average of 79.3% in 2022. Poland has made some progress on energy consumption indicators including the share of renewable energy in gross final energy consumption (SDG 7; from 11.1% in 2017 to 16.9% in 2022; EU average 23.0% in 2022). However, it needs to catch up with the EU average on per capita net greenhouse gas (GHG) emissions (SDG 13; 9.3 tonnes in2022; EU average: 7.3 tonnes in 2022). Moreover, Poland is rapidly losing carbon sinks, with the net GHG emissions from land use and forestry (LULUCF) increasing

Graph A1.1: **Progress towards the SDGs in Poland**



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). 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 25 April 2024. Data refer mainly to the period 2017-2022 or 2018-2023. Data on SDGs may vary across the report and its annexes due to different cut-off dates.

from -133.6 tonnes CO_2 eq. per km^2 in 2017 to -114.3 in 2022; EU average: -56.0). In addition, Poland's energy import dependency (SDG 7) increased from 38.3% in 2017 to 46.0% in 2022 (EU average: 62.5% in 2022). As for affordable energy, the percentage of the Polish population unable to keep their homes adequately warm was lower (4.9% in 2022) than the EU average (9.3%). Poland's recovery and resilience plan (RRP) includes measures to address some of the energy-related challenges, namely the energy renovation of buildings, energy efficiency of business and the decarbonisation of energy production. While Poland is improving on several SDG indicators related to SDG 11 (Sustainable cities and communities), its share of buses and trains in total passenger transport has decreased (from 20.7% in 2016 to 13.7% in 2021; EU average also 13.7%) and the country needs to reduce premature deaths due to exposure to fine particulate matter (PM2.5) (125 per 100 000 in 2021; EU average: 57). On SDG 14, Poland is progressing on the share of coastal water bathing sites with excellent water quality (50.8% in 2022, vs 48.5 in 2017), but is below the EU average (88.9%) and does not provide data for half of the SDG 14 sub-themes. Poland is moving away from the targets for SDG 15 (Life on land), due to the significant increase in the drought impact on ecosystems (from 1.2% of country area in 2017 to 8.8% in 2022). However, it falls below the EU average on this (15.7% in 2022).

Poland is improving on most SDG indicators related to *fairness* (SDGs 1, 3, 4, 5, 7, 8, 10). It performs well on the indicators for: (i) people at risk of poverty or social exclusion (SDG 1; 15.9% in 2022, vs 18.7% in 2017 and the EU average of 21.6% in 2022); (ii) the severe material and social deprivation rate (SDG 1; 2.8% of the population in 2022, vs 5.3% in 2017 and the 6.7% EU average in 2022); and (iii) income distribution (SDG 10; 3.9 in 2022, vs 4.6 in 2017 and the EU average of 4.7 in 2022). In addition, the long-term unemployment rate fell (SDG 8; 0.8% in 2023 vs 1.0% in 2018 and the EU average of 2.1% in 2023). Poland also improved and performed better than the EU average on early leavers from education and training (SDG 4; 3.7% in 2023; EU average: 9.5%). However, Poland needs to take measures to significantly reduce avoidable mortality (SDG 3; 481.7 deaths per 100 000 in 2021; EU average: 294.1). Poland also needs to catch up with the EU average on gender equality in employment, in particular on positions held by women in senior management (SDG 5; 27.2% of positions in senior management were held by women in 2023; EU average: 33.8%). On SDG 4 (Quality education), the percentage of low-achieving 15-year-olds in reading increased (from 14.7% in 2018 to 23% in 2022), though it is still lower than the EU average (29.5% in 2022).

Poland is improving on SDGs on *productivity* (SDGs 4, 8 and 9). Poland performs well on its employment rate (SDG 8; 77.9% in 2023, vs 71.4% in 2018 and the EU average of 75.3% in 2023). On the negative side, the share of adults with at least basic digital skills (SDG 4) remains low (44.3% in 2023; EU average: 55.6%). Poland is also moving away from the EU average on the indicator for the investment share of GDP (SDG 8; 16.8% in 2022, vs 17.6% in 2017 and the EU average of 22.7% in 2023). The Polish RRP includes several measures to improve the investment climate. Poland is improving, but still performs far below the EU average on indicators for R&D and innovation, and sustainable industry (SDG 9), including gross domestic expenditure on R&D (1.46% of GDP in 2022, vs 1.04% of GDP in 2017 and the EU average of 2.24% in 2022). The same is true of air emissions intensity of fine particulate matter (PM2.5) from industry (0.16 g per euro in 2021; EU average: 0.06 g).

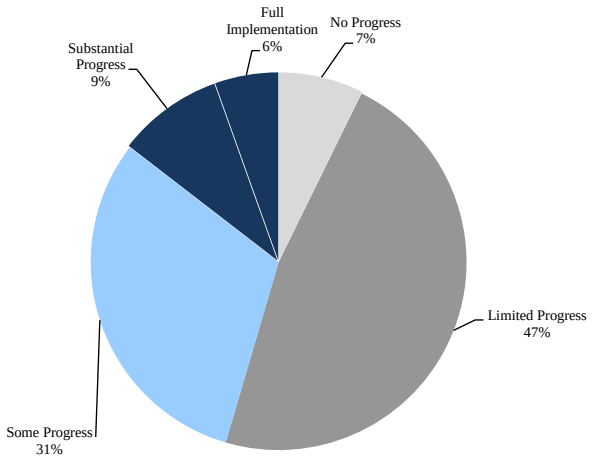
Poland is improving on SDG indicators related to *macroeconomic stability* (SDGs 8, 16, 17) but still needs to catch up a bit compared to the EU. It has improved on SDG 8 (Decent work and economic growth), although real GDP per capita (EUR 14 750 in 2023) remains below the EU average (EUR 28 940 in 2023). On justice and strong institutions (SDG 16), Poland has increased its general government total expenditure on the law courts (SDG 16; EUR 86.2 per capita in 2022) but needs to catch up with the EU average of EUR 113.7. However, perceptions of the independence of the justice system have become more negative, with the percentage of people who consider it to be fairly good and very good declining steeply from 42% in 2018 to 23% in 2023 (the EU average in 2023 was 53%). Poland's Corruption Perceptions Index has also deteriorated (from 60 in 2017 to 54 in 2023; EU average: 64 in 2023). The Polish RRP includes measures on the independence of the justice system. On the share of households with a high-speed internet connection (SDG 17), Poland has made considerable progress (from 21.3% in 2017

to 70.7% in 2022) and is close to the EU average of (73.4% in 2022).

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

The Commission has assessed the 2019-2023 country-specific recommendations (CSRs) ([39]) addressed to Poland as part of the European Semester. These recommendations concern a wide range of policy areas that are related to 15 of the 17 Sustainable Development Goals (see Annexes 1 and 3). The assessment considers the policy action taken by Poland to date ([40]) and the commitments in its recovery and resilience plan (RRP) ([41]). At this stage of RRP implementation, 46% of the CSRs focusing on structural issues from 2019-2023 have recorded at least 'some progress', while 47% 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: **Poland's progress on the 2019-2023 CSRs (2024 European Semester)**



Source: European Commission

([39]) 2023 CSRs :EUR-Lex - 32023H0901(21) - EN - EUR-Lex (europa.eu)
2022 CSRs: EUR-Lex - 32022H0901(21) - EN - EUR-Lex (europa.eu)
2021 CSRs: EUR-Lex - 32021H0729(21) - EN - EUR-Lex (europa.eu)
2020 CSRs: EUR-Lex - 32020H0826(21) - EN - EUR-Lex (europa.eu)
2019 CSRs: EUR-Lex - 32019H0905(21) - EN - EUR-Lex (europa.eu)

([40]) 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).

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

Table A2.1: **Summary table on 2019-2023 CSRs**

Poland	Assessment in May 2024	RRP coverage of CSRs until 2026	Relevant SDGs
2019 CSR 1	**Some progress**		
Ensure that the nominal growth rate of net primary government expenditure does not exceed 4.4% in 2020, corresponding to an annual structural adjustment of 0.6% of GDP.	Not relevant anymore	Not applicable	SDG 8, 16
Take further steps to improve the efficiency of public spending, including by improving the budgetary process.	Some progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 8, 16
2019 CSR 2	**Limited Progress**		
Ensure the adequacy of future pension benefits and the sustainability of the pension system by taking measures to increase the effective retirement age and by reforming the preferential pension schemes.	Limited Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 8
Take steps to increase labour market participation, including by improving access to childcare and long-term care, and remove remaining obstacles to more permanent types of employment.	Some Progress	Relevant RRP measures being implemented as of 2024, 2025, and 2026.	SDG 3, 4, 5, 8
Foster quality education and skills relevant to the labour market, especially through adult learning.	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025, and 2026.	SDG 4
2019 CSR 3	**Some Progress**		
Strengthen the innovative capacity of the economy, including by supporting research institutions and their closer collaboration with business.	Limited Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 9
Focus investment-related economic policy on innovation	Some Progress	Relevant RRP measures being implemented as of 2024, 2025, and 2026.	SDG 9, 10, 11
Focus investment-related economic policy on transport, notably on its sustainability	Some Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 10, 11
Focus investment-related economic policy on digital infrastructure	Substantial Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 9, 10, 11
Focus investment-related economic policy on energy infrastructure	Limited Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 7, 9, 10, 11, 13
Focus investment-related economic policy on healthcare	Some Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 3, 10, 11
Focus investment-related economic policy on cleaner energy, taking into account regional disparities	Some Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 7, 9, 10, 11, 13
Improve the regulatory environment, in particular by strengthening the role of consultations of social partners and public consultations in the legislative process.	Limited Progress	Relevant RRP measures planned as of 2022, and 2023.	SDG 16
2020 CSR 1	**Limited progress**		
Take all necessary measures, in line with the general escape clause of the Stability and Growth Pact, to effectively address the COVID-19 pandemic, sustain the economy and support the ensuing recovery. When economic conditions allow, pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment.	Not relevant anymore	Not applicable	SDG 8, 16
Improve resilience, accessibility and effectiveness of the health system, including by providing sufficient resources and accelerating the deployment of e-health services.	Limited progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 3
2020 CSR 2	**Limited Progress**		
Mitigate the employment impact of the crisis, in particular by enhancing flexible and short time working arrangements.	Some Progress	Relevant RRP measures planned as of 2023.	SDG 8
Better target social benefits and ensure access to those in need.	No Progress		SDG 1, 2, 10
Improve digital skills.	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 4

(Continued on the next page)

Table (continued)

Further promote the digital transformation of companies and public administration.	Some Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 9, 16
2020 CSR 3	**Limited Progress**		
Continue efforts to secure access to finance and liquidity for companies.	Full Implementation		SDG 8, 9
Front-load mature public investment projects	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 8, 16
and promote private investment to foster the economic recovery.	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 8, 9
Focus investment on the green and digital transition, in particular on digital infrastructure,	Some Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 9, 10, 11
clean and efficient production and use of energy,	Some Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 7, 9, 10, 11, 13
and sustainable transport,	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 10, 11
contributing to a progressive decarbonisation of the economy, including in the coal regions.	Limited Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 6, 10, 11, 12, 15
2020 CSR 4	**Some Progress**		
Enhance the investment climate, in particular by safeguarding judicial independence.	Substantial Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 16
Ensure effective public consultations and involvement of social partners in the policymaking process.	Limited Progress	Relevant RRP measures planned as of 2022, and 2023.	SDG 16
2021 CSR 1	**Not relevant anymore**		
In 2022, pursue a supportive fiscal stance, including the impulse provided by the Recovery and Resilience Facility, and preserve nationally financed investment.	Not relevant anymore	Not applicable	SDG 8, 16
When economic conditions allow, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring fiscal sustainability in the medium term.	Not relevant anymore	Not applicable	SDG 8, 16
At the same time, enhance investment to boost growth potential. Pay particular attention to the composition of public finances, on both the revenue and expenditure sides of the budget, and to the quality of budgetary measures in order to ensure a sustainable and inclusive recovery. Prioritise sustainable and growth-enhancing investment, in particular investment supporting the green and digital transition.	Not relevant anymore	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.	Not relevant anymore	Not applicable	SDG 8, 16
2022 CSR 1	**Some Progress**		
In 2023, ensure that the growth of nationally financed primary current expenditure is in line with an overall neutral policy stance, 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.	Substantial Progress	Not applicable	SDG 8, 16
Expand public investment for the green and digital transitions, and for energy security taking into account the REPowerEU initiative, including by making use of the Recovery and Resilience Facility and other Union funds.	Full Implementation	Not applicable	SDG 8, 16
For the period beyond 2023, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions.	Some Progress	Not applicable	SDG 8, 16
Improve the efficiency of public spending, including by continuing the reform of the budget system.	Some Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 8, 16
Ensure the adequacy of future pension benefits and the sustainability of the pension system by taking measures to increase the effective retirement age and by reforming the preferential pension schemes.	Limited Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 8
2022 CSR 2			
Swiftly finalise the negotiations with the Commission of 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.		

(Continued on the next page)

Table (continued)

2022 CSR 3	**Limited Progress**		
Increase labour market participation, including by improving access to childcare and longterm care, and remove remaining obstacles to more permanent types of employment.	Some Progress	Relevant RRP measures being implemented as of 2024, 2025, and 2026.	SDG 3, 4, 5, 8
Foster quality education and skills relevant to the labour market, especially through adult learning and improving digital skills.	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 4
Better target social benefits and ensure access to those in need.	No Progress		SDG 1, 2, 10
2022 CSR 4	**Limited Progress**		
Improve the resilience, accessibility and effectiveness of the health system, including by providing sufficient resources to reverse the pyramid of care and accelerating the deployment of e-health services.	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 3
Strengthen the innovative capacity of the economy, including by supporting research institutions and their closer collaboration with business.	Limited Progress	Relevant RRP measures being implemented as of 2024, 2025, and 2026.	SDG 9
Enhance further digitalisation of businesses and public administration, including through development of infrastructure.	Some Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 9, 16
2022 CSR 5	**Some Progress**		
Enhance the investment climate, in particular by safeguarding judicial independence.	Substantial Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 16
Ensure effective public consultations and involvement of social partners in the policymaking process.	Limited Progress	Relevant RRP measures planned as of 2022, and 2023.	SDG 16
2022 CSR 6	**Limited Progress**		
Reduce overall reliance on fossil fuels	Limited Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 7, 9, 13
by removing regulatory, administrative and infrastructural barriers to accelerate permitting procedures and deployment of renewable energy sources.	Some Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 7, 8, 9, 13
Reform building renovation policies and support schemes to incentivise deeper energy efficiency, promote energy savings and faster phase-out of fossil fuels in heating and accelerated deployment of heat pumps.	Limited Progress	Relevant RRP measures planned as of 2022, 2023, and 2026.	SDG 7
Accelerate modal shift towards public transport and active mobility and promote faster uptake of electric vehicles with incentives and investment in charging infrastructure.	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 11
Improve long- and medium-term strategic planning of the green transition by updating national energy policies in line with the European Green Deal objectives and the REPowerEU Communication to provide certainty to the business community and use funding effectively with a view to accelerating clean energy investments.	Limited Progress	Relevant RRP measures planned as of 2022, 2023, 2024, 2025 and 2026.	SDG 7, 9, 11, 13
2023 CSR 1	**Limited Progress**		
Wind down the emergency energy support measures in force, using the related savings to reduce the government deficit, as soon as possible in 2023 and 2024. Should renewed energy price increases necessitate new or continued support measures, ensure that these are targeted at protecting vulnerable households and firms, fiscally affordable, and preserve incentives for energy savings.	Some Progress	Not applicable	SDG 8, 16
Ensure prudent fiscal policy, in particular by limiting the nominal increase in nationally financed net primary expenditure in 2024 to not more than 7.8%.	No Progress	Not applicable	SDG 8, 16
Preserve nationally financed public investment and ensure the effective absorption of RRF grants and other EU funds, in particular to foster the green and digital transitions.	Full Implementation	Not applicable	SDG 8, 16
For the period beyond 2024, continue to pursue a medium-term fiscal strategy of gradual and sustainable consolidation, combined with investments and reforms conducive to higher sustainable growth, to achieve a prudent medium-term fiscal position.	Some Progress	Not applicable	SDG 8, 16
Improve the efficiency of public spending, including through better targeting of social benefits.	No Progress		SDG 1, 2, 8, 10, 16
Ensure the adequacy of future pension benefits and the sustainability of the pension system by taking measures to increase the effective retirement age and reforming preferential pension schemes.	Limited Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 8

(Continued on the next page)

Table (continued)

2023 CSR 2			
Urgently fulfil the required milestones and targets related to the protection of the financial interests of the Union with a view to allow for a swift and steady implementation of its recovery and resilience plan. Swiftly finalise the REPowerEU chapter with a view to rapidly starting its implementation. Proceed with the speedy implementation of cohesion policy programmes, in close complementarity and synergy with the recovery and resilience plan.	RRP implementation is monitored through the assessment of RRP payment requests and analysis of the bi-annual reporting on the achievement of the milestones and targets, to be reflected in the country reports. Progress with the cohesion policy is monitored in the context of the Cohesion Policy of the European Union.		
2023 CSR 3	Substantial Progress		
Enhance the investment climate, including by safeguarding judicial independence.	Substantial Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 8, 9, 16
2023 CSR 4	Limited Progress		
Accelerate the phase-out of fossil fuels	Limited Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 7, 9, 13
and (accelerate) the deployment of renewable energy. Reform the legal framework for grid connection permitting and for renewable energy sources, including energy communities, biomethane and renewable hydrogen.	Some Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 7, 8, 9, 13
Implement measures to promote energy savings and gas demand reductions. Scale up investment in energy efficiency for buildings and decarbonise the heat supply in district heating to address energy poverty.	Limited Progress	Relevant RRP measures planned as of 2024, 2025 and 2026.	SDG 1, 2, 7, 10
Further promote sustainable public transport modes.	Limited Progress	Relevant RRP measures being implemented as of 2024, 2025 and 2026.	SDG 11
Step up policy efforts aimed at the provision and acquisition of skills and competences needed for the green transition, including for building renovation.	Limited Progress	Relevant RRP measures planned as of 2024, 2025 and 2026.	SDG 4

Note:

* See footnote ([42]).

** 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

This Annex provides a snapshot of Poland's implementation of its recovery and resilience plan (RRP), past the mid-way point of the Recovery and Resilience Facility's (RRF) lifetime. The RRF has proven central to the EU's recovery from the COVID-19 pandemic, helping speed up the twin green and digital transition, while adapting to geopolitical and economic developments, and strengthening resilience against future shocks. The RRF is also helping implement the UN Sustainable Development Goals and address the country-specific recommendations (see Annex 2).

The RRP paves the way for disbursing up to EUR 25.3 billion in grants and EUR 34.5 billion in loans under the RRF over the 2021-2026 period, representing 8% of Poland's GDP ([42]). As of mid-May 2024, EUR 11.39 billion has been disbursed to Poland under the RRF, comprising EUR 3.25 billion in grants and EUR 8.14 billion in loans.

Poland still has EUR 48.4 billion available in grants and loans from the RRF. This will be disbursed after the assessment of the future fulfilment of the remaining 276 milestones and targets ([43]) included in the Council Implementing Decision ([44]) (CID), ahead of the 2026 deadline established for the RRF.

Poland's progress in implementing its plan is recorded in the Recovery and Resilience Scoreboard ([45]). The scoreboard gives an overview of the progress made in implementing the RRF as a whole. Graphs A3.1 and A3.2 show the current state of play as reflected in the scoreboard.

Poland's RRP includes a REPowerEU chapter to phase out its dependency on Russian fossil fuels, diversify its energy supplies and produce more clean energy in the coming years. To kick-start the REPowerEU chapter's implementation, EUR 5.1 billion was disbursed as pre-financing on 28 December 2023. This helped launch relevant reforms like streamlining the permitting process for renewable energy sources and to accelerate home renovations, thereby accelerating the deployment of renewable energy and boosting energy efficiency in buildings.

Table A3.1: **Key facts of the Polish RRP**

Initial plan CID adoption date	17 June 2022
Scope	Revised plan with REPowerEU chapter
Last major revision	8 December 2023
Total allocation	EUR 25.3 billion in grants and EUR 34.5 billion in loans (8% of 2021 GDP)
Investments and reforms	56 investments and 55 reforms
Total number of milestones and targets	314
Fulfilled milestones and targets	38 (12% of total)

Source: RRF Scoreboard

The plan has a strong focus on the green transition, dedicating 46.6% of the available funds to measures that support climate objectives and 21.3% of its total allocation to support the digital transition. It also retains a strong social dimension with social protection measures, especially related to employment and skills.

With one complete payment request completed, Poland's implementation of its RRP is underway. However, timely completion requires increased efforts. The Commission gave a positive assessment of Poland's payment request on 29 February 2024, taking into account the opinion of the Economic and Financial Committee. This led to EUR 6.3 billion being disbursed in financial support on 15 April 2024 ([46]). The related 38 milestones and targets covered

([42]) GDP information is based on 2023 data. Source: https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/index.html?lang=en

([43]) 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.

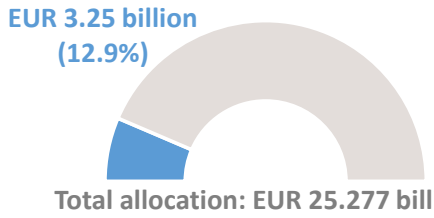
([44]) https://data.consilium.europa.eu/doc/document/ST-9728-2022-ADD-1/en/pdf

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

([46]) When requested payments are disbursed, the pre-financing is cleared proportionally. The net amounts are quoted here.

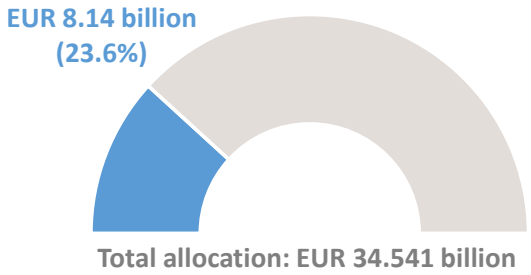
reforms and investments aiming at improving the country's investment climate, the resilience and competitiveness of the economy, agriculture, green energy, digital transformation, health and clean mobility.

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



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

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



Source: RRF Scoreboard

As of 15 May 2024, Poland is working towards its second payment request. Table A3.2 highlights some relevant measures achieved so far, and some that will be implemented before 2026 to keep making Poland's economy greener, more digital, inclusive, and resilient.

Table A3.2: **Measures in Poland's RRP**

Reforms and investments implemented
• Reforms to strengthen the independence and impartiality of courts • Investments to diversify and shorten the supply chain of agricultural and food products and build the resilience of the entities in the chain • Reform on clean air and energy efficiency
Upcoming reforms and investments
• Development of offshore wind energy plants • Digitalisation of public administration • Investments in modern vocational training, higher education and lifelong learning

Source: FENIX

EU funding instruments provide considerable resources for the recovery and growth of the EU Member States. In addition to the EUR 59.8 billion of Recovery and Resilience Facility (RRF) funding described in Annex 3, EU cohesion policy funds ([47]) provide EUR 75.5 billion to Poland for the 2021-2027 period ([48]). Support from these two instruments combined represents around 18.02% of the country's 2023 GDP, compared to the EU average of 5.38% of GDP ([49]). Cohesion policy supports regional development, economic, social and territorial convergence and competitiveness through long-term investment in line with EU priorities and with national and regional strategies.

During the 2014-2020 programming period, cohesion policy funds boosted Poland's competitiveness, with tangible achievements notably in support provided for entrepreneurship, transport, the green transition, childcare and education. By the end of the eligibility period in December 2023, 2014-2020 cohesion policy funds ([50]) had made EUR 78.8 billion available to Poland ([51]) to improve the living and working conditions of Polish people, of which EUR 45.2 billion has been disbursed since March 2020, when the COVID-19 pandemic began ([52]). The achievements of cohesion policy funds over the programming period included providing support to over 100 000 businesses in Poland, enabling over 450 000 households to access broadband so far, with a view of reaching over 1.8 million households, improving research infrastructure and reconstructing more than 2 000 km of roads. Support to businesses resulted in new products being introduced by over 11 000 companies, over 2 400 new jobs and 20 000 new companies being created, and over 4 500 companies cooperating with research institutions. The reconstruction of up to 2 000 km of railway lines is ongoing and is expected to be completed soon. An additional waste recycling capacity of more than 230 000 tonnes/year has been developed and continues to expand. The number of households with improved energy consumption classification is expected to exceed 50 000. Approximatively 6 million people benefited from flood protection measures and over 4 million benefited from measures on protection from forest fires. Childcare and education facilities for close to 500 000 people have been renovated. During the same period and under the European Social Fund (ESF), almost 1 million participants, including nearly 34 000 young people with disabilities, benefited from Youth Employment Initiative measures. As a result, almost 128 000 people gained new skills and qualifications, and over 547 000 people who were previously unemployed found work.

In the current programming period (2021-2027), cohesion policy will provide a further boost to Poland's competitiveness, to the green transition and to social cohesion, improving the living and working conditions of Poland's people. In 2021-2027, cohesion policy funds will invest more than EUR 20 billion into the green transition as part of the country's total allocation. These measures will help people better overcome the challenges related to the green transition. The capacity to produce renewable energy will increase by 601 MW or even more if the potential for onshore wind is unblocked as a result of reforms under the recovery and resilience plan (RRP). The energy performance of over 259 470 dwellings will be improved. Cohesion policy is enabling investment in sustainable transport by building 840 km of railway lines and an additional 1 685 km of cycling roads. Furthermore, cohesion policy is helping provide equal access to the internet, and access to ultra-fast broadband for more than 832 000 households and businesses. 17% of the allocation of EUR 13 billon will be used to make the Polish economy smarter by increasing: i) the R&D expenditure relative to GDP from 1.32% in 2019 to 2.5 % in 2030; ii) the proportion of innovative companies in industry, from 18.9% in 2019 to 35% in 2030; and iii) the proportion of high-tech

([47]) In 2021-2027, cohesion policy funds include the Cohesion Fund, the European Regional Development Fund, the European Social Fund Plus and the Just Transition Fund.

([48]) European territorial cooperation (ETC) programmes are excluded from the figure. In 2021-2027, the total investment, including national financing, amounts to EUR 92 billion.

([49]) RRF funding includes both grants and loans, where applicable. The EU average is calculated for cohesion policy funds excluding ETC programmes. GDP figures are based on Eurostat data for 2022.

([50]) In 2014-2020, cohesion policy funds included the Cohesion Fund, the European Regional Development Fund, the European Social Fund and the Youth Employment Initiative. REACT-EU allocations are included but ETC programmes are excluded.

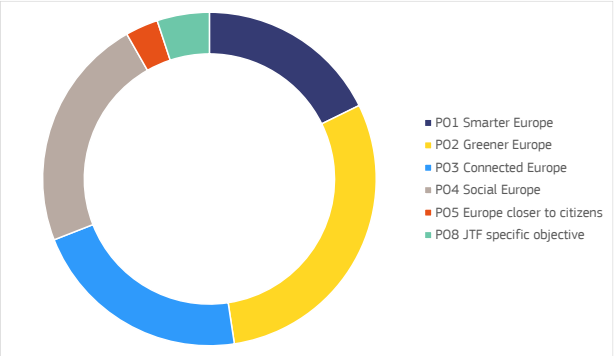
([51]) In 2014-2020, the total investment, including national financing, amounted to EUR 92.6 billion.

([52]) Cut-off date: 14 May 2024.

exports in total exports to 15% by 2030. The newly created Just Transition Fund (JTF) will help workers and businesses in five (post) coal-mining regions find new jobs and activities. In Silesia, the EU's largest coal region, the JTF will support 1 940 businesses and create 27 000 new jobs. It will also help improve the energy performance of 21 380 dwellings in Lower Silesia. EU funds will support over 100 000 new childcare places, especially in the white spots, as part of a national Toddler+ programme. With a total budget of EUR 1.2 billion, 88% of the programme will be financed by the European Social Fund Plus (ESF+) (EUR 704.3 million) and the EU's RRF (EUR 425 million). The ESF+ investments in skills, totalling EUR 1.9 billion, are aligned with the European Skills Agenda. The ESF+ will also help counteract material deprivation with funding of around EUR 525 million. With this work, cohesion policy substantially contributes to achieving the UN Sustainable Development Goals (SDGs) in Poland, in particular SDG 9 (Industry, innovation, infrastructure), SDG 7 (Affordable and clean energy) and SDG 8 (Decent work and economic growth).

Through combined action, cohesion policy and the RRP have a mutually reinforcing impact in Poland. For instance, while the RRP funding will be used for investments in offshore wind energy, cohesion policy programmes will invest into other renewable energy sources. This will create a synergy in supporting a wide range of renewable energy source technologies, as one source alone could not cover the growing needs. In the same spirit of complementarity, under the RRP, reform measures were introduced to help develop and implement sustainable urban transport plans (SUMPs). Based on those, cohesion policy is providing for the development of sustainable public transport and active forms of mobility in functional urban areas (e.g. agglomeration rail, public urban transport, cycling and walking mobility). Furthermore, on the one hand, cohesion policy will help develop and apply innovations in environmental technologies and the circular economy, in line with the national and regional smart specialisation strategies. On the other, the RRP will focus on deploying technologies to support the environmental transformation and circular economy measures in SMEs. The contribution of cohesion policy and RRP funding by policy objective is illustrated by Graphs A4.1 and A4.2.

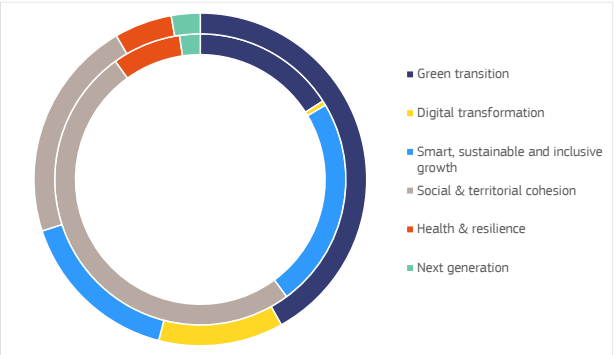
Graph A4.1: **Distribution of cohesion policy funding across policy objectives in Poland**



Source: European Commission

The Technical Support Instrument (TSI) helps Poland invest in its public administration and create a better enabling environment for EU and national investment. The TSI has funded projects in Poland to design and implement growth-enhancing reforms since 2016. The support provided in 2023 included optimalisation of strategic plans for further development of e-health and improved capacities to better assess and counteract the 'grey economy'. The TSI is also helping Poland to boost its overall capacity to integrate the 'do no significant harm' principle into the investments of the national RRP.

Graph A4.2: **Distribution of RRF funding by pillar in Poland**



(1) Each RRP measure helps achieve the aims of two of the six policy pillars of the RRF. The primary contribution is shown in the outer circle while the secondary contribution is shown in the inner circle. Each contribution represents 100% of the RRF funds. Therefore, the total contribution to all pillars displayed on this chart amounts to 200% of the RRF funds allocated to Poland.

Source: European Commission

Poland also receives funding under several other EU instruments, including those listed in Table A4.1.

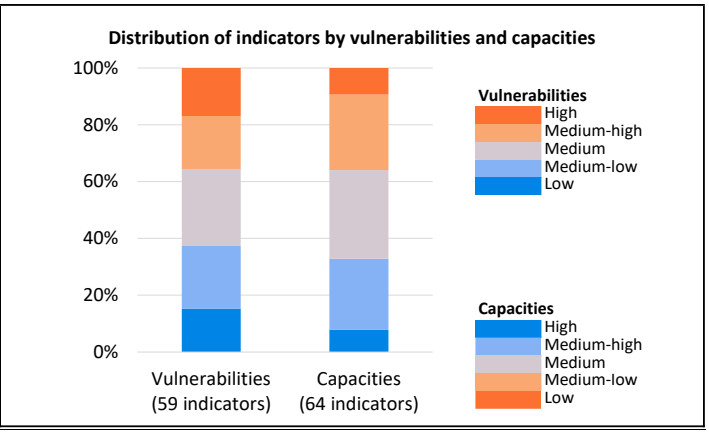
Table A4.1: **Support from EU instruments in Poland**

EU grants			
	Amount 2014-2020 (EUR million)		Amount 2021-2027 (EUR million)
Cohesion policy	78 797.3		75 460.1
RRF grants (1)	-		25 276.9
Public sector loan facility (grant component) (2)	-		291.9
Common agricultural policy (3)	42 000.0		22 099.0
EMFF/EMFAF (4)	531.2		512.4
Connecting Europe Facility (5)	5 153.2		2 499.0
Horizon 2020 / Horizon Europe (6)	742.8		436.9
LIFE programme (7)	82.0		122.4
EU guarantees			
	EU Guarantee (EUR million)		Volume of operations (EUR million)
European Fund for Strategic Investment 2015-2020 (8)	1 155.8		3 156.1
InvestEU 2021-2027 (9)	136.5		697.1
EU loans			
	Period	Total amount available (EUR million)	Disbursed amount (EUR million)
SURE (10)	2020-2022	11 236.7	11 236.7
RRF	2021-2026	34 541	8 140.0

(1) RRF implementation period is 2021-2026.
(2) The public sector loan facility's programming period is 2021-2025 and the amount reflects the national share in its grant component reserved until the end of the period.
(3) Common agricultural policy programming periods are 2014-2022 and 2023-2027.
(4) EMFF – European Maritime and Fisheries Fund, EMFAF – European Maritime, Fisheries and Aquaculture Fund.
(5) Data on the Connecting Europe Facility covers transport and energy and has a cut-off date of 15 May 2024.
(6) Data on Horizon Europe (2021-2027) has a cut-off date of 13 May 2024.
(7) 2021-2027 data on the LIFE programme has a cut-off date of 15 May 2024.
(8) The amount of the EU guarantee signed under the EFSI Infrastructure and Innovation Window was derived based on the signed amount of the operations and the average internal multiplier, as reported by the EIB (cut-off date is 31 December 2023).
(9) The amount of the EU guarantee and of the volume of operations signed under InvestEU includes the EU compartment as well as the Member State compartments (cut-off date is 31 December 2023).
(10) SURE - European instrument for temporary support to mitigate unemployment risks in an emergency.
Source: European Commission

Table A5.1: **Resilience indices across dimensions for Poland and the EU-27**

Dimension		PL 2023 RDB	PL 2024 RDB	EU-27 2024 RDB
Overall resilience	Vulnerabilities			
	Capacities			
Social and economic	Vulnerabilities			
	Capacities			
Green	Vulnerabilities			
	Capacities			
Digital	Vulnerabilities			
	Capacities			
Geopolitical	Vulnerabilities			
	Capacities			



(1) The synthetic indices aggregate the relative resilience situation of countries across all considered indicators. For an indicator, each country's relative situation in the latest available year is compared with the collection of values of that indicator for all Member States and all years in the reference period.
Source: Resilience Dashboards - version spring 2024, data up to 2022

This Annex uses the Commission's resilience dashboards (RDB) ([53]) to show Poland's relative resilience capacities and vulnerabilities ([54]) that may be of relevance for societal, economic, digital and green transformations, and for dealing with future shocks and geopolitical challenges ([55]).

According to the RDB's set of resilience indicators, Poland has medium overall vulnerabilities and capacities, both of which have remained stable with respect to last year. This is reflected in the distribution of indicators across different resilience categories. Under 40% of Poland's vulnerability indicators are high or medium-high, over 20% are medium, and under 40% are medium-low or low. Of capacity indicators, less than 40% fall into the medium-low or low category, while around 30% of them fall into the medium and medium-high or high categories each. In terms of vulnerabilities, Poland is on a par with the EU average, but below the average in terms of its capacities.

With respect to the 2023 RDB, Polish vulnerabilities and capacities in the social and economic dimension have remained stable at the medium level. Poland has reduced the proportion of its population at risk of poverty and social exclusion, but employment in energy-intensive sectors and regional household income dispersion remain high (third worst in the EU). On the capacity side, Poland has improved the impact of social transfers on poverty reduction.

In the green dimension, **Poland has also maintained its medium vulnerabilities and capacities.** Energy use in information and communication (ICT) remains high (it ranks fourth in the EU), while the electric and hydrogen passenger fleet and environmental patents are the second lowest in the EU. Matters have improved somewhat in the inland use of trains, buses and trolleybuses.

Poland's digital vulnerabilities and capacities are also stable compared to last year's dashboard: vulnerabilities are medium-high, while capacities are medium. Poland is the worst EU performer for 5G readiness and its second worst performer for the broadband access gap by company size. Adults' advanced digital competences and use of online courses are below the EU average, and the proportion of young

([53]) Https://ec.europa.eu/info/strategy/strategic-planning/strategic-foresight/2020-strategic-foresight-report/resilience-dashboards_en. Resilience is defined as the ability not only to withstand and cope with challenges but also to undergo transitions, in a sustainable, fair, and democratic manner. 2020 Strategic Foresight Report: *Charting the course towards a more resilient Europe* (COM(2020) 493).

([54]) 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, while capacities refer to enablers or abilities to cope with crises and structural changes and to manage transitions.

([55]) 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.

people doing any online learning activity has decreased markedly both with respect to last year and the EU average.

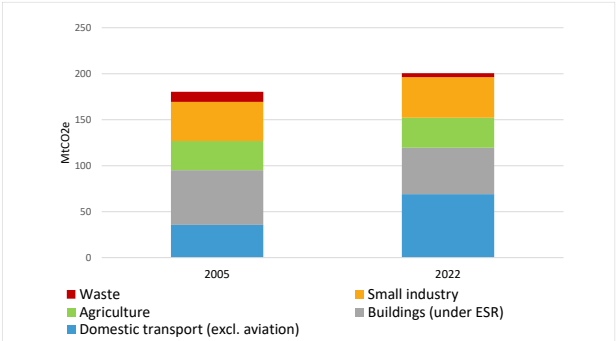
Poland has medium-low geopolitical vulnerabilities and medium geopolitical capacities. Both have remained stable with respect to the 2023 RDB. The reasons for its medium-low vulnerabilities are low employment gap versus non-EU nationals and low supplier concentration in energy carriers (the lowest in the EU). However, Poland could improve its financial integration (second worst in the EU). On a positive note, it has improved its military spending position.

Poland has made progress in the green transition, with more action needed on specifying the policies needed to attain its 2030 effort sharing target, addressing emissions from road transport and buildings, addressing potential losses from climate hazards, pollution prevention and control, and other areas. This Annex provides a snapshot of climate, energy, and environmental aspects of the transition in Poland ([56]).

In its draft updated national energy and climate plan (NECP) Poland has not yet consistently mapped its investment needs and sources to achieve its 2030 climate and energy targets. The plan occasionally outlines when EU sources are or will be used to finance the planned measures. However, this is not done consistently, and there is no consolidated overview at NECP level. It is therefore not possible to identify potential gaps in funding, also because a quantitative assessment of investment needs is lacking. The draft updated plan mentions the use of public funds and the contribution required from private investment, particularly in R&I and in self-consumption installations, but it does not quantify them or distinguish public and private funding sources. It also fails to specify the duration of the measures and the share of funding that will come from the EU budget. Cohesion policy support is almost completely neglected. For the smooth implementation of the policies and measures to reach the 2030 targets, specifying the investment needs and sources for implementation consistently and with complete and detailed coverage is key.

With the policies and measures currently planned, Poland is set to fall short of its 2030 effort sharing target ([57]). In 2022, Poland's greenhouse gas emissions from its effort sharing sectors are expected to be 4% above 2005 levels. With current policies, Poland is projected to reduce its effort sharing emissions by 14% compared to 2005 levels by 2030. The additional policies included in Poland's draft updated NECP are projected to reduce these emissions by 7% compared to 2005 levels ([58]). This leaves a gap of 11 percentage points below Poland's effort sharing target to achieve a 18% reduction compared to 2005 levels. This highlights the importance for Poland to plan more ambitious policies and measures in its final updated NECP, due on 30 June 2024.

Graph A6.1: **Greenhouse gas emissions from the effort sharing sectors in Mt CO2eq, 2005-2022**



Source: European Environment Agency

Greenhouse gas emissions from road transport and buildings are a particular concern for Poland. In 2022, greenhouse gas emissions from road transport almost doubled compared to 2005 levels, and their share in the effort sharing emissions rose to 34.4%, from 19.8% in 2005. Between 2005 and 2022, Poland's effort sharing emissions from buildings decreased by 15.2%, far below the EU average of 27.6%. Designing policies and measures to curb greenhouse gas emissions in these sectors is crucial if Poland is to bridge its gap with its 2030 effort sharing target. Given the upcoming emissions trading system for the road transport and buildings sectors due to be introduced in 2027, measures targeting vulnerable consumers seem particularly important.

([56]) This Annex is complemented by Annex 7 on energy transition and competitiveness, Annex 8 on the fair transition to climate neutrality, Annex 9 on resource efficiency, circularity, and productivity, and relevant topics in other annexes to this country report.

([57]) The national greenhouse gas emission reduction target is laid down in Regulation (EU) 2023/857 (the Effort Sharing Regulation). The aim is to align action in the sectors concerned with the objective to reach the EU-level economy-wide target of greenhouse gas reductions of at least 55% compared to 1990 levels. The target also applies to the sectors outside the current EU Emissions Trading System, notably buildings (heating and cooling), road transport, agriculture, waste, and small industry (known as the effort sharing sectors).

([58]) The effort sharing emissions for 2022 are based on approximated inventory data. The final data will be established in 2027 after a comprehensive review. Projections on the impact of current policies ('with existing measures', WEM) as per Poland's draft updated NECP.

There is scope for increasing Poland's target for renewable energy in its final updated NECP. The renewable energy contribution set out in the draft updated NECP (21%) is significantly below the share of 25% in 2030 that results from the formula of Annex II of the Governance Regulation. The level of the energy efficiency contribution set out in the draft updated plan, 23 % reduction of primary energy consumption compared to 2007 reference projections, appears modest considering the level of effort needed to reach the EU's energy efficiency target for 2030 ([59]).

Poland still has far to go in curbing rising greenhouse gas emissions from road transport, and its uptake of electric vehicles is still at an early stage ([60]). At just 0.1% in 2022, the share of battery electric vehicles in Poland's passenger car fleet is still very low. However, in 2023, its 5 070 publicly accessible charging points provided a charging point for every 10 electric vehicles, in line with the EU average. Rail travel has decreased in the past decade, both for passengers (reaching 6%, in line with the EU average) and for freight (21%), making the split between road and rail transport more balanced than the EU average. 63% of Poland's rail network is electrified (EU average: 56%).

Poland is currently unlikely to meet its 2030 target for additional removals of carbon from the atmosphere through land use, land use change and forestry (LULUCF). The recent decline in Poland's net carbon removals through land use is primarily attributed to its forest management practices. To reach its 2030 LULUCF target, additional carbon removals of 3 278 kt CO2eq are needed ([61]).

A wide climate protection gap ([62]) could pose challenges to Poland's public finances. Poland is vulnerable to events linked to climate change, notably facing an increased risk of drought and flooding affecting agriculture and water management. Only 5-20% of climate-related economic losses in Poland in 1980-2020 were insured. Poland's protection gap for climate events remains significant, particularly for flooding. Poland has taken steps to update its national adaptation strategy, develop its vulnerability assessment and implement actions to counteract water-related risks. Appropriate institutional mechanisms are crucial for climate adaptation. In this regard, Poland shows institutional weaknesses that hamper effective central coordination. Likewise, a legal framework with regularly updated targets and strategic objectives is missing. Moreover, there is considerable scope for integrating climate adaptation and public funding considerations into sectoral policies, for policy monitoring and for predicting climate risks ([63]).

Poland would benefit from managing water resources more sustainably. In 2018, only 31% of all surface water bodies reached good ecological status and 59% reached good chemical status ([64]). Poland's marine waters are not yet in a good environmental status, as tracked by the descriptors used in the Marine Strategy Framework Directive ([65]). The efficient use of water resources can be measured by water productivity ([66]). In 2021, Poland generated EUR 72 per cubic metre of water abstracted, placing it below the EU average.

Air quality in Poland is a serious concern as Polish cities are among the most polluted in Europe. According to the latest estimates (for 2021) by the European Environmental Agency, Poland faces around 1 372 years of life lost for every 100 000 inhabitants due to exposure to particulate matter (PM2.5) and 121 years lost due

([59]) The EU target set out in the revised Renewable Energy Directive is to have 42.5% of gross final energy consumption coming from renewable energy sources by 2030, with the aspiration to reach 45%. The formula in Annex I to Directive (EU) 2023/1791 sets the indicative national contribution for Poland at 74.9 Mtoe for primary energy consumption and 56.3 Mtoe for final energy consumption.

([60]) Unless otherwise indicated, data in this section refer to 2021. See European Commission, 2023, EU transport in figures, transport.ec.europa.eu.

([61]) National LULUCF targets of the Member States in line with Regulation (EU) 2023/839.

([62]) On the climate protection gap, see the annotations to Table A6.1.

([63]) See the Commission's 2023 assessment and recommendation on Poland's progress on climate adaptation.

([64]) Data from the third river basin management plan is not yet available.

([65]) The next reporting on the state of the marine environment is due in October 2024. See also Poland — Marine (europa.eu).

([66]) Measured as GDP over total fresh surface water abstracted in cubic meters.

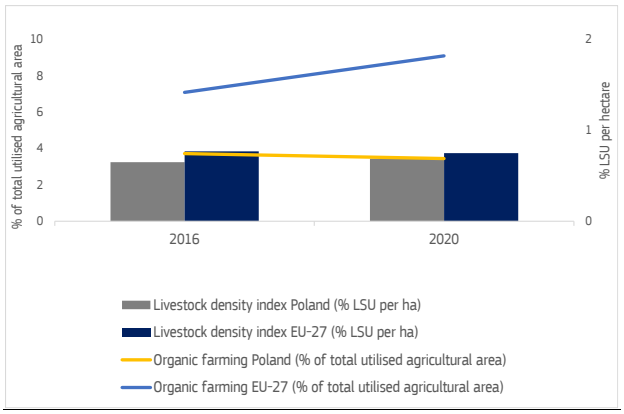
to exposure to nitrogen dioxide (NO2). Furthermore, although the indicator for smog-precursor emission intensity to GDP decreased by 57% between 2008 and 2021, reaching 1.87 tonne/EUR 10, it remained among the highest in Europe. The main causes of harmful emissions are poor-quality coal burned in substandard boilers used to heat individual houses, and the large volume of road traffic.

There is still room for improvement on biodiversity and nature protection and restoration. At the end of 2021, Poland was protecting 39.6% of its land and only 21.9% of its marine area. However, not all these areas serve the purpose of biodiversity protection. Some designations are intended for the protection of landscape or geological/cultural heritage only, with no conservation objectives and measures in place. The biodiversity strategy for 2030 requires that Member States effectively protect at least 30% of their territory, with 10% subject to strict protection. According to the latest estimates, only 21.9% of Poland's territory is effectively protected by relevant conservation objectives and measures ([67]) and only 1.4% is strictly protected.

Intensive agriculture has a major impact on Poland's ecosystems, biodiversity and air quality. In 2023, the value of the agricultural sector's annual output remained approximately stable at EUR 25.6 billion ([68]). The country has been one of the slowest to adopt organic farming practices. The share of Poland's utilised agricultural area (UAA) under organic farming hovered around 3.8% in 2021 (EU average: 9.1%) ([69]). There is still space to grow to contribute to the goal of at least 25% of the EU's agricultural land under organic farming by 2030. Poland's livestock intensity index stagnated between 2010 and 2020. In parallel, the share of extensive animal farming ([70]) over the UAA decreased from 25.8% in 2013 to 11.2% in 2016, below the EU average of 23.8%. Some regions reported an increasing number of livestock units, such as the Podlaskie region. Intensive rearing of poultry and pigs is one of the industrial activities that puts the highest burden on the environment in terms of ammonia emissions into the air. The agricultural sector was responsible for generating 96.2% of all ammonia emissions, against the EU-27 average of 90.7% in 2021. The country produced 113 kg of food waste per person in 2021. Most of this waste was due to household activities. Composting and digestion of municipal waste increased to 48 kg per person in 2021, accounting for 13.3% of total municipal waste.

Intensive agriculture is also a major source of pollution. The latest figures for the gross nitrogen balance on agricultural land in Poland show a consistent nitrogen surplus, with an average of 47.4 kg of nitrogen per hectare per year in 2019. The country also shows a phosphorous surplus, with an average of 3.6 kg/ha. Based on the impact assessment for the Soil Monitoring Law, 48% of Poland's soil could be considered as unhealthy ([71]). The loss of organic carbon affects 58% of Poland's cropland and grassland area, while soil erosion affects 36% of its cropland area. Furthermore, conservation tillage practices, which increase soil organic carbon, only covered 3% of Poland's tillable area in 2016. The net stock change of organic soils in cropland and grassland areas decreased over time but remained the highest in the EU at –7 726 kt in 2021.

Graph A6.2: **Changes in livestock density and organic farming**



Livestock unit (LSU)/ha of UAA: it measures the stock of animals (cattle, sheep, goats, equidae, pigs, poultry and rabbits) converted in LSUs per hectare of UAA.
Source: Eurostat

([67]) https://koalicja10.pl/

([68]) Production value at basic price (2015=100).

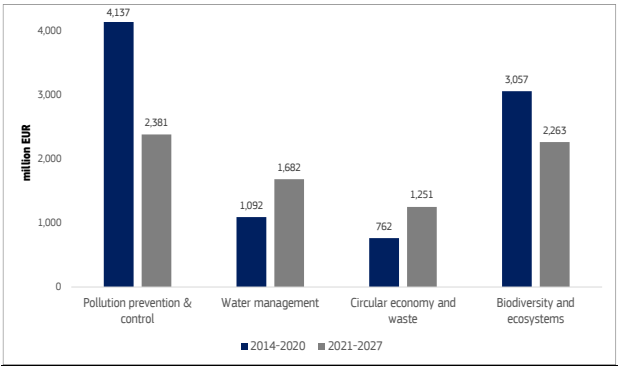
([69]) In 2020. Data for 2021 are not yet available.

([70]) Share of UAA with livestock density below 1 livestock unit per hectare.

([71]) However, not all soil degradation processes could be quantified for all land uses. This number simply indicates an order of magnitude.

Poland would benefit from investing more in pollution prevention and control, in protecting biodiversity and ecosystems, and in sustainable water management. In 2014-2020, Poland's environmental investment gap was estimated at EUR 9.1 billion per year, equivalent to 1.9% of GDP (above the EU average of 0.8%). For 2021-2027, the gap is estimated to reach EUR 7.6 billion per year. There remains an opportunity to increase funding, in particular for pollution prevention and control (a gap of EUR 2.4 billion), sustainable water management (EUR 1.7 billion), and for circular economy and waste (EUR 1.3 billion) where the gap has increased. The gap for biodiversity and ecosystems (EUR 2.3 billion) has decreased but remains excessive.

Graph A6.3: **Environmental investment gap, annual average**



The numbers are computed by the European Commission based on the latest internal reports, Eurostat, EIB and national data sources.
Source: European Commission

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

							Target	Distance	
		2005	2019	2020	2021	2022	2030	WEM	WAM
Progress to climate and energy policy targets									
Greenhouse gas emission reductions in effort sharing sectors [1]	Mt CO_{2eq} %, pp	192,472.3	16%	14%	8%	4%	-18%	-22	-11
Net greenhouse gas removals from LULUCF [2]	Kt CO2eq	-50 575	-22 561	-23 330	-23 917	-35 644	-38,098	n/a	n/a
Share of energy from renewable sources (1) [3]	%	7%	15%	16%	16%	17%	0.32	-	-
Energy efficiency: primary energy consumption [3]	Mtoe	88.0	100.2	96.8	104.0	98.6	77.2		
Energy efficiency: final energy consumption [3]	Mtoe	58.5	73.7	71.1	75.2	72.4	58.5		

							EU-27		Projected
		2018	2019	2020	2021	2022	2021	2022	2030
Green transition: mobility									
Greenhouse gas emissions: road transport	Mt CO2e	-	-	-	67.4	69.1	769.0	786.6	65.1
Share of zero-emission vehicles in new registrations [4]	%	0.1	0.3	0.9	1.6	2.7	9	12.1	n/a
Number of publicly accessible AC/DC charging points		-	-	1640	2499	3387	299178	446956	n/a
Share of electrified railways	%	61.8%	61.9%	62.5%	62.7%	-	56.1%	-	n/a
Green transition: buildings									
Greenhouse gas emissions: buildings	Mt CO2e	-	-	-	54.3	50.5	537.0	486.7	38.0
Final energy consumption in buildings	2015=100	113.4%	107.2%	106.7%	113.6%	107.7%	104.0%	97.2%	
Climate adaptation									
Climate protection gap [5]	score 1-4	-	-	1.6	1.5	1.8	1.5	1.5	n/a

		2018	2019	2020	2021	2022	2020	2021	2022
State of the environment									
Water | Water exploitation index (WEI+) (1) [6]	% of renewable freshwater	5.8	8.7	-	-	-	3.6	-	-
Circular economy | Material footprint [7]	tonnes per person	17.8	17.1	16.8	16.7	18.1	14.2	14.8	14.9
Pollution | Years of life lost due to air pollution by PM2.5 [8]	per 100.000 inhabitants	1,537	1,191	1,095	1,372	-	545	584	-
Biodiversity | Habitats in good conservation status [9]	%	20.0					14.7		
Common farmland bird index [10]	2000=100	-	-	-	-	-	78	-	-
Green transition: agri-food sector									
Organic farming	% of total utilised agricultural area	3.33	3.49	3.45	3.78	-	9.1	-	-
Nitrates in groundwater	mg NO_3/litre	21.93	21.89	21	-	-	20.42	-	-
Food waste per capita	Kg per capita			112	113	-	130	131	-
Share of soil in poor health [11]	%					48			41
Soil organic matter in agricultural land [12]	Mt per ha	705	-	-	-	-	7,904	-	-

Sources: (1) Member States' emission data for 2019 and 2020 are in global warming potential (GWP) values from the 4th Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC). Member States' 2005 base year emissions under Regulation (EU) 2018/842, emissions data for 2021 and 2022, and 2030 projections are in GWP values from the 5th Assessment Report (AR5) of the IPCC. 2021 data are based on the final inventory reports, 2022 data are based on approximated inventory reports and European Environmental Agency's calculation of effort sharing emissions. The final data for 2021 and 2022 will be established after a comprehensive review in 2027. The 2030 target is in percentage change of the 2005 base year emissions. Distance to target is the gap between the 2030 target and projected effort sharing emissions with existing measures (WEM) and with additional measures (WAM), in percentage change from the 2005 base year emissions. The measures included for the 2030 emission projections reflect the state of play as reported in Member States' draft updated national energy and climate plans or, if unavailable, as reported by 15 March 2023 as per Regulation 2018/1999. (2) Net removals are expressed in negative figures, net emissions in positive figures. Reported data are from the 2024 greenhouse gas inventory submission. 2030 value of net greenhouse gas removals as in Regulation (EU) 2023/839 – Annex IIa. (3) The 2030 national objectives for renewable energy and energy efficiency are indicative national contributions, in line with Regulation (EU) 2018/1999 (the Governance Regulation), the EU-level 2030 renewable energy target set out in Directive EU/2018/2001 amended by Directive EU/2023/2413 (the revised Renewable Energy Directive) – 42.5% of gross final energy consumption with the aspiration to reach 45% –, and the formula in Annex I to Directive (EU) 2023/1791 (the Energy Efficiency Directive). (4) Passenger battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV). (5) The climate protection gap refers to the share of non-insured economic losses caused by climate-related disasters, based on modelling of the risk from floods, wildfires, windstorms, and the insurance penetration rate. Scale: 0 (no protection gap) –4 (very high gap) (European Insurance and Occupational Pensions Authority, 2022). (6) Total water consumption in renewable freshwater resources available for a territory and period. (7) Material extractions for consumption and investment. (8) Years of potential life lost through premature death due to exposure to particulate matter with a diameter of less than 2.5 micrometres. (9) Share of habitats in good conservation status according to the records submitted under Art. 17 of the Habitats Directive (Directive 92/43/EEC) for 2013-2018. (10) Multi-species index measuring changes in population abundances of farmland bird species. (11) Source: annex 12 of the Commission's proposal for a soil monitoring law, SWD (2023) 417 final. (12) Estimates of organic carbon content in arable land.

This Annex ([72]) sets out Poland's progress and challenges in accelerating the net-zero energy transition while bolstering the EU's competitiveness in the clean energy sector ([73]). It considers measures and targets put forward in the draft updated National Energy and Climate Plans (NECP) for 2030.

Poland has shown considerable progresses in the roll out of solar PVs and is reducing is reliance on coal in the power sector, thus boosting the competitiveness of its energy system. However, a rapid development and modernisation of the transmission and distribution grids, together with increased flexibility on the demand and supply sides are necessary to keep the momentum. The sector of clean technologies manufacturing shows interesting developments, but additional electricity demand will put further pressure on the electricity grid.

Polish households experience lower gas and electricity prices than the EU average and have been largely shielded from the price increases of the last year due to regulatory and fiscal interventions. The increase in electricity bills for households was limited to less than 2% YoY in the second half 2022 vs almost 20% EU avg. In 2023, the restoration of VAT on electricity and increased distribution fees generated a 21% upward adjustment, higher than the EU average 14% increase. Energy prices for industry are closer to the EU average. However, in 2023 prices continued to increase for households, while average EU prices were on a declining trajectory.

Most of the direct energy support to final energy consumers implemented since the outset of the energy crisis was not targeted at the most vulnerable households or firms. A cap on electricity, gas and district heating prices at 2022 levels is available for households, public interest organisations, small and medium-sized firms and local authorities. The cap has been extended until 30 June 2024.

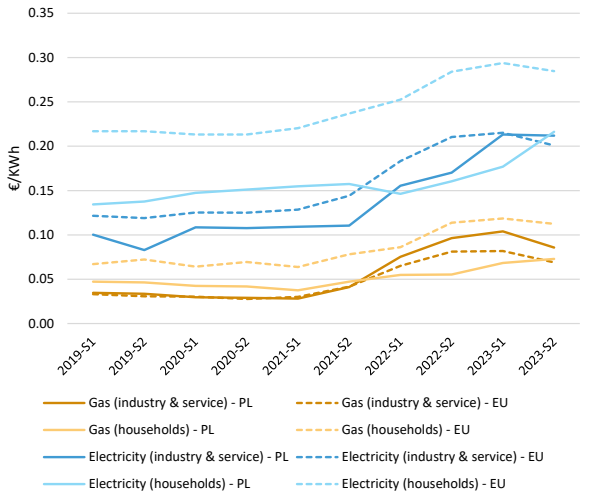
([72]) It is complemented by Annex 6 as the European Green Deal focuses on the clean energy transition and by Annex 8 on the action taken to protect the most vulnerable groups, complementing ongoing efforts under the European Green Deal, REPowerEU and European Green Deal Industrial Plan.

([73]) In line with the Green Deal Industrial Plan and the Net-Zero Industry Act.

Households decreasing their consumption by 10% received a bonus of a 10% discount on their electricity bill. Gas prices for consumers were capped at EUR 43/MWh. From 1 October 2022 until 31 December 2023, the increase in district heating prices was capped at 40% compared to prices applicable on 30 September 2022.

Targeted support was provided to approximately 300 000 of the lowest income households in 2023 through a VAT refund on their gas bills for heating. A one-time shielding allowance ranging from PLN 400 – 1500 (depending on the heating source) to offset energy, gas and food prices was offered to about a half of all households in Poland.

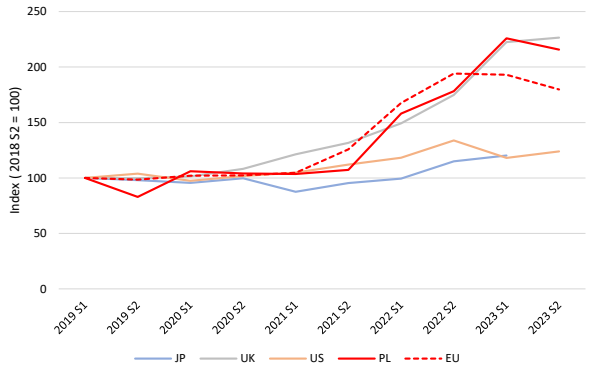
Graph A7.1: **Poland´s energy retail prices for households and industry & service**



(1) For industry, consumption bands are I3 for gas and IC for electricity, which refer to medium-sized consumers and provide an insight into affordability
(2) For households, the consumption bands are D2 for gas and DC for electricity
(3) Industry prices are shown without VAT and other recoverable taxes/levies/fees as non-household consumers are usually able to recover VAT and some other taxes
Source: Eurostat

In relative terms, electricity prices for non-household consumers have increased significantly compared to the US and Japan, thus potentially affecting the international competitiveness of energy-intensive industries in Poland.

Graph A7.2: **Trends in electricity prices for non-household consumers (EU and foreign partners)**



(1) For Eurostat data (EU and PL), the band consumption is ID referring to large-sized consumers with an annual consumption of between 2 000 MWh and 20 000 MWh, such as in electricity intensive manufacturing sectors, and gives an insight into international competitiveness
(2) JP = Japan
Source: Eurostat, IEA

Consumer empowerment in the electricity and gas markets is progressing slowly. The deployment of smart meters is behind schedule and the current legal framework does not provide enough incentives for the establishment of energy communities ([74]). Switching rates in gas are very low (around 1%) and were decreasing between 2021 and 2022. The average of 26 days needed to switch gas provider is the longest in the EU. The situation in electricity is more positive. Legal switching procedures are set as short (16 days) but in practice they even shorter (only half as long). Only 18.7% of households had smart meters in 2022, significantly lower than the 80% objective. In 2023 Poland has introduced a legal framework for Energy Communities.

The security of Poland's gas supply is strong, thanks to strategic infrastructure investments and projects that have significantly diversified its supply routes. Poland has access to Norwegian gas via the Baltic Pipe pipeline operational since September 2022, the LNG terminal, the Klaipedia LNG terminal in Lithuania and in 2022 gained access to gas flows from Slovakia thanks to the set up of an interconnector. The Floating storage and regasification unit (FSRU) in Gdansk, with a total capacity of 6.1 bcm/y, will further diversify Poland's gas supplies. In January, Poland's transmission system operator selected the company that will deliver and operate the FSRU. The REPowerEU Chapter of Poland's Recovery and Resilience plan (RRP) supports the construction and commissioning of the 250 km long onshore gas pipeline connecting Gdansk and Gustorzyn. Poland's total storage capacity (3.79 bcm) is relatively small compared to its annual consumption of almost 20 bcm/year in 2022. GSP, the owner and operator of Poland's seven gas storage facilities, is considering further expanding the total capacity. Poland fulfilled its gas storage obligations last winter, reaching 99.5% by 1 November 2023, and ended the winter season with a storage filled at 43.67% by 1 April 2024. Poland managed to reduce its gas demand between August 2022 and December 2023 by 9%, in comparison with the average of the previous five years, less than the 18% EU average.

Gas plays a relatively small but increasing role in the energy mix. Since 2016, Poland's total installed gas capacity has more than tripled, reaching 4GW in 2023. A new 1.4GW CCGT (combined cycle) power plant is expected to replace the old Dolna Odra coal-fired power plant in 2024**.**

Poland has confirmed 2049 as the date for the closure of all coal mines and coal phase-out in its draft updated NECP. This would be by far the latest coal phase out in the EU. The coal mining sector is highly dependent on public subsidies and weights negatively on the competitiveness and sustainability of the Polish economy. While 2023 saw a strong jump in renewable electricity generation, pushing coal down to a record low of 61%, coal's share in electricity generation is still the highest in the EU. However, the decarbonisation commitments set in the Territorial Just Transition Plans (TJTPs) and the paths for phasing out coal and lignite in the draft NECP are only partially aligned ([75]).

Poland is considering developing the 3 GW Zarnowiec nuclear power plant, which could start commercial operations in 2033. Poland has six high-voltage alternating current (AC) interconnections that link it to the Czech Republic,

([74]) All data on consumer empowerment are from the ACER Market Monitoring report 2023, i.e. based on data covering 2022.

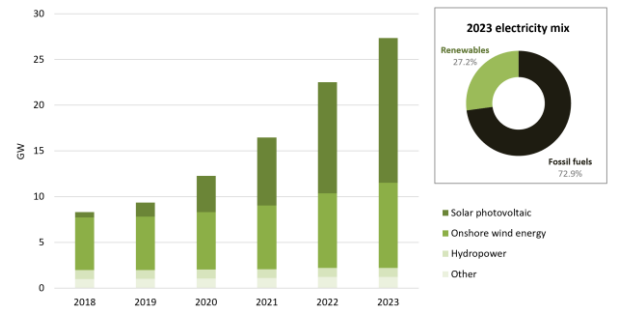
([75]) See the Commission's assessment of the draft updated NECP.

Germany, Slovakia and Ukraine, and two high-voltage direct current (DC) interconnections that link it to Lithuania and Sweden. Poland's total interconnection capacity is projected to rise to 12.5 GW by 2025, thus meeting the 15% EU objective by 2030.

Solar capacity continued its strong growth in 2023, albeit at a slower pace compared to 2022. Total capacity increased by more than 30%, reaching 15.8 GW. The prosumer segment still dominates the market, which has experienced a strong acceleration since the introduction of the residential PV program in 2019 and kept up this momentum after the switch from net metering to net billing rules in 2022.

However, upcoming changes to an hourly compensation scheme risk undermining the predictability of returns for prosumers. In the last two years – with soaring prices - the market has also seen notable growth in utility-scale solar in the form of the power purchase agreements (PPAs). The revenue cap in place until December 2023 has partially impacted plants' profitability. The budget for the programme's 5th round was increased in October 2023, with more than 64 000 filled applications. In 2023 Poland amended the Act on Renewable Energy. Changes have increased the limit for building permit exemption for PV plants and specified rules for power purchase agreements.

Graph A7.3: **Poland's installed renewable capacity (left) and electricity generation mix (right)**



(1) "Other" includes solid biofuels, renewable municipal waste, liquid biofuels and biogas
Source: IRENA, Ember

The amendment of the "10H rule" in the national legislation in 2023 (referring to the distance of the 10 heights of the wind turbine) has improved the outlook for installations of the onshore wind power. In 2023, wind capacity reached almost 8GW, a 14% YoY increase. The improved regulatory environment can stimulate capacity additions, which can benefit already from relatively cheap labour and good wind resources. However, some significant hurdles in the permitting procedure remain, such as the continuing possibility for local communities in a 10h radius to block projects. While there is good visibility on future wind offshore auctions and a wind pledge was submitted for 2024-26 for offshore and onshore wind, this is not the case for other technologies. Poland has also been the signatory to the European Wind Charter of 19.12.2023.

The electricity grid remains a major bottleneck for the expansion of the renewable energy. The easing of the regulatory framework for cable pooling and direct lines, which entered into force in October 2023, could improve grid congestion. A financial guarantee for direct wires and a fast-track process for cable pooling authorisation would make these reforms more effective.

Upgrades of the transmission and distribution network are a prerequisite for the energy transition in Poland. Upgrading the internal grid is also needed to enable higher cross border- exchanges with neighbouring countries. In this context, new high-voltage direct current connections are needed between North and South, as well as the expansion of the alternate current AC network.

Planned investment in the power grid included in Poland's RRP will be important but will not meet all the investment needs for the grid. The completion of the Baltic synchronisation remains a priority and it has been accelerated to February 2025, following the signing of a political declaration, between the countries involved and the Commission. It is important that all investment strands are on track, including the Harmony Link, which faces a delay following cancellation of the tender. A possible new routing is being assessed and a new tender should be organised as soon as possible. To enable full functionality of the Harmony Link, Poland is constructing three new electricity lines and modernising another three in the northeast of the country. The internal line between Stanisławów

and Ostrołęka (LitPol Link Stage 2) is included in the 1st EU list of PCI-PMIs ([76]).

Poland's share of renewables in heating and cooling (22.7% in 2021) relies heavily on biomass use, with heat pumps covering just over a quarter of this share. The targets stated in the draft NECP appear rather unambitious, with very limited growth in heat pumps, but also in solar thermal deployment, together with a continued reliance on biomass as the main contributor to renewable heat.

Poland still faces significant challenges in meeting the 2030 EU targets for energy efficiency. In 2022 – a year marked by particularly high energy prices – Poland's primary energy consumption was 6.1% higher than in 2012 but decreased by 5.3% compared to 2021. Final energy consumption also decreased by 3.7% compared to 2021, but was 12.3% higher than in 2012. In this last year, industry was the sector showing the largest reduction, decreasing its final energy consumption by 7.1%. Transport was the worst performer and increased its final energy consumption by 2.7%.

Poland missed the required level of energy savings in 2020 by 29%. This underachievement can be explained by the 2017 reform of the white certificates scheme, which required some learning and adaptations on the market side. The reform is, however, expected to tackle the bottlenecks of the scheme and improve the market development of white certificates in the current obligation period. Furthermore, alternative measures have been added to meet the energy savings obligation. The improved and expanded measures are expected to significantly increase the level of energy savings in the current obligation period (2021-2030), leading to the fulfilment of the obligation by Poland.

Decarbonisation of district heating is a major challenge in Poland. To comply with the progressively more ambitious Energy Efficiency Directive conditions, the sector will have to carry out significant investment in new cleaner, non-fossil heat sources. Such investment is planned in Poland's RRP, however a large share of the projects might still consist of replacing coal with gas-based cogeneration. Investment in new capacities based on fossil fuels, including natural gas, will not be compliant with the definition of *Efficient District Heating and Cooling* as of 2030.

Poland needs to step up its efforts to improve the energy efficiency of buildings if it is to achieve a meaningful contribution to the 2030 reduction target for energy consumption in the sector of buildings. Final energy consumption in residential buildings increased by 2.4% in 2022 as compared to 2021, while the national Long-Term Renovation Strategy aims to reduce buildings' primary energy consumption by 4% between 2018 and 2030. Heating and cooling represent the highest share of final energy consumption in residential housing, about 82% in 2022, with renewables supplying 23% of the total energy used for heating and cooling across all sectors.

Approximately 208 000 heat pumps were sold in 2022, an increase of 112% over the previous year, reaching a total stock of around 577 000 installed pumps in the residential sector. In H1 2023, the ratio of residential electricity/natural gas prices was at 2.59, slightly favourable to the deployment of efficient heat pumps, while the non-residential electricity/natural gas prices ratio was 2.06, favourable to the deployment of efficient heat pumps.

Recent legislative changes have improved the regulatory environment for biomethane. The amended Polish Renewable Energy act, which entered into force on 1 October 2023, has introduced a definition of biomethanes and introduces both guarantees of origin (also for renewable hydrogen) and a support scheme, including a feed-in premium. The amended Energy Law provides preferences for the connection of biomethane facilities to the gas network.

Poland exhibits considerable manufacturing capacity for clean technologies and has great potential for further increases, notably in the battery and solar PV supply chain. There are several module manufacturing units throughout the country, which all together have an estimated 450 MW annual output capacity. Additionally, a cell manufacturing plant with a targeted capacity of 100 MW came online in Wrocław in 2021, and the first Polish gigafactory

([76]) Projects of Common and Mutual Interest.

for cell production is underway in Racibórz, expected to start production in 2025/2026.

Poland is active in the production of onshore wind towers and blades. To keep pace with Poland's growing offshore wind sector, three large-scale assembly lines for offshore towers and nacelles are currently in progress in Szczecin and Gdansk.

Regarding energy storage and production of batteries, Poland leads Europe in lithium-ion battery production, with net exports exceeding 6 billion EUR in 2022. Displaying a current capacity of 70 GWh/y, the main battery producer in Poland is a Korean-owned facility in Biskupice Podgórne, which is poised to achieve an annual output target of 115 GWh by 2025. A European company also invests in the large-scale battery manufacturing plants with an estimated capacity of 40 GWh in 2024, that are expected to bolster Poland's leading position on the market and further contribute to the EU's goals for autonomy in the net-zero industry. Also, essential production units for electrolytes, cathodes and separators are already operational in Poland, and additional capacity is in development.

Regarding the green hydrogen supply chain, promising initiatives are underway in Poland. Two dynamic firms based in Gdansk have recently initiated the production of electrolysers, there are other small enterprises in this sector. The National Strategy for Hydrogen, which is expected to be updated, also features hydrogen prominently in R&I, production, and end use sectors. Poland is also interested in supporting the emergence of Hydrogen Valleys, as part of the national and European priority.

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

		Poland				EU			
		2019	2020	2021	2022	2019	2020	2021	2022
ENERGY DEPENDNCE	**Import Dependency [%]**	**45.2%**	**42.8%**	**40.5%**	**46.0%**	**60.5%**	**57.5%**	**55.5%**	**62.5%**
	of Solid fossil fuels	6.0%	0.3%	-3.6%	8.0%	43.3%	35.8%	37.3%	45.8%
	of Oil and petroleum products	97.3%	96.9%	96.4%	98.4%	96.7%	96.8%	91.7%	97.7%
	of Natural Gas	82.4%	78.3%	83.6%	81.2%	89.7%	83.6%	83.6%	97.6%
	Dependency from Russian Fossil Fuels [%]								
	of Natural Gas	55.0%	54.9%	56.6%	19.6%	39.7%	41.3%	41.1%	21.0%
	of Crude Oil	67.9%	71.5%	63.3%	42.9%	28.8%	26.7%	26.4%	19.5%
	of Hard Coal	64.6%	73.6%	66.1%	12.4%	43.5%	49.1%	47.4%	21.5%

		2016	2017	2018	2019	2020	2021	2022
DIVERSIFICATION OF GAS SUPPLIES	**Gas Consumption (in bcm)**	**19.0**	**20.1**	**20.2**	**20.7**	**21.3**	**22.9**	**19.7**
	Gas Consumption year-on-year change [%]	4.5%	5.5%	0.6%	2.6%	2.9%	7.1%	-13.8%
	Gas Imports - by type (in bcm)	**14.7**	**15.7**	**15.8**	**17.5**	**17.4**	**18.5**	**15.2**
	Gas imports - pipeline	13.5	14.0	13.0	14.0	13.6	14.4	9.0
	Gas imports - LNG	1.1	1.8	2.7	3.5	3.8	4.1	6.2
	Gas Imports - by main source supplier (in bcm) (1)							
	United States	-	0.1	0.1	0.9	1.0	1.6	3.4
	Qatar	1.0	1.5	2.3	2.3	2.3	2.4	2.3
	Germany	2.7	3.6	3.0	3.9	3.7	3.3	4.4
	Russia	10.9	10.3	9.7	9.6	9.6	10.5	3.0

		2019	2020	2021	2022	2023
	LNG Terminals - storage capacity m3 LNG					
	Number of LNG Terminals	1	1	1	1	1
	LNG Storage capacity (m3 LNG)	320,000	320,000	320,000	320,000	320,000
	Underground Storage					
	Number of storage facilities	10	10	10	10	7
	Technical Capacity (bcm)	3.0	3.1	3.2	3.2	3.3

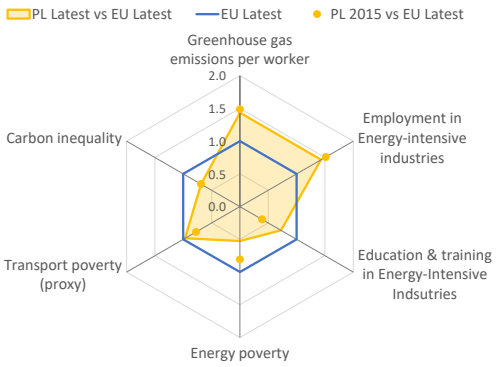
		2016	2017	2018	2019	2020	2021	2022	2023
ELECTRICITY/ENERGY	**Gross Electricity Production (GWh) (2)**	**166,635**	**170,465**	**170,039**	**163,989**	**158,043**	**179,631**	**179,748**	-
	Combustible Fuels	151,234	152,295	154,428	145,269	137,254	156,279	148,579	-
	Nuclear	0	0	0	0	0	0	0	-
	Hydro	2,622	3,034	2,387	2,665	2,937	3,101	3,018	-
	Wind	12,588	14,909	12,799	15,107	15,800	16,234	19,780	-
	Solar	124	165	300	711	1,958	3,934	8,310	-
	Geothermal	0	0	0	0	0	0	0	-
	Other Sources	67	62	125	237	94	84	61	-
	Gross Electricity Production [%]								
	Combustible Fuels	90.8%	89.3%	90.8%	88.6%	86.8%	87.0%	82.7%	-
	Nuclear	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-
	Hydro	1.6%	1.8%	1.4%	1.6%	1.9%	1.7%	1.7%	-
	Wind	7.6%	8.7%	7.5%	9.2%	10.0%	9.0%	11.0%	-
	Solar	0.1%	0.1%	0.2%	0.4%	1.2%	2.2%	4.6%	-
	Geothermal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-
	Other Sources	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.0%	-
	Net Imports of Electricity (GWh)	**1,999**	**2,287**	**5,695**	**10,623**	**13,267**	**888**	**-1,677**	-
	As a % of electricity available for final consumption	1.4%	1.6%	3.8%	7.0%	8.9%	0.6%	-1.1%	-
	Electricity Interconnection [%]	-	**4.0%**	**4.0%**	**4.0%**	**3.9%**	**7.0%**	**6.8%**	**5.5%**
	Share of renewable energy consumption - by sector [%]								
	Electricity	13.3%	13.1%	13.0%	14.4%	16.2%	17.2%	21.0%	-
	Heating/cooling	14.9%	14.8%	21.5%	22.0%	22.1%	21.0%	22.7%	-
	Transport	4.0%	4.2%	5.7%	6.2%	6.6%	5.7%	5.8%	-
	Overall	11.4%	11.1%	14.9%	15.4%	16.1%	15.6%	16.9%	-

		2019	2020	2021	2022	2023
CLEAN ENERGY	**VC investment (2) in clean energy tech start-ups and scale-ups (EUR Million)**	**3.58**	**11.86**	**2.55**	**11.68**	**-**
	as a % of total VC investment (3) in Poland start-ups and scale-ups	1.6%	4.8%	0.5%	3.5%	-
	Research & Innovation spending in Energy Union R&i priorites					
	Public R&I (EUR mln)	54.2	72.8	70.6	-	-
	Public R&I (% GDP)	0.01%	0.01%	0.01%	-	-
	Private R&I (EUR mln)	66.7	72.0	-	-	-
	Private R&I (% GDP)	0.01%	0.01%	-	-	-

(1) The ranking of the main suppliers is based on the latest available figures (for 2022)
(2) Venture Capital investment includes Venture Capital deals (all stages), Small M&A deals and Private Equity (PE) growth deals (for companies that have previously been part of the portfolio of a VC investment firm or have received Angel or Seed funding).
Source: Eurostat, Gas Infrastructure Europe, JRC elaboration based on PitchBook data (03/2024), JRC SETIS (2024)

This Annex monitors Poland's progress in ensuring a fair transition towards climate neutrality and environmental sustainability, particularly for workers and households in vulnerable situations. Upskilling and reskilling measures will promote smooth labour market transitions in line with the Council Recommendation on ensuring a fair transition towards climate neutrality ([77]) and help implement the REPowerEU plan. Poland's green economy is expanding. Between 2015 and 2021, total jobs in the environmental goods and services sector grew by 61.7% (to around 308 000) (EU: 18.2%), reaching almost 1.8% of total employment (EU: 2.7%). Between 2015 and 2022, the greenhouse gas emission intensity of Poland's workforce (see Graph A8.1 and Table A8.1) fell very slightly from 21.2 to 21.1 tonnes per worker, which is above the EU average (14.3 tonnes per worker in 2022) ([78]). Under the recovery and resilience plan (RRP), crucial reforms and investments for companies in products, services and competences of employees and staff support the green transition, complementing the territorial just transition plans and actions financed by the European Social Fund Plus (ESF+). Poland is the largest recipient of the Just Transition Fund (JTF), which will support the transformation in five Polish regions (Dolnośląskie, Łódzkie, Małopolskie, Śląskie, Wielkopolskie).

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



Source: Eurostat, EU Labour Force Survey, EMPL-JRC GD-AMEDI/AMEDI+ and DISCO(H) projects (see Table A8.1).

Employment in Poland's sectors that are most affected by the green transition remains stable. Employment in Poland's energy-intensive industries ([79]) comprised 5.0% of total employment in 2023, a slight decrease from 5.4% in 2020 but still above the EU average (3.5%). Employment in mining and quarrying has fallen by 27.2% since 2015 (to around 167 400 workers in 2023) due to the decline of coal and lignite mining in Poland. In 2024, a support programme for workers leaving the extraction and energy industries in Eastern Wielkopolskie will be launched as a part of the JTF. It will equip the estimated 2 200 outgoing employees with skills, offering career guidance and supporting paths to new quality jobs. The job vacancy rate in construction (see Graph A8.2), a key sector for the green transition, is lower than the EU average (1.6% vs 3.6% in EU in 2023). Nevertheless, almost two thirds of small and medium-sized enterprises (SMEs) in the sector reported that skills shortages are holding them back in general business activities ([80]). According to the European Labour Authority (ELA) ([81]), labour shortages were reported in 2023 for several occupations that required specific skills or knowledge for the green

([77]) 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.

([78]) Workforce-related calculations are based on the EU Labour Force Survey. Note, in the 2023 country report for Poland, such indicators were calculated based on employment statistics in the national accounts. This may result in limited comparability across the two reports.

([79]) Mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24) and automotive (C29).

([80]) Eurobarometer on skills shortages, recruitment, and retention strategies in small and medium-sized enterprises.

([81]) Based on the European Labour Authority 2024 EURES Report on labour shortages and surpluses 2023, i.e., data submitted by the EURES National Coordination Offices.

transition ([82]), including roofers, building and related electricians and building construction labourers.

Upskilling and reskilling in energy-intensive industries improved. In energy-intensive industries, workers' participation in education and training increased from 4.3% in 2015 to 7.9% in 2023, but it is still below the EU average (10.9%). In Poland, only 36% of SMEs think that the skills required for greening business activities are becoming more important (EU: 42%) ([81]). If Poland matches its projected contribution to the EU's renewable energy target, between 5 100 and 9 000 additional skilled workers will be needed for the deployment of wind and solar energy, which may require an investment in skills of EUR 16.6-20.7 million ([83]). Specific investments under the RRP and the JTF provide training to reskill workers in regions affected by the transition, together with a broader training offer at regional level and flexibility mechanisms to encourage in-company training. The JTF allocated EUR 518.6 million for skills in the five regions undergoing the fair transition. The ESF+ strengthens the green transition through various measures that promote and support the deployment of green skills. Importantly, the ESF+ will support a tool that will analyse and forecast the demand for jobs and skills in the green and digital economy. In addition, the REPowerEU chapter of the RRP proposed a review of the sectoral qualification frameworks that will expand lists of green skills for training in key sectors such as construction, water management and waste management as well as renewable energy sources.

Energy poverty indicators have improved significantly in Poland. The share of the population unable to keep their homes adequately warm decreased from 7.5% in 2015 to 4.9% in 2022, below the EU average (9.3%) ([84]). However, the indicator increased by 1.7 percentage points between 2021 and 2022, despite energy price measures implemented in Poland, due to supply constraints caused by the COVID-19 pandemic and Russia's war of aggression against Ukraine. In 2022, 10.3% of the population at risk of poverty (AROP) (EU: 20.1%) and 5.5% of lower middle-income households (in deciles 4-5) (EU: 11.6%) were unable to keep their homes adequately warm. On the other hand, in January 2023, 36.0% of AROP spent a considerable proportion of their budget (more than 6%) on private transport fuels (EU: 37.1%) ([85]).

Environmental inequalities remain a critical issue in Poland, particularly those related to air pollution. In 2021, the consumption footprint for 20% of the population with the highest income is 1.9 times higher than the footprint of the poorest 20% (EU: 1.8) ([86]). For both groups, the footprint is highest for food and housing. The average levels of air pollution in 2021 stood above the EU average (18.1 vs 11.4 µg/m3 PM2.5), with all the population living in regions exposed to critical levels of air pollution ([87]). This has led to a significant impact on health, affecting vulnerable groups in particular, and around 47 300 premature deaths annually ([88]).

([82]) Skills and knowledge requirements are based on the European Skills Competences and Occupations (ESCO) taxonomy on skills for the green transition.

([83]) EMPL-JRC AMEDI+ project.

([84]) 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.

([86]) Affordability of private transport fuels is one key dimension of transport poverty. The indicator has been developed in the context of the EMPL-JRC GD-AMEDI/AMEDI+ projects. Methodology explained in Economic and distributional effects of higher energy prices on households in the EU.

([86]) Developed in the context of the EMPL-JRC DISCO(H) project. Methodology explained in Joint Research Centre, 2024. Carbon and environmental footprint inequality of household consumption in the EU. JRC137520. The EU average refers to EU27 without Italy (household income data not available for IT in the HBS)

([87]) Two times higher than the recommendations in the WHO Air Quality Guidelines (annual exposure of 5µg/m^3).

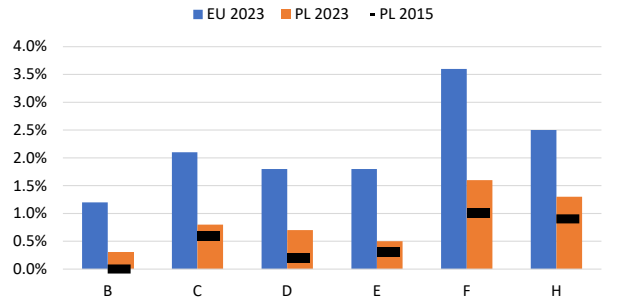
([88]) EEA - Air Quality Health Risk Assessment

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

Indicator	Description	PL 2015	PL	EU
GHG per worker	Greenhouse gas emissions per worker – CO_2 equivalent tonnes	21.2	20.5 (2022)	14.3 (2022)
Employment EII	Employment share in energy-intensive industries, including mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24) and automotive (C29)	5.3%	5.0% (2023)	3.5% (2023)
Education & training EII	Adult participation in education and training (last 4 weeks) in energy-intensive industries	4.2%	7.9% (2023)	10.9% (2023)
Energy poverty	Share of the total population living in a household unable to keep its home adequately warm	7.5%	4.9% (2022)	9.3% (2022)
Transport poverty (proxy)	Estimated share of the AROP population that spends over 6% of expenditure on fuels for personal transport	28.9%	36.0% (2023)	37.1% (2023)
Carbon inequality	Ratio between the consumption footprint of the top 20% vs bottom 20% of the income distribution	1.9	1.9 (2021)	2.7 (2021)

Source: Eurostat (env_ac_ainah_r2, lfsa_egan2d, ilc_mdes01), EU Labour Force Survey (break in time series in 2021), EMPL-JRC GD-AMEDI/AMEDI+ and DISCO(H) projects.

Graph A8.2: **Job vacancy rate in transforming sectors and mining and quarrying**



B - Mining and quarrying
C - Manufacturing
D - Electricity, gas, steam and air conditioning supply
E - Water supply; sewerage, waste management and remediation activities
F - Construction
H - Transportation and storage
Source: Eurostat jvs_a_rate_r2.

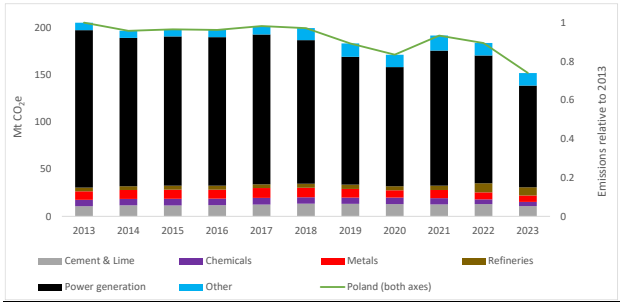
Poland is making progress in implementing policies for a fair transition in the context of the Council Recommendation of June 2022, with further efforts needed in the areas of education and training. Poland has put in place different measures with EU support (see above). Further action is needed to promote education and training for green competences, skills and jobs. Particular attention needs to be given to workers in energy-intensive industries and the expanding sectors ([89]).

([89]) Based on the monitoring review of the Council Recommendation on ensuring a fair transition towards climate neutrality, which took place in October 2023.

The green transition of industry and the built environment, in particular decarbonisation, resource efficiency and circularity, is essential to boost Poland's competitiveness ([90]). In this regard, priorities for Poland are waste management and the use of circular materials in industry and construction.

The pace of Poland's circular economy transition is insufficient to achieve the Circular Economy Action Plan goals. The material footprint increased from 6.7 to 18.1 tonnes per capita between 2016 and 2022, above the EU average of 14.9 tonnes per capita. Waste generation increased to 4.5 tonnes per capita, narrowing the difference between Poland's performance and the EU average of 4.8 tonnes per capita. The 2022 Eco-Innovation Scoreboard placed Poland in the 'catching-up group', with a score of 67.4. As of September 2023, Poland totalled 57 awarded EU Ecolabel licences and 1 974 products with the EU Ecolabel, showing a good take-up of products and licences. However, after a peak in 2021, the number of new Ecolabels – both licences and products – have decreased. Poland could make better use of the potential of the circular economy, also to drive the decarbonisation of industry.

Graph A9.1: **ETS emissions by sector since 2013**



Source: European Commission

Greenhouse gas emissions covered by the EU emissions trading system (ETS) in Poland ([91]) continue to be dominated by the power sector, which accounted for 71% in 2023. This is significantly more than the EU average (57%), underlining the importance of energy transformation in Poland to reduce exposure to carbon costs. In 2023, emissions from the power sector were 21% lower than in 2019 and 35% lower than in 2013. In 2023, Poland's industry emissions covered by the EU ETS came mostly from cement and lime production (25%), industries classified as 'other' (30%) ([92]), and refineries (20%), as well as from the metals industry (16%) and chemicals production (10%). Industry emissions have been increasing since 2013, except for a dip in 2020 due to the COVID-19 pandemic and reduced manufacturing capacity but declined in 2023. In 2023, industry emissions were 15% higher than in 2013, albeit only 7% higher than in 2019. Overall, in 2023, Poland's ETS emissions were 17% lower than in 2019 and 26% lower than in 2013.

There is an opportunity to improve the efficiency of industry and reduce its pollution. Poland's secondary material use rate decreased from 10.4% in 2017 to 8.4 in 2022, which is below the EU average of 11.5%. By contrast, resource productivity increased, but the distance to the EU average is still big: 1.49 versus 2.45 purchasing power standards per kilogram in 2022. The impact of particulate matter emissions from Poland's industries on air quality was way higher than the EU average. PM2.5 emissions per economic output (EUR'10) ([93]) decreased from 0.31 to 0.28 grams between 2017 and 2020, versus an EU average of 0.07 grams/EUR'10 in 2020. A similar trend was reported for PM10 emissions, which decreased from 0.37 to 0.33 grams/EUR'10 between 2017 and 2020 – versus an EU average of 0.10 grams/EUR'10 in 2020.

Despite steady progress in waste management in the past decade, there is room for improvements. The municipal waste recycling rate increased to 40.9% in 2022. However, with 38.7% in 2020, the country has failed to meet the EU 2020 target of recycling 50% of municipal waste. Poland is among the countries that are not on track to meet the 2025 EU packaging, plastic packaging, and municipal

([90]) See also Annexes 6, 7 and 12.

([91]) This analysis excludes air travel. For more details and the data sources, see Weitzel, M; van der Vorst, C. (2024), Uneven progress in reducing emissions in the EU ETS, JRC Science for policy brief, JRC138215, Joint Research Centre.

([92]) Other than cement and lime production, chemicals, metals, refineries, and power generation.

([93]) In 2010 prices.

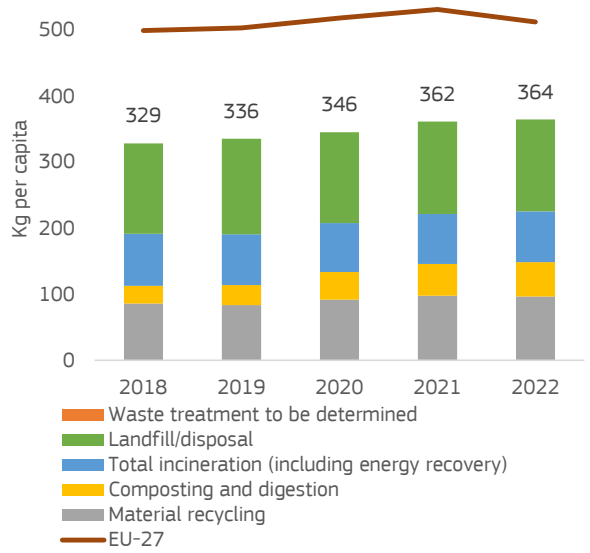
Table A9.1: **Circularity indicators**

	2018	2019	2020	2021	2022	2023	EU-27	Latest year
Industry								
Resource productivity (purchasing power standard (PPS) per kilogram)	1.2	1.3	1.3	1.4	1.5	-	2.5	2022
Circular material use rate (%)	10.5	9.2	7.3	9.1	8.4	-	11.5	2022
Eco-innovation index (2013=100)	59.1	61.0	60.5	63.9	67.4	-	121.5	2022
Recycling of plastic packaging (%)	35.7	31.5	-	-	-	-	40.7	2021
Cost of air emissions from industry (EUR bn)	53.1	44.9	34.2	50.0	-	-	352.7	2021
Built environment								
Recovery rate from construction and demolition waste (%)	84.0	-	74.0	94.2	-	-	89.0	2020
Soil sealing index (base year = 2006)	105.4	-	-	-	-	-	103.4	2018
Non-residential floor area (m^2 per capita)	12.7	12.9	13.0	-	-	-	18.0	2020
Waste backfilled (%)	26.1	-	38.9	-	13.8	-	9.9	2020

Source: Eurostat, European Environment Agency

waste recycling targets (of 65%, 50% and 55%, respectively). The recycling rate of plastic packaging was 31.5% in 2019, below the EU average. The country has moved away from heavy reliance on landfills but is still at risk of missing the 2035 EU landfilling target of 10%. Innovation in waste treatment has slowed down to 17 patents registered in 2021, versus 70 in 2015.

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



Source: Eurostat

Poland could use its built environment more efficiently. The residential and non-residential floor areas are below the EU average but have increased at a higher pace than the EU average, with respectively 32.62 m^2 (EU average: 54.42 m^2) and 13 m^2 per capita (EU average: 18 m^2) in 2020. In 2020, Poland submitted a long-term renovation plan to decarbonise the buildings stock. Circular economy strategies are mentioned, but they could be more widely integrated into the planning.

Resilience of the built environment remains a source of concern. Land take is one of the main drivers of biodiversity loss in Poland. In 2018, the soil sealing index ([94]) stood above the EU average: 105.4 versus 103.4. In 2012-2018, net land take stood way above the EU average and decreased by only 18% compared with 2006-2012. Poland would need to take measures to decrease its pressure on land to achieve the 8th Environment Action Programme objective of reaching no net land take by 2050. Poland has introduced climate adaptation strategies for the built environment but is still lacking a whole-life carbon approach. Poland took action to protect the population from extreme flood events, supported by the European Regional Development Fund. The measures implemented in 2014-2020 cover 15.2% of the population and will be extended to 15.9%.

There is still potential for improving construction and demolition waste management in Poland. The amount of waste generated from construction and demolition activities per capita remains well below the EU average. The proportion of backfilling has increased since 2014 and stood at 39% in 2020, above the EU average of 9.9%. Poland's recovery rate decreased from 93% in 2010 to 74% in 2020, achieving the Waste Framework Directive's target for 2020. The most recent value from 2021 shows a significant improvement, reaching 94%. In Poland, 75% of the population is connected to at least secondary wastewater treatment, which is below the EU average of 81%.

([94]) It measures the variation of soil sealing over the years, with 2006 as the baseline (2006=100).

Digital transformation is key to ensuring a resilient and competitive economy. In line with the Digital Decade Policy Programme, and in particular with the targets in that Programme for digital transformation by 2030, this Annex describes Poland's performance on digital skills, digital infrastructure / connectivity and the digitalisation of businesses and public services. Where relevant, it makes reference to progress on implementing the Recovery and Resilience Plan (RRP). Poland allocates 21% of its total RRP budget to digital (EUR 7.4 billion) ([95]). Under Cohesion Policy, an additional EUR 5.7 billion (8% of the country's total Cohesion Policy funding) is allocated to the country's digital transformation ([96]).

The Digital Decade Policy Programme sets out a pathway for EU's successful digital transformation by 2030. Poland's national roadmap outlines the actions it intends to take to reach the objectives and targets at national level. The first Report on the State of the Digital Decade highlighted the need to accelerate and deepen the collective efforts to reach the EU-wide targets and objectives ([97]). Among others, a digitally skilled population increases the development and adoption of digital technologies and leads to productivity gains and new business models. It also leads to higher inclusion and participation in an environment, increasingly shaped by the digital transformation ([98]). Digital technologies, infrastructure and tools all play a role in addressing the current structural challenges, including strategic dependencies, cybersecurity and climate change.

([95]) The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation.

([96]) This amount includes all investment specifically aimed at or substantially contributing to digital transformation in the 2021-2027 cohesion policy programming period. The source funds are the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition Fund.

([97]) European Commission (2023): Report on the State of the Digital Decade 2023, 2023 Report on the state of the Digital Decade | Shaping Europe's digital future (europa.eu).

([98]) See for example OECD (2019): OECD Economic Outlook, Digitalisation and productivity: A story of complementarities, OECD Economic Outlook, Volume 2019 Issue 1 | OECD iLibrary (oecd-ilibrary.org) and OECD (2019): Going Digital: Shaping Policies, Improving Lives – Summary, https://www.oecd.org/digital/going-digital-synthesis-summary.pdf.

The low level of basic digital skills is a key challenge for Poland in the human capital dimension. The proportion of Poland's population with at least basic digital skills is below the EU average. Also, ICT specialists account for a lower percentage of the workforce in Poland (4.3%) than the EU average (4.8%) and the same can be said about the percentage of female ICT specialists. The share of persons with a degree in ICT among all graduates remains also below the EU average. The RRP includes measures that aim to increase the level of digital competences in the society, introduce more digital themes into education, and to provide digital equipment to schools. These measures are expected to help increase the level of digital skills.

Poland has a mixed performance on the indicators for digital infrastructure and connectivity. The very high-capacity network (VHCN) coverage (81.1%) is higher than the EU average (78.8%) and the RRP includes significant investments supporting the roll-out of connectivity infrastructure as well as some relevant legislative action. On the other hand, the overall 5G coverage stands at 71.9%, considerably below the EU average of 89.3%. The development of 5G is late primarily due to the delayed authorisation of the 5G pioneer bands. Only the 3.4-3.8 GHz band has been assigned so far. The launch of selection procedure for the assignment of the 700 MHz band, expected in 2024, has yet to be announced. Swift execution of the 5G spectrum auction is of utmost importance as it would enable investment.

Poland is still far below the EU average for most indicators on the digitalisation of businesses. The proportion of SMEs with at least a basic level of digital intensity (50%) is much lower than the EU average (58%). The adoption of advanced digital technologies (52%) is also below the EU average for data analytics solutions, cloud computing, or artificial intelligence (55%). The RRP includes an investment supporting the digital transformation of businesses with the use of cloud computing. In 2022, 2.9% of enterprises in Poland reported ICT service outage due to cyberattacks (e.g. ransomware attacks, denial of service attacks). Over the same year, 20.7% of enterprises developed or reviewed their ICT security policy within the previous 12 months.

Poland is still performing below the EU average regarding digitalisation of public services. Poland scores below the EU average for

availability of digital public services. In April 2023, Poland notified its Public Electronic Identification Scheme, which includes two electronic identification (eID) means. Moreover, Poland has another eID means – profil mObywatel ('mCitizen profile') – which was released in July 2023 as a new feature in the public mobile application mObywatel. The same app also provides access to several public services and the online patient account that is needed for the mandatory e-prescription system and enables interaction with the health system on other administrative issues.

In terms of access to e-health records, Poland scores well above the EU average with a score of 90 out of 100. The RRP supports developing new and upgrading existing public e-services and scaling up their availability.

Table A10.1:**Key Digital Decade targets monitored by the Digital Economy and Society Index indicators**

	Poland			EU	Digital Decade target by 2030 (EU)
	2022	2023	2024	2024	
Digital skills					
At least basic digital skills	**43%**	**43%**	**44%**	**56%**	**80%**
% individuals	2021	2021	2023	2023	2030
ICT specialists ([1])	**3.7%**	**3.7%**	**4.3%**	**4.8%**	**20 million**
% individuals in employment aged 15-74	2021	2022	2023	2023	2030
Digital infrastructure/connectivity					
Fixed very high capacity network (VHCN) coverage	**70%**	**71%**	**81%**	**79%**	**100%**
% households	2021	2022	2023	2023	2030
Fibre to the premises (FTTP) coverage ([2])	**52%**	**60%**	**75%**	**64%**	**-**
% households	2021	2022	2023	2023	
Overall 5G coverage	**34%**	**63%**	**72%**	**89%**	**100%**
% populated areas	2021	2022	2023	2023	2030
Digitalisation of businesses					
SMEs with at least a basic level of digital intensity	**40%**	**NA**	**50%**	**58%**	**90%**
% SMEs	2021		2023	2023	2030
Data analytics	**NA**	**NA**	**19%**	**33%**	**-**
% enterprises			2023	2023	
Cloud	**19%**	**19%**	**47%**	**39%**	**-**
% enterprises	2021	2021	2023	2023	
Artificial intelligence	**3%**	**3%**	**4%**	**8%**	**-**
% enterprises	2021	2021	2023	2023	
AI or cloud or data analytics ([3])	**NA**	**NA**	**52%**	**55%**	**75%**
% enterprises			2023	2023	2030
Digitalisation of public services					
Digital public services for citizens	**57**	**60**	**64**	**79**	**100**
Score (0 to 100)	2021	2022	2023	2023	2030
Digital public services for businesses	**70**	**73**	**73**	**85**	**100**
Score (0 to 100)	2021	2022	2023	2023	2030
Access to e-health records	**NA**	**86**	**90**	**79**	**100**
Score (0 to 100)		2022	2023	2023	2030

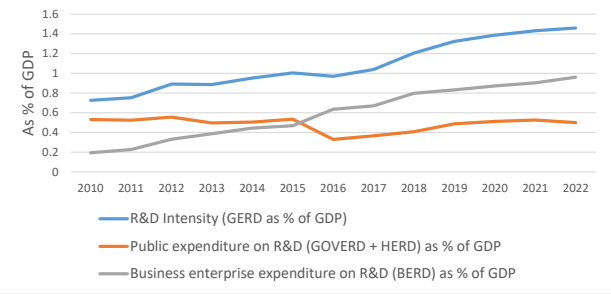
(1) The 20 million target represents about 10% of total employment.
(2) The fibre to the premises coverage indicator is included separately as its evolution will also be monitored separately and taken into consideration when interpreting VHCN coverage data in the Digital Decade.
(3) At least 75% of EU 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 Poland's research and innovation system, which is essential for delivering the twin transition and ensuring long-term competitiveness.

Poland remains an 'emerging innovation performer', but it is reducing its performance gap with the EU. According to the 2023 European Innovation Scoreboard ([99]), Poland's performance has been steadily improving, at a faster rate than the EU average with which it is catching up. Despite this progress, additional actions need to be taken up to continue to narrow the gap (Poland score is 62.8% of the EU average).

Graph A11.1: **R&D expenditure as % of GDP, 2010-2022**



Source: Eurostat

Overall improvements are largely due to increasing business R&D expenditure, but its sustainability can be questioned given persisting bottlenecks. Business enterprise expenditure on R&D has steadily increased since 2016, rising from 0.64% of GDP to 0.96% in 2022. Over the same period, public expenditure on R&D almost caught up with its 2015 level to represent 0.50% of GDP (EU average 0.73%); however, the environment-related government R&D budget remains very low, well under the OECD average ([100]). These efforts will be supported by substantial investments in R&I from the cohesion policy and the recovery and resilience plan (RRP). Going forward, it is important that the sustainability of these investments is ensured in view of the 2030 strategy for responsible development that set the target of 2.5% of GDP dedicated to R&I by 2023. This must be supported by complementary measures able to solve pressing bottlenecks: shortage of a highly skilled research workforce, threats to academic freedom and a weak public science base.

Poland faces shortages of skills in the science, technology, engineering and maths (STEM) fields, limiting the quality of research output and the impact of R&I investments. Skills shortages are illustrated by the decreasing number of graduates in the STEM fields ([101]) and the low number of new doctorate graduates ([102]) (see Annex 15: Education). Moreover, this is not compensated by foreign graduates as the Polish R&I ecosystem has difficulty in attracting foreign doctorate students ([103]). This struggle for human capital is magnified by a decline in academic freedom, which has been falling below the EU average since 2016 and is decreasing ([104]). 'The Excellence Initiative - Research Universities' programme should help create top-level, research-based education in higher education institutions.

Research outputs must be improved to be able to support the competitiveness of the economy. As shown by the share of Polish scientific publications within the top 10% most cited publication worldwide ([105]), the quality of public research is still below the EU average. This is strengthened by international co-publications as % of the total number of publications for which

([99]) 2023 European Innovation Scoreboard (EIS), country profile: Poland ec_rtd_eis-country-profile-pl.pdf (europa.eu). 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).

([100]) Source: OECD Economic Policy Reforms 2023, country profile: Poland. Poland reached 0.6% against 2.8% on average for OECD countries of total government R&D. https://www.oecd-ilibrary.org/docserver/3d57043c-en.pdf?expires=1701780327&id=id&accname=oid031827&checksum=505D2E586C8A9213EAA6C2F90C8182AA.

([101]) New graduates in science and engineering per thousand population aged 25-34 have been decreasing from 17.1 in 2017 to 12.0 in 2020 and 12.1 in 2021. Source: Eurostat.

([102]) The number of PhD graduates among people aged 25-34, remains low, at 0.4%, which was below the EU-27 average of 1.1%. Source: Eurostat.

([103]) The share of foreign doctorate students as a percentage of all doctorate students in Poland, which was 8% in 2020, below the EU average (24%). Source: 2023 EIS.

([104]) According to the Academic Freedom index, the Polish index decreased from 2016 to reach 0.74 in 2022, below the EU average of 0.90.

([105]) Scientific publications of the country within the top 10% most cited publications worldwide as % of total publications of the country was 5.23% in Poland in 2020, below the EU average of 9.6%. Source: Science-Metrix.

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

Poland	2010	2015	2020	2021	2022	2023	EU average (1)
Key indicators							
R&D intensity (GERD as % of GDP)	0.72	1.00	1.39	1.43	1.46	:	*2.24*
Public expenditure on R&D as % of GDP	0.53	0.53	0.51	0.53	0.50	:	*0.73*
Business enterprise expenditure on R&D (BERD) as % of GDP	0.19	0.47	0.87	0.90	0.96	:	*1.48*
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	3.00	4.20	5.23	:	:	:	*9.6*
Patent Cooperation Treaty patent applications per billion GDP (in PPS)	0.5	0.7	0.56	:	:	:	*3.4*
Academia-business cooperation							
Public-private scientific co-publications as % of total publications	3.3	3.9	4.8	5.1	5.4	:	*7.6*
Public expenditure on R&D financed by business enterprise (national) as % of GDP	0.024	0.019	0.015	0.014	:	:	*0.054*
Human capital and skills availability							
New graduates in science & engineering per thousand pop. aged 25-34	15.9	16.5	12.0	12.1	:	:	*16.9*
Public support for business enterprise expenditure on R&D (BERD)							
Total public sector support for BERD as % of GDP	0.030	0.082	0.191	0.202	:	:	*0.204*
R&D tax incentives: foregone revenues as % of GDP	0	0	0.029	0.034	:	:	*0.104*
Green innovation							
Share of environment-related patents in total patent applications filed under PCT (%)	12.1	14.4	7.8	:	:	:	*14.7*
Finance for innovation and economic renewal							
Venture capital (market statistics) as % of GDP	0.007	0.006	0.018	0.022	0.027	:	*0.085*

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

Poland, despite recent progress, remains well below the EU average ([106]).

Science-business linkages remain weak, hindering the uptake of research output into the economy. Both the share of public-private scientific co-publications as a share of all scientific publications (5.4 against 7.6 in 2022) and the level of business financing for public R&D expenditure remain well below the EU average (0.014% of GDP against 0.054% in 2021). However, Poland is putting in place initiatives to drive forward; for example, the Key National Clusters initiative that aims at strengthening cooperation between companies or industry and R&I actors ([107]) and also via the measures on the development of cluster offer for companies of the European Funds for the Modern Economy of the Agency for Enterprise Development ([108]) that will facilitate the connection between businesses and research organisations.

Business innovation is crucial for the competitiveness of the Polish economy and in view of the green and digital transition. Poland's venture capital market is slowly expanding but is still weak, hindering the ability to commercialise innovation. Similarly, while R&D tax incentives to promote business innovation activities have been improving, they remain below the EU average (0.034% of GDP vs 0.100%). Both these points are reflected by the overall low number of patent applications per billion GDP filled under PCT. This challenge is more prominent in SMEs, as the number taking up product or business process innovations remains below the EU averages ([109]). A forthcoming study on the existing R&D tax incentive scheme should provide insights for improvements in this regard. It will also be key to improve Poland's R&I performance in the green and digital fields, areas in which Poland is currently lagging behind ([110]).

([106])International co-publications as % of total number of publications was 39.8% in 2022 for 55.5% for the EU average. Source: Science-Metrix.

([107])Source: European Cluster Collaboration Platform. ECCPfactsheet_Poland_2022_final.pdf (clustercollaboration.eu).

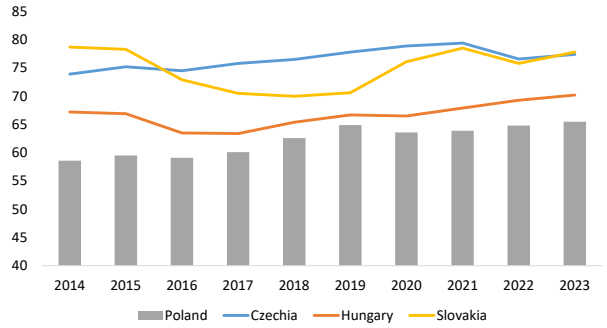
([108])Source: STIP Compass, OECD.

([109])Respectively 43.5% and 39.6% of EU performance. Source: European Innovation Scoreboard 2023.

([110])Business R&D expenditure in information industries of Poland was 0.2% against 0.4% of GDP (2019 or latest) for the OECD average. Source: OECD. Concerning green domains, it fell from 10.3% to 7.8% from 2020 to 2021, which is below the EU average of 14.7%.

Robust growth over the past decade has reduced the income gap between Poland and the EU average. Growth has been driven primarily by a combination of foreign direct investment, inflows of EU funds, rising labour force participation and productivity improvements. In the 2023 IMD Competitiveness Ranking, Poland ranked 43rd out of 64 countries, moving up seven places compared to 2022 ([111]). There is some scope for improvement, especially regarding government efficiency (business regulation is relatively high, and some government and legal institutions continue to function poorly), while trade and employment indicators are the strongest assets.

Graph A12.1: **Nominal labour productivity per hour worked (EU=100)**



Source: Eurostat

Poland has experienced rapid productivity growth in the last decade, but significant potential for catching up with EU averages remains. Labour productivity per hour worked increased by 0.7 in 2023 and grew by an average of around 2.5% in the last decade (it grew by less than 1% in the EU as a whole). However, productivity is still one of the lowest in the EU and stands at 65% of the EU average (see Graph A12.1). Low-productivity sectors (e.g. agriculture and construction) account for 25% of GDP (less than 19% in the EU) ([112]). Poland's low unemployment and high employment rates mean that much of the future improvement should come from a growing capital stock, improvements in efficiency and a shift to higher added value activities. Since 2015, total factor productivity (TFP) has grown at an average rate of 2.2% (4.2% in 2022), against an average of 0.8% in the EU. The OECD ([113]) suggests that most of the manufacturing TFP growth in 2009-2019 was due to productivity improvements within firms.

Higher private investment rates could boost Poland's long-term growth and facilitate the shift toward a greener model ([114]). Poland's investment to GDP ratio was 17% in 2022 (see Graph A12.2), considerably below the EU average (22.9%) and that of peer countries (Hungary: 28.2%, Czechia: 26.8%). Substantial investment needs persist across the economy, notably for the green transition. The most important barriers to investment are uncertainty about the future (93% of Polish respondents against 78% in the EU), energy costs (90% in Poland, 83% in the EU) and availability of skilled staff (83% in Poland, 81% in the EU) ([115]).

Investment performance is hampered by a burdensome regulatory environment; a deterioration in the legislative process that increases uncertainty for investors; a low level of automation and robotisation in Polish industry ([116]); and skills mismatches and labour shortages that drive up labour unit costs. The IMF estimates that EU funds would boost investment in 2024-2026, raising the level of output by about 1% by 2025 ([117]).

In addition, investment in innovation and its diffusion is much lower than in the rest of the EU (as measured, for instance, by spending on R&D or the number of patents per capita (see Annex 11). Firms in Poland have one of the

([111]) IMD World Competitiveness Ranking 2023.

([112]) McKinsey & Company, 2023, Lifting Poland's ambitions. On the cusp of a new era.

([113]) OECD Economic Surveys Poland, 2023.

([114]) Over the medium and longer term, public infrastructure investment can raise the productivity of existing assets (physical and human capital), but this is far from guaranteed. About a third of public investment spending in Poland has not resulted in any increase in the level or quality of infrastructure that would have been achieved by the most efficient comparator country. This efficiency gap is higher than the EU average (IMF Selected Issues Paper, *Post-pandemic potential growth and scarring*, Country Report No 2022/059).

([115]) EIB Investment Survey - European Union Overview, 2023.

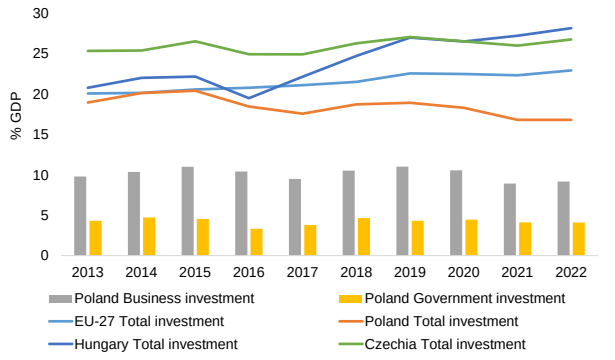
([116]) For industry, the level of robotisation tends to be relatively low. According to a 2021 study, Poland had 42 robots per 10 000 industry workers, lower than the level of around 130 robots in Czechia and Slovakia and below the best performers such as Sweden with 262 robots per 10 000 industry workers (OECD, 2023).

([117]) IMF, Article IV, 2023.

lowest average shares of investment in intangible assets. In this sense, the new Unitary Patent, which was created in June 2023, could help stimulate investment in innovation because the system ends complex validation requirements and reduces litigation costs.

Sustainable investment in clean sources of energy is necessary in order to support sustainable economic growth and meet energy transition goals. Despite progress in increasing renewable energy, Poland remains one of the most carbon-intensive economies in the EU. Polish industry accounts for 25.2% of total gross value added and 21.6% of total employment (significantly above the EU averages) and industry is responsible for around 22% of Poland's greenhouse gas emissions. The National Industrial Strategy adopted in 2021 recognises the Green Deal as an opportunity for Polish producers, especially in low- and zero-carbon technologies (see Annex 7).

Graph A12.2: **Investment, % GDP**



Source: Eurostat

Streamlining administrative procedures would accelerate renewable energy deployment. Wind and solar permitting times in Poland exceed EU limits, despite some measures to improve the permitting processes (e.g. clear deadlines and more digitalisation). For onshore wind, the permitting time is more than 80 months, while for solar it is above 20 months, which is well above the limits stated in the revised RED (2018/2001) ([118]).

Polish industry has benefited from the easing of supply chains. Poland has successfully integrated into global supply chains. The foreign content of Poland's exports is estimated to have increased from 29.5% in 2008 to 30.2% in 2020 (above the OECD average of 27.6%). Supply chain issues affected the automotive industry in 2022 (11% of industrial production and 3.4% of GDP), but the diversity of Poland's industrial base has cushioned the impact. Poland is also a crucial link in the supply chain for several critical raw materials, especially coking coal for steelmaking processes (24% of EU supply), copper, silver and elemental sulphur.

Public trust in government and business perceptions of effectiveness in investment protection are low. Ensuring judicial independence is key to a good investment climate. A recent Eurobarometer published in June 2024 shows that 59% of Polish respondents rate the judicial system as either fairly or very bad in terms of the independence of courts and judges (just 35% in the EU-27). 63% of respondents complained of interference or pressure from the government and politicians (57% in the EU-27) ([119]). In addition, 55% of companies are not confident that their investments are protected by the law and courts in Poland (46% in EU), and they particularly highlight unpredictable, non-transparent administrative conduct, frequent changes in legislation and concerns about the quality of the law-making process. Furthermore, Poland's scores in all six governance dimensions measured by the World Bank's World Governance Indicators have deteriorated since 2017 ([120]). However, the courts' overall performance has improved, with a shortening of the estimated time needed to conclude litigious civil and commercial cases. The government appointed in December 2023 took action to address concerns about the rule of law and judicial independence and presented an Action Plan with concrete steps in February 2024. Finally, Poland implemented measures to strengthen certain aspects of judicial protection through the reform of the disciplinary regime applicable to judges, as required by Poland's Recovery and Resilience Plan.

([118]) EMBER, 2023, PEP2040: progress or disappointment?

([119]) Eurobarometer 520, 2024, Perceived Independence of the National Justice Systems in the EU among Companies.

([120]) The six indicators are: voice and accountability; political stability and absence of violence/terrorism; government effectiveness; regulatory quality; rule of law; and control of corruption. World Bank, *World Governance Indicators 2022*.

The lack of adequate public consultations weighs on the stability and predictability of the business environment. Public consultations are infrequent and non-transparent. Despite recent improvements, in 2023 24% of the draft laws that entered into force had no documented public consultation (the average in the last decade is 38.5%) and in 49% of them the government did not reply to social partners. Furthermore, the time allowed for companies to prepare for changes in the law has decreased. In 2023, laws dealing with business regulations entered into force with a *vacatio legis* that lasted an average of 30.9 days (down from 53.2 in 2011) ([121]).

Access to finance has substantially improved in Poland in recent years. More than half of the firms in Poland (54%) financed at least some of their investment through external finance (EU average: 43%). Bank finance was the most important source of financing for around 80% of Polish firms ([122]).

Financing conditions for private investment tightened significantly in 2023 (creating a more challenging environment) and interest rates for new loans increased sharply. The Polish central bank has registered a decline in the stock of current loans (by 5.1% in Q3 2023 compared to rises of 2.4% in the previous quarter and 11.7% in Q1 2023) as well as some slowdown in investment loan growth (4% in Q3 2023 compared to 4.8% in Q2 2023 and 6.7% in Q1 2023).

Inflation is affecting the capacity of Polish businesses to pay on time. 62% of Polish companies consider that they are struggling to pay their suppliers on time (56% in the EU on average) and 66% of Polish businesses are more concerned than ever about clients' ability to pay on time (EU: 59%). The payment gap is 16 days on B2B operations (down from 17 days in 2021) and 17 days for the public sector (down from 22 days in 2021). In 2023, more companies report that they were asked to accept longer payment delays over the last 12 months ([123]). Furthermore, the percentage of SMEs experiencing late payments rose to 68.4% in 2023, which is above the EU average of 48.7% (see Table A12.1).

Significant progress has been made in recent years, but there is still substantial scope to further digitalise the economy and increase productivity. 61% of Polish SMEs enjoy at least a basic level of digital intensity, which falls below the EU average of 69% (and the 2030 EU target of 90% established by the digital decade policy programme). Adoption of advanced digital technologies is relatively low among Polish firms, with 19% using cloud computing services (EU average: 34%) and 32% using electronic information sharing (EU average: 38%).

The low level of digital skills and the limited number of highly skilled managers is considered as one of the main barriers to growth for Polish firms ([124]). The lack of management support is a barrier to innovation, especially for SMEs. According to the European Innovation Scoreboard 2023, the percentage of SMEs with product innovations was 43.5% (EU average: 100), while the rate of SMEs with innovations in business was 39.6% (EU average: 100).

The overall level of digitalisation of Polish government services is among the lowest in the EU. In 2022, as many as 63% of internet users relied on e-government services (below the EU average of 74%). Furthermore, Poland has progressed to the preliminary stage of technical implementation of the Once-Only Technical System (OOTS) ([125]). As part of the Single Digital Gateway Regulation ([126]), the system will enable the automated cross-border exchange of evidence between competent authorities, improving online access to information, administrative procedures and assistance within the EU. The onboarding of Polish competent authorities is crucial for the system to function smoothly and to reduce administrative burden.

Poland is well integrated into the Single Market. Around 70% of its foreign trade takes place within the EU. However, further efforts are

([121]) Grand Thornton Barometer, 2024, Analysis of the stability of the legal environment in the Polish economy.

([122]) European Investment Bank, 2023, EIB Investment Survey 2023: European Union overview.

([123]) Intrum, 2023, European Payment Report 2023.

([124])OECD Economic Surveys, Poland, 2023.

([125]) Implementing Regulation (EU) 2022/1463.

([126]) The SDG Regulation, Regulation (EU) 2018/1724.

needed to reduce the transposition and conformity deficits, which are above the EU average. This would improve the smooth functioning of the single market in Poland. Poland resolved 80% of all SOLVIT cases it handled as lead centre (below the EU average of 88% – see Table A12.1). However, all the case-handling indicators point to understaffing of the Polish SOLVIT centre in 2023.

Regulatory restrictiveness of regulated professions in important business services is high in Poland (according to the Commission's assessment of restrictiveness in selected professional services ([127]). This is notable in the case of architects, civil engineers, tax advisers, lawyers and patent agents ([128]). As regards retail, the regulatory environment has been made stricter in recent years with the introduction of a retail tax and a complete ban on shops opening on Sundays.

Poland's overall performance on public procurement is below the EU average: it attracts too few bidders (especially for a large country) and the procedures can be lengthy and complex. Contrary to expectations, the public procurement law that entered into force in January 2021 did not immediately address the key weaknesses in public procurement in Poland ([129]). Therefore, the public procurement system still suffers from the low number of companies submitting tenders. This results in a high share of single offers (see Table A12.1), which has remained at an exceptionally high level for years (54% in 2023 and above 50% over the last 5 years). Data also shows a decreasing trend in SMEs interest in public procurement ([130]): contracts with SME participation was 55% and SME bids 58% in 2022, both rates below EU averages ([131]).

([127])COM(2021) 385 final.

([128]) Regulatory barriers to competition remain slightly above the OECD average, as measured by the 2018 edition of the OECD Product Market Regulation (PMR) indicator.

([129]) According to the Polish Public Procurement Office, the value of public contracts awarded in 2022 under the Public Procurement Act amounted to PLN 274.8 billion, around EUR 63.8 billion (2021: PLN 184.6 billion), which represented 8.93% of GDP.

([130])Report of the President of the Public Procurement Office (PPO) for 2022

([131])Single Market Scoreboard

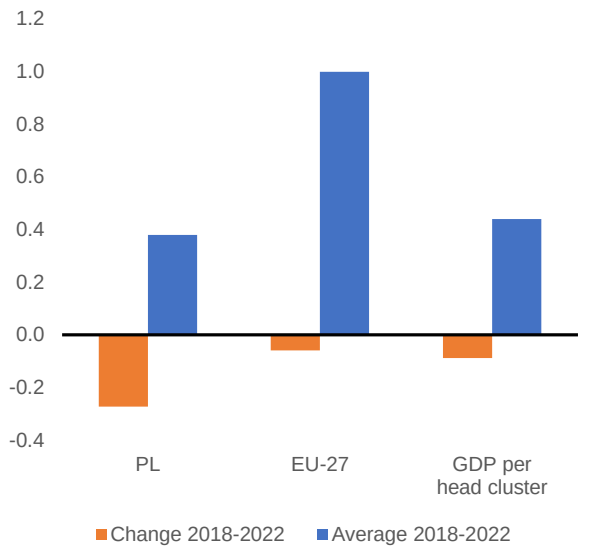
Table A12.1:**Industry and the Single Market**

POLICY AREA	INDICATOR NAME	2019	2020	2021	2022	2023	EU27 average*
HEADLINE INDICATORS							
Economic Structure	Net Private investment, level of private capital stock, net of depreciation, % GDP[1]	5.6	4.4	3.6	4.1	4.2	**3.8**
	Net Public investment, level of public capital stock, net of depreciation, % GDP[1]	2	2.1	1.8	1.6	2.9	**1.2**
	Real labour productivity per person in industry (% yoy)[2]	4.9	-0.3	1.2	6.8	3.2	**-1.24**
Cost competitiveness	Nominal unit labour cost in industry (% yoy)[2]	3.3	2.4	5.8	5.3	16.3	**9.83**
SINGLE MARKET							
Single Market integration	EU Trade integration, % (Average intra-EU imports + average intra EU exports)/GDP[2]	35.7	35.1	39.2	43.5	38.3	**42.9**
Compliance	Transposition deficit, % of all directives not transposed[3]	0.8	1.8	1.5	2.1	1.6	**0.7**
	Conformity deficit, % of all directives transposed incorrectly[3]	1.8	1.6	1.6	1.7	1.5	**1.1**
	SOLVIT, % resolution rate per country[3]	86.7	90.0	88.0	91.3	80.0	**88.3**
	Number of pending infringement proceedings[3]	31	40	39	37	31	**25.9**
Restrictions	EEA Services Trade Restrictiveness Index[4]	0.05	0.05	0.05	0.05	0.05	**0.05**
Public procurement	Single bids, % of total contractors[3]	51	51	50	52	54	**28.6**
	Direct Awards, %[3]	6	6	7	9	8	**8.1**
ECONOMIC STRUCTURE							
Shortages	Material Shortage (industry), firms facing constraints, %[5]	13.9	6.9	20.0	29.9	14.9	**17.2**
	Labour Shortage using survey data (industry), firms facing constraints, %[5]	69.8	61.5	62.5	63.4	66.3	**23.3**
	Vacancy rate, % of vacant posts to all available ones (vacant + occupied)[2]	1.225	0.7	1.3	1.3	0.9	**2.5**
Strategic dependencies	Concentration in selected raw materials, Import concentration index based on a basket of critical raw materials[6]	0.18	0.18	0.19	0.21	0.24	**0.22**
	Installed renewables electricity capacity, % of total electricity produced[2]	0.2	0.2	0.2	0.3		**50**
BUSINESS ENVIRONMENT - SMEs							
Investment obstacles	Impact of regulation on long-term investment, % of firms reporting business regulation as major obstacle[7]	34.1	35.5	34.3	32.0	34.0	**22.2**
Business demography	Bankruptcies, Index (2015=100)[2]	78.7	71.8	50.8	47.3	54.7	**105.6**
	Business registrations, Index (2015=100)[2]	105.0	92.4	103.6	108.3	106.3	**120.2**
Late payments	Payment gap - corporates B2B, difference in days between offered and actual payment[8]	-	17	10	17	16	**15**
	Payment gap - public sector, difference in days between offered and actual payment[8]	-	20	9	22	17	**16**
	Share of SMEs experiencing late payments in past 6 months, %[9]	71.8	66.3	65.5	65.2	68.4	**48.7**
Access to finance	EIF Access to finance index - Loan, Composite: SME external financing over last 6 months, index values between 0 and 1[10]	0.65	0.69	0.65	0.53	-	**0.49**
	EIF Access to finance index - Equity, Composite: VC/GDP, IPO/GDP, SMEs using equity, index values between 0 and 1[10]	0.10	0.20	0.24	0.09	-	**0.17**

Source: (1) AMECO, (2) Eurostat, (3) Single Market Scoreboard, (4) OECD, (5) COMEXT and Commission calculations, (6) EIB Investment Survey, (7) Intrum Payment Report, (8) SAFE survey, (9) EIF SME Access to Finance Index
* Own Commission calculations for the EU27 average

Poland's public administration is essential for the economy's competitiveness by, in particular, shaping the conditions for the twin transitions and creating a favourable business environment. Perceived government effectiveness in Poland scores significantly below the EU average and continues to decrease (Graph A13.1). The public finds the public administration to be complex, and lacking transparency on its decisions and the use of public money ([132]).

Graph A13.1: **Government effectiveness**



Average value over 2018-2022 and change over 2018-2022. The GDP per head bar shows the mean value of the government effectiveness indicator for the group of EU countries belonging to the same GDP per head cluster as Poland (EU countries are ranked in terms of their GDP per head and grouped into three equally sized clusters).
Source: Worldwide Governance Indicators

Poland's civil service faces challenges in making employment conditions appealing ([133]). The amendment of the Civil Service Act of April 2023 aims to make the recruitment process more flexible and adapt the rules on working time. Some other planned measures include employer branding, improved training, strengthening the integrity culture and quality assurance. However, these do not address underlying issues such as remuneration or career development. The decline in gender parity in senior civil service positions also continued in 2023.

Poland has improved its digital public administration. However, there is still room for further progress in the overall maturity of online services, digital skills and e-government use (Graph A13.2). To this end, the Polish recovery and resilience plan (RRP) supports developing new interoperable digital public services and upgrading existing ones.

Improving Poland's national fiscal framework continues to be a challenge. The Supreme Audit Office does not qualify as an independent fiscal institution as it does not produce or endorse the macroeconomic forecast underpinning budgetary planning. Moreover, the country's performance on the national medium-term budgetary framework and the strength of its fiscal rules index are clearly below the EU average.

Procedures for assessing and selecting public investment projects and carrying out *ex post* reviews are weak ([134]). Standardised methodologies for project assessments are only in place for EU-financed investments but could be applied to all major government-funded investments. Project selection procedures vary across ministries. There are no standard criteria for project selection and prioritisation at central government level. Lastly, *ex post* reviews focused on implementation policies and procedures are often only required for EU-financed investments.

The overall performance of ordinary and administrative courts continues to be stable and concerns regarding the rule of law and judicial independence are being addressed ([135]). In ordinary courts, the estimated time needed to resolve civil, commercial, administrative and other cases in 2022 further decreased (from 107 days in 2021 to 100 days in 2022). However, times are increasing in litigious civil and commercial cases in first instance courts. Nevertheless, the rate of solving civil, commercial, administrative and other cases continues to increase. The quality of the justice system is good overall, and there is an advanced level of digitalisation. Lastly, in February 2024, the government took action to address concerns about

([132])European Commission, Flash Eurobarometer 526, 2023.

([133])2022, Annual Report of the Head of the Civil Service in Poland.

([134])Belu Manescu, C. (2022), 'New evidence on the quality of public investment Management in the EU', European Economy Discussion Paper No 177, European Commission.

([135])For more details see the 2024 EU Justice Scoreboard and the Commission's 2024 Rule of Law Report (forthcoming).

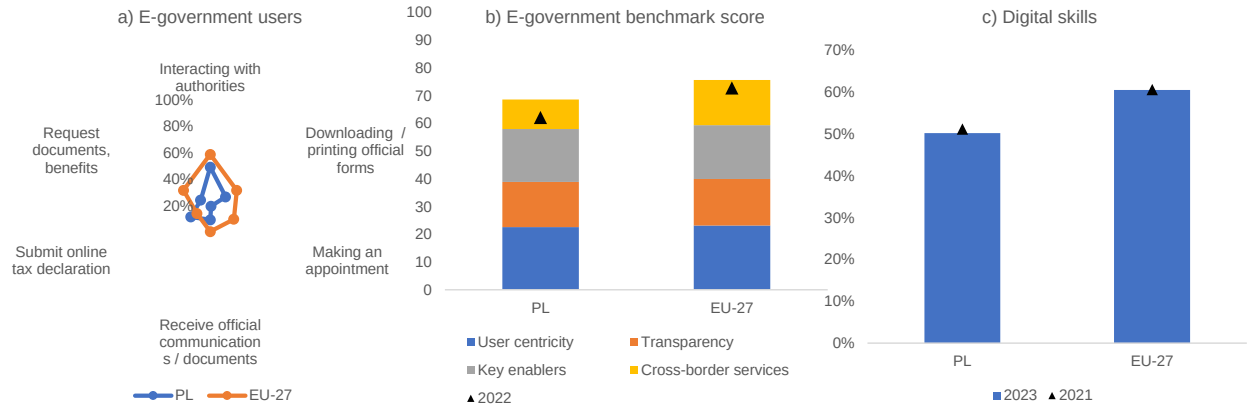
Table A13.1:**Public administration indicators**

PL	Indicator ([1])	2019	2020	2021	2022	2023	EU-27([2])
E-government and open government data							
1	Share of internet users within the last year that used a public authority website or app	n/a	n/a	n/a	62.6	66.4	75.0
2	E-government benchmark overall score ([3])	n/a	58.0	54.9	62.2	68.7	75.8
3	Open data and portal maturity index	0.8	0.9	1.0	1.0	1.0	0.8
Educational attainment level, adult learning, gender parity and ageing							
4	Share of public administration employees with higher education (levels 5-8, %)	67.9	69.4	70.0 (b)	70.6	71.6	52.9
5	Participation rate of public administration employees in adult learning (%)	8.6 (b)	7.1	13.2 (b)	18.9	19.4	17.9
6	Gender parity in senior civil service positions ([4])	9.6	9.6	9.6	12.0	18.6	9.2
7	Ratio of 25-49 to 50-64 year olds in NACE sector O	3.3	3.1	3.2 (b)	3.1	3.0	1.5
Public financial management							
8	Medium-term budgetary framework index	0.5	0.4	0.4	0.4	n/a	0.7
9	Strength of fiscal rules index	1.1	1.2	1.1	1.1	n/a	1.4
Evidence-based policy making							
10	Regulatory governance	n/a	n/a	1.76	n/a	n/a	1.7

High values denote a good performance, except for indicator # 6. (2) 2023 value. If unavailable, the latest value available 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: E-government activities of individuals via websites, 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).

the rule of law and judicial independence and presented an Action Plan with concrete steps. Poland also implemented measures to strengthen certain aspects of judicial protection through the reform of the disciplinary regime applicable to judges, as required by its RRP. Against this backdrop, the Commission concluded on 6 May 2024 that there is no longer a clear risk of a serious breach of the rule of law in Poland. Consequently, on 29 May 2024, the Commission withdrew its reasoned proposal under the Article 7(1) TEU procedure.

Graph A13.2: **a) Use of public authorities' websites or apps (left side); b) e-government maturity (centre); c) share of individuals with basic or above basic overall digital skills (right side)**



(1) 2023 data. Indicators a and c: % of people who used the internet in the last year.
Source: Eurostat and e-government benchmark report.

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

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

Policy area	Headline indicator	
Equal opportunities and access to the labour market	Adult participation in learning (during the last 12 months, excl. guided on the job training, % of the population aged 25-64, 2022)	20.3
	Early leavers from education and training (% of the population aged 18-24, 2023)	3.7
	Share of individuals who have basic or above basic overall digital skills (% of the population aged 16-74, 2023)	44.3
	Young people not in employment, education or training (% of the population aged 15-29, 2023)	9.1
	Gender employment gap (percentage points, population aged 20-64, 2023)	11.8
	Income quintile ratio (S80/S20, 2022)	3.9
Dynamic labour markets and fair working conditions	Employment rate (% of the population aged 20-64, 2023)	77.9
	Unemployment rate (% of the active population aged 15-74, 2023)	2.8
	Long term unemployment (% of the active population aged 15-74, 2023)	0.8
	Gross disposable household income (GDHI) per capita growth (index, 2008=100, 2022)	149.9
Social protection and inclusion	At risk of poverty or social exclusion (AROPE) rate (% of the total population, 2022)	15.9
	At risk of poverty or social exclusion (AROPE) rate for children (% of the population aged 0-17, 2022)	16.7
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP, 2022)	38.57
	Disability employment gap (percentage points, population aged 20-64, 2022)	31.3
	Housing cost overburden (% of the total population, 2022)	5.6
	Children aged less than 3 years in formal childcare (% of the under 3-years-old population, 2022)	15.9
	Self-reported unmet need for medical care (% of the population aged 16+, 2022)	2.3

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

Update of 25 April 2024. Members States are categorised based on the Social Scoreboard according to a methodology agreed with the EMCO and SPC Committees. Please consult the Annex of the Joint Employment Report 2024 for details on the methodology.
Source: Eurostat

The Polish labour market is performing well overall, but some challenges persist. The Polish economy remained weak in the first half of 2023, but there was slight growth in 2023. The employment rate of people aged 20-64 reached a record high of 77.9% in 2023 (vs 75.3% in the EU), and the unemployment rate stood at 2.8%, among the lowest in the EU. At the same time, the proportion of temporary contracts (12.3% in 2023 for people aged 15-64) remains high. The same applies to the share of solo self-employed (14.8% in 2022). Despite limited progress, no impactful measures have been taken by Poland in 2023 to strengthen consultations with and the involvement of social partners in the legislative process, nor to improve the overall quality of social dialogue. The limited scope and duration of consultations on legislative proposals has not changed, and collective bargaining coverage remains one of the lowest in the European Union ([136]). Poland is one of the main EU countries hosting people from Ukraine who benefit from temporary protection (22.7% of all beneficiaries in October 2023, or 960 620 persons). Based on a survey published in January 2023, 4 out of 10 of them had found employment, of which 51% work outside their original profession, and below the level for which they are qualified, and 10% work in their original profession, but in a lower position ([137]).

Persons with disabilities continue to face obstacles to labour market participation and gender inequalities in employment persist. Despite a slight decrease in 2022 (from 34.2 percentage points (pps) in 2021 to 31.3pps), the disability employment gap is still well above the EU average of 21.4 pps. Disability or illness is one of the main reasons for economic inactivity in Poland ([138]). In 2020, 69% of all working-age people with a legally documented disability were economically inactive. The share of young people with disabilities and who are not in employment, education or training (46%) is one of the highest in the EU. The tertiary education gap (age 30-34) was 21.4 pps in 2020-21 (vs 11.3 pps in the EU). While large regional disparities remain, the labour market participation of women further improved and their employment rate was above the EU average in 2023 (72% vs 70.2%), as was the case for the first time in 2021. The gender employment gap also improved, dropping 3 pps since 2020 to 11.8 pps in 2023, but remains above the EU average of 10.2 pps, contributing to gender pay and pension gaps. The especially low employment rate of women aged 55-64 (47% vs 58.1% in the EU in 2023) is largely the result of the different statutory retirement ages for men (65 years) and women (60 years). The participation rate of children less than 3 years of age in formal childcare increased by 6 pps in 2021, mainly as a result of EU funding, but dropped by 1.3 pps in

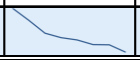
([136])EMCO Social Dialogue Review 2023

([137])Raport: Sytuacja zawodowa uchodźców z Ukrainy w Polsce | Totalizator Sportowy - Fundacja

([138])https://www.oecd.org/cfe/leed/Policy-highlights-Regional-economic-inactivity-Poland.pdf

2022 and is much lower than the EU average (15.9% vs 35.9% in the EU). In Poland, 76% of crèches are private, which results in high costs for parents ([139]). The ESF+ and the Recovery and Resilience Facility (RRF) support the development of quality standards for childcare and the new edition of the Maluch Plus programme, which aims to create more than 100 000 new childcare places. Finally, the employment rate of older workers, especially those with low skills, lags behind the EU average. Addressing all these challenges would support Poland's progress towards its national employment rate target of 78.3% by 2030.

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

Indicators	Latest data	Trend (2016-2023)	2030 target	EU target
Employment (%)	77.9 (2023)		78.3	78
Adult learning[1] (%)	20.3 (2022)		51.7	60
Poverty reduction[2] (thousands)	-702 (2022)		-1,500	-15,000

1. Adult Education Survey, adults in learning in the past 12 months, special extraction excl. guided on-the-job training
2. Change in the number of persons at risk of poverty or social exclusion (AROPE), reference year 2019
Source: Eurostat, DG EMPL.

Poland continues to experience labour and skills shortages. In 2023, Polish employers reported one of the largest yearly increases in their hiring outlook (+18%). Still, 66% of them had difficulties in filling open positions ([140]) and 75% reported difficulties in finding the talent they needed ([141]). In 2023, 44.3% of people aged 16-74 had at least basic digital skills (vs 56% in the EU). The rate of adult participation in learning (in the previous 12 months) at 20.3% in 2022, was far below the EU average of 39.5%, and is down slightly (by 0.6pps) from 2016. Together with demographic and other challenges, this situation undermines Poland's potential to increase its economic competitiveness. The ESF+ supports flexible upskilling and reskilling opportunities as well as investments in vocational education and training (VET). As part of its recovery and resilience plan (RRP), Poland has begun to create a network of 120 Sectoral Skills Centres to increase the supply of skills in key sectors and increase the quality of VET through a greater engagement of employers in the process of learning. The REPowerEU chapter of the RRP introduced a review of the sectoral qualification frameworks that will improve the supply of green skills in key sectors. While these measures aim to contribute to reaching the national target of at least 51.7% of all adults participating in training every year by 2030, additional efforts are still needed.

Poverty rates in Poland are below the EU average, but challenges remain. In 2022, the share of people at risk of poverty or social exclusion in the total population (15.9%) and among children (16.7%) were below the respective EU averages of 21.6% and 24.7%. However, due to persistent gaps in access to social protection, the at-risk-of-poverty rate is much higher for people in non-standard forms of work such as part-timers (19.4%), workers with temporary contracts (7.8%) and the self-employed (29.8%), compared to people with permanent full-time contracts (4.2%). Older people are at a slightly higher risk of poverty, especially women (18% vs 10.8% for older men). Pensions currently perform well in terms of their adequacy, with an aggregate replacement ratio of 0.61 vs 0.58 in the EU. However, there are challenges in the context of a rapidly ageing population combined with low statutory and effective retirement ages, especially for women. Additional social policies and actions are needed to reach the national target of at least 1.5 million fewer people at risk of poverty or social exclusion by 2030.

The long-term care (LTC) system is inadequate to meet the needs of the ageing population. Quality and access to professional LTC remains very limited, while the share of the population over 65 years of age is expected to reach 21.9% in 2030 and 29.1% in 2050. The share in need of LTC already exceeds the EU average (34.8% vs 26.6% in the EU in 2019). There is a high level of unmet needs for LTC, with 46.7% of people over 65 reporting a lack of assistance in personal care or household activities. Poland is well below the EU average in providing public LTC services (3.4% vs 5.8% in the EU in 2019) ([142]) and care responsibilities fall mainly on families. The public LTC system is underdeveloped and fragmented, while spending is among the

([139])https://stat.gov.pl/obszary-tematyczne/dzieci-i-rodzina/dzieci/zlobki-i-kluby-dzieciece-w-2020-roku,3,8.html

([140])https://go.manpowergroup.com/meos

([141])https://go.manpowergroup.com/hubfs/Talent%20Shortage%202022/MPG_2022_TS_Infographic-Poland.pdf

([142])Ageing Report 2021, share of 65+ in public home care.

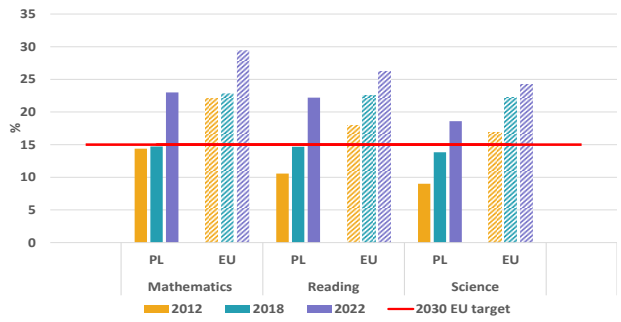
lowest in the EU (0.5% vs 1.7% of GDP in EU in 2022) ([143]). There are challenges in relation to the workforce in the sector and their working conditions. The ESF+ supports measures to deinstitutionalise social and medical LTC, and provides support for LTC staff, for example trainings and supervision increasing their effectiveness, prevention of work-related diseases and burnout. The RRP supports a strategic review of LTC to identify the priorities for reform, and to develop a law to implement the reforms.

([143])Ageing Report 2024, Public LTC expenditure %GDP

This Annex outlines the main challenges of Poland's education and training system based on the 2023 Education and Training Monitor and the 2022 OECD Programme for International Student Assessment (PISA) results ([144]).

Performance in basic skills decreased in Poland more than the EU average, moving away from the EU target. The proportion of students not meeting minimum proficiency levels in all three areas of basic skills in the 2022 PISA survey increased to 23% in mathematics, 22.2% in reading and 18.6% in science (Graph A15.1). The underachievement rate grew more than the EU average since 2018: in mathematics by 8.3 pps (EU 6.6 pps), in reading by 7.5 pps (EU 3.7 pps), and in science by 4.8 pps (EU 2 pps). The school system reorganisation launched in 2017 (phasing out lower-secondary schools) and one of the longest periods (26 weeks) of school closures in the EU due to COVID-19 are likely to have contributed to the worsening of results ([145]).

Graph A15.1: **Underachievement rates by field, PISA 2012, 2018 and 2022**



Source: OECD (2023).

Additionally, the overloaded knowledge-based core curricula implemented after 2016, and hasty implementation of the reorganisation, which created challenges (such as overcrowded schools), hindered learning and teaching. The decreased basic skills are a barrier for Poland's competitiveness. The decreased proportion of top-performing students (below 10%) in all three areas risks limiting Poland's future productivity and innovation capacity.

Teacher shortages have become more acute, and the teaching profession is not attractive to young graduates. National statistics ([146]) confirm shortages of teachers across Poland, mainly due to lack of candidates. The proportion of primary and secondary school teachers aged 25-34 decreased from 18.8% in 2015 (EU 16.6%) to 12% in 2021 (EU 15.8%) ([147]). In PISA 2022, headteachers reported a high increase of teacher shortages: 47.5% of 15-year-olds attended schools whose capacity to provide instruction could be hindered by lack of teaching staff compared to 2.6% in 2018. The shortages could also contribute to students' poorer results. From January 2024, Poland introduced a 30% increase in teacher salaries at all levels of education, and 33% for new teachers. To support this cost, the central educational subsidy has been increased by 36.2% over 2023 levels. Further measures are likely needed to improve the attractiveness of the teaching profession, and the quality and relevance of teacher education in line with evolving students' needs.

Equity in education worsened, and there are high inequalities between different school types. The increase in the proportion of students underachieving in mathematics was much higher among disadvantaged students (13.5 pps) than among advantaged students (2.8 pps). Thus, the socio-economic gap widened by 10.6 pps since 2018, with 39.1% of disadvantaged students lacking basic mathematics skills. Following the school system reorganisation (above), the common general education was reduced from 9 to 8 years, while research shows that extending general education benefits disadvantaged students. The highest proportion of students underperforming in basic skills is clustered in vocational schools level I: 66% in mathematics, 65% in reading, and 55% in science. Planned reforms of the core curricula to enhance key competences may help reduce inequalities in the future if matched by evidence-based preparation, evaluation, effective implementation, and adequate support to teachers. Enhancing learning for sustainability in

([144])OECD (2023), PISA 2022 Results (Volumes I and II). https://doi.org/10.1787/19963777.

([145])IBE (2023). Umiejętności polskich piętnastolatków. https://ibe.edu.pl/images/badania/PISA2022/PISA2022_najwazniejsze_wyniki_badania.pdf

([146])MRPiPS (2024) https://barometrzawodow.pl//forecast-card-zip/2024/report_pl/raport_ogolnopolski_2024.pdf.

([147])Eurostat, UOE, [educ_uoe_perp01].

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

				2012		2018		2023	
Indicator			Target	Poland	EU-27	Poland	EU-27	Poland	EU-27
[1]Participation in early childhood education (age 3+)			96%	76.4% 2013,d	91.8% 2013	88.2% e	92.2%	90.4% 2021	92.5% 2021,d
[2]Low-achieving 15-year-olds in:		Reading	< 15%	10.6%	18.0%	14.7%	22.5%	22.2% 2022	26.2% 2022
		Mathematics	< 15%	14.4%	22.1%	14.7%	22.9%	23.0% 2022	29.5% 2022
		Science	< 15%	9.0%	16.8%	13.8%	22.3%	18.6% 2022	24.2% 2022
Early leavers from education and training (age 18-24)	[3]Total		< 9 %	5.7%	12.6%	4.8% b	10.5%	3.7%	9.5%
	[3] By gender	Men		7.8%	14.5%	5.8% b	12.1%	4.9%	11.3%
		Women		3.5%	10.6%	3.7% b	8.7%	2.4%	7.7%
	[4] By degree of urbanisation	Cities		4.3% b	11.2%	3.6% b	9.4%	3.2%	8.6%
		Rural areas		6.9% b	14.0%	5.3% b	11.0%	3.4%	9.9%
	[5] By country of birth	Native		5.7%	11.3%	4.8% b	9.2%	3.6%	8.2%
		EU-born		: u	26.2%	: bu	22.4%	: u	21.0%
		Non EU-born		: u	30.1%	: bu	23.0%	: u	21.6%
[6]Socio-economic gap (percentage points)				22.7	:	20.7	29.5	31.3 2022	37.2 2022
[7]Exposure of VET graduates to work-based learning			≥ 60% (2025)	:	:	:	:	58.4%	64.5%
Tertiary educational attainment (age 25-34)	[8]Total		45%	40.8%	34.1%	43.5%	38.7%	46.3%	43.1%
	[8] By gender	Men		32.1%	29.1%	33.8%	33.3%	37.0%	37.6%
		Women		49.9%	39.2%	53.7%	44.2%	56.0%	48.8%
	[9] By degree of urbanisation	Cities		54.4% b	43.5%	59.8%	49.0%	61.3%	53.3%
		Rural areas		28.7% b	24.8%	30.4%	27.7%	33.5%	31.7%
	[10] By country of birth	Native		40.8%	35.4%	43.3%	39.7%	45.8%	44.2%
		EU-born		: u	29.3%	: u	36.7%	: u	40.2%
		Non EU-born		: u	24.2%	68.3%	31.0%	58.2%	37.1%
[11]Participation in adult learning (age 25-64)			≥ 47% (2025)	:	:	20.9% 2016	37.4% 2016	20.3% 2022	39.5% 2022
[12]Share of school teachers (ISCED 1-3) who are 55 years or over				10.4% 2013	22.7% 2013	16.6%	23.8%	21.3% 2021	24.5% 2021

Notes: b = break in time series; d = definition differs; e = estimated; p = provisional; u = low reliability; : = data not available.
Source: 1,3,4,5,7,8,9,10,12=Eurostat; 11= Eurostat, Adult Education Survey; 2,6=OECD, PISA.

schools ([148]), ([149]), and meaningful embedding of ICT in education are needed for the green and digital transitions.

Participation in early childhood education and care has stagnated. In 2021, the rate was 90.4%, returning to the 2019 level (90.3%). The low participation of 3-year-olds (76.2%) may further affect disadvantaged children.

Although early school leaving remains low (3.7%), integrating high numbers of migrant children and inclusive education remain a challenge. As of February 2024, around 180 000 displaced children from Ukraine were enrolled in kindergartens and schools ([150]); an estimated 53% of school-aged children from Ukraine remain outside the Polish schooling system, and systemic support measures are needed ([151]), ([152]). While Poland fosters inclusive measures, the disability gap in education remains also wide (see Annex 14). A relevant strategy could enable better understanding of the objectives, stakeholders' involvement, and progress monitoring.

Tertiary educational attainment rate has increased, but quality challenges persist. In 2023, the proportion of people aged 25-34 holding a tertiary diploma increased significantly (by 4.6 pps) since 2022, exceeding the EU-level target and breaking the recent declining trend. The gender gap in favour of women (19.0 pps), however, remains far above the EU average. In 2021, the proportions of entrants in science, technology, engineering and mathematics at 20.5%, and at 3.3% in ICT, were below the EU average (28.1% and 4.9% respectively). An

([148])Batorczak & Klimska, 2020. DOI:10.21697/seb.2020.18.2.02

([149])UNGCN Poland https://edukacjaklimatyczna.org.pl/raport-podsumowujacy-2022/

([150])Info of the Ministry of National Education.

([151])CEO, 2024. https://ceo.org.pl/dzieci-uchodzcze-w-polskich-szkolach-co-mowia-nowe-dane/

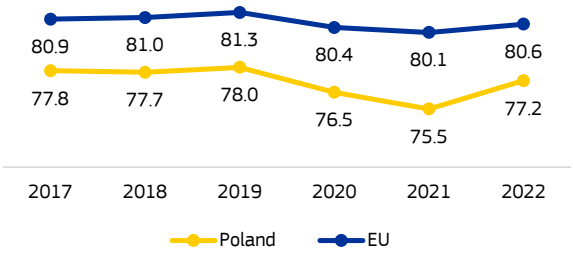
([152])NIK, 2024. https://www.nik.gov.pl/aktualnosci/ksztalcenie-dzieci-cudzoziemcow.html

academic career is not attractive to young graduates: academic staff aged 25-34 made up only 14.7% of the total in 2021 (EU 20.9%). Improving the quality and relevance of higher education in Poland are significant challenges. While participation in VET is high, it remains limited in lifelong learning (see Annex 14).

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 Poland.

Life expectancy at birth in Poland has been lower than in the EU overall and remained so both before and during the COVID-19 pandemic. There was a significant drop in life expectancy in Poland between 2019 and 2021 due to the COVID-19 pandemic. As mortality from COVID-19 fell in 2022 compared to 2021 ([153]), life expectancy increased again, although not to pre-pandemic levels. Both preventable and treatable mortality rates are higher in Poland than in the EU overall. At the same time, mortality in economically active age groups, as a share of total mortality and relative to the workforce size, is among the highest in the EU. The rate of mortality from treatable causes has stagnated since 2014, and even increased in 2020 and 2021. Behavioural risk factors among the Polish population, such as tobacco smoking, poor diet and consequent obesity, and alcohol consumption, are key drivers of preventable mortality rates. In 2021, diseases of the circulatory system ('cardiovascular diseases') and cancer were the main causes of death, followed by COVID-19.

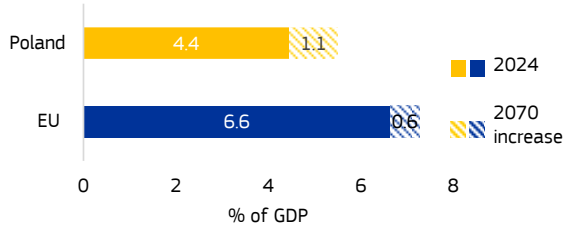
Graph A16.1: **Life expectancy at birth, years**



Source: Eurostat

Health spending relative to GDP in Poland is among the lowest in the EU. Health expenditure per capita (adjusted for differences in purchasing power) is less than half the EU average. In 2021, total health spending amounted to 6.4% of GDP, compared to 10.9% for the EU overall. Provisional data suggest that in 2022 total health spending increased to 6.7% of GDP. Around one third of the total health expenditure in 2021 was spent on inpatient care, followed by outpatient care and pharmaceuticals. Related to this, in 2022, there was an increase of 4.1% in outpatient medical and dental consultations compared to the previous year. Public health spending as a proportion of total health spending (72.5% in 2021) is lower than the EU average (81.1%). However, according to provisional data in 2022 this increased to 74.9% against an average of 70.9% for the previous 10 years. Consequently, the share of out-of-pocket payments for healthcare in Poland (19.9% in 2021) is higher than in the EU average (14.5%), although, according to provisional data for 2022, this decreased to below 18%. Public spending on health is projected to increase by 1.1 percentage points (pps) of GDP by 2070 (compared to 0.6 pps for the EU overall) due to demographic pressures (see Graph 16.2 and Annex 21).

Graph A16.2: **Projected increase in public expenditure on healthcare over 2024-2070**



Baseline scenario
Source: European Commission / EPC (2024)

Spending on prevention decreased, contrary to the trend observed in most Member States. Poland is one of the few EU countries in which spending on preventive care as a share of total healthcare expenditure fell in 2019 (2.1%), 2020 (1.9%) and 2021 (2.1%) against an average of 2.6% for the previous 5 years. On the other hand, the figure for the EU overall more than doubled between 2019 and 2021, from 2.9% to 6.0%. Proportionally, budget shares for prevention across the EU increased most for emergency response, disease detection and immunisation programmes. Another measure to safeguard public health is rationalisation of the use of antimicrobials. The situation in Poland had improved significantly, with daily consumption in 2021 falling to 85% of the 2019 figure. However,

([153]) Based on data provided directly by Member States to the European Centre for Disease Prevention and Control, under the European Surveillance System.

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

	2018	2019	2020	2021	2022	EU average (latest year)
Treatable mortality per 100 000 population (mortality avoidable through optimal quality healthcare)	133,1	133,7	144,2	145,9	NA	93.3 (2021)
Cancer mortality per 100 000 population	291,2	283,4	279,7	259,9	NA	235.4 (2021)
Current expenditure on health, % GDP	6,3	6,5	6,5	6,4	6,7	10.9 (2021)
Public share of health expenditure, % of current health expenditure	71,5	71,8	72,3	72,5	NA	81.1 (2021)
Spending on prevention, % of current health expenditure	2,3	2,1	1,9	2,1	NA	6.0 (2021)
Available hospital beds per 100 000 population	654	617	619	627	NA	525 (2021)
Doctors per 1 000 population	2,4	3,3	3,3	3,4	NA	4.1 (2021)*
Nurses per 1 000 population	5,1	5,6	5,6	5,7	NA	7.9 (2021)
Total consumption of antibacterials for systemic use, daily defined dose per 1 000 inhabitants per day ***	24,4	23,6	18,5	20,2	23,6	19.4 (2022)

Note: The EU average is weighted for all indicators except for doctors and nurses per 1 000 population, for which the EU simple average is used. Doctors' density data refer to practising doctors in all countries except Greece, Portugal (licensed to practise) and Slovakia (professionally active). Nurses' density data refer to practising nurses in all countries except Ireland, France, Portugal, Slovakia (professionally active) and Greece (hospital only).

Source: Eurostat Database; except: * OECD, ** Joint Questionnaire on non-monetary healthcare statistics, *** ECDC, **** Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach.

in 2022 it went back to the 2019 levels and was well above the EU average. According to the Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach, Poland is supposed, by 2030, to reduce total consumption of antibiotics, in community and hospital settings combined, by 27% from the 2019 level.

Although still below the EU average, the density of doctors and nurses in Poland, and the number of graduates in these professions, have been slowly increasing. In 2021, the numbers of practising doctors and nurses increased in absolute terms by 3 829 and 3 610 respectively, compared to the previous year ([154]). However, according to the Statistics Poland ([155]), in 2022 the proportion of doctors over 50 years old increased to 56% from 55% the previous year, and the share of nurses over 50 increased to 66%, from 61% the previous year. This raises concerns about the long-term accessibility of health services.

EU funds support substantial investments in healthcare in Poland. Historically, the health system in Poland has been underfunded. This is reflected in the low availability of key diagnostic (medical imaging) technology. Poland is among the EU countries that allocated a considerable proportion of their recovery and resilience plan (RRP) to investment in health. Under its RRP, Poland is using both grants and loans for investment in health, worth a total of EUR 4.2 billion (7% of the total RRP budget). Under the grant component of the RRP, Poland has committed to three reforms (with four subsequent investments). The first reform introduces comprehensive measures to restructure public hospitals. The second reform improves the match between needs and availability of medical professionals in Poland. The third reform improves the quality and efficiency of the healthcare system by supporting research and development in the fields of medicine and health. Under the loan component, Poland is proposing a reform with a subsequent investment). The reform aims to introduce a regulatory framework to help attract the production of medicines and active pharmaceutical substances to Poland and increase output.

Complementary investments in healthcare, of around EUR 2.6 billion, are planned under the cohesion policy funds in 2021-2027. Poland will invest around EUR 2.15 billion from the European Regional Development Fund in health infrastructure, health equipment, mobile health assets and digitalisation of healthcare. Poland will also deploy EUR 426 million from the European Social Fund Plus to improve the accessibility, effectiveness and resilience of the health system ([156]).

([154])Statistics | Eurostat (europa.eu)

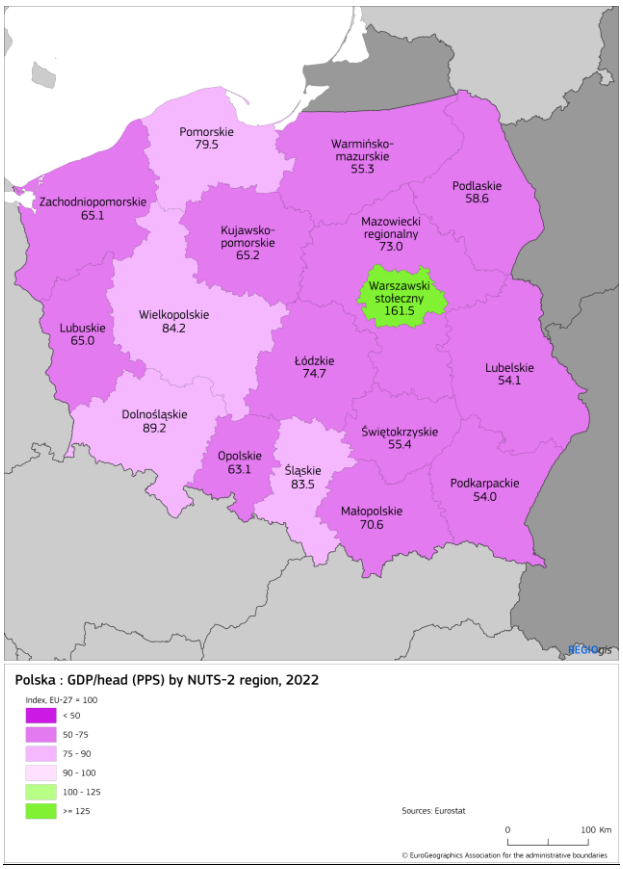
([155])Statistics Poland / Topics / Health / Health / Health and health care in 2021

([156])The EU cohesion policy data reflect the status as of 13 May 2024.

Annex 17 showcases the economic and social regional dynamics in Poland. It provides an analysis of economic, social and territorial cohesion in the Polish regions and assesses emerging investment and subnational reform needs to foster economic growth, social development and competitiveness in the country.

Overview of economic and social performance at regional level

Map A17.1: **GDP per capita (PPS) in Poland, by NUTS-2 region**



Source: Eurostat, DG REGIO elaboration

Since its accession to the EU, Poland has experienced an ongoing economic convergence towards the EU average. The average annual real GDP growth per capita was higher than in the EU (1.44%) for all Polish regions. Importantly, no Polish regions were in a development trap during in 2003-2021 ([157]).

However, regional disparities in GDP per capita have continued to widen for the past decade. Disparities between the eastern regions and the rest of the country persist. In 2022, the most developed ([158]) capital city region Warszawski Stołeczny had a GDP per capita (in PPS) corresponding to 162% of the EU average. The other regions lag behind, with a GDP per capita ranging from 84-89% (Wielkopolskie and Dolnośląskie thanks to their capital cities) to a mere 54-59% in the 5 least developed eastern regions (Lubelskie, Podkarpackie, Warmińsko-Mazurskie, Świętokrzyskie and Podlaskie) (Figure1).

Disparities in GDP per capita were mainly driven by variations in labour productivity across the country. Labour productivity, measured as gross value added per person employed, stood at 84% of the EU average (in PPS) in 2022. The capital city region had a significantly higher productivity level (139.7%) while all other regions fell below the EU average. The least developed regions (Lubelskie, Świętokrzyskie, Podlaskie and Warmińsko-Mazurskie) bordering Belarus and Ukraine had the lowest productivity levels (58-63.9%).

The employment is relatively low, and the workforce is low skilled in less developed, mostly post-industrial or non-rural regions with a large unproductive agricultural sector defining a urban – non-urban divide. In 2023, the share of people (aged 25-64) with tertiary educational attainment reached 62% in the capital city region, which was well above the EU average (35.1%), but in most other regions it remains below. One region (Łódzkie) ([159]) is in a talent development trap and several other regions are at risk of falling into the same category of regions experiencing the effects of young people leaving their non-urban regions ([160]).

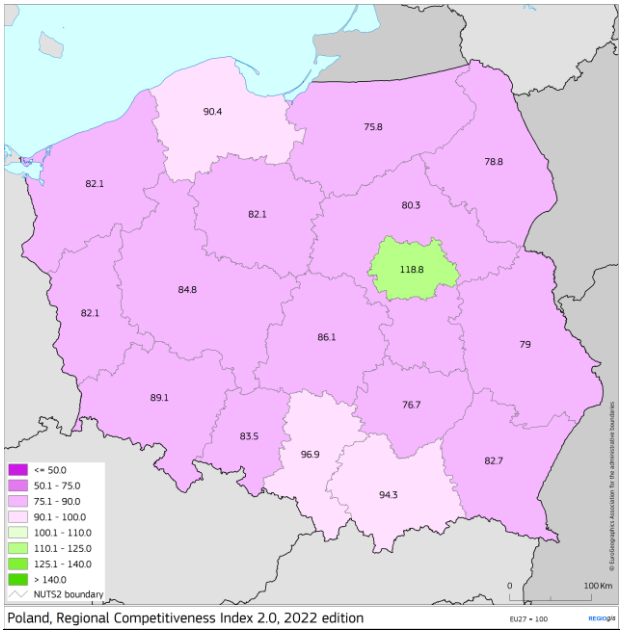
([157])Region is classified to be in a development trap if it has experienced an extended period (>16 years) of below-average growth in GDP, productivity and employment during 2003-2021.

([158])The terms 'Less/least developed', 'more/most developed' refer to regions compared to other regions in this country. These terms should not be confused with the classification for fund eligibility criteria.

([159])Łódzkie is part of the 11 pilot regions which receives expert support in 2024 under Pillar 1 of the talent booster mechanism (Inforegio - Talent Booster Mechanism (europa.eu)) to develop strategic thinking and actionable frameworks to address the challenges they face when it comes to attracting, developing and retaining talent.

([160])Communication from the Commission to the European Parliament, the Council, the European Economic and Social

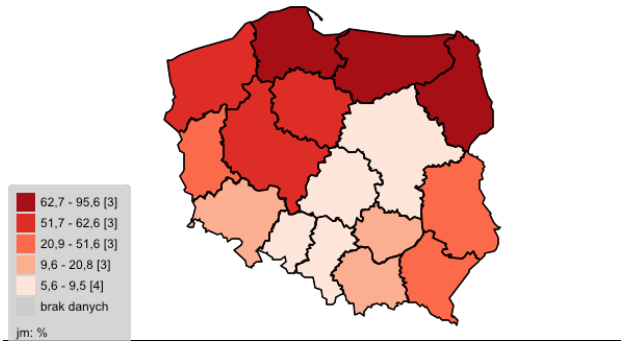
Map A17.2: **Poland, Regional Competitiveness Index, 2022 edition**



Source: DG REGIO, JRC

All regions are ranked below the EU average in terms of competitiveness in 2022 ([161]), except for the capital city region (Figure 2)**.** Next to that, regional disparities in innovation performance are evident throughout the country ([162]). Notably, only two regions were classed as moderate innovators (the capital city region and Małopolskie) while all the other regions were classed as emerging innovators. A recent rise in energy prices as well as rising labour costs created additional pressure on the competitiveness of businesses, particularly SMEs.

Map A17.3: **Share of RES in electricity production in 2022**



Source: STRATEG system

Investment in R&D (1.4% vs 2.3% in the EU) was low and concentrated in the capital region. In 2021, only Małopolskie and the capital city region, allocated 2.5-2.7% of GDP to R&D. However, in several other regions (Lubuskie, Mazowiecki Regionalny and Świętokrzyskie), expenditure on R&D was 0.5% of GDP or lower.

Greenhouse gas emissions was one of the highest in the EU, with around 72% of electricity generated from coal. Polish regions have increased greenhouse gas emissions since 1990 ([163]). Industrial transformation and clean energy transition remains a challenge. The Silesian economy particularly relies on mining and carbon-intensive industries as the coal mining industry employs 76 200 workers or 10% of all workers in the corporate sector. Initially, installed capacities for renewable energy sources (RES) doubled between 2012 and 2016, in particular for wind, but as of 2016, large scale wind RES investments slowed down due to building permits restrictions. That said, Poland has experienced solar energy boom with some regions, such as Lubelskie and Podkarpackie regions quickly catching up, thanks to substantial investments from EU cohesion policy funding ([164]).

Air quality remains a major challenge in Poland especially in southern and central regions. Polish cities are among the most polluted in Europe. According to the European Environment Agency, each year as many as 44 000 Poles are estimated to die prematurely from conditions

Committee and the Committee of the Regions - Harnessing talent in Europe's regions, COM(2023) 32 final EUR-Lex - 52023DC0032 - EN - EUR-Lex (europa.eu)

([161])2022 Regional Competitiveness Index, EU-27 = 100.

([162])Regional Innovation Scoreboard: https://ec.europa.eu/assets/rtd/ris/2023/ec_rtd_ris-regional-profiles-poland.pdf

([163])8th Cohesion Report, European Commission, 2022.

([164])"Rola dofinansowań w fotowoltaicznym boomie Dodatkowy materiał do raportu Rynek Fotowoltaiki w Polsce 2022", Instytut Energetyki Odnawialnej, Warsaw June 2022.

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

Region name	GDP per head (purchasing power standard/ PPS)	GDP per head growth	Productivity (GVA, PPS) per person employed	Population aged 25-64 with tertiary educational attainment	Regional competitiveness	R&D expenditure	Share of RES in electricity production (1)	Total population aged >65	Population growth
	EU27 = 100 2022	Average % change on the preceding year 2013-2022	EU27 = 100 2022	% of population aged 25-64 2023	EU27 = 100 2022	% of GDP 2021	% of total electricty production 2022	% of total population 2023	Average annual change per 1000 residents 2013-2021
European Union (27 MS)	100	1.44	100	35.1	100	2.3	NA	21.3	1.9
Polska	79	3.98	84	37.9	88.8	1.4	21	19.9	-1.2
Małopolskie	71	3.89	75.1	40.5	94.3	2.5	20.6	18.3	1.9
Śląskie	83	4.15	89.6	36.6	96.9	1	9.5	21	-3.7
Wielkopolskie	84	3.99	83.1	33.6	84.8	0.9	52.2	18.4	1.1
Zachodniopomorskie	65	3.68	72.4	36.8	82.1	0.6	62.6	21.2	-2.8
Lubuskie	65	3.58	72	31.1	82.1	0.3	35.7	20.1	-2.4
Dolnośląskie	89	3.85	97.2	39.7	89.1	1.4	10.3	20.8	-1.1
Opolskie	63	3.39	71.7	30.1	83.5	0.6	5.6	21	-4.5
Kujawsko-pomorskie	65	3.85	69.7	31.1	82.1	1	54.6	20.1	-2.5
Warmińsko-mazurskie	55	3.69	62.5	31.2	75.8	1.2	95.6	19.6	-3.6
Pomorskie	80	3.81	85.1	42.4	90.4	1.8	63.9	18.4	2.9
Łódzkie	75	3.71	75.6	33.5	86.1	1.1	6.3	22	-4.8
Świętokrzyskie	55	3.24	58.9	33.7	76.7	0.5	20.8	22.5	-5.7
Lubelskie	54	3.66	58.5	34	79	1.1	51.6	21.1	-4.7
Podkarpackie	54	3.88	63.8	32.9	82.7	1.3	49.5	19.3	-1
Podlaskie	59	3.96	63.9	36	78.8	0.9	80.3	20.1	-3.2
Warszawski stołeczny	162	3.82	139.7	62	118.8	2.7	NA	18.3	7.1
Mazowieckie	73	3.8	87.7	32.2	80.3	0.4	7.3	19.5	-3.6

(1) The data on the share on RES in electricity production as regards Mazowiecki refers to NUTS 1 makroregion Województwo Mazowieckie (Warszawski Stołeczny i Mazowiecki Regionalny).
Source: Eurostat, EDGAR database; STRATEG system

linked to poor air quality. This pollution comes mainly from low stack furnaces in single family houses. In 2018, the Court of Justice of the European Union held that Poland breached EU air pollution directives. Buildings often have low technical standards and approximately 70% of houses are poorly insulated. 10.5% of Poles are at-risk-of-energy poverty as they are unable to keep their home sufficiently warm.

Investments in water supply and sewage treatment, which are crucial for climate adaptation, have significantly increased in the last decade with support of EU funding ([165]), driven by the need to comply with EU directives. Despite this, Poland still has to comply with the Urban Wastewater Treatment Directive (the deadline for compliance was on 31 December 2015). An infringement case is ongoing ([166]).

Demographic changes in Poland linked to a lower birth rate, an ageing population and migration linked to the Russian war of aggression on Ukraine put considerable strain on the economy and public services, with some regions experiencing heightened levels of material and social deprivation. While the integration of displaced Ukrainians has benefited the labour market, numerous challenges persist. The population has increased sharply in the capital city region (+7.1 per 1 000 inhabitants) and moderately in developed regions, including Wielkopolskie, Małopolskie and Pomorskie (+1.1 to +2.9 per 1 000 inhabitants). In contrast, other regions registered a fall in population, notably Świętokrzyskie, Łódzkie, Lubelskie and Opolskie observed at least a 4.5% drop in their population.

Due to the influx of Ukrainian refugees, the education system was unevenly overloaded. In the 2022/23 school year, over 192 000 of the estimated 500 000 displaced Ukrainian children in Poland were enrolled in schools and preschools, significantly increasing total pupil numbers ([167]). The government has heavily relied on support from civic society organisations to meet the needs of Ukrainian refugees.

([165])As of 14 December 2023, Additional population served by improved wastewater treatment reaches 1.6 million population equivalent but upon the closure of the programmes 2014-2020, the result is expected to exceed 3.5 million population equivalent.

([166])On 9 February 2022, the European Commission referred this case to the Court of Justice of the European Union against Poland (case number INFR (2017)2183) in connection with the failure to comply with the directive concerning the treatment of urban wastewater (Directive 91/271/EEC).

([167])Union of Polish Cities (2022), Urban hospitality: unprecedented growth, challenges and opportunities.

The recent changes to the tax system have led to fragmentation in the system of local government finances. Predictability of the system has been affected by a growing role of ad hoc financing in response to a deterioration in the financial situation of local governments. The system of compensating for revenue losses related to tax reform has proven to be inadequate. Spending efficiency can be impacted by the concentration of transfers to the local government units at the end of the year and the surge in investment funds allocated to small rural and urban-rural municipalities with limited implementation capacity.

Investment and subnational reform needs ahead

Increasing innovation and competitiveness remains a high priority for cohesion policy investments. It is key to strengthen technology transfer, R&D&I activities of businesses, increase the business-science cooperation and commercialisation of R&D&I results as well as to reinforce the participation in European research and innovation networks, platforms and programmes, in particular in less developed Polish regions. It is crucial to invest in the development of skills in the smart specialisation sectors and in innovative business models.

Both cohesion policy programmes and the recovery and resilience plan include substantial support to energy and environment measures. Accelerating the clean energy transition remains a crucial objective for the implementation of the cohesion policy funds in the 2021-27 programming period. Shifting from coal, speeding up green investments aiming to boost clean energy production as well as net-zero technologies manufacturing and reduce energy consumption, remain a high priority. The adverse effects of a fast phasing out of coal combustion and extraction need to be mitigated at regional level by supporting the most affected territories and workers. These efforts will be more effective when combined with regional and local measures supporting energy poor households. Poland could also benefit from the opportunities under the Strategic Technologies for Europe Platform to boost investments in critical technologies to support industry transformation.

Investment in infrastructure is needed in over 1 000 agglomerations which do not comply with the Urban Wastewater Treatment Directive (UWWTD). The investment projects aim to ensure adequate urban wastewater collection and treatment in order to comply with the UWWTD. It is therefore crucial to ensure financing of climate adaptation solutions at all levels.

A pressing area is the provision of funding to ensure access to basic public services and education integration strategies in response to the refugee influx. The integration of Ukrainian refugees into the Polish social system requires a wide range of assistance. The increased demand for educational resources such as classroom space to teaching personnel, calls for substantial investments.

A key priority is to improve the workforce's capacity in green and digital sectors. This includes reskilling workers currently employed in the coal mining industry to meet the emerging job demands in renewable and climate-neutral industries. Investment in local education infrastructure is also crucial to develop skills tailored for green jobs. Promoting upskilling and reskilling in digital skills is essential to bridge the gap between the demand for and the supply of digitally-skilled professionals. Improving people's digital skills can positively impact sectors like healthcare, which is in urgent need of modernisation to meet people's needs.

To facilitate these investments, together with the reform areas identified in the recovery and resilience plan, there is a specific need to address bottlenecks to investment at the subnational level.

Some local authorities face difficulties in securing their own contribution to EU co-financed projects under the cohesion policy programmes. This calls for measures to improve the subnational financing system. A more consolidated approach to increase the predictability of the financing would lead to higher quality planning, more reliability and in turn better prospects for successful implementation of 2021-2027 cohesion policy projects. More attention needs to be paid to spending needs and to measures that would help local governments in co-financing investments planned under the cohesion policy.

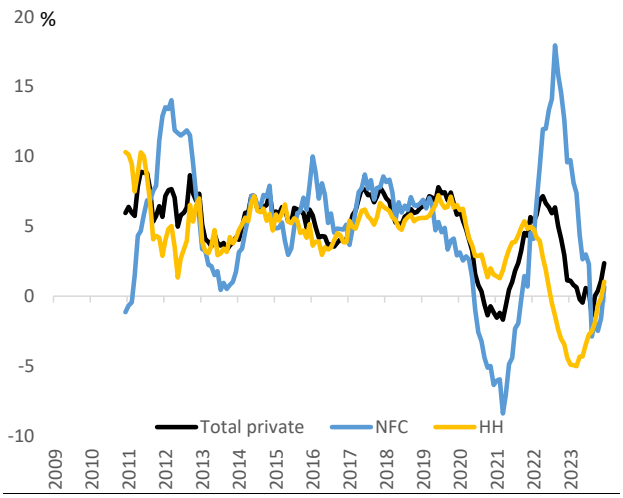
The effectiveness of the national clean air priority programme needs to be improved through law enforcement mechanisms. The regional Anti-Smog Resolutions require single family households to replace non-compliant solid-fuel boilers, with varying timelines and technological restrictions. These timelines need to be maintained to preserve the pace of the heat source transition and advance clean air ambitions. Tailor-made communication and educational activities targeting homeowners on health, economic and societal harmfulness of air pollution are key. Another challenge for the programme is the prioritisation and effective use of various sources of funding to achieve the required effect.

The management of refugees and migrants and their integration requires not only funding but also strategic planning. Regional and national authorities need to work on long-term strategies in education, social inclusion and access to the job market for refugees and migrants, which would ensure implementation of adequate measures. This requires establishing clear benchmarks, regular assessments, and transparent reporting mechanisms.

ANNEX 18: KEY FINANCIAL SECTOR DEVELOPMENTS

Polish banks have a stable commercial profile with low foreign exposure. The local banking sector remains one of the largest in central and eastern Europe, with total assets equivalent to over 90% of the country's economic output, and is by far the main component of the Polish financial sector. Polish banks are a strong economic pillar that has been crucial in sustaining the country's economic expansion. The sector's structure has not materially changed recently, with little ongoing M&A activity. It is largely owned by Polish capital, with the state controlling about half of total banking-sector assets. Local lenders are well-diversified, modern, and competitive. The top five lenders control around 59.2% of total banking-sector assets. The banking system overall is resilient, liquid and enjoys a comfortable capital level (capital adequacy ratio of 19.7%), sufficient to weather even major macroeconomic shocks. Banks have complied with the newest minimum requirements for own funds and eligible liabilities that entered into force in January 2024. However, the banking system is not free from potential vulnerabilities and continues to face challenges.

Graph A18.1: **Credit growth**



Source: ECB

Monetary tightening has largely supported profitability. Despite the major impact of increased CHF loan reserves and 2022-2023 credit holidays, the Polish banking system has in recent years proved its ability to remain profitable and continue financing the economy. Local lenders generated return on equity of 7.3% in 2022 and are on track to double that performance in 2023. Given the prevalence of variable-interest-rate loans in Poland, the monetary-policy-tightening cycle in 2021-2022 has greatly increased the sector's profitability, as rising interest rates have been swiftly passed on to borrowers. Both in 2022 and 2023, growth in net interest income and net interest margin (NIM) remained the primary driver of banks' profitability. However, the trend of rising NIM is now gradually diminishing. The central bank started an interest-rate-easing cycle back in September 2023, which is bound to impact the sector's earnings over the next 12-18 months. Although banks' traditional risks (such as credit risk, market risk, interest-rate risk, and liquidity risk) do not currently threaten financial stability, the banking sector does face some other challenges. For example, local banks continue to face around 150 000 court cases related to legacy foreign-exchange (FX) housing loans. The risks stemming from these exposures continue to be the biggest challenge for the sector, despite the progress with voluntary settlements made over the last 3 years and vast provisioning expenses already made. Similarly, the widespread government-decreed payment holiday in 2022-2023 for mortgage borrowers gave rise to financial-stability concerns given its very general application and related costs. The continuation of this support programme in 2024, albeit more limited in scope, will continue generating costs for local lenders, while at the same time impeding the transmission of monetary policy.

Bank lending has dropped along with tightening financial conditions, but credit-risk metrics have not materially increased. Lending to the non-financial sector slowed sharply in the second half of 2022. It continued to drop on an annual basis in 2023, although the cycle now appears to have passed its low point, and demand for credit turned slightly positive on a year-on-year basis in the last quarter of 2023. Consequently, the non-financial sector's debt-to-GDP ratio continued decreasing over 2023, falling to about 60% of GDP, roughly half the EU median. Rapidly rising interest rates have until now had little impact on non-performing loan (NPL) metrics. The NPL ratio increased in 2023 by just 10 bp to 4.4% on average. On the corporate side, the financing structure of local non-financial corporations (NFCs), with a relatively low share of bank loans (in 2023, corporate bank loans were equivalent to just 15% of GDP), minimised domestic firms' vulnerability to interest-rate volatility. However, smaller firms are relatively

Table A18.1:**Financial Soundness Indicators**

	2017	2018	2019	2020	2021	2022	2023	EU	Median
Total assets of the banking sector (% of GDP)	95.5	92.5	92.3	102.1	100.4	92.8	95.7	257.0	184.6
Share (total assets) of the five largest banks (%)	47.5	49.5	49.8	54.3	56.6	57.3	-	-	69.6
Share (total assets) of domestic credit institutions (%)[1]	54.8	53.3	54.0	56.6	57.4	56.5	58.4	-	62.9
NFC credit growth (year-on-year % change)	8.6	6.6	2.9	-6.4	4.5	9.6	0.7	-	2.4
HH credit growth (year-on-year % change)	6.4	5.6	6.5	1.5	5.0	-4.4	1.0	-	1.4
Financial soundness indicators:[1]									
- non-performing loans (% of total loans)	6.6	6.2	6.1	6.0	5.0	4.3	4.4	1.8	1.8
- capital adequacy ratio (%)	18.0	17.9	17.8	19.6	17.9	18.0	20.1	19.6	20.1
- return on equity (%)[2]	6.9	7.0	6.9	3.1	4.8	7.3	12.3	9.9	13.2
Cost-to-income ratio (%)[1]	57.2	56.7	56.0	54.2	54.5	49.8	42.3	52.8	44.9
Loan-to-deposit ratio (%)[1]	93.7	93.2	91.9	80.3	77.4	76.2	72.5	93.3	80.2
Central bank liquidity as % of liabilities	0.0	0.3	0.0	0.0	0.0	0.0	0.0	-	0.7
Private sector debt (% of GDP)	77.3	76.7	74.2	76.1	71.3	63.5	-	133.0	118.4
Long-term interest rate spread versus Bund (basis points)	310.3	280.2	260.0	200.8	232.0	491.1	337.0	107.7	104.2
Market funding ratio (%)	48.0	45.7	44.6	48.0	47.7	45.0	-	50.8	39.8
Green bonds outstanding to all bonds (%)[3]	-	-	-	-	-	-	-	4.0	2.7

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

(1) Last data: Q3 2023.
(2) Data is annualized.
(3) Data available for EA countries only, EU average refers to EA area.
Source: ECB, Eurostat.

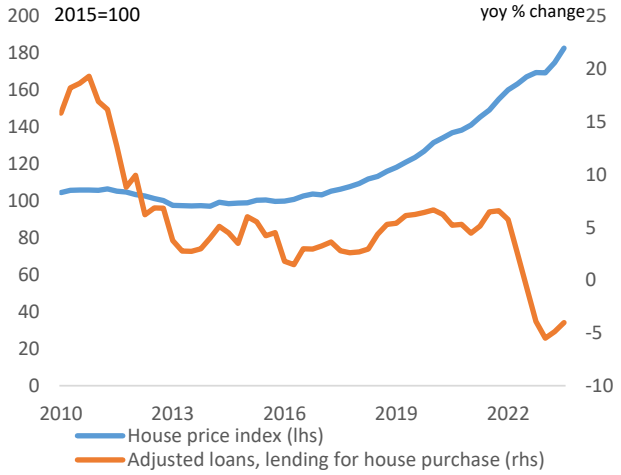
more impacted by higher rates than their larger peers. Households have remained rather well insulated from major financial distress, thanks to both the relatively strong labour market and the mortgage-loan repayment holidays. In particular, the low unemployment rate played a major role in bolstering the ability of Polish families to properly service their bank debt. In the future, overall lending growth to the non-financial sector appears to be headed towards a modest recovery, supported through the subsidised-mortgage schemes on the household side, and improving growth prospects on the NFC side.

Banks are facing several challenges amidst geopolitical uncertainty. As in previous years, the biggest risk to financial stability in Poland is still the legal issue associated with the legacy FX mortgage-loans portfolio. Borrowers are increasingly taking legal action to challenge the terms of their FX-loan agreements following a string of pro-consumer rulings from the Court of Justice of the European Union. About 150 000 claims had been already filed by the end of 2023 despite banks offering voluntary settlements to avoid litigation. This trend is set to continue and, along with it, the requirement to increase provisions made by lenders to face legal risks. The 2022-2023 payment holidays for mortgagors have been another major factor of unpredictability for the banking system. The scheme, introduced by the government back in 2022, covered all local-currency mortgage holders. Overall, the programme has been a major success from the standpoint of borrowers. It allowed many families to smoothly manage a period of spiking interest rates and remains one of the key reasons behind low credit-risk metrics. However, given the lack of targeting in the scheme, this measure ended up being very costly for local banks. The extension of the scheme was launched in May 2024 and is more targeted than the 2022-2023 measure, which should lower the cost of the programme. Lastly, banks continue to hoard a large amount of local sovereign bonds on their balance sheets. The value of that portfolio is equivalent to 20% of the aggregate balance sheet of Polish banks. Just about 44% of that portfolio is marked-to-market, with valuations directly impacting the banks' capital levels, and the liquidity position of the system is appropriate. Nevertheless, the size of this portfolio creates a risk in the event of major market volatility due – for instance – to major global geopolitical tensions.

Risks associated with real-estate exposures remain manageable. Prices in the Polish residential real-estate (RRE) sector have been growing steadily in the last decade and have accelerated in the past year. Despite this, there do not seem to be signs of major overvaluations of RRE. This reduces the possibility of a considerable price adjustment and, by extension, reduces the threat of a possible drop in collateral value on banks' balance sheets. Mortgage lending climbed significantly in the second quarter of 2023. The government-subsidised '2% Safe Mortgage' scheme made mortgages more affordable in an environment characterised by high interest rates and inflation. Additionally, the interest-rate buffer

advised by the local supervisor for RRE, and banks' prudent stance on lending more generally, have decreased the probability of financial-stability risks in the RRE area. For the commercial real-estate segment, 2023 has been a challenging year given the high-interest-rate environment. The number of deals has more than halved compared to 2022 in most commercial real-estate sub-segments. Investors have become very selective, and financing has become more challenging. Nevertheless, Poland remains one of the more attractive investment markets in the region.

Graph A18.2: **House price index and mortgages**



Source: ECB.

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

Poland's tax revenues are relatively low in relation to GDP and rely on consumption taxes more than the EU average. Table A19.1 shows that Poland's tax revenues as a percentage of GDP were considerably below the EU aggregate in 2022, even though they had increased by about 3 pps since 2010. The share of labour taxes as a proportion of total tax revenues was significantly below the EU aggregate, but revenues from consumption taxes and environmental taxes were above the EU aggregate, as a share of both GDP and total taxation (see Graph A19.1). Revenues from capital and property taxes were close to the EU aggregate. As regards environmental taxes, the contribution of energy taxes was relatively high in 2020 (7.1% of tax revenue) when compared with the EU average of 4.3% (see Graph A19.1). However, transport taxes represented only 0.5% of tax revenue (the EU average was 1%). This means that there would be room to introduce a tax on passenger cars with a tax base related to emissions. Pollution and resources taxes only account for 3.2% of environmental taxes, so there could be potential to strengthen the application of the 'polluter pays' principle. Poland only implemented two of the six main types of pollution and resources taxes (i.e. taxes on waste landfilling and plastic products). There remains scope to expand waste disposal taxes (including incineration). Moreover, Poland does not have taxes on NOx emissions, discharge of waste into water, fertilisers and pesticides (for more on policies related to environmental sustainability, see Annex 6).

Poland's labour tax burden was less progressive than the EU average in 2023. Graph A19.2 shows that the labour tax wedge for Poland in 2023 was below the EU average for single people at all earnings levels, but it is somewhat less progressive (increasing less as a function of earnings). Second earners at a wage level of 67% of the average wage, whose spouses earn the average wage, were also subject to a tax wedge that was somewhat below the EU average. At the same time, the tax wedge for second earners was substantially higher than the tax wedge for single earners at the same wage level. In 2022, the ability of the Polish tax and benefit system to reduce income inequality (as measured by its ability to reduce the GINI coefficient) was still comparatively low (Table A19.1).

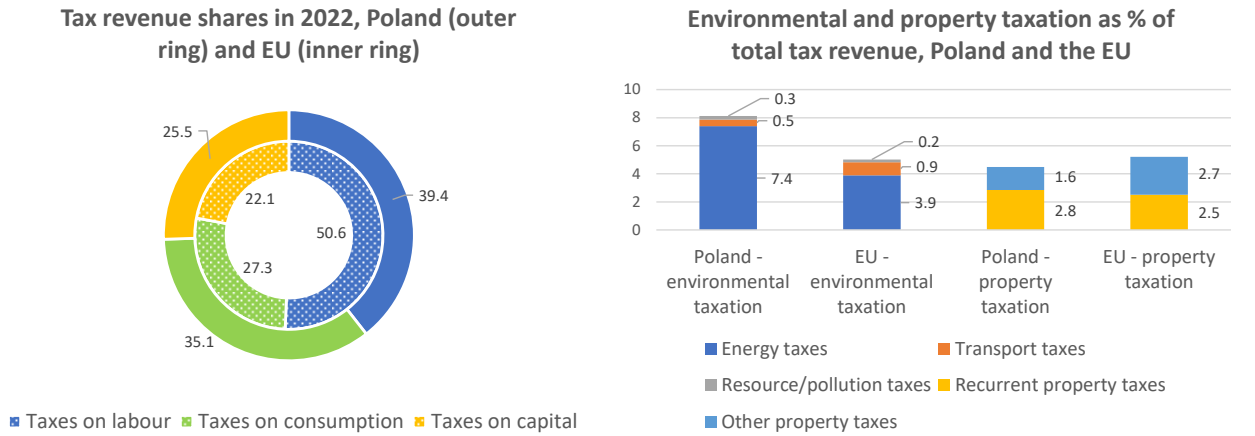
Major 2022 tax reforms ('Polish Deal' and 'Low Taxes') reduced the overall tax burden

Table A19.1:**Taxation indicators**

		Poland					EU-27				
		2010	2020	2021	2022	2023	2010	2020	2021	2022	2023
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	31.6	35.6	36.7	34.5		37.9	40.0	40.4	40.2	
	Labour taxes (as % of GDP)	11.9	14.3	14.2	13.6		20.0	21.3	20.7	20.3	
	Consumption taxes (as % of GDP)	12.5	12.4	13.4	12.1		10.8	10.7	11.2	11.0	
	Capital taxes (as % of GDP)	7.2	8.9	9.0	8.8		7.1	8.0	8.6	8.9	
	Of which, on income of corporations (as % of GDP)	2.0	2.3	2.6	2.8		2.4	2.5	3.0	3.4	
	Total property taxes (as % of GDP)	1.4	1.7	1.6	1.5		1.9	2.3	2.2	2.1	
	Recurrent taxes on immovable property (as % of GDP)	1.1	1.1	1.1	1.0		1.1	1.2	1.1	1.0	
	Environmental taxes as % of GDP	2.7	2.5	2.9	2.8		2.4	2.2	2.3	2.0	
Progressivity & fairness	Tax wedge at 50% of average wage (Single person) (*)	32.3	33.6	33.6	29.4	30.3	33.9	31.7	32.1	31.8	31.7
	Tax wedge at 100% of average wage (Single person) (*)	34.2	34.9	34.9	33.8	34.3	41.0	40.1	39.9	40.0	40.2
	Corporate income tax - effective average tax rates (1) (*)		15.0	15.0	15.0			19.5	19.0	19.0	
	Difference in Gini coefficient before and after taxes and cash social transfers (pensions excluded from social transfers) (2) (*)	4.7	4.6	4.7	4.6		8.6	8.1	8.2	7.9	
Tax administration & compliance	Outstanding tax arrears: total year-end tax debt (including debt considered not collectable) / total revenue (in %) (*)		39.9	25.0				40.9	35.5		
	VAT Gap (% of VAT total tax liability, VTTL)(**)	20.1	11.1	3.3				9.7	5.4		

(1) Forward-looking effective tax rate (OECD).
(2) A higher value indicates a stronger redistributive impact of taxation.
(*) EU-27 simple average.
(**) Forecast value for 2022, if available. For more details on the VAT gap, see European Commission, Directorate-General for Taxation and Customs Union, 2023, *VAT gap in the EU*, https://data.europa.eu/doi/10.2778/911698.
For more data on tax revenues as well as the methodology applied, see the Data on Taxation webpage, https://ec.europa.eu/taxation_customs/taxation-1/economic-analysis-taxation/data-taxation_en.
Source: European Commission and OECD

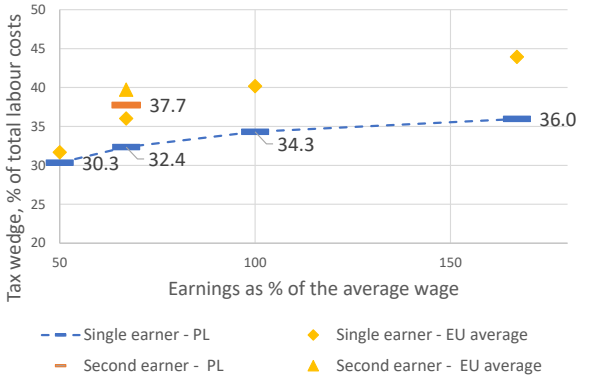
Graph A19.1: **Tax revenues from different tax types, % of total revenue**



Source: European Commission

for employees, especially at lower earnings. The reforms raised the tax-free amount to PLN 30 000 (about EUR 7 000), decreased the lower personal income tax rate from 17% to 12% and increased to PLN 120 000 (about EUR 28 000) the threshold above which the 32% upper tax rate applies, while abolishing the partial deductibility of compulsory health insurance contributions. Universal tax credit was extended. The reform also reduced the tax burden on workers delaying retirement beyond the statutory age, thus creating incentives to increase the effective retirement age. These measures are estimated to have reduced the tax burden for most groups of employees, especially at lower earnings (by about 3 ppts for those earning 67% of the average wage) ([168]). However, the tax burden for self-employed increased due to higher health insurance contributions.

Graph A19.2: **Tax wedge for single and second earners, % of total labour costs, 2023**



The second earner tax wedge assumes a first earner at 100% of the average wage and no children. For the methodology of the tax wedge for second earners, see OECD, 2016, Taxing Wages 2014-2015.

Source: European Commission

Poland is relatively advanced in digitally transforming its tax administration, which can help reduce tax arrears. Tax arrears currently amount to around 25% of total tax revenue. This is below the EU average, but that is inflated by large values in a few EU countries (see Table A19.1). Digitalisation of Poland's tax administration started in 2016, when Poland implemented SAF-T (the international standard for the electronic exchange of accounting data). The corresponding reporting obligation was initially imposed only on large companies but was later extended to small companies. 2019 saw the introduction of a requirement to make split payments (by which purchasers make parallel payments to the supplier's account and a VAT account) and the modernisation of VAT reporting. A system of structured e-invoices was introduced

([168]) Calculations by European Commission, Joint Research Centre, based on the EUROMOD model, version I5.0+.

in 2021 that allows the issue and receipt of electronic structured invoices via the national invoice system. The introduction of an obligation to issue invoices through that system was planned for 2024, but a draft law adopted by the government on 30 April 2024 postpones the mandatory introduction of the structured e-invoicing system to 1 February 2026.

Poland's VAT gap decreased significantly in 2021. Poland has been improving VAT collection since 2015. Poland recorded one of the fastest increases in VAT compliance in the EU between 2016 and 2018. In 2021, the VAT gap (the gap between revenues actually collected and the theoretical tax liability) decreased by more than two thirds to 3.3% (see Table A19.1). Even though many Member States saw a decrease of the VAT gap in this period, which was at least partly related to the COVID-19-induced economic crisis, Poland's decrease was more pronounced than the one seen by the EU average. A significant increase of nearly 20% in the value of electronic transactions and an approximately 8.5% decline in the bankruptcy rate have probably increased VAT compliance. Poland has not only improved digital transformation by implementing and extending SAF-T but has also introduced measures against fraud and evasion.

Some special VAT rates are being kept in 2024. Due to a wide application of exemptions and reduced rates, the actionable VAT policy gap ([169]) is among the highest in the EU and has increased in recent years ([170]). Most of Poland's COVID19-related relief measures on VAT and excise taxes have been discontinued, but the 2024 Budget Law extends some reduced VAT rates into 2024. The 0% VAT rate for food was kept in place until 31 March 2024.

([169])The actionable policy gap excludes exemptions on imputed rents (the notional value of home occupancy by homeowners), the provision of public goods and services, and financial services, which are unlikely to be taxed.

([170]) CASE – Center for Social and Economic Research (project leader) and Economisti Associati (consortium leader), *VAT gap in the EU report 2023*, p. 111.

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

	2004-07	2008-12	2013-20	2021	2022	2023	forecast 2024	forecast 2025
Real GDP (y-o-y)	5.4	3.3	3.5	6.9	5.6	0.2	2.8	3.4
Potential growth (y-o-y)	.	4.0	3.6	3.2	4.4	3.1	2.8	2.8
Private consumption (y-o-y)	4.1	3.2	3.0	6.1	5.5	-1.0	3.0	3.5
Public consumption (y-o-y)	4.0	1.7	3.7	5.0	0.5	2.8	5.7	2.3
Gross fixed capital formation (y-o-y)	12.3	2.1	3.9	1.2	2.7	13.1	3.5	6.0
Exports of goods and services (y-o-y)	10.0	4.9	5.8	12.3	7.4	3.4	1.7	3.5
Imports of goods and services (y-o-y)	12.0	2.7	5.8	16.1	6.8	-2.0	3.0	4.2
Contribution to GDP growth:								
Domestic demand (y-o-y)	5.7	2.7	3.2	4.6	3.7	2.1	3.4	3.5
Inventories (y-o-y)	0.7	-0.3	0.1	3.4	1.4	-5.3	0.0	0.0
Net exports (y-o-y)	-1.0	0.8	0.2	-1.1	0.6	3.3	-0.6	-0.1
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	.	0.5	0.4	0.7	2.0	0.6	0.2	0.0
Capital accumulation (y-o-y)	.	1.8	1.4	1.1	1.2	1.5	1.5	1.5
Total factor productivity (y-o-y)	.	1.7	1.8	1.5	1.3	1.1	1.2	1.3
Output gap	-0.1	1.4	-0.2	0.7	1.8	-1.1	-1.2	-0.6
Unemployment rate	15.7	9.3	5.5	3.4	2.9	2.8	3.0	2.9
GDP deflator (y-o-y)	3.2	2.9	1.7	5.3	10.6	10.7	4.5	4.2
Harmonised index of consumer prices (HICP, y-o-y)	2.4	3.7	1.1	5.2	13.2	10.9	4.3	4.2
HICP excluding energy and unprocessed food (y-o-y)	1.6	3.0	1.3	4.2	10.3	10.7	4.5	3.7
Nominal compensation per employee (y-o-y)	3.0	6.1	5.2	4.7	9.1	13.4	10.1	7.1
Labour productivity (real, hours worked, y-o-y)	2.7	3.3	3.0	0.9	2.4	0.7	2.9	3.4
Unit labour costs (ULC, whole economy, y-o-y)	0.4	3.1	2.5	0.4	7.3	13.3	7.0	3.6
Real unit labour costs (y-o-y)	-2.7	0.2	0.8	-4.6	-3.0	2.3	2.4	-0.5
Real effective exchange rate (ULC, y-o-y)	3.0	-1.1	-0.1	-2.7	0.5	9.4	7.8	1.2
Real effective exchange rate (HICP, y-o-y)	4.1	-0.8	-0.4	-0.5	0.5	8.7	.	.
Net savings rate of households (net saving as percentage of net disposable income)	2.2	1.9	3.6	2.0	-2.9	.	.	.
Private credit flow, consolidated (% of GDP)	6.5	6.8	3.6	3.7	3.0	0.9	.	.
Private sector debt, consolidated (% of GDP)	46.3	70.7	77.9	71.2	63.4	57.0	.	.
of which household debt, consolidated (% of GDP)	17.3	33.2	35.4	32.2	26.4	23.6	.	.
of which non-financial corporate debt, consolidated (% of GDP)	29.0	37.5	42.5	39.0	37.0	33.3	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (1)	3.9	5.7	4.7	3.3	2.9	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	0.9	4.1	3.7	2.8	5.2	9.2	8.6	8.2
Corporations, gross operating surplus (% of GDP)	22.4	22.8	22.7	24.0	26.8	26.1	25.1	24.7
Households, net lending (+) or net borrowing (-) (% of GDP)	-1.7	-2.2	-0.4	-1.4	-3.9	-1.8	-1.4	-1.8
Deflated house price index (y-o-y)	.	-5.4	3.7	3.5	-1.9	-1.9	.	.
Residential investment (% of GDP)	3.4	3.3	2.4	2.3	2.2	2.1	.	.
Current account balance (% of GDP), balance of payments	-5.2	-5.0	-0.9	-1.3	-2.6	1.6	0.8	0.6
Trade balance (% of GDP), balance of payments	-2.6	-2.4	2.8	3.3	1.9	6.1	.	.
Terms of trade of goods and services (y-o-y)	1.5	-0.5	1.2	-2.0	-3.5	3.0	0.5	0.0
Capital account balance (% of GDP)	0.9	1.6	1.7	0.7	0.5	0.2	.	.
Net international investment position (% of GDP)	-44.2	-60.6	-56.7	-39.8	-33.3	-31.4	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (2)	-10.4	-23.1	-17.0	0.7	2.7	5.1	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (2)	36.8	52.1	53.7	43.7	40.6	37.5	.	.
Export performance vs. advanced countries (% change over 5 years)	.	.	17.1	28.8	20.5	23.8	.	.
Export market share, goods and services (y-o-y)	8.9	0.0	5.0	-1.4	-0.9	2.2	-1.8	-0.1
Net FDI flows (% of GDP)	-3.5	-1.8	-2.0	-3.8	-3.6	-2.3	.	.
General government balance (% of GDP)	-3.6	-5.4	-2.6	-1.8	-3.4	-5.1	-5.4	-4.6
Structural budget balance (% of GDP)	.	.	-2.5	-2.4	-4.6	-4.5	-4.8	-4.3
General government gross debt (% of GDP)	45.9	52.1	51.4	53.6	49.2	49.6	53.7	57.7

(1) domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.

(2) NIIP excluding direct investment and portfolio equity shares.

Source: Eurostat and ECB as of 2024-5-17, where available; European Commission for forecast figures (Spring forecast 2024).

This annex assesses fiscal sustainability risks for Poland over the short, medium and long term. It follows the multi-dimensional approach of the European Commission's 2023 Debt Sustainability Monitor, updated based on the Commission 2024 spring forecast.

1 – Short-term risks to fiscal sustainability are low. The Commission's early-detection indicator (S0) does not point to any major short-term fiscal risks (Table A21.2) ([171]). Government gross financing needs are expected to increase to around 13-14% of GDP over 2024--2025 partly due to stock-flow adjustments reflecting a mismatch between the payment and deliveries of military investment (Table A21.1, Table 1). Financial markets' perceptions of sovereign risk is stable, as confirmed by the ratings of the main agencies.

2 – Medium-term fiscal sustainability risks appear high.

The DSA baseline shows that the government debt ratio is expected to increase rapidly in the medium term (to around 85% of GDP in 2034) (Graph 1, Table 1) ([172]). The debt increase relies on the assumption of a structural primary deficit of 2.6% of GDP as of 2024. Compared to historical data running from 1980, this does not appear ambitious. Indeed, almost 90% of past fiscal positions were more stringent than the one assumed in the baseline. (Table A21.2) ([173]). The debt increases notwithstanding a still favourable but, in absolute terms, declining snowball effect of around -0.4% of GDP annually on average over 2025-2034. On the other hand, large stock-flow adjustments in 2024 and 2025 are expected to contribute to the increase, mainly due to pre-financing of large military investments to be delivered in the following years.

The baseline projections are stress-tested against four alternative deterministic scenarios to assess the impact of changes in key assumptions relative to the baseline (Graph 1). Under the historical structural primary balance (SPB) scenario (i.e. the SPB returns to its historical 15-year average of -2.0% of GDP) the debt ratio would be lower than under the baseline by about 5 pps. in 2034. However, under the adverse interest-growth rate differential scenario (i.e. the interest-growth rate differential deteriorates by 1 pp. compared with the baseline), the debt ratio would be higher than under the baseline by around 6 pps. in 2034. Under the financial stress scenario (i.e. interest rates temporarily increase by 1 pp. compared with the baseline) the government debt ratio would be higher by 0.4 pps. in 2034. Finally, under the lower structural primary balance scenario (i.e. the projected small deterioration in the SPB from 2023 to 2024 is increased by 50%) the debt ratio would be higher than under the baseline by 0.8 pps. in 2034.

The stochastic projections indicate low sensitivity of these projections to plausible unforeseen events ([174]). These stochastic simulations indicate a 99% probability that the debt ratio will be higher in 2028 than in 2023, implying medium risks. Yet, the uncertainty surrounding the baseline debt projections (as measured by the difference between the 10th and 90th debt distribution percentiles, reaching around 20% of GDP in five years' time) is low (Graph 2).

([171])The S0 is a composite indicator of short-term risk of fiscal stress. It is based on a wide range of fiscal and financial-competitiveness indicators that have proven to be a good predictor of emerging fiscal stress in the past.

([172])The assumptions underlying the Commission's 'no-fiscal policy change' baseline include in particular: (i) a structural primary deficit, before ageing costs, of 2.6% of GDP from 2024 onwards; (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 ahead); (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 2024 spring forecast, followed by the EPC/OGWG 'T+10 methodology projections between T+3 and T+10 (average of 1.9%); (v) ageing costs in line with the 2024 Ageing Report (European Commission, Institutional Paper 279, April 2024). For information on the methodology, see the 2023 Debt Sustainability Monitor.

([173])This assessment is based on the fiscal consolidation space indicator, which measures the frequency with which a tighter fiscal position than assumed in a given scenario has been observed in the past. Technically, this consists in looking at the percentile rank of the projected SPB within the distribution of SPBs observed in the past in the country, taking into account all available data from 1980 to 2023.

([174])The stochastic projections show the joint impact on debt of 10 000 different shocks affecting the government's budgetary position, economic growth, interest rates and exchange rates. This covers 80% of all the simulated debt paths and therefore excludes tail events.

3 – Long-term fiscal sustainability risks appear overall medium. This assessment is based on the combination of two fiscal gap indicators, capturing the required fiscal effort to stabilise debt (S2 indicator) and bring to 60% of GDP (S1 indicator) over the long term ([175]). This assessment is driven by an unfavourable initial budgetary position and projected increase in ageing costs.

The S2 indicator points to medium fiscal sustainability risks. The indicator shows that, relative to the baseline, the SPB would need to improve by 4.6 pps. of GDP to ensure debt stabilisation over the long term. This result is underpinned by an unfavourable initial budgetary position (3.5 pps.) and the projected increase in ageing-related costs (contribution of 1.1 pps.). Ageing costs' developments are primarily driven by a projected increase in health-care (0.9 pps.) and long-term care spending (0.7 pps.), partly offset by a projected decrease in public pension expenditure (-0.6 pps.) ([176]) (Table A21.1, Table 2). As a result, while a number of investments and reforms in the RRP contribute to supporting the efficiency of the Polish health and long-term care systems, additional measures may be required to further improve its fiscal sustainability.

The S1 indicator points to medium fiscal sustainability risks. The indicator shows that the country needs to improve its fiscal position by 4 pps. of GDP to reduce its debt to 60% of GDP by 2070. This result is mainly driven by the unfavourable initial budgetary position (contribution of 3.3 pps.) and the projected increase in ageing-related public spending (0.9 pps.). The current distance of the government debt ratio to the 60% reference value marginally reduces the fiscal adjustment need (-0.1 pps.) (Table A21.1, Table 2).

4 – 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 compared to historical rates, potential legal costs associated with Swiss franc-denominated loans, the negative net international investment position and some exposure to non-performing loans. On the other hand, relatively stable financing sources (with a large domestic investor base) and the currency denomination of debt (over three-quarters of outstanding debt is denominated in local currency).

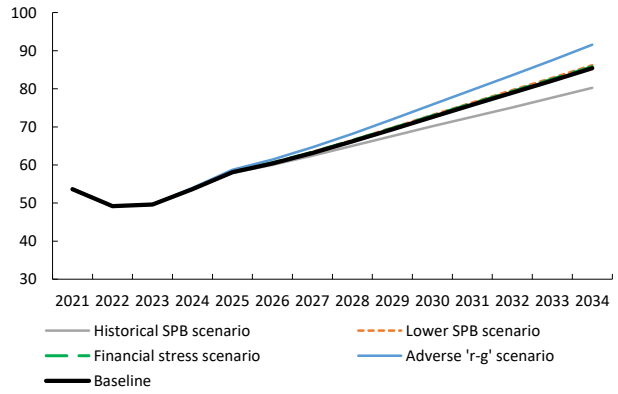
([175])The S2 fiscal sustainability indicator measures the permanent SPB adjustment in 2025 that would be required to stabilise public debt over an infinite horizon. It is complemented by the S1 indicator, which measures the permanent SPB adjustment in 2025 to bring the debt ratio to 60% by 2070. The impact of the drivers of S1 and S2 may differ due to the infinite horizon component considered in the S2 indicator. For both the S1 and S2 indicators, the risk assessment depends on the amount of fiscal consolidation needed: 'high risk' if the required effort exceeds 6 % of GDP, 'medium risk' if it is between 2% and 6% of GDP, and 'low risk' if the effort is negative or below 2% of GDP. The overall long-term risk classification combines the risk categories derived from S1 and S2. S1 may notch up the risk category derived from S2 if it signals a higher risk than S2. See the 2023 Debt Sustainability Monitor for further details.

([176])Sustainability challenges of the pension system are highlighted in chapter 3.

Table A21.1:**Debt sustainability analysis – Poland**

Table 1. Baseline debt projections	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio (% of GDP)	**53.6**	**49.2**	**49.6**	**53.7**	**58.1**	**60.4**	**63.1**	**66.2**	**69.4**	**72.6**	**75.8**	**79.0**	**82.1**	**85.4**
Changes in the ratio	-3.6	-4.4	0.4	4.1	4.4	2.3	2.7	3.1	3.2	3.2	3.2	3.2	3.2	3.2
of which														
Primary deficit	0.7	1.9	3.0	3.2	2.9	3.0	3.2	3.3	3.3	3.3	3.3	3.3	3.2	3.2
Snowball effect	-5.3	-6.2	-2.8	-1.3	-1.7	-0.8	-0.5	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0.0
Stock-flow adjustments	1.0	-0.1	0.2	2.1	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs (% of GDP)	7.5	7.6	9.3	13.3	14.2	11.9	12.4	12.9	13.3	13.7	14.0	14.4	14.7	15.1

Graph 1. Deterministic debt projections



Graph 2. Stochastic debt projections 2024-2028

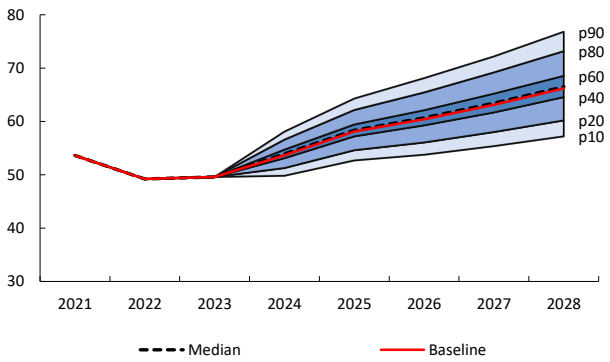


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

		S1	**S2**
Overall index (pps. of GDP)		**4.0**	**4.6**
of which			
Initial budgetary position		3.3	3.5
Debt requirement		-0.1	
Ageing costs		0.9	1.1
of which	*Pensions*	-0.2	-0.6
	Health care	0.7	0.9
	Long-term care	0.4	0.7
	Education	0.0	0.1

Source: Commission services.

Table A21.2:**Heat map of fiscal sustainability risks – Poland**

Short term	**Medium term - Debt sustainability analysis (DSA)**								**Long term**		
			Deterministic scenarios								
Overall (S0)	**Overall**		Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	**Stochastic projections**	**S2**	**S1**	**Overall (S1 + S2)**
LOW	**HIGH**	Overall	**MEDIUM**	**MEDIUM**	**MEDIUM**	**HIGH**	**MEDIUM**	**LOW**	**MEDIUM**	**MEDIUM**	**MEDIUM**
		Debt level (2034), % GDP	85.4	80.2	86.2	91.6	85.8				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	89%	79%	90%	89%	89%				
		Probability of debt ratio exceeding in 2028 its 2023 level						99%			
		Difference between 90th and 10th percentiles (pps. GDP)						19.6			

(1) Debt level in 2034. 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 2028 its 2023 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 10000 different shocks. Green, yellow and red cells indicate increasing uncertainty. (For further details on the Commission's multidimensional approach, see the 2023 Debt Sustainability Monitor)

Source: Commission services.