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2024 Country Report - Denmark

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Recommendation for a COUNCIL RECOMMENDATION

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

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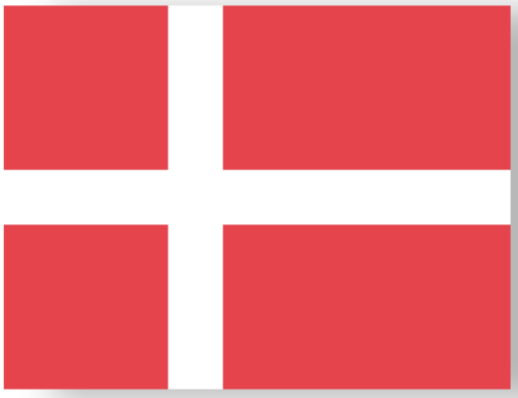
European Commission

Denmark

2024 Country Report



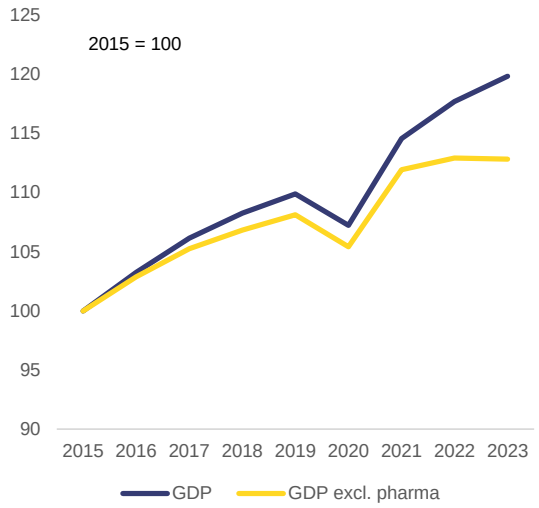
ECONOMIC AND EMPLOYMENT SNAPSHOT

Slower growth, lower inflation

The Danish economy has weathered the economic challenges of recent years well ([1]). After a robust recovery in 2021 and 2022, economic growth moderated in 2023. Denmark's real GDP grew by 1.9% in 2023, down from 2.7% in 2022. GDP growth in 2023 was driven by strong net exports, while domestic demand weakened as higher interest rates weighed on investment, and consumer spending was impacted by the erosion of real incomes. Exports continued to grow throughout 2023 despite lower demand from several major export markets, including Sweden and Germany. An exceptionally strong activity in the pharmaceutical industry, which sells most of its products abroad, played a significant role in the strong export performance. Without the pharmaceutical industry's contribution, GDP would have stagnated in 2023. Looking ahead, GDP growth is expected to expand by 2.6% this year and by 1.4% in 2025. GDP growth is set to benefit from continued growth in exports of pharmaceuticals, strengthening consumer spending, and a rebound in investment helped by rising real wages and declining interest rates. Government spending, including military expenditure, is expected to further contribute to economic growth.

Denmark has a large and persistent current account surplus. In 2023, the current account surplus was 10.9% of GDP, down from 13.2% of GDP in 2022 (see Annex 20). This is significantly above the average of 8.6% of GDP over 2019-2021. While the large surplus in 2022 was mainly due to an increase in sea freight rates, which have since normalised, the continued very high level in 2023 can be partly attributed to the continued pharmaceutical export boom. Overall, the pharmaceutical industry is estimated to have increased its contribution to the trade surplus by almost 3pp of GDP in the period Q4-2022 to Q3-2023 compared to the same period a year earlier ([2]). The Commission's spring 2024 forecasts expect the current account surplus to remain below its 2022 peak, at 11.3% in 2025.

Graph 1.1: **Growth outside the pharmaceutical industry has moderated**



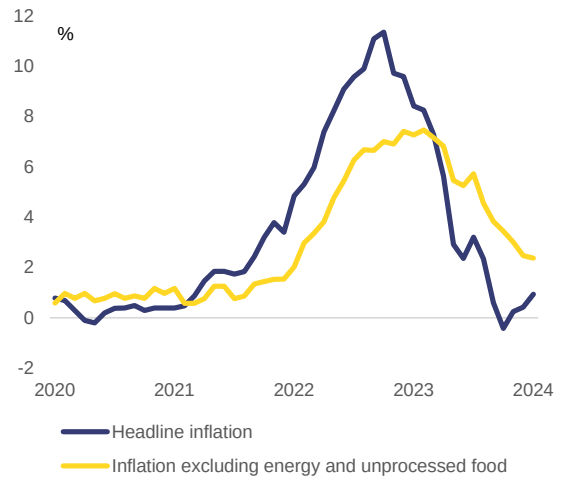
(1) GDP excl. pharma is GDP net of gross value added (GVA) in the pharmaceutical industry. The pharmaceutical industry's GVA for 2021-2023 is a special extraction of unpublished figures from Statistics Denmark and is therefore subject to greater uncertainty.
Source: Statistics Denmark

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

(2) Danish Ministry of Economic Affairs, *Economic Report*, 2023.

The Danish labour market has performed strongly in recent years with high employment and low unemployment rates. Employment has been growing noticeably across most sectors following the pandemic, and total employment reached a record high in 2023. The employment rate of people aged 20-64 stood at 79.9% in Q3-2023, which is above the EU average of 75.3%. The growth in employment is supported by the increase in both the inflow of foreign labour and the number of seniors staying longer in the labour market. The latter is due to the rising state pension age, which is tied to average life expectancy (Annex 14). Growth in employment has, however, slowed down since autumn 2022 and the unemployment rate increased slightly from 4.5% in 2022 to 4.8% in Q3-2023, compared to an EU average of 6.0%. This has started to ease pressures in the labour market, although shortages of skilled workers remain the biggest challenge for growth and competitiveness, affecting also the green and digital transition.

Graph 1.2: **Inflation dynamics**



Source: Eurostat

After reaching a peak in 2022, inflation in Denmark decreased rapidly in 2023. On the back of lower energy prices, a temporarily reduced electricity levy in the first half of 2023 and stabilising food prices, annual inflation fell from 8.5% in 2022 to 3.4% in 2023. Annual consumer price inflation in Denmark was well below the EU and euro area average of 6.4% and 5.4%, respectively. Amid the continued fall in international energy prices, annual inflation is projected to further ease to 2.0% in 2024 and 1.9% in 2025. While for several categories of goods inflation is expected to be limited, services are set to hold up inflation, reflecting the higher wage growth resulting from collective wage bargaining rounds in the private sector in 2023. Wages are expected to grow fast also in 2024 before easing back to slower growth in 2025. This will help restore real wages to levels before 2021, while also keeping up inflationary pressures. In recent years, the cost of labour has grown more slowly in Denmark than in the euro area and the EU, indicating improved cost competitiveness.

Competitiveness remains strong but productivity growth is slowing

Denmark's productivity is high, but productivity growth is slowing. Denmark's labour productivity level per hour worked (GDP per hour worked, in PPS) ([3]) is among the highest in the EU, at 141% of the EU average in 2022. Over the 2012-2022 period, annualised growth in labour productivity was around 1%, but over 2019-2022, labour productivity growth came to a halt. Over the last decade, productivity growth has mainly been driven by total factor productivity ([4]), particularly in larger and more internationalised firms. Productivity is strong in Denmark's manufacturing sector and higher than in other sectors and in most Member States. Productivity in services, however, has been stagnating. Business dynamism and the rate of high-growth firms – which are major drivers of productivity growth and favour resource reallocation to more

([3]) Purchasing power standard, see Eurostat Glossary.

([4]) A measure of productivity accounting for changes in total output not caused by changes in labour and capital inputs.

productive activities – are well above the EU average. However, start-ups and small and innovative companies often struggle to grow and scale up. Access to capital and challenges in recruiting staff are crucial factors for start-ups and may determine if firms stay in Denmark or relocate elsewhere (see Annex 12).

Research and development (R&D) intensity remains high, but business R&D intensity is decreasing. Denmark's R&D

intensity (R&D expenditure as a percentage of GDP) stood at 2.89% in 2022, significantly above the EU average. However, business R&D

intensity declined from 1.9% of GDP in 2015 to 1.8% in 2022 (see Annex 11). It is also increasingly concentrated in large companies and a few sectors, whereas innovation activity among small- to medium-sized enterprises is modest. The pharmaceutical sector alone is responsible for almost 60% of total R&D expenditure.

Box 1:

Denmark is among the top performers in many dimensions of competitiveness. This includes the labour market, the business environment, and efficient public institutions. Denmark also performs well on indicators related to trade integration, public investment and infrastructure, research and innovation, digitalisation, and compliance with single market directives.

However, competitiveness challenges remain:

- **labour and skills shortages**, which may be amplified by a low wage trap ([5]), hinder productivity and growth of Danish businesses, and risk slowing down the green and digital transitions; and
- **decreasing business R&D intensity,** and a widening productivity gap between large and small companies.

Good performance on social issues, with some areas for improvement

Denmark performs very well on most indicators for employment and health-related policies under the European Pillar of Social Rights. Denmark ranks above the EU average on 12 out of 16 indicators on the social scoreboard, including six where it ranks among the top performers. It fares particularly well on indicators related to social protection and inclusion, with low rates of both children and adults at risk of poverty and a strong impact of social transfers on poverty reduction (see Annex 14).

Housing affordability remains an issue. After a decline in 2022, the percentage of the population living in a household where the total housing costs represent more than 40% of the total disposable household income increased from 14.7% in 2022 to 15.4% in 2023.

Early school leaving and declining basic skills are also a concern. The rate of students leaving education and training early remains high and has increased in recent years, to 10% in 2022 (EU average: 9.6%). Given the very high demand for workers, this only translated into a slight increase in the rate of young people not in

([5]) Where moving from not working or working part time and receiving benefits to working full time on a low wage results in little to no increase in income

education, employment or training (see Annex 14). Retaining students in education and training is important to improve competitiveness in the longer term as early school leavers are at risk of exclusion due to insufficient skills for the labour market. The latest results of the Programme for International Student Assessment of the Organisation for Economic Co-operation and Development show a decrease in basic skills: 20% of pupils do not reach minimum standards in mathematics and reading skills (see Annex 15). There are significant underperformance gaps linked to socio-economic and migrant backgrounds, as well as gender. An expert group on gender delivered recommendations to the government

on how to reduce the gap between girls' and boys' academic results.

Box 2:

Denmark performs well on, and is progressing towards achieving, most of the SDGs related to **environmental sustainability** (SDGs 2, 6, 7, 9, 11, 12, 13, 14), but is moving away from the targets for, needs to catch up with the EU average on, SDG 15. Denmark also performs well on almost all indicators related to **productivity** (SDGs 4, 8, 9) and to **macroeconomic stability** (SDGs 8, 16, 17). Denmark is moving away from the targets for SDG 3 (Good health and well-being), but performance is already above the EU average (see Annex 1). Out of the 17 SDGs, Denmark performs better than the EU average on 15 SDGs. Performance is particularly strong on SDG 4 (Quality education), SDG 7 (Affordable and clean energy), SDG 9 (Industry, innovation and infrastructure) and SDG 10 (Reduced inequalities).

Towards a more stable housing market

The housing market is stabilising. The house price increases since the second half of 2020 were rapidly reversed in the second half of 2022, reflecting the successive rises in interest rates. In 2023, the housing market stabilised, with both house sales and house prices increasing despite higher interest rates and tighter credit conditions. In Q4-2023, house prices were 2.5% higher than in Q4-2022. Residential construction activity declined in 2023, due to significant increases in interest rates and building costs.

A new property tax system including new housing valuations entered into effect on 1 January 2024. The new system ends the long-standing cap on recurrent property taxes and is expected to improve resilience and taxation fairness. It could lead to higher property taxes in the largest urban areas, where house prices have increased the most, while the opposite could hold for less densely populated areas. This would help reduce the substantial price differences between small towns and large cities.

Private sector indebtedness remains very high, although some debt reduction has taken place. Both household and non-financial corporate debt-to-GDP ratios are among the highest in the EU and above fundamentals-based benchmarks. After declining in 2022, both ratios are forecast to have largely stabilised in 2023 ([6]). The Danish banking sector is well capitalised and has a strong liquidity position. It has weathered the uncertainties of the past few years relatively well, but some vulnerabilities

([6]) European Commission staff working document *Alert Mechanism Report 2024*.

remain, mainly linked to credit quality risks (see Annex 18).

General government surplus declining

Over recent years, Denmark has recorded general government budget surpluses as well as a fall in the government debt rate. In 2023, the general government budget surplus remained high at 3.1% of GDP. The outlook for 2024 and 2025 is for continued, but falling, budget surpluses.

Denmark is considered at low risk as regards the longer-term sustainability of government debt (see Annex 21). The debt ratio decreased to 29.3% of GDP in 2023 and is expected to fall further. A pension reform that links the future minimum statutory pension age to developments in life expectancy helps respond to the budgetary challenges of an ageing population.

IMPLEMENTATION OF KEY REFORMS AND INVESTMENTS USING EU INSTRUMENTS

Funding from the Recovery and Resilience Facility (RRF) and cohesion policy are mutually reinforcing Denmark's efforts to boost its competitiveness and stimulate sustainable growth. In addition to the EUR 1.6 billion of RRF funding described in Annex 3, cohesion policy provides EUR 455.7 million to Denmark for the 2021-2027 period. Combined support from these two instruments represents around 0.56% of the country's GDP in 2023, compared to an EU average of 5.38% (see Annex 4).

Under its recovery and resilience plan (RRP), Denmark has implemented policy reforms expected to further improve its competitiveness and resilience. In particular, action has been taken in the areas of industry decarbonisation and digitalisation, energy efficiency, healthcare, sustainable transport, and cybersecurity. Denmark made investments in the roll-out of broadband in underserved remote areas, energy efficiency of industry and green heating, telemedicine and healthcare system resilience, industry decarbonisation, sustainable transport, and R&D activities for the green transition.

The implementation of Denmark's RRP is well underway. Denmark submitted two payment requests, corresponding to 43 milestones and targets in the plan and resulting in an overall disbursement of EUR 964 million on 22 April 2024 (see Annex 3). Beyond the second payment request, the implementation of the plan is broadly on track.

Cohesion funding contributes to tackling Denmark's growth and competitiveness challenges and to support the country's territorial and social cohesion. During the 2014-2020 cohesion policy programming period, support focused on strengthening Denmark's competitiveness by investing in green technologies, by improving employment conditions through upskilling and reskilling programmes, and by helping small to medium--sized enterprises to market their products and services. In the current 2021-2027 programming period, support aims to accelerate the green and digital transition of Danish businesses, improve climate adaptation of town centres and tourism sites, foster green upskilling, and get vulnerable groups into work or training.

Supporting the green transition and sustainable growth

Several measures of the national RRP that have already been implemented support the green transition of the Danish economy. The RRP includes a comprehensive green tax reform consisting of four elements that will drive the green transition of the Danish industry. Elements that have already been agreed or adopted include: (i) an investment window to incentivise businesses to invest in green technologies and hardware; (ii) accelerated depreciation of investments in fixed assets; and (iii) higher CO_2 emissions taxes for the industry.

Denmark is using various EU funds to drive investments in green R&D. The RRP includes investments in R&D in sustainable agriculture and food production, green fuels for transport and industry, carbon capture and storage, and circular economy, with a focus on plastics and textiles. Additional measures supporting the green transition of the agricultural

sector have also been set in motion. The government has, for example, completed calls for applications for several projects, including biorefineries converting agricultural by-products into biofuels and the re-wetting of carbon-rich soils. The European Regional Development Fund (ERDF) will complement the RRP-funded measures by supporting 9 000 businesses to innovate and adapt to the green transition. The Just Transition Fund (JTF) will support the green transition of 3 500 businesses in North and South Jutland, while an additional 1 100 businesses are expected to receive support in reducing their carbon footprint (see Annex 4).

Denmark's RRP also includes measures to promote sustainable transport. These measures help achieve an estimated 2.1 megatonnes greenhouse gas emissions reduction from the road transport sector by 2030. Implemented measures in the RRP include a legislative amendment lowering registration taxes for zero and low-emission vehicles, a political agreement on a test scheme for road pricing, an analysis to optimise heavy haulage, and an agreement for a subsidy scheme for low-emission ferries. Denmark also implemented an information campaign to promote car sharing and pooling and a scheme to support the scrapping of old diesel cars. Upcoming investments will help incentivise the transition towards green modes of transport, including investments in bike lanes and electric bike charging stations. These investments should help decarbonise the transport sector in Denmark, with expected benefits in terms of competitiveness and alignment with green transition objectives.

The implementation of the RRP also helps improve energy efficiency and boost green heating. Political agreements were reached to fund subsidy schemes for replacing oil and gas burners with greener heating systems and for boosting the energy efficiency and green heating of public, private and industrial buildings. The annual application rounds for subsidies under the scheme supporting private-owned businesses to achieve energy savings and thus reduce costs have also been completed. The Commission will assess the further implementation and success of these schemes when the corresponding payment requests are submitted.

Higher ambitions for a greener, cleaner economy – powered by REPowerEU

Denmark's RRP now includes a REPowerEU chapter comprising various energy- and climate-related measures. A national energy crisis task force seeks to simplify and speed up administrative and permitting procedures for the green transition. The task force brings together stakeholders from the central and local administrations, businesses, civil society organisations and social partners. A centralised steering group assisted by a secretariat in the Ministry for Climate, Energy and Utilities coordinates the work of smaller focus groups. The first 27 recommendations on onshore solar and wind energy were published in February 2024 ([7]). A second set of recommendations focusing on the roll-out of green heating solutions was published in March 2024 ([8]). Efficient and effective implementation of recommendations will be essential to the task force's success.

The REPowerEU chapter also covers investments in the wind energy sector, in carbon capture and storage technologies, green heating, and green upskilling. A swift implementation of these investments would boost the sustainable growth and resilience of the Danish economy. The complementarity and synergies between the REPowerEU chapter and other EU

([7]) Mere sol og vind på land (kefm.dk).

([8]) Farvel til gas i danske hjem (kefm.dk).

funds are most evident in the areas of green upskilling and reskilling of workers; the measure on green upskilling included in the REPowerEU chapter is complemented by investments in green upskilling and reskilling under the European Social Funds Plus (ESF+) and the JTF. These measures are expected to address skills mismatches in specific sectors and further enable the country's green transition.

implementation of digital improvements in the corporate sector, particularly in small to medium-sized enterprises, in line with the Digital Strategy. In addition, both the ESF+ and the JTF support the development of skills needed for the green and digital transition by upskilling and reskilling workers.

A more resilient and digitalised healthcare system

Box 3: Combined action for more impactful EU funds

To boost economic growth and maximise the impact of EU funding, Denmark's RRP includes reforms that support investments under other EU instruments, creating significant synergies and complementarities between the various funds. For example, the green tax reform includes increased tax deductions and accelerated depreciation, providing an incentive for companies to invest in modernising their equipment and new technology and software. Measures envisaged under the reform will also enable companies to save energy and costs and to reduce CO_2 emissions. Measures under the ERDF and the JTF complement the green tax reform. The ERDF is supporting businesses to innovate, digitalise and adapt to the green transition, not least by developing green technologies. The JTF also supports businesses in their green transition and in reducing their carbon footprint. Moreover, both the JTF and the ESF+ finance upskilling and reskilling of workers, thus ensuring that the required green skills are present to make the most out of the new equipment, and of green solutions and technologies.

Accelerating the digital transition

The RRP and the cohesion policy funds support the digital transition in Denmark. The digital strategy, which aims to improve the digitalisation of the public administration, businesses, services and jobs, was adopted and set in motion under the second RRP payment request, together with an ambitious cybersecurity strategy to better prepare society for new digital challenges. Furthermore, over 3 500 additional households and businesses in rural areas have been covered with very high-speed broadband. Thanks to the RRP measure and previous national measures, almost all Danish households are now covered by very high-capacity networks. The RRF-funded measures are complemented by the ERDF, which supports the development and

healthcare system

Denmark has taken measures to strengthen the resilience of the healthcare system, which have helped to close the gap between rural and urban healthcare provision. Denmark has successfully implemented digital solutions allowing general practitioners (GPs) to optimise the anamnesis ([9]) process by asking patients to fill out digital questionnaires on pneumococcus, influenza and pregnancy via the MinLæge ('My Doctor') app. This solution gives GPs quick access to information on vaccinations and specific medical conditions of their patients. The overall aim is to increase the use of telemedicine to connect people better to the healthcare system. Furthermore,

([9]) Medical history needed to identify the problem to be dealt with and guiding the clinical examination.

Denmark has set up an IT system for reporting side effects of COVID-19 vaccines and other medicines, available to all GP clinics in the country.

FURTHER PRIORITIES AHEAD

Denmark faces additional challenges related to energy, the decarbonisation and circularity of the economy, sustainable agriculture, labour shortages and skills, R&D and innovation, the housing market and private debt. Tackling these challenges will benefit Denmark's long-term competitiveness and socio-economic resilience.

Renewable energy and electricity grid

Denmark is a frontrunner in renewable energy (see Annex 7). Under the Climate Agreement on Green Power and Heat of June 2022, Denmark aims to reach a fourfold increase in the production of renewable energy on-land ([10]). Furthermore, the supplementary agreement on tender frameworks for 6 GW of offshore wind energy and the Energy Island Bornholm lays down the framework for an expansion of 9 GW (potentially up to 14 GW) in offshore wind energy production by 2030.

Swift political action on the recommendations of the national energy crisis task force (NEKST) will be paramount. The task force, currently set up for 2023 and 2024 and partly financed by the EU through the Recovery and Resilience Facility, is working on developing and implementing recommendations to simplify and speed up administrative and permitting procedures for the green transition. Its first 27 recommendations on onshore solar and wind energy were published in February 2024. One has already been implemented and several others are already at an advanced stage. A second set of recommendations – focusing on the roll-out of green heating solutions – was published in March 2024.

Building on the measures to be implemented under its recovery and resilience plan (RRP) to accelerate the deployment of renewables, Denmark would benefit from providing further regulatory incentives to improve investment certainty. In the field of permitting, Denmark would, for example, benefit from introducing urgent and targeted measures to accelerate the pace of deployment of renewable energy sources, in accordance with the Emergency Regulation laying down a framework to accelerate the deployment of renewable energy ([11]). The government has put forward a law proposal that, if approved, would allow making use of some of the provisions of the Emergency Regulation and introduce legislation needed to transpose the revised Renewable Energy Directive.

Denmark increased its cross-border capacity in 2023 but planning appropriate grid expansion and upgrading transmission and distribution networks would be beneficial. Following the entry into operation of the Viking Link interconnector (a project of common interest co-financed by the EU through the Connecting Europe Facility), Denmark is interconnected with Germany, the Netherlands, Sweden, Norway and (since December 2023) the UK. Denmark is developing further projects of common

([10]) Klimaaftale om grøn strøm og varme 2022.

([11]) Council Regulation (EU) 2024/223 of 22 December 2023.

interest with a strong cross-border and connectivity component, such as the Bornholm Energy Island hybrid offshore interconnector with Germany, the Triton Link offshore hybrid interconnector with Belgium, and the North Sea Wind Power Hub for interconnectors with the Netherlands and Germany (see Annex 7). These projects help make Denmark an increasingly relevant exporter of renewable electricity. Against this background, integrated system planning for future grid expansion and upgrading will be crucial to respond to demand and flexibility needs at both transmission and distribution level.

Agriculture and circular economy

Policies in the agricultural sector play a key role for Denmark's path towards sustainable growth. The Danish agricultural sector, on par with the transport sector, is the country's largest source of greenhouse gas emissions covered by the EU Effort Sharing Regulation ([12])(38%, more than twice the EU average; see Annex 6). The Danish government has politically committed to introducing taxation of greenhouse gas emissions from the agricultural sector ([13]). In February 2024, the Expert Group for a Green Tax Reform published its proposals for three different models. The government has tasked a stakeholder committee led by the Ministry for Economic Affairs with evaluating the models and agreeing on one possible solution. The government proposal will be presented to Parliament possibly by the end of 2024.

A sustainable agri-food sector is not only key to achieving climate objectives, but also crucial to restore degraded biodiversity and ecosystems ([14]). Intensive agriculture practices are causing excessive nutrient leaching and run-off from fields, with serious repercussions on soil health and on aquatic and marine ecosystems leading to the deterioration of the natural capital (see Annex 6) ([15]). Building on the measures under the RRP and planned national initiatives that help address these issues, Denmark would benefit from accelerating the transition to sustainable agriculture and organic farming, in particular by taking further action to reduce nutrient leaching and run-off from the fields. There would also be merit in strengthening action in the land-use, land-use change and forestry (LULUCF) sector, including by restoring natural water properties in low--lying carbon-rich soils and expanding forested and protected areas. Planned governmental action in this respect is projected to be insufficient to meet the 2030 LULUCF carbon removal target ([16]).

Denmark has improved waste management, but additional action is needed to reduce the country's material footprint and (municipal) waste generation, and to decrease waste incineration rates. According to preliminary data for 2022, municipal waste production decreased in comparison to previous years but was still above the EU average (787 kg/capita against 513 kg/capita). Municipal waste recycling rate stood above the EU average

([12]) For each EU Member State, the Effort Sharing Regulation sets a national target for the reduction of greenhouse gas emissions by 2030 in the following sectors: domestic transport (excluding aviation), buildings, agriculture, small industry and waste.

([13]) Ansvar for Danmark (regeringen.dk).

([14]) OECD, *Assessing biodiversity-related financial risks: Navigating the landscape of existing approaches*, OECD Environment Policy Papers, 2023, No. 36, https://doi.org/10.1787/d52137a5-en.

([15]) Benoît Dessirier et al., A century of nitrogen dynamics in agricultural watersheds of Denmark, Environmental Research Letters, 2023; EEA, Soil monitoring in Europe — Indicators and thresholds for soil health assessments, 2022; European Commission, SWD(2023) 417 final, 2023.

([16]) Projections submitted in Denmark's draft updated national energy and climate plan for 2023.

in 2022, but figures are provisional and subject to fluctuation. In 2022, waste incineration was still well above the EU average (despite a decrease between 2020 and 2022) and the country had the EU's second-highest material footprint. The action plan for circular economy adopted in 2021 includes a wide range of initiatives, including measures for a green waste sector ([17]). However, additional action could be beneficial to reduce the amount of waste produced and incinerated, and to replace waste incineration with greener sources of heat generation in the national district heating systems. Increasing investments in environmental protection and sustainable water and soil management could further support the transition to a circular economy. Denmark is the only EU Member State that has not submitted its final framework of priority measures for investments in Natura 2000 sites (see Annex 6).

Shortages of workers and skills

Shortages of workers have become less acute but remain a major challenge for many Danish businesses. While the labour market can still be considered tight, with high employment levels and low unemployment (see Annex 14), the demand for workers is starting to abate. The number of vacant positions fell in Q4-2023 for the sixth quarter in a row since the peak in Q2-2022. In Q4-2023, the vacancy rate stood at 2.6%. Despite the easing in the labour market, shortages are still a challenge for many businesses and sectors, especially in construction, healthcare, and hospitality services. In the service and construction sectors, between 25% and 30% of companies considered that shortages of workers were limiting their business ([18]). Addressing labour shortages is hampered by a significant low wage trap and related low incentives to take up activity for potential low--wage earners, in particular for second earners (see Annex 19).

Beyond the general labour supply, shortages of skills are also a serious concern in several sectors, particularly those where the needs for green and digital skills are the greatest. Danish businesses report high levels of unsatisfactory recruitments, with a quarter of recruitment attempts resulting in no new hires (12%) or in the hiring of suboptimal profiles, where the company recruited an employee who did not have the expected experience, education or qualification (12%) ([19]). Unsatisfactory recruitments are most prevalent in hospitality services, agriculture, construction, and support services. According to the European Labour Authority, labour shortages were reported in 2023 for a number of occupations that require specific skills or knowledge for the green transition, including civil engineers, electrical engineering technicians and building and related electricians. The need for green skills and digital skills will only become more prevalent with the implementation of necessary investments in the twin green and digital transitions.

The Danish government has taken several initiatives to increase labour supply and promote upskilling and reskilling, though it is too early to assess their effectiveness. This includes initiatives to: (i) incentivise older workers to stay in the workforce (abolishment of means testing ([20]) for own

([17]) Ministry of the Environment, 2021, Handlingsplan for cirkulær økonomi.

([18]) European Commission, 2024 Q1, *DG ECFIN Quarterly Business Survey*.

([19]) STAR / Danish Agency for Labour Market and Recruitment, December 2023 recruitment survey.

([20]) Means-tested social benefits are social benefits that are explicitly or implicitly conditional on the beneficiary's income and/or wealth falling below a specified level. See Eurostat Glossary for further information.

and partner's labour income in the public pension system); (ii) facilitate recruitment of international employees ('Fast track scheme' and 'Supplementary Pay Limit Scheme'); and (iii) address challenges in the most affected sectors. In the public sector, social partners and the government agreed on an extraordinary framework of EUR 912 million (DKK 6.8 billion) for wages and working conditions to be implemented by 2026. To address shortages of skills, including green skills, the Danish government has put in place some schemes. Unemployed people can receive 110% of the unemployment support if they participate in a training for a profession that is included in the 'positive list' of professions with the most acute labour and skills shortages. Green upskilling is supported through dedicated funds for vocational education and training (VET), as included in the REPowerEU component of the Danish RRP. VET committees have identified the future skills needs for the green transition. This work will be used to target the funds efficiently.

The attractiveness of VET could be further strengthened, for both initial and continued VET. In recent years, the rate of early school leavers has been increasing. The share of adults participating in education and training is high compared to the EU average but has been steadily decreasing since 2016 (Annex 14). Additional action could help increase the quality and attractiveness of VET. The Danish VET system is tripartite and includes social partners, which ensures that the needs of the labour market can be taken into account at the educational level. However, the system could benefit from more flexibility to adapt curricula faster.

Attracting and retaining qualified education staff is key to successfully addressing skills gaps and shortages. There are shortages of qualified teachers at all levels of education (see Annex 15). While the recent political agreement on primary and lower secondary schools includes some initiatives, additional measures targeting training and working conditions could be considered not only to upgrade the qualifications of existing staff in all education sectors but also to improve the attractiveness of teaching.

Broadening innovation

Denmark's strong R&D system makes it the EU's top innovator, but business R&D intensity is declining and the productivity gap between large and small companies is growing. The 2023 European Innovation Scoreboard identifies Denmark as the EU's top innovator. Investment in innovation is high, including a comparatively high level of R&D expenditure and a high share of R&D personnel in total employment. Investment in intangibles and patent applications are also well above the EU average. However, business R&D intensity is declining and is increasingly concentrated (see Annex 11). The growing productivity gap between large and small companies suggests weaknesses in the diffusion of technological advances. Addressing this gap requires broadening the innovation base and involving more companies in R&D activities to promote innovation diffusion. Raising additional funds in the market could also increase the available financing resources.

Making the housing market more resilient

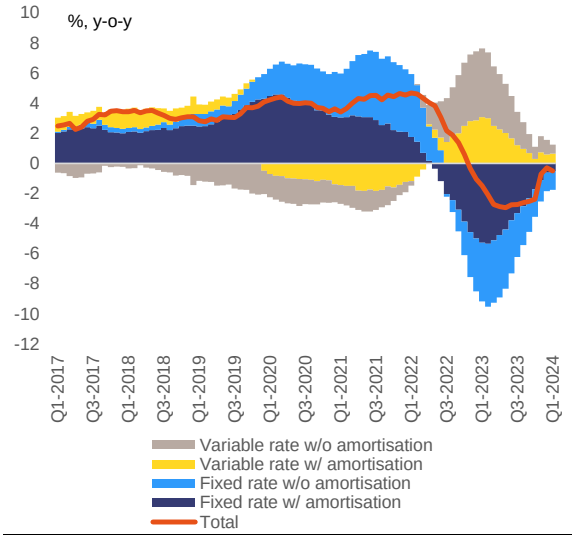
Affordable housing remains a challenge for many households. The key issues are high prices for owner-occupied housing, a highly regulated rental market, and long waiting times for social housing in the main urban areas like the Copenhagen region. The percentage of households who report that housing costs pose a burden increased by 7 pps between 2022 and 2023, reaching 51% of households – the highest

level since the start or the survey in 2004 ([21]). A political agreement was reached in 2021 to further increase the construction of affordable rental housing, primarily social housing, with a total budget of EUR 1.35 billion for 2022-2035. Since the autumn of 2022, several support schemes to promote the construction of affordable rental housing have been operational. The Danish government has announced that it will present a comprehensive housing policy proposal for a housing market with a mixed supply of owner-occupied housing, social housing, cooperative housing and private letting.

Danish households' mortgage debt levels in relation to GDP are decreasing, but are still the highest in the EU. This is due to several factors, including an effective and specific mortgage financing system (under certain conditions, mortgage owners have the possibility to choose interest-only, deferred amortisation mortgages). In addition, the tax system allows high tax deductions for mortgage interest payments. However, variable-rate mortgages as well as interest-only or deferred amortisation mortgages may constitute risks to financially vulnerable and highly indebted households. Overall, Danish households are already the most indebted in the EU, which implies the need for prudent credit standards in granting deferred amortisation mortgages. Higher interest rates have led to significantly higher debt service costs for some houseowners, with a negative impact on their payment capacity, adding to their vulnerability.

The Systemic Risk Council recommends a sector-specific risk buffer for corporate exposures to commercial real estate companies. Credit institutions have large exposures to the commercial real estate market. In December 2023, lending to real estate firms amounted to EUR 72 billion, equivalent to some 38% of credit institutions' corporate exposures ([22]), which have increased further in recent years ([23]). However, most of the lending is granted to real estate that nevertheless ultimately has residential purposes, and at end 2023 only 21.5% of the business loan book is linked to commercial real-estate property, in line with the EU average and lower than the year before. Higher interest rates that cannot be passed through and a weakening of economic growth could nonetheless constitute risks to real estate companies' ability to service their loans. Acknowledging the potential risks, the government has committed to following the Systemic Risk Council's recommendation.

Graph 3.1: **Mortgage lending by type**



(1) Distribution of annual growth in mortgage lending to households at nominal value
Source: Danmarks Nationalbank

([21]) Statistics Denmark, Housing Burden.

([22]) High earnings can counteract increased risks for the banks (nationalbanken.dk).

([23]) However, most lending is granted to real estate that ultimately has residential purposes, and at end of 2023, only 21.5% of the business loan book is linked to commercial real estate property, in line with the EU average and lower than a year ago.

Box 4:

The mid-term review of cohesion policy funds for Denmark

The mid-term review of 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.

Denmark 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, there are still significant disparities between the capital region and the rest of the country in GDP per capita and share of R&D expenditure. Against this background, it remains important to continue to implement the planned priorities, with particular attention to: (i) encouraging innovation to support the further greening and digitalisation of society, while continuing to address regional economic and social disparities and factoring in demographic challenges; (ii) promoting VET and its attractiveness; and (iii) upgrading the basic skills of the adult population, including migrants.

Denmark could also benefit from the opportunities available under the Strategic Technologies for Europe Platform (STEP) ([24]) initiative to boost further investments in technologies supporting the twin transition, as well as related necessary investment in skills and labour shortages. Denmark could consider focusing on clean and resource-efficient technologies and related value chains, particularly in the energy sector, and digital technologies to benefit people and small to medium-sized enterprises (SMEs). This would supplement the measures already taken by Denmark to support large firms in developing clean technologies and to raise the co-financing rate for SMEs.

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

KEY FINDINGS

Denmark's recovery and resilience plan (RRP) includes measures to tackle a series of structural challenges, in synergy with other EU funds, including cohesion policy funds, by:

- **Accelerating the green transition** by implementing a green tax reform, boosting investments in energy efficiency and in clean energy, funding measures to reduce greenhouse gas emissions from transport, agriculture and other sectors, and incentivising additional investment from the market;
- **Accelerating the digital transition** following the adoption of the new digital strategy, modernising public administration, and helping businesses invest in digital technology;
- **Promoting green R&D investment** and involving more companies in research activities, as well as supporting green R&D projects;
- **Strengthening the healthcare system** by advancing the digitalisation of the health system, including telemedicine, as well as logistics support for critical medical products.

Continued efforts are key for a successful implementation of all the measures of Denmark's RRP by August 2026.

In addition to implementing the reforms and investments in the RRP, Denmark could further strengthen its long-term competitiveness by:

- **Addressing shortages in affordable housing in urban areas and increasing the financial resilience** to vulnerabilities arising from the housing market and household debt;
- **Stimulating business investments in R&D, particular for small to medium-sized enterprises,** and broadening the innovation base to reduce the productivity gap between large and small companies;
- **Improving the provision of basic skills**, including by attracting and retaining qualified teachers and by paying particular attention to underachievement gaps linked to socio-economic background and gender;
- **Addressing labour and skills shortages,** investing in reskilling and upskilling workers, and increasing participation in vocational education and training, including to support the green and digital transition;
- **Decarbonising the economy** by further improving the regulatory framework for renewable energy deployment and by accelerating the transition towards sustainable agriculture, including by stepping up action to curb all types of greenhouse gas emissions and addressing nutrient leaching and run-off from the fields;
- **Making further progress in the transition to a circular economy and in waste management,** in particular in prevention, recycling and less incineration of (municipal) waste – this also includes reducing reliance on waste incineration for heat generation.

ANNEXES

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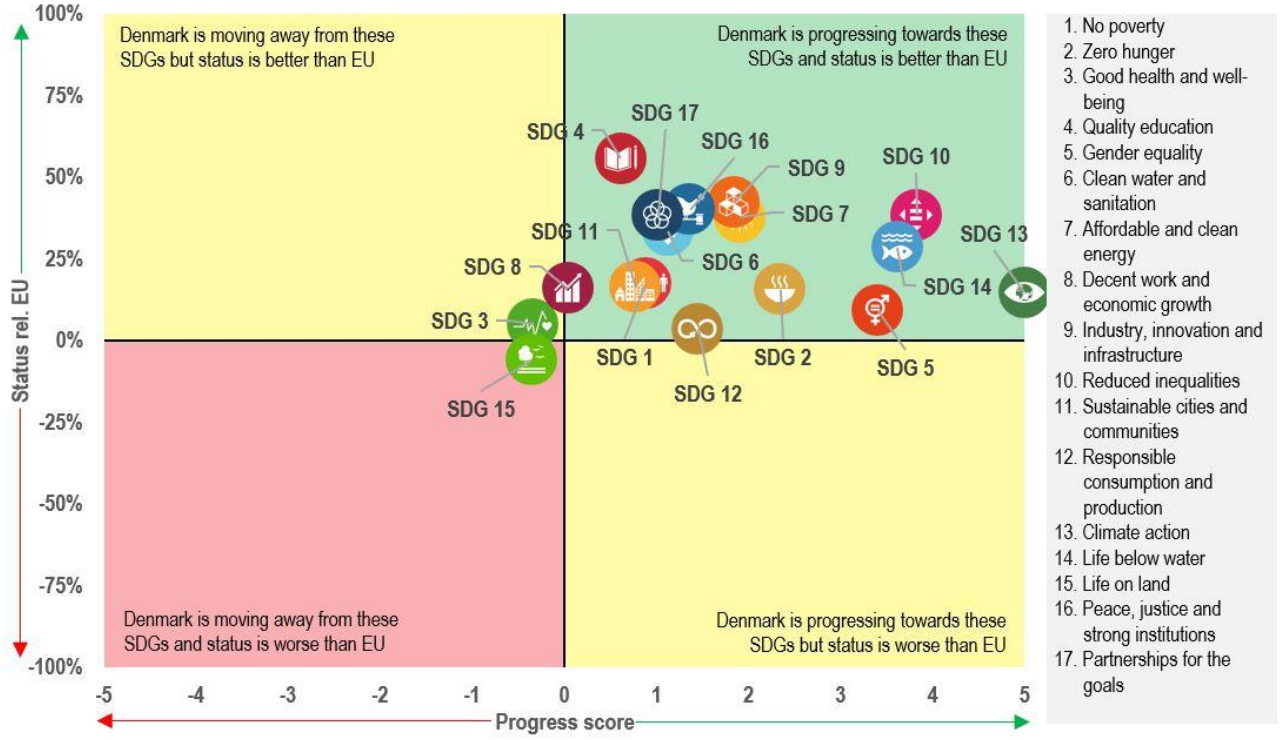
This Annex assesses Denmark's progress on the Sustainable Development Goals (SDGs) along the four dimensions of competitive sustainability. The 17 SDGs and their related indicators provide a policy framework under the UN's 2030 Agenda for Sustainable Development. The aim is to end all forms of poverty,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

Denmark performs well and is progressing towards most of the SDGs related to *environmental sustainability* (SDGs 2, 6, 7, 9, 11, 12, 13, 14). However, its performance is moving away from the targets for SDG 15 and it needs to catch up with the EU average for this SDG. The share of renewable energy in gross final energy consumption (SDG 7) increased from 34.4% in 2017 to 41.6% in 2022, well above the EU average (23% in 2022). Net greenhouse gas emissions (SDG 13) decreased from 9.2 tonnes per capita in 2017 to 7.4 tonnes per capita in 2022, moving closer to the EU average (7.3 tonnes per capita in 2022). Net greenhouse gas emissions from land use and forestry (SDG 13) decreased significantly from 16.7 tonnes CO_2 eq. per km² in 2017 to -8.9 tonnes in 2022, a figure which is however higher than the EU average (-56.0 tonnes CO_2 eq. per km² in 2022). The share of green bonds in total issuance (SDG 13) in 2022 was higher than the EU average (13.9% vs 8.9%). On waste generation and management (SDG 12), the circular material use rate decreased from 7.9% to 7.4% between 2017 and 2022 and is below the EU average (11.5% in 2022). However, the recycling rate of municipal

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



Notes: 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.

waste (SDG 11) improved between 2020 (45%) and 2022 (52.3%) and is above the EU average (48.6% in 2022). By contrast, the material footprint (SDG 12) increased from 22.9 tonnes per inhabitant to 34.4 tonnes per inhabitant between 2017 and 2022 and is more than double the EU average (14.9 tonnes per inhabitant in 2022). In terms of SDG 14 (Life below water), Denmark is performing slightly better than the EU average on several indicators. The share of terrestrial protected areas (SDG 15) in Denmark is significantly below the EU average (14.9% of total area, vs 26.0% in 2021). Measures included in Denmark's recovery and resilience plan (RRP) support the green transition and decarbonisation priorities by incentivising the phase-out of fossil fuels in district heating, accelerating the deployment of renewable energy sources, promoting sustainable transport, fostering green research and innovation and taxing greenhouse gas emissions.

Denmark performs well on, and is well progressing towards, most SDGs related to *fairness* (SDGs 1, 4, 5, 7, 8, 10). Denmark is moving away from the targets for SDG 3 (Good health and well-being), but its performance is already above the EU average for this SDG. The country performs above the EU average on most indicators related to poverty, quality education, clean and affordable energy, inclusive growth and inequality (SDGs 1, 4, 7, 8, 10). While overall performance for SDG 5 (Gender equality) is slightly below the EU average, the number of seats held by women in the national parliament and government increased from 36.3% in 2018 to 44.1% in 2023 (EU average: 33.2% in 2023). The representation of women in senior management positions has also significantly increased. In 2018, women accounted for 27.7% of board members, while the figure for 2023 reached 41.4%, well above the EU average of 33.8%. In terms of SDG 10 (Reduced inequalities), the gap for the employment rate between people with EU citizenship and people with non-EU citizenship (expressed as a percentage point difference and calculated for the population aged 20-64) significantly decreased between 2018 and 2023 (from 19.2 to 11.7, below the EU average of 13.2 in 2023). The share of the population unable to keep their homes adequately warm (SDG 7) increased between 2017 and 2022 but is still significantly below the EU average (5.1% vs 9.3% in 2022).

Denmark performs well on all SDGs on *productivity* (SDGs 4, 8, 9) and is moving towards SDGs 8 and 9. The share of households with a high-speed internet connection (SDG 9) skyrocketed between 2017 and 2022 (from 62.7% to 96.3%) and is well above the EU average (73.4% in 2022). Denmark's gross domestic expenditure on R&D (SDG 9) slightly decreased from 2.93% of GDP in 2017 to 2.89% in 2022, but it remains above the EU average (2.24% of GDP in 2022). On SDG 4 (Quality education), Denmark performs better than the EU average on all indicators but one: early leavers from education and training as a percentage of the population between 18 and 24 remained stable at 10.4% between 2018 and 2023; the situation is slightly worse than the EU average (9.5% in 2023). The RRP includes measures to help tackle the remaining digitalisation challenges and to promote green upskilling.

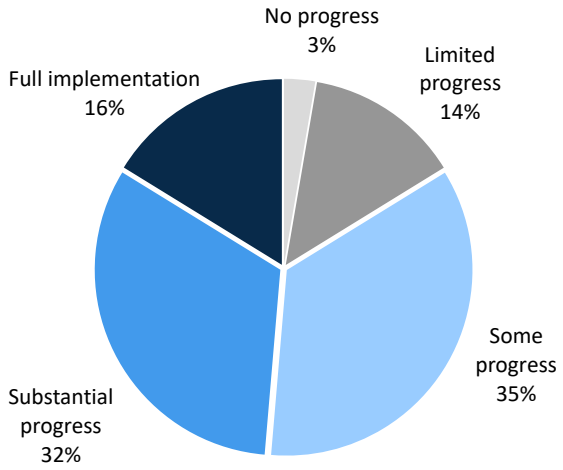
Denmark performs well on SDGs related to *macroeconomic stability* (SDGs 8, 16, 17) and is moving towards the targets for these SDGs. The country performs very well on peace and justice indicators, with a high level of trust in its institutions (SDG 16). In 2023, 86% of the population perceived the independence of the justice system to be very or fairly good, against an EU average of 53% for the same year. Denmark performs above the EU average on almost all indicators related to SDG 8 (Decent work and economic growth). The long-term unemployment rate as a percentage of population in the labour force is well below the EU average (0.5% vs 2.1% in 2023). Real GDP per capita (EUR 52 270 in 2023) is almost double the EU average (EUR 28 940 in 2023). General government gross debt (SDG 17) fell from 34% of GDP in 2018 to 29.3% in 2023 (EU average: 81.7% in 2023).

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

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

The Commission has assessed the 2019-2023 country-specific recommendations (CSRs) ([25]) addressed to Denmark as part of the European Semester. These recommendations concern a wide range of policy areas that are related to 12 of the 17 Sustainable Development Goals (see Annexes 1 and 3). The assessment considers the policy action taken by Denmark to date ([26])and the commitments in its recovery and resilience plan (RRP) ([27]). At this stage of RRP implementation, 83 % of the CSRs focusing on structural issues from 2019-2023 have recorded at least 'some progress', while 14 % 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: **Denmark's progress on the 2019-2023 CSRs (2024 European Semester)**



Source: European Commission

([25]) 2023 CSRs: EUR-Lex - 32023H0901(12) - EN - EUR-Lex (europa.eu)

2022 CSRs: EUR-Lex - 32022H0901(12) - EN - EUR-Lex (europa.eu)

2021 CSRs: EUR-Lex - 32021H0729(12) - EN - EUR-Lex (europa.eu)

2020 CSRs: EUR-Lex - 32020H0826(12) - EN - EUR-Lex (europa.eu)

2019 CSRs: EUR-Lex - 32019H0905(12) - EN - EUR-Lex (europa.eu)

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

([27]) Member States were asked to effectively address 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 have not yet been 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**

Denmark	Assessment in May 2024*	RRP coverage of CSRs until 2026**	Relevant SDGs
2019 CSR 1	**Some Progress**		
Focus investment-related economic policy on education and skills,	Some Progress	Relevant measures being planned as of 2024	SDG 4
research and innovation to broaden the innovation base to include more companies,	Some Progress	Relevant measures being implemented as of 2021 and 2022	SDG 9
and on sustainable transport to tackle road congestion.	Some Progress	Relevant measures being implemented as of 2021 and 2022, planned as of 2024	SDG 11
2019 CSR 2	**Substantial Progress**		
Ensure effective supervision and the enforcement of the anti-money laundering framework	Substantial Progress		SDG 8, 16
2020 CSR 1	**Substantial Progress**		
Take all necessary measures, in line with the general escape clause of the Stability and Growth Pact, to effectively address the COVID-19 pandemic, sustain the economy and support the ensuing recovery. When economic conditions allow, pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment.	Not Assessed / No Input to Add	Not applicable	SDG 8, 16
Enhance the resilience of the health system, including by ensuring sufficient critical medical products and addressing the shortage of health workers.	Substantial Progress	Relevant measures being implemented as of 2021	SDG 3
2020 CSR 2	**Substantial Progress**		
Front-load mature public investment projects and	Substantial Progress	Relevant measures being implemented as of 2021 and 2022	SDG 8, 16
promote private investment to foster the economic recovery.	Substantial Progress	Relevant measures being implemented as of 2021 and 2022, planned as of 2023	SDG 8, 9
Focus investment on the green and digital transition, in particular on clean and efficient production and use of energy,	Substantial Progress	Relevant measures being implemented as of 2021, planned as of 2024 and 2025	SDG 7, 9, 13
sustainable transport	Substantial Progress	Relevant measures being implemented as of 2021 and 2022, planned as of 2024	SDG 11
as well as research and innovation.	Substantial Progress	Relevant measures being implemented as of 2021, planned as of 2025	SDG 9
Support an integrated innovation strategy with a broader investment base.	Some Progress	Relevant measures being implemented as of 2021 and 2022	SDG 9
2020 CSR 3	**Substantial Progress**		
Improve the effectiveness of anti-money laundering supervision and effectively enforce the anti-money laundering framework.	Substantial Progress		SDG 8, 16
2021 CSR 1	**Not Assessed / No Input to Add**		
In 2022, maintain a supportive fiscal stance, including the impulse provided by the Recovery and Resilience Facility, and preserve nationally financed investment.	Not Assessed / No Input to Add	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 Assessed / No Input to Add	Not applicable	SDG 8, 16
At the same time, enhance investment to boost growth potential. *Pay particular attention to the composition of public finances, both on the revenue and expenditure sides of the budget, and to the quality of budgetary measures, to ensure a sustainable and inclusive recovery. Prioritise sustainable and growth-enhancing investment, notably supporting the green and digital transition.*	Not Assessed / No Input to Add	Not applicable	SDG 8, 16
Give priority to fiscal structural reforms that will help provide financing for public policy priorities and contribute to the long-term sustainability of public finances, including by strengthening the coverage, adequacy, and sustainability of health and social protection systems for all.	Not Assessed / No Input to Add	Not applicable	SDG 8, 16

(Continued on the next page)

Table (continued)

2022 CSR 1	**Some Progress**		
In 2023, ensure prudent fiscal policy, in particular by limiting the growth of nationally financed primary current expenditure below medium-term potential output growth, taking into account continued temporary and targeted support to households and firms most vulnerable to energy price hikes and to people fleeing Ukraine. Stand ready to adjust current spending to the evolving situation.	No Progress	Not applicable	SDG 8, 16
Expand public investment for the green and digital transitions, and for energy security taking into account the REPowerEU initiative, including by making use of the Recovery and Resilience Facility and other Union funds.	Full Implementation	Not applicable	SDG 8, 16
For the period beyond 2023, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions.	Full Implementation	Not applicable	SDG 8, 16
Implement the new property tax system in order to restore the link between market prices and taxes and ensure fairer taxation.	Substantial Progress		SDG 8, 10, 12
Stimulate investment in construction of affordable housing to alleviate the most pressing needs.	Limited Progress		SDG 8
Increase the financial resilience of highly indebted borrowers.	Limited Progress		SDG 8
2022 CSR 2			
Proceed with the implementation of its recovery and resilience plan, in line with the milestones and targets included in the Council Implementing Decision of 13 July 2021.	RRP implementation is monitored by assessing RRP payment requests and analysing reports published twice a year on the achievement of the milestones and targets. These are to be reflected in the country reports.		
Swiftly finalise the negotiations with the Commission of the 2021-2027 cohesion policy programmes and proceed with their implementation.	Progress on the cohesion policy programming documents is monitored under the EU cohesion policy.		
2022 CSR 3			
Strengthen circular economy and waste management policies including by promoting waste prevention and reuse, increasing recycling, and gradually shifting away from incineration of municipal waste to greener sources of heat generation.	Some Progress	Relevant measures being implemented as of 2021	SDG 6, 12, 15
2022 CSR 4	**Some Progress**		
Reduce overall reliance on fossil fuels. Further diversify energy supply and	Limited Progress	Relevant measures being implemented as of 2021, planned as of 2024	SDG 7, 9, 13
help decarbonise the economy by accelerating the deployment of renewables, including by introducing reforms to simplify and expedite administrative and permitting procedures,	Some Progress	Relevant measures planned as of 2024 and 2026	SDG 7, 8, 9, 13
upgrading energy transmission networks, increasing interconnections with neighbouring countries	Substantial Progress		SDG 7, 9, 13
and improving energy efficiency.	Some Progress	Relevant measures being implemented as of 2021, planned as of 2025	SDG 7
2023 CSR 1	**Substantial Progress**		
Wind down the energy support measures in force by the end of 2023. Should renewed energy price increases necessitate support measures, ensure that these are targeted at protecting vulnerable households and firms, fiscally affordable, and preserve incentives for energy savings	Full Implementation	Not applicable	SDG 8,16
While maintaining a sound fiscal position in 2024,	Full Implementation	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 investment and reforms conducive to higher sustainable growth and preserve a prudent medium-term fiscal position	Full Implementation	Not applicable	SDG 8,16
Implement the new property tax system in order to restore the link between market prices and taxes and ensure fairer taxation.	Substantial Progress	Not applicable	SDG 8, 10, 12
Accelerate investment in the construction of affordable housing to alleviate the most pressing needs.	Limited Progress	Not applicable	SDG 8
2023 CSR 2			
Continue the steady implementation of its recovery and resilience plan and, following the recent submission of the addendum, including the REPowerEU chapter, rapidly start the implementation of the related measures. 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	**Some Progress**		
Strengthen circular economy and waste management policies, including by accelerating the implementation of Denmark's national action plan for circular economy, promoting waste prevention and reuse of municipal and other waste, increasing recycling rates, reducing food waste, and shifting away from the incineration of municipal waste to greener sources of heat generation.	Some Progress	Relevant measures being implemented as of 2021	SGD 12, 6, 15

(Continued on the next page)

Table (continued)

2023 CSR 4	**Some Progress**		
Reduce reliance on fossil fuels and	Limited Progress	Relevant measures being implemented as of 2021, planned as of 2024	SDG 7, 9, 13
increase the share of renewables in the energy supply.	Some Progress	Relevant measures being planned as of 2024 and 2026	SDG 7, 9, 13
Address increasing demand and flexibility needs by incentivising the necessary electricity network developments at transmission and distribution level.	Substantial Progress		SDG 7, 9, 13
Streamline the applicable permit-granting rules for renewable energy	Some Progress	Relevant measures being planned as of 2024	SDG 7, 8, 9, 13
Implement additional measures that support energy efficiency in private and public buildings to reduce energy bills and energy system costs.	Some Progress	Relevant measures being implemented as of 2021, planned as of 2025	SDG 7
Ensure a better roll-out of decarbonised heating sources.	Some Progress	Relevant measures being implemented as of 2021 and planned as of 2024	SDG 7, 9, 13
Step up policy efforts aimed at the provision and acquisition of the skills needed for the green transition.	Some Progress	Relevant measures being planned as of 2024	SDG 4

Note:
* See footnote (27).
** RRP measures included in this table contribute to the implementation of CSRs. Nevertheless, additional measures outside the RRP may be 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 Denmark'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 1.6 billion in grants under the RRF over the 2021-2026 period, representing 0.4 % of Denmark's GDP ([28]). As of mid-May 2024, EUR 0.96 billion in grants has been disbursed to Denmark under the RRF.

Denmark still has EUR 0.67 billion available in grants from the RRF. This will be disbursed after the assessment of the future fulfilment of the remaining 50 milestones and targets ([29]) included in the Council Implementing Decision ([30]) (CID), ahead of the 2026 deadline established for the RRF.

Denmark's progress in implementing its plan is recorded in the Recovery and Resilience Scoreboard ([31]). The scoreboard gives an overview of the progress made in implementing the RRF as a whole. Graph A3.1 shows the current state of play as reflected on the Scoreboard.

Denmark's RRP includes a REPowerEU chapter to phase out dependency on Russian fossil fuels, diversify energy supplies and produce more clean energy in the coming years. To kick-start the REPowerEU chapter's implementation, EUR 39.3 million was disbursed as pre-financing on 21 December 2023. This helped launch relevant reforms like the simplification of administrative and permitting procedures for the roll-out of district heating projects and the deployment of wind and solar energy on land as well as the deployment of offshore wind energy and the green upskilling of the labour force.

The plan has a strong focus on the green transition, dedicating 69% of the available funds to measures that support climate objectives and 27% of its total allocation to support the digital transition. It also retains a strong social dimension with measures especially related to the healthcare system.

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

Initial plan CID adoption date	13 July 2021
Scope	Revised plan with REPowerEU chapter
Last major revision	9 November 2023
Total allocation	EUR 1.6 billion in grants (0.4% of 2023 GDP)
Investments and reforms	37 investments and 7 reforms
Total number of milestones and targets	93
Fulfilled milestones and targets	43 (46.2% of total)

Source: RRF Scoreboard

With two payment requests completed, Denmark's implementation of its RRP is well underway. The Commission gave a positive assessment of Denmark's first payment request, taking into account the opinion of the Economic and Financial Committee. This led to EUR 301 million being disbursed in financial support on 27 April 2023 ([32]). The related 25 milestones and targets covered reforms and investments such as the green tax reform in support of the green and digital transition of businesses and a reform for a more digital

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

([29]) 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.

([30]) https://data.consilium.europa.eu/doc/document/ST-10154-2021-ADD-1/en/pdf

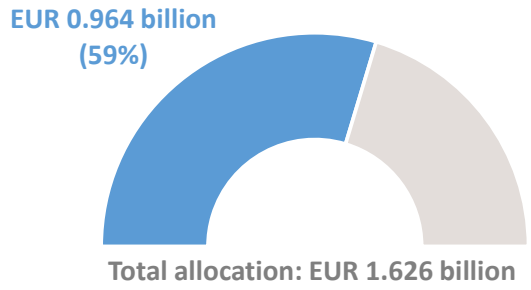
([31]) https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html

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

health system. Several milestones and targets also concerned major investments in the fields of green transition of agriculture and environment, energy efficiency, clean vehicles and ferries, and research.

The most recent payment request, which the Commission assessed positively on 29 February 2024, led to the disbursement of EUR 422 million on 22 April 2024. The disbursement reflected the positive assessment of 18 milestones and targets covering several reforms in the areas of digitalisation of healthcare administration, energy efficiency, cybersecurity, healthcare, as well as research and innovation for the green transition.

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

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

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

Reforms and investments implemented
• Green Tax Reform • New National Cybersecurity Strategy • Development of facilities for telemedicine consultation
Upcoming reforms and investments
• New bike paths, zero-emmission cars and green ferries • Green upskilling funds • Setup of a full-scale biorefinery

Source: FENIX

EU funding instruments provide considerable resources for recovery and growth to the EU Member States. In addition to the EUR 1.6 billion of Recovery and Resilience Facility (RRF) funding described in Annex 3, EU cohesion policy funds ([33]) provide EUR 455.7 million to Denmark for the 2021-2027 period ([34]). Support from these two instruments combined represents around 0.56% of the country's 2023 GDP, compared to an EU average of 5.38% of GDP ([35]). 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 Denmark's competitiveness, with tangible achievements notably in competitiveness of businesses, reduction of greenhouse gas (GHG) emissions, employment and skills. By the end of the eligibility period in December 2023, 2014-2020 cohesion policy funds ([36]) had made EUR 630.1 million available to Denmark ([37]), of which EUR 330.6 million has been disbursed since March 2020, when the COVID-19 pandemic began ([38]). REACT-EU supported Danish SMEs in their dual transition and in developing the skills required for it. It also started to support Danish regional strongholds and the development of new, green technologies, building the bridge to 2021-2027 programmes. Achievements of cohesion policy funds over the entire programming period include providing support to 5 500 SMEs, aiming to make them more competitive and allow them to market new products and processes; creating almost 18 700 jobs; and reducing GHG emissions by almost 640 000 tonnes of CO_2 equivalent. During the same period, the European Social Fund (ESF) helped increase the number of self-employed, helped people at the margins of the labour market get into jobs, and supported people in up- and reskilling and in participating in vocational education and training (VET). Up until now, the ESF in Denmark has supported the participation of more than 18 000 people in entrepreneurship courses as well as the participation of more than 20 000 people in up- and reskilling courses.

In the current programming period (2021-2027), cohesion policy will provide a further boost to Denmark's competitiveness, to the green transition and to social cohesion, improving the living and working conditions of Denmark's people. In 2021-2027, the European Regional Development Fund (ERDF) will support over 9 000 businesses to cooperate, innovate, digitalise and adapt to the green transition. This business support also aims to boost the development of green and welfare technologies, facilitating Denmark's green transition and responding to challenges related to scarcity of workforce. Moreover, 20 small- and medium-sized town centres and 10 tourism sites will be supported to boost the local economy and allowing them to adapt to climate challenges. The Just Transition Fund (JTF) will support 3 500 businesses in North and South Jutland in their green transition, while 1 100 businesses will receive support to reduce their carbon footprint. Overall, the JTF supports over 10 000 people develop skills that facilitate the green transition, involving more than 2 000 SMEs. The European Social Fund Plus (ESF+) will facilitate the green and digital transitions in Denmark by allocating approximately EUR 111 million to the development of relevant skills. These resources will mainly serve to support the up- and reskilling of the workforce, and to help adapt VET and higher education to the demands of the labour market. Around 15 000 people are expected to improve their

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

([34]) European territorial cooperation (ETC) programmes are excluded from the figure. In 2021-2027, the total investment, including national financing, amounts to EUR 993.8 million.

([35]) 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 2023.

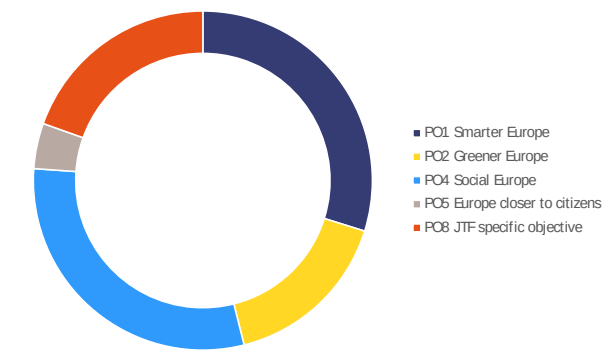
([36]) In 2014-2020, cohesion policy funds included the European Regional Development Fund and the European Social Fund. REACT-EU allocations are included but ETC programmes are excluded.

([37]) In 2014-2020, the total investment, including national financing, amounted to EUR 1.0 billion.

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

qualifications through targeted up- and reskilling courses, and around 2 500 people are expected to get closer to the labour market or into jobs, as the ESF+ will also support measures that help vulnerable groups get into jobs and away from homelessness. In this regard, cohesion policy substantially contributes to achieving the UN Sustainable Development Goals (SDGs) in Denmark, in particular SDG 9 (Industry, innovation, infrastructure), SDG 8 (Decent work and economic growth) and SDG 4 (Quality education).

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

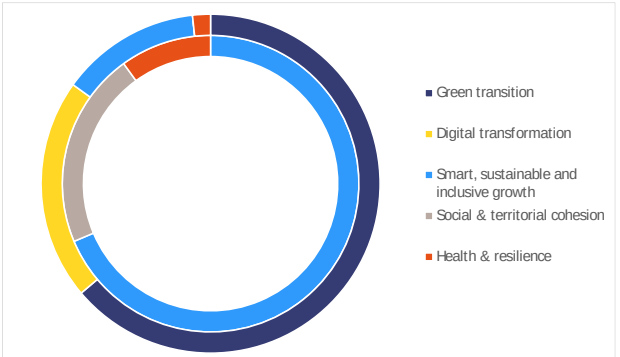


Source: European Commission

Through combined action, cohesion policy and the recovery and resilience plan (RRP) have a mutually reinforcing impact in Denmark. The green tax reform and the tax incentives to boost research and development in companies envisaged in the RRP supplement the objectives of the ERDF and JTF by providing an additional incentive for investing in solutions or developing technologies that can reduce waste and emissions and improve the resource efficiency of businesses. The JTF and the ESF+ displays complementarity with regards to re- and upskilling of the workforce and students to facilitate the green transition. Similarly, in digitalisation, the RRP supported the development of the Danish digitalisation strategy, which provides the framework for the digitalisation of businesses, services and jobs, while the ERDF supports the digital transition of the corporate sector, and both the ESF+ and the JTF support re- and upskilling in the same area. The contribution of cohesion policy and RRP funding by policy objective is illustrated by Graphs A4.1 and A4.2.

The Technical Support Instrument (TSI) helps Denmark invest in its public administration and create a better enabling environment for EU and national investment. The TSI has funded projects in Denmark to design and implement growth-enhancing reforms since 2019. The support provided in 2023 included action to standardise product data in digital and automated processes, thus supporting the transition to the green and circular economy. The TSI also helped Denmark develop a framework to increase the digital readiness of Danish legislation, to enable a systematic review of existing legislation. The TSI also supported the development of future-oriented talent retention policies to help Denmark attract and retain international talent, while fostering talent mobility across the EU.

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



(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 Denmark.

Source: European Commission

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

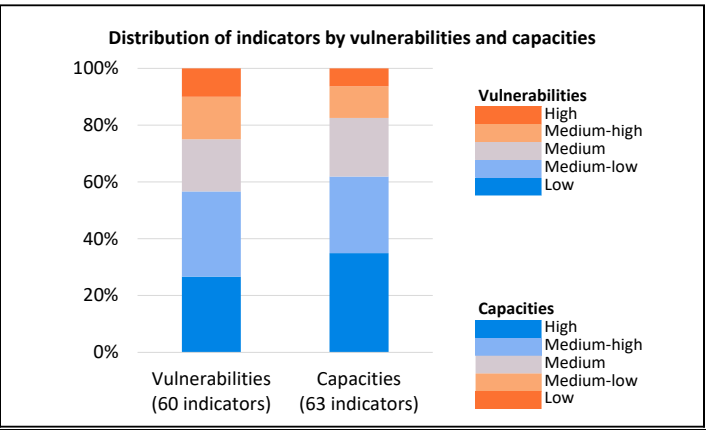
Table A4.1: **Support from EU instruments in Denmark**

EU grants		
	Amount 2014-2020 (EUR million)	Amount 2021-2027 (EUR million)
Cohesion policy	630.1	455.7
RRF grants (1)	-	1 625.9
Public sector loan facility (grant component) (2)	-	6.8
Common agricultural policy (3)	8 600.0	4 806.0
EMFF/EMFAF (4)	208.4	201.0
Connecting Europe Facility (5)	892.1	675.6
Horizon 2020 / Horizon Europe (6)	1 760.5	940.5
LIFE programme (7)	73.3	52.4
EU guarantees		
	EU Guarantee (EUR million)	Volume of operations (EUR million)
European Fund for Strategic Investment 2015-2020 (8)	291.5	991.7
InvestEU 2021-2027 (9)	134.7	230.3

Notes:
(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).
Source: European Commission

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

Dimension		DK 2023 RDB	DK 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) ([39]) to show Denmark's relative resilience capacities and vulnerabilities ([40]) that may be of relevance for societal, economic, digital and green transformations, and for dealing with future shocks and geopolitical challenges ([41]).

According to the set of resilience indicators in the RDB and in line with the EU average, Denmark's overall vulnerabilities have remained stable, at medium-low, putting it above the EU average. The same goes for its resilience capacities, also in a stable position, at medium-high overall, putting it roughly on a par with the EU average. The distribution of indicators across the various resilience categories also reflects this situation: almost 60% of vulnerability indicators are medium-low or low, while most capacity indicators are medium-high or high.

In the social and economic dimension, Denmark stands out for its high capacities and low vulnerabilities, both of which continue to be above the EU average. That said, the country has many jobs at risk of automation in the manufacturing sector. This would suggest that the digital transition is going to have a significant impact on society. Despite a slight decrease in the ratio of non-financial corporate debt to GDP, it continues to be well above the EU average. As far as capacity indicators are concerned, healthy life years in absolute value at birth remain far below the EU average.

In the green dimension, Denmark's vulnerabilities have increased to medium and capacities remained medium-high, putting them at the level of the EU average. Increased raw material consumption per capita is one reason for this weakening of Denmark's position. Consumption footprint per capita continues to be a high vulnerability (second highest). On capacities, the CO_2 absorption of its forests and its resource productivity have increased.

In the digital dimension, Denmark has managed to keep its strong position, with very high capacities but slightly increased vulnerabilities to medium-low, both still performing better than the EU average. For

([39]) 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).

([40]) 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.

([41]) 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.

Denmark, ICT security incidents in enterprises and ICT trade deficit in both goods and services fall above the EU average. The country remains in a strong position in terms of digital capacities, but the level of young people doing any online learning activity and the value of e-commerce sales have decreased.

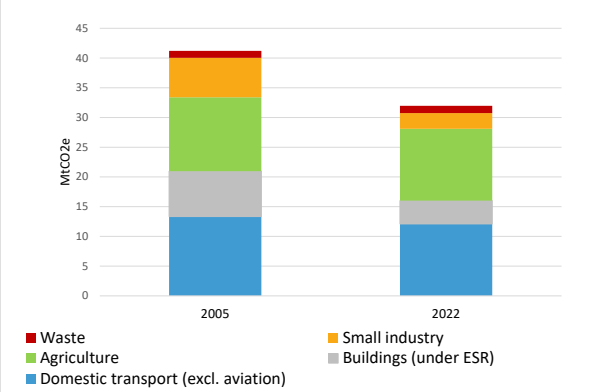
Denmark's geopolitical situation, with medium vulnerabilities and capacities, has not changed. Its capacities continue to be below the EU average. Intra-EU trade in energy improved with respect to the 2023 RDB, but the rate of change in supplier diversification of both energy carriers and base metals remains negative, weakening Denmark's position in this dimension.

Denmark has made progress in the green transition, with more action needed to specify the funding framework for the climate and energy transition and the policies needed to reach the 2030 effort sharing target, as well as on sustainable water and soil management, biodiversity protection, and other areas. This Annex provides a snapshot of climate, energy and environmental aspects of the transition in Denmark ([42]).

Denmark's draft updated national energy and climate plan (NECP) lacks key information on investment needs and funding sources to achieve its 2030 climate and energy targets. The plan neither identifies the total needs nor the needs for private and public-sector investments, which means it is not possible to identify any funding gaps. The draft updated plan mentions the key sources of finance, but it does not distinguish between different policies and measures nor between private and public sources. The plan lacks an overview with all the budgetary information for the different policies and measures, although it gives a relatively good picture of the measures in place and the budget required. According to the draft plan, Denmark will mainly draw on national funding (Danish Innovation Fund, the Energy Technology Development and Demonstration programme, and ELFORSK) ([43]).

Current policies and measures in Denmark are insufficient to reach its 2030 effort sharing target ([44]) and it has yet to specify further action. Denmark expects its 2022 greenhouse gas emissions from its effort sharing sectors to come in at 28.8% below 2005 levels. Current policies are projected to reduce emissions from Denmark's effort sharing sector by 39.5% from 2005 levels by 2030 ([45]). Denmark has not provided a scenario 'with additional measures'. This is problematic as it is projected to fall short of its effort sharing target, to reduce by 50% from 2005 levels, by 10.5 percentage points. It highlights the importance of planning and implementing more ambitious climate action. The transport and agricultural sectors are still by far the greatest sources of emissions in the effort sharing sectors, each generating 38% of total emissions. Based on the information provided in its draft updated NECP, Denmark intends to bring forward its goal to reach climate-neutrality from 2050 to 2045.

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



Source: European Environment Agency

There is scope for increasing Denmark's target for energy efficiency in its final updated NECP ([46]). Its energy efficiency contribution of

([42]) This Annex is complemented by Annex 7 on energy autonomy 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.

([43]) See the Commission's (2023) assessment of the draft national energy and climate plan of Denmark.

([44]) The national greenhouse gas emission reduction target is laid down in Regulation (EU) 2023/857 (the Effort Sharing Regulation), 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 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).

([45]) 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 Denmark's draft updated NECP.

([46]) 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 Denmark at 15.5 Mtoe for primary energy consumption and 13.7 Mtoe for final

15.69 Mtoe in primary energy consumption is slightly less ambitious than the one required under the Energy Efficiency Directive, while the 13.73 Mtoe in final energy consumption for 2030 is aligned the required contribution. Denmark's renewable energy contribution set in its draft updated NECP, 71% by 2030, is ambitious and exceeds the requirement under the Renewable Energy Directive.

Although Denmark is one of the EU's frontrunners on sustainable transport, it has scope for further improvement ([47]). In 2023, 5.7% of its car passenger fleet were battery electric vehicles. In 2023, it had 18 670 publicly accessible charging points, one for every 10 e-vehicles (in line with the EU average). However, only 32% of its rail network has been electrified (against the EU average of 56%). Freight is predominantly transported by road, at 88%.

Denmark's action to achieve carbon removals in the land use, land-use change and forestry sector (LULUCF) is projected to be insufficient to meet its 2030 target. Denmark's net LULUCF greenhouse gas emissions are mainly a result of its relatively small forested area and high emissions from agricultural soil. To reach the 2030 LULUCF target, additional removals of 441 kt CO_2eq are needed ([48]). To achieve this, it is crucial for Denmark to protect the carbon stored in soils and expand forested areas. According to the latest projections for 2030, carbon removals risk falling short of the target ([49]).

Denmark continues to face climate change risks, including heavier rainfall, droughts, more intense storms, and storm surges. On the positive side, it has a high share of insurance coverage for all climate-related risks, resulting in a narrow climate protection gap ([50]). Denmark is updating its national adaptation strategy and adaptation plan and is committed to mainstreaming climate adaptation through legislation ([51]).

The decline in biodiversity remains a serious concern in Denmark. Biodiversity underpins all economic activities and human wellbeing by providing critical life-supporting ecosystem services, including food and clean water, and also invisible services such as nutrient cycling ([52]). The agri-food sector would benefit from becoming circular (see Annex 9) and sustainable to reduce pressure on nature and greenhouse gas emissions.

For the first time since 2008, 2023 saw widespread oxygen depletion in southern and central Kattegat. The most affected areas in inland Danish waters were Limfjorden, Mariager Fjord, the southern Little Belt, the south-east Jutland fjords, the South Funen Archipelago and Fehmarn Belt. In many of these areas, the bottom water was anoxic, and toxic sulphide was released from the seafloor. Dead fish were found in Limfjorden, and a shroud appeared on the bottom in several areas. The situation was highly critical, especially for benthic animals, fish and plants in several areas ([53]). Oxygen depletion is a result of eutrophication caused by nutrient pollution, mainly from agricultural sources. A broad political agreement reached in 2021 ([54]) sets out a required reduction in nitrogen emissions by 2027, but the agreed measures fall short of this objective. Decisions on measures to lower nitrogen loads from agriculture are expected in 2024, with implementation in 2026 at the earliest. Reducing farmland nitrogen leaching by 35% to

energy consumption, Commission Recommendation of 18/12/2023 Denmark.

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

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

([49]) Projections submitted in Denmark's draft updated national energy and climate plan, 2023.

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

([51]) See also the Commission's 2023 assessment and recommendation on Denmark's progress on climate adaptation.

([52]) OECD, Biodiversity, natural capital and the economy, May 2021; Assessing biodiversity-related financial risks, April 2023.

([53]) Ministry of Environment of Denmark, Markant forværret iltsvind, September 2023.

([54]) Danish Government, Aftale om grøn omstilling af dansk landbrug, October 2021.

ten local water bodies in catchments covering 37% of Denmark's land area would improve water clarity and generate benefits of EUR 92 million a year ([55]). The estimated annual costs of water pollution, caused among other things by excessive nutrients, increased to EUR 1.7 billion in 2020 ([56]). Heavy rainfalls exacerbate nutrient run-off from the fields. Most cropland is exposed to heavy precipitations and around half of the population to storms. The country is relatively exposed to long-term adverse effects of climate change, including extreme weather events and sea level rises, with high flooding risks due to its low elevation ([57]). Denmark has reported the second Flood Risk Management Plan under the Floods Directive and it is currently under assessment ([58]).

Good environment status was only achieved for parts of Denmark's marine waters based on the 2018 assessment under the Marine Strategy Framework Directive (MSFD). Several criteria were not assessed or not in a good environmental status ([59]). Denmark communicated its programme of measures under the MSFD in March 2024, this programme was due to be submitted in March 2022. Only 28% of all country's surface water bodies reached good or high ecological status and 0.8% reached good chemical status according to the second River Basin Management Plan ([60]). In Denmark, only 5% of habitats and 20% of species are in a good conservation status, with 35% of habitats and species in decline ([61]). The conservation status of all agricultural habitats (grassland) was assessed in 2018 as inadequate or bad ([62]). Agriculture and mixed-source pollution (including nutrient leaching) are a significant pressure for most protected habitats and species. Specifically, agriculture affected 72% of habitats and 78% of species and mixed-source pollution affected 73% of habitats and 48% of species ([63]). The estimated annual cost of the threat to biodiversity attains EUR 8 billion and the loss of species almost EUR 7 billion ([64]). Denmark is the only EU Member State that has not submitted its final framework of priority actions for investments in Natura 2000 sites. Natura 2000 land accounted for 8.3% (3 594 km^2) of Denmark, the smallest share in the EU ([65]). Only 13% (about 5700 km^2) of Denmark's territory is covered by woodland ([66]).

Most of Denmark's peatlands have been drained, mainly for agriculture ([67]). The national ambition of taking 100 000 ha of carbon-rich low-lying soils and buffer areas out of production by 2030 could be accelerated given Denmark's climate targets and the current state of aquatic environment. At a recent status, 187 ha have been set aside since 2021. However, feasibility studies are ongoing for 45 019 ha and implementation is ongoing

([55]) 2019 monetary value. 10 catchment areas featuring estuaries: Roskilde fjord, Isefjord, Helnæs bugt, Odense fjord, Horsens fjord, Randers fjord, Mariager fjord, Ringkøbing fjord, Nissum fjord, Skive fjord. A study on Economic benefits of reducing agricultural N losses to coastal waters for seaside recreation and real estate value in Denmark, Table 6.

([56]) InforEuro exchange rate of December 2023. DKK 12.5 billion measured in 2023 prices. Årg. 97 Nr. 1 (2024): Økonomi og Politik | Økonomi & Politik – Danmarks grønne nationalprodukt. 22 April 2024.

([57]) Organisation for Economic Co-operation and Development, OECD Economic Surveys – Denmark, January 2024 at Denmark Economic Snapshot.

([58]) European Commission, Flood Risk Management Plans.

([59]) Denmark — Marine (europa.eu). The next reporting on the state of the marine environment is due in October 2024. Commission Notice 2022/C 118/01 of 14 March 2022 (OJ C 118, 14.3.2022, p. 1–3).

([60]) Assessment of second RBMP of Denmark (SWD(2019)38). The third RBMP plan has been received and it is currently under assessment. European Commission, Water Framework Directive.

([61]) EEA, Conservation status and trends of habitats and species.

([62]) European Commission, Biodiversity.

([63]) EEA, Main pressures and threats.

([64]) InforEuro exchange rate of December 2022. DKK 60 billion (biodiversity) and DKK 50 billion (species). Årg. 97 Nr. 1 (2024): Økonomi og Politik | Økonomi & Politik – Danmarks grønne nationalprodukt. 22 April 2024.

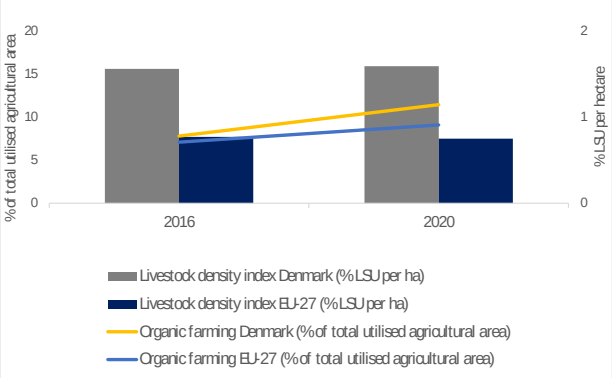
([65]) European Environmental Agency, Natura 2000 Barometer.

([66]) Statistics Denmark, Land use accounts, January 2023.

([67]) UNEP, Global Peatlands Assessment: The State of the World's Peatlands, November 2022.

for another 10 999 ha ([68]). The subsidy scheme of EUR 4.4 million was opened in spring 2024 to speed up the progress ([69]). Protecting and rewetting carbon-rich low-lying soils will reduce greenhouse gas emissions, reduce nitrogen leaching into water bodies and in the long term, increase terrestrial and marine biodiversity. Agriculture takes up more than half of the land area in Denmark. Utilised agricultural area (to be) fully converted to organic farming accounted for 11.6% of agricultural land in Denmark in 2021, against the EU average of 9.1% in 2020 and the EU goal of 25% by 2030 ([70]). Denmark had the fifth highest livestock density (1.59%) in the EU in 2020 ([71]).

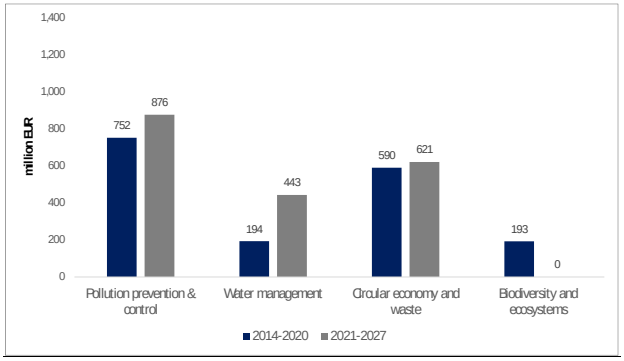
Graph A6.2: **Changes in livestock density and organic farming**



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

In Denmark, 76% of soil is in an unhealthy state, the principal cause being nutrient surplus, and nitrogen (50%) the main contributor. Nitrogen excess highly affects soil health of 73% of agricultural land ([72]). The gross nitrogen balance on agricultural land was 80 kg/ha in 2015 in Denmark, above the EU average of 44.4 kg/ha (2014 data) ([73]). Using sustainable soil management practices effectively, including regular use of organic fertilisers in the form of quality compost from manure and bio-waste recycling, could improve soil health in the long term ([74]), ([75]). Applying organic fertilisers could also reduce the need for chemical fertilisers ([76]). In Denmark, the composting and digestion rate of municipal waste was 185 kg/person (provisional data) in 2022 (i.e. 24% of all municipal waste – see Annex 9) ([77]). In 2022, the country produced the second highest volume of food waste in the EU at 230 kg/person, above the EU average of 131 kg/person ([78]).

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

There is scope to increase environmental investments. Over the 2014-2020 period, the environmental investment gap was estimated at EUR 1.8 billion per year. A similar gap at EUR 1.9 billion per year is estimated for the 2021-2027 period. Denmark would benefit from investing in sustainable water management, as the investment gap has considerably

([68]) Ministry of Food, Agriculture and Fisheries of Denmark, Status på fremdriften i udtagningen af lavbundsjorder, 15 May 2024.

([69]) InforEuro exchange rate of April 2024. DKK 32.8 million. Ministry of Environment of Denmark, Akutpakke for vandmiljøet. 22 April 2024.

([70]) Statistics | Eurostat, May 2024.

([71]) Statistics | Eurostat, January 2024.

([72]) SWD (2023)417, PART4/5. Not all soil degradation processes could be quantified for all land uses. This number simply indicates an order of magnitude.

([73]) The data for 2016-2019 is lacking for Denmark. The EUA for 2015 is lacking. Statistics | Eurostat, July 2023.

([74]) ECN Response on Roadmap - European Compost Network

([75]) SWD (2023)417, part 3/5

([76]) SWD (2023)417, part 3/5

([77]) Statistics | Eurostat, February 2024.

([78]) Statistics | Eurostat, January 2024.

widened for water (EUR 443 million per year). The share of environmental taxes in GDP is steadily decreasing in Denmark, it reached 2.44% in 2022. Environmentally harmful subsidies such as favourable taxation of fuel use in agriculture could be considered for reform ([79]). Denmark considers a green tax reform in the agriculture sector, the expert report was published in January 2024 ([80]).

([79]) Organisation for Economic Co-operation and Development, OECD Economic Surveys: Denmark 2024 at Denmark Economic Snapshot.

([80]) The Danish Ministry of Taxation, Grøn skattereform - endelig afrapportering, 21 February 2024.

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	40,368.1	-20%	-23%	-20%	-21%	-50%	-10	n/a
Net greenhouse gas removals from LULUCF [2]	Kt CO2eq	4 971	1 531	1 292	198.000	-381.000	5,338	n/a	n/a
Share of energy from renewable sources (1) [3]	%	16%	37%	32%	41%	42%	60%	-	-
Energy efficiency: primary energy consumption [3]	Mtoe	19.4	16.9	15.5	16.4	16.0	15.5		
Energy efficiency: final energy consumption [3]	Mtoe	15.5	14.3	13.1	13.9	13.3	13.7		

							EU-27		Projected
		2018	2019	2020	2021	2022	2021	2022	2030
Green transition: mobility									
Greenhouse gas emissions: road transport	Mt CO2e	-	-	-	12.1	12.1	769.0	786.6	10.0
Share of zero-emission vehicles in new registrations [4]	%	0.7	2.4	7.2	13.4	20.7	9	12.1	n/a
Number of publicly accessible AC/DC charging points		-	-	3607	5844	10843	299178	446956	n/a
Share of electrified railways	%	29.4%	28.8%	31.2%	32.3%	-	56.1%	-	n/a
Green transition: buildings									
Greenhouse gas emissions: buildings	Mt CO2e	-	-	-	3.9	3.9	537.0	486.7	1.3
Final energy consumption in buildings	2015=100	101.3%	99.4%	96.0%	103.7%	93.7%	104.0%	97.2%	
Climate adaptation									
Climate protection gap [5]	score 1-4	-	-	0.0	1.0	1.3	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	4.4	2.7	-	-	-	3.6	-	-
Circular economy | Material footprint [7]	tonnes per person	23.2	24.2	23.0	23.3	30.4	14.2	14.8	14.9
Pollution | Years of life lost due to air pollution by PM2.5 [8]	per 100.000 inhabitants	405	323	194	223	-	545	584	-
Biodiversity | Habitats in good conservation status [9]	%	5.4					14.7		
Common farmland bird index [10]	2000=100	75	71	83	-	-	78	-	-
Green transition: agri-food sector									
Organic farming	% of total utilised agricultural area	9.75	11.09	11.45	11.58	-	9.1	-	-
Nitrates in groundwater	mg NO_3/litre	17.98	17.67	18.71	-	-	20.42	-	-
Food waste per capita	Kg per capita			221	230	-	130	131	-
Share of soil in poor health [11]	%					76			41
Soil organic matter in agricultural land [12]	Mt per ha	167	-	-	-	-	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.

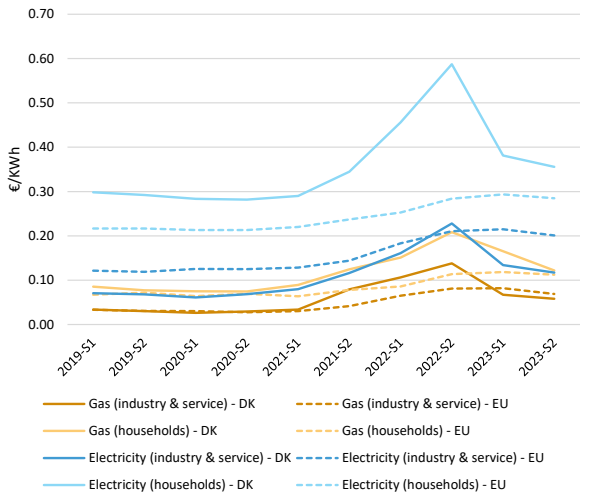
This Annex ([81]) sets out Denmark's progress and challenges in accelerating the net-zero energy transition while bolstering the EU's competitiveness in the clean energy sector ([82]). It considers measures and targets put forward in the draft updated National Energy and Climate Plans (NECP) for 2030 ([83]).

Denmark shows progress in further securing gas security of supply and a relatively high number of renewables in heating and cooling, with an ambitious look on to 2030. Topics requiring further attention include offshore wind deployment and increasing market surveillance on products with ecodesign and energy labelling.

Aligning with the prevailing trends witnessed across the EU, energy retail prices in Denmark fell significantly in 2023. Between the second semester of 2023 and the first half of the year, household gas prices in Denmark experienced a 26% reduction. In the same way, household electricity prices witnessed a 7% decrease in the same period. For the industrial and services sector, both gas and electricity prices decreased by 13% in the second half of 2023, remaining 16% and 42% below the EU average, respectively.

Direct energy assistance to final consumers, implemented since the outset of the energy crisis, has been offered in the form of a "heat-cheque". This measure benefited 400 000 households (around 15% of total Danish households) and consisted of a single payment of around EUR 800 to consumers who meet certain conditions related to income and gas supply. Also, Denmark introduced a measure providing loans to allow consumers to delay payment on their upcoming energy bills over a 5-year period, for any amount exceeding the level of their bills from autumn 2022.

Graph A7.1: **Denmark'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

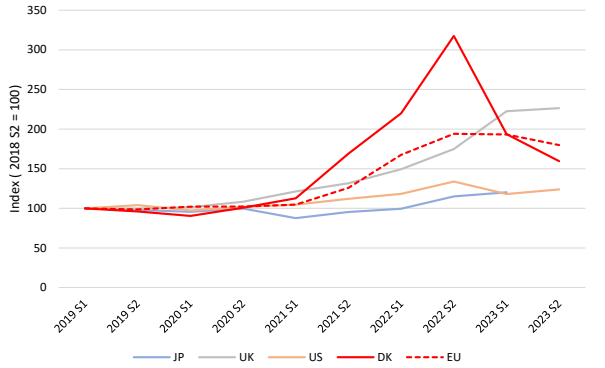
In relative terms, electricity prices for non-household consumers have increased compared to the US and Japan up until the second half of 2022. However, they have since registered a sharp decline, nearly reaching the levels seen in the US and Japan by the first half of 2023. This shift indicates a potential rebound in the international competitiveness of energy-intensive industries in Denmark.

([81]) 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.

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

([83]) Denmark submitted its draft updated NECP in June 2023; the Commission issued an assessment and country specific recommendations on 18 December 2023. Commission Recommendation, Assessment (SWD) and Factsheet of the draft updated National Energy and Climate Plan of Denmark - European Commission (europa.eu)

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



(1) For Eurostat data (EU and DK), 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 supported in Denmark by promoting individual and collective self-consumption of renewable energy as well as renewable energy communities. The draft updated NECP in 2023 presents some measures, such as the rollout of smart meters for all consumers and the opportunity to seek funding for local energy initiatives, which include renewable energy communities. However, Denmark has not implemented any new measures aimed at ensuring a renewable energy community in all municipalities with a population of more than 10 000 citizens. Also, the draft updated NECP does not include quantitative targets for self-consumption or energy communities.

While already being one of the EU countries with the lowest exposure to Russian gas, Denmark has increased its security of gas supply by boosting its own production capacity and set itself the bold ambition of phasing out natural gas by 2030. While indigenous gas production has been strongly reduced in the past years, the progressive reopening of the Tyra field, started in March 2024, will make Denmark a net exporter of gas again (annual production should reach 2.8 bcm a year by 2026, according to TotalEnergies ([84]).

Furthermore, Denmark is making significant efforts to replace natural gas by electrification and gas of biogenic origin by 2030 and has a political ambition to phase out gas for households heating by 2035. In 2023, biomethane already accounts for nearly 30% of domestic gas demand. Also, Denmark's gas infrastructure plays a crucial role in regional natural gas security, thanks to the interconnections with the Dutch, German, Polish and Swedish gas systems. Denmark has a gas storage facility at Lille Torup and another one at Stenlille managed by Gas Storage Denmark. It operates with a combined capacity of 0.85 bcm, corresponding to approximately 36% of Danish consumption (2.37 bcm). Denmark fulfilled its gas storage obligations last winter, reaching 96.4% by 1 November 2023, and ended the winter season with a storage filled at 58.67% by 1 April 2024. Finally, Denmark managed to reduce its gas demand between August 2022 and December 2023 by 42% in comparison with the average of the previous five years, the highest reduction rate among EU Member States.

As for security of electricity supply, there were no adequacy issues recorded during the first half of 2023, according to ENTSO-E analysis, nor are any adequacy issues expected for winter 2023/24. European Resource Adequacy Assessment (ERAA) 2023 ([85]) shows that in the longer term (i. e. target year 2030 and 2033), significant numbers of thermal generation plants in Europe are at risk of economic decommissioning. Simultaneously significant potential new investment (mostly natural gas power plants) has been triggered by the high market prices that occur at some times of the day.

In 2033 scenarios, significant adequacy risks can be observed in many European countries and Denmark is one of them. The electrical

([84]) https://tyra2.dk/en/opstart-af-tyra-feltet-forsinket-til-vintersaesonen-2023-24/

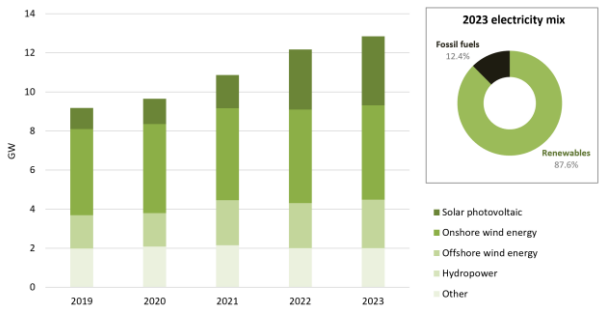
([85]) ENTSO-E (2023). European Resource Adequacy Assessment (ERAA) 2023.

grid in Denmark is characterised by a very high level of security of supply, with an electricity consumer in Denmark experiencing an average of only 20 minutes of interruption annually.

Denmark has furthermore postponed the closure of three oil and coal-fired power plants until summer 2024, to ensure capacity in both east and west Denmark in the event of low wind production and high consumption in the winters of 2023 and 2024. However, Denmark is particularly reliant on biomass imports, given its own low production levels.

Denmark has the highest share of renewables in its energy mix, as well as the highest share of electricity generated from renewable sources. Further uptake in the deployment of renewable energy has been recorded in 2023 with 0.68 GW of newly installed capacity ([86]), and a share of renewables in electricity generation standing at 87.6% ([87]). The increase in installed capacity was mainly driven by the uptake in solar photovoltaics which in 2023 accounted for 3.5 GW (0.46 GW annual increase), and wind, standing at 7.3 GW (0.2 GW annual increase). This included both new offshore (168 MW) and onshore (54 MW) capacity.

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



(1) "Other" includes solid biofuels, renewable municipal waste, liquid biofuels and biogas.
Source: Commission estimate based on IRENA, Ember

The Danish Climate Agreement on Green Power and Heat aims to enable a four-fold increase in total solar and land-based electricity production by 2030. Furthermore, with the Additional Agreement on Tender Frameworks for 6 GW Offshore Wind and Energy Island Bornholm of May 2023, the tenders of 6 GW offshore wind, as well as Energy Island Bornholm (3 GW) were agreed – all to be commissioned by 2030. Denmark also intends to introduce a regulatory framework for the increased uptake of flexibility solutions, to ensure flexibility for both power and grid adequacy. The updated draft national energy and climate plan (NECP) clarifies the effort made by Denmark on giving clear national targets for offshore wind. Alongside domestic action, Denmark is pursuing a multilateral approach, stepping up regional cooperation in the North and Baltic Seas and paving the way for further offshore wind power expansion. Among other benefits, this is expected to contribute to large-scale onshore and offshore production of renewable hydrogen.

Denmark is taking steps to simplify renewable energy permitting procedures. The National Energy Crisis Taskforce (NEKST), set up for 2023 and 2024, is currently working on developing solutions to speed up administrative procedures for the expansion of district heating, the electrical grid and the deployment of renewable energy. The work of NEKST is partially funded by the EU through the Recovery and Resilience Facility (RRF). However, to improve the predictability of planned renewable energy deployments, certain instruments in the legislative toolbox (e.g. the emergency regulation related to

([86]) Commission estimate derived from the data provided in the IRENA's Renewable Capacity Statistics 2024 report. The total installed renewable capacity of 13,024 MW for the year 2023, as indicated in the report, includes the "Vesterhav Nord" offshore wind farm (176 MW), which came online with some delay in February 2024 while being initially planned for December 2023.

([87]) Ember, Yearly electricity data

permit-granting for renewable energy projects) could be implemented, to accelerate the deployment of renewable energy.

Denmark has a relatively high share of renewables in heating and cooling (50.11% in 2022 ([88]). According to its draft NECP, this is expected to increase to 77% in 2030. Almost 90 000 heat pumps were sold in 2022, an increase of 20% compared to 2021, reaching a total stock of around 620 000 installed heat pumps in the residential sector. ([89])

Denmark is one of the EU countries leading the drive to achieve climate neutrality by 2045 and reduce 70% of greenhouse gases by 2030. To meet these objectives, Denmark plans to become a hub for carbon capture and storage, and as of early 2023 it had awarded the first exploration permits for projects in the North Sea.

Denmark increased its cross-border capacity in 2023, while additional investment needs to be made on transmission, to enable greater uptake of renewable electricity. Denmark is interconnected with Germany, the Netherlands, Sweden, Norway and (as of December 2023) the UK, following the entry into operation of the interconnector Viking Link, a Project of Common Interest co-financed by the EU through the Connecting Europe Facility. Denmark is further developing Projects of Common Interest, including the Bornholm Energy Island hybrid offshore interconnector and the hydrogen interconnector HyperLink III with Germany, the Triton Link offshore hybrid interconnector with Belgium, the North Sea Wind Power Hub for interconnectors with the Netherlands and Germany as well as a Danish Hydrogen Storage. In 2023, Energinet announced an investment plan of DKK 41 bn (EUR 5.5 bn) for 2023-26, with 100-200 foreseen grid expansions to adapt the network to the large uptake of new solar PV and onshore and offshore wind.

Denmark has shown progress on energy efficiency. In 2022, Denmark exhibited promising trends with a primary energy consumption of 16.0 Mtoe, marking a 2.2% reduction compared to 2021 and a noteworthy 9.8% decrease from 2012 levels. Similarly, final energy consumption stood at 13.3 Mtoe, reflecting a 3.8% decrease from the previous year and a 6.6% decline since 2012. Examining sectoral performance, the residential sector had a significant 12.7% reduction in final energy consumption. Conversely, the transport sector witnessed a 6.1% increase in final energy consumption during the same period. The observed decrease in energy consumption may partly be attributed to transient factors such as the spike in energy prices in 2022. The Danish national energy saving campaign, launched in summer 2022, may also have contributed to this positive trajectory.

However, there is scope for Denmark to improve the clarity and completeness of the strategy for energy efficiency in the longer term, particularly in light of the revised Energy Efficiency Directive in force since October 2023. Such a strategy can support the achievement of national contributions towards the EU's new energy efficiency targets and can provide a stable regulatory framework that incentivises and facilitates investment in energy efficiency.

In relation to buildings, Denmark should keep up the positive contribution of the residential sector to its 2030 reduction target for energy consumption by buildings. Indeed, residential final energy consumption declined by around 5.22% between 2018 and 2022.

In the REPowerEU Chapter of its recovery and resilience plan, Denmark described its plans for reforms and investment to reduce fossil fuel dependence. The key measures planned are increasing the share of renewables, simplifying permit-granting rules, increasing energy efficiency in buildings, promoting decarbonised heating and addressing energy poverty by installing more efficient and cost-effective heating solutions.

Most of the public support schemes addressing energy efficiency are grant-based, whereas high energy and CO2 taxation also encourages consumers carry out energy efficiency measures. In Denmark, there is a well-functioning financial market for energy

([88]) Eurostat

([89]) EHPA, 2023

efficiency measures, such as purchasing electric cars, energy-efficient renovations, and more. Most financial institutions, including all the major ones, offer green loans at a particularly attractive interest rate. Green loans are considered a competitive parameter for financial institutions. Danish pension funds and others also participate continuously in projects involving energy efficiency by pooling projects in collaboration with other actors through ESCO and OPP schemes. Municipalities, regions, and the utility sector can take out loans on highly attractive terms through Kommunekredit.

Regarding market surveillance activities, Denmark is carrying out a low number of activities on products covered by ecodesign and energy labelling. This creates concerns about compliance levels.

Denmark has an attractive and well performing innovation ecosystem. The country is an innovation leader and became the new top innovator in 2023, with the best performance in the EU, overtaking Sweden after it had spent a few years in the leading position.

Denmark is a global leader in producing wind-based electricity, and aims to remain at the forefront of the development of clean technologies. Generally, it has a traditionally strong manufacturing base of low-carbon technologies and components, especially in the wind energy sector, where it continues to be the global leader in integrating wind power into the electricity grid. Denmark is home to one of the world's leading HVDC cable manufacturers and the country has the highest number of wave energy device developers in the EU. Despite not having domestic producers of large solar collectors, the country is the leading player in the large-scale solar district heating market in the EU, in terms of total installed capacity and system size. Favourable policy and market conditions have led to booming sales of heat pumps, a trend that is likely to continue with the implementation of the REPowerEU plan. Denmark is home to promising initiatives in the green hydrogen supply chain, including a 400 MW/y alkaline electrolyser manufacturing plant in Kolding and a large-scale manufacturing unit for hydrogen refuelling stations, operated in Herning by a leading Norwegian player. Supported by an EUR 94 million grant from the EU Innovation Fund, a Danish-operated 500 MW/y Solid Oxide Electrolyzer Cell (SOEC) manufacturing facility is expected to come online in Herning in 2024. The reported expansion plans of both companies could raise Denmark's electrolyser manufacturing capacity to over 1.5 GW per year by 2030.

Table A7.1: Key energy indicators

		Denmark				EU			
		2019	2020	2021	2022	2019	2020	2021	2022
ENERGY DEPENDNCE	**Import Dependency [%]**	**38.9%**	**44.9%**	**32.3%**	**42.9%**	**60.5%**	**57.5%**	**55.5%**	**62.5%**
	of Solid fossil fuels	145.3%	67.4%	10.9%	105.5%	43.3%	35.8%	37.3%	45.8%
	of Oil and petroleum products	44.8%	55.3%	30.6%	52.8%	96.7%	96.8%	91.7%	97.7%
	of Natural Gas	-7.2%	37.4%	27.8%	28.0%	89.7%	83.6%	83.6%	97.6%
	Dependency from Russian Fossil Fuels [%]								
	of Natural Gas	0.0%	0.0%	0.0%	0.0%	39.7%	41.3%	41.1%	21.0%
	of Crude Oil	6.4%	12.2%	16.4%	1.6%	28.8%	26.7%	26.4%	19.5%
	of Hard Coal	87.9%	96.6%	89.5%	14.0%	43.5%	49.1%	47.4%	21.5%

		2016	2017	2018	2019	2020	2021	2022
DIVERSIFICATION OF GAS SUPPLIES	**Gas Consumption (in bcm)**	**3.3**	**3.3**	**3.2**	**3.1**	**2.9**	**3.1**	**2.4**
	Gas Consumption year-on-year change [%]	2.0%	-1.4%	-2.2%	-2.8%	-8.3%	8.4%	-23.0%
	Gas Imports - by type (in bcm)	**0.7**	**0.5**	**0.4**	**1.1**	**2.7**	**2.5**	**2.7**
	Gas imports - pipeline	0.7	0.5	0.4	1.1	2.7	2.5	2.7
	Gas imports - LNG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Gas Imports - by main source supplier (in bcm) (1)							
	Germany	0.2	0.1	0.1	1.0	2.7	2.5	1.9
	Norway	0.5	0.4	0.3	0.1	-	-	0.8

		2019	2020	2021	2022	2023
	LNG Terminals - storage capacity m3 LNG					
	Number of LNG Terminals	0	0	0	0	0
	LNG Storage capacity (m3 LNG)	0	0	0	0	0
	Underground Storage					
	Number of storage facilities	2	2	2	2	2
	Technical Capacity (bcm)	0.9	1.0	0.9	0.8	0.9

		2016	2017	2018	2019	2020	2021	2022	2023
ELECTRICITY/ENERGY	**Gross Electricity Production (GWh) (2)**	**30,538**	**31,023**	**30,370**	**29,517**	**28,729**	**33,051**	**35,129**	-
	Combustible Fuels	16,994	15,473	15,500	12,387	11,201	15,671	13,884	-
	Nuclear	0	0	0	0	0	0	0	-
	Hydro	19	18	15	17	17	16	15	-
	Wind	12,782	14,780	13,902	16,150	16,330	16,054	19,028	-
	Solar	744	751	953	963	1,181	1,309	2,203	
	Geothermal	0	0	0	0	0	0	0	-
	Other Sources	-0	0	0	-0	0	-0	-0	-
	Gross Electricity Production [%]								
	Combustible Fuels	55.6%	49.9%	51.0%	42.0%	39.0%	47.4%	39.5%	-
	Nuclear	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-
	Hydro	0.1%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	-
	Wind	41.9%	47.6%	45.8%	54.7%	56.8%	48.6%	54.2%	-
	Solar	2.4%	2.4%	3.1%	3.3%	4.1%	4.0%	6.3%	-
	Geothermal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-
	Other Sources	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-
	Net Imports of Electricity (GWh)	**5,057**	**4,563**	**5,224**	**5,811**	**6,883**	**4,869**	**1,363**	-
	As a % of electricity available for final consumption	15.8%	14.1%	16.4%	18.1%	21.9%	14.4%	4.2%	-
	Electricity Interconnection [%]	-	**50.6%**	**49.7%**	**49.0%**	**51.0%**	**45.8%**	**42.7%**	**41.3%**
	Share of renewable energy consumption - by sector [%]								
	Electricity	53.7%	59.9%	62.4%	65.3%	65.3%	72.9%	77.2%	-
	Heating/cooling	41.1%	44.1%	45.0%	47.3%	51.1%	49.2%	50.1%	-
	Transport	6.7%	6.9%	6.9%	7.1%	9.7%	10.5%	10.2%	-
	Overall	31.7%	34.4%	35.2%	37.0%	31.7%	41.0%	41.6%	-

		2019	2020	2021	2022	2023
CLEAN ENERGY	**VC investments in climate tech start-ups and scale-ups (EUR Mln)**	**39.54**	**74.93**	**63.08**	**178.51**	**245.46**
	as a % of total VC investment (3) in Denmark start-ups and scale-ups	4.7%	6.9%	2.9%	10.2%	15.1%
	Research & Innovation spending in Energy Union R&i priorites					
	Public R&I (EUR mln)	89.8	108.4	169.2	-	-
	Public R&I (% GDP)	0.03%	0.03%	0.05%	-	-
	Private R&I (EUR mln)	1,126.4	968.4	-	-	-
	Private R&I (% GDP)	0.36%	0.31%	-	-	-

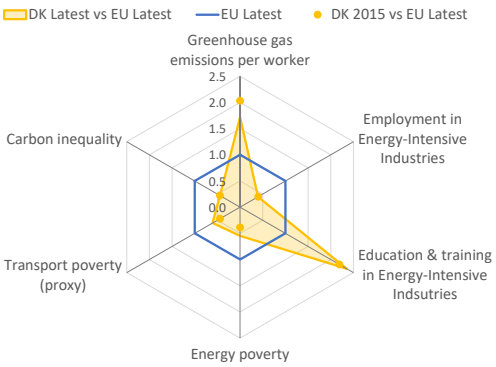
(1) The ranking of the main suppliers is based on the latest available figures (for 2022)
(2) Venture Capital investment includes Venture Capital deals (all stages), Small M&A deals and Private Equity (PE) growth deals (for companies that have previously been part of the portfolio of a VC investment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

ANNEX 8: FAIR TRANSITION TO CLIMATE NEUTRALITY

This Annex monitors Denmark's progress in ensuring a fair transition towards climate neutrality and environmental sustainability, particularly for workers and households in vulnerable situations. Denmark's green economy is expanding. Between 2015 and 2021, total jobs in the environmental goods and services sector grew by 16.9% (to around 86 000) (EU: 18.2%), reaching 3% of total employment (EU: 2.7%). The number of jobs in the green economy is rising as Denmark aims to reach a 70% reduction in greenhouse gas (GHG) emissions by 2030. Between 2015 and 2022, the GHG emission intensity of Denmark's workforce (see Graph A8.1 and Table A8.1) fell from 29.0 to 24.6 tonnes per worker. Although this is still well above the EU average (14.3 tonnes per worker in 2022) ([90]), it indicates a positive trend in the green transition. To be in line with the Council Recommendation of 2022 on ensuring a fair transition towards climate neutrality ([91]), and ensure the successful implementation of the REPowerEU plan, the participation of the country's workforce in upskilling and reskilling is key and has been picking up again recently. Under the country's recovery and resilience plan (RRP), a green tax reform – one of the plan's landmark initiatives – will accelerate the decarbonisation of the economy. The Cohesion Policy Funds contribute further to creating new jobs, in particular the European Social Fund Plus (ESF+) and Just Transition Fund (JTF), which focus on skills for the green transition and circular economy.

Employment in Denmark's sectors that are most affected by the green transition remains stable. In 2023, employment in Denmark's energy-intensive industries ([92]) comprised 1.4% of total employment (3.5% in the EU). Employment in mining and quarrying has fallen by 17% since 2015 (to around 4 400 workers in both 2023). The job vacancy rate in construction (see Graph A8.2), a key sector for the green transition, is lower than the EU average (2.4% vs 3.6% in EU in 2023). However, the perception of small and medium-sized enterprises (SMEs) in the sector is somehow different, where 58% reported that skills shortages are holding them back in general business activities ([93]). According to the European Labour Authority (ELA) ([94]), labour shortages were reported in 2023 for a number of occupations that required specific skills or knowledge for the green transition ([95]), including civil engineers, electrical engineering technicians and building and related electricians. In this context, the Danish Construction Federation estimates that 6 000 jobs in the construction sector remain unfilled, although many companies have changed strategy towards the green transition ([96]).

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



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

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

([91]) The 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.

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

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

([94]) 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.

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

([96]) Virksomheder i fuld gang med grøn omstilling mangler 10.000 medarbejdere - DI (danskindustri.dk)

Upskilling and reskilling in energy-intensive industries is comparatively high. In energy-intensive industries, after a decrease over previous years, workers' participation in education and training again reached 25.6% in 2023 (vs EU: 10.9%). In Denmark, 38% of SMEs think that the skills required for greening business activities are becoming more important (EU: 42%). If Denmark matches its projected contribution to the EU's 2030 renewable energy target, between 200 and 800 additional skilled workers will be needed for the deployment of wind and solar energy, which may require an investment in skills of EUR 9.7-12.1 million ([97]). The ESF+, together with national financing, supports measures targeting upskilling and reskilling and lifelong learning. Raising the formal education level of the workforce (vocational education/training and higher education) and targeting unemployed and employed people will help increase the supply of skilled workers. The 2022 Green Tax reform allocated DKK 100 million yearly in 2025 and 2026 for training and upskilling to support the green transition. Those measures are financed through the Recovery and Resilience Facility and the national RRP. Around 15 000 people are expected to acquire further qualifications relevant to the green transition through ESF+ support. Furthermore, the national JTF supports training and the upskilling and reskilling of workers, focusing on regions most affected by the transitions.

In recent years, before the spike in energy prices, energy poverty indicators improved slightly. The share of the population unable to keep their homes adequately warm decreased from 3.6% in 2015 to 2.8% in 2021, but this almost doubled to 5.1% in 2022 (vs EU: 9.3%) ([98]). This increase was due to the energy crisis caused by COVID-19 supply constraints and Russia's war of aggression against Ukraine, despite implemented emergency measures. In 2022, 9.4% of the population at risk of poverty (AROP) and 6.5% of lower middle-income households (in deciles 4-5) were unable to keep their homes adequately warm. On the other hand, in January 2023, 22.5% of the population at risk of poverty spent a considerable share of their budget (more than 6%) on private transport fuels (EU: 37.1%) ([99]). In the draft updated National Energy and Climate Plan submitted in 2023 Denmark did not identify the number of households in energy poverty nor implemented measures which would help tackle this issue.

Despite being below the EU average, in Denmark environmental inequalities remain an issue. In 2021, the consumption footprint for 20% of the population with the highest income was 1.2 times higher than of the poorest 20% ([100]) (EU: 1.8). For both groups, the consumption footprint is highest for housing and food. The average levels of air pollution in 2021 stood below the EU average (8.0 vs EU: 11.4 µg/m^3 PM2.5), with all regions below critical levels ([101]). However, there have been an estimated 1 200 premature deaths annually due to exposure to air pollution ([102]).

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

([98]) The energy poverty indicator focuses on the outcome of energy poverty – further indicators are available at the Energy Poverty Advisory Hub.

([99]) 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.

([100]) 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)

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

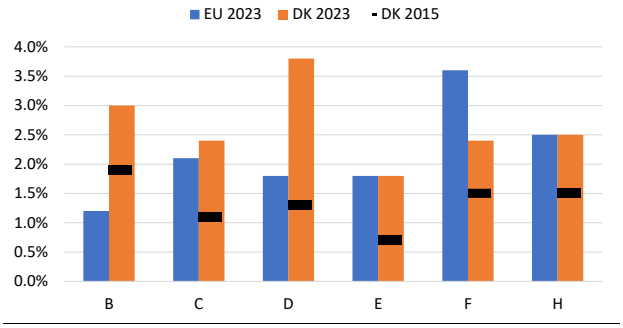
([102]) EEA - Air Quality Health Risk Assessment

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

Indicator	Description	DK 2015	DK	EU
GHG per worker	Greenhouse gas emissions per worker - CO2 equivalent tonnes	29.0	24.6 (2022)	14.3 (2022)
Employment EII	Employment share in energy-intensive industries, including mining and quarrying (NACE B), chemicals (C20), minerals (C23), metals (C24), automotive (C29)	1.4%	1.4% (2023)	3.5% (2023)
Education & training EII	Adult participation in education and training (last 4 weeks) in energy-intensive industries	23.8%	25.6% (2023)	10.9% (2023)
Energy poverty	Share of the total population living in a household unable to keep its home adequately warm	3.6%	5.1% (2022)	9.3% (2022)
Transport poverty (proxy)	Estimated share of the AROP population that spends over 6% of expenditure on fuels for personal transport	16.5%	22.5% (2023)	37.1% (2023)
Carbon inequality	Ratio between the consumption footprint of the top 20% vs bottom 20% of the income distribution	1.2	1.2 (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.

Denmark is taking measures to increase quality employment and skills, but more efforts are needed to address the green transition challenges. Upskilling and reskilling policies as well as the expansion of the curricula for vocational education and training in this field are positive developments. The RRP includes several investments supporting its green targets in many areas (green taxation policies, energy efficiency for SMEs). However, policies to develop an adequately skilled labour force for green jobs need to be further developed ([103]).

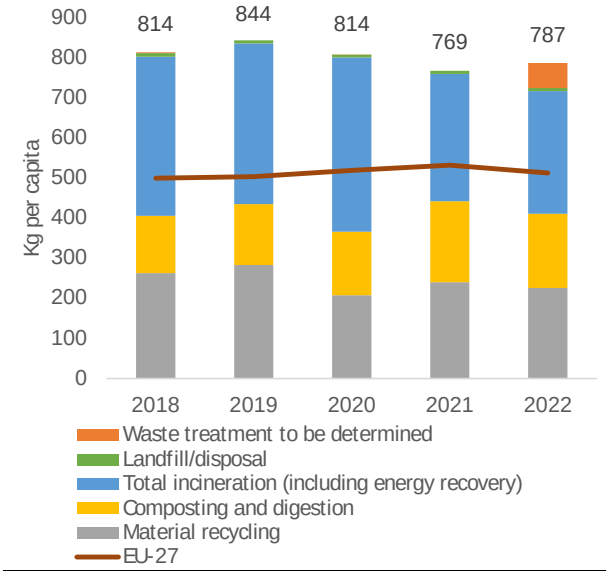
([103]) Based on the monitoring review of the Council Recommendation on ensuring a fair transition towards climate neutrality, which took place in October 2023.

The green transition of industry and the built environment, in particular decarbonisation, resource efficiency and circularity, is essential to boost Denmark's competitiveness ([104]). In this regard, priorities for Denmark are improving the circularity of construction and industry, including the agri-food sector, as well as reducing the country's reliance on incineration to produce district heating.

Improving the circularity of the Danish economy would boost the country's industrial efficiency. Denmark has a high material footprint, it stood at 23-24 tonnes/capita, above the EU average of 14-15 tonnes/capita in 2015-2021. The country had the second highest material footprint, 30 tonnes/capita, in the EU, exceeding the EU average of 14.9 tonnes/capita, in 2022. The three biggest sectors, representing more than half of Denmark's material and carbon footprints, are construction, manufacturing, and agri-food. Only 4.7% of jobs in the agriculture, forestry and fishing industries play a role in the transition to a circular economy, and all are doing so indirectly ([105]). The national action plan for circular economy for prevention and management of waste for 2020-2032 includes 129 initiatives focusing on three areas: biomass, construction, and plastics ([106]).

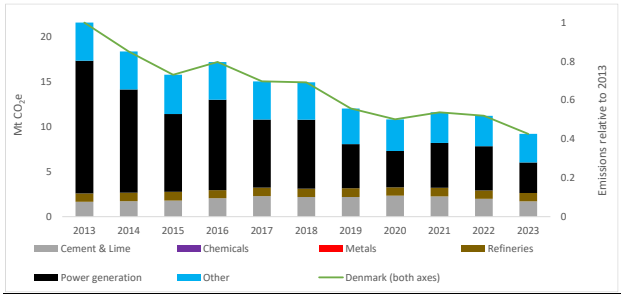
In 2023, the sectors covered by the EU emissions trading system (ETS) in Denmark ([107]) emitted 23% less greenhouse gases (GHG) than in 2019. In 2023, about 37% of the GHG emitted by Denmark's ETS installations came from power generation. Of the total emissions from all industry sectors, 29% came from cement and lime, 16% from refineries, and 55% from other industries ([108]). Between 2019 and 2023, GHG emissions from the power sector declined by 31%, compared with a 18% decline for the industry sectors. Since 2013, GHG emissions have declined by 77% in the power sector and by 15% in the industry sectors. Nearly all emission decreases have taken place since 2018, while in the 5 years before 2018, GHG emissions in the industry sectors grew by about 10%.

Graph A9.1: **Treatment of municipal waste**



Source: Eurostat

Graph A9.2: **ETS emissions by sector since 2013**



Source: Eurostat

Denmark has room to improve the use of circular material. It has barely changed during recent years (7.6% in 2019, 7.4% in 2022) and in 2022, it stood below the EU average of 11.5%. Although resource productivity is

([104]) See also Annexes 6, 7 and 12. This annex is based on Eurostat data published before May 2024.

([105]) The Circularity Gap Report – Denmark.

([106]) Danish Ministry of Environment, Circular Economy. 79 initiatives have been completed, 20 are on schedule, 29 are delayed and 1 is cancelled.

([107]) 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.

([108]) This relates to extraction and treatment and disposal of hazardous waste, among other things.

steadily increasing, Denmark has to improve the use of material resources to: (i) minimise negative impacts on the environment (including nutrient pollution from agriculture); and (ii) reduce dependence on volatile raw material markets, including for imported chemical fertilisers (see Annex 6). In 2022, resource productivity stood at 1.8 PPS/kg, and remained below the EU average of 2.5 PPS/kg. In 2022, the country relied on importing 36.6% of materials to meet its needs, versus an EU average of 22.4%. Still, Denmark is among the leaders in terms of eco- innovation: it ranked fourth with a score of 167.5 on the Eco-Innovation Scoreboard in 2022. As of March 2024, 116 EU Ecolabel licences and 5 625 products with the EU Ecolabel had been awarded ([109]).

Denmark's municipal waste per capita and incineration rates are among the highest in the EU. Municipal waste production amounted to 769 kg/capita, above the EU average of 532 kg/capita, in 2021, and 787 kg/capita (provisional data), above the EU average of 513 kg/capita, in 2022. Incineration decreased from 435 kg/capita in 2020 to 318 kg/capita in 2021 to 306 kg/capita (provisional data) in 2022. Yet, it remained above the EU average of 133 kg/capita in 2022. Municipal waste recycling rate increased from 45.0% in 2020 to 57.6% in 2021, before dropping to 52.3% (provisional data) in 2022 (still above the EU average of 48.6%). According to the 2023 early warning assessment report, Denmark is on track to meet the municipal waste recycling target for 2025 but at risk to meet the 2025 target for recycling plastic packaging ([110]). Denmark's e-waste collection rate attained 54.6% remaining below the target of 85% in 2021. Between 2012 and 2020, 80% of the collected e-waste was recycled, but it dropped to 79.9% in 2021, against an 81.1% EU average.

Construction waste management could be improved. More than 40% of the country's total waste is construction and demolition waste, and it mostly has lower-value use such as backfilling – less than 1% of building materials and components are reused ([111]). In 2020, the proportion of mineral fraction used for backfilling was 71% in Denmark, above the EU average of 10%. For example, Denmark's annual potential for reuse of brick waste is estimated at 47 million bricks, versus an estimated 3 million bricks actually reused ([112]). The certification system for sustainable buildings (DGNB), used since 2011 considers the whole life cycle of the building.

Achieving resource efficiency in the Danish built environment remains challenging. Due to the increased floor space, space heating and hot water account for about 25% of energy consumption. In 2020, Denmark's residential floor area per capita was the EU's fifth largest, with 69 m^2/capita versus an EU average of 54 m^2/capita. Furthermore, Denmark has the third-largest non-residential floor area per capita: 29 m^2/capita versus an EU average of 18 m^2/capita. Buildings and built-up areas cover 7.6%, roads, railroads and runways 5.6% and other artificial surfaces 1.0% of the land ([113]).

([109]) European Commission, Ecolabel facts and figures.

([110]) COM(2023) 304 final. European Environmental Agency, Early warning assessment related to the 2025 targets for municipal waste and packaging waste.

([111]) The Circularity Gap Report - Denmark, August 2023.

([112]) European Commission, JRC technical report, 2024.

([113]) Land use accounts - Statistics Denmark, January 2023.

Table A9.1: **Circularity indicators**

	2018	2019	2020	2021	2022	2023	EU-27	Latest year
Industry								
Resource productivity (purchasing power standard (PPS) per kilogram)	1.6	1.6	1.7	1.8	1.8	-	2.5	2022
Circular material use rate (%)	8.0	7.6	7.6	8.0	7.4	-	11.5	2022
Eco-innovation index (2013=100)	156.5	157.4	164.1	160.9	167.5	-	121.5	2022
Recycling of plastic packaging (%)	31.3	37.4	22.9	23.2	-	-	40.7	2021
Cost of air emissions from industry (EUR bn)	2.3	2.0	1.9	2.1	-	-	352.7	2021
Built environment								
Recovery rate from construction and demolition waste (%)	97.0	-	97.0	96.0	-	-	89.0	2020
Soil sealing index (base year = 2006)	103.0	-	-	-	-	-	103.4	2018
Non-residential floor area (m^2 per capita)	28.1	28.6	29.0	-	-	-	18.0	2020
Waste backfilled (%)	66.3	-	71.2	-	56.3	-	9.9	2020

Source: Eurostat, European Environment Agency

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 Denmark'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). Denmark allocates 27% of its total Recovery and Resilience Facility budget to digital (EUR 382 million) ([114]). Under Cohesion Policy, an additional EUR 67 million (15% of the country's total Cohesion Policy funding) is allocated to the country's digital transformation ([115]).

The Digital Decade Policy Programme sets out a pathway for EU's successful digital transformation by 2030. Denmark'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 ([116]). 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 ([117]). Digital technologies, infrastructure and tools all play a role in addressing the current structural challenges, including strategic dependencies, cybersecurity and climate change.

The shortage of ICT specialists is a persistent challenge for Denmark in relation to digital skills. The country has a much higher rate than the EU level in basic digital skills (69.6% compared to 55.6%) and above basic digital skills (39.4% compared to 27.3%). While the percentage of ICT specialists (5.9%) is above the EU average (4.8%), Danish enterprises still report difficulties in hiring ICT specialists ([118]).

Denmark remains a leader on digital infrastructure/connectivity, ensuring wide coverage of fast broadband internet. It scores significantly above the EU average in terms of fixed very high capacity network (VHCN) coverage, with 97.2% of households covered compared to 78.8% in the EU, and fibre to the premises (FTTP), with 84% of households covered compared to 64% in the EU. Moreover, in 2023, the country reached full 5G coverage.

Overall, Danish companies embrace digital technologies, with 75.3% of SMEs having at least a basic level of digital intensity, which is almost 20 percentage points higher than the EU average. 66.2% and 49.5% of enterprises use cloud technologies and data analytics, compared to an EU average of 38.9% and 33.2% respectively. Danish enterprises remain the EU leader in using artificial intelligence, with 15.2% of them using the technology in 2023. In 2022, 4.8% of enterprises in Denmark reported ICT service outage due to cyberattacks (e.g. ransomware attacks, denial of service attacks). Over the same year, 37.4% of enterprises developed or reviewed their ICT security policy within the previous 12 months.

Denmark is one of the leading countries in the EU in terms of ensuring wide availability of digital public services. The country scores above the EU average for digital public services for both citizens and businesses. Denmark has two electronic identification (eID) schemes notified under the eIDAS

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

([115]) 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.

([116]) 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).

([117]) 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.

([118]) Eurostat: Eurostat – European Union Survey on ICT Usage and e-Commerce in Enterprises.

Regulation and scores well above the EU average regarding access to electronic health records.

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

	Denmark			EU	Digital Decade target by 2030 (EU)
	2022	2023	2024	2024	
Digital skills					
At least basic digital skills	**69%**	**69%**	**70%**	**56%**	**80%**
% individuals	2021	2021	2023	2023	2030
ICT specialists ([1])	**5.6%**	**5.7%**	**5.9%**	**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	**95%**	**96%**	**97%**	**79%**	**100%**
% households	2021	2022	2023	2023	2030
Fibre to the premises (FTTP) coverage ([2])	**74%**	**78%**	**84%**	**64%**	**-**
% households	2021	2022	2023	2023	
Overall 5G coverage	**98%**	**98%**	**100%**	**89%**	**100%**
% populated areas	2021	2022	2023	2023	2030
Digitalisation of businesses					
SMEs with at least a basic level of digital intensity	**79%**	**NA**	**75%**	**58%**	**90%**
% SMEs	2021		2023	2023	2030
Data analytics	**NA**	**NA**	**50%**	**33%**	**-**
% enterprises			2023	2023	
Cloud	**62%**	**62%**	**66%**	**39%**	**-**
% enterprises	2021	2021	2023	2023	
Artificial intelligence	**24%**	**24%**	**15%**	**8%**	**-**
% enterprises	2021	2021	2023	2023	
AI or cloud or data analytics ([3])	**NA**	**NA**	**77%**	**55%**	**75%**
% enterprises			2023	2023	2030
Digitalisation of public services					
Digital public services for citizens	**83**	**84**	**84**	**79**	**100**
Score (0 to 100)	2021	2022	2023	2023	2030
Digital public services for businesses	**89**	**89**	**89**	**85**	**100**
Score (0 to 100)	2021	2022	2023	2023	2030
Access to e-health records	**NA**	**96**	**98**	**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 evaluation will also be monitored separately and taken into consideration when interpreting VHCN coverage data in the Digital Decade.

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

ANNEX 11: INNOVATION

This Annex provides a general overview of the performance of Denmark's research and innovation system, which is essential for delivering the twin transition and ensuring long-term competitiveness.

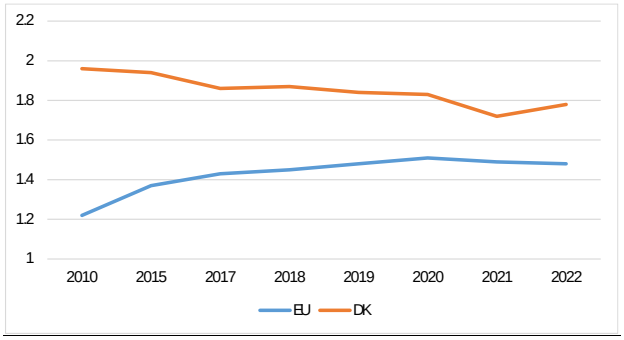
Denmark's very strong R&D system places it first among Europe's 'innovation leaders'. According to the 2023 edition of the European Innovation Scoreboard, its innovation performance increased by 16 percentage points since 2016, at a higher rate than the EU's (8.5pp). Its overall performance is far above the EU average (137.6% of the EU performance) ([119]).

The strong R&D system is underpinned by significant investment. Denmark's R&D intensity (R&D expenditure as a percentage of GDP), at 2.89% in 2022, is significantly above the EU average. The R&D system delivers excellent scientific, technological and innovation outputs. In particular, its solid public science base is a key asset and Denmark continues to rank high in the EU in terms of both public R&D intensity (public expenditure on R&D as a percentage of GDP) and the share of scientific publications that are most frequently cited, an indicator of scientific excellence. Despite this excellent performance, a new national innovation strategy could help address important challenges such as the decline in business R&D intensity and the productivity gap between large and small companies (see below).

Denmark's recovery and resilience plan (RRP) enables it to further mobilise the strengths of its R&D system to accelerate the twin transitions. The Danish RRP has a strong R&D focus, with nearly 19% of the total spending earmarked for R&D projects. In the plan, green R&I investments account for 56.2% of overall R&I investment, while 19.4% of total R&I investment is directed towards digital-related R&I areas. The implementation of the RRP measures aimed at mobilising R&I for the twin transition has reached key milestones, including the setting up of mission-based R&D partnerships with a focus on solutions for achieving Denmark's ambitious climate goals. This will enable Denmark to continue developing its existing strength in green innovation, as reflected in the share of environment-related patents in total patent applications – at 25% nearly double the EU average.

The decline in business R&D intensity is a key challenge to Denmark's position as innovation leader. Since 2016, business R&D intensity has been on a decreasing trend (from 1.94% of GDP in 2015 to 1.78% in 2022). As noted in the Horizon Policy Support Facility (PSF) review of the Danish R&I system ([120]), strengths in science could be leveraged more by attracting foreign companies to tap into existing knowledge pools through R&D investments in Denmark. This is currently happening only to a limited degree and could allow Denmark to take full advantage of the globalisation of R&D.

Graph A11.1: **Business enterprise expenditure on R&D (BERD) as % of GDP**



Source: Eurostat 2023

Addressing the productivity gap between large and small companies requires broadening the innovation base. The growing productivity gap between large and small companies suggests weaknesses in the diffusion of technological advances. The PSF review of the Danish R&I system pinpointed the high concentration of R&D investment in a small number of large companies and the need to broaden the innovation base and involve more companies

([119])2023 European Innovation Scoreboard (EIS), country profile: Denmark ec_rtd_eis-country-profile-dk.pdf (europa.eu). The EIS provides a comparative analysis of innovation performance in the EU countries, including the relative strengths and weaknesses of their national innovation systems (also compared to the EU average).

([120]) Peer review of Danish R&I system, Horizon 2020 Policy Support Facility, 2019 (p. 55) PSF Denmark_Final report (europa.eu)

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

Denmark	2010	2015	2020	2021	2022	EU average (1)
Key indicators						
R&D intensity (GERD as % of GDP)	2.92	3.05	2.97	2.76	2.89	2.24
Public expenditure on R&D as % of GDP	0.95	1.11	1.13	1.03	1.11	0.73
Business enterprise expenditure on R&D (BERD) as % of GDP	1.96	1.94	1.83	1.72	1.78	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	14.7	14.3	12.3	:	:	9.6
Patent Cooperation Treaty patent applications per billion GDP (in PPS)	6.3	6.3	6.7	:	:	3.4
Academia-business cooperation						
Public-private scientific co-publications as % of total publications	12.5	12.5	13.3	13.5	13.3	7.6
Public expenditure on R&D financed by business enterprise (national) as % of GDP	0.028	0.027	0.029	:	:	0.054
Human capital and skills availability						
New graduates in science & engineering per thousand pop. aged 25-34	15.8	17.1	18.9	20.1	:	16.9
Public support for business enterprise expenditure on R&D (BERD)						
Total public sector support for BERD as % of GDP	0.07	0.089	:	:	:	0.204
R&D tax incentives: foregone revenues as % of GDP	0.003	0.02	0.094	:	:	0.104
Green innovation						
Share of environment-related patents in total patent applications filed under the Patent Cooperation Treaty (%)	23.3	21.7	24.8	:	:	14.7
Finance for innovation and economic renewal						
Venture capital (market statistics) as % of GDP	0.045	0.028	0.094	0.147	0.139	0.085
Employment share of high growth enterprises measured in employment (%)	:	19.06	12.98	:	:	12.51

(1) EU average for the latest 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 Europe

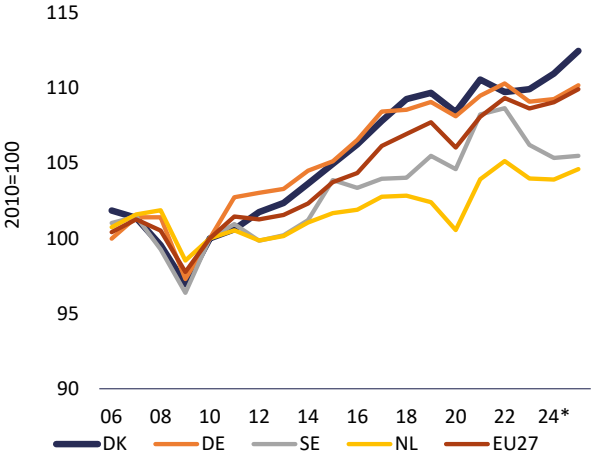
in R&D activities to promote innovation diffusion ([121]). The measures in the revised Danish smart specialisation strategy (RIS3) ([122]), under the Business Promotion Board, help address these challenges and include supporting the transformation of businesses to exploit the potential of new trends and technologies and strengthening their international competitiveness through innovative and sustainable solutions. Moreover, in order to boost business R&D investment, the Danish RRP contains a temporary increase in R&D tax deductibility for all companies. While these individual measures are welcome, the planned new Danish entrepreneurial strategy will be important to set up a comprehensive approach to strengthening overall entrepreneurship, including its innovation dimension.

([121])Peer review of Danish R&I system, Horizon 2020 Policy Support Facility, 2019 (pp. 30-33, p. 54) PSF Denmark_Final report (europa.eu)

([122]) Danmarks Erhvervsfremmebestyrelse, 2024, *Virksomhedsudvikling i hele Danmark 2024-2027*, *https://erhvervsfremmebestyrelsen.dk*

Denmark continues to demonstrate a high level of competitiveness, driven by a favourable business environment and focus on digitalisation and sustainability. The country has maintained a strong position in global competitiveness, driven by a combination of factors such as innovation, education, a favourable business environment and well-functioning infrastructure. In the 2023 IMD World Competitiveness Ranking ([123]), Denmark ranks first for the first time, overtaking Switzerland, in particular thanks to its good performance in digitalisation, but also thanks to a clear focus on sustainability and an agile and innovative business sector. Denmark is the top innovator in the 2023 European Innovation Scoreboard (see Annex 11) and ranked second in the EU in the 2022 Digital Economy and Society Index (see Annex 10). The Danish industrial strategy is characterised by a strong focus on supporting the green transition, targeting the energy and transport sector in particular ([124]).

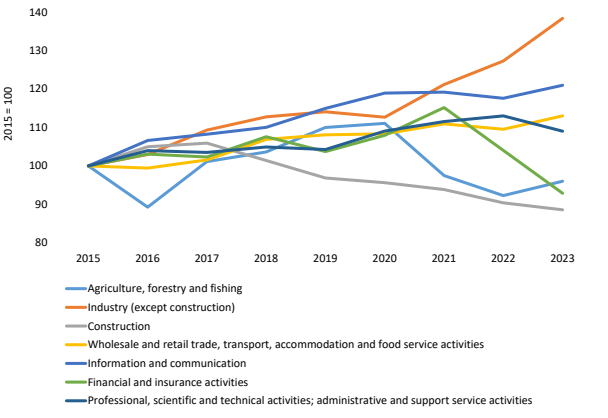
Graph A12.1: **Total factor productivity**



Source: AMECO

The productivity level in Denmark is among the highest in the EU, but productivity growth is slowing down. The country's emphasis on R&D, coupled with investments in education and technology, has contributed to sustained productivity growth ([125]). Denmark's labour productivity level per hour worked is among the highest in the EU, at 141% of the EU average in 2022, but productivity growth is slowing down (see Graph A12.1). The manufacturing industry, ICT services, financial services and wholesale and retail trade have accounted for a large share of productivity growth in the last two decades. Productivity growth was mainly driven by total factor productivity, in particular by larger and more international firms. Denmark has a strong manufacturing sector, with productivity considerably above the EU average and also ahead of some of the other Nordic countries, including due to its strong performance in the pharmaceuticals industry. On the other hand, productivity in services is stagnating (see Graph A12.2). Overall, the country performs well on indicators related to innovation and diffusion of new technologies (among others R&D expenditure and staff, patents, higher education). In addition, both business churn and the rate of high-growth firms are well above the EU average, which are signs of a business environment that promotes resource reallocation to more productive activities.

Graph A12.2: **Productivity by sector**



Source: AMECO

Denmark's industry has proven resilient, but shortages of skilled workers increasingly dampen the growth of firms. Positive employment figures combined with a significant drop in inflation over 2023 have underlined the resilience of the Danish economy. The manufacturing business confidence indicator recovered gradually last year, and views on the production outlook

([123])International Institute for Management Development, 2023, *World Competitiveness Ranking*, imd.org

([124]) OECD, *Quantifying industrial strategies*, 2023, oecd.org

([125])Danish Economic Council, 2023, *Productivity 2023*, dors.dk

have become less pessimistic ([126]). However, higher interest rates weighed on investment and shortages of skilled workers have become a major obstacle to the growth of firms, which affects nearly all industry and service sectors (see also Annex 14 and Annex 15). Among the long-term impediments to Danish firms' investment, the most frequently mentioned are energy costs (79%), the availability of skilled staff (72%) and uncertainty about the future (71%) ([127]). Insolvencies increased in 2023 by 8.6%, including in particular in the construction sector, after relatively low levels of insolvencies in previous years ([128]).

Denmark is an innovation leader in the EU, but business expenditure is increasingly concentrated. The 2023 European Innovation Scoreboard identifies Denmark as the top innovator in the EU. Investment in innovation is high, but business R&D is increasingly concentrated in large companies and few sectors, whereas innovation activity among small and medium-sized enterprises (SMEs) is modest. The eight largest companies alone account for almost 40% of total private R&D expenditure, and the pharmaceutical sector is responsible for almost 60% of total R&D expenditure (see also Annex 11). The recently updated strategy 'Business Promotion in Denmark 2024-2027' aims to strengthen entrepreneurship and increase innovation and internationalisation in Danish companies, particularly SMEs ([129]). In February 2024, the Expert Group for the Future of Business Support presented its recommendations on principles for the future of business support in Denmark and recommendations for improving its efficiency ([130]).

The Danish industrial strategy actively supports the green transition. Denmark has emerged as a front runner in the development and manufacturing of net-zero technologies, particularly wind energy, but is also performing well in other areas, such as solar photovoltaic technologies, sustainable biogas production and carbon capture and storage solutions. Denmark's recovery and resilience plan (RRP) contains relevant measures in some of these areas, including investments in additional wind energy capacity, green upskilling and a feasibility study on possible carbon capture storage sites (see also Annex 7).

Denmark is dependent on foreign supplies of most raw materials. On critical raw materials, Denmark's import concentration index is in line with the EU average, but dependencies exist for a broad range of raw materials and components, including critical raw materials necessary for the green and digital transition. In 2023, 24.8% of firms still reported shortages of important materials and primary products, which was above the EU average of 17.2%. Surveys indicate that most manufacturing companies have already made changes to their strategies and have increased inventories and the number of suppliers ([131]). Further improving its recycling performance would also help reduce dependence on volatile raw material markets (see Annex 9).

Denmark has a favourable business environment, with a particular emphasis on digital public services. The country consistently ranks high in global competitiveness and governance indices. This reflects a robust business environment, efficient public institutions and focus on technological advancements. It is a front runner in digital public services, and administrative procedures are usually designed as 'digital by default'. 98% of all public services are offered online (see also Annex 13). It is also performing well on electronic invoicing, electronic procurement, and technical and policy support.

While many companies are formed in Denmark, start-ups and small and innovative

([126]) Statistics Denmark, 2024, *Sentiment indicators for business*, dst.dk

([127]) EIB, 2024, *Investment Survey 2023: Denmark*, eib.org

([128]) Statistics Denmark, 2024, *Bankruptcies*, dst.dk

([129]) Danmarks Erhvervsfremmebestyrelse, 2024, *Virksomhedsudvikling i hele Danmark 2024-2027*, https://erhvervsfremmebestyrelsen.dk

([130]) Expert Group for the Future of Business Support, 2024, econ.ku.dk

([131]) Danish Industry, 2022, *After two years of disruptions: Higher inventories and more suppliers*, danskindustri.dk

companies struggle to grow and scale up. Denmark has a favourable business environment for firms and entrepreneurs and is one of the countries with the highest share of green start-ups ([132]). It has been the birthplace for 11 new unicorns since 2010, but many have since moved their headquarters. Access to capital and challenges in recruiting qualified staff are crucial factors for start-ups and often determine whether they stay in Denmark or relocate elsewhere ([133]). Equity financing is less pronounced than in some of the other Nordic countries, but has improved and is better than the EU average.

Denmark performs well in the Single Market Scoreboard ([134]), but there is still scope for further improvement. The country is closely integrated into the single market. Its trade integration for both goods and services is above the EU average. It consistently performs relatively well in the Single Market Scoreboard, but there is still scope for further improvement, including on ongoing infringement cases relevant for the single market, e.g. on transport, environment or energy. For the fourth consecutive year, Denmark managed to decrease its number of pending cases, and the average duration of cases is below the EU average ([135]). In 2023, Denmark solved 91.4% of the SOLVIT cases it handled as lead centre (33), which is above the EU average of 88.3%.

Denmark's public procurement system demonstrates a clear commitment to sustainability and innovation. It performs quite well on public procurement overall, though the share of bids from SMEs is relatively low ([136]). Denmark has been a pioneer in adopting sustainable and innovative procurement strategies, aligning public spending with environmental and social objectives. It performs well on digital public services, including the use of e-procurement.

Regulatory restrictiveness in professional services such as lawyers could affect their potential for innovation and productivity growth. For regulated professions, regulatory restrictiveness in Denmark is in line with the EU average except for estate agents, where restrictiveness is above the EU average. The duration of mandatory qualification requirements for estate agents could be reassessed. Moreover, lawyers in Denmark are subject to legal form and shareholding requirements, incompatibility rules and multidisciplinary restrictions, which could affect the potential of this sector for innovation and productivity growth, for example through the roll-out of digital solutions and new business models. ([137])

Denmark is in the initial stage of implementing the components needed to connect to the Once-Only Technical System (OOTS) ([138]). As part of the Single Digital Gateway Regulation ([139]), 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 Danish competent authorities is crucial for the system to function smoothly and to reduce administrative burden.

([132]) OECD, 2022, *The New Green Economy*, oecd.org

([133]) Danish Chamber of Commerce, 2022, '*Denmark: A Unicorn Factory – but why do they leave?*', danskerhverv.dk

([134]) European Commission, 2024, *Single Market Scoreboard, Performance Overview*, ec.europa.eu

([135]) European Commission, 2024, *Single Market Scoreboard, Country data: Denmark*, ec.europa.eu

([136]) European Commission, 2024, *Single Market Scoreboard, Public procurement*, ec.europa.eu

([137]) European Commission, 2021, *Communication on updating the reform recommendations for regulation in professional services*, COM(2021)385, eur-lex.europa.eu; OECD, 2023, *Indicators of Product Market Regulation*, oecd.org; International Monetary Fund, 2023, *Article IV country report Denmark*, imf.org

([138]) Implementing Regulation (EU) 2022/1463

([139]) Regulation (EU) 2018/1724

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

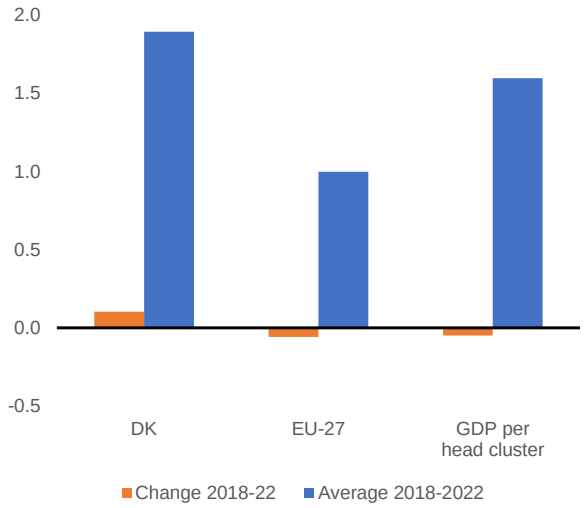
Denmark							
POLICY AREA	**INDICATOR NAME**	**2019**	**2020**	**2021**	**2022**	**2023**	**EU27 average***
HEADLINE INDICATORS							
Economic Structure	Net Private investment, level of private capital stock, net of depreciation, % GDP[1]	3.6	3.8	4.7	4.5	2.6	**3.8**
	Net Public investment, level of public capital stock, net of depreciation, % GDP[1]	0.6	1	0.8	0.9	1	**1.2**
	Real labour productivity per person in industry (% yoy)[2]	0.9	0.1	16	4.9	8.7	**-1.24**
Cost competitiveness	Nominal unit labour cost in industry (% yoy)[2]	1.7	2	-11.3	0.1	-4.4	**9.83**
SINGLE MARKET							
Single Market integration	EU Trade integration, % (Average intra-EU imports + average intra EU exports)/GDP[2]	27.4	26.2	27.9	31.4	32.1	**42.9**
Compliance	Transposition deficit, % of all directives not transposed[3]	0.2	0.3	0.4	0.5	0.9	**0.7**
	Conformity deficit, % of all directives transposed incorrectly[3]	1.2	1	1.1	1	0.9	**1.1**
	SOLVIT, % resolution rate per country[3]	81.0	92.5	95.5	91.7	91.0	**88.3**
Restrictions	Number of pending infringement proceedings[3]	18	21	19	18	16	**25.9**
	EEA Services Trade Restrictiveness Index[4]	0.04	0.04	0.04	0.04	0.04	**0.05**
Public procurement	Single bids, % of total contractors[3]	13	15	18	23	16	**28.6**
	Direct Awards, %[3]	4	6	6	5	5	**8.1**
ECONOMIC STRUCTURE							
Shortages	Material Shortage (industry), firms facing constraints, %[5]	4.3	6.5	27.7	49.7	24.8	**17.2**
	Labour Shortage using survey data (industry), firms facing constraints, %[5]	8.2	4.2	23.7	34.5	17.1	**23.3**
	Vacancy rate, % of vacant posts to all available ones (vacant + occupied)[2]	2	1.8	3.0	3.4	2.7	**2.5**
Strategic dependencies	Concentration in selected raw materials, Import concentration index based on a basket of critical raw materials[6]	0.15	0.16	0.16	0.16	0.17	**0.22**
	Installed renewables electricity capacity, % of total electricity produced[2]	0.5	0.5	0.5	0.5		**50**
BUSINESS ENVIRONMENT - SMEs							
Investment obstacles	Impact of regulation on long-term investment, % of firms reporting business regulation as major obstacle[7]	5.9	5.8	5.3	6.0	3.0	**22.2**
Business demography	Bankruptcies, Index (2015=100)[2]	227.8	154.4	232.7	219.4	194.4	**105.6**
	Business registrations, Index (2015=100)[2]	141.1	123.3	119.3	100.9	99.1	**120.2**
Late payments	Payment gap - corporates B2B, difference in days between offered and actual payment[8]	-	20	12	11	16	**15**
	Payment gap - public sector, difference in days between offered and actual payment[8]	-	24	10	14	15	**16**
	Share of SMEs experiencing late payments in past 6 months, %[9]	38.7	24.9	35.1	39.3	44.2	**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]	0.18	0.20	0.23	0.18	-	**0.49**
	EIF Access to finance index - Equity, Composite: VC/GDP, IPO/GDP, SMEs using equity, index values between 0 and 1[10]	0.23	0.29	0.46	0.20	-	**0.17**

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

* Own Commission calculations for the EU27 average

Denmark'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. It remains one of the most effective in the EU, and its score on perceived government effectiveness indicators has risen over the last 5 years (Graph A13.1).

Graph A13.1: **Government effectiveness**

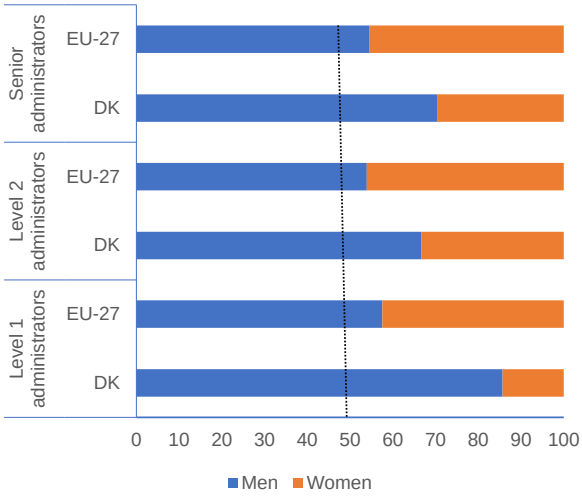


Average value over 2018-2022 and change over 2018-2022.The GDP per head bar shows the mean value of the government effectiveness indicator for the group of EU countries belonging to the same GDP per head cluster as Denmark (EU countries are ranked in terms of their GDP per head and grouped into three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

Denmark has a relatively young and skilled civil service. There is a lack of gender parity in senior positions. The ratio of staff aged 25-49 compared to those aged 50-64 is above the EU average and has remained stable in the last 4 years. The share of civil servants with a higher education is also above the EU average as is the share of those in adult learning. However, Denmark is among those EU countries with significant potential for improvement in gender balance in senior civil service positions (Graph A13.2).

Denmark still has one of the EU's best performances in terms of digital public administration. 100% of services are offered online (EU: 84%), and they have one of the highest levels of user centricity (98% vs 90% in the EU) and 98% of them accept eID-login (EU: 70%). The share of e-government users has increased to 99% (EU: 75%), showing a general acceptance of digital services ([140]). Denmark outperforms the EU average in providing digital services for all life events. In addition to services, Denmark scores relatively high in open data maturity, and the government launched a digitalisation strategy aiming to further improve the quality and availability of public data ([141]).

Graph A13.2: **Share of women and men in management positions**



(1) 2023 data.
Source: European Institute for Gender Equality.

Denmark scores below the EU average on regulatory governance. There are gaps in the use of *ex ante* evaluations and stakeholder consultations, which potentially affects the quality of future legislation. Denmark, however, performs above the EU average in *ex post* evaluation of primary and secondary legislation. The Danish government has indicated its plans to strengthen the policymaking process by increasing Parliament's access to the government's work and putting a greater emphasis on the public's involvement in consultations ([142]).

The justice system performs efficiently overall. However, the clearance rate for litigious civil and commercial cases has continued its downward trend (97.6% in 2021

([140]) E-government benchmark report, 2023.

([141]) Agency for Digital Government, 2023.

([142]) Ansvar for Denmark, 2022.

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

DK	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	98.9	98.7	75.0
2	E-government benchmark overall score ([3])	n/a	85.4	84.3	85.1	85.3	75.8
3	Open data and portal maturity index	0.8	1.0	0.9	0.9	0.9	0.8
Educational attainment level, adult learning, gender parity and ageing							
4	Share of public administration employees with higher education (levels 5-8, %)	61.6	62.3	64.7 (b)	67.3	67.4	52.9
5	Participation rate of public administration employees in adult learning (%)	32.8	24.8	29.0 (b)	32.9	38.0	17.9
6	Gender parity in senior civil service positions ([4])	39.6	40.0	47.2	39.4	40.8	9.2
7	Ratio of 25-49 to 50-64 year olds in NACE sector O	1.8	2.0	1.8 (b)	1.8	1.8	1.5
Public financial management							
8	Medium-term budgetary framework index	0.6	0.6	0.6	0.6	n/a	0.7
9	Strength of fiscal rules index	0.9	0.9	0.9	0.9	n/a	1.4
Evidence-based policy making							
10	Regulatory governance	n/a	n/a	1.61	n/a	n/a	1.7

(1) 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).

and 93% in 2022). The quality of the justice system is good overall. The level of digitalisation is advanced. Digital tools are used in courts, including an electronic case management system, distance communication technology and a secure remote work environment for court staff. However, some digitalisation gaps still need to be addressed, such as the digital solutions to conduct and follow court proceedings in criminal cases. On judicial independence, no systemic deficiencies have been reported ([143]).

([143]) For a more detailed analysis of the performance of the Danish justice system, see the 2024 EU Justice Scoreboard (forthcoming) and the country chapter on Denmark in the Commission's 2024 Rule of Law Report (forthcoming).

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

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

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)	47.1
	Early leavers from education and training (% of the population aged 18-24, 2023)	10.4
	Share of individuals who have basic or above basic overall digital skills (% of the population aged 16-74, 2023)	69.6
	Young people not in employment, education or training (% of the population aged 15-29, 2023)	8.6
	Gender employment gap (percentage points, population aged 20-64, 2023)	5.6
	Income quintile ratio (S80/S20, 2022)	4.03
Dynamic labour markets and fair working conditions	Employment rate (% of the population aged 20-64, 2023)	79.8
	Unemployment rate (% of the active population aged 15-74, 2023)	5.1
	Long term unemployment (% of the active population aged 15-74, 2023)	0.5
	Gross disposable household income (GDHI) per capita growth (index, 2008=100, 2022)	118.8
Social protection and inclusion	At risk of poverty or social exclusion (AROPE) rate (% of the total population, 2022)	17.1
	At risk of poverty or social exclusion (AROPE) rate for children (% of the population aged 0-17, 2022)	13.8
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP, 2022)	50.40
	Disability employment gap (percentage points, population aged 20-64, 2022)	9.9
	Housing cost overburden (% of the total population, 2022)	14.7
	Children aged less than 3 years in formal childcare (% of the under 3-years-old population, 2022)	74.7
	Self-reported unmet need for medical care (% of the population aged 16+, 2022)	2.1

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

Update of 25 April 2024. Member 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 methodology.
Source: Eurostat

The Danish labour market continued to improve in 2023 with record high employment and record low unemployment rates, but labour and skills shortages are a matter of concern. The employment rate of people aged 20-64 stood at 79.8% in 2023, which is above the EU average of 75.3% and only 0.2 percentage points (pps) below the national 2030 target of 80%. In 2022, the employment rate for citizens of a non-EU country aged 20-64 was 70.6%, and 80.8% for citizens of another EU country. The unemployment rate increased slightly from 4.5% in 2022 to 5.1% in 2023, however it is still low compared to the EU average of 5.9%. In 2022, the unemployment rate for citizens of a non-EU country aged 15-75 was 9.8%, and 8.3% for citizens of another EU country. There has been a rise in the employment rate since 2020, and some of the reasons for this are an increase in people staying in work for longer and an increase in workers from outside Denmark. The Danish labour market is still characterised by a lack of skilled labour in different sectors. In Q4-2023, 35.5% of employers in the service sector and 21.3% in industry identified labour shortages as the main factor limiting production. Skills shortages are also linked to what is offered by vocational education and training institutions, which could be made more attractive. There has been a significant increase in the number of people benefitting from early retirement or pre-pension schemes in recent years, especially people under 40 years of age. In 2019, around 3 000 people under 40 took early retirement, which increased to around 6 000 in 2023. The European Social Fund Plus (ESF+) will continue to support the upskilling and reskilling of the workforce, including migrants and people at the margins of the labour market. As part of its recovery and resilience plan, Denmark has measures in its REPowerEU chapter on green upskilling, which will allocate DKK 103.9 million (EUR 13.9 million) annually in 2025 and 2026, including to develop teachers' skills and provide green equipment for vocational education and training programmes. The green upskilling measure will further support Denmark in the green transition.

The rate of early school leavers in Denmark has increased in recent years. The rate of early school leavers from education and training stood at 10% in 2022, which is slightly above the EU average of 9.6%. In the light of the labour and skills shortages, there is room for improvement as regards keeping students in education and training. However, in the context of exceptionally high demand for labour the increasing rate of early school leavers did only translate into a slight increase of the number of people not in employment, education or training (NEETs).

Although Denmark has a relatively high rate of people with basic or above average digital skills (69.6% vs an EU average of 55.5% in 2023), the latest PISA analysis (2022) shows a decrease in pupils' mathematics and reading skills (see Annex 15).

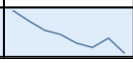
The rate of young people not in education, employment or training (NEETs) is still below the EU average, although there is potential for improvement. The NEET rate increased from 7.9% in 2022 to 8.6% in 2023, and while it was below the EU average of 11.2% in 2023, there is room for further improvement. The Danish government has allocated DKK 55 million (EUR 7.3 million) yearly from 2026 onwards to improve incentives for the employment of vulnerable young people, as around 43 000 young Danish people are still not in education or employment. The share of adults (aged 25-64) participating in education and training stood at 47.1% in 2022, compared to an EU average of 39.5%, though this figure fell from 50.4% in 2016. However, considerable efforts are needed to reach the national target of 60% of adults participating in training every year by 2030. Also in this context, the ESF+ is a key element in increasing the attractiveness of vocational education and training and of higher education, as well as in providing targeted courses for the upskilling and reskilling of adults for the green and digital transition.

The Danish Government has continued to implement reforms in 2023, some with the aim to increase the supply of labour. They include a removal of a bank holiday, a reform of the cash benefit system and allocation of funds to improve wages and working conditions for frontline personnel in the welfare sector. A reform of personal income tax was introduced in December 2023 providing, among other things, financial incentives for older workers to stay longer in the labour market and an increased employment allowance or deduction (*beskæftigelsesfradrag*), including for single parent families. Furthermore, the government introduced a permanent measure to provide an educational boost to sectors with shortages of skilled labour. This encourages unemployed people or people with an outdated education to learn or train in areas where there are shortages, for example in the areas of the green transition and in the welfare sector. The measure provides 110% of their unemployment benefits to unemployed people who are learning skills relevant for the sectors in question.

Housing affordability remains an issue. The housing cost overburden rate increased from 14.7% in 2022, to 15.4% in 2023. A political agreement from 2021 ([144])) is providing DKK 10 billion (EUR 1.341 billion) in 2021-2035 to support initiatives that will increase the construction of social housing. This will happen by, among other things, supporting the construction of new buildings and by converting private rental housing or commercial buildings into social housing.

The share of people at risk of poverty or social exclusion (AROPE) is below the EU average. The AROPE rate declined from 17.3% in 2021 to 17.1% in 2022 against an EU average of 21.6%. The rate of people living in households with very low work intensity fell from 9.7% in 2021 to 8.8% in 2022, but this is still higher than the EU average of 8.3% in 2022. The ESF+ can support people at the margin of the labour market and thereby help Denmark reaching its national target in 2030 of 30 000 fewer people living in households with very low work intensity.

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

Indicators	Latest data	Trend (2016-2023)	2030 target	EU target
Employment (%)	79.8 (2023)		80	78
Adult learning[1] (%)	47.1 (2022)		60	60
Poverty reduction[2,3] (thousands)	-29 (2022)		-30	-15,000

(1) Adult Education Survey, adults in learning in the past 12 months, special extraction excl. guided on-the-job training..
(2) EU headline target set as a reduction in the number of persons at risk of poverty or social exclusion (AROPE), reference year 2019.
(3) Denmark expresses its national target as a reduction in the number of persons living in households with very low work intensity (VLWI), reference year 2019.
Source: Eurostat, DG EMPL.

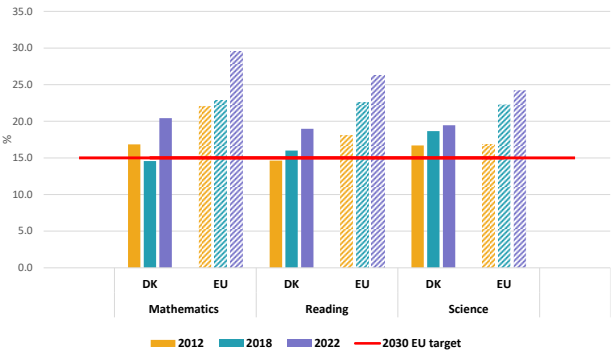
([144]) Aftale om fonden for blandede byer – flere billigere boliger og en vej ud af hjemløshed (Agreement on the Fund for Mixed Cities – Cheaper Housing and a Way out of Homelessness).

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

Danish underachievement rates remain among the lowest in the EU. In 2022, about one in five of 15-year-olds did not reach a minimum proficiency level in basic skills (mathematics 20.4%, reading 19.0% and science 19.5%). These rates are below the EU average ([145]), but higher than the EU-level target of 15%. Shares have moderately increased since 2012 (+3.6/+4.4/+2.8) less than the EU trend.

The influence of socio-economic and migrant background on educational outcomes has increased ([146]). Although the underachievement rate has also increased by 3.0 pps (EU: 2.2 pps) among students from the top quarter of the socio-economic distribution, the rise among students from the bottom quarter was three times higher (9.0 pps vs 9.8 pps at EU level) since 2018. Migrant background is also a strong indicator for increasing underperformance. In 2022, 46.0% of students born abroad underachieved compared with 17.3% of native-born students without a migrant background. The gap somewhat shrinks to 22.5 pps for native-born students with parents born abroad, still the largest gap in the EU. Underperformance among foreign-born students increased since 2018 by 19.1 pps, about four times that of native-born (+5.2 pps). The performance gap of students with a migrant background remains significant (21 score points) even after accounting for socio-economic background and language spoken at home. A recent study by VIVE, the Danish Center for Social Science Research ([147]) found that students that underachieve in mathematics often have a disadvantaged and/or migrant background. The study established a clear impact of low achievement in mathematics, both on educational attainment and on life chances and well-being. Underperforming students are significantly less likely to pass upper secondary education and even to finish lower secondary school.

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



Source: OECD (2023).

Top performance in basic skills is rather low, around the EU average and potentially limiting the innovation capacity of the country. In 2022, shares of top performers in mathematics were 7.7% (EU: 7.9%), a decline of 3.9 pps since 2018 (EU -3.1pps). In reading, the rate has decreased by 2.1 pps (EU -1.6 pps).

Denmark continues to lack qualified staff in education. In early childhood education and care (ECEC), approximately one third of the currently employed ECEC staff does not have a pedagogical education and only 10% of ECEC assistants have had training ([148]). In primary and lower secondary schools ('Folkeskole') shortages of qualified personnel are also emerging ([149]). Currently about 13% of primary and lower secondary (Folkeskole) teachers lack teacher training, with significant variations among municipalities ([150]). Salaries and working conditions do not appear to be sufficiently attractive for young people to choose teaching as a career.

Denmark has a very high participation rate in early childhood education and care, especially for children under 3 years. In 2021, the share of children between 3 years and the age of

([145])26.2%/29.5%/24.2%.

([146]) OECD PISA 2022 Results Volume I

([147])VIVE (2023)

([148]) EVA. (2020)

([149]) Ministry of Finance. (2022)

([150])Education and Training Monitor 2023 (europa.eu)

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

				2012		2018		2023	
Indicator			Target	Denmark	EU-27	Denmark	EU-27	Denmark	EU-27
[1]Participation in early childhood education (age 3+)			96%	97.6% [2013]	91.8% [2013]	99.5%	92.2%	97.0% [2021]	92.5% [2021,d]
[2]Low-achieving 15-year-olds in:		Reading	< 15%	14.6%	18.0%	16.0%	22.5%	19.0% [2022]	26.2% [2022]
		Mathematics	< 15%	16.8%	22.1%	14.6%	22.9%	20.4% [2022]	29.5% [2022]
		Science	< 15%	16.7%	16.8%	18.7%	22.3%	19.5% [2022]	24.2% [2022]
Early leavers from education and training (age 18-24)	[3]Total		< 9 %	9.6%	12.6%	10.4%	10.5%	10.4%	9.5%
	[3] By gender	Men		11.2%	14.5%	12.7%	12.1%	11.8%	11.3%
		Women		7.9%	10.6%	8.0%	8.7%	9.0%	7.7%
	[4] By degree of urbanisation	Cities		7.8% [b]	11.2%	7.1%	9.4%	6.7%	8.6%
		Rural areas		11.7% [b]	14.0%	14.2%	11.0%	15.0%	9.9%
	[5] By country of birth	Native		9.5%	11.3%	10.4%	9.2%	10.2%	8.2%
		EU-born		: [u]	26.2%	: [u]	22.4%	: [u]	21.0%
		Non EU-born		12.1% [u]	30.1%	11.5% [u]	23.0%	16.4% [u]	21.6%
[6]Socio-economic gap (percentage points)				25.9	:	18.7	29.5	24.7 [2022]	37.2 [2022]
[7]Exposure of VET graduates to work-based learning			≥ 60% (2025)	:	:	:	:	70.6%	64.5%
Tertiary educational attainment (age 25-34)	[8]Total		45%	40.2%	34.1%	45.8%	38.7%	49.0%	43.1%
	[8] By gender	Men		31.1%	29.1%	37.7%	33.3%	40.4%	37.6%
		Women		49.7%	39.2%	54.3%	44.2%	57.9%	48.8%
	[9] By degree of urbanisation	Cities		53.8% [b]	43.5%	62.3%	49.0%	63.5%	53.3%
		Rural areas		25.3% [b]	24.8%	28.5%	27.7%	33.5%	31.7%
	[10] By country of birth	Native		40.7%	35.4%	45.1%	39.7%	48.6%	44.2%
		EU-born		: [u]	29.3%	61.5% [u]	36.7%	65.0%	40.2%
		Non EU-born		: [u]	24.2%	44.5% [u]	31.0%	43.7%	37.1%
[11]Participation in adult learning (age 25-64)			≥ 47% (2025)	:	:	50.4% [2016]	37.4% [2016]	47.1% [2022]	39.5% [2022]
[12]Share of school teachers (ISCED 1-3) who are 55 years or over				24.9% [2013]	22.7% [2013]	21.1%	23.8%	21.2% [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.

compulsory primary education in ECEC was 97.0%, above the EU-level target (96%) and 4.6 pps above the EU average of 93.0%. The share of children below the age of 3 in formal childcare is the highest in the EU (74.7%) ([151]), far above the revised Barcelona target of 45%.

The high rate of early leavers from education and training has remained largely stable in Denmark over the past decade. At 10.4% in 2023, early school leaving remains above the 9% EU-level target. Despite Denmark's comprehensive approach to preventing early school leaving ([152]), the rate has not improved during the last decade (9.6% in 2012). The share of early leavers among non-EU foreign-born young people (16.4%) is nearly three times higher than that of their Danish-born peers (6.2%).

The national Folkeskole (primary and lower secondary school) reform has still to show results. This reform entered into force in 2014. The latest evaluation ([153]) shows that none of the three national targets - (1) supporting all talents, (2) reducing the impact of social-economic background, and (3) increasing trust and well-being - have been achieved. Late 2023, the government started negotiations in parliament on the first actions of a comprehensive quality programme of 35 actions organised in 5 areas.

Denmark's tertiary attainment rate increased significantly in the past decade and is now well above the EU-level target. Since 2012, tertiary attainment has increased by 8.8 pps to reach 49.0% in 2023. In 2023, 57.9% of women had a tertiary degree compared with only 40.4% of men, leading to a widening gender gap of 17.5 pps (7.2 pps above the EU average). The government is working on improving the

([151])Eurostat: ilc_cainformal.

([152])Education and training monitor 2019 (europa.eu)

([153])Ministry for Children and Education (2023).

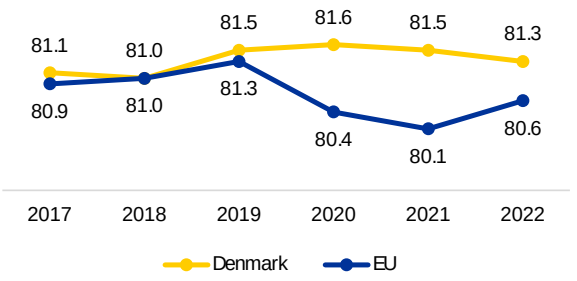
quality of higher education, including by revising the structure of study programmes.

Overall, Denmark has very good systems both for vocational education and training and for adult learning, but skills shortages do exist (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 Denmark.

Life expectancy in Denmark decreased slightly but is still above the EU average. This decrease may be partly due to the higher COVID-19 mortality in 2022 compared to the previous year ([154]). The treatable mortality rate is well below the EU average. In 2021, cancer, diseases of the circulatory system ('cardiovascular diseases') and diseases of the respiratory system were the leading causes of death. Cancer mortality in Denmark was 271 per 100 000 population in 2021, above the EU average of 235.

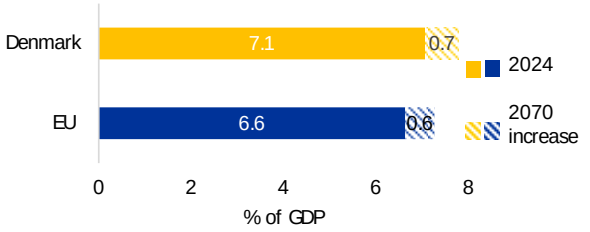
Graph A16.1: **Life expectancy at birth, years**



Source: Eurostat

In 2021, health spending in Denmark amounted to 10.6% of GDP, slightly below the EU average of 10.9%. Provisional data suggest that in 2022 total healthcare spending fell back to 9.4% of GDP, ending the rising trend of the recent years. Per capita spending (in purchasing power standards) was above the EU average in 2021. Outpatient care made up the largest part (around a third) of total current health expenditure. The proportion of spending on outpatient pharmaceuticals and medical devices was low, accounting for only 10% of total health expenditure in 2021, much lower than the EU average. Public health expenditure as a proportion of total health spending continued to increase to 85.2% (2021), well above the EU average of 81.1% (2021). Based on the age profile of the Danish population, public spending on health is projected to increase by 0.7 percentage points (pps) of GDP by 2070, compared to 0.6 pps for the EU overall (see Graph A16.2 and Annex 21).

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



Baseline scenario
Source: European Commission / EPC (2024)

In 2021, spending on prevention in Denmark amounted to 8.9% of total spending on healthcare, much higher than the 6.0% for the EU overall. Between 2019 and 2021, spending on prevention in Denmark increased by around 300%, surpassing the 106% increase for the EU overall. Proportionally, budget shares for prevention across the EU increased most for emergency response, disease detection and immunisation programmes. In Denmark, the main factors explaining the rise in spending on preventive care in 2021 are large increases for immunisation programmes, epidemiological surveillance and risk and disease control programmes. Provisional data for 2022 indicate a stark drop in the proportion of health spending going to preventive care, down to 5.1%. The consumption of antimicrobials is well below the EU average.

Denmark has more doctors and nurses than the EU average. There were 4.4 doctors per 1 000 population in 2021, more than the EU average of 4.1. There were 10.2 nurses per 1 000 population (2020), more than the EU average of 7.9 (2021). The Eurostat Labour Force Survey shows an upward trend in the numbers of staff working in human health activities between the first quarter of 2020 and the second quarter of 2023. However, more than a quarter of the nursing workforce are 55 years old or older (2017), which raises some

([154])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)	73,0	66,2	63,5	64,3	NA	93.3 (2021)
Cancer mortality per 100 000 population	279,8	282,5	271,0	270,6	NA	235.4 (2021)
Current expenditure on health, % GDP	10,1	10,2	10,6	10,6	9,4	10.9 (2021)
Public share of health expenditure, % of current health expenditure	83,8	83,7	84,8	85,2	NA	81.1 (2021)
Spending on prevention, % of current health expenditure	2,3	2,2	3,2	8,9	5,1	6.0 (2021)
Available hospital beds per 100 000 population	261	259	259	251	NA	525 (2021)
Doctors per 1 000 population	4,2	4,3	4,4	4.4*	NA	4.1 (2021)*
Nurses per 1 000 population	10,1	10,1	10,2	NA	NA	7.9 (2021)
Total consumption of antibacterials for systemic use, daily defined dose per 1 000 inhabitants per day ***	15,6	15,3	14,3	14,4	15,2	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.

concerns about the sustainability of workforce numbers. In 2022, the Danish government agreed on a reform which aims to strengthen the health system, including through improved medical coverage in areas with a shortage of doctors ([155]). The government also established a 'Resilience Commission' to look at staff shortages and recruitment issues. In 2023, the government announced a package of measures to address challenges with increasing waiting lists and shortages of key staff ([156]).

Denmark is further stepping up policies to foster access to healthcare. Denmark set up 'health clusters' around the 21 acute care hospitals, optimising the delivery of care services based in the community ([157]). Health is amongst the priority areas in the Danish budget 2024, which will in particular provide increased funding for psychiatric care ([158]). Already in 2022, the government had launched a 10-year plan to improve psychiatry and mental health in Denmark, identifying children and young people, and adults with severe mental health issues, as particular target groups.

Through its recovery and resilience plan (RRP), Denmark plans to invest EUR 33 million (2% of the RRP's total value) in healthcare. The Danish RRP contains investments aimed at ensuring sufficient stocks of critical medicines and improving the emergency management and monitoring of these stocks. Furthermore, Denmark is working on strengthening digital solutions in the healthcare sector. Still pending is a clinical study on the long-term effect of COVID-19 vaccines.

([155])See: https://commission.europa.eu/system/files/2023-05/2023-Denmark-NRP_en.pdf.

([156]) See: https://eurohealthobservatory.who.int/monitors/health-systems-monitor/updates/hspm/denmark-2012/acute-package-to-address-waiting-lists-and-staff-shortages.

([157]) See: https://eurohealthobservatory.who.int/monitors/health-systems-monitor/updates/hspm/denmark-2012/health-clusters-now-mandatory-across-denmark.

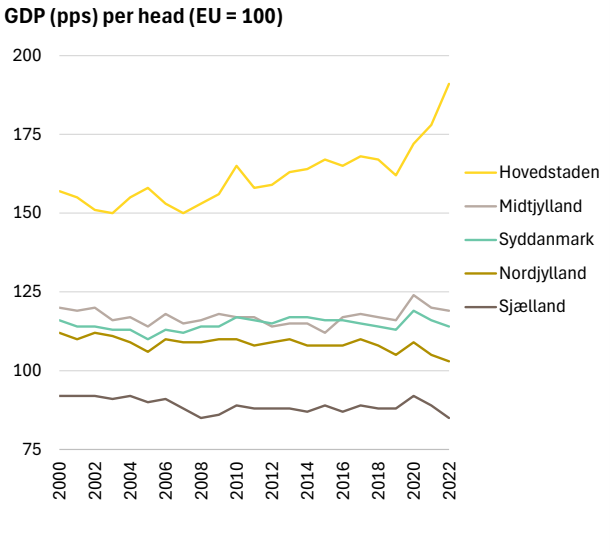
([158]) See: https://eurohealthobservatory.who.int/monitors/health-systems-monitor/updates/hspm/denmark-2012/agreement-on-the-enhancement-of-psychiatry-in-2024-to-ensure-increased-capacity-and-better-assistance-for-children-and-youth.

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

Overview of economic and social performance at regional level

Economic and social disparities between the capital region and the other Danish regions increased in 2000-2022. The capital region (Hovedstaden) continues to be the engine of the Danish economy, accounting for 45% of national GDP and a GDP per capita of 191% of the EU average in 2021 (Graph A17.1). The gap with Denmark's other regions has widened in 2023 (Graph A17.1). Where capital regions GDP per capita raised, all other regions declined. Syddanmark and Midtjylland had similar gap to Hovedstaden with a GDP per capita between 114% and 119% of the EU average. Nordjylland lags more behind with 103%, whereas Sjælland has recorded a GDP per capita of only 85% of the EU average in 2022.

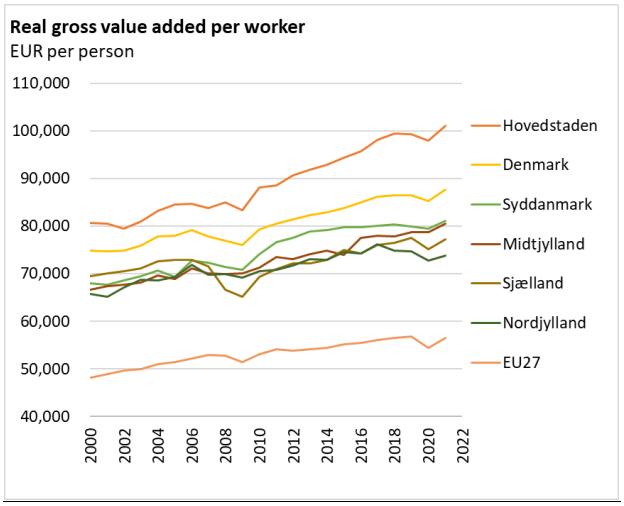
Graph A17.1: **Evolution regional GDP per capita in Denmark**



Source: Eurostat, DG REGIO elaboration

Labour productivity, measured as gross value added per worker, has recovered after the COVID-19 pandemic in all Danish regions. It varies between EUR 101 000 per person employed in 2022 in the Hovedstaden capital region, to EUR 74 000 in the region of Nordjylland, with a national average of EUR 88 604 per person employed (Graph A17.2). Annualised real productivity growth in Denmark was 0.8% in 2013-2022, slightly above the EU average. This was pulled by Hovedstaden with 1.5%, while two Danish regions were largely below EU average, varying from 0.1% for Nordjylland to 0.2% for Syddanmark (Table 1).

Graph A17.2: **Real gross value added per worker**



Source: Eurostat, DG REGIO elaboration

In 2013-2021, population has grown in all Danish regions. This is mainly due to net migration (+0.41%). Population growth and high employment rates, which are quite similar across the regions (>78.1%, in 2023) and exceed the EU average (75.3%), contributed to GDP growth.

Conditions on the labour market remain favourable nationwide. In 2023, the average unemployment rate was 5.1%, a figure that varies little between regions, and is in all regions below EU average of 6.1%. Despite the lack of divergence in unemployment rates across the regions, the regional employment statistics in, for example, high-tech sectors vary more widely, with the capital region performing better than the other regions. In Syddanmark, only 2.4% of total employment in 2022 was in the high-tech sectors, compared to 11.1% in the capital region. 57.2% of employment in the capital region was in knowledge-intensive services while this share is around 12% lower in the other regions.

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

NUTS region name	GDP per head (PPS)	Real GVA per worker	Real productivity growth	GDP per head growth	Population growth	Net migration	Unemployment rate	Population aged 25-64 with high educational attainment	R&D expenditure	Employment in high-technology sectors	Employment in knowledge-intensive services	Biotechnology patent applications to the EPO	Passenger rail transport performance	Greenhouse Gas Emissions		EU Regional Competitiveness Index 2.0 - 2022 edition
	Index, EU27 = 100 (2022)	Thousands of EUR per person (2021)	Average % change on the preceding year (2013-2022)	Average % change on the preceding year (2013-2022)	Average annual change per 1000 residents (2013-2021)	Average annual change per 1000 residents (2013-2021)	% of labour force (2023)	% of population aged 25-64 (2023)	% of GDP (regions 2019, nationwide and EU level 2021)	% of total employment (2022)	% of total employment (2022)	per million inhabitants (2018-2019)	% of population in a 120-km radius that can be reached within 1h30 (2021)	tCO2 equivalent per head (2022)	Percent change per head (%), 1990-2022	Index, EU27 = 100
European Union (27 MS)	100	56	0.7	1.44	1.9	2.9	6.1	35.1	2.3	4.9	40.8	5.6	15.7	8		100
Danmark	137	88	0.8	1.64	5.3	4.1	5.1	42.9	2.8	6.1	49.1	33	23.1	7.7	-42.8	122.9
Hovedstaden	191	101	1.5	2.33	8.4	4.9	5.2	55.1	4.6	11.1	57.2	90.2	50.9	2.4	-69.1	137.7
Sjælland	85	77	0.9	1.55	3.6	5.9	4.6	33.1	1.3	5.4	46.5	3	22.9	8.2	-62.1	115.4
Syddanmark	114	81	0.2	1.09	2.5	2.9	5.2	35.1	1.5	2.4	43.3	5.7	8.7	10.5	-11.5	113.6
Midtjylland	119	80	0.7	1.58	5.9	3.8	5.4	41.2	2.3	3.7	45.1	11.8	9.8	8	-40.4	119.8
Nordjylland	103	74	0.1	0.72	2.2	2.8	4.7	35.1	2	3.1	46.1	1.8	9.4	16.7	-1.9	113.2

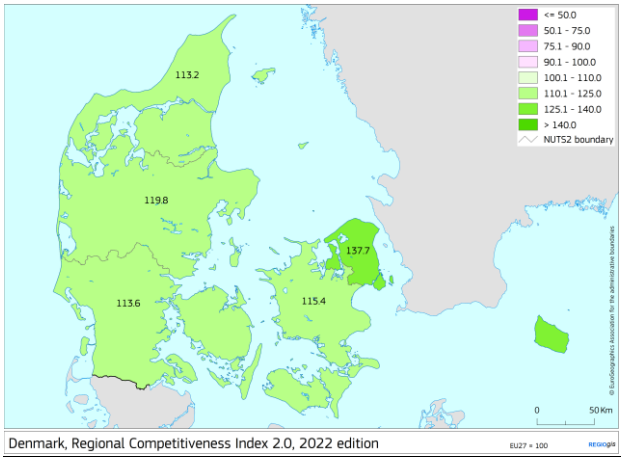
Source: Eurostat, EDGAR database

Despite regional differences, all Danish regions outperform the EU average in terms of regional competitiveness (Map 17.1). The regional competitiveness index (RCI) of Hovedstaden was 137.7 (EU-27 = 100) in 2022, which makes it the eighth best performing region in the EU. The RCI of the other regions is also consistently above the EU average. The capital region can count on the country's highest share of highly educated people aged between 25 and 65 (53.1%; 2022). In Sjælland, Syddanmark and Nordjylland, these shares are considerably lower (32.9%, 34.7% and 34.8%, respectively), and similar to the EU average of 34.3%.

The capital region stands out also in terms of R&D expenditure, which amounted to 4.6% of GDP in 2019, compared to between 1.3% and 2.3% in the other regions (the EU average was 2%). Hovedstaden ranks first among all NUTS2 regions for biotechnology patents with 90 applications per million inhabitants (2018-2019). It ranked 9th for all types of patent applications at EU level (442 per million inhabitants).

Danish regions can rely on highly-connected transport by car but there are wide regional gaps in passenger rail transport performance. In Hovedstaden, 51% of the population is in a 120 km radius that can be reached by train within 1h30 (%). In Sjaelland, this share drops to 23% whereas in other regions it is below the EU average of 15.7%.

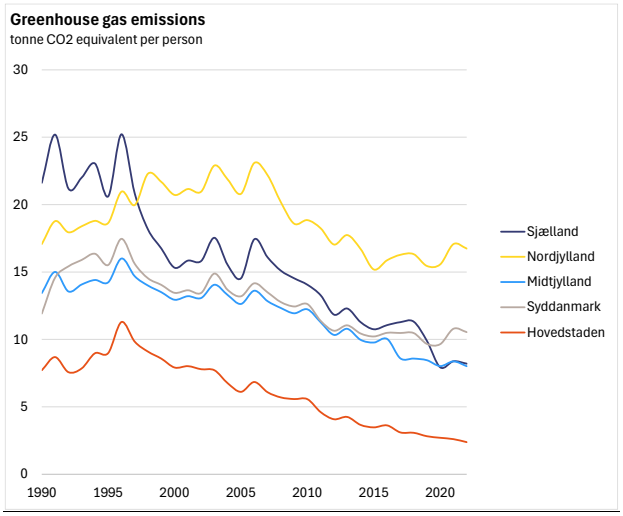
Map A17.1: **Regional Competitiveness Index**



Source: DG REGIO, JRC

All Danish regions have reduced greenhouse gas emissions between 1990 and 2022 (Graph A17.3). In 2022, Denmark had already produced 33.7% less greenhouse gases than it did in 1990, with an average emission of 7.7 tonne per capita (Graph A17.4). There is still substantial variation among the regions linked to peak emissions from energy and industry, with Syddanmark and especially Nordjylland displaying considerably lower overall reductions.

Graph A17.3: **Greenhouse gas emissions per capita in Denmark in 2022**



Source: JRC (EDGAR)

Investment and subnational reform needs ahead

Cohesion policy investments in Denmark support selected areas of particular relevance for the green and digital transition and consider sectors and areas facing specific climate and demographic challenges. The investment strategy agreed in the programmes adopted in 2022 is still valid for the current economic and social situation in Denmark. Considering recent developments, focus would be beneficial on the following elements:

Innovation continues to be key to addressing the challenges related to the green and digital transitions. While the twin transition is particularly burdensome for SMEs, they can play an important role in the transition value chain and as innovators to find solutions for the challenges. They also play an important role in the areas burdened by climate and demographic challenges.

Skilled labour shortages are an obstacle to regional development. There are clear signs of labour shortages across the country in relation to the twin transition and welfare sector, with an overall planned shortfall of 70 000 skilled workers in 2035, compared to 2022. Regarding the healthcare and welfare sector, a shortage of 15 000 workers in 2035 is projected. Although the per capita density of healthcare professionals seems evenly distributed between regions, accessing healthcare services in terms of travel time differs between the capital region and other regions. These differences are considerable at subnational level, where people in Vest-and Sydsjaelland wait the longest to access health services.

Cohesion policy therefore needs continue supporting innovative projects including in SMEs and facilitate investments in net-zero technologies to contribute to a more sustainable and carbon neutral economy, especially in the territories and sectors facing the most challenges as regards the green transition. The transition towards a climate neutral economy also requires creating new job profiles and improving the green skills of the existing workforce.

Denmark could also benefit from the opportunities of the Strategic Technologies for Europe Platform (STEP) initiative to boost investments in critical technologies to support the transformation of industry.

To mitigate regional differences, the region of Sjælland is classed as a transition region, and as such receives a higher level of support. Also, the two regions of Nordjylland and Sydjylland are covered by the Just Transition Fund, which provides them with additional cohesion policy funds. In addition, a high degree of complementarity between the national funding and the EU funding is an essential element in Denmark's implementation of cohesion policy. These factors are key to further decrease regional disparities. National Danish policies will be key in balancing regional gaps, as EU funding in this regard is, comparatively, modest.

Denmark has a well-capitalised banking sector with a strong liquidity position, but pockets of vulnerability exist. The Danish banking sector is 93% domestic and its total assets in mid-2023 were equivalent to 350.3% of the country's GDP. On the back of high earnings and the regulatory tightening of the risk-weighted exposure requirements, the total capital ratio of Danish banks reached 23.3% in Q3-2023 (above the EU average of 19.6%), 0.8 percentage points more than in Q4-2022 and higher than the levels recorded before the COVID-19 crisis. The CET 1 ratio has continued its move upward, reaching 19.4% in Q3-2023, above the EU average of 16.1%. Despite the good capital positions, the Danmarks Nationalbank's twice-yearly stress test ([159]) showed that in a severe recession, some credit institutions could come close to the capital-conservation buffer or face difficulties in fulfilling their overall minimum requirement for own funds and eligible liabilities. In September 2023, the liquidity coverage ratio of Danish banks stood at 208.7% and the net stable funding ratio was 136.2%, comfortably meeting regulatory requirements. However, while both ratios are good indicators of the sector's liquidity position, they do not capture any liquidity risk that could stem from the Danish mortgage-credit institutions that are dependent on their affiliated bank to acquire newly issued mortgage bonds.

Danish banks are profitable, but may see their returns diminishing in the future. Banks' profitability improved significantly in Q3-2023, following growth in core earnings on the back of the highest net interest income since 2011 ([160]), low loan-impairment charges, and a positive value adjustment of securities portfolios. Return on equity almost doubled, jumping from 1.3% in Q3-2022 to circa 12% in Q3-2023. The increase in net interest income was due mainly to higher deposit margins ([161]), as the pass-through of higher interest rates on customer deposits has been lower than the money-market rates banks earn on their excess liquidity. The funding structure of mortgage lending, which relies more on bond investors than it does on deposits, has played a role in this as it reduces the incentive for banks to raise deposit rates. It also explains the high, albeit declining, loan-to-deposit ratio. In the future, it is expected that there will be lower deposit margins and higher impairment charges, and that this will in turn reduce profitability.

Asset quality is strong, but risks of deterioration are looming. Credit quality is strong, with the lowest non-performing loan ratio since 2016 (1.4% in September-2023), below the EU average of 1.8%. Higher interest rates increased the median debt-service-to-income ratio by more than 6 pps since the beginning of 2022, but these higher rates have not yet been fully passed through to households, with only about 12% of existing mortgages expected to have their interest rate change before end-2025. As regards the business loan book, there is an increased risk of credit losses from loans to real-estate activities (real-estate activities includes lending on commercial real estate, but also lending to real estate investment companies and funds that invest in residential properties), which represented approximately 49.1% of the corporate loan book as of September 2023 ([162]), 2.2 percentage points above the September 2022 level. Only 25.5% of the business loan book is linked to commercial real-estate property, equivalent to 3.8% of financial institutions' total lending exposure (versus 4.1% 12 months before), as most of the lending is granted to real estate that ultimately has residential purposes. Real-estate companies are now exposed to higher financing costs as a result of higher interest rates, the economic slowdown, and lower real-estate prices, and these factors may increase banks' share of

([159])Danmarks Nationalbank, November 2023, Financial Stability, No. 20, *High earnings can counteract increased risks for the banks*.

([160]) Danmarks Nationalbank, data on systemic banks.

([161])i.e. the interest premium that the banks can earn by placing their costumers' deposits in the money market.

([162]) EBA Risk Dashboard Q3-2023.

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

	2017	2018	2019	2020	2021	2022	2023	EU	Median
Total assets of the banking sector (% of GDP)	363.0	349.4	384.6	402.5	363.9	347.9	346.0	257.0	184.6
Share (total assets) of the five largest banks (%)	65.7	64.5	66.2	67.1	65.6	65.8	-	-	69.6
Share (total assets) of domestic credit institutions (%)[1]	93.0	93.0	92.9	93.4	93.0	93.8	93.8	-	62.9
NFC credit growth (year-on-year % change)	1.1	4.1	3.2	1.9	6.5	8.3	3.1	-	2.4
HH credit growth (year-on-year % change)	0.4	1.3	1.7	1.2	2.8	-0.4	-0.5	-	1.4
Financial soundness indicators:[1]									
- non-performing loans (% of total loans)	2.5	2.3	1.9	1.9	1.8	1.5	1.4	1.8	1.8
- capital adequacy ratio (%)	22.1	21.6	22.4	23.2	22.8	22.5	23.3	19.6	20.1
- return on equity (%)[2]	10.8	8.0	8.7	4.5	8.2	3.8	11.9	9.9	13.2
Cost-to-income ratio (%)[1]	51.2	57.7	61.0	63.3	58.3	71.3	45.6	52.8	44.9
Loan-to-deposit ratio (%)[1]	228.7	240.7	248.9	215.8	222.3	209.6	205.9	93.3	80.2
Central bank liquidity as % of liabilities	0.1	0.1	0.0	0.1	0.1	-	-	-	0.7
Private sector debt (% of GDP)	216.7	215.3	221.2	217.1	206.9	188.0	-	133.0	118.4
Long-term interest rate spread versus Bund (basis points)	15.9	5.8	6.9	15.1	31.3	33.5	20.3	107.7	104.2
Market funding ratio (%)	44.8	42.4	41.4	40.2	38.2	35.2	-	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.

non-performing loans, albeit from low current levels (only 0.7% as of September 2023). Real-estate firms are mostly financed through mortgage loans granted by the systemically important credit institutions, mainly mortgage-credit institutions, albeit with a growing share of financing by medium-sized banks. Due to the collateral structure, there is greater risk of losses for the banks than for the mortgage-credit institutions. This is because mortgage-credit institutions tend to have a higher-ranking claim than banks on the mortgaged properties posted as collateral by real-estate firms. As a result, banks have only around 70% of their lending to real-estate firms collateralised with properties, while the remaining 30% is collateralised with other types of collateral. Other credit or company-related characteristics (such as loan structure, level of indebtedness or the real-estate portfolio) pose additional risks, justifying the Systemic Risk Council's recommendation to activate a sector-specific systemic risk buffer of 7% for exposures to real-estate businesses.

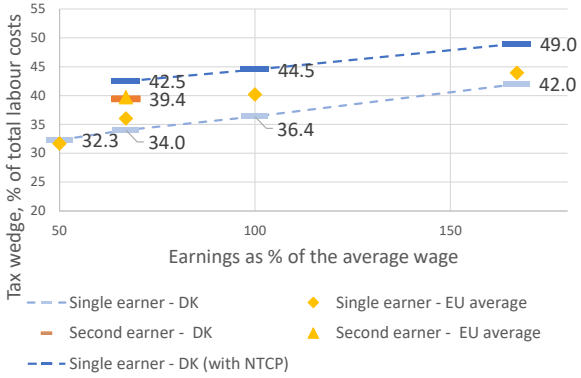
Pension and life-insurance companies are solvent and well capitalised. In terms of assets, life insurers continue to dominate the market, with a 90% share of combined assets held by pension and insurance companies in Q4-2022. In 2022, assets held by non-life insurers declined, and larger bond holders were particularly affected by sharp interest-rate increases. Their profits shrank due to lower investment income and) higher claims costs, but were only marginally affected by the flood in autumn 2022, as natural catastrophes are generally covered by governmental schemes. Negative investment returns affected the profitability of life insurers and pension funds, which recorded investment losses in 2022. The solvency ratio for the entire sector remained robust, albeit slightly declining from 249% in 2021 to 241.1% in 2022. As the European Market Infrastructure Regulation (EMIR) exemption ended in June 2023, pension and life-insurance companies settled new interest-rate hedging contracts via a central clearing house and boosted cash deposits in the event of significant interest-rate fluctuations. This led several companies to increase their number of repo counterparties and strengthen their access to liquidity.

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

Denmark's tax revenue is relatively high in relation to its GDP. It is well-balanced between different tax types in a growth-friendly way. Table A19.1 shows Denmark's revenues from different tax types as a percentage of GDP. Denmark's total tax revenue as a percentage of GDP (41.9%) was among the highest in the EU in 2022. Revenues from labour taxation and, to some extent, consumption and environmental taxation were comparatively high relative to other EU countries as a percentage of GDP. Labour taxes as a share of GDP were higher in Denmark than in the EU as a whole, and the share of labour taxes as a share of total taxes was also higher in Denmark at 53.2% in 2022 than in the EU as a whole at 50.6% (see Graph A19.2). Denmark's tax structure is characterised by comparatively high consumption and environmental tax revenues as a share of total taxation compared with the EU aggregate. Recurrent taxes on property were among the highest in the EU as a percentage of both GDP and total tax revenues. However, Denmark also has one of the highest mortgage interest payment tax deductions in the EU and this incentivises the financing of residential property through debt. A new property tax system seeking to address the debt incentive and increase fairness entered into force on 1 January 2024. The new system is based on new and improved information for each property and allows the property owner to add more data. Adjustments have also been made to the system to assure the quality of the appeal procedure. Data sourcing and accuracy continue to present challenges for the Danish authorities.

Denmark's Recovery and Resilience Plan focuses on a fair transition towards greener energy sources and digitalising services. It includes a green tax reform that comprises several pieces of legislation to accelerate decarbonisation in a wide range of sectors. For example, investments in the green transition are expected to be incentivised though a new accelerated depreciation to provide an investment window from 2024 ([163]). New taxes on CO_2 emissions covering various sectors are expected to be introduced in 2025 ([164]), while the design of a specific climate tax covering the agricultural sector is yet to be decided. An expert group has presented three different models which are now to be discussed and agreed politically ([165]).

Graph A19.1: **Tax wedge for single and second earners as a % of total labour costs, 2023**



Note: Second earners are members of a family with the primary earner earning 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 and OECD

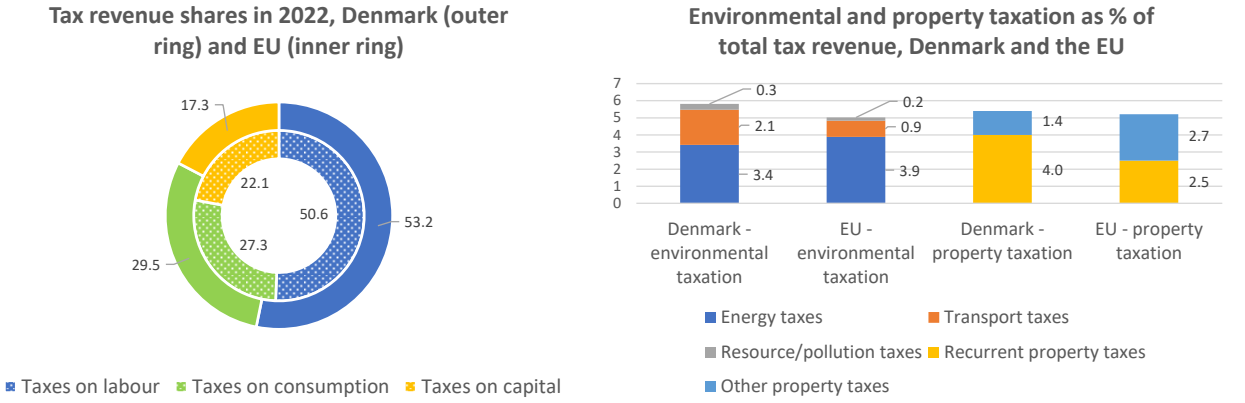
Denmark's labour tax burden is lower than the EU average across the income distribution. Graph A19.1 shows that the labour tax wedge for Denmark in 2023 was below the EU average for single people at all wage levels. Yet, non-tax compulsory payments significantly increase the compulsory payment wedge for a single earner at all wage levels. The tax wedge for second earners at 67% of the average wage, whose spouses earn the average wage, was around the EU average in

([163]) https://www.ft.dk/samling/20222/almdel/sau/spm/410/svar/1987493/2764398.pdf

([164]) Political Agreement on a Green Tax Reform. Draft Bill on a New CO_2 Emission Taxes

([165]) https://skm.dk/aktuelt/presse-nyheder/pressemeddelelser/ekspertgruppen-praesenterer-tre-modeller-for-en-co2e-afgift-for-landbruget

Graph A19.2: **Tax revenues from different tax types, % of total revenue**



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

2023. However, the difference between the tax wedges of second and single earners at 67% of the average wage was wider for Denmark than the EU average. The higher tax wedge for second earners in Denmark implies lower work incentives for second earners (who are often women) than for single earners at the same wage level. Overall, in 2022 the tax-benefit system helped reduce inequality (as measured by the GINI coefficient) by substantially more than the EU average. In 2023, the government announced a personal income tax reform which is expected to lower labour taxes by DKK 10 billion (EUR 1.3 billion) (net) annually from 2026 ([166]).

Denmark performs relatively well on tax compliance and tax administration. The new IT system (PSRM) has, according to official sources ([167]), seen debt collection increase from DKK 3.7 billion (EUR 0.5 billion) in 2021 to DKK 12.6 billion (EUR 1.7 billion) in 2022 ([168]). Outstanding tax arrears were 12.1% of total revenue in 2021. This was significantly below the EU-27 average of 35.5%, although the latter was inflated by very large values in a few Member States. The VAT gap (an indicator of the effectiveness of VAT enforcement and compliance, where a low gap indicates high effectiveness) stood at 5.0% in 2021 and continued to be below the EU-wide gap of 5.4% (Table A19.1). However, it did not decrease, contrary to the EU trend which was partly due to COVID-19 effects. It is forecast to have increased slightly in 2022.

([166]) https://skm.dk/aktuelt/presse-nyheder/pressemeddelelser/ny-skattereform-sender-10-mia-kroner-i-lommerne-paa-det-arbejdende-danmark

([167]) See the note to the Danish parliament indicating measures needing to be taken: UFU Almdel Bilag 61 SAU alm del Bilag 260pdf (ft.dk) and the proposal subsequently submitted to the parliament: L 9 - 2023-24 (som fremsat): Forslag til lov om ændring af lov om inddrivelse af gæld til det offentlige, kildeskatteloven, opkrævningsloven og skatteforvaltningsloven. (Gennemførelse af aftale om initiativer til effektiv opkrævning og gældsinddrivelse i.

([168]) https://gaeldst.dk/publikationer/inddrivelsesprovenu-2022

Table A19.1: **Taxation indicators**

		Denmark					EU-27				
		2010	2020	2021	2022	2023	2010	2020	2021	2022	2023
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	45.0	47.4	47.6	41.9	43.7	37.9	40.0	40.4	40.2	
	Labour taxes (as % of GDP)	22.7	24.2	23.9	22.3		20.0	21.3	20.7	20.3	
	Consumption taxes (as % of GDP)	14.6	13.9	13.2	12.3		10.8	10.7	11.2	11.0	
	Capital taxes (as % of GDP)	7.7	9.3	10.5	7.3		7.1	8.0	8.6	8.9	
	Of which, on income of corporations (as % of GDP)	2.3	2.9	3.9	3.1		2.4	2.5	3.0	3.4	
	Total property taxes (as % of GDP)	2.5	2.7	2.5	2.3		1.9	2.3	2.2	2.1	
	Recurrent taxes on immovable property (as % of GDP)	2.0	2.0	1.8	1.7		1.1	1.2	1.1	1.0	
	Environmental taxes as % of GDP	4.0	3.2	2.8	2.4		2.4	2.2	2.3	2.0	
Progressivity & fairness	Tax wedge at 50% of average wage (Single person) (*)	31.2	30.9	31.1	32.2	32.3	33.9	31.7	32.1	31.8	31.7
	Tax wedge at 100% of average wage (Single person) (*)	35.9	35.8	35.9	36.3	36.4	41.0	40.1	39.9	40.0	40.2
	Corporate income tax - effective average tax rates (1) (*)		20.3	20.2	20.2			19.5	19.0	19.0	
	Difference in Gini coefficient before and after taxes and cash social transfers (pensions excluded from social transfers) (2) (*)	12.2	11.2	12.0	11.0		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 %) (*)		12.2	12.1				40.9	35.5		
	VAT Gap (% of VAT total tax liability, VTTL)(**)	11.5	4.3	5.0	5.9			9.7	5.4		

(1) Forward-looking effective 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.

ANNEX 20: TABLE WITH ECONOMIC AND FINANCIAL INDICATORS

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)	2.5	-0.4	1.6	6.8	2.7	1.9	2.6	1.4
Potential growth (y-o-y)	.	1.0	1.8	2.3	2.4	2.2	1.8	1.5
Private consumption (y-o-y)	3.3	-0.3	1.6	5.5	-1.4	1.0	2.1	1.5
Public consumption (y-o-y)	1.6	1.6	0.5	4.6	-2.8	0.0	1.7	2.4
Gross fixed capital formation (y-o-y)	5.8	-3.6	3.9	6.6	3.2	-5.0	-1.9	1.8
Exports of goods and services (y-o-y)	6.2	1.0	2.4	7.7	10.8	13.4	9.8	1.8
Imports of goods and services (y-o-y)	9.5	0.5	3.1	8.8	6.5	8.6	8.6	2.4
Contribution to GDP growth:								
Domestic demand (y-o-y)	3.2	-0.5	1.7	5.1	-0.6	-0.6	0.9	1.6
Inventories (y-o-y)	0.3	-0.2	0.0	1.8	0.4	-1.8	0.0	0.0
Net exports (y-o-y)	-1.0	0.3	-0.1	-0.1	3.0	4.3	1.7	-0.2
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	.	-0.1	0.4	1.0	1.1	1.0	0.7	0.3
Capital accumulation (y-o-y)	.	0.3	0.6	0.8	0.8	0.5	0.4	0.4
Total factor productivity (y-o-y)	.	0.9	0.8	0.5	0.4	0.6	0.7	0.8
Output gap	3.2	-2.4	-1.9	-0.9	-0.5	-0.8	0.1	0.0
Unemployment rate	4.5	6.7	5.8	5.1	4.5	5.1	5.6	6.0
GDP deflator (y-o-y)	2.4	2.2	1.1	2.9	8.1	-3.5	2.2	2.5
Harmonised index of consumer prices (HICP, y-o-y)	1.5	2.4	0.5	1.9	8.5	3.4	2.0	1.9
HICP excluding energy and unprocessed food (y-o-y)	1.2	2.1	0.7	1.1	5.3	5.2	1.9	1.8
Nominal compensation per employee (y-o-y)	3.4	2.6	1.7	3.1	3.1	2.8	5.3	4.7
Labour productivity (real, hours worked, y-o-y)	1.5	0.7	1.4	0.7	-1.3	1.4	2.5	1.8
Unit labour costs (ULC, whole economy, y-o-y)	2.3	2.0	1.2	-1.2	4.2	2.4	2.4	2.9
Real unit labour costs (y-o-y)	0.0	-0.2	0.2	-4.0	-3.6	6.0	0.2	0.4
Real effective exchange rate (ULC, y-o-y)	1.2	-0.3	-0.2	-1.2	0.8	-4.0	-2.2	0.6
Real effective exchange rate (HICP, y-o-y)	0.1	-0.4	-0.1	-0.7	-1.2	0.3	.	.
Net savings rate of households (net saving as percentage of net disposable income)	-2.7	-0.1	4.0	2.5	6.8	.	.	.
Private credit flow, consolidated (% of GDP)	17.5	5.3	4.1	11.5	13.1	4.3	.	.
Private sector debt, consolidated (% of GDP)	192.3	224.0	216.9	206.9	188.0	196.6	.	.
of which household debt, consolidated (% of GDP)	116.5	136.5	117.6	102.0	84.8	88.9	.	.
of which non-financial corporate debt, consolidated (% of GDP)	74.8	86.8	99.0	104.9	103.2	107.6	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (1)	.	2.9	3.0	1.7	1.5	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	3.6	7.8	6.0	6.4	9.1	5.7	7.0	7.5
Corporations, gross operating surplus (% of GDP)	22.7	22.3	24.5	27.2	29.7	24.6	25.2	25.8
Households, net lending (+) or net borrowing (-) (% of GDP)	-4.8	-1.0	1.0	-1.2	1.1	1.7	1.9	2.0
Deflated house price index (y-o-y)	11.1	-6.0	4.0	9.5	-7.4	-6.5	.	.
Residential investment (% of GDP)	6.2	4.3	4.6	5.9	5.2	5.1	.	.
Current account balance (% of GDP), balance of payments	3.0	5.2	8.1	9.1	13.4	10.9	11.7	11.3
Trade balance (% of GDP), balance of payments	4.2	5.5	6.8	6.7	11.1	9.6	.	.
Terms of trade of goods and services (y-o-y)	0.4	0.6	0.6	0.7	1.2	-6.5	-0.7	0.2
Capital account balance (% of GDP)	0.1	0.1	-0.1	0.1	0.1	-0.3	.	.
Net international investment position (% of GDP)	-0.8	14.5	56.1	72.9	58.2	58.9	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (2)	-25.6	-18.5	18.9	30.9	35.1	.	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (2)	139.7	163.7	167.1	162.2	152.8	.	.	.
Export performance vs. advanced countries (% change over 5 years)	.	.	-2.1	10.1	16.2	13.2	.	.
Export market share, goods and services (y-o-y)	-1.6	-3.8	1.3	-2.9	5.6	12.2	6.1	-1.8
Net FDI flows (% of GDP)	1.8	2.1	1.9	4.4	-0.5	1.2	.	.
General government balance (% of GDP)	4.3	-1.6	1.0	4.1	3.3	3.1	2.4	1.4
Structural budget balance (% of GDP)	.	.	1.4	4.6	3.6	3.6	2.4	1.4
General government gross debt (% of GDP)	35.1	41.4	38.2	36.0	29.8	29.3	26.5	25.1

(1) domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.
(2) 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 Denmark 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 short-term fiscal risks (Table A21.2) ([169]). Government gross financing needs are expected to decrease to around 4% of GDP on average over 2024--2025 (Table A21.1, Table 1). Financial markets' perceptions of sovereign risk remain positive, as confirmed by the CDS spread and the 'AAA' rating that the three major rating agencies assigned to Danish government debt.

2 – Medium-term fiscal sustainability risks appear low.

The DSA baseline shows that the government debt ratio is expected to decline significantly and to remain below 60% of GDP in the medium term (at around 5% of GDP in 2034) (Graph 1, Table 1) ([170]). The debt reduction is supported by an assumed structural primary surplus (excluding changes in cost of ageing) of 2.9% of GDP as of 2024. This appears plausible compared to past fiscal performance (Table A21.2) ([171]). The debt decline also benefits from a slightly favourable but declining snowball effect, notably thanks to the impact of Next Generation EU. Finally, government gross financing needs are expected to remain limited and on a strong declining path over the projection period, reaching a negative value in 2034 (-0.7% of GDP), below the average over 2024-2025.

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). For Denmark, all the stress test scenarios would lead to slightly worse results as compared to the baseline, with particularly adverse developments under the *lower structural primary balance scenario* (i.e. the projected cumulative improvement in the SPB over 2023-2024 is halved). Under this stress scenario, the debt ratio would be higher than under the baseline by about 6 pps. of GDP in 2034. Under the *historical structural primary balance (SPB) scenario* (i.e. the SPB returns to its historical 15-year average of 2.5% of GDP), the debt ratio would be higher than under the baseline by around 3 pps. of GDP in 2034. Under the *adverse interest-growth rate differential scenario* (i.e. the *interest-growth rate* deteriorates by 1 pp. compared with the baseline), the debt ratio would be higher than under the baseline by around 1 pp. of GDP in 2034. The smallest adverse impact on the debt ratio is projected for 2034 under the *financial stress scenario* (i.e. interest rates temporarily increase by 1 pp. compared with the baseline), with debt ratio that would be broadly unchanged compared with the baseline.

The stochastic projections indicate low risk, pointing to the low sensitivity of these projections to plausible unforeseen events ([172]). These stochastic simulations

([169]) 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.

([170]) The assumptions underlying the Commission's 'no-fiscal policy change' baseline include in particular: (i) a structural primary surplus, before changes in ageing costs, of 2.9% 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 1.1%); (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 (European Commission, Institutional Paper 271, March 2024).

([171]) 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 2022.

([172]) The stochastic projections show the joint impact on debt of 10000 different shocks affecting the government's

indicate about 4% probability that the debt ratio will be higher in 2028 than in 2023, implying low risks given the low debt level. In addition, the uncertainty surrounding the baseline debt projections (as measured by the difference between the 10th and 90th debt distribution percentiles) is low, reaching around 16 pps. of GDP in five years' time) (Graph 2).

3 – Long-term fiscal sustainability risks appear overall low. 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 ([173]). This assessment is driven by the favourable initial budgetary position, which more than offset the projected increase in ageing costs. Hence, these results are conditional on the country maintaining a sizeable SPB over the long term.

The S2 indicator points to low fiscal sustainability risks. The indicator shows that, relative to the baseline, the SPB could relax its fiscal position by 1.7 pps. of GDP in 2025 and still ensure debt stabilisation over the long term. This result is underpinned by the favourable initial budgetary position (contribution of -2.5 pps. of GDP), which is partially offset by the projected increase in ageing-related costs (contribution of 0.8 pp.). Ageing cost developments are primarily driven by a projected increase in long-term care (2.8 pps. of GDP) and health-care spending (0.7 pp.), which is partly offset by the decrease in public pension expenditure (-2.1 pps.) (Table A21.1, Table 2).

The S1 indicator points to low fiscal sustainability risks. The indicator shows that the country could relax its fiscal position by 2.8 pps. of GDP in 2025 and still ensure that the debt ratio will not exceed 60% of GDP in 2070. This result is mainly driven by the favourable initial budgetary position (contribution of -2.8 pps. of GDP) and to a lesser extent the debt requirement (-0.7 pp.), which is partly offset by the projected increase of the ageing-related public expenditure (0.8 pp.) (Table A21.1, Table 2).

4 – Finally, several additional risk factors need to be considered in the assessment. On one hand, risk-increasing factors are related to the higher interest rates, contingent liability risks stemming from the private sector, including via the possible materialisation of sizeable state guarantees granted to firms and self-employed during the COVID-19 crisis. Overall, this risk remains limited due to relatively low take-up. Contingent liability risks stemming from the banking sector point to moderate risks. On the other-hand, risk-mitigating factors include the lengthening of debt maturity in recent years, relatively stable financing sources (with a diversified and large investor base) and the currency denomination of debt. In addition, Denmark's positive net international investment position helps mitigating vulnerabilities.

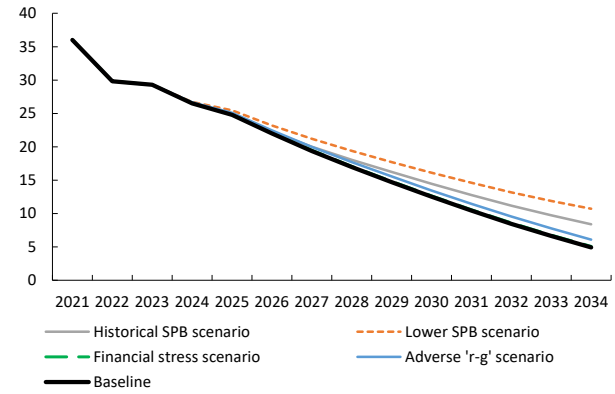
budgetary position, economic growth, interest rates and exchange rates. This covers 80% of all the simulated debt paths and therefore excludes tail events.

([173]) The S2 fiscal sustainability indicator measures the permanent SPB adjustment in 2025 that would be required to stabilise public debt in the long term. It is complemented by the S1 indicator, which measures the permanent SPB adjustment in 2025 to bring the debt ratio to 60% by 2070. For both the S1 and S2 indicators, the risk assessment depends on the amount of fiscal consolidation needed: 'high risk' if the required effort exceeds 6 % 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.

Table A21.1: Debt sustainability analysis - Denmark

Table 1. Baseline debt projections	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio (% of GDP)	**36.0**	**29.8**	**29.3**	**26.5**	**24.8**	**22.0**	**19.4**	**17.0**	**14.7**	**12.5**	**10.4**	**8.5**	**6.6**	**4.9**
Changes in the ratio	-6.3	-6.2	-0.5	-2.8	-1.7	-2.8	-2.6	-2.4	-2.3	-2.2	-2.1	-2.0	-1.8	-1.7
of which														
Primary deficit	-4.6	-4.1	-3.7	-2.9	-2.3	-2.3	-2.2	-2.2	-2.0	-2.0	-1.9	-1.8	-1.6	-1.6
Snowball effect	-3.3	-2.9	1.1	-0.9	-0.4	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
Stock-flow adjustments	1.6	0.7	2.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing needs (% of GDP)	7.7	4.9	4.3	3.8	3.5	2.1	1.3	0.7	0.3	0.0	-0.2	-0.4	-0.6	-0.7

Graph 1. Deterministic debt projections



Graph 2. Stochastic debt projections 2023-2027

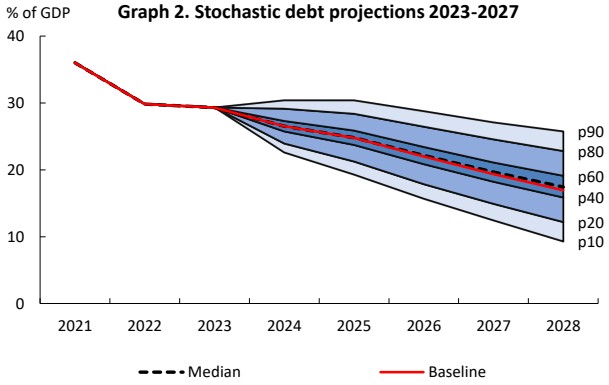


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

		S1	S2
Overall index (pps. of GDP)		**-2.8**	**-1.7**
of which			
Initial budgetary position		-2.8	-2.5
Debt requirement		-0.7	
Ageing costs		0.8	0.8
of which	*Pensions*	-1.2	-2.1
	Health care	0.4	0.7
	Long-term care	2.0	2.8
	Education	-0.4	-0.6

Source: European Commission services

Table A21.2: Heatmap of fiscal sustainability risks - Denmark

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	LOW	Overall	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
		Debt level (2034), % GDP	4.9	8.4	10.7	6.1	5.1				
		Debt peak year	2024	2024	2024	2024	2024				
		Fiscal consolidation space	66%	72%	74%	66%	66%				
		Probability of debt ratio exceeding in 2028 its 2023 level						4%			
		Difference between 90th and 10th percentiles (pps. GDP)						16.4			

(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: European Commission (for further details on the Commission's multidimensional approach, please see the 2023 Debt Sustainability Monitor)