




5.4 Creating job opportunities

Potential not (yet) fully realised

Past progress: The EU was able to create significantly more job opportunities as part of the transition towards climate neutrality in the last few years. The employment rate in regions most affected by the transition was not only the highest on record in 2022 (Eurostat, 2024d), but is also **on track** to meet the objective set by The European Pillar of Social Rights Actions Plan (at least 78% by 2030 in the entire EU (EC, 2021o)). There is room for further improvement as inequalities between regions remain. For employment in the renewable energy sector, the dynamics accelerated in 2022, and the indicator was on the verge of begin assessed as **on track**. In the employment in relevant environmental goods and services, there was progress too, with now over 1.7 million people in the EU working in the sector; however, the pace of growth needs to increase to meet the needs of the changing labour market.

Table 34: Progress on creating job opportunities

Employment rate in regions	
Employment in Environmental Goods and Services	
Employment in all Renewable Energy Sources	

Policy context: The EU has a complex policy framework to support employment. The key policy measure in ‘regions in transition’ is the Just Transition Mechanism (JTM). Beyond the JTM, there is also the Effective Active Support to Employment (EASE): guidance to Member States (MS) on active labour market policies and their funding. To support employment in the emerging green energy sector, the EU has over 10 funding instruments (ESABCC, 2024), including the European Skills Agenda and RePowerEU with its sectoral strategies such as the EU Solar PV Alliance and the BUILD UP skills initiative. Several good practices examples also exist at the MS level, such as the ‘Green Skills and Jobs Programme’ in Portugal.

Areas of action: An effective policy tool to further support (green) job creation would be the introduction of specific and ambitious sector targets, both at the EU and MS level. Another priority area should be to adjust skills available in the labour market to the needs of rapidly growing - and changing – sectors fundamental to the transition to climate neutrality. The first step in this direction would be a state-led, systemic gathering of data on shortages of skilled professionals in each key transition profession, and the use of this data to create adequate training programmes (SolarPower Europe, 2023).

A closer look at past progress

The transition to a climate neutral economy, if planned and facilitated well, offers a unique opportunity for the large-scale creation of new, good-quality jobs for all citizens (EP, 2023a). However, if underestimated in its challenges, it can also pose risks to existing employment – in particular, in regions dependent on economic sectors which undergo particularly deep transformations. This analysis aims to better understand how effective the EU is in both the creation of new job opportunities and transitioning the existing workplaces.

Three employment-related indicators inform this analysis. Two of them refer to state- and EU-wide changes in employment related to the emergence, changes in and/or growth of sectors directly engaged with the transition: ‘employment in the renewable energy sector’ covers direct and indirect employment in this key area of the transition; ‘employment in environmental goods and services’ is a broader indicator, which shows progress within the following three areas as defined by Eurostat: CEPA 1: ‘Protection of ambient air and climate’, CReMA 13A: ‘Energy from renewable sources’, and CReMA 13B: ‘Energy savings and management’. The third indicator, ‘employment rate in regions’, covers progress not only in green jobs creation but also takes into account all employment opportunities in the regions considered, and serves as a proxy for their overall economic development – the regions of the EU which have been identified as carbon-intensive, as well as deemed eligible for the Just Transition Fund (JTF) (EC, 2020l).

Employment rates in regions most affected by the transition

In 2022, the employment rate among the population between the ages of 20 and 64 in the EU regions most affected by the transition was 74.2% (Eurostat, 2024d). This number was very close to the employment rate for the whole EU, which was at a record-setting high level of 74.6%. These numbers lead to two significant positive conclusions: firstly, employment in the EU as a whole has recovered from the sudden fall caused by the COVID-19 pandemic in 2020, and secondly, regions most affected by the energy transition are not being left behind in this progress. Notably, the pace of employment growth in the ‘regions in transition’ is also **on track** with the objective of reaching the EU’s overall employment goal of at least 78% by 2030 in the entire EU set by The European Pillar of Social Rights Action Plan (EC, 2021o). The level and the fast pace of improvement of the indicator after the crisis of 2020 could be a signal that key policies at the EU level, such as the above-mentioned Action Plan together with the JTM, have started proving successful in steering the EU’s labour-related strategy towards objectives based on solidarity and fairness. Nonetheless, the work is not yet done and key challenges remain as discussed in the following sections.

Trends on a national and regional level

In 2022, despite the overall positive trend of progress, certain inequalities between MS and regions remained and should not be overlooked by policy-makers. Notably, however, the lines of the inter-state and inter-regional inequalities do not seem to correspond with the extent to which the regions are affected by the energy transition: Regions identified under the JTF as most affected by the transition can be found on all sides of the spectrum of regional employment rates. Some JTF regions such as Groningen in the Netherlands (80.9%), Brandenburg in Germany (82.1%), or Łódzkie in Poland (78.6%) significantly exceed EU's average employment rate (74.6%) (Eurostat, 2024f). These, and other 'regions under transition' with employment rates above the EU's average are largely in states whose national rates are also exceeding the average, which suggests that policies and other factors which function at a national level – rather than the JTF region-specific support – have thus far had the largest impact on those regions.

On the other hand, the regions most affected by the transition to climate neutrality with employment rates below both the EU average and the averages of their respective countries are often the ones for which support from the JTF has only launched recently. Hence, there is potential for rapid targeted improvement once the funds are put to use, and the accompanying measures are implemented locally. Examples of such regions are 1) Western Macedonia in Greece, with an employment rate of 58.8% (with a rise of only 4.2 percentage points since 2018, while the Greek national employment rate is 66.3%), and 2) Sulcis-Iglesiente in Sardinia, Italy, which in 2022 recorded an employment rate of 58.6% (only 2.5 percentage points more than in 2018, while the whole of Italy recorded a rate of 64.8%). Western Macedonia and Sulcis-Iglesiente have only been included in the JTF and began the implementation of the Territorial Just Transition Plans, in 2023 and 2022 respectively, meaning that the latest labour market statistics from 2022 will not yet have captured the progress that might have been facilitated by these funds more recently.

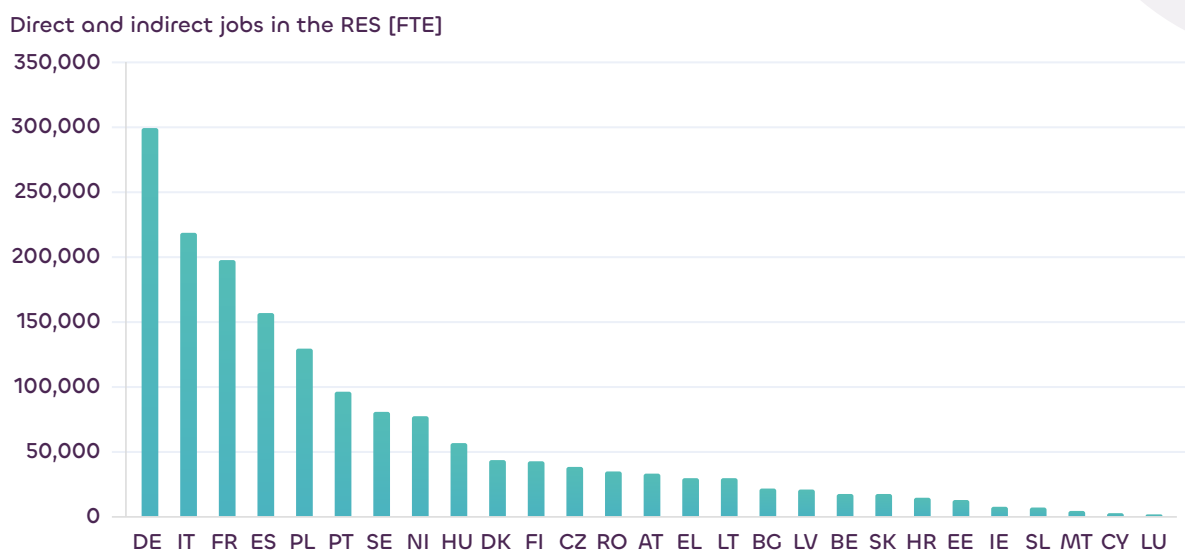
Employment in the renewable energy sector

Naturally, a sector that has great potential in terms of job creation during and after phasing out fossil fuels is the sector of renewable energy sources (RES), such as wind power, photovoltaic, solar thermal, heat pumps, and more (EurObserv'ER, 2023). The most recent data concerning employment and job creation in RES in the EU include data up until 2022 and shows an average annual increase of 4.6% between 2017 and 2022. This development was moving in the right direction but still marginally **too slow** to be classified as **on track** with climate neutrality goals.

That said, the total direct and indirect employment in the RES sector was 15% higher in 2022 than in 2021, totalling an estimated 1.69 million full-time equivalents (EurObserv'ER, 2024) and demonstrating a high potential for exponential growth in these sectors. Progress has also been spread throughout the EU, with 20 out of 27 MS having either maintained or increased their number of renewable energy jobs compared to the previous year. The MS which experienced the largest growth from 2021 to 2022 was Portugal (+46,400 new jobs, a 92% increase), whose notable progress has been largely due to the completion of one of the country's largest hydropower plants at the Tâmega energy storage complex in northern

Portugal. Following Portugal, the greatest increases were seen in Germany (+42 200 new jobs, a 16% increase), and Spain (+32,400 jobs, a 26% increase), both of whose highest-emplying renewable energy sectors were photovoltaics and wind. The most significant progress in employment per technology was noted for photovoltaics (PV) (+123,800 jobs, a 55% increase compared to 2021). This has been largely due to an ample increase in newly installed capacity in Germany after the beginning of the 2022 fossil fuel crisis, resulting in 31,100 new full-time jobs in the photovoltaic sector. The boom in PV production capacity was also observed in Denmark, Hungary, and Sweden, which together contributed to a total of 34,900 new jobs in the sector.

Figure 11: Gross employment in all RES in EU Member States in 2022

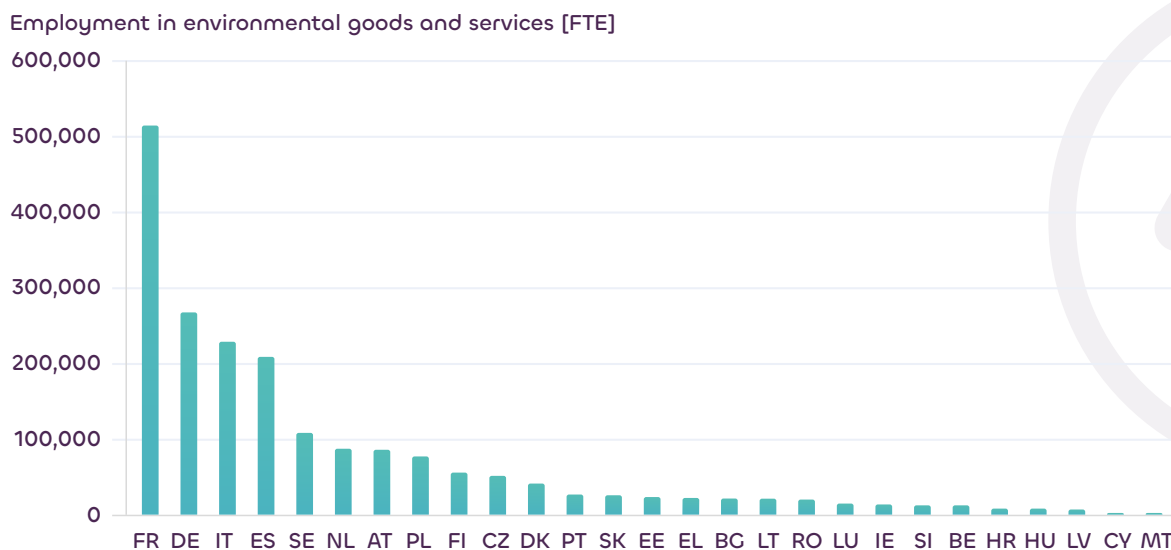


Source: (EurObserv'ER, 2023)

Employment in environmental goods and services

‘Employment in environmental goods and services’ measures job creation in three sectors identified by Eurostat: 1) ‘Protection of ambient air and climate’ (CEPA 1), 2), ‘Production of energy from renewable sources’ (CReMA 13A), and 3) ‘Heat/energy saving and management’ (CReMA 13B) (the latter have been classified by Eurostat together as ‘Resource Management Activities’ up until 2024 (CReMA)) (Eurostat, 2024e). This indicator concerns only direct employment, but in a wider scope of activities than previously analysed. Official EU data is only available in those separate subcategories and the most recent data for all is from 2020, so it is not expected to reflect the recent fast growth in RES sectors yet.

Employment in these three subsectors combined grew steadily at the average annual pace of 3.7% between 2015 and 2020. Yet, the dynamics were different for each of them: For the jobs related to the protection of ambient air and climate, a decline through 2017 was followed by a consistent, yet rather slow, growth in employment that continued until 2020. Jobs in the production of energy from renewables have only grown from 667,000 in 2015 to 697,000 in 2020, with notable drops along the way in 2017 and 2018. Simultaneously, the number of jobs in energy saving and management has experienced solid growth from 869,000 in 2015 to over 1.2 million in 2020 (Eurostat, 2024e).

Figure 12: Employment in environmental goods and services by Member States in 2020

Source: (Eurostat, 2024e)

EU and Member States policies

Creating new, green, and good-quality jobs in the process of building a climate neutral economy is an endeavour which falls within the sphere of competencies of various policy areas. The legislation at the EU level often sets the tone for national policies by establishing EU-wide objectives, such as employment and up/re-skilling targets, while the MS set the national employment goals and have decisive authority in the implementation and design of specific policies.

EU policies

The EU-level policies regarding job creation can be broadly divided into two categories: firstly, there is the policy area focused on developing the green energy sector and creating new jobs within it, and secondly, there are policy mechanisms aimed specifically at improving employment opportunities for workers from the fossil fuel and other high-emitting industries ('just transition policies', largely focused on the regions most affected by the transition). In both categories, EU policies seem to be setting the tone for broader policy actions on the national and regional level.

It is worth noting that the most recent data available for the indicator 'employment rate in regions' and 'employment in the renewable energy sector' come from 2022, while for 'employment in environmental goods and services', the data still comes from 2020. It is therefore not possible to assess the impact of some of the key policies discussed below as, certain regions have only been included in the JTM in the last two years and other significant policies such as the Effective Active Support to Employment (EC, 2021a) have only been introduced in the last few years.

The key legislation comprehensively addressing the reality of the transition to climate neutrality is the Fit for 55 package, which offers regulatory changes in all sectors of the EU's economy to align them with the commitment to reduce GHG emissions by at least 55% by 2030 (EC, 2021c). Under such legislation, it is expected that a profound shift in the structure of the labour force between sectors, occupations, regions, and required skillsets will emerge. (ESABCC, 2024). Particularly, a significant shift in required skills is expected as interpersonal communication and digital technology use skills will be most in demand, whereas the demand for skills related to the use of traditional tools and technologies will decline (Bongrovi et al., 2023).

In preparation for such notable changes in skills demanded by the labour market, as per July 2023, the EU had 13 funding instruments for upskilling and reskilling (ESABCC, 2024). Key ones are the European Skills Agenda (EC, 2020j), the JTM, RePower EU with its sectoral strategies such as the EU Solar PV Alliance, the The Recovery and Resilience Facility (RRF), the InvestEU Programme, the BUILD UP skills initiative, the European Social Fund Plus, and Erasmus+. The year 2023 was also termed 'The European Year of Skills' to promote action to improve and expand the skillsets of the workers. As a result, thousands of initiatives enhancing skill development were held around the EU in 2023 (EC, 2024k).

In the category of facilitating the employment of workers in regions, a key legislation is the JTM. It aims at preventing potential negative socio-economic impacts in regions so far dependent on carbon-intensive production, which makes them vulnerable during the transition to climate neutrality. The JTM is set up to mobilise around EUR 55 billion to alleviate the economic burden of the transition where it is expected to appear. Spending of these funds is programmed in Territorial Just Transition Plans. Thus, a range of employment-related policy measures (from retraining people to attracting new investments in the regions) will receive support. It is worth noting that even though the distribution of the funding from the JTM follows the top-down approach, the measures are designed in line with the bottom-up approach, so that they are highly adjusted to the specific needs of the region obtaining the funds. Beyond the JTM, there are policy measures such as EASE, which includes a variety of measures that support reskilling, hiring and transition incentives, entrepreneurship, as well as enhanced support by employment services for job transitions.

Member States policies

The good practice policy examples from different MS described in the following sections are highly differentiated. This fact is a consequence of MS carefully designing their policy tools to make them best suited to address specific challenges arising in targeted communities or sectors. To develop such tailored measures that effectively deliver the expected effects, a wide variety of stakeholders needs to be engaged in the public consultation process at all stages, from conceptualisation to implementation.

Portugal: A good practice policy example from Portugal is the 'Green Skills and Jobs Programme' ('Programa Trabalhos e Competências Verdes') introduced in 2023 under the National Energy and Climate Plan (NECP), which is expected to positively impact employment in green jobs (CEPS, 2023). The programme aims at 'reskilling and upskilling employees of enterprises directly or indirectly affected by increased energy costs, as well as the

unemployed’, and its offer targets concrete gaps in people’s skills. The courses have been developed in cooperation between the Agency for Energy, the Portuguese Renewable Energy Association, and the National Agency for Qualification and Vocational Education and Training and implemented nationwide by the public employment services (PES) (CEDEFOP, 2021).

Austria: A case of an innovative direct employment initiative is Austria’s Job Guarantee Pilot Project in Marienthal (MAGMA). The region of Lower Austria, which is where the programme took place, has been identified as significantly impacted by the energy transition and is supported by the JTF. The three-year model project was launched in October 2020 and provides a guaranteed job to all residents of the Gramatneusiedl municipality who have been either long-term unemployed or at risk of long-term unemployment. The programme is voluntary, but no one who was offered a job has declined the opportunity of employment. Notably, the jobs created have not only been in the emerging green energy sector. The analysis from 2023 has shown that the MAGMA project has led to positive effects, both economic and non-economic, including an increase in the employment rate as well as benefits to participants’ financial situation, health, self-efficacy, and social inclusion (OECD, 2023). No negative employment spillovers have been found either (Kasy & Lehner, 2023).

The Netherlands: The Dutch programme for ‘greening apprenticeships’, launched in 2022, aims to support employment in sectors and professions involved in the energy transition (CEDEFOP, 2021). The Foundation for Cooperation on Vocational Education, Training and the Labour Market (SBB), along with the Employee Insurance Agency and the Social Economic Council, published a report assessing the types and number of jobs which will be demanded to meet the national objectives concerning climate, energy, and housing. The report has identified 46,000 job vacancies in key sectors, primarily for professionals who ‘prepare work and make calculations for building and installation techniques,’ as well as plumbers and fitters, carpenters, electricians, and fitters of electrical installations. Having established the labour demand, the SBB has since functioned as a platform for education institutions and businesses to connect, and for the former to align their offer in terms of vocational training with the needs of the industry.

Ireland: Another case of a MS initiative for bridging the gap between the newly demanded skills in emerging sectors and people’s qualifications is the Green Skills Programme established in 2021 in Ireland (CEPS, 2023). Its key element is support for ‘further education and training’ (FET) which aims at preparing workers for the challenges of the transition and hence, building resilience of individual enterprises and the economy as a whole. FET consists of three main pillars: ‘green skills for life’, which focuses on promoting and enabling access to FET courses for all, ‘green skills for construction’ which contributes to decarbonising the construction sector through relevant upskilling programmes, and ‘green skills for careers’ which covers non-construction apprenticeships focused on green skills as well as promotes general re- and up-skilling of workers and unemployed people. The programme is primarily funded through the National Recovery and Resilience Plan and EUR 225 million are devoted to FET.

Romania: As a follow-up to the successful programme of Renewable Energy School of Skills (RESS) in Constanta, which trained over 5,000 highly qualified wind energy technicians in Romania, in 2021, the Romanian Wind Energy (RWEA) set up a training academy in a former coal region (IEA, 2023e). The Academy was set up in Valea Jului, which is part of Hunedoara County, one of Romania's regions supported by the JTF. As wind energy installations are on the rise in Romania, projects such as this one aim at preparing the most affected communities for shifts in the labour market. 'The intention of the academy is to retrain up to 800 coal miners as technicians in the renewable energy and energy distribution fields annually, for a total of 8 thousand technicians over the ten years of the project' (IEA, 2023e). The trainings focus on skills such as wind turbine blade repair, photovoltaic panel installation, and safety.

Areas of actions

A key element, which must remain a priority in EU policy-making, is matching the skills of workers (both in and out of employment at the time) with the fast-changing needs of the labour market. Various reports point to the risk of increasing incompatibility between people's qualifications and the skills currently in demand in the labour market as the transition progresses (CEDEFOP, 2021; SolarPower Europe, 2023). For example, in the solar power industry alone, it is expected that 1.2 million jobs will be created in the EU in this sector by 2027, doubling the employment in the sector within five years (SolarPower Europe, 2023).

To enhance the effectiveness of existing policies in the area of skills, precise data on shortages of skilled professionals should be gathered on the EU level and used as input in designing adequate training programmes (SolarPower Europe, 2023). Beyond policies focused on re-/up-skilling workers in 'green' skills, measures such as addressing Europe's structural lack of technical workers throughout the education system as well as adjusting policy around migration of workers will be key to bridging the skills gaps fast. An improvement of future labour market outcomes can be facilitated by preparing detailed national-level analysis of expected changes in labour market demand and adjusting national educational offers, so that they are compatible with the results of the analysis. To attract more workers to the sectors expected to prosper during the transition, accessible and inclusive career guidance programmes should be further established and promoted, including an 'awareness-raising component' (CEDEFOP, 2021). Another persistent policy gap regarding skills is insufficiency of transition schemes for workers in the fossil gas sector (ESABCC, 2024). More such programmes should be provided on the national level, directly targeting the affected groups. Skills-enhancing projects should also aim at strengthening the ability of public administrations to implement climate-related policies and investments (ESABCC, 2024). Some key sectors, such as buildings and agriculture, are characterised by low participation in skills training (ESABCC, 2024), so more efforts are needed to better target workers and managers with information about programmes that provide advice on increasing the sustainability of production in these sectors.

The transition of workers – and regions – requires not only skills- and education-related efforts, but also economic and social structural changes (including infrastructure building, economic development of regions and nations, and creating new job opportunities – not only in green sectors). EU policy action in this respect is comprehensively covered by the JTM. However, it will be essential to continuously evaluate the JTM’s success in bringing about the expected results, and potentially increase its funding basis (as well as the complementary MS funding) if necessary.

Existing policies regarding (green) job creation – both at the EU and MS level – require targets that are both more specific (such as targets for given sectors in line with the decarbonisation plans) and ambitious (especially in terms of their timeline and pace of progress). It is also crucial for policy-makers to be up to date with current progress towards targets, to track the implementation and to measure the effectiveness of policies introduced. This effort in tracking real-life changes should be undertaken also for the specific target areas which are not aligned with regions used by Eurostat in nomenclature of territorial units for statistics (NUTS). For now, it is not fully possible, as most borders of regions covered by the JTM do not correspond with the statistical regions such as NUTS2 or NUTS3 (with NUTS2 regions usually have between 800,000 and 3 million inhabitants and NUTS3 between 150,000 to 800,000), and therefore there is no region-specific data on many key labour market outcomes.

