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INVESTING IN A SKILLED WORKFORCE FOR A JUST NET ZERO TRANSITION

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NICE is an international network of initiatives that share knowledge and best practice around the design and implementation of sustainable and inclusive (just) regional and local industrial transformation strategies responding to decarbonisation.

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1 INTRODUCTION

Much attention has been focused in discourse and decision-making on the number of green jobs needed to meet climate and Net Zero ambitions across Europe and the skills required for those roles. This includes recognition that **while new jobs in sustainable industries will emerge, existing jobs in sectors such as the oil and gas industry and coal mining will disappear**. This has important implications for ensuring that transitions to Net Zero across Europe are 'just' and do not leave individuals, households, communities, and regions behind.

> What is a green job?
>
> Green jobs are decent jobs that contribute to preserve or restore the environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors, such as renewable energy and energy efficiency.
>
> International Labour Organization (2016)

However, **there is much ongoing debate around the definition of a 'green' job**. According to a recent European Commission report (Janta et al., 2023, p.6), there is no common definition (and measuring approach) for green(er) jobs, which makes it 'challenging to form comparisons between jurisdictions'. The UK's Office of National Statistics (ONS, 2021) also highlighted that 'the term "green job" has no one meaning…' making it '…a complex area'. While this paper does not examine in detail the associated debates and discourse, the complexity and divergence of opinions around how a green job is defined poses challenges for designing, delivering and evaluating related policies (Davidson et al., 2023).

This paper sets out some of the opportunities, challenges, and issues for places and regions undergoing transformation to a low carbon economy, associated with supporting the creation and development of a skills workforce for the just transition. These include:

- responding to a rapidly evolving policy landscape and increasingly competitive global backdrop;
- understanding how the demand for different jobs in different timeframes will change due to transition-related actions, including overall numbers, job types, the skills required and where, and in what sectors they will be located;

- identifying the policy implications for labour and industrial planning at a local, regional, national, and international level, recognising that multiple Net Zero projects will be competing for limited resources; and
- pinpointing how investment in skills, training, and efforts to increase labour market participation can be most effectively supported to enable the necessary transitions.

2 THE EVOLVING NET ZERO JOBS AND SKILLS POLICY LANDSCAPE

Efforts to decarbonise economies to achieve global targets and ambitions adopted in the last decade, including the Paris Agreement and the United Nation's Sustainable Development Goals (SDGs), will have significant implications for all parts of societies everywhere, including employment (IEA, 2021). In Europe, the target to become climate neutral by 2050 is enshrined in the European Climate Law,[1] which also sets out commitments to reduce greenhouse gas emissions by at least 55 percent compared to 1990 levels by 2030, and to achieve climate neutrality (net zero) by 2050.

As part of a suite of policies to realise these ambitions, the European Union (EU) published its Green Deal Industrial Plan. The plan 'aims to make Europe a global leader in clean technologies and to create jobs in the green economy'. It **calls for action on developing skills and supply chains and highlights the growth in green jobs in the European economy from 3.2 million in 2000 to 4.5 million in 2019**.[2] Alongside the plan, the EU has also set out proposals for a Net Zero Industry Act (NZIA) which 'proposes an industrial policy to promote cleantech manufacturing' with 40 percent of all Net Zero technologies required for the transition to be manufactured within the EU by 2030 (Kleimann et al., 2023).

This action is set against an increasingly competitive global backdrop where countries are seeking to secure investment for their green transitions. In 2022, the Inflation Reduction Act (IRA) was passed in the US. IRA incorporates commitments to US $369 billion of subsidies and incentives to underpin the climate and energy policies.[3] Some

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1119
[2] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan_en
[3] https://investmentpolicy.unctad.org/investment-policy-monitor/measures/4004/-369-billion-in-investment-incentives-to-address-energy-security-and-climate-change-

have argued that the EU's own policies, including the NZIA, do not go far enough in responding to the potential risks that the IRA poses e.g., companies relocating some of their production processes to the USA leading to job losses (Bernoth & Meyer, 2023), and there is a need to develop a wider ranging set of green deal policy measures (Kleimann et al, 2023). However, it has also been argued that a subsidy race between the EU and USA would be unhelpful, as would competition between member states in setting their own national subsidy schemes, with the need for a shared approach (Grimm et al., 2023).

In addition to increasingly competitive global markets, EU policy has also recognised that addressing the fact that **green transitions will both support new jobs in emerging sectors and lead to job losses in others** will be key. For example, CEDFOP estimates an employment growth of 1.2 percent by 2030 or 2.5 million additional jobs (EC, 2022; Cedefop, 2021a). On the other hand, around 160,000 direct jobs are anticipated to be lost from the coal power and coal mining sectors. It is estimated that **Poland** might be at risk from the greatest number of job losses, followed by **Germany**, **Romania**, **Bulgaria**, and **Spain**.[4]

As a result, the EU has put in place the Just Transition Fund (JTF) as part of the Just Transition Mechanism. The mechanism targets support to the most-affected 'regions, industries and workers'. It includes a commitment to mobilising around €55 billion from 2021-27, with part of the €17.5 billion in the JTF to be invested in the '…reskilling of workers…' and '…job search assistance…'. [5]

At individual country levels in the broader European region, multiple frameworks are developing in response to the jobs and skills requirements of the Net Zero transition. For example, across the multiple policy documents that underpin the **United Kingdom's** (UK) Net Zero transition, including the Net Zero Strategy (UK Government, 2021) and the Energy Security Strategy,[6] the promise of significant numbers of skilled green jobs – in the region of half a million - to be created because of these decarbonisation efforts is explicit. However, delivering these jobs could prove challenging given the current labour constraints in the UK (ONS, 2023) and the risks, as the Climate Change Committee's Net Zero Workforce report highlights, associated

[4] https://www.wri.org/update/european-unions-just-transition-mechanism-transnational-funding-and-support-just-transition

[5] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism_en#financing

[6] https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy

with an 'inadequate supply of skilled workers' (CCC, 2023). The situation in regards to the labour market in the UK is not dissimilar to other EU member states, with vacancy rates falling, but still higher than pre-pandemic levels.[7] To address some of the challenges around workers and skills shortages the UK Government has established a Green Jobs Delivery Group which brings together industry, government, the skills and education sector local government, trade unions and others to establish plans 'to enable the UK workforce to deliver net zero and wider environmental goals'.[8]

Social security and welfare systems could also have a role to play in the transition and supporting workers to reskill and take on roles in new sustainable sectors. **Denmark** offers an interesting example in this regard. Their 'flexicurity system' combines 'a safety net with support for skill building and job search' and which 'will continue to play a key role to facilitate this sizeable transformation' (Barker et al., 2021).

Overall, addressing the workforce and skills needs of the net zero transition is a common challenge across European countries, albeit playing out in different ways, with the potential to spark competition for limited pools of skilled workers (Rasche, 2023). **The European Union has recognised the importance of action in this area and established the 2023 European Year of Skills** 'to address skills gaps in the European Union and boost the EU skills strategy, which will help reskill people with the focus on digital and green technology skills.'[9]

To ensure more coordinated action across the EU member states, **the Union is working with its member countries to establish mechanisms to track supply and demand for jobs and skills related to the green transition**. It also has plans to establish Net Zero Industry Academies, encourage public and private funding and support inward migration in relation to certain sectors. The Multiannual Financial Framework 2021-2027 and NextGenerationEU commit circa EUR 64.8 billion to be invested in skills development.[10]

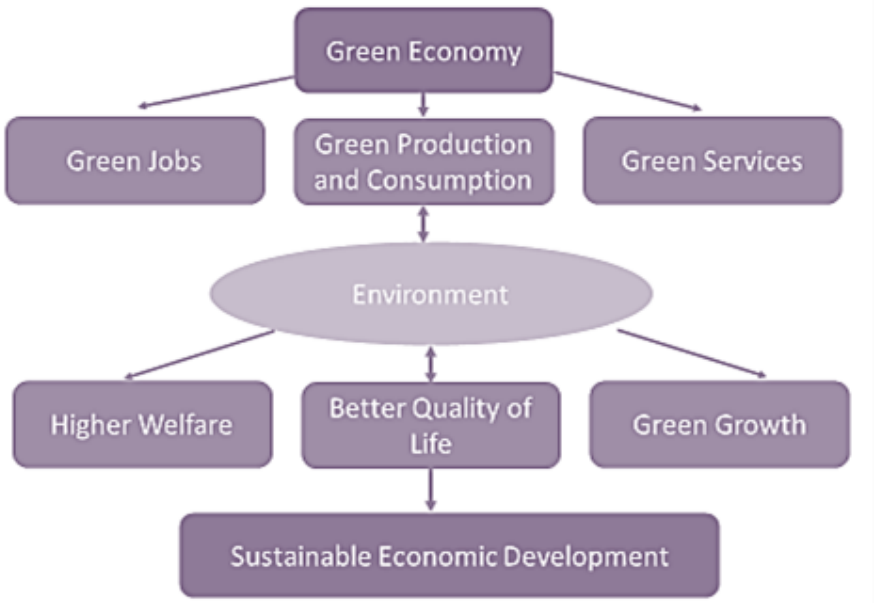
[7] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Job_vacancy_statistics
[8] https://www.gov.uk/government/groups/green-jobs-delivery-group
[9] https://year-of-skills.europa.eu/about_en
[10] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX%3A52023DC0062

3 THE NEED FOR A SKILLED WORKFORCE FOR THE GREEN TRANSITION

The International Energy Agency 'estimates that the global market for key mass-manufactured clean energy technologies will be worth around USD $650 billion a year by 2030 (approximately €600 billion) – more than three times today's level. The related energy manufacturing jobs could more than double in the same period.'[11] Therefore, as part of the transition to clean energy technologies and green economies, investing in and developing an adequately skilled workforce will be critical for places, regions and countries.

Figure 1 outlines the integral role 'green' jobs must play in achieving sustainable economic development and as the authors argue, 'sustainable economic development must be carried out through the development of a green economy based on energy reduction and clean energy, in order to help create green jobs' (Pociovălișteanu et al., 2015). Moreover, it highlights the importance of integrating planning in relation to jobs and the green transition into wider economic decision-making (WGEO, 2022).

Figure 1: Relationship between green jobs, green economy, and sustainable economic development. Based on/redrawn from Fig.1 included in Pociovălișteanu et al. (2015).



[11] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan_en#paragraph_33974



However, it is clear that in deploying clean technologies and low carbon solutions such as carbon capture, utilisation, and storage (CCUS) and renewable energies such as wind and solar, a wide range of skilled workers will be required. For example, the following Table 1 outlines the number of direct and indirect jobs that were being supported in different renewable industries for the year 2021-22 across the globe.

Table 1: Estimated direct and indirect jobs in renewable energy worldwide, by industry, 2021-2022 (in thousands). Redrawn from IRENA & ILO (2023).

	World	China	Brazil	United States	India	European Union
Solar PV	4902	2760	241	264	282	517
Liquid Biofuels	2490	55	856	360	135	48
Hydropower	2485	876	194	66	466	83
Wind power	1400	681	68	126	40	319
Solar heating and cooling	779	195		47	58	354
Solid biomass	712	557	41	n/a	19	38
Biogas	309	160		n/a	85	47
Geothermal energy	152	87		8.6		7
Concentrated solar power	80	59.4		n/a		5
Total	**13720**	**5548**	**1400**	**994**	**988**	**1534**

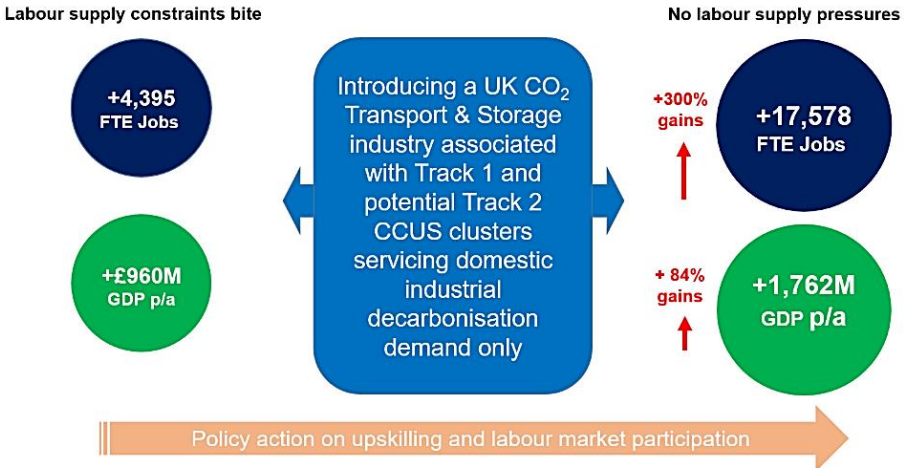
In the case of CCUS, a significant number of jobs would need to be created across the world if the levels set out in the International Energy Agency Sustainable Development Scenario were to be met.[12] To build the 2,000 CCS facilities required would involve between 70,000 and 100,000 construction workers and an additional 30,000 to 40,000 works to operate the facilities. Alongside this, workers would be needed for the linked transport and storage network. In Europe alone this could involve 10,000 jobs.

[12] https://www.iea.org/events/introducing-the-sustainable-development-scenario

Box 1: A UK Case Study – The examples of CCUS

The UK Government has estimated that the employment supported by CCUS in the UK could potentially be around 50,000 jobs (BEIS, 2021). Research suggests that jobs supported by the transport and storage industry linked to CCUS could be in the region of just over 17,500 FTE jobs with £1.76 million of GDP per annum by the mid-2040s.

Sustained job creation (full-time equivalent, FTE) associated with a new UK CO_2 Transport and Storage industry.



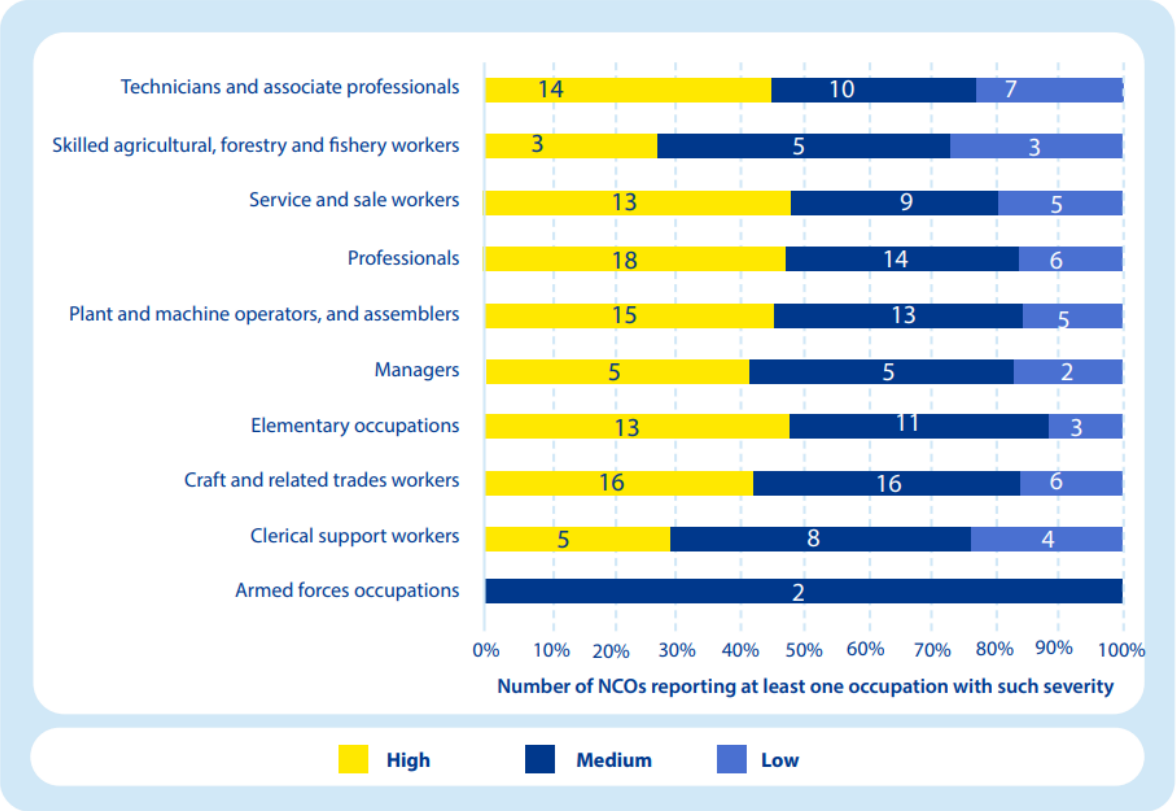
However, it is critical to note that research underscores that these gains will only be achieved if action on worker and skills shortages as a result of a constrained labour market is taken. Without these efforts job and GDP gains could be reduced to around 4,300 FTE jobs and just under £1M pa in GDP (Turner et al., 2023). Moreover, a lack of action could limit the UK's competitive advantage in this area (FES, 2023).

This poses a significant challenge. Particularly, for example, in terms of the level of constructions workers, necessary to build the CCUS networks required across the UK. A recent report published by the Industrial Decarbonisation Research and Innovation and Centre (IDRIC) highlights that this shortage of sufficiently skilled construction workers could harm 'prospects for decarbonisation and for the UK economy' (IDRIC, 2022). The challenge of worker and skills shortages were also highlighted more generally by a report published by the Climate Change Committee which pointed to the risk posed by an 'inadequate supply of skilled workers' to climate change ambitions (CCC, 2023).

At a European level, multiple countries are reporting shortages in key occupations that will be critical to the transition including construction and welders (ELA, 2022). Shortages also exist in sectors such as wind power and solar. For example, it is estimated that worker numbers in the solar sector will need to double to more than one million by 2030, and the battery sector alone will need 800,000 people to be

trained or reskilled by 2025. In 2022, about 400 job shortages have been identified across EU27, Norway and Switzerland (Figure 2).[13]

Figure 2: Severity of shortages in EU27, Norway and Switzerland by occupation group. Source: European Labour Authority (2022).



Note: NCOs refer to the European Employment Services Network (EURES) National Coordination Offices that collect and share labour data.

4 KEY ASPECTS OF LOW-CARBON SKILLS DEVELOPMENT

While differences regarding how to define and measure green jobs remain across countries, making it difficult to compare labour market trends and assess education and skills provision, it is now widely agreed that **all jobs will require greening rather than just jobs in specific sectors** (Cedefop, 2019; Janta et al., 2023). According to the International Labour Office (2015), labour market changes for which green skills are

[13] https://www.euronews.com/business/2023/05/02/bridging-the-gap-boosting-europes-green-workforce-to-keep-pace-with-net-zero-energy-ambiti#:~:text=Europe's%20push%20towards%20a%20green,or%20reskilled%20by%20just%202025

required encompass changes in occupations, evolving requirements for existing occupations, the emergence of new occupations, and the introduction of new skill requirements across various occupations.

In 2022, the Inter-Agency Working group on Work Based Learning, including several organisations like the International Labour Organisation (ILO), OECD, UNESCO, the European Training Foundation (ETF), European Centre for the Development of Vocational Training (Cedefop), and the European Commission, published a definition on "skills for the just transition":

> What are skills for the just transition?
>
> Skills and competences, but also the knowledge, abilities, values and attitudes needed to live, work and act in resource-efficient and sustainable economies and societies.
>
> EC et al. (2022)

The Group categorised these skills into:

- **Transversal –** also known as 'core skills', 'life skills, 'soft skills', 'sustainability skills' or 'portable skills. These are linked to sustainable thinking and are not exclusively related to any particular context, whether it be job occupation of life area. They encompass attitudes, values, and knowledge for acting in ways that are good for the environment. Examples include strategic and leadership skills, adaptability, coordination, networking, and innovation skills.

- **Technical –** needed to follow standards and use methods, services, products, and technologies to safeguard ecosystems, minimise the use of energy, materials, and water. Technical skills can be specific to certain jobs or work across different areas. These involve specialised knowledge of sciences, including engineering and environmental skills.

In addition to technical and transversal skills, there is an emerging recognition of the need for **transformative skills for the just transition and the adaptability of the workforce** (Janta et al., 2023). These skills include the ability to analyse unequal power structures, political agency, systems thinking, and interdisciplinary approaches (Kwauk & Casey, 2021). They play a crucial role in addressing not only environmental challenges, but also social and economic injustices associated with the transition. Studies (Cedefop, 2019; Janta et al., 2023; Marin & Vona, 2018) also suggest that **green(er) skills are not**

only about adapting existing skills but also about cultivating a new skillset that emphasises autonomy, responsibility, and a higher degree of non-routine cognitive skills.

Anticipating and monitoring skills needs are therefore paramount in ensuring a proactive response to the dynamic nature of green jobs. Taxonomies and frameworks are utilised for this purpose. For example, at the EU level, the **European Sustainability Competence Framework**, known as 'GreenComp,' serves as a standardised definition of sustainability competence.[14] This framework, comprising 12 competences categorised into four areas, provides guidance for learners in various settings, supporting educational institutions in teaching green and environmental sustainability. Another valuable tool, the **Skills OVATE tool** developed by Cedefop,[15] utilises online job advertisements to offer detailed insights into job offerings and skills demanded by employers across EU Member States. The database, updated quarterly, draws from diverse sources, enabling the presentation of up-to-date labour data and skills trends (Janta et al., 2023). **Several frameworks and observatories predicting skill needs have been established in EU Member States**. For instance, in **France**, the National Observatory for Green Economy Jobs and Skills (Onemev)[16] monitors the impact of green transitions on jobs and skills, facilitating the matching of vacancies with job seekers. In **Italy**, the analysis of local labour market needs[17] incorporates environmental and social perspectives, leading to the integration of new skills into training programmes (OECD, 2021; Janta et al., 2023).

As national and regional economies transition, **addressing disparities in green(er) skills provision becomes crucial to prevent lagging areas and to accelerate the green transition**. This requires a focus on education and training planning to meet the demands of the greening economy efficiently. For those already in the workforce without green skills, opportunities for upskilling are essential to provide more job opportunities in expanding green sectors and strengthen the sustainability of existing processes. Green skills training can take many forms, as will be discussed in the sub-sections below.

[14] https://joint-research-centre.ec.europa.eu/greencomp-european-sustainability-competence-framework_en
[15] https://www.cedefop.europa.eu/en/tools/skills-online-vacancies
[16] https://www.ecologie.gouv.fr/lobservatoire-national-des-emplois-et-metiers-leconomie-verte
[17] https://eures.ec.europa.eu/living-and-working/labour-market-information/labour-market-information-italy_en

4.1 Education and training

The evolving landscape of green jobs requires a comprehensive approach to education and training. **Formal and informal educational programmes are instrumental in shaping a skilled workforce** capable of meeting the demands of the green transition. In practice, **this involves adapting curricula to include sustainable development components and integrating climate issues** into secondary and higher education systems. This reflects a growing trend across EU Member States to increase sustainability awareness as part of compulsory education. For instance, in Finland, Sweden and France, climate change and energy issues have been introduced in the curricula. In **Finland**, this has been done at the basic educational level, while in **France** the introduction has been made at secondary school level. In **Sweden**, this was done at all educational levels, including adult education institutes, though the more in-depth teaching of sustainability topics has been done at the secondary school level (Janta et al., 2023). Specialised programmes catering to young NEETs (individuals not engaged in employment, education, or training) can offer extra assistance to younger generations in securing employment in green(ing) sectors.

Box 2: Luxembourg's Fit4Green&Build programme. Source: Janta et al., 2023.

A series of training programmes, followed by a subsidised trainee contract with construction sector companies, covering up to 50 percent of the salary for 12 months. The initiative, targeting NEETs aged 18-29, commenced in 2018 and is ongoing. However, there is currently no available evidence on its effectiveness.

4.2 Apprenticeships and workforce development

Apprenticeships are a key component of vocational education programmes and increasingly play a pivotal role in building a workforce attuned to low-carbon skills. **Not all current apprenticeship programmes are related to green skills, though adaptation to emerging demands will reinforce this** (Janta et al., 2023). While these traditionally cater to younger demographics, the growing need for retraining and upskilling highlights their adaptability to adult learners. A Cedefop (2021b) report suggests policy interventions and a reduction of barriers to access have already resulted in increased adult (>25) participation in apprenticeships. However, adapting apprenticeship programmes to cater to the unique needs of adults, such as recognising their longer work history, their higher salary needs and the employer investments, is essential for ensuring their effectiveness in the green transition

(Cedefop, 2021a; Cedefop, 2021b; Janta et al., 2023). Two best practice examples from NICE partner countries are showcased below (Table 2):

Table 2: Best practice examples of apprenticeships and vocational training for the green transition. Source: Janta et al., 2023.

	
Danish Advisory Council for Initial Vocational Training (EADSNE, 2022)	**Spanish Emplea Verde Programme[18]**
• Established in 2007 under the Vocational Education and Training Act; • Continuous update of the competences to be provided by the vocational education and training system; • Representatives from trade unions and employer organisations; • 2014 strategic pan underlined need for energy optimisation and sustainability competences; • Large number of adult labour market training programmes offered in the areas of energy, environment, and waste handling.	• Aims to promote private sector employment and competitiveness through *greening* and improvement of workers' skills; • 1,900 courses since 2007, funding 4,800 unemployed people to join the labour market and 24,000 to obtain qualifications; • Prioritises women, workers in rural and environmentally protected areas, <30 young adults, >45 workers, persons with low education levels, and migrants.

4.3 Reskilling and upskilling

Reskilling and upskilling strategies are critical components of addressing the evolving job market demands, and existing workers need opportunities to acquire green skills to navigate the transition effectively. Cedefop (2019) analysis underscores the **rising demand for educational requirements aligning with green jobs**, outpacing other qualifications. Upskilling and reskilling involve providing individuals with the knowledge and capabilities needed for the evolving job market, especially in sectors contributing

[18] https://www.empleaverde.es/

to the green transition. This includes ongoing education and training programmes to equip workers with the latest skills required for sustainable practices.

- **Upskilling –** as industries adopt green(er) technologies, methodologies, and practices, upskilling ensures that workers are proficient in the use of advanced tools and technologies specific to the green sector. This can include training in renewable energy systems, eco-friendly production methods and processes, and sustainable resource management. Upskilling also includes the pursuit of advanced certifications by workers that can validate their expertise. As the green economy expands, there is also a growing demand for leaders and managers with a deep understanding of sustainable practices, meaning upskilling programmes may focus on developing management skills for guiding organisations through emerging challenges and opportunities in this area.

- **Reskilling –** involves a more significant shift, where individuals acquire entirely new skills to transition into roles that are more directly aligned with the green economy. This could include moving from traditional industries to those focused on renewable energy, circular economy practices, or environmental conservation. Reskilling programmes often start by identifying transferable skills that individuals already possess, which can streamline the learning process and build on existing competencies. These initiatives should then focus not just on education but also on providing support for individuals navigating career transitions, for example, through mentorship programmes, job placement assistance, and guidance on networking. To ensure a just transition, reskilling programmes should be inclusive, considering individuals from diverse backgrounds, including those in declining industries, to minimise economic disparities.

Cedefop (2019) analysis suggests that **climate technology breakthroughs hinge on the creativity and innovation of highly skilled workers**. Highly skilled non-manual workers, such as scientists and engineering professionals, along with supporting staff in business, administration, and legal fields, can all play a crucial role. Projections show that employment in skilled manual and elementary occupations will grow faster than in highly skilled occupations, potentially reducing job polarisation in Europe (ILO, 2019; Janta et al., 2023).

Table 3: Changes and skills' response by occupations. Source: ILO (2019); Janta et al., 2023.

Skill level	Nature of change	Typical skills response
Low-skilled occupations	Occupations change in a generic way, e.g. requiring increased environmental awareness or simple adaptations to work procedures	On-the-job learning or short reskilling and upskilling programmes
Medium-skilled occupations	Some new green(er) occupations, or significant changes to some existing occupations in terms of technical skills and knowledge. Most new green(er) occupations will fall into this category.	Short to longer upskilling and reskilling programmes; TVET courses.
High-skilled occupations	Significant changes to some existing occupations in terms of existing and new knowledge	University degree; longer upskilling programmes.

5 COLLABORATIVELY DELIVERING A SKILLED WORKFORCE FOR THE GREEN TRANSITION

Collaborative efforts between educational institutions, businesses, and government bodies at national and regional levels are essential for delivering a skilled workforce. However, existing reports (Cedefop, 2019; OECD, 2021) highlight weak links between environment, employment, and skills policies at national levels. **The multiplicity of actors in the green transition requires robust mechanisms for both horizontal and vertical coordination** among different policy areas and levels of government. Strategic and long-term planning, coupled with coordination between stakeholders (e.g. public authorities, social partners, private sectors, and education and training providers), is emphasised in studies by OECD (2021) and ILO (2019) to align education and employment policies with the changing needs of the labour market. The involvement of a wide range of stakeholders can help capture broad perspectives and ensure support for the educational initiatives (EC, 2019; ILO, 2015; Chen et al., 2020). This is seen to also improve programme quality, increase participation rates,

and ensure that prospective learners are informed about the opportunities available (Kwauk & Casey, 2021).

Some of the cases highlighted above demonstrate good examples of collaboration between different organisations for green skills' development, such as the **Danish** Advisory Council for Initial Vocational Training which includes representatives from trade unions and employer organisations, and the **Luxembourg**'s Fit4Green&Build programme, which includes collaboration with construction sector companies for traineeships. Box 3 showcases a collaborative example of place-based skills delivery from Michelin Scotland Innovation Parc (MSIP) Dundee, in the **United Kingdom**:

Box 3: Michelin Scotland Innovation Park Skills' Academy. Source: *https://www.msipskillsacademy.com/* and NICE fieldwork



The MSIP Skills Academy provides training for learners at all levels in green industry courses in collaboration with colleges and universities together with industry. The Academy is set to open later this year, and it offers a variety of training programmes, from short-term courses to more advanced technical and digital skills training. This training provides core skills to both untrained and experienced workers and helps to ensure that Scotland has the workforce it needs to meet the demands of the growing green economy. The training is focused on the skills needs of companies, and is designed to inspire new generations of engineers, technicians, and operators to design and manufacture for the sustainable mobility and decarbonisation sectors.

The MSIP Skills Academy has strong connections to other facilities at MSIP Dundee, including the Innovation Hub and Innovation Labs. This allows industry and learners to work together to develop new ideas, prototypes, and knowledge transfer partnerships.

Achieving a just transition also requires a comprehensive understanding of the interconnected nature of climate, environmental, and social challenges (OECD, 2021; ILO, 2019). **Establishing adequate mechanisms for coordination and collaboration is an important aspect for navigating the complexities of a successful green transition.** To ensure a just transition, policy responses need better alignment and sequencing, as well as the coordination of synergies across departments, programmes, and governance levels. This involves consistent monitoring frameworks to guarantee well-targeted, efficient, and effective outcomes.

6 QUESTIONS FOR DISCUSSION

This brief has provided an overview on the topic of creating a skilled workforce for the just transition, describing the current policy context in Europe, and highlighting existing opportunities and barriers that need to be leveraged and addressed by policymakers at various levels, and other institutions at different levels. The brief serves as a starting point for discussion at the NICE 3rd conference, posing the following questions:

1. What national/regional strategies or examples of mutually beneficial collaborations between educational institutions, businesses, trade unions and government bodies can be shared?

2. How can governments, industries, trade unions and others collaborate to develop effective frameworks for anticipating future labour and skills requirements in the ever-evolving green job market?

3. How can educational programmes and workforce development initiatives incorporate these green skills effectively?

4. What skills will be most in demand in your specific region(s) and which level – national/regional/local – is best suited for the different forms of action to ensure a steady supply of skilled workers?

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