Employment and Skills Policies for the Green Transition

Review of International Good Practices

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Foreword

This report was prepared by teams in the Skills and Future Readiness and Jobs and Income divisions of the OECD Directorate for Employment, Labour and Social Affairs, and the OECD Centre for Skills.

This report has been prepared in the context of a project undertaken for the General Directorate for Employment and Professional Training (DGEFP) of the French Ministry of Labour and Solidarity. The project was funded by the European Union via the Technical Support Instrument, and implemented by the OECD, in co-operation with the European Commission.

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Abbreviations and acronyms

AMS	Austrian Public Employment Service
BMAW	Austrian Federal Ministry of Labour and Economy
BMK	Austrian Federal Ministry for Climate Action
DGEFP	French General Directorate for Employment and Professional Training
ERTE	Expedientes de Regulación Temporal de Empleo
ESCO	European Skills, Competences, Qualifications, and Occupations
ETB	Education and Training Board
EU	European Union
FET	Further Education and Training
HE	Higher Education
ICT	Information and Communication Technology
IfATE	Institute for Apprenticeships and Technical Education
ILO	International Labour Organization
JTS	Just Transition Strategy
KPI	Key performance indicator
LLO	Leven Lang Ontwikkelen
M&E	Monitoring and Evaluation
NEP	New entrepreneurial program
NQF	National Qualifications Framework
OECD	Organisation for Economic Co-operation and Development
PES	Public employment service
PLA	Personal learning account
RED	Reducción de Empleo por Despidos
RES	Renewable energy systems
Row	Regeling onwerkbaar weer
SCOPE	Strategische competentieprognoses
SME	Small and Medium Enterprises
STEM	Science, technology, engineering, and mathematics
STW	Short-time work
TSI	Technical Support Instrument
UN	United Nations
VDAB	Flemish Public Employment Service
VET	Vocational Education and Training
WEWIS	Flemish Department of Work, Economy, Science, Innovation and Social Economy

Executive summary

OECD countries have set ambitious climate targets to achieve net-zero greenhouse gas emissions by 2050. Achieving these targets will have a significant impact on the labour market, with important restructuring in emission-intensive industries and new jobs being created in low-emission sectors. While these changes will open up new opportunities, they will also pose several challenges. Notably, job creation and job losses tend to be concentrated in different regions. In some instances, jobs in the expanding green activities may also not offer the same working conditions as those in shrinking emission-intensive sectors, particularly in terms of wages. Furthermore, as tasks and working methods become greener, most occupations will experience some degree of change and workers will need to reskill and upskill. To ensure that the green transition is feasible, cost-effective, fair, widely understood, and socially accepted, appropriate public policies are essential. While most OECD countries already have mechanisms in place to manage structural labour market changes, these instruments often need to be strengthened or adapted – in particular to provide stronger protection for low-skilled workers and to address the uneven impact of the transition across regions.

This report presents case studies of how selected OECD countries and regions have designed and implemented employment and skills policies for the green transition. It starts by reviewing the comprehensive strategies put in place by Austria, Canada, Flanders (Belgium), Ireland, the Netherlands, and Spain. The main findings are as follows:

- The plans have different titles (“strategies”, “roadmaps”, or “action plans”), but they all include elements of strategy, planning, and implementation, and, in some cases, are embedded within legislative frameworks. These initiatives are typically led by environmental ministries, with a strong involvement of labour ministries.
- While the plans differ in structure and focus, their level of details is generally quite comprehensive. All strategies place strong emphasis on upskilling, reskilling, and continuous learning. Vocational education and training systems are being adapted to incorporate skills for the green transition, and new modular, flexible training pathways are being created to support worker mobility.
- Although only few strategies explicitly focus on specific groups or sectors, most prioritise support for workers in high-emission sectors who are at greater risk of job displacement. Moreover, many strategies deploy targeted support to specific geographic areas.
- Broad consultations with social partners, sectoral funds, training providers, civil society and local actors, through meetings and written consultations, were central to the development of the strategies. Moreover, while the plans usually include structured implementation timelines, comprehensive monitoring and evaluation (M&E) mechanisms are still rare.
- Finally, communication campaigns are used to raise awareness of job opportunities for the green transition, tackle stereotypes, and make technical and vocational paths more attractive, especially to underrepresented groups.

Beyond strategic planning, countries are also adapting specific employment and skills policies to support the green transition:

- **Vocational education**: countries are increasingly adapting the offer of apprenticeships to support the green transition. This includes the creation of entirely new apprenticeships in emerging, green-driven occupations and the revision of existing programmes to integrate sustainability-related content – combining the addition of specific technical skills with transversal competencies like climate literacy, i.e. the understanding how the climate system works and how human actions affect it. Austria, Bulgaria and Ireland, for example, are pursuing system-wide curriculum reforms, while other countries like the United Kingdom and Sweden are focussing on sector-specific adaptations, particularly in construction, renewable energy, and transport. Bottom-up initiatives from local actors and companies (e.g. in Denmark and Bulgaria) also exist, starting as pilots and being scaled up later. Some programmes specifically target disadvantaged groups by offering accelerated pathways into jobs needed for the green transition. Financial incentives, such as subsidies for apprentices or grants for employers (e.g. in Australia), are widely used to support uptake.
- **Incentives to train and career guidance**: to encourage workers and jobseekers to undertake training for the green transition, countries are offering financial incentives for training (such as vouchers, grants or scholarships) and improved access to labour market information and career guidance. Croatia, for instance, introduced a comprehensive voucher system for green-related training as well as tailored online and in-person career guidance to help individuals choose suitable training, ensuring alignment with labour market demands. Other approaches, like the adaptation of the general Personal Learning Account programme in Wales (United Kingdom), show how existing financial incentives can be repurposed to support the green transition, leveraging the credibility and infrastructure of established schemes.
- **Support for companies**: several countries use short-time work (STW) arrangements to enable companies to restructure in response to climate change mitigation needs or to cope with environmental shocks (e.g. extreme weather events). Spain is a particularly interesting case with its 2021 reform which created a new type of STW scheme for sectoral transformations requiring substantial labour reallocation, including for the green transition. Other initiatives focus on helping firms, in particular small and medium enterprises (SMEs), to anticipate the impact of the green transition on their employment and skills needs. For instance, the Netherlands introduced a time-limited subsidy programme offering financial support to SMEs adopting innovative approaches for skills development related to the energy and climate transitions.
- **Place-based policies:** regional policies have an important role to play to reduce geographical inequalities linked to the green transition. Examples of the Rhenish mining region in Germany and Western Macedonia in Greece show that involving regional stakeholders, conditioning funding on concrete measures, building on local assets and promoting the diversification of the local economy are key ingredients to ensure that no territories are left behind.

Despite different national contexts and objectives, some key lessons underpin the examples presented in this report and constitute best practices that countries should follow to design effective employment and skills strategies for the green transition: starting with a clear vision and long-term agenda; ensuring broad and inclusive stakeholder participation; tailoring strategies and policies to regional and sectoral specificities; establishing strong M&E frameworks; and promoting awareness and accessibility through targeted information campaigns and digital tools.

1 Setting the scene

OECD countries are adopting ambitious climate change mitigation policies aimed at achieving net-zero greenhouse gas emissions by 2050. In Europe, these efforts are supported by the European Green Deal, the European Union (EU)'s plan to make Europe climate-neutral by 2050. National and international initiatives to combat and adapt to climate change will have profound impacts on labour markets. While the net effect on job quantity will be modest, jobs will be lost in shrinking emission-intensive industries, others will be created in expanding low-emission activities, and many jobs will be transformed as tasks and working methods become greener. Major reallocations are expected both within and across certain sectors and regions, and these reallocations will likely come with challenges.

The OECD Employment Outlook 2024 (OECD, 2024[1]) shows that across the OECD, about 20% of the workforce is employed in green-driven occupations – i.e. occupations that will likely grow thanks to the net-zero transition. Green-driven jobs, also referred to in this report as jobs for the green transition, include not only new roles that emerge due to the green transition, but also existing ones whose required skills and tasks will be modified because of the transition, as well as those involved in the production of goods and services essential to lower-emission activities. Skills required in these jobs are referred in this report as skills for the green transition. Green-driven occupations are heterogenous: high-skill green-driven jobs usually pay higher than average wages, but low-skilled, green-driven jobs tend to have worse job quality than other low-skilled jobs, suggesting that currently they may be a relatively unattractive option for low-skilled workers. It also shows that job displacement from high-emission industries is costly: workers in shrinking high-emission industries face 24% larger earnings losses over six years after job displacement than those dismissed in other industries (partly because firms in high-emission industries pay relatively high wages given worker skills and partly because of the specific characteristics of these workers who tend to be older and less educated). Furthermore, while most high-skilled emission-intensive jobs share similar skills requirements with occupations in non-polluting industries, this is not the case for low-skilled jobs.

Public policies are necessary to address these challenges, permit an efficient reallocation of workers, and mitigate the economic and social impacts of the green transition. This is key to ensure political acceptability and sustainability of climate change mitigation measures. Most OECD countries already have put in place a range of instruments for managing structural adjustments, but some may need to be adapted, and others should be added. A recent policy brief published by the OECD (2025[2]) outlines the set of policies that governments should have to address the labour and social challenges related to the transition to net zero:

- They first need to ***assess*** whether existing national labour and social policies are fit for purpose. Such stress-test exercises should consider different scenarios to evaluate the labour market implications of the net zero transition and include specific skills assessment and anticipation exercises to better understand current and future skills needs and supply. Considering these assessments, countries then need to determine whether existing policy instruments are reaching the target populations, whether they need to be expanded or whether resources are sufficient, and whether new instruments are needed. As part of these exercises, consultations with key stakeholders, starting with the social partners, is essential.
- Regarding specific policies, governments must ***prevent*** widespread job displacement and long-term unemployment by helping workers from high emission sectors transition to another job. To

this end, training will be crucial, and countries can offer financial incentives for training to workers at risk of job loss as well as targeted career guidance. To prevent job losses, job retention schemes could be used to accompany the restructuring of companies. Additionally, mandating longer notice periods could facilitate the pre-displacement intervention by employment services. In the event of a company's closure or downsizing, outplacement services can be provided to assist departing employees find a new job.

- Governments should ***support*** the lives of impacted workers. Indeed, even with effective preventive measures, some workers will not immediately find another suitable job opportunity. The most important tool to support the income of displaced workers is unemployment insurance. Wage insurance schemes that cover the differences between pre-displacement and re-employment wages can also be of interest to help speed up the transition to new jobs when workers are offered lower wages than before displacement.
- Finally, it is also important to ***steer*** employment choices towards green-related sectors and ***foster*** the development of skills for the green transition. Appropriate job search assistance can help direct job seekers towards green-driven jobs, but public employment services staff must be equipped with the right knowledge and skills to adequately guide them during the transition to net-zero. Financial incentives can motivate individuals to undertake green-related training (i.e. training for skills needed in green-driven jobs), encourage employers offer such training to their employees, and incentivise training providers to develop appropriate the training offer. In some cases, however, the areas most affected by the downsizing of emission-intensive industries may have a limited capacity to provide sufficient quality jobs in other sectors in the short term. In those cases, complementary geographical mobility policies might be needed to support relocating workers' housing needs. More generally, in order to ensure that the net zero transition does not exacerbate regional disparities, place-based policies, that is intentionally spatially targeted policies that provide higher-level support to a place to improve long-term economic and well-being outcomes (OECD, 2025[3]), may be needed to promote economic development in regions most vulnerable to the net zero transition.

Most OECD countries are still in the early stages of developing comprehensive strategies to address the labour and social challenges of the net-zero transition. So far, none have implemented the full range of policies outlined above. However, several countries have made notable progress, either by developing strategic plans for the green transition, or by introducing targeted initiatives in key areas, laying the groundwork for more comprehensive action. Chapter 2 of this report analyses how Austria, Canada, Flanders (Belgium), Ireland, the Netherlands, and Spain have developed strategies, roadmaps, or action plans in the area of employment and skill policies for the green transition. It provides details on the development, content, implementation, and monitoring and evaluation of these strategies, roadmaps, and action plans, as well as on the governance arrangements that underpin them. Chapter 3 focusses on specific policies and examines how countries have adjusted them for the green transition. First, it examines how countries foster the development of green-related skills, notably by adapting apprenticeships and by encouraging individuals to undertake training for the green transition. Second, it explores how countries try to prevent widespread job displacement by supporting firms to adapt to structural changes brought about by the green transition, and by addressing local employment and skill needs.

Table 1.1 below presents a summary of the different examples presented in the report.

Table 1.1. Summary of main examples developed in the report

Theme	Country or region	Overview	pp.
Strategies	Austria	Launched in 2023 by the Federal Ministry for Climate Action, in collaboration with the Public Employment Service, the Chamber of Labour, and the Federal Ministry of Labour and Economy, the **Just Transition: Education and Training Action Plan** aims to "leave no one behind", with a particular focus on the unemployed, those undergoing professional reorientation, and individuals in carbon-intensive sectors and places a strong emphasis on skills development, training, and lifelong learning.	14
	Canada	The **Sustainable Jobs Plan**, underpinned by the Sustainable Jobs Act (Bill C-50), is a comprehensive strategy at the federal level to manage the country's transition to net zero emissions. Put forward in 2023, this plan acknowledges the major economic shift away from fossil fuels and aims to support Canadian workers, especially in high-emission industries, to develop skills for the green transition. It establishes a framework for governance, outlines concrete measures and investments, proposes mechanisms for ongoing monitoring and accountability, and anticipates key outcomes related to economic growth, climate action, and social inclusion.	17
	Flanders (Belgium)	Developed in 2023 by the Flemish Department of Work and Social Economy in 2023 in collaboration with the SG Reform from the European Commission via the Technical Support Instrument, the **Green Skills Roadmap** sets out a vision for 2030 in which Flanders leads the transition by equipping its workforce with the skills needed in sectors such as construction, energy, manufacturing, and the circular economy. The roadmap defines four key objectives: helping employers anticipate and respond to future skills needs; aligning training supply with labour market demand; enabling individuals to upskill and reskill for green jobs; and strengthening co-ordination among stakeholders.	19
	Ireland	Launched in 2024 by SOLAS, the State agency responsible for Further Education and Training (FET) and developed in collaboration with the industry, training providers, and several state departments, the **Green Skills 2030 Strategy** outlines the overall response of the FET sector to skills needs for the green transition and includes specific recommendations for seven economic sectors that are key for the green transition.	23
	Netherlands	Launched in 2023 by the Dutch Government and developed jointly by several ministries, regional authorities, industry representatives and educational institutions, the **Action Plan for Green and Digital Jobs** outlines strategic priorities to address labour shortages and skills needs critical to the green and digital transitions. The plan is centred around four pillars: increasing enrolment in relevant education fields, attracting and retaining technical talent, stimulating labour productivity growth, and strengthening governance.	27
	Spain	Approved in 2019, the **Just Transition Strategy** (JTS) represents a central component of the national Strategic Energy and Climate Framework. The strategy is designed to manage the profound socio-economic transformations associated with transition to net zero emissions, ensuring that vulnerable workers and territories are not left behind in the transition to a low-carbon economy.	30
Apprenticeships	Ireland	Recommendations developed in the Green Skills 2030 Strategy the **integration of skills for the green transition into all Further Education and Training (FET) programmes**, including into apprenticeships in sectors such as construction, energy, and transport. The strategy aligns curricula with the European GreenComp framework and promotes continuous professional development for FET instructors.	39
	Austria	One area of action included in the Just Transition Plan concerns the **update of apprenticeship programmes to include elements relevant to the green transition**, in particular in sectors such as electrical engineering and renewable energy, and the **creation of new apprenticeships** like "climate gardeners". In addition, Austria has developed several **financial incentives** to encourage individuals undertake apprenticeships in areas relevant for the green transition (the Umweltstiftung initiative and the Digi-Scheck for Apprentices).	39, 43
	United Kingdom	The United Kingdom, via the Institute for Apprenticeships and Technical Education (IfATE), has since 2023 required all **new or revised apprenticeship curricula to embed skills for the green transition**. Furthermore, an initiative, called **Building Futures,** began in 2023 in South Norfolk and Broadland to support SMEs hiring apprentices, particularly in green-driven jobs. It offers grants and training modules on onboarding and sustainability.	40, 43
	Sweden	In Sweden, the **Solar Energy Manager programme**, overseen by the Swedish National Agency for Higher Vocational Education, provides working adults with vocational tertiary qualifications in solar energy. It relies on blended learning and strong employer involvement.	41

Theme	Country or region	Overview	pp.
	Denmark	Several projects support the greening of apprenticeships in Denmark. The Ministry of Children and Education launched in 2024 a **Knowledge Centre for Agriculture and Rural Development** to support curriculum innovation, teacher training, and cross-sectoral collaboration for the transition. The **Apprentices for Sustainability** project, initiated in 2023 by apprentice carpenters in Copenhagen, led to the development of a sustainability-focussed curriculum that influenced national updates to carpentry qualifications. The VIGOT project (2022-2026) involves universities, vocational schools, and research centres to develop skills for green construction using biogenic materials like seaweed and hemp.	41
	Bulgaria	Electrician apprenticeship curricula have been updated to include skills for the green transition thanks to the **ENTIRE project**, implemented by the Modern Education Foundation and the Pleven Vocational School with oversight from the Ministry of Education and National VET Agency and support from Erasmus+. The project also features teacher training and business engagement strategies.	42
	Australia	The **Apprenticeships Incentive System**, implemented by the Australian Government under the Future Made in Australia plan, supports apprentices and employers in priority and clean energy sectors. Apprentices may receive up to AUD 10 000, while employers can receive an additional AUD 5 000 for hiring apprentices in critical occupations.	45
Incentives for training	Croatia	In 2022, Croatia introduced a **voucher system to support lifelong learning for the green and digital transitions**. Open to anyone aged 15 and above with at least basic education, it offers up to EUR 3 000 for approved training (aligned with the National Qualifications Framework and leading to the development of identified green or digital skills). A dedicated platform and career guidance services (online or in person) help users choose suitable courses.	46
	Wales (United Kingdom)	The Welsh Government launched a **pilot programme for training for skills for the green transition in the context of the personal learning account** (PLA). Compared to the general PLA programme, the main change introduced by the green PLA pilot is the removal of the eligibility salary cap for approved, green-related trainings (66 courses in areas like renewable energy, construction, and project management, selected by a specialist panel of education and industry experts).	47
	Sweden	In Sweden, the **public employment service implemented several programmes to support the green transition**, including job-search counselling and matching, as well as career information and advice. Furthermore, it provides information on job opportunities in northern Sweden, where green industries are expanding, via different channels.	48
Support to firms	Czech Republic (Czechia)	In Czechia, a **dedicated STW scheme has been created to accompany firms' restructuring (including for the green transition)**. It is substantially less generous (both in terms of level and duration) than the standard STW scheme aimed at supporting firms in the case of extraordinary events or economic difficulties.	48
	Germany	In Germany, the **transfer STW allowance (Transferkurzarbeitergeld), granted in the event of restructuring (including for the green transition)**, is similar to the standard STW in terms of generosity, but to benefit from this scheme, workers must register as jobseekers with the Federal Employment Agency and join a transfer company, responsible for helping them transition into a new job. The employer must make job placement proposals, and contribute (along with the Federal Employment Agency) to the costs of the transfer company and training.	48
	Spain	In 2021, Spain implemented a **substantial reform of its job retention scheme (Expedientes de Regulación Temporal de Empleo – ERTE)** and created two new types of ERTE, which the government can "activate" in the event of (i) cyclical macroeconomic downturns, or (ii) sectoral transformations requiring substantial labour reallocation, including for the green transition. Both schemes can be activated by a government-approved national collective agreement, a possibility known as the RED (Reducción de Empleo por Despidos) mechanism.	48
	Netherlands	The **MKB!dee scheme** was a time-limited (2018-2021) pilot programme designed to encourage small and medium-sized enterprises (SMEs) to invest more systematically in the training and development of their employees. It targeted SMEs facing structural or situational barriers to skills investment and invited them to propose tailored solutions. Approved projects received funding for eligible costs. Several projects aimed at developing skills for the green transition.	50
Local initiatives	Rhenish region (Germany)	In Germany, the **Coal Commission** was established in 2018 to develop a consensus-based roadmap for phasing out coal by 2038, while ensuring economic support and job transition in affected regions. In the Rhenish region, the transition process is managed by the Rhenish Development Agency that has in-depth knowledge of the region's strengths and weaknesses.	52

Theme	Country or region	Overview	pp.
	EU	Launched by the European Commission in 2021, the **Just Transition Fund initiative** is supporting and accelerating the decarbonation of the most polluting regions in Europe and helping both employers and workers navigate the transition towards climate-neutrality, based on Just Transition Plans that regions must submit for approval to the EC to receive financial support. Furthermore, the European **RES-SKILL project** aimed to develop learning curricula to help workers in the coal sector to transition into the renewable energy sector, by identifying skills similarities between occupations in the two sectors.	53
	Western Macedonia (Greece)	The **Just Transition Plan** in Western Macedonia aims to foster structural change and promote economic diversification while also providing job-search assistance, retraining and upskilling for affected workers and income support for vulnerable households.	53
	Spain	In Spain, **"Keep it local"** is a company-led training programme implemented at the local level by two major companies in the wind energy sector to develop skills in demand in the sector.	54
	Sweden	In Sweden, a global manufacturer of commercial vehicles is supporting the green transition by developing **employer-led in-house training programmes** and retraining workers.	55

This report has been prepared in the context of a project to help the General Directorate for Employment and Professional Training (DGEFP) of the French Ministry of Labour and Solidarity consolidate and implement its roadmap for the green transition, with the European Union' Technical Support Instrument. The project focusses on 11 key schemes of the DGEFP and analyses how to make them fit for the green transition. Selected measures include schemes to support structural change, regional skills investment programmes, apprenticeships, and financial incentives and career guidance for green-related training. Although the themes covered in this report were chosen to inform the development of the DGEFP's roadmap for the green transition and the associated greening of selected schemes, the findings are relevant for all OECD countries as they are grappling with similar issues.

2 Developing employment and skills strategies for the green transition

To mitigate the impact of the green transition on labour markets and workers, several countries have started to develop employment and skills strategies, roadmaps, or action plans for the green transition. While in theory strategies are documents that define an overall vision and specify goals, roadmaps are documents that lay out the phased path to achieve these goals, and action plans detail the specific steps and responsibilities to implement a roadmap, in practice documents prepared by the six countries analysed and presented in this chapter all include some elements of strategy, planning, and implementation.

The Just Transition: Education and training action plan in Austria

Austria's Education and Training Action Plan for the Just Transition[1] forms part of the country's broader strategy to achieve climate neutrality by 2040 and to support the transformation of the economy and society, particularly in sectors such as energy, construction, and mobility.[2] The strategy explicitly aims to "leave no one behind", with a particular focus on ensuring access to quality training for all, including the unemployed, those undergoing professional reorientation, and individuals in carbon-intensive sectors. To navigate the transition in a socially inclusive and economically resilient way, Austria has placed a strong emphasis on skills development, training, and lifelong learning. Within the Just Transition Fund, Austria has prioritised regions most affected by structural change, namely Styria, Upper Austria, Lower Austria, and Carinthia and the plan builds on Austria's existing strengths: high-quality training institutions, a motivated workforce, and a collaborative governance model that brings together key actors from across government, business, academia and civil society.

Development of the strategy

The Federal Ministry for Climate Action (BMK) started the development of a general Just Transition Action Plan in December 2020, and a specific Education and Training Action Plan was prepared to identify and address employment and skills needs arising from the energy transition.[3] To this end, BMK, together with the Public Employment Service (AMS) and the Vienna Chamber of Labour, initiated a working group on education and training. The Federal Ministry of Labour and Economy (BMAW) was also involved, in line with its responsibilities in the area of vocational training. Members of the working group included professional associations, trade unions, environmental associations, sectoral funds, Austrian social enterprises, and other ministries such as the Ministry of Education, Science and Research, and Ministry of Arts, Culture, Civil Service and Sport. The working group was convened for three workshops in June 2021, September 2021 and February 2022.

In parallel, in order to support and inform the work of the working group, independent studies were prepared by different research institutes. The Austrian Institute of Economic Research analysed the sectoral impact of the transition to climate-neutral value chains, and the Austrian Energy Agency collected the education sector's perspective on possible measures related to education and training for achieving climate neutrality.

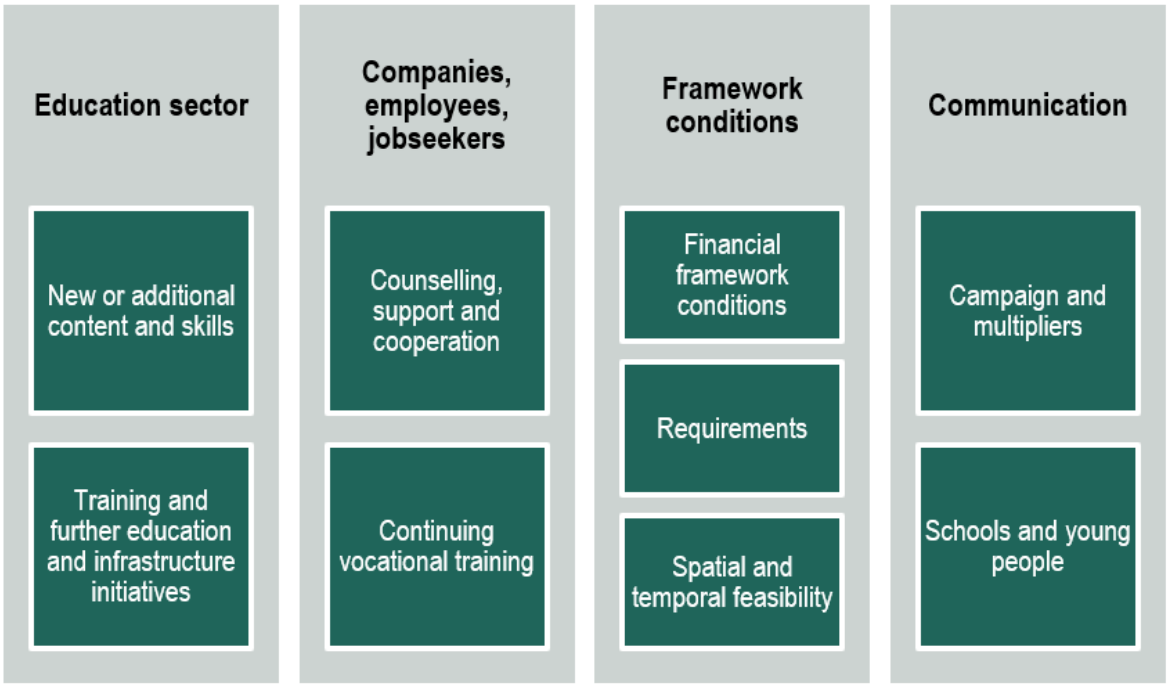
The plan was shaped by guiding principles of inclusion and equality. Specific attention was paid to diversity considerations, including gender, age, ethnic origin, social background, disability, sexual orientation, and religion/belief. As a result, key guidelines for gender- and diversity-sensitive implementation were incorporated into the strategy.

Content of the strategy

Published in 2023, the Education and Training Action Plan is structured around four topic areas and includes nine fields of action, as shown in Figure 2.1. The first topic area focusses on the education sector and includes measures to integrate climate-relevant content into existing curricula, strengthen vocational education and training (VET), and improve educational infrastructure to support new learning formats and regional networking. A key component is the integration of climate-relevant content into apprenticeship programmes, including new training formats and specialised modules in green sectors, as discussed in more detail in the section on apprenticeships below. The second area addresses the needs of companies, employees and job seekers, through actions that support career guidance, and promote in-company training for workers in sectors undergoing transformation. The third topic area focusses on framework conditions, with measures to adapt financial support systems, promote income security during training periods, ensure better alignment between training supply and labour market needs, and improve the spatial and temporal accessibility of training opportunities. Finally, the fourth topic area concerns communication and aims to raise awareness of job opportunities for the green transition through targeted campaigns, school outreach, and the use of ambassadors and role models. Communication measures were designed to leverage existing networks, such as parents' associations, and included the development of tailored packages for schools to promote green-driven jobs among students. These efforts sought not only to inform, but also to inspire young people to engage with new training and career opportunities emerging from the green transition.

Several specific actions are listed for each field (37 actions in total) and indicate the steps to be taken, the main body responsible and the time horizon for implementation (short-term: in 2023; medium-term: 2023-2024, or long-term: 2025-2030). A clear emphasis was placed on short- and medium-term implementation, with most actions scheduled for 2023 and 2024, reflecting the urgent need to address existing and emerging skills shortages in sectors key to the green transition.

Figure 2.1. The Just Transition: Education and Training Action Plan is structured around four themes



Source: OECD elaboration on the Just Transition: Education and Training Action Plan.

Governance

BMK oversees the Education and Training Action Plan for the Just Transition in Austria, playing a central role in its co-ordination and strategic direction. It collaborates with key implementation partners to ensure that the plan's actions are operationalised effectively and within the proposed timelines.

AMS and BMAW are other main stakeholders in the governance of the plan, particularly in terms of implementation. AMS is responsible for delivering many of the concrete training programmes and labour market measures envisaged in the plan, while BMAW contributes through its responsibility for vocational education and its close ties with employers and economic sectors. Other federal ministries are also involved: the Ministry of Education, Science and Research in areas related to general education, higher education and research, and the Ministry of Arts, Culture, Civil Service and Sport for civil service training and employment.

The governance model also relies on strong co-operation with regional actors, social partners, sectoral funds, and training providers, particularly in the implementation of targeted programmes such as the Environmental Foundation (Umweltstiftung). This initiative, co-managed by BMK, BMAW, AMS, and the Austrian social partners (ÖGB and WKÖ), is one of the flagship instruments for delivering training and labour market integration within the framework of the Just Transition (see below in the section on apprenticeships).

Furthermore, a high-level advisory body, the Just Transition Advisory Board, was established to provide feedback on the different dimensions of the Just Transition Action Plan, including on the specific Education and Training Action Plan, at key steps of the process. This advisory board is composed of ministries and government bodies, research institutes, trade unions, and professional associations. It continues to play a

consultative role, offering periodic feedback and ensuring alignment of the action plan with Austria's broader climate and employment strategies.

From a financial perspective, the action plan also involves the mobilisation and co-ordination of funding from multiple sources, including national budgets, company contributions, and EU funds (e.g. the Just Transition Fund,[4] or the Recovery and Resilience Facility).

Implementation

Between January 2023 and July 2024, significant progress was made under the four thematic areas of the action plan, in close co-operation with Austria's social partners. In the field of education, the tripartite Federal Vocational Training Advisory Board updated two key occupational profiles, electrical engineering and metal technology, to integrate skills relevant for the green transition and began developing new profiles for emerging green occupations. These changes are expected to benefit between 30 000 and 35 000 young people in vocational training (Global Deal, 2024[4]). For instance, the revised electrical engineering curriculum now includes modules on renewable energy generation, storage, and photovoltaic system installation.

In parallel, the plan supported companies, employees and jobseekers through tailored guidance and training measures. Career counsellors received new training on sustainability and environmental issues, while AMS provided training in the skills for the green transition to between 8 000 and 9 000 individuals. By the end of 2023, 345 workers, 11% of whom were women, had participated in upskilling or reskilling programmes funded by the Green Jobs Fund, which aims to reach 1 000 beneficiaries by 2025. Scholarships have also been made available to support participation in these training opportunities (Global Deal, 2024[4]).

Finally, regarding communication efforts, a specific campaign targeting young people has been organised and the klimajob.at website has been launched, promoting green-driven job opportunities. The website is actively supported and disseminated by social partners (Global Deal, 2024[4]).

The Sustainable Jobs Plan in Canada

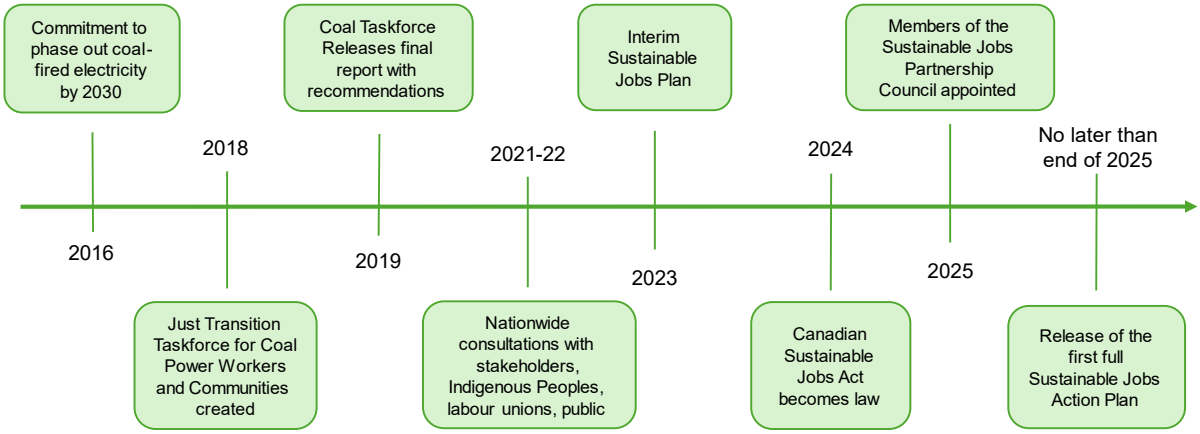
The Canadian Sustainable Jobs Plan[5] is a comprehensive strategy at the federal level to manage Canada's transition to net zero emissions. This plan, put forward in 2023, recognises the significant economic transformation required to move away from fossil fuels and aims to equip Canadian workers and communities, particularly those currently in high-emission industries, with the necessary support and skills to thrive in the emerging green economy. It establishes a framework for governance, outlines concrete measures and investments, proposes mechanisms for ongoing monitoring and accountability, and anticipates key outcomes related to economic growth, climate action, and social inclusion.

Development of the Interim Sustainable Jobs Plan and the Sustainable Jobs Act

In 2019, following the recommendations made by the Coal Taskforce, the federal government in Canada committed to introduce legislation to support workers and communities in the context of its initiatives to phase out coal and ensure a just transition. In February 2023, the Government of Canada released the interim Sustainable Jobs Plan,[6] for the period 2023-2025, which reiterated this commitment and outlined the government's approach to building a more prosperous future for all Canadians. The Plan was presented as an "interim plan for 2023-2025 detailing concrete federal actions to advance economic prosperity and sustainable jobs in every region of the country." The Plan built on nationwide consultations with various stakeholders, including trade unions, provinces and territories (with diverse opinions, some opposing the legislation), indigenous organisations, industry, and environmental organisations. In 2024,

the Canadian Parliament passed the Sustainable Jobs Act (Bill C 50)[7] to give legislative force to the proposals included in the Plan. From 2025 onwards, the government will be required to propose action plans every five years that outline how to promote the creation of sustainable jobs and support workers in the shift to a net-zero economy – see summary timeline in Figure 2.2.

Figure 2.2. Timeline of the Canadian approach



Source: Canada's Sustainable Jobs Secretariat, Natural Resources Canada, June 2025.

Content of the Interim Sustainable Jobs Plan and Sustainable Jobs Act

The Interim Sustainable Jobs Plan outlines ten federal actions:

1. Establish the Sustainable Jobs Secretariat.
2. Create a Sustainable Jobs Partnership Council.
3. Develop economic strategies through the Regional Energy and Resource Tables.
4. Introduce a sustainable jobs stream under the Union Training and Innovation Program.
5. Advance funding for skills development towards sustainable jobs.
6. Promote Indigenous-led solutions and a National Benefits-Sharing Framework.
7. Improve labour market data collection, tracking, and analysis.
8. Motivate investors and draw in industry leadership to support workers.
9. Collaborate and lead on the global stage.
10. Establish legislation that ensures ongoing engagement and accountability (referring to Bill C-50).

Significant attention is paid to investing in skills programming and training to equip Canadians for sustainable jobs (actions 4 and 5), highlighting existing programmes and creating a "Sustainable Jobs Training Centre". In addition, the Plan strongly emphasises the need to "advance the reconciliation with Indigenous Peoples – including economic reconciliation", in order to ensure a "equitable, inclusive and sustainable future for all Canadians". This takes the form of programmes to support Indigenous-owned clean energy projects across Canada as well as increased Indigenous participation in the natural resource sector to ensure Indigenous communities directly benefit from resource projects in their territories (action 6). Regarding the improvement of labour market data (action 4), the Plan indicates that after reviewing the data available within the federal government, gaps in the data related to skills development, economic and social measures and measures that support workers on an individual, regional, community and sectoral basis should be identified and addressed. To "motivate investors" (action 5), the Plan mentions policy certainty and financial incentives, including tax credits for clean technologies and carbon capture, as key

elements. Moreover, “labour conditions will be attached to these investment tax credits, including requirements to pay prevailing wages based on local labour market conditions and create apprenticeship training opportunities.” Finally, the Plan acknowledges the global nature of the energy transition and highlights Canada’s participation in international initiatives like the Paris Agreement and the International Labour Organization (action 10).

As foreseen in the Interim Sustainable Jobs Plan, the Sustainable Jobs Act (Bill C-50) established the Sustainable Jobs Secretariat, the Sustainable Jobs Partnership Council and the Regional Energy and Resource Tables (see also section on governance below). Furthermore, it defines a sustainable job as any job that is compatible with Canada’s pathway to achieving a net-zero-emissions and climate-resilient future and that reflects the concept of decent work, namely work – including a job in which the worker is represented by a trade union that has entered into a collective agreement – that can support the worker and their family over time and that includes elements such as fair income, job security, social protection and social dialogue.[8]

Governance

The Energy and Natural Resources Ministry is currently in charge. To assist the government, two new bodies are being established:

- *Sustainable Jobs Secretariat*: A public body to “coordinate the delivery of policies and programs”. This will act as a one-stop shop for impacted groups, providing information on training, employer connections, income support, and early retirement options. It will co-ordinate across approximately 14 government departments and agencies.
- *Sustainable Jobs Partnership Council*: Composed of external representatives from industry, workers, Indigenous peoples, and energy transition experts. The Council will advise the minister on policies and programmes and engage with a broad range of stakeholders to develop recommendations. It will issue annual reports, to which the minister must publicly respond.

Furthermore, the *Regional Energy and Resource Tables* have been established as a collaborative initiative involving federal, provincial, and territorial governments, Indigenous partners, union partners, workers, municipalities, industry experts, and civil society to identify and advance low-carbon opportunities in the energy and resource sectors at local level.

Implementation, monitoring and evaluation

The Sustainable Jobs Act is designed to ensure accountability and transparency. In line with the Canadian Sustainable Jobs Act, progress reports of the action plans will be published every 2.5 years after each plan is proposed. A progress report on the 2023-2025 Interim Plan will be included in the Sustainable Jobs Action Plan at the end of 2025. Following this, the next progress report is due by 1 June 2028, and then every 5 years after that. If these reports indicate the government is not on track, it will be required to explain how it will correct the course.

The Green Skills Roadmap in Flanders (Belgium)

The Green Skills Roadmap for Flanders[9] is a strategic proposal developed to support the region’s transition to a climate-neutral and sustainable economy. It outlines a vision for 2030 in which Flanders leads the green transition by equipping its workforce with the skills needed in sectors such as construction, energy, manufacturing, and the circular economy and aims to turn this vision into action through targeted and co-ordinated measures. Although it has not been validated nor implemented by the Flemish Government,

underscoring the importance of securing political support from the outset to translate plans into concrete actions, several insights emerge that can inspire similar initiatives in other countries.

Development of the roadmap

The development of the Green Skills Roadmap for Flanders was the result of a structured, multi-step process carried out in 2022 and 2023, under the co-ordination of the Flemish Department of Work, Economy, Science, Innovation and Social Economy (WEWIS). Building on prior research (including green labour market forecasts and a review of good practices from other countries), the project team translated strategic goals into concrete actions. This formed the basis for a first draft, which was then tested and refined through an extensive consultation process. Stakeholder involvement was central to the roadmap's creation. Key Flemish actors were consulted in targeted discussions to assess the feasibility and relevance of proposed actions. A second, broader round of consultation followed, incorporating feedback from a wider range of stakeholders across government, education, and industry (Trinomics, 2023[5]; Trinomics, 2023[6]; Trinomics, 2023[7]).

Content of the roadmap

The roadmap sets out four key objectives: helping employers anticipate and respond to future skills needs for the green transition; aligning training supply with labour market demand; empowering individuals to upskill and reskill for jobs needed for the green transition; and improving co-ordination among Flemish stakeholders. It is organised around five core action areas (Trinomics, 2023[7]).

The first action area focusses on strengthening governance and forecasting and comprises several initiatives. Firstly, a common understanding of skills needs for the green transition should be established by developing a flexible and broadly accepted reference framework – rather than a single definition – around three main types of skills: technical (occupation-specific), professional (applied to an occupation, e.g. analytical and management skills), and transversal skills. This framework would serve as a common reference for all stakeholders, guiding curriculum design, policy development, certification, and sector-specific adaptations. Secondly, the roadmap recommends integrating the impact of the green transition as a distinct element within Flanders' existing skills forecasting approach.

The second action area addresses the need for financial support and incentives. One key proposal is the creation of a co-funding instrument for skills for the green transition, which would allow public-private consortia to co-invest in the development of training programmes, tools, or career pathways for the green transition. This co-funding could take the form of dedicated budget lines, top-up funds, or the "greening" of existing funding calls in the areas of education, training, and employment. Existing Flemish programmes (e.g. "Strategische competentieprognoses" – Strategic skills forecasting, or "Opleidingen van de Toekomst" – Education of the Future) could be adapted to prioritise skills for the green transition. Furthermore, new dedicated local-level funding streams could provide targeted support for companies, training providers, and learners engaged in developing skills relevant for the green transition. In addition, the roadmap proposes launching a series of "accelerator calls for action", targeted funding opportunities to respond quickly to urgent skills shortages or training needs, particularly in sectors such as construction and renewable energy. These calls would focus on unemployed or vulnerable individuals and could be piloted with regional and sectoral partners.

The third action area is dedicated to accelerating educational reform and curriculum development to integrate skills for the green transition. This includes updating curricula in priority areas such as sustainable construction techniques, green energy installation and circular design. An online self-assessment tool for companies is also mentioned, to help employers analyse their workforce's skills readiness related to the green transition and identify training needs. To stimulate rapid action, the roadmap introduces the concept of Green Skills and Jobs Accelerator Plans: collaborative, goal-oriented training plans developed by

consortia of the most relevant organisations, preferably building on existing partnerships, to fill urgent skills gaps. Each plan would outline concrete actions, roles, timelines, and monitoring mechanisms to drive forward employment and skills for the green transition. The offer of skills for the green transition in existing and new VET programmes and higher education would also be expanded, by increasing the number of green-related apprenticeships, internships and vocational training programmes.

Public awareness and communication are the focus of the fourth area of action. The roadmap recognises the importance of improving the visibility and attractiveness of jobs for the green transition and proposes an annual campaign to promote these job opportunities to learners and Flemish citizens in general. In parallel, a "Green Skills Label" would be introduced to identify and signal training programmes that contribute to sustainability goals, helping learners and employers make informed choices. The label could be supported by financial incentives to encourage participation, particularly among unemployed individuals and workers in sectors most affected by the green transition. Furthermore, promotional efforts would be strengthened for existing VET programmes that equip learners with skills relevant for the green transition for high-demand occupations, starting with an analysis to identify such training programmes. These efforts would primarily target potential VET learners, but also extend to parents and school counsellors to build awareness and engagement.

The final action area concerns peer learning and knowledge exchange. It includes support for employers, education institutions and training centres to share their experiences, tools and practices with others. To facilitate exchanges, the roadmap proposes to set up a dedicated knowledge platform. This online central information hub would gather all relevant studies, best practices, and information on ongoing initiatives in the field of skills for the green transition. The roadmap also proposes setting up peer learning networks between vocational education providers and employers to foster co-creation of new learning content and delivery models. Moreover, to reinforce capacity across the system, specific train-the-trainer programmes would be developed to help instructors deliver both technical and cross-cutting skills for the green transition.

Governance

The roadmap was commissioned by WEWIS and developed in close collaboration with the European Commission's Directorate-General for Structural Reform Support, under the Technical Support Instrument (TSI). To ensure effective co-ordination and oversight of a potential future implementation of the roadmap, a dedicated governance structure has been proposed. At its core is the idea of establishing a "Green Skills and Jobs Coalition", a co-ordination body that would initiate and oversee the rollout of the roadmap. This coalition would bring together representatives from key Flemish Government departments, such as Work and Social Economy, Education and Training, Economy, Science and Innovation, and Environment, alongside public employment services (VDAB – Flemish Public Employment Service), sectoral organisations, the social partners, education providers, the Flemish Agency for Innovation and Entrepreneurship and the Flemish Agency for Energy and Climate. Importantly, representatives from each of the institutions should have sufficient authority within their institutions to make strategic decisions, allocate resources, and take responsibility for specific actions (Trinomics, 2023[7]).

The Green Skills and Jobs Coalition would have three initial tasks. First, it would be responsible for validating the Green Skills Strategy and ensuring alignment across the various departments and stakeholders involved. Second, it would co-ordinate the assignment of responsibilities for each proposed action within the roadmap, establishing clear roles and ownership. Third, the responsibilities of the Green Skills and Jobs Coalition would extend to the establishment of an M&E framework to measure progress in the implementation of the roadmap and achievement of the objectives and priorities set out in the Green Skills Strategy. The actual monitoring would then be carried out by the most suitable body, depending on the final set-up of the governance structure (Trinomics, 2023[6]; Trinomics, 2023[7]).

The Green Skills and Jobs Coalition would also lay the ground for a permanent governance structure, which would take over responsibility for steering a skills agenda for the green transition in the long term. To support the transition to permanent governance, the roadmap includes a separate governance framework that outlines several possible co-ordination models. These include an interdepartmental working group, a public-private partnership, a sectoral governance model, or the establishment of a dedicated agency under the Chancellery with a cross-cutting mandate. Each scenario is assessed in terms of feasibility, capacity, and the degree of cross-sector collaboration it would necessitate. Regardless of the model chosen, the governance framework highlights key enabling conditions for success, including high-level political support, cross-departmental co-operation, clear assignment of responsibilities, sufficient human and financial resources, and mechanisms for transparency and accountability (Trinomics, 2023[7]).

Implementation

The Green Skills Roadmap for Flanders remains a proposal at this stage and has not been validated or implemented by the Flemish Government. However, it provides a detailed and phased implementation plan designed to be realistic, flexible, and aligned with existing Flemish labour market and skills development frameworks. The proposed measures are grouped into short-, medium-, and long-term actions, allowing for gradual scaling, iterative development, and alignment with stakeholder readiness and resource availability. The roadmap proposes beginning with actions that are easier to implement or can build on existing structures, before expanding to more systemic reforms and long-term integration as follows:

- Short-term actions, proposed for the first two years following political validation, include:
  - Establishing the Green Skills and Jobs Coalition as a temporary governance body
  - Launching a public awareness campaign to promote jobs for the green transition
  - Piloting Green Skills Accelerator Plans in high-priority sectors such as construction and renewable energy. Developing a shared understanding of skills relevant for the green transition
  - Integrating sustainability indicators into skills forecasting tools.
- In the medium term (roughly 2-5 years after adoption), the roadmap proposes:
  - Developing and scaling up co-investment tools such as co-funding instruments for skills for the green transition
  - Expanding curriculum reform through sectoral agreements
  - Launching a Green Skills Label to signal green-related training offers
  - Extending peer learning networks across sectors and regions.
- Over the long term (more than 5 years after adoption), the roadmap envisions embedding skills for the green transition into the mainstream of education, employment, and innovation policy. This would include:
  - Institutionalising governance and funding mechanisms
  - Integrating skills for the green transition across vocational and higher education
  - Ensuring ongoing monitoring, evaluation, and policy alignment with climate and circular economy strategies

Although no single budget figure is proposed, the roadmap does highlight the need for sustained and co-ordinated investment. It suggests a blended funding approach that combines existing Flemish instruments, public-private co-investment, and potential European support (e.g. through the Green Deal Industrial Plan or Horizon Europe for instance).

Monitoring and evaluation

The Green Skills Roadmap for Flanders recognises the importance of monitoring and evaluation as a critical part of successful rollout. For each proposed initiative under the five action areas, the roadmap outlines how success can be measured, providing suggested indicators that can be used to build a monitoring framework for implementation (see Annex A). While the roadmap does not prescribe a fully developed M&E system, it offers concrete starting points and key principles to guide its future design. It recommends that the M&E framework should be embedded in the newly established governance and co-ordination structure. The aim is to ensure that progress is tracked, lessons are gathered, and adjustments can be made over time to strengthen the roadmap's impact. The roadmap proposes leveraging existing tools and data infrastructures, such as labour market intelligence systems already used by the public employment services (PES), education providers, and innovation agencies. It is also planned that the roadmap would be updated over time to reflect the evolving nature of the demand for skills for the green transition and labour market conditions and the need for flexibility during implementation; the monitoring system is expected to support this adaptability.

The Green Skills 2030 Strategy in Ireland

"Green Skills 2030",[10] the first national green strategy for Further Education and Training (FET), was published by the national FET Agency – known as SOLAS – at the end of 2024. It provides a comprehensive framework to prepare the workforce for the continuous changes brought about by the green transition (SOLAS, 2024[8]). Recognising the importance of a concerted approach to developing the right skills at the right time, the strategy was developed in close consultation with key stakeholders, from both the public and private sectors, at the national and regional levels. Based on a series of consultations and desk research work, Green Skills 2030 identifies key priorities to foster the greening of skills in Ireland and presents a series of tailored recommendations to meet industry needs across all occupations involved in the green transition.

Development of the strategy

Green Skills 2030 is the result of a 10-year process, building on the experience of the education and training sector since the adoption of the Climate Action and Low Carbon Development Act in 2015 – the first legislation in Ireland specifically designed to tackle climate change. By 2020, there were already more than 50 training programmes focussing on skills for the green transition. Since then, the government has introduced a number of measures to accelerate Ireland's transition to a low-carbon economy, in line with various directives and recommendations established at the European level (European Commission, 2019[9]; CEDEFOP, 2020[10]). Consequently, the number of programmes for skills for the green transition has doubled,[11] and SOLAS has developed a general roadmap to set out a strategic direction for skills policy for the green transition (SOLAS, 2022[11]). Published in 2022 under the title "Green Skills for FET 2021-2030", the roadmap aimed to present high-level actions for embedding initiatives on skills for the green transition across the FET sector. Compared to the Green Skills 2030 Strategy, the two-page roadmap was limited in scope, but provided an opportunity to assess different green skills initiatives and to develop a comprehensive approach to identifying skills needs for the green transition, thereby paving the way for a more comprehensive and detailed strategy.

To build the strategy, several stakeholders' consultations were conducted, taking the form of a survey questionnaire, qualitative and quantitative research, and several workshops. Thanks to the questionnaire, SOLAS collected information from around 200 stakeholders, with half of the survey responses coming from industry representatives. Hence, the strategy primarily reflects their assessment of the skills and upskilling needs for specific occupations in their sector. In addition, SOLAS undertook a comprehensive analysis of

current and emerging skills gaps for the green transition at occupational level (SOLAS and Deloitte, 2024[12]). This in-depth study both updates and extends the research undertaken for the Green Skills for FET 2021-2030 roadmap, as it covers a wider range of economic activities. It is worth noting that the results of this analysis were consistent with consultation findings. As a final step, the information provided by industry and government stakeholders was further reviewed and clarified by ETB representatives during a series of workshops. This enabled ETBs to make various suggestions as to how the FET sector could respond to industry skills needs, while also highlighting challenges in programme development.

Content of the strategy

To promote and enhance the development of skills for the green transition, the Green Skills 2030 Strategy includes both general recommendations and sector-specific recommendations. The former identifies strategic priorities that outline the overall response of the FET sector to skills needs for the green transition, while the latter identifies areas of action in seven economic sectors.[12]

Strategic recommendations

The strategic recommendations are grouped under the following five priorities:

- **Increasing awareness of FET programmes and green skills provision**, notably by creating a centralised platform to help employers as well as current and prospective learners understand and navigate FET provision
- **Promoting career opportunities arising from the green transition** to current and prospective learners across all channels of FET provision, including secondary schools, tertiary education, and VET programmes
- **Integrating skills for the green transition and transversal competences content into all FET programmes**, by building on the European sustainability competence framework “Green Comp” (see Box 2.1). More details on this area of action are provided below in a section dedicated to the adaptation of apprenticeships.
- **Developing compliance, disclosure, and reporting skills** in relation to green policies and regulations to enable firms and organisations to meet evolving environmental and sustainability reporting standards
- **Supporting the design and delivery of FET programmes for skills for the green transition**. This includes: setting the right priorities within new programmes; involving key FET stakeholders in their design and/or delivery; and ensuring that FET staff have a solid understanding of environmental and sustainability issues.

Box 2.1. GreenComp: The European Competence Framework for Sustainability

Published in May 2023, GreenComp is an EU framework for sustainability competencies, supporting the EU's goal to become climate-neutral by 2050. It aims to promote environmental sustainability learning across the EU, fostering inclusive, quality training on climate change, biodiversity, and sustainability for learners of all ages and education levels. GreenComp aligns with the European Green Deal and EU's educational policies, focussing on skills development, upskilling, and reskilling for sustainability. It was developed with input from over 75 international experts. The framework consists of 12 competences classified into four key areas: "embodying sustainability values," "embracing complexity in sustainability," "envisioning sustainable futures," and "acting for sustainability."

Source: European Commission (2022[13]), GreenComp – The European sustainability competence framework, Publications Office of the European Union, https://data.europa.eu/doi/10.2760/13286.

Sectoral recommendations

The sectoral recommendations identify opportunities to enhance the provision of programmes for the green transition in seven key economic sectors.[13] Recommendations and associated actions are tailored to specific occupational skills needs, but they are framed around three common areas of action: developing FET programmes for the green transition, establishing FET specialist skills centres, and creating pathways between FET and higher education (HE).

Developing FET programmes for the green transition

The strategy recommends addressing skills gaps related to the green transition by developing new modules to complement existing FET programmes, as well as by developing entirely new curricula and programmes, or significantly restructuring existing ones. More details on the development of FET programmes for the green transition are provided below in a section dedicated to the adaptation of apprenticeships. The strategy also mentions the provision of stand-alone modules for the general public, to increase awareness and understanding of energy use, thereby helping citizens to save energy in their daily lives and reduce their impact on climate change.

Establishing FET specialist skills centres

The strategy suggests that national centres for specialist skills could be developed for several sectors, using existing infrastructure and resources. These centres would function as a focal point for learners to identify training or upskilling courses in which they might be interested. For example, a national centre could be developed to co-ordinate training and upskilling courses in the various activities related to electric vehicles. The strategy also recommends the creation of a specialised skills centre focussing on environmental, social and governance issues to help enterprises and SMEs in particular navigate the transition to a low-carbon economy. For green activities that require costly infrastructure, the strategy mentions the development of specialist skills centres in specific regions. For example, onshore and offshore wind farms will be concentrated in certain regions, where specialist centres could be established to deliver related training programmes at a local level.

Creating pathways between Further and Higher Education

The development of tertiary pathways or joint programmes between FET and higher education (HE) institutions would enable some learners to gain a HE degree and/or upgrade their skills or qualifications

while taking advantage of facilities available at certain HE institutions. Depending on the field of study and occupation, this may require the development of new tertiary degrees, certifications or stackable micro-credentials, and/or an update of the National Qualifications Framework (NQF) to include new qualifications or new pathways between NQF levels.

Governance

Green Skills 2030 was developed by SOLAS, the State Agency for Further and Higher Education and Training. SOLAS develops, funds and co-ordinates FET programmes for school leavers, job seekers, employees seeking to upskill or reskill, and other learners. It is also responsible for the national apprenticeship system in further and higher education. Furthermore, SOLAS, and especially its Skills and Labour Market Research Unit, monitors the supply and demand for skills at occupational level and informs the government about skills gaps and labour shortages.

Although prepared by SOLAS, Green Skills 2030 is the result of a collective effort involving both government stakeholders and key actors on the ground, in particular:

- Regional Education and Training Boards (ETBs) and their national representative (ETBs Ireland), which are the Key Partners of SOLAS for the delivery of upskilling and reskilling programmes. ETBs provide a wide range of VET programmes, such as apprenticeship, traineeships, career guidance and education guidance.
- Regional Skill Fora, which aim to foster partnerships between employers and the VET sector, by identifying skill gaps in their region and acting as an intermediary to ensure that employers find the right place to get the support they need.
- Skillnet Ireland, which brings together 70 industry-led networks and functions as a focus point for businesses to identify and respond to emerging skills needs (in partnership with the VET sector). In particular, two business networks – Green Tech Skillnet and Sustainable Enterprise Skillnet – are dedicated to helping firms reskill and/or upskill their workforce for the green economy. In addition, Skillnet Climate Ready Academy provides specialised training programmes for firms to meet compliance and regulatory obligations and to develop their own sustainability charter.
- The Department of Further and Higher Education, Research, Innovation and Science, responsible for higher and further education policies and research policies. The Department also oversees the work of state agencies (including SOLAS) and public institutions operating in these areas.
- The Department of Enterprise, Trade and Employment, responsible for developing and implementing policies to foster economic growth and employment creation. Its Expert Group on Future Skills Needs advises the government on labour market developments at a sectoral level.

Implementation, monitoring and evaluation

An implementation and evaluation framework for the Green Skills 2030 Strategy is currently under development. More specifically, the Department of Further and Higher Education, Research, Innovation and Science will set up an expert group responsible for overseeing the implementation of the strategy. The group will include representatives from the Department, SOLAS, regional ETBs and their national representative (ETB Ireland). The tasks of the expert group will be the following:

- Developing an implementation plan, that will identify priority areas and define specific targets
- Advising on data collection procedures to monitor implementation and progress
- Reviewing the strategy throughout its lifetime to ensure it remains fit for purpose and incorporates new developments and expert knowledge on a regular basis
- Recommending actions to address any identified risks to implementation

- Collaborating with industry partners and representatives from government bodies to ensure alignment with organisational goals, policies, and procedures. Close collaboration between key FET stakeholders will be critical to ensure that Green Skills 2030, the upcoming FET Strategy (2025-2029), and the FET reform agenda are aligned and complement each other.

The Action Plan for Green and Digital Jobs in the Netherlands

The Dutch "Action Plan for Green and Digital Jobs" (*Actieplan Groene en Digitale Banen*)[14] was introduced in 2023 and aims to address labour market shortages in sectors crucial for the climate and digital transitions. The plan's primary goal is to ensure a sufficiently skilled workforce to meet the increasing demand in these sectors, ultimately supporting the Netherlands' ambitions for a sustainable and technologically advanced economy. One of its key objectives is to increase the number of qualified professionals by improving education and training programmes, particularly in Science, technology, engineering, and mathematics (STEM) fields. Additionally, the plan seeks to attract and retain talent by improving working conditions, investing in lifelong learning, strengthening collaboration between educational institutions and employers and increasing diversity and inclusivity within these industries. One distinguishing feature of the plan lies in its stated aim to boost labour productivity through process innovation, digitalisation, and automation. To combat fragmentation, the plan emphasises better governance and co-ordination between multiple ministries, educational institutes, social partners, and regional governments (Ministry of Economic Affairs and Climate, 2023[14]; Rijksoverheid, 2023[15]).

Development of the action plan

The action plan was developed as a collaborative effort between national government ministries, regional authorities, employers, educational institutions, and social partners. Recognising the complexity and urgency of labour shortages in the green and digital sectors, the Dutch Government opted for an inclusive, evidence-based approach to design the plan.

The development process drew heavily on input from stakeholders across the labour market, including employers and industry organisations, who were involved from the start. Their input was collected through consultations, roundtables, and formal contributions. Additionally, the plan's measures were informed by findings and recommendations of the Foundation for Economic Research and a report on labour market shortages in technical fields prepared by the Research Centre for Education and the Labour Market. The action plan also reflects advice from the Socio-Economic Council and builds on previous national programmes such as the Techniekpact.[15]

The final plan was published in early 2023, following an intensive preparation period that involved co-ordination across ministries, including the Ministry of Economic Affairs and Climate Policy, the Ministry of Social Affairs and Employment, and the Ministry of Education, Culture and Science, among others. These ministries worked jointly with private sector representatives and educational organisations to ensure that the proposed actions aligned with labour market needs and regional economic priorities. It is also designed as a dynamic document, meaning that it will be revised and updated based on ongoing evaluation and stakeholder feedback.

Content of the action plan

The Action Plan for Green and Digital Jobs is structured around four key pillars that correspond to the Dutch Government's strategic focus areas: 1) increase enrolment in relevant education fields, 2) retain and attract technical talent, 3) stimulate labour productivity growth, and 4) strengthen governance to combat fragmentation (Ministry of Economic Affairs and Climate, 2023[14]). This section details actions included in the three first pillars while the fourth pillar is explained in the next section.

Many of the measures outlined in the action plan focus on Information, Communication and Technology (ICT) and broader STEM disciplines. While these are primarily critical for the digital transition, the plan highlights their fundamental role in advancing the green transition. Technical and ICT professionals are central in climate-related sectors such as renewable energy, sustainable mobility, circular manufacturing, and smart infrastructure. For instance, the installation and maintenance of heat pumps, solar panels, and electric vehicle charging stations require vocational and technically trained staff. The plan therefore views the development of technical and ICT skills as essential for achieving the Netherlands' climate targets and supporting the broader energy and resource transitions.

The first pillar, increasing enrolment in relevant education fields, aims to meet the growing demand for ICT and technical professionals and address low STEM participation, as only 19% of Dutch VET students were enrolled in STEM subjects in 2023, well below the EU average of 36% (Eurostat, 2025[16]). The government has set a target of training over 1 million ICT graduates by 2030. To boost STEM enrolment, the plan supports multiple initiatives, including the *Sterk Techniekonderwijs* (Strong Technical Education), *Jet-Net* and *TechNet* programmes, which enhance technical education at vocational and upper-secondary levels, and pilots for practice-oriented programmes in upper-secondary and vocational education.[16] Additional measures include strengthening career guidance and improving study choice information, for instance by developing new guidance tools and teaching materials for educators and career counsellors, embedding career orientation more firmly in school curricula, and improving access to labour market data to help students make well-informed decisions aligned with opportunities in technical and green sectors. Additionally, the government is collaborating with social partners to promote students' early exposure to future-oriented professions. Finally, the plan aims to expand teacher training programmes for technical vocational education to address teacher shortages and improve education quality. This includes increasing the number of hybrid teachers, which are professionals from the technical and ICT sectors who also take on teaching roles, strengthening the connection between education and the professional field.

The second pillar focusses on attracting and retaining technical talent, which is essential for both the digital and green transitions. To support career transitions into these fields, the government is investing in lifelong learning and upskilling and reskilling initiatives. For example, the government is investing in the *Nationale LLO Katalysator* via the National Growth Fund (EUR 392 million), aimed at creating a national infrastructure for lifelong learning by improving skills matching and developing flexible training pathways. Other measures include the support for *FastSwitch*, a reskilling programme linking jobseekers to high-demand sectors such as technology and energy. The plan also includes training funds targeted at low-educated workers and those from declining industries, often in collaboration with sectoral training and development funds and regional mobility teams. However, at this stage, some components of the plan, particularly those related to worker mobility and sectoral transitions, remain relatively general in nature, with more operational details expected to emerge during implementation.

To complement these upskilling and reskilling measures, the plan also promotes inclusiveness and diversity, especially for women, young people and people with a migration background. Special task forces have been created to encourage gender-neutral career choices. For example, the coalition *Vrouwen in Techniek* (Women in Technology) and the *ICT Diversity & Inclusion Taskforce* are actively working to increase female participation and ensure an inclusive work environment in these industries. Additionally, initiatives such as *Maatschappelijke Diensttijd* (Community Service Time) are being expanded to expose more young people to climate and sustainability-related sectors, helping to foster broader access and early engagement with green technical careers. Beyond inclusivity, the plan also recognises the need to make technical professions more attractive overall. To this end, employers have committed to improving working conditions, including more flexible arrangements, enhanced employment benefits, and long-term learning and earning pathways like 10-year income security schemes to provide stability and career perspective.

To stimulate labour productivity growth (third pillar), the plan promotes digitalisation, automation, and process innovation in the workplace to boost output from the existing workforce. While primarily aimed at

addressing capacity challenges, these innovations could also support the green transition by enabling more energy-efficient production, reduced resource consumption, and smarter logistics. For instance, process innovation and digital technologies are key to increasing sustainability in manufacturing, construction, and energy sectors. The plan supports this through existing programmes, such as *Versnelling Digitalisering MKB*, *Smart Industry*, *European Digital Innovation Hubs*, and *AiNed AI*, which help businesses, particularly SMEs, adopt technologies that can drive both efficiency and sustainability.

Governance

The fourth pillar of the action plan concerns the strengthening of governance to combat fragmentation. It envisions a strong role for the central government, in particular to co-ordinate the approach to address labour market shortages related to the green and digital transitions. The action plan also recommends enhancing collaboration between government ministries, regional authorities, industry stakeholders, and educational institutions to ensure seamless implementation. This collaborative approach aims to create a simple, clear structure that leverages existing networks while aligning with regional-level activities. The plan builds on existing governance frameworks such as the *Human Capital Agenda* and the implementation structures of the *Techniekpact* and relies on established regional partnerships to tailor actions to local labour market needs. Ministries will co-ordinate efforts through joint steering groups and shared accountability, while regional actors, such as schools, employers, and local governments, are tasked with translating national goals into concrete regional interventions. This layered approach is designed to ensure national coherence while allowing flexibility in regional implementation (Ministry of Economic Affairs and Climate, 2023[14]; Rijksoverheid, 2023[15]).

Implementation

The Action Plan for Green and Digital Jobs will run until 2030, aligning with broader national and European goals for digital and green transitions. The plan is structured around short-, medium-, and longer-term actions under the four strategic pillars. The Dutch Government has allocated significant funding to support the implementation of the plan. The funding is directed toward addressing labour shortages, expanding education and training systems, and fostering innovation through measures such as public-private collaborations. Key budget allocations included:

- **EUR 210 million from the National Growth Fund for public-private partnerships in vocational education**: This funding supports scaling up successful collaborations between vocational education institutions and employers, particularly in the technology and ICT sectors. The initiative focusses on aligning education with industry needs, fostering lifelong learning, and boosting SME participation. Of this amount, EUR 152.5 million has been awarded unconditionally, while EUR 57.5 million is conditional upon performance and impact evaluations.
- **EUR 392 million for lifelong learning and workforce development**: Through the National LLO Catalyst Programme, this investment aims to develop a national lifelong learning ecosystem, ensuring a stronger connection between labour market demands and training programmes. The funding will initially focus on skills development for the energy and raw materials transition.
- **EUR 100 million for practice-oriented research in higher education**: This funding strengthens the innovation capacity of higher vocational education by improving research that supports industry-relevant education and better aligns technical education with labour market needs.
- **EUR 90 million for STEM & technical higher education**: This is part of a larger EUR 200 million sector plan that focusses on strengthening scientific education and research, with a particular emphasis on STEM and technical disciplines.
- **EUR 96 million for other lifelong learning projects focussed on strengthening infrastructure and targeting low-educated and low-skilled workers**: This funding supports better co-ordination

between education providers and industry stakeholders to promote lifelong learning, while also targeting upskilling initiatives for individuals with lower educational attainment to improve their workforce integration (Rijksoverheid, 2023[15]; Ministry of Economic Affairs and Climate, 2023[14]).

- **EUR 14 million is invested in higher professional education programmes in shortage sectors like technology**, as part of a total EU 30 million for higher professional education programmes in healthcare, education, and technology. This funding aims to increase entry, reduce dropout rates, and improve the link between education and the professional field (Rijksoverheid, 2023[15]; Ministry of Economic Affairs and Climate, 2023[14]).

Monitoring and evaluation

The long-term nature of the plan calls for regular evaluations and adjustments to ensure targets are met in response to changing labour market demands (Ministry of Economic Affairs and Climate, 2023[14]; Tweede Kamer der Staten-Generaal, 2022[17]). The monitoring and evaluation of the action plan will be conducted through a structured, multi-level approach to ensure that the implemented measures effectively address labour shortages and skill development needs. The Dutch Government will track key performance indicators (KPIs) related to job creation, training participation, skills development, and workforce transitions to assess the impact of various initiatives. The government will leverage on a range of existing databases and dashboards:

- *Klimaatmonitor* – tracks developments related to climate policy and sustainability goals at the national and regional level, including indicators such as CO_2 emissions, renewable energy use, and sustainability-related employment.
- *Techniekpactmonitor* – provides data on technical education and workforce trends such as enrolment, number of graduates, teacher shortages, and mismatches measures.
- *ICT Arbeidsmarktdashboard* – offers real-time labour market insights into the ICT sector, including vacancy trends, employment levels, skills gaps and regional imbalances.
- *Emancipatie Monitor* – tracks gender gaps in education, income, labour participation, and career advancement.

Regular progress reports, stakeholder consultations, and impact assessments will help refine and adapt the initiatives included in the action plan as needed. To further improve accountability, conditional funding mechanisms, such as the EUR 57.5 million allocated for vocational education partnerships, will be subject to periodic evaluations to ensure efficiency and impact. The government aims to keep monitoring efforts dynamic and adaptable, enabling the plan to respond effectively to changes in the labour market and emerging skills demands (Ministry of Economic Affairs and Climate, 2023[14]).

The Just Transition Strategy in Spain

Spain's Just Transition Strategy (JTS),[17] approved in 2019, represents a central component of the national Strategic Energy and Climate Framework, together with the Climate Change Law and the National Energy and Climate Plan.[18] The strategy is designed to manage the profound socio-economic transformations associated with decarbonisation, ensuring that vulnerable workers and territories are not left behind in the transition to a low-carbon economy.

Development of the strategy

In February 2019, the Spanish Government approved the Strategic Framework for Energy and Climate, based on three pillars: the draft law on climate change, the draft National Integrated Energy and Climate Plan and the Just Transition Strategy.

A draft of the Just Transition Strategy was presented on 22 February 2019 and underwent a public participation process that ended on 1 April 2019. The final text incorporates several of the comments and contributions made by individuals, particularly from areas affected by mining closures, NGOs, trade unions and associations, the business sector, and autonomous communities and local authorities.

Content of the strategy

Spain's Just Transition Strategy follows the International Labour Organization (ILO) Just Transition guidelines (ILO, 2015[18]) and the Paris Agreement. It aims to ensure that nationally agreed climate targets do not leave regions, sectors and communities behind, by providing socio-economic support in terms of employment generation and social and territorial justice and cohesion.

The strategy sets out actions in eight thematic areas. Two concern employment and training policies more closely:

- *Active policy measures for green employment and social protection:* This axis focusses on integration measures, training, and policies to promote job creation that should be developed by the central and regional governments. The labour legislation and the Spanish Strategy of Activation for Employment form the basis for active employment policies, and the promotion of self-employment and entrepreneurship within the sustainable economy. It includes attention and support for entrepreneurs and adapting actions to the characteristics of the territory, considering local labour market realities. It also aims to make use of the resources available for the ecological transition within the European Social Fund initiatives and strengthen employment services in vulnerable territories. Furthermore, it includes plans to reduce youth unemployment and the gender employment gap through access to new opportunities brought about by the ecological transition.
- *Green vocational training measures:* Recognising the changes that the greening of the economy will bring to job content and hence occupational profiles, this axis emphasises the need for a clear response from both vocational training and active employment policies. It includes measures to assess training needs, develop joint programmes for young people in green sectors, and support companies' planning of training needs for the green transition.

At the heart of the JTS are the Just Transition Agreements – area-specific frameworks reached through General Action Protocols signed between the national, regional, and local authorities in close collaboration with social partners, companies, and civil society organisations to propose a comprehensive territorial action plan following the objectives and criteria of the JTS: maintenance and creation of employment through support for at-risk sectors and groups and the establishment of population in rural territories. These agreements describe tailored revitalisation strategies based on territorial diagnoses and stakeholder consultations.

Another essential part of the JTS is the Urgent Action Plan for Coal Regions (2019-2021), the initial, fast-track response to the social and economic consequences of coal mine and power plant closures, implemented ahead of the rest of the JTS. Its starting point was the Framework Agreement for a Just Transition in Coal Mining and Sustainable Development of the Mining Regions for the Period 2019-2027, which was developed in close co-ordination between the Government of Spain, trade unions and the National Federation of Coal Mining Entrepreneurs. The Urgent Action Plan focusses on safeguarding workers' rights and cushioning the immediate impacts of industrial decline. It guarantees: 1) adequate compensation and job placement services for coal workers affected by the closures; 2) maintenance of employment in mining regions through the use of coal plant dismantling, environmental restoration of mines and installation of renewable energy plant activities as direct employment pathways for laid-off workers, ensuring continuity of income while contributing to ecological recovery, and 3) the early development of Just Transition Agreements in territories affected by closures, in order to provide targeted financial support

and investment incentives to affected municipalities, aimed at stimulating local economies and laying the groundwork for long-term reindustrialisation.

Governance

A Just Transition Institute (*Instituto para la Transición Justa*) was established in 2020 under the ministry for the Ecological Transition and the Demographic Challenge to oversee the negotiation, co-ordination, and implementation of ecological transition-related measures, acting as the hub for planning, monitoring, and public engagement. Within this institute, an Advisory Board was created to co-ordinate and monitor the implementation of the strategy. It is formed by representatives of most of the ministerial departments, as well as of the Autonomous Communities, the Local Entities, and the most representative trade unions and business organisations.

Continued public participation is encouraged and facilitated through regional workshops, newsletters, online platforms, and direct consultations, ensuring transparency and long-term legitimacy in the transition process. Trade unions and municipal governments also play an essential role in negotiating worker protections and guiding local reindustrialisation.

Implementation

According to the information provided by the Ministry for Ecological Transition and Demographic Challenge in 2023 (Ministry for Ecological Transition and Demographic Challenge, 2023[19]), regarding the implementation of the Urgent Action Plan for Coal Regions, all workers affected by coal plant closures have received either social protection or opportunities for reemployment. More than 800 individuals have been trained. Over 300 miners were granted early retirement, while auxiliary workers received priority access to new employment. Overall, according to the information provided by the Ministry for Ecological Transition and Demographic Challenge in 2023, job creation linked to the strategy has matched or exceeded job losses in coal-dependent sectors.

Furthermore, 15 Just Transition Agreements have been signed, covering 197 municipalities. These agreements were informed by over 2 000 proposals from more than 800 stakeholders. Since 2019, EUR 39.8 million in grants were allocated to local businesses, with the commitment to create over 1 200 jobs, 40% of which went to women. Additional funding rounds are expected to create thousands more jobs. Coal regions have also been prioritised in the allocation of EUR 2.7 billion of IDAE (Institute for Diversification and Saving of Energy)-managed Recovery Plan related to energy transition. Moreover, a specific Just Transition component was incorporated into the Spanish Government's Recovery, Transformation and Resilience Plan, with EUR 300 million from Next Generation EU funds and four specific objectives for the areas affected by the closures, in addition to the deployment of national funds (Ministry for Ecological Transition and Demographic Challenge, 2023[19]). Within this EU funding framework, the Just Transition Institute has been implementing a certified professional retraining programme in areas related to the ecological transition (green infrastructure, photovoltaic and wind energy installations, and energy renovation of buildings) for unemployed people in areas affected by the energy transition. EUR 9 million are allocated to this professional retraining programme for job placement which was initiated in 2023 and expects to reach 840 unemployed.

Monitoring and evaluation

From the outset, the strategy has placed strong emphasis on data-driven and transparent monitoring, primarily through a dedicated on "Measures to improve knowledge about the impact of ecological transition on employment" axis within the strategy. Monitoring is designed to track both quantitative and qualitative impacts of the ecological transition on workers and communities.

Some of the actions of the Just Transition Institute are monitored through the evaluation of the Just Transition Agreements, which serve as tools for the implementation of the JTS. For each of the 15 agreements in place, results reports are periodically prepared (2023 and 2025).[19] The government has committed to updating the JTS in 2026, taking into account lessons learned, evolving economic conditions, and new challenges posed by the deployment of large-scale renewables.

The Spanish JTS has also been analysed by the Instituto Elcano, an independent think tank (Lázaro Touza et al., 2025[20]). The report finds that there is broad citizen support for Just Transition policies in Spain across the ideological spectrum; however, the rapid deployment of renewables, while crucial for climate goals, has faced opposition in some regions. Looking ahead to the planned update of Spain's Just Transition Strategy, the authors emphasise the need to address this resistance through projects that foster local development and employment, particularly in rural areas facing depopulation, and by going beyond the initial focus on phasing-out fossil fuels to also include challenges related to the phasing-in of renewables, low carbon technologies and infrastructures.[20]

Main features of employment and skills strategies for the green transition

Several similar features emerge from the six examples presented above. To develop their employment and skills strategies for the green transition, the six countries analysed relied on stakeholders' consultations, in the form of meetings and/or written contributions (Table 2.1). Meetings such as workshops, focus groups, roundtables, and expert panels are particularly useful to gather first ideas and prepare a first draft of the strategy, or when the number of participants is modest. Written contributions are more efficient to collect feedback on a first draft or when the number of stakeholders is sizeable. In terms of content, the strategies reviewed above vary significantly (Table 2.1). They are organised around four to ten areas of action, reflecting different national priorities and approaches. Most strategies contain cross-sectoral measures but some also incorporate sector-specific recommendations, tailored to the needs of specific industries. The strategies are generally comprehensive and contain a moderate to high level of details. Although relatively few strategies explicitly focus on specific groups, most prioritise support for workers in high-emission sectors who are at greater risk of job displacement. Furthermore, in some countries (Austria, Canada and Spain), the strategies also focus on specific geographic areas.

Table 2.1. Development and content of the strategies

Country	Methodology for the development of the strategy	Strategic areas	Level of details	Focus on specific groups	Focus on specific areas
Austria	Organisation of three workshops with main stakeholders Independent studies on the impact of the sectoral green transition and on possible education and training measures	• Measures for the education sector • Measures targeting companies, employees, and jobseekers • Financial measures and measures to improve accessibility of training opportunities • Communication	High	The plan was shaped by guiding principles of inclusion and equity and specific attention was paid to diversity considerations	Yes

Country	Methodology for the development of the strategy	Strategic areas	Level of details	Focus on specific groups	Focus on specific areas
Canada	Organisation of 17 engagement sessions (lasting 3 hours) Analysis of 30 000 emails and 75 detailed submissions prepared by various Canadian organisations	• Establishing the Sustainable Jobs Secretariat • Creating a Sustainable Jobs Partnership Council • Developing economic strategies through the Regional Energy and Resource Tables • Introducing a sustainable jobs stream under the Union Training and Innovation Program • Funding skills development towards sustainable jobs • Promoting Indigenous-led solutions and a National Benefits-Sharing Framework • Improving labour market data collection, tracking and analysis • Motivating investors and drawing in industry leadership to support workers • Collaborating and leading on the global stage • Establishing legislation that ensures ongoing engagement and accountability	High	The plan aims to ensure that challenges faced by marginalised and underrepresented groups are addressed. The role of the Indigenous community is put front and centre.	Yes
Flanders	Roadmap written as part of a project funded by the European Commission through its Technical Support Instrument (TSI). Organisation of several consultation meetings and workshops	• Strengthening governance and forecasting • Addressing the need for financial support and incentives • Accelerating educational reform and curriculum development • Improving public awareness and communication • Supporting peer learning and knowledge exchange	High	Not in general, but one action focusses on the unemployed and those at risk of unemployment	No
Ireland	Feedback collected via survey questionnaires sent to various stakeholders, qualitative and quantitative research (in particular a comprehensive analysis of current and emerging green skills gaps at occupational level), and several workshops	• General recommendations: • Raising awareness of programmes for the green transition • Promoting career opportunities in the green economy • Developing sustainability skills for FET learners and FET practitioners • Developing compliance, disclosure, and reporting skills in relation to green policies and regulations • Supporting the design and delivery of FET programmes for the green transition • Sectoral recommendations for FET programmes development, creation of FET specialist centres, and strengthening of pathways between FET and HE	Moderate	No	No

Country	Methodology for the development of the strategy	Strategic areas	Level of details	Focus on specific groups	Focus on specific areas
Netherlands	Organisation of consultation meetings, roundtables, and formal contributions (e.g. Attack Plan for Labour Market Shortages in Technology, Construction and Energy and Chronic Shortage of ICT Workers Plan). Plan builds on findings from the Foundation for Economic Research and Research Centre for Education and the Labour Market report on labour shortages in technical fields as well as previous national programmes	• Increase enrolment in relevant education fields • Retain and attract technical talent • Stimulate labour productivity growth • Strengthen governance to combat fragmentation	Moderate	The plan promotes inclusiveness and diversity, especially for women, young people and people with a migration background	No
Spain	A first draft of the strategy was presented and underwent a public participation process during which individuals, NGOs, trade unions, associations, the business sector, autonomous and local communities could send written contributions The strategy builds on ILO Guidelines on Just Transition	• Eight thematic areas, including: • Measures to reduce inequality and support consumers • Active policy measures for green employment and social protection • Green vocational training measures • Additional Urgent Action Plan for Coal Regions (2019-2021) • Just Transition Agreements	High	No	Yes

As seen in , in most cases, the development of employment and skills strategies for the green transition is led by the ministry in charge of environmental and climate affairs, with a strong involvement of the ministry responsible for labour and employment issues, with two notable exceptions: in Ireland, the process is spearheaded by SOLAS, the State Agency for Further and Higher Education and Training, while in Flanders, it is led by the Flemish Department of Work and Social Economy. The strategies typically foresee the establishment of one or more dedicated bodies tasked with advising on the strategy's development and/or co-ordinating its implementation. In all cases, co-ordination between various ministries and the active involvement of a broad range of stakeholders – particularly social partners, sectoral funds, training providers, and local actors – are considered essential to the success of these initiatives.

Table 2.2. Governance arrangements for the strategies

Country	Responsible organisation(s)	Creation of dedicated body?	Other stakeholders involved
Austria	Federal Ministry for Climate Action, in collaboration with the Public Employment Service, the Chamber of Labour, and the Federal Ministry of Labour and Economy	Creation of a high-level advisory body, the Just Transition Advisory Board, composed of ministries and government bodies, research institutes, trade unions, and professional associations and tasked to provide feedback on the different dimensions of the Just Transition Action Plan	Regional actors and training providers, including the Environmental Foundation (Umweltstiftung), are involved in implementing the plan
Canada	Energy and Natural Resources Minister	Creation of two new bodies: • Sustainable Jobs Secretariat (composed of civil servants to co-ordinate the delivery of policies and programmes) • Sustainable Jobs Partnership Council (composed of external representatives from industry, workers, Indigenous peoples, and energy transition experts, to advise the Minister on policies and programmes)	Regional Energy and Resource Tables have been established as a collaborative initiative involving federal, provincial, and territorial governments, Indigenous partners, union partners, workers, municipalities, industry experts, and civil society to identify and advance low-carbon opportunities in the energy and resource sectors at local level

Country	Responsible organisation(s)	Creation of dedicated body?	Other stakeholders involved
Flanders	Flemish Department of Work and Social Economy	Proposal to create a Green Skills and Jobs Coalition with representatives from key Flemish Government departments, the PES, sectoral organisations, social partners, education providers, Flemish Agency for Innovation and Entrepreneurship, and Flemish Agency for Energy and Climate	/
Ireland	SOLAS, the State Agency for Further and Higher Education and Training	No	Regional Education and Training Boards, Education and Training Boards Ireland, Regional Skill Fora, Skillnet Ireland, the Department of Further and Higher Education, Research, Innovation and Science, the Department of Enterprise, Trade and Employment
Netherlands	Ministry of Economic Affairs and Climate Policy and the Ministry of Social Affairs and Employment	No	Ministry of Education, Culture and Science, the Ministry of Climate and Energy, and the Ministry of Primary and Secondary Education, the regional governments, industry organisations and employers
Spain	Ministry for the Ecological Transition and the Demographic Challenge	Creation of the Institute for the Just Transition to oversee the negotiation, co-ordination, and implementation of ecological transition-related measures. Within this institute, creation of an Advisory Board (formed by representatives of ministerial departments, the Autonomous Communities, the Local Entities, and the most representative trade union and business organisations) to co-ordinate and monitor the implementation of the strategy	/

Regarding implementation, Table 2.3 shows that most countries have established ambitious yet achievable timelines for the implementation of their strategies, often structured around short-term, medium-term, and long-term actions. However, few strategies mention earmarked budget or quantitative targets. Furthermore, while many of the strategies include mechanisms for progress monitoring, comprehensive evaluation remains relatively rare. A best practice in this regard is to design the M&E framework from the outset, embedding it within the strategy and clearly defining responsibilities.

Table 2.3. Implementation, monitoring and evaluation of the strategies

Country	Implementation timeline	Allocated budget	Quantitative targets	M&E framework
Austria	The strategy contains short-term (2023), medium-term (2023-2024) and long-term actions (2025-2030), with a focus on the short- and medium-terms	No	No	No publicly available information on M&E framework
Canada	The Sustainable Jobs Plan is an interim plan for 2023-2025; the Sustainable Jobs Act envisions action plans every five years.	Yes	Yes	Progress reports will be published every 2.5 years after each plan is proposed
Flanders	Proposed measures are grouped into short-term (within 2 years), medium-term (2-5 years), and long-term (more than 5 years) actions	No	No	The roadmap includes indicators to measure progress for each action
Ireland	Implementation and monitoring framework under development	No	No	Implementation and monitoring framework under development

Country	Implementation timeline	Allocated budget	Quantitative targets	M&E framework
Netherlands	Short-, medium-, and long-term actions planned until 2030	Yes	Yes	Structured, multi-level M&E approach detailing measures such as regular progress reports, stakeholder consultations, impact assessments and conditional funding mechanisms
Spain	No specified timeline	No	No	Yes, it is a dedicated axis of the plan. Some of the JTI actions are monitored through the evaluation of the Just Transition Agreements, which serve as tools for the implementation of the JTS. For each of the 15 agreements in place, results reports are periodically prepared (2023 and 2025)

3 Greening employment and skills policies

This chapter offers a deep dive into how different countries adapted specific training and employment policies to address challenges brought about by the green transition. While strategies studied in the previous section set the overall vision and long-term direction, policies translate that vision into specific instruments, programmes, and measures that shape outcomes on the ground. Examining policies is therefore essential to understand how broad commitments to the green transition are put into practice, and how they directly affect workers, employers, and training providers. The specific policies analysed have been selected to inform the DGEFP's roadmap for the green transition and the greening of several schemes it manages, but the findings are relevant for all OECD countries as they are grappling with similar issues.

Adapting apprenticeships to support the development of skills needed for the green transition

The potential of apprenticeship programmes to support the green transition is significant. As they provide a unique mix of classroom learning and on-the-job experience, apprenticeships are usually responsive to labour market needs and can help address emerging skills needs related to the green transition. The flexibility of apprenticeship programmes allows green elements to be integrated into a wide range of sectors, regardless of their starting point in the green transition. This adaptability supports both short-term modular adaptations, such as adding specific green skills or modules to existing training pathways, and longer-term structural transformations, for instance by reshaping entire occupational profiles or creating new ones aligned with green objectives. When apprenticeship reforms are effectively embedded into broader sectoral plans or company-level sustainability strategies, their contribution is amplified, creating more coherent and impactful outcomes at both local and national levels. In the last years, countries have taken various initiatives to make apprenticeships programmes fit for the green transition, including updating the offer and content of apprenticeships programmes and curricula, targeting specific populations, and providing financial incentives and support to individuals and employers. These different strategies are presented below.

Updating the offer and content of apprenticeships programmes and curricula

Countries update the offer of training programmes by developing entirely new apprenticeships or adjusting the content of existing programmes to integrate sustainability elements, often combining both approaches to meet evolving needs. These updates are implemented through various strategies, which can be classified into top-down transversal strategies, top-down sector-specific adaptations and bottom-up strategies (CEDEFOP, 2024[21]). Top-down transversal strategies refer to centralised, national-level initiatives led by governments or large institutions, often involving systemic reforms to embed skills for the green transition across all programmes. Sector-specific adaptations focus on addressing the green

transition needs of particular industries or occupations, ensuring that training aligns with sectoral sustainability goals. Bottom-up strategies refer to local, regional, or sub-sectoral initiatives, often led by schools, companies, or apprentices themselves. These smaller-scale efforts address specific green transition needs at the local level. The strategy used usually depends on the apprenticeship model of the countries. Most sector-specific responses come from countries where apprenticeships operate as an independent system, with collaboration platforms and shared governance structures for sector representatives and social partners. In countries where apprenticeships are an alternative to school-based VET, examples tend to either be broad initiatives covering all education or smaller-scale, locally focussed initiatives (CEDEFOP, 2024[21]).

Top-down transversal strategies

Some countries, like Austria, Finland, Germany, Greece, Ireland, Latvia, Lithuania, Norway, Poland, and Slovenia, have chosen to revise all their apprenticeship programmes to include green-related competences. In some cases, such as Austria, Greece, Finland, and Norway, new green modules have been introduced combining both cross-cutting competences, such as environmental values and a sustainability mindset, and more technical skills related to the green economy, such as waste production, sustainable energy technologies and carbon footprint analysis. In Finland, the technical modules are optional for the students. In some countries, such as Austria, the inclusion of green competencies is done by adapting national frameworks to international frameworks such as the EU's GreenComp framework (see Box 2.1 above). In Poland, reforms have focussed on the integration of green skills through the examination and certification process. The integration of skills for the green transition into VET curricula is often combined with digital and STEM-related competencies, as seen in Latvia and Lithuania, so that apprentices acquire the necessary skills to work in evolving industries. Curricula adjustments may be accompanied by training for teaching staff on green transition topics, as well as the development of supporting materials and teaching tools, as is the case in Germany and Slovenia (CEDEFOP, 2024[21]) (European Commission, 2024[22]).

In several countries, including Ireland and Austria, the inclusion of skills for the green transition in apprenticeship programmes is part of broader green transition plans, which often involve several levels of education and/or employment policies.

In **Ireland**, the Green Skills 2030 Strategy aims to align the education and training system with the needs of the green transition (see also the section dedicated to the Green Skills 2030 Strategy). One of the priorities of the strategy (Strategic Priority 3) focusses on integrating skills for the green transition and transversal competencies into all FET programmes. This includes integrating sustainability content into curricula, aligning with the European GreenComp framework, and supporting continuous professional development for FET instructors. The goal is to equip learners with both technical and transversal skills for the green economy across various disciplines.

In particular, in the construction and built environment sector, apprenticeships are being updated to cover modern construction methods, retrofitting, Nearly Zero Energy Buildings, and environmental management. Transversal skills such as critical and systems thinking are also included, enabling apprentices to evaluate environmental impacts and make sustainable choices. In engineering, energy, and manufacturing, apprenticeships now emphasise renewable energy systems (e.g. wind turbine maintenance), with added focus on climate literacy[21] and adaptability to prepare learners for emerging technologies. In transport and logistics, apprenticeships incorporate training in electric vehicle maintenance, eco-driving, digital literacy, and adaptability to support the transition to green mobility.

As outlined in the previous section, **Austria** launched its Just Transition Plan in January 2023, and a central focus of the plan is to integrate climate-relevant content into existing apprenticeship programmes. This includes creating new training formats and enhancing existing curricula to address sustainability challenges. One of the main measures is to integrate sustainability elements into all apprenticeship

programmes at the national level. Specialised training modules are also included in green sectors such as electrical engineering, building technology, and renewable energy to provide apprentices with targeted skills for these high-demand fields.

The adaptation of apprenticeship programmes to include sustainability is part of Austria's regular process of updating VET. This process involves collaboration between social partners, sector representatives, research institutes, and the government. Proposals for updates are developed with input from experts, ensuring that apprenticeships meet industry needs and align with the green transition. These updates include both in-company training regulations and school-based curricula. Eligible participants undergo training in close co-operation with companies that have specific staffing needs, ensuring that training aligns with industry demand (Schmid, 2023[23]).

In addition to adjusting existing programmes, new programmes have been introduced. For example the apprenticeship programme for "climate gardeners" focusses on climate change adaptation measures, in particular the successful implementation of green and blue infrastructure[22] in urban areas (European Commission, 2024[24]).

Top-down sector-specific adaptations

Some countries are tailoring apprenticeship training to the specific needs of key green sectors, ensuring that apprentices develop specialised technical skills aligned with industry demands. In renewable energy and sustainable construction, countries like Australia, the Netherlands and Sweden have introduced new apprenticeship pathways, including training for solar energy management, electric vehicle maintenance, and energy-efficient infrastructure. In Germany, training is being adapted to support the hydrogen sector, ensuring that apprentices acquire skills relevant to hydrogen production, storage, and distribution (CEDEFOP, 2024[21]). Denmark, with support from the European Commission, is identifying circular economy skills needs in key sectors such as construction, wind energy, water technologies, and sustainable food, while simultaneously building institutional capacity through a network of Knowledge Centres in its VET system that foster curriculum innovation, teacher upskilling, and sector collaboration (European Commission, 2024[25]). Other countries are incorporating sustainability into a broad range of sectoral apprenticeships, from highly technical occupations to general business practices, as in Switzerland and the UK. Some countries are also focussing on embedding sustainability into service sectors. For instance, Romania is incorporating skills for the green transition into hospitality and catering apprenticeships (Romania and CEDEFOP, 2025[26]).

In the **United Kingdom**, apprenticeships now play a central role in supporting the net-zero transition across critical sectors such as energy and networks; construction and built environment; environmental and land management; and sustainability-focussed professional services. Over 200 apprenticeship standards already embed green competences, with many more in development to integrate sustainability principles across the economy. Developed and updated by thousands of employers with support from the Institute for Apprenticeships and Technical Education (IfATE), these programmes equip the workforce with essential skills for the green transition across various sectors. To guide this process, IfATE has developed a Green Toolkit, which provides both general and sector-specific guidance on how to integrate sustainability into technical education. All apprenticeship standards, new or revised, must now take this toolkit into account. The toolkit supports three key aims: ensuring all learners acquire foundational green competences; promoting the development of specific skills knowledge and behaviours for the green transition, where relevant; and encouraging green leadership and innovation, particularly in higher-level qualifications (IfATE, 2023[27]). Green content is introduced not only through specific modules or courses, but also by embedding them throughout occupational standards. To this end, the Green Toolkit identifies six key themes that should be integrated into any occupational standard (see Box 3.1). Through this framework, IfATE integrates sustainability into apprenticeships by enhancing existing programmes to train workers in green technologies (e.g. training electricians in domestic heat pumps, solar panels, and electric

vehicle charging points). It also supports specialist occupations (such as ecologists and countryside rangers) and develops apprenticeships that help businesses adopt sustainable practices, including degree-level training for sustainability business specialists. As part of this effort, six apprenticeships were selected in 2023 to receive the King's Coronation emblem, recognising their exceptional contribution to sustainability. These include roles such as Low Carbon Heating Technician, Sustainability Business Specialist, and Countryside Worker.

Box 3.1. IfATE Green Toolkit: Guidance themes

The Green Toolkit developed by IfATE outlines six key themes to integrate green contents into occupational standards:

- Carbon, energy sources and usage: Encouraging decarbonisation, energy efficiency, and the uptake of renewable technologies.
- Resource management: Supporting circular economy principles and minimising waste.
- Procurement and full-life decisions: Promoting whole-life costing, ethical supply chains, and sustainable procurement practices.
- Consequences and opportunities: Helping learners understand the risks of inaction and the benefits of a green economy.
- Data and innovation: Building capacity to use data in environmental decision making and developing new green solutions.
- Resilience, adaptation and preparation: Fostering skills to manage climate risks and adapt to environmental changes.

Source: IfATE (2023[27]).

Sweden developed an apprenticeship programme for solar energy managers to meet the growing demand in the solar energy sector. This programme is part of the Yrkeshögskolan scheme, which, although not formally considered an apprenticeship in the national context, aligns with the criteria set by the European Framework for Quality and Effective Apprenticeships.[23] It is designed for employed adults and offers them a fast-track pathway to tertiary-level qualifications while they remain in their jobs. Companies can use this programme to hire and train new staff. To be eligible for this program, adults must have a minimum of four years of relevant experience. The programme covers electrical engineering, solar energy technology, regulations, construction, energy knowledge, and smart systems, with modules lasting between 10 to 25 days. It combines theoretical training, offered online or through school-based components, and practical experience, with approximately one-third of learning taking place in the workplace. Employers play an active role in curriculum development and in providing workplace placements, and the Swedish National Agency for Higher Vocational Education oversees the programme, ensuring quality, allocating state grants, and approving eligible courses. Companies value the programme for its ability to upskill existing employees and attract new talent, and the possibility to shape training to their specific needs (Lundström and Cedefop, 2023[28]).

Denmark has established a network of specialised Knowledge Centres within vocational education and training (VET), designed to ensure that schools and programmes stay abreast of rapid technological change, digitalisation, and the green transition. These hubs, ten of which already exist covering areas like welfare, sustainable crafts, and business training, serve as incubators for new curriculum development, teacher continuous development, equipment upgrades, and sectoral collaboration. In 2024, Denmark launched its (eleventh) Knowledge Centre for Agriculture and Rural Development, the first of its kind focussed on agricultural and rural VET. The government has allocated DKK 4.4 million (~EUR 590 000)

annually for its operation, along with one-off capital grants of DKK 7.5 million in 2024 and DKK 3 million in 2025 for equipment and infrastructure. This centre aims to bridge the gap between agriculture and vocational training by developing and testing new teaching materials, technologies, and modules that support a climate-resilient and sustainable food sector. It will equip both students and teachers with green competences, working in partnership with agricultural stakeholders and aligning with national policy goals for reducing emissions and transforming farming practices (Ministry of Children and Education, 2023[29]).

In parallel, the Danish Government has designated three vocational institutions (Rybners, TEC and Herningsholm) as "climate-related schools" (klimaerhvervsskoler), each specialising in core sectors such as energy transition, green transport, sustainable construction, and climate-friendly agriculture. These institutions receive dedicated funding (DKK ~105 million annually from 2024-2028 and DKK 30 million thereafter) to develop sector-specific curricula, pilot climate programmes, support professional development for VET educators, and upgrade infrastructure. As flagship institutions, they are expected to disseminate knowledge and best practices across the VET sector – through teacher training, cross-school collaboration and open participation in their courses – reinforcing a system-wide embedding of sustainability skills in vocational learning (Ministry of Children and Education, 2024[30]).

Bottom-up strategies

In some countries, efforts to integrate skills for the green transition into apprenticeships are being driven from the ground up, with local or sectoral initiatives leading the way. These bottom-up strategies are often spearheaded by schools, businesses, or apprentices themselves, addressing sustainability challenges at the grassroots level. While in some countries, such as Denmark and Croatia, these initiatives have resulted in the introduction of entirely new apprenticeship programmes, in others, including Spain and Bulgaria, they led to the adaptation of existing training content to better align with the green transition. In the cases of Bulgaria and Croatia, these local initiatives are designed as pilot projects, with the potential for national expansion.

In **Denmark**, the Apprentices for Sustainability project is a notable example of a bottom-up approach to embedding sustainability in vocational education. Initiated in Copenhagen by apprentice carpenters concerned about the environmental impact of the construction sector, which accounts for nearly 40% of energy-related climate emissions, the project explored how the United Nations (UN) Sustainable Development Goals could be applied within carpentry training. Working in collaboration with vocational schools and a national knowledge centre, the apprentices helped develop a sustainability-focussed curriculum that combined theory with hands-on learning. Over 1 000 apprentices were trained in sustainable construction methods, environmentally conscious material selection, and climate-related topics. A highlight was the construction of a 25 m² model of sustainable youth housing, showcased during the World Congress of Architects 2023 in Copenhagen. Through workshops, site visits, and "train-the-trainer" sessions for company mentors, the apprentices became ambassadors for sustainable building, influencing companies, suppliers, and even launching their own businesses. The initiative's success helped inspire updates to carpentry qualifications across Denmark (CONTECO[31]; CEDEFOP, 2024[21]).

Building on this foundation, the VIGOT project (2022-2026), funded by the Novo Nordisk Foundation, brings together universities, vocational schools, and research centres to further develop skills for the green transition in carpentry education. It focusses on construction physics and the use of biogenic materials, such as seaweed, straw and hemp, that store atmospheric carbon and reduce climate impact. VIGOT includes instructor training, new apprentice courses where learners build and test wall elements, and continuous evaluation to ensure lasting integration of sustainable practices in carpentry curricula (University of Copenhagen, 2023[32]).

In **Bulgaria**, the Vocational School for Mechanical and Electrical Engineering in Pleven is leading the "ENTIRE" project ("Greening VET Curricula for Electricians"), supported by the Erasmus+ Programme. This initiative aims to update apprenticeship curricula for electricians at the upper secondary level,

integrating skills relevant for the green transition. An amendment to the apprenticeship curricula is expected to be presented to educational authorities for approval. Once approved, the updated curricula could be applied to all apprenticeship programmes for electrical technicians across the country. The project also aims to develop methodological guidelines for integrating green transition skills into VET curricula, applicable to various professions. Additionally, it seeks to provide advice on how businesses can actively participate in adapting apprenticeship curricula to include skills relevant to the green economy. Furthermore, the project plans to create a training plan for VET teachers to support their upskilling in relation to green transition competencies across disciplines or in specific areas of expertise. The ENTIRE project is implemented by the Modern Education Foundation and the Pleven Vocational School, with oversight from the Ministry of Education and the National VET Agency, and involves collaboration with partners in Austria and Lithuania (Evtimova and Cedefop, 2023[33]).

Providing financial incentives and support to apprentices and employers

Countries are using financial incentives to promote green apprenticeships, either directed to apprentices themselves, to employers, or both. These incentives vary in scope and type, from direct subsidies for apprentices to grants and tax benefits for businesses, such as in the United Kingdom. Some countries, such as Austria, focus on funding apprenticeships in priority green sectors like clean energy, sustainable construction, and circular economy industries, combining financial incentives with targeted support to help disadvantaged groups access these opportunities and develop relevant skills for emerging green sectors.

In **Austria**, the “Digi-Scheck” for Apprentices initiative plays a central role in promoting digital, green, and job-specific skills among apprentices. Launched in 2021 as a response to the skills gaps exacerbated by the COVID-19 pandemic, the programme supports the acquisition of additional, future-relevant competences in areas such as digitalisation, climate protection, sustainability, energy and resource management, and professional foreign languages, for apprentices with valid apprenticeship contracts in training companies (excluding inter-company training institutions, which benefit from other support schemes). It offers 100% reimbursement for eligible courses, up to EUR 500 per course and three courses per apprentice per calendar year. The initiative is fully funded by the Austrian Government. Applications can be submitted by either the apprentice or, in some instances, the training provider. A list of eligible courses is made available by training providers and Chambers of Commerce, including the national online training platform “wîse up” (see Box 3.2). If a course is not yet approved, the training provider may be invited to submit it for recognition (Austrian Chamber of Commerce (WKO), 2024[34]).

In parallel, between 2022 and 2025, around 1 000 unemployed individuals with outdated skills have been re-qualified in the environmental sector (OECD, 2024[35]). This initiative is part of Austria’s broader strategy to expand renewable energy sources such as wind, solar, hydropower, and biomass, as the government seeks to reduce greenhouse gas emissions. It builds on the foundations of the 2021 Job.ReAct pilot programme, co-funded by the EU’s European Social Fund, and is led by the Environmental Foundation (Umweltstiftung) in collaboration with AMS and BMK. The programme offers up to 24 months of training, combining theoretical education and company-based practical experience, with the goal of leading participants into employment. It provides tailored pathways including new apprenticeship qualifications, skilled assistant training, and higher technical qualifications, depending on the individual’s prior experience and learning goals. Sectors covered include photovoltaics, electrical installation, building sealing, waste management, horticulture, mobility, and forestry, among others. The training is conducted in close co-operation with companies actively seeking workers in green occupations, ensuring alignment with actual labour market needs. Participating companies benefit from reduced supervisory obligations, support in developing training plans, and access to a pool of motivated candidates, while participants receive individualised coaching, mentoring, and monthly financial support of at least EUR 1 060, alongside full coverage of training costs (up to EUR 7 000 per person). The total budget of EUR 17.5 million includes EUR 10 million public funding and EUR 7.5 million from the private sector. The Environmental Foundation also places strong emphasis on gender equality and inclusion, aiming for at least 40% female participation

and actively supporting groups underrepresented in the green workforce, such as older individuals and the long-term unemployed.

Box 3.2. Austrian national online training platform "Wîse up"

The Austrian Economic Chambers developed "wîse up", a comprehensive national online training platform that offers more than 20 000 quality-assured online courses. The platform includes content relevant to all occupations (for transversal skills such as digital and soft competences), as well as apprenticeship-specific modules (e.g. electrical engineering, metal technology, retail). In 2024, around 550 curated learning paths – structured, didactically sound programmes aligned with major apprenticeships – were made available as an optional supplement to company-based training for current apprentices. These learning paths are fully subsidised through the Digi-Scheck, ensuring that financial barriers do not limit access to high-quality learning opportunities.

Source: ReferNet Austria and Cedefop (2024[36]).

In **South Norfolk and Broadland, the United Kingdom**, the Building Futures initiative supports the creation of new apprenticeship opportunities, with a particular focus on accelerating the green transition in SMEs. Funded by the UK Government's Shared Prosperity Fund, this initiative provides financial and practical support to SMEs that would otherwise face barriers to hiring apprentices. The programme aligns with national goals to boost local investment, enhance life chances, and strengthen communities through skills development and business support (Apprenticeships Norfolk[37]). At the heart of Building Futures is a grant scheme designed to reduce the upfront costs of taking on an apprentice during the critical first 18 weeks of training, when supervision and mentoring demand greater investment from employers. Two levels of grants are available: a standard grant of GBP 2 000 for most apprenticeships, and an enhanced grant of GBP 5 000 for apprenticeships classified as dark green – those that directly support net-zero and nature recovery goals (see Box 3.3).

In addition to financial support, Building Futures offers SMEs a comprehensive package of wraparound services to ensure the success of apprentices' placement and the long-term resilience of participating businesses. Employers receive tailored guidance from Apprenticeships Norfolk, including a skills analysis to identify the most suitable apprenticeship training programme. In addition, two mandatory e-learning modules must be completed by staff supporting the apprentice: the first on onboarding and mentoring, and the second on sustainability awareness. These learning components are designed to help employers integrate apprentices effectively into the workplace while building internal capacity for sustainable business practices. To be eligible for the programme, employers must be non-levy paying SMEs (i.e. with an annual wage bill under GBP 3 million), intend to support the apprentice through to completion of the programme, and be based in, or hire an apprentice who lives in, South Norfolk or Broadland. Applications must be submitted before hiring the apprentice, and participation is subject to availability of funding and successful fulfilment of programme requirements (Apprenticeships Norfolk[37]).

Box 3.3. Green apprenticeship categories in the United Kingdom

A green apprenticeship is one that contributes to the UK's goal of achieving Net Zero Carbon emissions by 2050. As sustainability becomes increasingly important, many apprenticeships will be influenced by environmental factors to varying degrees. The Institute for Apprenticeships & Technical Education (IfATE) classifies green apprenticeships into three categories:

- Dark Green: Roles where sustainability is the main focus, such as Low Carbon Heating Technicians and Countryside Workers.
- Mid Green: Roles that can contribute to sustainability, though it is not their main focus, like Financial Advisers or Procurement Assistants.
- Light Green: Roles with minimal or indirect links to sustainability; no examples have been officially shared by IfATE yet.

Source: Apprenticeships Norfolk ([38]).

The government's **Australian** Apprenticeships Incentive System, part of the Future Made in Australia plan,[24] supports the development of a skilled workforce in priority sectors, particularly clean energy, as the country positions itself as a leader in renewable energy. The system offers targeted financial support to both apprentices and employers to attract and retain talent in occupations critical to the net-zero transition. Within this framework, apprentices training in high-demand occupations in the clean energy sector listed in the Australian Apprenticeships Priority List may receive up to AUD 5 000 over two years through the Australian Apprentice Training Support Payment (Department of Employment and Workplace Relations[39]) and those pursuing qualifications in one of over 40 clean energy occupations, across fields such as engineering, electrical, agritech, telecommunications, and automotive, are eligible for the New Energy Apprenticeship (NEA) stream of the Key Apprenticeship Program (KAP), which offers up to AUD 10 000 over the course of their apprenticeship. To be eligible for the New Energy Apprentice Support Payment, apprentices must be enrolled in a Certificate III to Advanced Diploma and have started or restarted their apprenticeship on or after 1 July 2025 with a new employer. The training must not duplicate a recently completed qualification, and apprentices must be actively employed during the claim period. Employers must operate in the clean energy sector and offer relevant on-the-job experience. Both parties must complete a declaration of their commitment to building the apprentice's skills and experience in the clean-energy sector, and commit to two onsite workplace checks. Apprentices cannot receive the clean-energy support and the Australian Apprentice Training Support Payment for the same apprenticeship (Department of Employment and Workplace Relations[39]).

To encourage uptake by employers, the Priority Hiring Incentive additionally provides up to AUD 5 000 for hiring full-time apprentices (or AUD 2 500 for part-time) in occupations listed on the Australian Apprenticeships Priority List, which includes clean energy occupations. The incentive specifically targets the first year of the apprenticeship, when costs related to supervision and onboarding are high. Employers must register the apprenticeship through the national Apprenticeships Data Management System (ADMS), and the training must be aligned with Certificate III to Advanced Diploma qualifications recognised in the Priority List. These federal incentives are complemented by state-level schemes, which vary across jurisdictions and target local skills shortages (Department of Employment and Workplace Relations[39]).

Encouraging workers and jobseekers to undertake training for the green transition

Countries have implemented various measures to address skills gaps arising from the green transition, and many target workers or jobseekers to encourage them to take part in green-related training. This section provides examples of how countries are influencing the incentives for workers and jobseekers to train in two ways: 1) providing financial incentives for training, and 2) improving labour market information about skills in demand and facilitating access to career guidance.

Providing financial incentives

Most OECD countries have financial incentives to encourage workers and/or jobseekers to train in green-related content, usually in the form of direct subsidies to individuals (e.g. scholarships, grants, bursaries, allowances, training vouchers, credits). This is the case for instance in Canada, Croatia, Latvia, Portugal, Singapore, Spain, the United Kingdom, and the United States (OECD, 2024[35]).

Croatia is an interesting example as it launched in April 2022 a voucher system aimed at fostering lifelong learning, in particular for the green and digital transitions. The initiative is part of a broader strategy to enhance the skills of the Croatian workforce and align with the EU's goals for a sustainable and digitally advanced future (OECD, 2022[40]). Vouchers are awarded exclusively for adult education programmes that are aligned with the Croatian Qualifications Framework standards. This ensures the relevance and quality of the training programmes, providing participants with valuable and recognised qualifications. The system initially targeted solely training for the green and digital transitions, but since June 2023, the voucher system covers a broader range of training for in-demand skills, beyond green and digital. As of 2024, vouchers can also be used to co-finance Croatian language courses for foreign workers. At present, 258 education providers offer close to 2000 programmes eligible for financing under the voucher scheme. 538 programmes are for skills for the green transition. Examples include ecological production of vegetables, maintenance of hybrid electric vehicles, installing heat pumps, and installing photovoltaic systems.

The voucher system is open to all unemployed and employed persons aged 15 and above who have completed at least basic education. Participants can find information on the scheme on a dedicated platform[25] and choose from the catalogue of eligible courses, selecting the programme and the education provider that best aligns with their needs. This approach encourages proactive engagement in lifelong learning and career management, empowering individuals to take control of their professional development. The cost of the education programme, up to the value of the approved voucher and within a limit of EUR 3 000, is paid directly to the selected education service provider, simplifying the process for the participants. The scheme is managed by the Croatian PES, under the responsibility of the Ministry of Labour, Pension System, Family, and Social Policy. Funding is provided by the EU via the National Recovery and Resilience Plan 2021-2026 which allocated EUR 190.5 million to Croatia to support upskilling, reskilling, professional guidance, and employment, particularly in green and digital industries.

To ensure the quality and effectiveness of the voucher system, the PES monitors course attendance as well as programme completion (through final assessments). The PES also conducts satisfaction surveys among all learners upon programme completion. Based on evaluation results, the PES may terminate co-operation with certain education providers. Co-operation may also be terminated if programmes no longer meet the eligibility criteria, in line with the Catalogue of Skills, or if no voucher users enrol within a year. Random class observations and follow-ups on user complaints further support quality assurance, ensuring that the programmes are of high quality and meet the needs of participants. Since its launch in 2022, 30 000 voucher requests were approved, for a total amount of EUR 30 million and an average voucher value of approximately EUR 1000. Around 20 000 learners have completed training. Most learners (65%) are interested in developing digital skills, while green programmes account for 14% and other labour-

market-relevant programmes for 21%. Surveys indicate high learner satisfaction, averaging 92%, particularly regarding learning environments, instructors, and career opportunities following programme completion (ReferNet Croatia, CEDEFOP, 2025[41]).

Instead of creating specific subsidies to respond directly to the green transition, another common approach is to promote general training incentives as a response to the upskilling and reskilling challenges presented by the green transition, even if they can be used for areas other than green-related training. This is the approach taken in Austria, Belgium, Japan, Portugal, and the Slovak Republic for instance (OECD, 2024[35]). Taking advantage of existing financial measures to promote training for the green transition can be advantageous, as it leverages on existing schemes strengths and reputation and can contribute to a streamlining of programmes and information. However, considering the widening skills gap in the net-zero transition, it is crucial to make sure that training initiatives are effectively reaching those who need them most and that they are fostering the skills essential for the green transition. To this end, some countries adapt existing programmes or add modules targeting specifically skills for the green transition.

In that respect, an interesting example is the implementation of a green pilot programme in **Wales** in the context of the personal learning account (PLA). The green PLA pilot is part of the Net Zero Skills Action Plan published in 2023 by the Welsh Government to support its net zero commitments.[26] Compared to the general PLA (see Box 3.4), the main change introduced by the green PLA pilot is the removal of the eligibility salary cap for approved, green-related trainings. The list of approved courses includes 66 trainings in renewable energy solutions, retrofit, energy, electricity, construction, manufacturing/engineering, environment, and project management. To select these courses, a specialist panel composed of representatives of further education institutions, sector and industry experts, has been established. In 2022-2023, the core budget for PLA was GBP 17.9 million, and for the green PLA pilot, an investment of GBP 2 million has been set aside in order to fund the removal of the salary cap and the establishment of the specialist panel.

Box 3.4. The general Personal Learning Account in Wales

In 2019, Wales launched a general Personal Learning Account pilot to support individuals improve their skills in North Wales. While the pilot was initially planned to last for two years, the Welsh Government made the decision to accelerate the rollout of the programme across Wales prior to the completion of the pilot phase during the coronavirus (COVID-19) pandemic. As a result, the PLA programme was implemented in all regions in Wales in August 2020.

The PLA in Wales provides funding for vocational training in industrial sectors in which there is a demonstrable skill shortage. The funding covers all training costs, and 470 courses are available in six sectors:

- Logistics
- Advanced Materials and Manufacturing
- Hospitality
- Health and Social Care re-engagement
- Digital Skills
- Net Zero and Green technologies

Eligible courses are offered in 11 out of 16 further education institutions across Wales.

Individuals living in Wales, employed (including through a recruitment agency or with a zero-hour contract[1]), self-employed or full-time carer (paid or non-paid), and whose annual basic salary does not go over GBP 32 371, are eligible to receive training under the PLA scheme. In order to cater to the

needs and responsibilities of employed individuals, trainings offered in the context of PLA are part-time, flexible, and are delivered either online or face-to-face.

Candidates to the PLA must undertake a pre-admission digital interview with a career adviser from Working Wales, the career guidance service of Career Choices, a wholly owned subsidiary of the Welsh Government which was formed on 1 April 2013 and which is managing the PLA scheme. During the interview, individuals are invited to discuss their career aspirations, goals and training aspirations and the career advisor ensures that the chosen course is the right pathway for the individual.

1. A zero-hour contract is an employment contract where the employer is not obligated to provide a minimum number of working hours, and the employee is not obligated to accept any work offered. Employees are only paid for the hours they actually work. This type of contract is often used in industries with fluctuating workloads, such as retail, hospitality, and healthcare.
Source: https://careerswales.gov.wales/courses-and-training/funding-your-studies/personal-learning-accounts (accessed on 28 February 2025).

Providing information and career guidance

Information, advice and guidance are important to help adults successfully navigate the evolving labour market and training opportunities, yet few OECD countries have put in place career guidance initiatives to facilitate transition into jobs for the green transition (OECD, 2024[35]).

A notable exception is **Croatia**. To inform potential beneficiaries about the new system of training vouchers, career guidance is available both in person and online. To help individuals select the training programme most appropriate for their needs, the training voucher online platform includes a guidance tool. Individuals are invited to answer a ten-minutes questionnaire containing questions about their education and professional background, occupations and work activities they like, and a self-assessment of 36 job-related skills. The tool then offers a selection of five educational programmes within the voucher system that may be suitable for the individual, based on his or her experience and interests. Each proposition is accompanied by a numerical assessment of how well it matches the individual's interests and skills. To obtain further information and more tailored career guidance advice, individuals can contact a PES guidance counsellor. To ensure that the skills acquired through the voucher system are aligned with the needs of the labour market, counsellors have been instructed to consult relevant labour market indicators when guiding adults in accessing upskilling opportunities.

Another interesting example is **Sweden**, where the PES implemented several programmes to support the green transition. These programmes all include job-search counselling and matching, as well as career information and advice. Furthermore, the PES also provides information on job opportunities in northern Sweden, where green industries are expanding, via different channels: a dedicated webpage, a job fair in Stockholm and Malmö with employers from the northern region, and through the private job matching companies they usually co-operate with (Lauringson, Pantelaiou and Westlake, 2025[42]).

Supporting firms to adapt to structural changes brought about by the green transition

Mobilising job retention schemes

Short-time work (STW) schemes (also called job retention schemes) are typically used in many OECD countries to preserve jobs in firms experiencing a temporary decline in activity (OECD, 2021[43]). They help reduce labour costs for firms while supporting the incomes of workers whose hours are cut. Some EU countries use STW schemes to enable companies to temporarily reduce their activity in order to restructure

and meet climate change mitigation targets. In some countries (Czechia, Germany, Spain), dedicated STW schemes, different from the standard STW, have been created to accompany firms' restructuring (related or not to the green transition). They typically incorporate measures to encourage training and job transitions. In other countries, such as Italy, companies can use the standard STW for transition purposes.

In **Germany**, the transfer short-time work allowance (*Transferkurzarbeitergeld*), granted in the event of restructuring, is similar to the standard STW (*Kurzarbeitergeld*) in terms of generosity. Nonetheless, workers must register as jobseekers with the Federal Employment Agency (*Agentur für Arbeit*) before joining a transfer company, responsible for helping them transition into a new job, while the employer must make job placement proposals, and contribute (along with the Federal Employment Agency) to the costs of the transfer company and training. In **Czechia**, firms undergoing restructuring can apply to the New Entrepreneurial Programme (NEP), a programme that is substantially less generous (both in terms of level and duration) than the standard STW scheme aimed at supporting firms in the case of extraordinary events or economic difficulties.[27]

Spain is another particularly interesting case. In 2021, Spain implemented a substantial reform of its job retention scheme (*Expedientes de Regulación Temporal de Empleo* – ERTE) (OECD, 2024[44]). In particular, the reform created two new types of ERTE, which the government can "activate" in the event of (i) *cyclical* macroeconomic downturns (cyclical ERTE) or (ii) *sectoral* transformations requiring substantial labour reallocation (sectoral ERTE). Both schemes can be activated by a government-approved national collective agreement, a possibility known as the RED (*Reducción de Empleo por Despidos*) mechanism. Activation of the RED mechanism enables firms to apply for ERTE under a simplified procedure and to benefit from social security contribution exemptions. Cyclical and sectoral ERTE are subject to a 70% replacement rate (like other ERTE) and a maximum duration of one year; however, sectoral ERTEs can be extended for a further two semesters upon approval.

Sectoral ERTE is particularly relevant to the green transition. It aims to facilitate sectoral reallocation by making the reduction in social security contributions conditional on (i) workers' participation in (partly subsidised) training programmes and (ii) the implementation of a social plan to promote the mobility of workers to other firms.[28] Unlike training offered under other types of ERTE, which should be job-specific to encourage job *retention*, training offered under sectoral ERTE can be generic to support job *transitions* between sectors. A dedicated fund, the RED Fund for Flexibility and Stabilisation of Employment, aims to meet the future financing needs of the RED mechanism in terms of benefits, social security contribution exemptions, and training costs.

As an example, the RED mechanism was activated by the Spanish Government in December 2024 to support the automotive sector during its transition to electric and sustainable mobility.[29] To ensure that the training actions are in line with sectoral transformations, a retraining plan had to be established, specifying training modules, number of training hours, detailed training programme and the skills to be acquired. Prescribed training actions had to be linked to the structural changes in the sector, such as the use of new technologies or the production of hybrid and electric vehicles.

Many OECD countries also rely on STW to cope with the direct environmental consequences of climate change (Table 3.1). Extreme weather events are in general part of the valid reasons for using the standard STW scheme. In some cases (Belgium, Finland, Luxembourg, and the Netherlands), consequences of seasonal weather events are also considered legitimate grounds for activating standard STW schemes. In Germany, a specific seasonal STW allowance exists for employees in the construction sector during the winter. It is worth noting that, to the best of the OECD Secretariat's knowledge, no OECD countries have restricted the use of STW in light of the growing frequency of weather events associated with climate change.

For example, the Spanish Government – and the Valencian regional government – used ERTE after the catastrophic floods that hit Valencia in late October 2024. Companies located in areas affected by the floods – or severely damaged (e.g. L'Horta Sud and Ribera Alta) – were eligible for ERTE *due to force*

majeure, a simplified ERTE procedure with total exemption from social security contributions. In addition, at the national level, in response to the challenges of climate change or other types of disasters, new paid leave entitlements of up to four days have been legally established to ensure the safety of workers in cases of serious and imminent risk.

Table 3.1. Examples of short-time schemes used for extreme weather events or seasonal reasons relating to climate change

Country	Programme	Reasons	Differs from the standard scheme?
Austria	Kurzarbeitsbeihilfe	Extreme weather	No
Belgium	Chômage temporaire – intempéries / Tijdelijke werkloosheid – slecht weer	Seasonal, extreme weather	No
Canada	Work-Sharing Program	Extreme weather	No
Czechia	Contribution during short-time work	Extreme weather	No
Germany	Seasonal short-time work allowance	Seasonal	Yes. Seasonal STW allowance is available from 1 December to 31 March and paid for employees in the construction industry or to companies in a sector of the economy that is affected by seasonal loss of work. This means that the loss of work must be based on weather or economic reasons regularly during periods of bad weather. Loss of work due to an unavoidable event is also included.
Germany	Economic short-time working allowance	Extreme weather	No
Finland	Lomautusjärjestelmä (layoff system)	Seasonal, extreme weather	No
Greece	Special purpose compensation	Extreme weather	No
Italy	Cassa integrazione	Extreme weather	No
Luxembourg	Chômage partiel	Seasonal, extreme weather	No
Netherlands	Regeling onwerkbaar weer (Row) and Regeling werktijdverkorting (WTV)	Seasonal (Row), extreme weather (WTV)	No
Norway	Temporary lay-off	Extreme weather	No
Slovak Republic	First Aid schemes	Extreme weather	No
Spain	Expediente de regulación temporal de empleo (ERTE)	Extreme weather	No
Sweden	Short-time work allowance	Extreme weather	No
Switzerland	Standard short-time work compensation scheme	Extreme weather	No
Türkiye	Short-time working allowance in the scope of “Force Majeure”	Extreme weather	No

Source: OECD policy questionnaire on the net-zero transition, 2024.

Engaging with small and medium enterprises

Reaching out to and engaging with SMEs so that they anticipate their employment and skills needs as a result of the green transition is a challenge that all countries face. An interesting example to address this issue comes from the **Netherlands**. The Dutch Ministry of Economic Affairs and Climate explicitly identified skills development for the climate transition as a key area where SMEs needed support. It thus introduced the *MKB!dee* scheme, a time-limited (2018-2021) experimental subsidy programme designed to encourage small and medium-sized enterprises (SMEs) to invest more systematically in the training and development of their employees. It targeted SMEs facing structural or situational barriers to skills investment and invited them to propose demand-driven solutions. Approved projects received funding for eligible costs. The programme funded 169 projects with a total of EUR 26.8 million.

The initiative was led by the ministry, with implementation support from the *Netherlands Enterprise Agency* and *Platform Talent voor Technologie*. An independent advisory committee assessed applications, with the ministry responsible for final funding decisions. A dedicated portal[30] served as a dissemination platform for projects and outcomes.

The core measure of the MKB!dee scheme was the provision of financial grants to SMEs with innovative approaches for learning and development. The scheme was demand-driven, meaning that SMEs themselves had to identify the barriers they faced and propose solutions. Several projects funded under the MKB!dee scheme directly addressed the energy and climate transition by focussing on training and development related to new technologies, sustainable practices, and the evolving demands of the sector. Concrete examples (2021[45]) include the following:

- *Duurzame installaties (Sustainable installations)*: REMO West-Twente developed a modular training programme focussed on sustainable installations. This included a dual vocational training programme and shorter, specific modules for employees and individuals undergoing a career transition, directly addressing the need for skilled professionals in sustainable technologies like heat pumps. This project also aimed to establish a physical training centre, “Kampus, gebouw vol talent”.
- *Open source, niet denken in patenten maar samen werken aan talenten (Open source, don’t think in terms of patents, but work together on talents):* This initiative aimed to establish a knowledge and practice centre for the circular economy, where SMEs, education institutions, and government bodies could share knowledge about innovative energy and sustainability techniques. The goal was to promote reskilling and upskilling of technicians, foster informal learning, and stimulate energy transition innovations.
- *Werken op Hoogte (Working at Height):* This project addressed safety in the sustainable energy sector, where accidents during work at height (e.g. in wind turbines) were increasing. It used blended learning and virtual reality to train employees in realistic scenarios, aiming to change behaviour and improve safety practices in this growing green sector.

The monitoring framework established for the MKB!dee scheme offered a comprehensive approach to evaluating its effectiveness. The framework was grounded in a theory of change model, linking inputs (e.g. subsidies, support staff) to outputs (executed projects) and intended outcomes (e.g. improved learning culture, regional co-operation, and SME readiness for climate transition). It included several indicators: the amount of subsidy money allocated, the number of participating companies and partners, the promotion of a learning culture, increased regional co-operation among SMEs, new collaborations between SMEs and educational institutions, the ability of SMEs to respond to energy and climate challenges, and changes in awareness of available training and subsidies. Evaluation tools included surveys of both participating and non-participating companies.

According to MKB!deenetwerk (2021[45]; 2021[46]), the scheme contributed to embedding a learning and development culture within participating SMEs. Findings indicate untapped interest in the scheme and highlighted that lack of project ideas, rather than disinterest, was a primary barrier to application. Survey data also suggest that, in the absence of the subsidy, many SMEs would have prioritised short-term operational pressures over workforce development (MKB!deenetwerk, 2021[46]). The scheme facilitated experimentation with training formats, knowledge-sharing platforms, digital learning technologies, and inter-organisational co-operation. Notably, several projects focussed on the development of skills for the green transition, contributing directly to human capital formation in support of the energy and climate transition. Furthermore, MKB!dee also supported the development of new learning infrastructures, including facilities and digital platforms, with potential for ongoing use beyond the life of the program (MKB!deenetwerk, 2021[46]).

Despite being generally considered as a successful experiment, no new rounds are planned and the final projects were expected to conclude by mid-2024. MKB!dee was always meant to be a temporary policy

experiment, not a permanent scheme. It rather served as a "proof of concept": its insights are now being used in broader policies like the *SLIM-regeling* (sector-specific learning & development support) and National Growth Fund to scale its impact through larger, more structural initiatives. Budget pressures and shifting priorities also played a role in not renewing the scheme.

Addressing local employment and skills needs

Regions and territories will be unequally impacted by the transition to carbon-neutrality. At least in the short run, the most polluting regions will face major socio-economic challenges, while other regions will manage to grasp immediate benefits from the transition. National and regional policies have a key role to play in reducing regional inequalities, and in ensuring that no territories are left behind and that all potentials for achieving climate-neutrality are fully exploited. This section illustrates the role that public policies can play, drawing on various examples of green initiatives implemented in different socio-economic contexts.

Involving all regional stakeholders

Involving all regional stakeholders is key to achieving a smooth and successful green transition. Because they have a comprehensive understanding of the regional socio-economic context, local actors are best placed to identify the challenges and opportunities that the transition is bringing about. Hence, they should play an active role in the development of transition plans, to identify what could be done locally to make the most of the transition, and when necessary, what should be done to mitigate its employment and social impacts. In carbon-intensive regions, mitigation strategies should be developed in close consultation with all local stakeholders, not only local authorities but also employers as well as employees and citizens representatives (Brisbois and Cantoni, 2025[47]). This is critical to avoid strong resistance to the transition, in a context where the costs for local communities will come first, while the benefits will materialise later with the emergence and gradual development of a new local economy, more environment friendly.

For example, the Coal Commission in **Germany** has been instrumental in providing the right impetus to the gradual termination of coal mining activities in the **Rhenish region**. Set up in June 2018 by the federal government, the Commission comprised a wide range of experts, representing all the main regional stakeholders: regional and local authorities, representatives from the energy sector and other key regional industries, trade unions, environmental associations, and scientific experts (WRI, 2021[48]). The aim was to reach a consensus on the phasing out of coal mining activities by identifying policy measures to support the most vulnerable regions. In January 2019, the Commission formulated recommendations for a gradual and fair transition away from coal by 2038, which were adopted almost unanimously by its members (Agora Energiewende and Aurora Energy Research, 2019[49]). According to the Commission, this transition plan would require a budget of at least 70 billion euros over 20 years.

Developing sound implementation strategies

In carbon-intensive regions, decarbonising the economy while greening the labour market will be a long and complex process, requiring expertise and effective co-ordination of all relevant stakeholders. This should be reflected in the implementation strategy of regional transition plans, by setting progressive deadlines that span several years, if not decades, and establishing a regional implementation body to initiate, manage and monitor the transition process.

In the **Rhenish region** in **Germany**, the transition process has not only been planned over a 20-year period, but is also being managed by an experienced agency, known as the Rhenish Development Agency ("Zukunftsagentur Rheinisches Revier"). Established in 2010 to identify how regional assets can be used to build a sustainable economy, the Agency has in-depth knowledge of the region's strengths and weaknesses (European Commission, 2020[50]). In 2014, municipalities, business associations, mining

unions, as well as chemical and energy industries of the Rhenish region joined forces as stakeholders in the Agency, which served as a social dialogue platform to build consensus on coal phase-out processes. The agency also conducted studies to make proactive decisions for shaping the future of the region, with a focus on the development of a comprehensive "Financial and Structural Project" (Tranoulidis et al., 2024[51]). The Agency was responsible for the entire process, including the planification, monitoring and evaluation, as well as the implementation of a framework for project calls and tenders.

Conditioning funding on concrete measures

Redistributive policies are needed as the green transition increases regional inequalities. Financial support for the most vulnerable regions should be an integral part of national and international climate action plans. However, redistributive policies should not just be about providing financial resources; they should require the beneficiary regions to develop transition plans containing concrete measures to be backed up by adequate funding. To overcome potential resistance to change, all local stakeholders should be able to easily identify the support they will receive (Cantoni and Brisbois, 2024[52]). The clarity of transition plans and the transparency of their financing are also instrumental in attracting new investments that will contribute to local development (Tranoulidis et al., 2024[51]).

For example, the financial support provided by the federal government to the **Rhenish region** in **Germany** is based on the recommendations made by the Coal commission, which allocated funds to different regional actors for implementing a range of specific policy measures. According to the Commission, total expenditure should fall into four main categories: EUR 40 billion for helping coal regions create new business and employment opportunities; EUR 5-7 billion on the early retirement scheme for coal workers; EUR 5-10 billion of compensation payments to power plant operators; and EUR 16 billion to hold down electricity prices for households and firms (Agora Energiewende and Aurora Energy Research, 2019[49]). The Commission also recommended regular monitoring so that policy measures and/or funding could be adjusted if necessary.

At the level of the **EU**, the Just Transition Funds initiative has been instrumental in supporting and accelerating the decarbonation of the most polluting regions in Europe (European Commission, 2021[53]). Launched by the European Commission in 2021 (with a total budget of EUR 19.32 billion for the 2021-2027 period), the Just Transition Funds initiative is helping both employers and workers navigate the transition towards climate-neutrality, based on Just Transition Plans that regions have to submit for approval to the Commission in order to receive financial support.

The JFT initiative has, for example, played a key role in initiating and advancing the green transition of **Western Macedonia** in **Greece**. As the regional economy was (and still is) heavily dependent on the declining coal industry and characterised by persistently high unemployment, the cessation of mining activities by 2030 is raising major socio-economic challenges (Christiaensen and Ferré, 2020[54]). Against this backdrop, the regional Just Transition Plan (adopted in 2022 by the Commission) aims to foster structural change and promote economic diversification, while also providing job-search assistance, retraining and upskilling for affected workers and income support for vulnerable households (CINTRAN, 2024[55]). In line with these objectives, 51% of the European funding (out of EUR 994 million in total) was allocated to entrepreneurship, 15% to the green energy sector, and 21% to affected workers.

Building on local assets and diversifying the local economy

To deliver greater value for money, regional transitions should primarily build on local assets. For example, existing infrastructure and natural assets can be leveraged to develop renewable energy systems (RES), eco-agriculture or eco-tourism; coal-fired power plants and pipelines can be repurposed to produce and distribute green hydrogen; and transport infrastructures can be retrofitted to foster green mobility (Baker et al., 2022[56]). Wherever possible, the green transition of coal regions should rely on the deployment of

RES and electricity storage solutions, for both economic and cultural reasons. The reutilisation of existing energy facilities and infrastructures reduces the installation costs, while also saving the decommissioning costs of coal-fired power plants (Tranoulidis et al., 2024[51]). Furthermore, maintaining the region's energy profile ensures a better alignment with the socio-cultural profile of local communities – e.g. self-identification of miners and their sense of belonging to a particular community (Theodosiou, 2022[57]; The Green Tank, 2022[58]). This may in turn help foster engagement in and acceptance of the transition process.

The region of **Western Macedonia** in **Greece** has a significant untaped potential for renewable energies, particularly for the solar sector which is growing rapidly. Since 2022, the region has been operating the largest solar park in Greece (the Kozani park), which is also one of the largest parks in Europe, and covers 40% of the household electricity consumption of the region (The Green Tank, 2022[58]).

Carbon-intensive regions will also need to modernise and diversify their economy. This may be of greater importance in coal regions, as the operation and maintenance of green energy facilities may be less labour-intensive than those of coal-fired plants (CINTRAN, 2024[55]). To foster green innovation and entrepreneurship, the University of **Western Macedonia**, which aims to become the first green university in **Greece**, is reforming its curricula to place a stronger emphasis on green energy production, Greentech and sustainability topics (European Commission, 2024[59]). The university also involves its students in various projects under development in the region. These are mainly related to building retrofitting, renewable energy installations, smart grids, etc. and primarily aim to stimulate green innovation and entrepreneurship. In a similar vein, Kozani, the capital of Western Macedonia, was selected to participate in the so-called "EU Cities Mission" (European Commission, 2024[60]). Launched by the European Commission in 2022, this initiative has a twofold objective: delivering 100 climate-neutral and smart cities by 2030 and ensuring that these cities act as experimentation and innovation hubs for sectors such as energy, buildings, waste management and transport (European Commission and CORDIS, 2024[61]).

Providing tailored training and upskilling opportunities

In carbon-intensive regions, specific policy packages may be needed to help affected workers find a new job in low-carbon activities that are emerging at the regional level (OECD, 2023[62]; European Commission, 2024[63]). For example, the European RES-SKILL project[31] aimed to develop learning curricula to help workers in the coal sector to transition into the renewable energy sector, by identifying skills complementarities between occupations in the two sectors (PROMEA, 2021[64]). Some skills of coal workers, such as experience in hazardous environments and the use of both manual and sophisticated technologies, were found transferable to renewable energy occupations. Therefore, some coal workers only require a short course or on-the-job training to upgrade their skills, as opposed to the lengthy training (around two years) currently on offer from existing VET courses (Table 3.2).

By developing in-house training opportunities for their staff and new recruits, large companies can be part of the solution to the development of skills for the green transition in their sector. They have the financial resources and the right knowledge base that local authorities may lack.

In **Spain**, "Keep it local" is an example of a company-led training programme implemented at the local level (European Commission, 2024[59]). Launched in 2021 by two major companies in the wind energy sector (Vestas and EDP),[32] the programme offers scholarships and training to become a Wind Farm Maintenance Technician. The programme aims to address recruitment difficulties arising from the fact that wind farms are typically located in rural areas with low population density. It targets young people (aged 18-30) living in rural areas where the companies are most active, and it comprises online theoretical courses and two days of on-the-job training. Six months after the end of the first programme, one in three participants had a job at a wind farm near their home area, which they might otherwise have left. Hence, "Keep it local" may also help revitalise the demography and economy of rural areas. Considered as a successful initiative, the programme is also implemented in Italy since 2023.

Table 3.2. Transition pathways of former coal workers to the solar and wind energy sector

Role in coal sector	Role in solar and wind energy sectors	Comments	Retraining duration
Mining machine operators	Machinist of road construction machinery (photovoltaic) and machine operators (wind)	Even though mining machine operators have a similar set of skills to machinists of road construction machinery (PV) and machine operators (wind), workers in these sectors operate with heavy machines and therefore some training will be needed.	Around 6 months
Fitters in the coal industry	Photovoltaics fitter/installers and heating, ventilation and air conditioning system installers	Fitters can transition to photovoltaics fitters/installers and heating, ventilation and air conditioning system installers with a low level of retraining.	Around 1 month
Maintenance and repair workers	Photovoltaics operation and maintenance technicians	Maintenance coal workers have extensive experience of maintenance.	Around 1 month
Construction equipment operators	Machinist of road construction machinery (photovoltaic), Machine operators (wind)	Construction equipment operators have significant knowledge in handling construction machinery and therefore will need low levels of retraining.	Around 1 month (photovoltaics) Around 6 months (wind)
Heavy vehicle and mobile equipment service technicians and mechanics	Photovoltaics operation and maintenance technicians, maintenance and repair electricians	Heavy vehicle technicians and mechanics are already experienced in maintenance and repair.	Around 1 month
Mining electricians	Photovoltaics electricians, electricians (wind), maintenance and repair electricians (wind)	Mining electricians can transition to photovoltaics electricians with low levels of retraining as they already have the skillset required. However, they will need a medium retraining to acquire the skills needed to transition to electricians (wind) and maintenance and repair electricians (wind).	Around 1 month (photovoltaic) Around 3 months (wind)

Source: European Commission (2024[63]), Green skills toolkit – A guide to upskilling and reskilling workers for the green transition, https://data.europa.eu/doi/10.2833/41438.

In **Sweden**, the Volvo Group provides another example of a company-led initiative to develop skills for the green transition (European Commission, 2024[59]). In the Gothenburg area (where the head office is located), the company has its own training institute which has started to develop programmes for skills for the green transition (Trinomics, 2023[5]).

4 Lessons learned

While the strategies and schemes reviewed in this report were developed in diverse national contexts, under varying institutional arrangements, and with different initial objectives – some even predating the COVID-19 pandemic – several key lessons emerge that underpin successful employment and skills responses to the green transition.

First, it is crucial to **start with a clear agenda**. The approaches presented in this document begin with clearly defined long-term vision and objectives for climate neutrality or sustainability. In the case of Canada, these are even embedded in legislation: the Sustainable Jobs Act legally commits the federal government to co-ordinated, long-term support for workers in the green transition. Long-term goals must then be operationalised through structured and detailed plans, that should include clear allocation of responsibilities across government levels and stakeholders, specific measures to be implemented, defined timelines, strategies for mobilising financial resources, and quantitative targets to ease ongoing progress tracking.

Second, it is important to **use an inclusive and participatory process.** Broad-based stakeholder involvement significantly improves the quality, coherence, relevance and feasibility of green transition strategies and policies while strengthening their legitimacy, acceptability and political support. In Canada and Spain, extensive consultations on draft plans helped incorporate diverse perspectives and build social consensus. Austria and Flanders organised participation through advisory boards and groups that included ministries, employer organisations, trade unions, training providers, and civil society. Ireland conducted surveys, workshops, and sectoral discussions to ensure a broad base of input. In Wales, the list of eligible courses for the green Personal Learning Account was prepared by a specialist panel composed of representatives of further education institutions and sector and industry experts, ensuring their labour market relevance.

It is also key to **tailor strategies and policies to regional and sectoral specificities.** Ireland's strategy, for example, includes specific recommendations for seven economic sectors. Austria targeted resources to the regions most impacted by the energy transition, supported by EU Just Transition Funds. In Germany, the Coal Commission has been instrumental in providing the right impetus to the gradual termination of coal mining activities in the Rhenish region. Canada's Regional Energy and Resource Tables foster collaborative, localised planning, especially with Indigenous partners. Spain's Just Transition Agreements also address territorial structural shifts. All these approaches recognise that the green transition's impacts are uneven and require flexible, sector-specific solutions or place-based responses.

Sound monitoring and evaluation (M&E) frameworks should be established. Although most strategies are still building comprehensive M&E systems, nearly all recognise their critical role. Ireland's expert group will oversee implementation, and Flanders proposes performance indicators linked to each roadmap action. M&E frameworks have also been implemented for specific programmes. For instance, in Croatia, to ensure the quality and effectiveness of the green voucher system, the PES monitors course attendance, programme completion (through final assessments), and learners' satisfaction. In the Netherlands, the monitoring framework established for the MKB!dee scheme offered a comprehensive and rigorous approach to evaluating its effectiveness, as it was grounded in a theory of change model, included a variety of indicators, and allowed for counterfactual evaluation. These systems promote transparency,

enable course corrections, and foster policy learning. Rather than developing new systems from scratch, most countries aim to leverage and adapt existing labour market data infrastructures – ensuring integration with broader policy and planning cycles.

To **promote awareness and accessibility,** national information campaigns, such as Austria's youth-focussed outreach, Ireland's promotion of green job opportunities, and Flanders' comprehensive communication strategy are instrumental to shift perceptions. These campaigns often use storytelling, role models, and rely on school engagement. They efforts are especially important for reaching underrepresented groups and addressing persistent stereotypes around technical and vocational careers. The use of digital platforms is also increasingly prevalent to promote green careers and guide individuals. Portals like Austria's *klimajob.at* help users explore green job profiles and training pathways. In Croatia, a dedicated platform for the green voucher scheme has been created, where individuals can find information on eligibility criteria, browse the catalogue of available training, receive guidance, and apply for a voucher.

These five lessons provide insights into effective approaches that have been successfully implemented in various contexts. They represent best practices that countries should aspire to adopt in order to align their strategies with proven, impactful methodologies, ensuring more effective and lasting outcomes.

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Annex A. Indicators for an M&E framework in Flanders

Table A A.1. Proposed indicators to build a monitoring framework for the Green Skills Roadmap in Flanders

Action	Proposed indicator
Action group A: Setting up a governance structure – improving the co-ordination among Flemish stakeholders to respond to the green transition	
Action A-1: Formulate a common understanding and definition of skills for the green transition	• Publication of the reference framework • Relevant actors relying upon the framework when taking up skills for the green transition in their activities • Presence of a monitoring framework examining the level of implementation and take-up
Action A-2: Integrate the impact of the green transition as a specific topic in the skills forecasting approach of Flanders	• Number of forecasting models/reports with elements of skills for the green transition • Baseline and future projections for skills for the green transition to track progress
Action A-3: Plug in and validate the Green Skills Strategy for all Flemish environmental, circular, climate and energy policy frameworks	• Number of key strategies and legislation including analysis of skills/jobs impacts
Action A-4: Install the best governance structure based on the scenarios developed in the Governance Framework report	• Progress on roadmap actions (as shown by monitoring indicators) • Perceived co-operation between governance actors (qualitative inquiries)
Action group B: Co-funding for specific activities	
Action B-1: Design a set of co-funding mechanisms to facilitate the development of Green Skills in Flanders	• Number of funding calls focussed on skills for the green transition • Number of projects on skills for the green transition financed • Monitoring strategy for local pilot projects and success stories
Action B-2: Public financial support for urgent the development of skills for the green transition for the unemployed and those at risk of unemployment	• Number of short training courses offered focussed on the development of skills for the green transition to unemployed and inactive working population • Number of hires of trainees by employers active in greening the economy • Number of permanent hires because of traineeships • Examples of reskilling of employees by employers in green rival jobs
Action group C: Accelerate the integration of Green Skills in Flemish (Vocational) Education and Training	
Action C-1: Further build on sectoral and intersectoral covenants and agreements to solidify co-operation on matching supply and demand of skills for the green transition	• Number of covenants revised with commitments related to skills for the green transition
Action C-2: Online self-assessment tool for companies to assess current and future skills for the green transition	• Number of sectors covered • Number of employees/enterprises completing assessments • Number of SMEs reached
Action C-3: Expand the offer of skills for the green transition in existing and new VET programmes and higher education	• Number of green-labelled/adapted training courses • Number of students enrolled in these courses
Action C-4: Put the right consortia in the lead to establish and implement specific Green Skills and Jobs Accelerator Plans	• Number of Accelerator Plans created/implemented • Number of organisations in implementation consortia

Action	Proposed indicator
Action group D: Promotion and awareness raising	
Action D-1: Launch of a broad awareness raising campaign on skills for the green transition in Flanders	• Increased awareness of skills for the green transition and roadmap actions (surveys) • Improved perceptions of efforts related to skills for the green transition in Flanders • KPIs for sub-campaigns (e.g. number of people reached, number of companies / sectors participating)
Action D-2: Highlight (vocational) education and training programmes for specific green occupations	• Number of VET graduates entering jobs for the green transition • Student enrolment in targeted programmes • Number of VET programmes covered • Number of (potential) learners reached with the campaigns • VET learner awareness of green career pathways
Action D-3: Introducing a label for training certification related to the green transition	• Number of courses awarded green label • Number of participants in labelled courses • Participant satisfaction (surveys)
Action group E: Knowledge sharing and peer-learning	
Action E-1: Support front-runner companies and sectoral organisations to share their experiences	• Number of active knowledge-sharing networks with a focus on skills for the green transition • Evidence of lessons adopted by other companies • share of economy covered by such networks
Action E-2: Set up an online central information hub, with all information related to the campaign on skills for the green transition	• Platform usage (visitor statistics) • Stakeholder participation in providing content (e.g. timely updates by key stakeholders) • Sectoral and geographic reach
Action E-3: Set up thematic networks between (VET) skills development providers and the world of work	• Number of networks on skills for the green transition established
Action E-4: Integrate skills for the green transition in professional training for teachers and train the trainer programmes	• Number of green-labelled teacher training programmes • Number of teachers reporting capacity in skills for the green transition • Number of teachers delivering courses on skills for the green transition

Source: Authors based on Trinomics (2023[7]), "Proposal for an implementation roadmap for the Flemish Green Skills Strategy", https://reform-support.ec.europa.eu/document/download/27495f8d-e7ed-4957-bdca-49337251fed8_en?filename=DLV7%20and%20DLV6%20Green%20skills%20Implementation%20Roadmap_0.pdf.

Notes

[1] https://www.refernet.at/images/ergaenzende_Infos/Publikationen_extern/Just-Transition_Aktionsplan_UA.pdf (in German, accessed 24 April 2025).

[2] However, at the EU level, Austria backed delaying the decision on the 2040 target to October 2025 and has not yet finalised its internal position.

[3] The focus of the Education and Training Action Plan was solely on the energy transition and other areas, such as mobility, the circular economy or social aspects, should be addressed at a later stage.

[4] The Just Transition Fund is an instrument created by the European Union under the 2021-2027 Cohesion Policy to support regions and workers most affected by the transition in the context of the EU Green Deal's goal of achieving climate neutrality by 2050.

[5] https://natural-resources.canada.ca/corporate/planning-reporting/sustainable-jobs-plan (accessed 24 April 2025).

[6] See https://natural-resources.canada.ca/corporate/planning-reporting/sustainable-jobs-plan.

[7] https://lois-laws.justice.gc.ca/eng/acts/C-23.25/FullText.html (accessed 24 April 2025).

[8] This definition is aligned with the one adopted by the 19th International Conference of Labour Statisticians in 2013, but never properly operationalised in statistical terms.

[9] https://reform-support.ec.europa.eu/document/download/27495f8d-e7ed-4957-bdca-49337251fed8_en?filename=DLV7%20and%20DLV6%20Green%20skills%20Implementation%20Roadmap_0.pdf (accessed 24 April 2025).

[10] https://www.solas.ie/f/70398/x/135e0f3789/solas-green-skills-strategy-2030.pdf (accessed 24 April 2025).

[11] Further information available at: https://www.solas.ie/programmes/green-skills/.

[12] Green Skills 2030 covers the following sectors: 1) Construction and Built Environment; 2) Engineering, Energy, and Manufacturing; 3) Transport and Logistics; 4) Agriculture, Forestry, and Marine; 5) Biodiversity and Environment; 6) Tourism and Hospitality; 7) Accounting and Business.

[13] Construction and built environment; engineering, energy, and manufacturing; transport and logistics; agriculture, forestry, and marine; biodiversity and environment; tourism and hospitality; accounting and business.

[14] Overzicht acties groene en digitale banen | Kamerstuk | Rijksoverheid.nl (in Dutch, accessed 24 April 2025).

[15] The "Techniekpact" (Technology Pact) was signed on 13 May 2013 by educational institutions, employers, employees, top sectors, students, the national government, and regional authorities. It sets out agreements to increase the number of technical professionals and to improve the alignment between education and the labour market (see https://open.overheid.nl/documenten/ronl-archief-0d786671-796d-45c5-8e14-bb1654ddb37b/pdf, accessed 24 April 2025).

[16] Beyond the plan itself, the Netherlands has also taken further steps to adapt its VET and apprenticeship provision to the green transition. An advisory report by the Foundation for Co-operation on Vocational Education, Training and the Labour Market (SBB) highlighted that, in support of the green transition, numerous secondary vocational education certificates related to climate, energy, and housing are already being offered, through both school-based and apprenticeship tracks (European Qualifications Framework levels 2-4). New apprenticeships have also been launched for solar panel and charging station installation, and another course on reducing gas use is in development (Wezel, 2022[65]).

[17] https://www.miteco.gob.es/content/dam/miteco/es/ministerio/planes-estrategias/transicion-justa/Just%20Transition%20Strategy_ENG.pdf (accessed 16 September 2025).

[18] Spain's just transition governance framework was presented as one of the most advanced in the EU alongside that of France – whose ecological transition contracts inspired Spain's Just Transition Agreements (Lázaro Touza et al., 2025[20]).

[19] See https://www.transicionjusta.gob.es/es/municipios-ztj.html (accessed 15 October 2025).

[20] This has led the Instituto Elcano (Lázaro Touza et al., 2025[20]) to propose to establish Just Renewable Transition Agreements (JRTAs) as a new governance instrument to foster renewable deployment while ensuring meaningful citizen and stakeholder engagement, conflict resolution, and equitable benefit-sharing.

[21] Climate literacy is the understanding of how the climate system works, how human actions influence climate, and how climate influences people and other parts of the Earth system (U.S. Global Change Research Program, 2024[66]).

[22] Green infrastructure encompasses natural and semi-natural areas such as parks, woodlands, street trees, green roofs, and community gardens. These spaces provide essential ecosystem services, including air purification, temperature regulation, and recreational areas. Blue infrastructure refers to water-related features like rivers, lakes, ponds, and sustainable drainage systems. These elements manage stormwater, mitigate flooding, and support aquatic biodiversity.

[23] Council Recommendation of 15 March 2018 on a European Framework for Quality and Effective Apprenticeships.

[24] The Future Made in Australia plan seeks to drive long-term economic growth, build sovereign capabilities, and position the country as a global leader in renewable energy and advanced clean technologies.

[25] https://vauceri.hzz.hr/ (accessed on 23 April 2025).

[26] More information on the Net Zero Skills Action Plan is available here: https://www.gov.wales/stronger-fairer-greener-wales-net-zero-skills#117766 (accessed on 28 February 2025).

[27] NEP is paid up to half the minimum wage, for a maximum period of 6 months. The standard STW is paid at 80% of the wage compensation paid to the employee (up to a maximum of 150% of the average wage), and for a maximum of 6 months, with the possibility of further extensions of up to 3 months each time, up to an overall limit of 12 months.

[28] Social security contribution exemptions are also conditional on six-month job retention post-ERTE for both cyclical and sectoral ERTE.

[29] https://www.iberley.es/legislacion/orden-pjc-1472-2024-26-diciembre-publica-acuerdo-consejo-ministros-23-diciembre-2024-declara-activacion-mecanismo-red-flexibilidad-estabilizacion-empleo-conformidad-articulo-47-bis-texto-refundido-ley-estatuto-trabajadores-aprobado-real-decreto-legislativo-2-2015-23-octubre-sector-fabricacion-vehiculos-motor-27282202 (accessed 15 September 2025).

[30] https://www.wijzijnkatapult.nl/mkbidee/ (accessed on 22 April 2025).

[31] The RES-SKILL project was supported by the European Union's programme Erasmus+ and involved various stakeholders, such as VET providers, industry representatives, social partners, and regional development agencies from Germany, Greece, Austria, Romania, Bulgaria, and Poland. The educational materials provided from the project can be used free of charge.

[32] EDP Renewables is the fourth-largest renewable energy company in the world, and Vestas is the market leader in the manufacture, sale, installation and maintenance of wind turbines.

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