



European Network of Public Employment Services

PES support to greening of the labour market

Thematic paper

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TABLE OF CONTENTS

TABLE OF CONTENTS	1
EXECUTIVE SUMMARY	2
1. INTRODUCTION	4
2. STRATEGIC APPROACHES OF PES TO SUPPORT THE GREEN TRANSITION	5
2.1 Strategic approaches	5
2.2 Mainstreaming within all services and ALMPs	5
3. SUPPORTING SKILLS DEVELOPMENT FOR GREENING LABOUR MARKETS	5
3.1 Skills needs assessment	6
3.2 Taxonomy, occupational information systems and career guidance	6
3.3 Training programmes	8
4. SUPPORTING THE LABOUR MARKET TRANSITION FROM POLLUTING TO 'CLEAN' INDUSTRIES	10
4.1 Measures to mitigate labour market and social impacts of declining polluting industries and to manage structural change	10
4.2 Measures to support clean industries	12
4.2.1 Comprehensive large-scale projects	12
4.2.2 Employment incentives for smaller-scale projects	13
4.2.3 Start-up incentives	13
4.	14
5. PARTNERSHIPS FOR INCLUSIVE LABOUR MARKETS	14
5.1 Introduction	14
5.2 Pilot project for young NEETs	14
5.3 Training for long-term unemployed people and immigrants	15
5.4 Direct job creation programme	15
6. PARTNERSHIP APPROACHES	15
6.1 Partnerships at regional and local level	15
6.2 Participating in national green skills strategies and policies	16
7. CONCLUSIONS	17
7.1 Conclusions for the role of PES and main challenges	17
7.2 Recommendations	18
REFERENCES	19

EXECUTIVE SUMMARY

The greening of the labour market is expected to have an impact on the volume of job-to-job transitions and on skills requirements. Public employment services (PES) are among the key actors in (i) mitigating negative labour market effects; (ii) smoothing the transition towards a greener economy; and (iii) helping companies that are developing activities within the green or greening economy to access a pool of skilled workers. The objective of this paper is to showcase specific strategies and measures implemented by selected PES. This includes approaches for mitigating the labour market impact from economic restructuring from polluting to 'clean' industries, supporting the development of green industries and developing training programmes to support up- and reskilling of the labour to fit with changing skills needs of companies. For this purpose, **a PES Network Thematic Review Workshop (TRW) on the greening of the labour market** has been organised to share experience and promote mutual learning. This paper takes stock of some of the new activities and measures and includes also information from other sources.

An increasing number of PES have now included the green transition in their strategies at national and/or regional level. Some have started to implement dedicated programmes or initiatives, while others are not yet ready. Some are trusting the efficiency of their well-established system in coping with change and are de facto mainstreaming but are nevertheless closely observing the effect of transformation.

Managing the green transition is regarded by many PES and other actors (e.g., researchers) to be more complex than previous economic restructuring processes. Greening the economy is a transversal process across tasks, occupations and sectors. Therefore, a crucial step for implementing broadly formulated strategies is the **elaboration of clear criteria and definitions of green jobs**. Several PES have conducted or commissioned studies or are partnering in research activities on the taxonomy of green jobs, green companies and sectors and related skills. Indexes of the 'greenness' of tasks, occupations and companies have been established, by including aspects such as the type of task, objective of the activity, intentions and certifications. Based on PES experiences in implementing dedicated measures, it is important that staff and beneficiaries can identify what 'green jobs' are and set clear rules for financial support.

A greener labour market will require specific skills, which need to be integrated into updated workers' skills profiles. The required skills encompass not only technical skills and soft skills but also values and behaviours. Some PES have implemented training measures to respond to the skills demand of employers operating in the green economy or are widening their training offers for occupations and tasks for green jobs.

Research into identifying new required skills, small skills adaptation and relevant portable skills has been conducted, but there is a shared view among PES that more research is needed. In addition to new skills, portable soft and technical skills acquired in another sector and in energy-intensive industries are relevant for the greening of the economy. Thus, in addition to skills adaptation through the grafting of new skills onto existing skills, the transferability of skills from one occupation to another needs to be explored further.

PES follow different approaches in trying to make sure the right training offers are available in the area of green skills. In countries where PES implement training measures through relying on the market mechanism, it is believed that market forces will generate appropriate training offers demanded by the labour market. Training providers will be accredited for their capacity to deliver quality training, but there will be no steering of content. Collected examples of activities also show that, depending on their mandate and role in the skills governance system, PES have started to create or encourage supply of relevant training of skills for the green transformation (both technical and generic skills)

at training institutions, have encouraged networking between training institutions, or have encouraged workplace-based learning when based on concrete demand from companies.

Regions affected by the energy transition benefit from setting up regional networks for skills development, economic revitalisation (in case of job destruction), economic diversification, developing the social fabric (in case of job creation) and promoting regional mobility. Early action and implementation plans may include profiling, counselling, skills assessment and preparation for seeking work.

A few PES have introduced employment and start-up incentives in the area of the green economy. There is a challenge in defining the green economy or green activities to be supported.

For many years, job-creation programmes targeted at disadvantaged and vulnerable groups have focused on socially and environmentally useful projects and have often been implemented in partnership with social enterprises. Several PES have recently implemented new programmes and initiatives for long-term unemployed people to integrate them in greening activities; work-based interventions were the second most important measure. Pilot measures are run for other groups, such as young NEETs (those not in education, employment or training). One difficulty for integrating vulnerable groups into the regular labour market through green jobs is that only a few green jobs require a low level of qualification. Some initiatives combine employment support with training measures.

There are several examples of PES involvement in elaborating a skills development strategy for supporting the greening of the economy at local and regional as well as national level. Partnerships are also crucial to develop comprehensive approaches to attract skilled workers where they are needed and to mitigate the economic and social impact caused by the decline of polluting and energy-intensive industries. Partnerships are also found to be key in moving forward for small-case ecological transition. There are examples of PES involvement in elaborating a skills development strategy for supporting the greening of the economy at the national level.

It is recommended that PES continue their activities in cooperation with key stakeholders in the area of skills taxonomy and, based on this, **give clear guidance on criteria determining 'green' jobs and 'green' economic activities and enterprises.** It is also recommended that PES **reinforce their partnerships with key stakeholders at local and national levels** to develop and implement a gender-sensitive skills strategy and measures that are supportive to the green transition. It is advisable that PES are active partners of local projects to support the ecological transition.

1. INTRODUCTION

The greening of the labour market has an impact on skills requirements and job-to-job transitions. However, there are a number of uncertainties surrounding the assessment of labour market impacts, which may vary significantly from region to region. The challenge for labour market policies will be in ensuring that the transition between sectors and occupations works as smoothly as possible and that developing activities within the green or greening economy can expand and rely on a pool of skilled workers.

The [European Green Deal](#) has the objective to reduce carbon emission: in this context, EU Member States pledged to reduce greenhouse gas emissions by at least 55% by 2030 and committed to turn the EU into the first climate neutral continent by 2050¹. The [Council Recommendation](#) on learning for the green transition and sustainable development was adopted in June 2022, in line with the principles of the European Green Deal and the European Pillar of Social Rights. It aims 'to ensure that the Union's transition towards a climate-neutral and environmentally sustainable economy by 2050 is fair and leaves nobody behind'. The [Council recommendation on ensuring a fair transition towards climate neutrality](#) also contains elements specific to public employment services.

Recommended policy packages include all Active Labour Market Policy (ALMP) measures. Emphasis is placed on skills development, including the proposal to conduct research on occupation-specific and transversal skills needs linked to the green transition. The Recommendation also includes guidelines for national skills strategies and for social protection measures for the most vulnerable groups affected by the transition.

PES are among the key actors in mitigating negative labour market effects and in smoothing the transition towards a greener economy and reaching the goals of the Green Deal. A study by the PES Network in 2021 (Duell et al., 2021) demonstrated that many PES will need to improve their labour market information systems to increase transparency around green jobs and skills. PES staff will need more training and greater awareness to enable them to use all the available information on green and greening jobs and skills. Close cooperation with other partners specialised in identifying the transferability and portability of skills would increase PES' capacity to support the green transition in the labour market. In addition to training measures, PES need to have other active labour market programmes in place, targeted at those who cannot upskill or reskill.

This paper takes stock of some of the new activities and measures in the above areas. A Thematic Review Workshop (TRW) was organised virtually and hosted by the German Federal Employment Agency (BA) on 12-13 January 2023 to discuss different approaches implemented by PES. The TRW showcased the strategies and measures implemented by selected PES to stimulate mutual learning and exchange of innovative practices in strategic approaches, in managing sectoral shifts in the regions most affected, training measures, cooperation with employers to support the development of green jobs, and measures to include vulnerable groups. Partnership approaches will be of particular interest across the activities. A report in 2021 on how PES and other actors address the impact of the green transition on jobs and skills has shown that PES are key actors for the transition, but that they face challenges in how to organise activities. The TRW's objective was to discuss the challenges and solutions for supporting the green transition and mitigating social impacts.

A short questionnaire was sent to PES participating in the TRW and written answers were received from Austria, Belgium (Actiris and Forem), Bulgaria, Croatia, Cyprus, Denmark, Estonia, Germany, Greece, Lithuania, Malta, Poland and Sweden. This information has fed into this Thematic paper. The Thematic paper is also based on previous work by the PES Network on greening labour markets (Duell et al., 2021 and European PES Network position paper, 2021).

¹ [Delivering the European Green Deal \(europa.eu\)](https://european-council.europa.eu/media/en/press-communications/infographic/infographic-2022-06-10-01.pdf)

2. STRATEGIC APPROACHES OF PES TO SUPPORT THE GREEN TRANSITION

2.1 Strategic approaches

An increasing number of PES have now included the green transition in their strategies. For example, the **Austrian** PES, AMS, was due to adopt in December 2022 a long-term plan 2022-2026 (*Längerfristiger Plan des Arbeitsmarktservice Österreich*) that contains several strategic approaches to accompany the necessary transformation of the economy in line with the EU's Green Deal, based on social, ecological and economic sustainability. Sustainability is perceived as a cross-cutting issue in the AMS. As a consequence of this strategic approach, the principles of a fair and green transition have been taken up within several Active Labour Market Policies (ALMP) in the area of training, employment incentives and direct job creation programmes (see examples below). **Croatia** has included the green transformation in its Business Strategy 2022-2025. The Employment Service of **Slovenia** (ESS) has included the 'Strategy on Greening of the Labour Market' in its Sustainability Report. The PES is committed to identifying skills needs related to the greening of the labour market, planning and implementing related ALMPs, training PES staff and establishing new partnerships. In **Poland**, the Labour Market Department of the Ministry of Labour and Social Affairs has included objectives related to the green transition in the National Action Plan 2022. In the Walloon region of **Belgium**, Forem has adapted its strategy to the policy priorities of the Walloon government.

2.2 Mainstreaming within all services and ALMPs

Independent of whether PES have included support for a fair, green transition in their strategic documents and action plans, they have been setting up dedicated programmes and/or mainstreaming activities to manage labour market aspects of the green transition into their standard services and ALMPs, as in **Germany**. The German PES identifies the three major challenges it faces: digitalisation, decarbonisation and demography. **Denmark** has had a long-term focus on integrating environmental and climate issues into its educational and vocational training systems. The Danish PES does not, however, have an explicit green strategy or specific measures to support the green transition.

Another example is the **Bulgarian** PES, which sees it as a priority to address the challenges brought about by structural changes related to the green transition, such as timely recognition and forecasting of employers' needs for competences; planning and implementation of active employment policy programmes; and including greening of the labour market as a theme in all PES processes. To this end, additional training for employees is important.

3. SUPPORTING SKILLS DEVELOPMENT FOR GREENING LABOUR MARKETS

A greener labour market will require specific skills, which need to be integrated into updated skills profiles of workers. The PES Network therefore recommends proactively addressing the skills requirements of a green labour market. The PES can offer expertise and knowledge that should play a part in European, national and local initiatives aimed at forecasting 'green' skills (European Network of Public Employment Services, 2021). In the same vein, the proposed Joint Employment Report 2022 emphasised that investing in upskilling and reskilling is a top priority to foster an inclusive recovery and support the digital and green transitions².

² COM (2021) 743 final, Proposal for a Joint Employment Report 2022.

3.1 Skills needs assessment

Jobs in the green economy require a wide range of skills. The European Centre for the Development of Vocational Training (Cedefop) has identified a set of generic green skills, encompassing soft and technical skills, in the area of cognitive competencies, interpersonal competencies, intrapersonal competencies and technological competencies.³ Research has also identified portable soft and technical skills, acquired in another sector or in polluting industries, that are relevant for the greening of the economy. In-depth research is needed to obtain more detailed insights into the green skills needed in occupations and sectors in specific regions (Cedefop/OECD, 2022).

In addition to adaptation through grafting new skills onto existing skills, the transferability of skills from one occupation to another needs to be explored. As stressed by Cedefop and OECD (2022), skills for the green transition are based on new occupations and occupational specialisations, but greening of existing skills is also needed, including digital skills.

Skills development stakeholders and PES therefore need to conduct research to obtain deeper insights into the skills adaptation required for the transformation. An area of research of the **Austrian** PES relates to the question: 'Labour market policy measures with regard to the greening of the economy – eco-jobs against unemployment?'. The research institute of the **German** PES, the Institute of Employment Research IAB, conducted forecasts in 2022 to assess the impact of structural change, including the ecological transition, on labour markets and skills, showing net employment gains by 2030 but a high job turnover (Zika et al., 2022). **Poland** plans to use European Social Fund (ESF) funding to introduce strategic forecasting of digital and green skills, in order to predict the supply and demand for skills in these areas and to formulate priorities for both vocational and lifelong training. Another example is the planned study on green jobs for the **Brussels-Capital Region by the PES Actiris** in 2023.

3.2 Taxonomy, occupational information systems and career guidance

Several PES and other agencies have been working on developing a classification system and have come up with lists of green and greening jobs (Duell et al., 2021). In some cases, PES have participated in research and work on taxonomy about greening labour markets carried out by specialised institutions. In **France**, for example, the PES is involved in work done by the National Observatory of Jobs and Professions in the Green Economy (ONEMEV)⁴, set up in 2010.

In search of a common understanding of the taxonomy used, the PES Network working group on taxonomies of green jobs and skills was set up in 2021. Work has also been underway at European level to determine a common European definition of green jobs. European Skills, Competences, Qualifications and Occupations (ESCO)⁵ has adopted a Cedefop definition that refers to green skills as 'the knowledge, abilities, values and attitudes needed to live in, develop and support a society which reduces the impact of human activity on the environment.'⁶ The PES Network Working Group regards this concept as useful.

³ See: [Generic Green Skills](#).

⁴ See: [The National Observatory of Jobs and Professions in the Green Economy](#).

⁵ ESCO allows for identifying knowledge and competences of over 3,000 occupations.

⁶ [Green skills and environmental awareness in vocational education and training. Synthesis report.](#), Cedefop 2012.

The **Swedish** PES is working on a taxonomy for green jobs and seeks to render it practical for PES activities. As part of the Kickstart React EU programme funded by the ESF, the PES is mapping ESCO-defined green and digital jobs and translating them into the PES' own definitions. The aim is to create a unified picture of what green and digital skills are and to make ESCO-defined skills compatible with Swedish labour market skills definitions. The second step will be to match this with the content of PES labour market trainings.

Source: Information provided by the Swedish PES.

Creating a taxonomy of green jobs and fixing criteria to assess the 'greenness' of jobs to be supported by public finances has been challenging. For example, when starting to **implement the pilot project Intercept for young NEETs** (see section 5.2 for details), the Lithuanian PES has been confronted with defining criteria for being a green business. The **intentions, motivations and objectives as well as the field of main activities** were looked at. It was decided to include 'light green' companies (e.g., construction companies starting to use greener materials, if they showed awareness of the need for greening and had the right values in this respect); 'medium green' companies characterised by a strong inner culture and activities with a moderate impact on greening (e.g., recycling), and 'very green' companies producing e.g., solar panels or nets for ocean cleaning.

To implement a dedicated employment incentive in **Slovenia** to support green jobs, criteria were developed. The starting point was that green jobs had to reduce the impact of human activities on the environment. This was translated into five specific criteria:

1. The 'greenness' of the **occupation**: a list of occupations was divided into green, greener and greenest jobs, which were awarded 3, 6 and 10 points respectively.
2. A similar list was established for **economic activities**, based on NACE.
3. A third list was prepared for of **sustainability certificates and standards** (e.g., ISO) and **social enterprise status** (I-II). Depending on their strength, 3 or 5 points were given.
4. The degree to which the employer's product or service contributes to climate and environmental goals (max. 3 points).
5. The degree to which the workplace activities contribute to climate and environmental goals (max. 7 points).

For the last two criteria, it is relatively difficult to formulate 'hard' measurements. PES perform the assessment based on information given by employers in their application. This greenness assessment framework needs to be updated regularly, as jobs continue to change. The framework needs to be promoted among all stakeholders at all levels.

Source: Thematic Review Workshop.

In Germany, the Institute for Employment Research (IAB) has developed a **greenness of jobs index** (GOJI). This index:

- presents percentages of potentially environmentally friendly and environmentally harmful tasks within an occupation (examples of occupational groups with environmentally friendly tasks: electric machine technology, plumbing, heating);
- enables the observation of change over time in official occupational descriptions from online database Berufe.Net;
- is available at 5 digit level of the German Occupational Classification (KldB2010) and is transferable to ISCO; and
- enables aggregation of data at multiple levels: occupational, requirements, geographical, sector, establishment and worker levels.

The GOJI can be broken down at local levels to show the spatial distribution of greenness of jobs in Germany.

Source: Janser, M. (2018), 'The greening of jobs in Germany. First evidence from a text mining-based index and employment register data, IAB Discussion paper 14/2018; and presentation by M. Janser at the Thematic Review Workshop.

Some PES are updating and expanding their list of green occupations, as in **Austria**⁷, where relevant skills and occupations are regularly added to the vocational information system (e.g., waste management, ecological agriculture and forestry, non-fossil energy production), in **Germany**'s occupational information system [Berufe.Net](#), and in **Spain**⁸. The **French** PES has produced leaflets on green occupations (Duell et al., 2021). This information available online is an element of career guidance. In addition, it is necessary to provide face-to-face vocational guidance for young people and adults. Adults leaving jobs in polluting sectors may not be fully aware of the opportunities in emerging green professions and sectors.⁹

3.3 Training programmes

PES follow different approaches in defining the training offers in the area of green skills. In countries where PES implement training measures through a voucher system, it is believed that market forces will generate appropriate training offers demanded by the labour market. Employment counsellors may also define what type of course and subject the voucher has to be used for, as in Germany. This would include skills needed for the green transformation. Training providers will be accredited for their capacity to deliver quality training but there will be no steering of content. Voucher systems are run for example in **Croatia** and **Germany**. Other PES that do not promote specific 'new' green training programmes also have these sorts of measures within their training offers, as reported by the Danish PES.

Funding for training can support specific sectors or occupational groups for which there is demand from companies, as in Austria.

In **Austria**, the Labour Foundations (*Arbeitsstiftungen*) were set up by the social partners in the context of the industrial restructuring of the steel industry¹⁰. Over time, a new form of labour foundation – placement foundations (*Implacementstiftung*) – have been set up. The objective of these foundations is to offer training and placement services to companies that are facing skills shortages in the local labour market. Placement foundation measures and the new AQUA measure are financed through the PES.

A concrete project to support the green transition is the setting up of an Environmental Foundation (Umweltstiftung), a joint project of the Ministry of Labour, the Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, the social partners and AMS, decided in April 2022. The qualifications relevant for the environmental and climate protection sector were defined by the AMS, the social partners and the Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology in a training catalogue. The Environmental Foundation is financed by the AMS, the Ministry of Labour and the companies. The current budget amounts to EUR 17.5 million.

To access this new scheme, selected companies need to demonstrate that they need skilled workers in the sustainable, ecological sector, are looking for staff via the PES AMS, are

⁷ The [Skills barometer](#) is run by the Austrian PES. For the identification of green jobs in the [AMS qualification barometer](#), the definition of Eurostat has been used, whereby the environmental sector in Europe is recorded under the name 'Environmentally-oriented production and services'.

⁸ [Estudio Prospectivo de las Actividades Económicas Relacionadas con la Economía Circular en España](#).

⁹ [Work-based learning and the green transition](#), Inter-Agency Working Group on Work-based Learning.

¹⁰ [VoestAlpine Stahlstiftung](#) set up in 1987.

willing to pay the monthly training grant (EUR 200) and administrative costs (EUR 300) and are willing to take the participating individuals into a fully insured employment relationship after termination of the measure.

The unemployed people participating in the initiative need to be PES-registered, speak German (B1), have a maximum compulsory school leaving certificate or school education that is no longer usable on the labour market or qualification for academic education, but without relevant knowledge in the ecological field. Participants receive continuous support and supervision during the training period from the foundation. Their livelihood remains secured through the PES and they receive the monthly training grant from the company.

Implementation shows that it is difficult to ensure a sufficient number of qualified participants as well as the target of 40% female participants.

Source: Elfriede Wagner, Lorenz Lassnigg, unter Mitarbeit von Mario Steiner, Peter M. Steiner (2005), 'Arbeitsstiftungen als Instrument im Strukturwandel', Institute for Advanced Studies Vienna; information provided by the Austrian PES and presentation given at the Thematic Review Workshop.

PES responsibilities in the area of continuing vocational education and training (CVET) vary across Europe, ranging from defining thematic fields for support to running or supporting training institutions. In **Cyprus**, the Human Resource Development Authority of Cyprus (HRDA) has prepared a document that contains the themes for the training programmes it subsidises. This constitutes essential guidance to vocational training centres and enterprises when designing and organising appropriate training programmes. The document for the period 2023-2024 has been updated and expanded and contains, among others, themes for the acquisition of knowledge and skills related to the blue and green economy.

In the Walloon region in **Belgium**, Forem is coordinating 23 training centres (*centres de compétence*) for in-demand and future-oriented competences in areas with strong economic development potential.¹¹ The coordination role involves making sure the training offer meets labour market demands. Among Forem's training centres and centres of excellence, some are specialised in the area of construction and environment (Construforms, Wallonie-Bois, Environnement and the Namur-BW construction training centres). Forem Environment Skill Centre in Mons is the main centre for training in environmental jobs. It provides training for jobseekers, workers, students and teachers in four areas: environmental management, waste management, energy management and smart technologies. To carry out their missions, the skill centres can count on various types of funding, including from the EU's European Regional Development Fund (ERDF) and ESF.

Source: Presentation given at the TRW.

An example of skills development in a specific sector is the ESF project 'More food, more jobs' implemented in **Sweden**.

In 2017, the **Swedish** government launched a long-term food strategy for fostering a competitive food production industry, to ensure the potential of Swedish food production was fully realised. The long-term goal is to strengthen sustainable competitiveness. Sustainable food production is regarded in this context as being part of the 'green' economy. Two projects co-financed by the ESF started in 2018 to provide a skilled workforce through skills development initiatives and targeted job matching. The Swedish PES Arbetsförmedlingen and the Federation of Swedish Farmers are the project owners. The Swedish Food Federation and Krinova (Incubator and Science Park) are also involved. A national collaboration agreement between Arbetsförmedlingen and the Federation of Swedish Farmers was agreed in January 2021. A national sector council is being developed to further strengthen skills supply within the sector.

Source: Information provided by the Swedish PES.

¹¹ Forem [Competence Centres](#).

The **Greek** PES has taken a broader approach and has started to implement training programmes for green skills across different sectors and at the demand of SMEs.

In **Greece**, DYPA's upskilling programmes for employed and unemployed people aim to promote the green transition, and in particular the circular economy, with specific attention to training programmes responding to the needs of SMEs and social enterprises. Targeted subsidised CVET programmes are funded by the EU (under NextGenerationEU) and aim to provide training to more than 500 000 beneficiaries by 2025, focusing mainly on green and digital skills, but also 'blue' skills and financial literacy. The first training measure launched in May 2022 aims to provide training opportunities and relevant certification to more than 80 000 jobseekers. Topics include energy retrofitting of buildings; smart homes and smart cities; green entrepreneurship; ecological design; certification of environmental standards; bioclimatic design and energy performance of buildings; product life-cycle assessment; use of new technologies in the green economy; waste management; renewable energy sources.

Source: Information provided by the Greek PES.

In **Germany**, the PES is supporting the training of transformation guides in companies (*Transformationslotsen*). This training measure should strengthen the capacities of companies to manage the green transition. An example for using REACT-EU is an [extra-funding](#) granted to **Italy** to support green and digital skills training.

4. SUPPORTING THE LABOUR MARKET TRANSITION FROM POLLUTING TO 'CLEAN' INDUSTRIES

4.1 Measures to mitigate labour market and social impacts of declining polluting industries and to manage structural change

Regions heavily affected by the energy transition have to cope with various challenges, such as the revitalisation of areas of unemployment and poverty. Regions with coal mining and energy-intensive industries have been undergoing restructuring for decades.

The closure of coal mines and the downsizing or closure of other polluting and energy-intensive industries directly affects the workers they employ. It also affects jobs in other sectors, due to reduced consumption by former workers, a complex chain of suppliers (service providers, machine builders, etc.) and clients (e.g., transport companies, power plants) or because the local infrastructure was in part financed by the coal-mining company (e.g., schools, health clinics). In the most extreme case, a coal mine can be at the centre of a mono-industry town where the entire economy revolves around it.

When many miners lose their income at the same time, there is a risk that the whole local economy will suffer. To mitigate the negative employment, social and local economic development impact, income replacement schemes play a role in limiting the decline in demand, as well as stopping individuals and families from falling into poverty. A comprehensive strategy needs to take into consideration the economic and social impact of the programmes and schemes (World Bank 2021). In the past, social packages have been aimed in particular at groups with poor re-employment opportunities such as older workers (e.g., the Mining Social Package in **Poland** decided at the end of the 1990s; World Bank, 2021) and the **Spanish Plan del Carbón** (Duell et al., 2021). The assessment of the profile of displaced workers and the shape of the local labour market and economy in the short and medium term is key to determining relevant social packages.

In addition to training measures, other ALMPs targeting specific groups may be appropriate. These include start-up incentives for those who are equipped with good soft skills and an entrepreneurial spirit, employment incentives and direct job-creation programmes for the most disadvantaged groups (see also Chapter 5). In the event of large-scale restructuring programmes, this support can be important if regional re-employment opportunities are scarce and if the indirect employment effects of downsizing

industries have an influence on local economies. Support for relocation to regions where there are jobs may be another option. Evidence from previous large-scale industrial restructuring indicates that re-employment efforts should start before workers are laid off. Early implementation plans may include profiling, counselling, skills/prior learning assessment and preparation for seeking a job. Good partnerships are important success factors (Weber et al., 2015). These activities may require specific PES units to be established, or services outsourced to private placement providers.

A recent example of PES involvement in restructuring at a regional level is linked to the coal exit strategy in Germany.

In **Germany**, to support and shape structural change in the regions affected by the coal phase-out, decided in 2020, the federal government has earmarked significant budgets to support the transition¹². The Federal Agency for the Environment has commissioned a study on the impact of the coal exit strategy and climate change policies. This study argues that one of the main solutions to manage the transition is found in skills policies (*Umweltbundesamt*, 2019).

According to the three local PES of the Rhenish Revier, one of the affected regions within the wider Ruhr area, the planned end of lignite-based power generation will affect around 28,000 jobs and suppliers by 2022.¹³ The research institute of the Federal Employment Agency, the IAB, was tasked with conducting a labour market analysis of this region and has established a qualification and occupational profile of those working in the mines (mainly VET-trained qualification level). One specific remaining challenge is to understand the full impact of the coal exit for the regional economy. It is also essential to understand which sectors new investments will go to.

The three local PES in the Rhenish Revier are cooperating, as they consider forming an economic region.¹⁴ A Revier PES agency has been tasked with coordinating the activities with other actors. It is acknowledged that the companies and employees in the region need advice on change management and transition, individual funding opportunities and offers to adapt qualifications to new economic structures. (Roth et al., 2020).

Concrete activities the PES undertook in the wider region include bringing together and moderating dialogue between key companies in the area, including Evonik, Bayer, RWE, Rheinmetall, the German Armed Forces and Telecom, starting in the summer of 2022. This was initiated by the PES' account management for large employers with a specialised PES Office. The initiative aimed to foster cooperation regarding the design of transitions, a job hub and creating perspectives. For 2023, further activities are foreseen in the areas of education networks, specific support for the operator of the power plants and opencast mines, and sector-specific skilled labour initiatives.

For the German PES, lessons from managing this transformation could serve as a model for managing other transformation processes at regional or local level.

Source: Duell et al., 2021 and information provided by the German PES; presentation on activities of the BA during the TRW.

PES use a set of measures to mitigate the social effects of ecological restructuring, while supporting structural change. This is done, for example, by the use of Just Transition funding in **Estonia**.

¹² [The Future Has Just Begun – A Short Profile of the Rhenish Lignite Area](#), 31 March 2021, accessed on 7 April 2021.

¹³ [Rhenish Revier](#).

¹⁴ [Rhenish Revier](#).

In **Estonia**, the process of Just Transition most directly concerns restructuring of the CO₂-intensive economy in Ida-Viru County. This includes the reorganisation of the oil shale sector as well as the diversification of the county's economic environment with the development of employees' skills and the improvement of the living environment, which ensures regional employment, income preservation and Estonia's strategic supply of electricity. The Estonian PES is in the process of designing the following measures to support Just Transition in Estonia: salary grant for employers to shift from a carbon-intensive sector to another industry; degree study allowances to enable employees who were working in the carbon-intensive sector to acquire a new profession at a higher or vocational education institution; micro-qualifications (micro-credentials) allowance to enable employees who were working in the oil shale industry to get new qualifications.

Source: Information provided by the Estonian PES.

Managing large-scale restructuring following the ecological transition shows the **complexity of the sectoral conversion processes**. Therefore, intensive consultations and partnerships are needed, as well as exhaustive preparation and practical organisation.

A recurring issue when phasing out e.g., coal mining is that workers tend to have substantially higher wages than in other sectors to compensate for health and other risks in their work. During the discussion, the drawbacks of offering early retirement (costly, loss of skills and workers) were pointed out. Instead, temporary compensation for the **lost wage top-ups** through an insurance scheme was suggested.

4.2 Measures to support clean industries

4.2.1 Comprehensive large-scale projects

The example of a large-scale project in Sweden to develop and expand clean industries in a specific region shows the importance of developing a regional strategy and cooperating with various actors and activities to identify skills needs and attract workers with corresponding skills profiles in this region. It also shows the need to create a dedicated office for this extraordinary task.

In **Sweden**, new and large investments and expansions (at an estimated EUR 100 billion) are taking place, especially in the northern parts of the country. Areas include renewable energy, battery production and fossil-free steel. Upper Norrland is a key mining region and has a number of competitive advantages to become a global leader in environmentally sustainable mining, with the extraction of rare minerals needed for the clean transition (OECD, 2021). The Swedish PES Arbetsförmedlingen is tasked with supporting the new industrialisation strategy in the northern region. Its activities include detecting skills needs through surveys, spreading information about skills needs in the expanding industries mainly in Västerbotten and Norrbotten, stimulating geographical and professional mobility and strengthening strategic collaboration linked to this.¹⁵ The PES has developed an analysis model for defining large business investments and expansions. Based on the expressed needs of municipalities, regions and employers in the north, it was decided in June 2022 to set up a PES office to establish a regional presence and to be a regional coordination office with a focus on the new industrialisation and climate transition in the Norrbotten and Västerbotten regions. The office will have six to nine staff.

The local PES is tasked with finding solutions for skills shortages, as without adequate skills supply the green transition will not succeed. The biggest challenge is the skills supply in the public sector. The timing of training also needs to be aligned with the development and activities of companies active in the north.

¹⁵ [Uppdrag om kompetensförsörjning vid stora företagsetableringar och företagsexpansioner](#), 18 December 2021.

Geographical mobility is a key aspect. With fewer than 11 000 registered jobseekers, the office is facing a demand of approximately 30 000 workers in the industry and some 100 000 in total. The objective is to have workers from other parts of Sweden and from abroad to move into the area to create a sustainable social structure and create a viable business and living environment in the region that will attract skilled workers. One way to accomplish this is through offering relocation packages. The PES is tasked with covering not only industrialisation but the full societal transition.

Source: Information provided by the Swedish PES.

4.2.2 Employment incentives for smaller-scale projects

On a smaller scale, a few PES have implemented specific employment incentives in the area of the green economy.

A new employment incentive in **Slovenia** called 'Green Jobs' was launched in 2021. In cooperation with the Ministry of Environment and Space, the Slovene PES, ESS, issued a public invitation for the Green Jobs programme, for which EUR 1.5 million was available from the Climate Change Fund, financed by the Ministry of the Environment and Space. The purpose was to encourage employers to hire unemployed people in green workplaces for an indefinite period. It provides incentives (max. EUR 680 a month) for the employment of unemployed people in a green job for at least one year. An important part of the preparation of this measure was the development of a definition of green jobs and criteria to concretely measure and assess the greenness of jobs proposed for financial assistance.

Source: Information provided by the Slovenian PES.

An example of a small-scale programme is a dedicated employment incentive programme running in **Bulgaria** for more than a decade. 'Green jobs' are jobs created in economic activities related to the production of goods and the provision of services supporting the protection of the environment, according to a list of economic activities approved by the Minister of Environment and Water and the Minister of Labour and Social Policy. Small-scale and well-targeted employment incentives have in general been found to be effective in bringing unemployed people into work. However, it is doubtful whether very small programmes can make a difference in terms of ecological transition.

4.2.3 Start-up incentives

There are opportunities for unemployed people to start their own businesses within the green economy, though there are few examples of PES programmes supporting entrepreneurship in the green economy. However, one example is a small programme implemented by the **Austrian** PES in the Carinthia region, which specifically promotes start-ups in the field of renewable energy. Aid may also be granted to several unemployed people if they jointly establish and start a new business or take over an existing business. The duration of the measure is 24 months.

Another example is support in **Croatia** for unemployed people who decide to start their own business in digital and green activities. It complements an existing ALMP for self-employment. Under the general measure, unemployed people (individuals or groups) can apply for assistance to cover the costs of establishing and starting a business, crafts, companies, independent activities and institutions. Co-financed people are obliged to work for at least 24 months full-time in their business and submit evidence of the eligible costs. A maximum of EUR 15 912 can be awarded. In the new measure, green jobs are defined as: (i) jobs resulting in products/services of environmental benefit or contributing to the conservation of natural resources; (ii) jobs related directly to the assessment of compliance with environmental standards and the implementation of environmental regulations/standards, that provide education and training related to green technologies and practices, and increase the general level of public awareness of environmental issues;

(iii) jobs contributing to green business transformation. Implementing the new measure has shown that the definition of green jobs needs further elaboration and specification to become less ambiguous to jobseekers. Another challenge is in raising awareness that self-employment should be seen as a long-term choice.

Source: Information provided by the Croatian PES and TRW.

5. PARTNERSHIPS FOR INCLUSIVE LABOUR MARKETS

5.1 Introduction

Job-creation programmes targeted at disadvantaged and vulnerable groups have usually focused on socially and environmentally useful projects (Duell et al., 2021). Over recent years, new approaches to training measures for disadvantaged groups have been tested and developed, often with EU funding support through the Youth Guarantee and the ESF. Measures typically include life skills, basic skills (e.g., digital, numerical, literacy, national language), paid traineeships, and preparatory and bridging courses to access apprenticeships and vocational schools. These can be used to bring disadvantaged groups into green jobs. Examples collected for the PES Network show initiatives implemented in the green and blue economies targeted at long-term unemployed people, older workers, people with disabilities and disadvantaged young people (Duell et al., 2021).

A study covering 10 cities and regions in five countries (France, Germany, Italy, Spain and the United Kingdom), conducted by Rand Europe, shows interventions to bring disadvantaged groups into green jobs or equip them with relevant skills (Hofman et al., 2022). The authors identified a number of interventions for low-skilled unemployed people, as well as for other disadvantaged groups. These could be work-based, offer education and related training that enhances employability, provide job-search support or financial aid. Education and training represented the majority of the interventions. Work-based interventions were the second most important measure. There is little evidence about their effectiveness, as thorough evaluation of such measures is seldom conducted.

The study found that few green jobs required low levels of qualification. According to interviews conducted in the five countries, jobs regarded as suitable for disadvantaged groups mainly consisted of waste management and recycling, renewable energies and construction. The same study identified a series of soft skills as being important, including attitude (in particular the ability to adapt to change and to work independently) and 'general' skills, like communication, teamwork and management.

5.2 Pilot project for young NEETs

One example of a new project targeting young NEETs (those not in education, employment or training) is the Intercept project. It delivers an innovative scheme in three countries (**Malta, Lithuania and Italy**). The project is helping 300 NEETs aged between 25 and 29 to seize training and employment opportunities linked to the green economy. PES are project partners. Under the project, an innovative activation programme will be developed featuring an outreach strategy, career counselling, tailored activation, training and workplace exposure in the green jobs sector. PES staff will be trained to address the labour needs related to the green economy. The project aims to mainstream the new approach into a structural measure to integrate NEETs in the green economy, relying also on the evaluation of piloted schemes.

First lessons from the implementation of this project so far show the following challenge: defining the greenness of a company (see also section 3.2). When developing training materials for NEETs, a lot of attention was paid to generating value-based motivation, as financial motivation is not likely to be enough to succeed in the training and in the sector. Intercept therefore addresses the need for adequate skills *and* mindset. The PES staff involved in the implementation of the ALMP programme will receive additional training and

are expected to build and maintain connections with green employers through the project activities. The project also shows that green jobs for disadvantaged people will not be high-tech but rather rural jobs, eco farming, gardening and some occupations with shortages. These lessons are highly relevant for other projects and initiatives in other countries.

5.3 Training for long-term unemployed people and immigrants

One example of a project targeted at long-term unemployed people and newly arrived migrants is a training measure implemented recently in **Sweden**.

The project 'Close to nature jobs' in **Sweden** rests on a cooperation between the Swedish Forest Agency, Arbetsförmedlingen and a few other actors that ran until November 2022. People who are new or relatively new in Sweden, or those who have been unemployed for a longer time, had the possibility of a one-year position. During their employment they were prepared for working life – both by basic experience of the labour market and through training in the areas where they performed their duties, e.g., within nature and landscape conservation and the use of tools. The goal was for the participants to increase their chances of getting seasonal work.

Source: Information provided by the Swedish PES.

An example for use of ESF+ is the '[sustainable Manufacturing Project in Germany](#)' for training and employing long-term unemployed in the area of sustainable manufacturing.

5.4 Direct job creation programme

Promising practices for the integration of disadvantaged groups into green jobs show that social enterprises are key stakeholders. Activities include social farming, upcycling (or reuse) as a process in which waste materials or unwanted products are transformed into new materials or products with artistic or environmental value, and climate change and environmental sustainability (Hofman et al., 2021).

In **Austria**, socio-economic employment companies offer transit jobs in the circular economy to disadvantaged groups. These measures have recently been expanded within the framework of the *Sprungbrett* programme of the Austrian PES (information provided by the Austrian PES). Socio-economic employment companies have shown positive results in the past. In **France**, the role of socio-economic enterprises offering activities for sustainability projects at the local level has recently been extended in the context of the French programme [Territoires zéro chômeur longue durée](#) (Duell et al., 2021).

6. PARTNERSHIP APPROACHES

As shown above, partnerships play a crucial role in implementing PES activities and ALMPs to support the greening of the labour market as part of a comprehensive and coherent strategy. Other key stakeholders are vital for skills needs identification and anticipation exercises, for developing and implementing training activities, and for bringing disadvantaged people into jobs. Partnerships to support the green transition need also to involve local and regional economic, social and ecological development actors, such as local and regional governments, civil society and social partners at national and regional levels. A few examples are shown below.

6.1 Partnerships at regional and local level

The cooperation between PES and municipalities, regional and national governments is essential for making sure workers in declining industries are retrained for emerging job opportunities. The availability of skilled labour is decisive for companies in new clean sectors wishing to grow, and a joint effort between local institutions and the PES is necessary to attract skilled workers and to support regional mobility within the country.

Local partnerships can also play an important role in smaller-scale transformation processes. For example, in **France**, the National Agency for the Ecological Transition Ademe has set up a number of initiatives with the local job centres (*maisons de l'emploi*¹⁶), the French PES Pôle emploi, chambers and other actors. Activities include skills analysis and skills anticipation for a greener labour market¹⁷ and awareness-raising activities¹⁸.

Local and regional partnerships in the area of continuous training can help to adapt training offers to needs for the green transition. Partnerships also help to increase transparency of training offers, to help individuals and companies to make informed choices. In **Germany**, the PES **Bundesagentur für Arbeit (BA)** has established a structured process for supporting regional transformation processes and support for skills development is a key strategic approach. The BA's objective is that employers and employees should know and use the BA's orientation and services throughout the region. As a guiding principle, the BA sees its role as moderating and shaping transformation processes in the labour market jointly with key stakeholders. With employers, PES offices develop solutions and thus support them in securing jobs and skilled workers. This requires strengthening employer services. Particularly in the case of greening, the focus is therefore on regional aspects and regional action involving all partners for individual and customised solutions.

In **Germany**, legislation passed in 2019 has strengthened the role of the BA in offering continuous training to workers in SMEs at risk of losing their jobs, and to support lifelong learning. In addition, the coalition agreement 2021-2025 has reinforced the role of the BA in the area of continuous training, including support to training and vocational guidance. To support individuals and companies interested in continuous training, the BA is creating a network of regional and local PES offices and the regional players and common contact points. Cooperation within education and training networks in local and regional areas (*vernetzte Bildungsräume*) includes cooperation on a case-by-case level, joining efforts to identify skills needs, setting up continuous training and qualification partnerships between companies, training providers and the BA (*Weiterbildungs und Qualifizierungsverbände*) to address skills needs for example in a specific sector at local level. In addition, continuous training agencies as a one-stop-shop are being established (*Weiterbildungsagentur*).

Source: Information provided by the German PES.

6.2 Participating in national green skills strategies and policies

PES involvement in elaborating a skills development strategy for supporting the greening of the economy is important not only at local level but also at the national level.

In **Estonia**, the PES is participating in a nationwide project to create educational and training programmes for developing green skills led by the Estonian Ministry of Science and Education. The project is highly collaborative, bringing together universities, vocational schools, employers, professional unions and PES to form a consortium to work in six selected fields. The consortium will define the need for green skills, adjust existing curricula for skills development and add aspects related to green skills, map changes needed in occupational standards and develop education and training.

Source: Information provided by the Estonian PES.

¹⁶ Project '[Maisons de l'emploi et développement durable : capitalisation des plans d'action](#)', [Transition énergétique: Les territoires se mobilisent et accompagnent l'évolution emplois et des compétences dans la filière du bâtiment](#).

¹⁷ See for example: [Hauts de France](#) (2020); [Grand Est](#) (2020); [Pays de la Loire](#) (2019)

¹⁸ E.g. [L'ADEME en Bretagne](#).

7. CONCLUSIONS

7.1 Conclusions for the role of PES and main challenges

PES can make an important contribution to managing the employment impacts of the ecological transition. **Strategies to support economic restructuring and transformation processes** are not new for PES. However, the **transformation towards a green economy is unparalleled in its complexity and its transversal nature**.

To identify their need for action, PES have to observe the development of the greening of the labour market and its impact on skills and jobs. One difficulty for monitoring activities, as well as for implementing targeted ALMPs, is the definition of 'green jobs', 'green companies' or the 'green economy' and related skills needs. A **common framework elaborated within the European PES Network with common definitions of green sectors, companies, jobs/activities and skills** may help PES that have not yet set criteria to advance in their activities. Continued knowledge exchange on this may be helpful. It would be very useful to continue work on identifying green jobs and tasks in [ESCO](#) and to establish data sharing practices between national systems and ESCO. For PES counsellors as well as potential beneficiaries (jobseekers and companies), clear definitions, and examples of occupations, tasks and activities that can be considered green or greening are necessary to implement ALMPs to support this transition.

PES play an important role, in particular in **skills development**. One key challenge is identifying specific skills needs for the green transition. So far, a variety of approaches has been used to arrive at a skills framework. Required skills encompass not only technical and soft skills but also values and behaviours. Workers may also receive training to promote and drive the green transformation in their workplace. Determining the training content needs further work and tailoring to the specific context. The timeliness of training is important when training is intended to solve skills needs in a specific company, sector or region combined with the placement of specific groups of jobseekers. Linking training offers to skills needs can be made easier through local training and education partnerships and through close cooperation with companies delivering workplace-based learning. Monitoring market developments can also be insightful and some PES are even refraining from developing training measures themselves.

Another challenge is assessing skills needs in the economy that are also relevant in other parts of the economy and are thus **portable from one sector to the other, or require only small adaptations** (e.g., electricians, welders). There is evidence that new jobs created for greening the economy are often at mid-skill level and in technical fields. According to evidence from France and other countries, and confirmed by a study by OECD (2023), most new jobs are created in engineering and technology, i.e., areas typically dominated by men, thus creating **issues of gender segregation**. Looking ahead, PES need to observe and understand needs for skills adaptation and upskilling related to the green transition. They may themselves be involved in the production of relevant knowledge or know about relevant studies. Training staff on how to use this information may be needed.

PES need to use their ALMP instruments and measures as well as their services, such as vocational guidance for individuals and employer services, in particular for SMEs, to support jobseekers, workers and companies to master the ecological transition. PES have for now made different choices on whether to set up specific measures to promote employment in the green economy and to support skills adaptations and upskilling. Some have been active in supporting the acquisition of required skills for the green transition and only a few have introduced specific measures to support the green economy. Some are still reflecting on the appropriate approach. These decisions depend on the level of regulation of ALMPs and the flexibility that PES officers have to use instruments, as well as

the capacity of the ecosystem to match demand for skills relevant to the greening of the economy and to provide adequate skills training.

Some groups are at risk of participating less in job opportunities created by the green transition than others (e.g., vulnerable groups with a low skill level, in particular among NEETs and older workers; women who are often less well represented in technical occupations in demand for the green transition) and specific actions may become relevant for these groups.

Other relevant measures include the **promotion of cross-sectoral mobility**, especially in relation to accepting lower wages in green jobs. Furthering **regional mobility** will often be a relevant issue, as both polluting and green industries tend to cluster in specific areas.

PES need to be **active partners in managing small-scale ecological transition projects at local level**, supporting companies in their efforts to become more energy-efficient and environmentally friendly, and supporting large-scale restructuring processes to move from polluting to clean energies. In this last case, PES need to implement bundles of measures. The type of partners needed depends on where a region or country stands in the ecological transformation phase. Municipalities, companies and training institutions are always likely to be key partners.

7.2 Recommendations

To go forward and to cope with these challenges, the following recommendations apply to PES:

- Advance in defining and identifying 'green jobs' and 'green occupations'. Continue with knowledge exchange on a taxonomy of green jobs.
- Provide clear guidance to counsellors, jobseekers and companies about the green jobs taxonomy to be used for ALMPs.
- Be involved in research or at least be informed about skills needs and portability of skills in different sectors and occupations in the course of the ecological transition.
- Intensify cooperation with companies, training institutions and other local stakeholders to make sure the training offers match the skills needs of companies and workers; the possibility of setting up local training partnerships may be explored.
- Set up cooperations with local key stakeholders to manage the large-scale employment impact of industrial restructuring linked to the ecological transition.
- Cooperate and coordinate with companies and training institutions to provide timely training in the context of economic restructuring process.
- Become active partners in promotion and implementation of small-scale local ecological transition projects.
- Continue to cooperate with key stakeholders to integrate disadvantaged groups in activities related to the green economy.
- Raise awareness and encourage women to enrol and work in technical fields and IT, which are in demand for 'greening' labour markets.
- Include the greening dimension into the PES benchmarking methodology.
- Develop PES strategies for greening of the organisation and PES business.
- Make use of EU funds available in particular via the Recovery and Resilience Facility and the ESF+.

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