**PES to PES Dialogue**

**The European Commission Mutual Learning Programme for Public Employment Services**

DG Employment, Social Affairs and Inclusion

# Public Employment Services and Green Jobs

## Analytical paper

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**Author Annette Cox and Beth Foley**, Institute for Employment Studies

In collaboration with ICF GHK and the Budapest Institute

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# Introduction

The purpose of this paper to is to review the most recent literature with a focus on PES service delivery and policy implementation concerning green skills and jobs, identify merits and weaknesses of different approaches and transferable core elements. As there is no evaluative literature which tells us 'what works, why and in what circumstances' due to the novelty of the research area, the paper has drawn on written information and interviews with PES practitioners in the UK, France, Germany, Austria, Sweden, Spain and Belgium (Wallonia)**.** These were selected based on the evidence of recent developments and current practices.

From this information, conclusions are presented with regard to PES service delivery and the implications for policymakers.

# 1. What is a green job?

### Green jobs can include those with direct and indirect environmental benefits

Before discussing the role of PES in supporting green employment, it is important to understand what is meant by 'green' jobs. The definition adopted by Eurostat centres on the environmental goods and services industry (OECD, 1999), comprises "activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes technologies, products and services that reduce environmental risk and minimise pollution and resources'. This sets the focus on green jobs firmly within green industries explicitly concerned with environmental improvement, although the definition could potentially be broader than this.

ILO/UNEP (2008) broadly defines a green job as any decent job that contributes to preserving or restoring the quality of the environment whether it is in agriculture, industry, services or administration. Recent publications from the European Commission divide types of employment into those in 'eco-industries', in which jobs are green because the nature of the products or services are green and 'transformation' industries where all jobs will become greener because the products and services generated are adapting to meet the EC's environmental standards (European Commission, 2013). Wintermayr (2012) points out that different groups of people within the labour market may experience different effects of greening economies and that not all groups may benefit equally. For example, women may be less likely to have the skills required to benefit from the creation of high quality green jobs and so a 'just transition' to a green economy may be needed to offer equality of opportunities to different labour market groups.

This paper does not adopt a strict definition of what constitutes a 'green' job, because there are a number of different interpretations, which vary according to whether such jobs are found solely in environmental sectors, and how many and how new the 'green' skills are which they demand. However, the predominant focus determined by the examples found for the paper is on green jobs associated with environmentally friendly industries, including renewable energy, eco-construction and waste management.

### Green jobs can contribute to employment growth

Green jobs are potentially significant in a number of ways from a European policy perspective. Firstly, they may contribute to achieving targets for mitigating the effects of climate change and environmental degradation. Secondly, they offer important employment policy opportunities. The creation of green jobs is a key measure of progress towards 'sustainable' growth as part of the European Commission's Europe 2020 strategy. Moreover, the European Commission's Employment Package 'Towards a job-rich recovery' (EC, 2012) identifies the green economy as a job-rich sector. In particular, the Commission actions highlighted in the Employment Package include a set of specific employment actions which explicitly focus on the use of PES to PES Dialogue to help 'strengthen green skills intelligence' and identify 'the ways and means of working with business to direct jobseekers and those at risk of redundancy towards emerging green occupations' (European Commission, 2012).

The demand for green skills also has the potential to change the content of existing jobs, since wider national government and European-level policies on issues such as sustainability in construction, energy use and transport can shape the nature of work done by people in these sectors, and consequently the skills required. These may include working with new materials, use of equipment to monitor consumption of

energy and developing new ways of managing and evaluating environmental performance. It is potentially likely that these effects may be more widespread in terms of numbers of workers affected, than through the number of new jobs created in narrowly defined 'green' sectors. This is because defining green jobs can involve a number of dimensions.

a) a **sectoral** distinction can be made between employment in environmental goods and services sectors (EGSS) which focus on 'economic activities whose primary purpose is to reduce or eliminate pressures on the environment or to make more efficient use of natural resources' (ILO/UNEP, 2008: 1.110) and sectors which make a neutral or negative contribution: for example, a building services manager could work in a firm which manufactures recycled paper or in firm concerned with petrochemical energy generation.

b) a **skill use** distinction: the extent to which the job demands 'green' skills. For example, an environmental conservation worker may find that most of their work involves 'green' skills, whereas a plumber or builder may find that 'green' tasks form a relatively small subset of their work.

c) a **skill novelty** distinction which notes that some skills needs are based on 'increased demand' for 'more of the same' workers e.g. recycling sorters compared to some skills needs which are 'new and emerging' e.g. for energy auditors (Cedefop, 2012).

Evidence on the likely job creation potential of green employment is mixed and highly variable. Policy sources tend to be optimistic about the role of the green economy in contributing to job growth, but other sources are more sceptical. Experts typically point to ongoing economic uncertainty acting as a break on the speed of growth and a need for national investment to kick start markets for new business and consumer environmental goods and services to stimulate latent demand (Cedefop, 2012). Recent evidence on possible employment trends is presented in Table 1 below.

**Table 1. Evidence on current and projected green employment levels**

| Number of green jobs: observed and projected | |
|---|---|
| Austria | 162,986 green jobs estimated in 2008.<br>Study by Linz Institute for Qualitative Research in 2011 estimates potential employment growth of between 50,000 and 70,000 jobs in green industries e.g. environmental engineering by 2020. Expanding the definition to green jobs in any sector, estimates increase to 115,000 jobs by 2020. About 5% of the labour force were estimated to work in green industries and by 2020 this could double. |
| Belgium | Plans for 20 reduction of GHG emissions by 2020 relative to 1990 levels and 20% renewable energy in the overall energy consumption by 2020. General-equilibrium effects: small slowdown of economic growth with respect to the business-as-usual scenario; small employment effects may be positive when revenues from this policy are used to reduce employer social security contributions. |
| Czech Republic | Ex-ante estimates of the gross employment effect of the "Green Light for Savings" measure (a specific subsidy programme) were provided in 2009 by the Ministry of Environment. |
| Denmark | None. |

Number of green jobs: observed and projected

| | |
|---|---|
| Finland | Statistics Finland estimates that 5,888 workers were employed by firms with mainly green activities in 2009.<br><br>Employment projection. Economic impact evaluation of renewable energy package in 2010 estimates total costs (based on model simulations rather than actual budgets) over period to 2020 as EUR 700 million from feed-in tariffs for wind energy, subsidies for wood and bio-energies. Private investments estimated to reach EUR 3.5 billion for wind plants and EUR 1 billion for bio-energy. Predicted effects compared to a 'no change' scenario are for 4,000 fewer jobs amounting from positive employment gains in forestry, construction and energy sectors, private and public services offset by negative impacts in manufacturing. |
| France | Ministry of Ecology and Sustainable Development estimates that green jobs accounted for 1.6% of total employment in 2010.<br><br>Employment projection. Ministry of Ecology and Sustainable Development, estimated in 2009 that French Environmental Strategy ("Grenelle Environnement") could result in 600 000 gross new jobs by 2020. Report by National Environmental Agency (ADEME) in 2008 suggested that policy package could create about 200 000 jobs in renewable energy, building and transport sectors over the period 2007-2012. 316,000 new jobs in renewable energy sector by 2020 (ILO, 2011). |
| Germany | Number of green jobs. Recent estimates of green employment accounted for 4.5% of total employment in 2006 based on "Report of the Environmental Economy 2009", published by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and the Environmental Agency. 400-500,000 jobs in renewable energy by 2020 (ILO, 2011). |
| Greece | Employment projection. According to the Ministry of Environment, Energy and Climate Change, the Strategic Action Plan for green growth is expected to result in the gross direct creation of more than 210,000 jobs, including job retention in sectors such as construction, of which 29,000 will be permanent. |
| Hungary | Employment projection. As part of the New Széchenyi Plan, policy measures to develop green economy are expected to create 200,000 jobs by 2020. |
| Norway | Employment projection. Report commissioned by Ministry of the Environment in 2010, provides a general assessment of the consequences for the Norwegian economy of alternative future policy packages that may be implemented in order to reach the Norwegian Climate Targets by 2020. Actions to reduce national CO2 emissions by 20% over the period to 2020 could result in net employment gains of 0.5-1.5% depending on the policy package considered. |
| Poland | None. |
| Portugal | Number of green jobs. Statistics Portugal estimates that green jobs accounted for 0.4% of total employment in 2008.<br><br>Employment projection. National Energy Strategy is expected to result in more than 120,000 new jobs, with the majority arising from development of renewable energy sectors. |

| Number of green jobs: observed and projected | |
|---|---|
| Slovak Republic | None. |
| Slovenia | None. |
| Spain | Number of green jobs. Research for Ministry of Environment estimated 531,000 green jobs which accounted for 2.6% of total employment in 2009.<br>Employment projection. According to a report for the Government in 2009, 1 million new green jobs could be created by 2020, mostly in sustainable transport and building sectors. |
| Sweden | Approximately 68,000 people are employed in environmental goods and services industries (2010). |
| UK | 400-500,000 jobs in renewable energy by 2020 (ILO, 2011). |

(Primary source (OECD, 2012): OECD Employment Outlook, Supplementary Material for Chapter 4 ("What Green Growth Means For Workers And Labour Markets: An Initial Assessment"), (OECD, Paris).)

Very different methods are used by organisations to assess green jobs growth with associated strengths and weaknesses (ILO, 2013). This suggests that multiple complementary methods of forecasting green skills needs should be adopted, but that consideration needs to be given to the relative costs and benefits of significant additional investment in these tools during a period of pressure on public finances. Operational interviewees in PES were not particularly concerned with the classification of job growth as green or non-green, as long as they knew the types of jobs in demand and the implications for skills they might need to broker through training providers.

# 2. What are the implications for policy and for PES in relation to the development of green jobs?

### PES can play an active role in promoting green skills where there is market demand

There is an expectation from the European Commission that PES should particularly help reallocation of labour between declining and emerging industries and occupations and here the role of PES in supporting jobseekers into new 'green' occupations may be helpful. The second employment action of the Staff Working Document accompanying the Communication 'Towards a Job Rich Recovery' (EC, 2012), calls for 'organising in 2013 a set of mutual learning actions with relevant labour market actors, in particular on embedding the skills and training dimension within wider national green growth strategies'. The most recent *PES 2020 Strategy Output Paper* notes that important activities for PES covering green, as well as non-green occupations are:

- Helping to generate and use high quality labour market intelligence working closely with employers and SMEs, in particular to overcome labour market mismatch by ensuring adequate and suitable labour supply;
- Helping people navigate sustainable, positive career pathways through transitional labour markets in a European, as well as national context;
- Making effective use of IT in the careers information, advice and guidance (IAG) and recruitment process to help citizens self-manage their labour market progress; and
- Improving flexibility and efficiency in the delivery of their services, working effectively with and through partner organisations including vocational education and training providers, local authorities and social enterprises.

In practice, PES interviewees tended to view their role as being primarily based on responding to market demand for skills and vacancies; as one put it, they are not 'market makers'. The main drivers of demand for green skills and jobs were generally cited as being central or regional government and the private sector. The main focus for the PES was on moving jobseekers into any available employment and, in countries like the UK and Germany, they tended to view themselves as 'neutral agents' in this respect without prioritising green jobs. Most PES do not have specialist departments working on green jobs or skills projects, with the exception of France. However, most also acknowledged some role for the PES in promoting the 'green jobs' agenda, particularly where a degree of political or economic demand was present e.g. in France and Austria. This was usually based on engaging with employers, trade associations and other stakeholders to train and place jobseekers in green roles (see Sections 3 and 4 below).

# 3. What are the implications of green jobs in terms of the employment and skills needs identified?

In practice, there is no clear consensus on the type of definitions adopted for green jobs at national level (see Table 1 in Annex A). The common feature is that most of these restrict definitions of green jobs to those within sectors specifically concerned with environmentally positive activities. The main differences are in the extent to which multiple methods are used including occupational labour market surveys (Germany, Austria, Spain, Sweden), countries which extend their definition beyond the Eurostat definition of green jobs within green sectors (Austria, Germany), and use of business surveys (Greece, Spain, Sweden).

### Quantifying green employment shows relatively small but growing numbers of green jobs, but measurement accuracy requires improvement

One analysis argues that using the Eurostat definition, the number of green jobs makes up a relatively low but important proportion of employment, amounting to around 1.7% of total employment in Europe (EC, 2007 cited in Bowen, 2012). This does not usually include jobs in the nuclear power sector or jobs in the car industry, even where efforts are being made to develop low carbon vehicle or power production. A further criterion which is sometimes included concerns whether or not the jobs themselves provide 'sustainable' or decent employment which offers safe working conditions, fair wages, employment security and career development to workers (ILO/UNEP, 2008). However, there is very little current evidence to assess whether green jobs meet these standards, or a case made to suggest why this criterion is more relevant for green jobs compared all jobs[1].

Interviewees noted that the boundaries of 'green' jobs are blurred and cover 'shades of green'. The lack of a widely-accepted definition on what constitutes 'green' skills and employment may also hinder the development of coordinated policy or clear measurements of trends, as illustrated in Table 1 of Annex A which sets out some of the definitions of 'green' employment currently used in Europe. Previous research suggests that statistical sources such as the EGSS and LFS need to be developed and strengthened to accommodate the variety of green jobs which are beginning to emerge and one suggestion is that distinctions should be acknowledged between green jobs, green skills, green workplaces, green labour markets and green growth (EMCO, 2010).

### PES use multiple sources of evidence on green skills and data from employers identifying changes in types of skills required is especially valuable

Case study interviews suggested that the extent to which the PES had access to data on the demand for green skills and jobs could vary according to national and local context. The PES in Austria ran a Standing Committee on New Skills, which monitored the extent of demand in various sectors of the economy, including that for green skills. It had also commissioned various studies on demand for green skills and projections for future development of the sector. In France, the PES ran regular surveys of employers and jobseekers to monitor the supply and demand across the economy, including green jobs sectors. PES in the UK and Spain did not have access to a central database of this kind. In the UK, the PES monitors current job vacancies as an indication of labour market trends and demands, but this is restricted to vacancies advertised via the PES. This excludes many higher-skilled vacancies, which employers usually do not consider suitable for PES customers. Interviewees in the UK, Sweden and Spain reported that they sought to access more detailed information

[1] For more discussion of defining green jobs and sectors, see Stoevska and Hunter (2012) *Proposals for the statistical definition and measurement of green jobs* (ILO, Geneva).

using employer surveys and information from trade associations on trends within their sectors. France pointed out the need to update information from surveys regularly to ensure that information on emerging skills needs was captured, and Germany and Austria reported some challenges in adapting qualifications quickly to accommodate emerging green skills, but overall most countries were satisfied with the quality and quantity of information available. This is based on a model of responding to rather than anticipating employers' skills needs; if PES were required to adopt the latter approach, as suggested for their role in supporting the Europe 2020 Strategy, they may need to adopt a more robust strategy towards information gathering. Overall, capturing skills needs as well as broad changes in occupational categories is helpful for ensuring that PES are best placed to advise jobseekers. The French system of assigning codes for particular skills requirements to occupations appears to be helpful in providing information to PES staff on the kinds of skills required in newer occupations. Previous research evidence emphasizes the importance of contact with employers in developing understanding of green skills and roles (McGrath, 2010; Forem, 2010), and it appears that PES are taking this need into account in sourcing data.

**Green skills needs priorities are focussed on energy sectors in a number of countries**

Interviews with PES staff across Europe suggested that skills needs for industries in the energy sector were an important focus, particularly in an era of rising energy costs and increased uncertainty around supply. This included both schemes for the production of more renewable energy sources and those designed to improve energy efficiency in homes or businesses. In the UK and Germany, PES had been involved with a variety of projects of this kind. In Germany, schemes have focused on the development of plants providing solar and wind energy. In the UK, the government-sponsored 'Green Deal' programme focuses on subsidising energy efficiency measures, such as insulation, double-glazing and use of renewable energy sources, for homes and businesses. Similarly, PES in France and Belgium (Wallonia) noted a need for additional 'green' skills in traditional trades within the construction sector.

**Table 2 Green skills priorities for each country**

| Name of country | Type of jobs/skills in demand | Issues/notes |
|---|---|---|
| **UK** | Resource efficiency in project management, carbon accounting skills; scientists for renewable and nuclear energies, technicians to install/maintain energy efficient heat/light supplies for business/domestic use; eco efficiency in product design; environmental risk assessment and management skills; STEM teaching skills in VET system (Source: Skills for a Green Economy, BIS/Defra, DECC, 2011) | Some skills specific to environmental goods and services sector but a number of management skills cover the whole economy |
| **France** | Renewable energy sector: project developer, engineer, consulting and research coordinator, maintenance technician (wind energy), sales and marketing, legal experts, construction project management, diagnosis, control, and performance measurement related to regulatory requirements (e.g. energy performance, air quality engineer; environmental auditing and consulting; recycling industries operators; transport professionals in flow management, logistics / ICT, transport systems coordination, carbon auditing; organic farming and waste management; retrofitting skills for building trades (Source: ILO, 2011) | |
| **Wallonia, Belgium** | Sustainable construction and renovation; insulation and energy performance of buildings; language skills in French, Dutch, German (Source: Marshall Plan Vert 2) | Skills needs determined by policy priority rather than employer demand as part of the 'Alliance for Environmental Jobs' scheme supported by 41 partner organisations to help stimulate economic and employment growth |
| **Germany** | Environmental engineering, nanotechnology, electricians (Cedefop, 2012) | Longstanding shortage of engineering skills in Germany, partly due to sectoral success/expansion and young people not choosing to pursue these careers |

| Name of country | Type of jobs/skills in demand | Issues/notes |
|---|---|---|
| **Austria** | Technical skills in development, application and operation of specific EGSS e.g. solar technologies plus focus on generic skills: Cognitive skills to think laterally, systemically and to deal with complexity; ability to research and assess information; communication and consultation to present complex issues to customers, develop networks and be able to deal with conflicts and discrepancies constructively; social skills to work and learn together, assess different experiences and backgrounds openly and to influence the development of attitudes and values | Based mostly on information from Oberosterreich, leading region in eco-economy in Austria |
| **Spain** | Eco-design to reduce pollution, prolong product life and allow recycling; efficient development; waste management and recycling; energy efficiency for facility management, production processes and heating. | Reported from interviews and specific to Basque region |
| **Sweden** | Operational and maintenance skills for wind turbines in Titea area (source: interviews), more broadly waste management skills (ILO, 2011). | |

**Green skills sought by employers are often specific ones for which jobseekers require training**

Several interviewees noted requirements for skills and training for green jobs which were usually not held by jobseekers at the point of initial contact with PES. In Germany, the PES had no centrally-guided policy on 'green' qualifications and many PES had identified this as an issue. Austria had made the goal of increasing qualification levels one of its five key areas for action on developing green skills. This ranged from adaptation of existing qualifications to the development of new ones and the promotion of green jobs and qualification to students and young people. There is a distinction to be made between provision of adequate qualifications linked to perceptions of occupational competence compared with adequate training. Austria and Germany's tight classification of jobs and requirements to possess particular qualifications in order to enter a profession led to a particular focus on recognising and registering new green occupations and defining appropriate training for them. In contrast, growth of green jobs in other countries was more organic, with a stronger focus on providing additional training rather than focussing on certification of qualifications. PES in Sweden, Belgium (Wallonia), the UK and Spain were involved with initiatives which involved training in green skills, although they were targeted at very different groups of jobseekers. The Spanish example required participants to hold a university degree or higher-level vocational qualification, whereas the UK programme focused on young people who only possessed very basic formal qualifications (see Boxes 2 and 3 below).

### Green jobs often demand high level skills, but jobseekers contacting PES often have low skills levels so PES need to support clients to acquire new skills

This split highlights an important issue for PES programmes in this area: while many green jobs (particularly around installing or servicing renewable energy sources) require a high level of skill and qualification, and skills in science, technology, engineering and maths (STEM) are significant (Williams, 2010; McGrath, 2010), each PES will also deal with significant numbers of jobseekers who possess no, or very limited, formal training. Equipping them with basic skills to work in the green or broader sectors of the economy is an important priority (Williams, 2010). Whether and how to make the promotion of green skills and employment applicable to jobseekers across the full range of qualification levels is likely to be an important question for the PES. The answers may depend on economic demand and the local labour market context, particularly the relative rates of graduate unemployment.[2]

### Employers often seek technical and generic skills for green jobs

Wider information sources suggest that a mix of generic and technical skills are required to ensure green economic activities are adequately supported. Analysts point to the need for expertise in STEM skills and new technologies, along with team-working, communication, finance, sales, management and leadership (Szovics, 2010). In many cases, technical skills and knowledge involve the extension of existing expertise to situations where resource-efficiency or reduced energy consumption is a consideration e.g. in building trades, carbon accounting. A number of interviewees stressed that 'green' skills were simply an extension of existing knowledge involving 'add on' modules to generic qualifications e.g. in plumbing or engineering (McGrath, 2010).

[2] For further discussion on PES approaches for the sustainable activation of the low-skilled please see the analytical paper and Peer Review report.

# 4. What are PES approaches and services for jobseekers and employers?

**PES are mainstreaming information, advice and guidance on green jobs within their services, and targeting initiatives at young people at most risk of negative effects of unemployment**

It is not clear from the literature evidence and interview material that PES are placing significant emphasis on directing jobseekers into green occupations in a systematic and co-ordinated fashion at national level. PES services on green skills are mostly included within mainstream services for unemployed citizens focussed on information, advice and guidance about possible careers and vacancies through online and face-to-face services which are typically focussed on those most at risk of long-term unemployment (Germany, Sweden, UK, Spain, Austria, France, Belgium). Interviewees stressed that it was important that the green skills and employment agenda did not become a 'parallel service' offered, but instead remained part of the PES's general activities. Employers were involved where specific activities such as job fairs were organised by PES (see details below), but were not generally involved in PES general operation.

At national level, there were few specific approaches to focus on promotion of jobs in 'green' sectors, with the exception of France. In several countries (Germany, Austria, UK), social enterprises, professional associations and charities with an environmental focus are the dominant actors in promoting employment opportunities within green occupations. The large volume of jobseekers due to widespread unemployment places heavy demands on PES and withdrawal of subsidy for specific green occupations programmes run by various government departments in some countries (e.g. Spain, Greece) means that demand for skills in green sectors has reduced, and therefore specialist PES initiatives have also ceased.

There is some evidence of focus on young people, but this is not exclusive. In Germany, activity is confined to supporting young people to make career choices while they are still at school, and in the Basque region of Spain, a clear targeting process focuses on graduates going into higher skilled green jobs. Belgium (Wallonia) also targets young unemployed people aged under 24. The UK project reviewed required entrants to be 25 years old or under and the Spanish scheme had an age limit of 35. In Austria, the PES in the Tyrol region uses ESF funding to support companies in the green sector that wish to upskill their employees, but much larger subsidies are offered to workers under the age of 45.

This focus is partly driven by a greater interest in green jobs among young people, combined with concerns about the effects of 'scarring' or long-term damage to young people's employment and life prospects if they find it difficult to gain their first job. Where activity is taking place, PES are targeting their activities based on sound research evidence concerning the effects of unemployment on different age groups.

## PES are making use of web-based systems to provide information on green job opportunities

### Box 1. Example of PES careers information, advice and guidance project – Germany

"Meine Energie hat Zukunft" project is aimed to raise awareness among young people aged 14 upwards of "energies for the future" and the vocational training and study routes, businesses and professions in the sector within the greater Bielefeld area. The project began in 2007 and is supported by a network of over 120 companies, higher education institutions and learning providers to help the renewable energy sector expand. Partners include the local employment agency and the VDI (Association of German Engineers). The local PES is a primary organiser of a series of workshops, excursions, information events and student competitions and 1801 students took part in 123 events in 2010. These have included visits to construction sites, organic farms, a technology and solar energy teaching centre and a power station. The consortium has also led experiments and workshops on solar energy, designing virtual wind farms, as well as "taster events" in physics (offering an insight into university life), and run question and answer sessions with industry specialists and information events within the schools.

Some PES (e.g. France, Austria, Germany) are making increased use of web-based systems to provide careers information, advice and guidance to jobseekers. Various organisations promoting 'green' jobs are also making use of these in the UK (e.g. National Skills Academy for Environmental Technologies; Institute of Environmental Management and Assessment), but the UK PES is not currently involved in their development. The resources offered in these countries include portals providing descriptions of green jobs and outlining the kinds of skills and qualifications required. Signposting jobseekers to these roles appears not to be fully systematic, but is offered on an ad-hoc basis, either to jobseekers who express an interest in the environmental goods and services sector or where a major local employer operates in that sector, rather than being actively and systematically promoted. Online web-based systems can provide useful information about the nature of work, entry requirements, pay and career prospects, can be cost effective after initial set up costs and relatively easy to update and appear particularly important for younger unemployed workers who are heavily reliant on the internet as a source of information. However, they cannot provide *guidance* to jobseekers who are less confident about their career directions, require motivation on the part of jobseekers to 'browse' a variety of different occupations and are at least open to the possibilities of working in jobs requiring green skills. They are also reliant on jobseekers making accurate self-assessments of their own skills and abilities. This means that PES may need to offer more face-to-face services for lower skilled or less confident jobseekers who may need more support in breaking into green employment[3].

The German example (Box 1 above) illustrates the kinds of activities operated at local level that may be helpful in stimulating interest in green careers among future workers. This kind of project could usefully be adapted and run for unemployed people seeking work.

[3] For more details on PES approaches for the sustainable integration of low-skilled individuals please see the report from the PES to PES Dialogue Peer Review on this topic which was held in 2013.

**PES are using local approaches and partnerships with employers and training providers to support positive labour market integration of jobseekers**

Six examples were found of PES supporting jobseekers into green employment: in Austria, Sweden, UK, Spain, Belgium (Wallonia) (all local/regional level) and France (national level with varying regional activity) and these are summarised in Table 4 below.

A key feature of most of the initiatives is the creation of close partnerships with employers, employers associations, and training providers. In contrast, the range of initiatives and types of skills and training delivered are highly diverse, illustrating the capacity of individual PES to support the development of the skills pipeline for any area of the labour market, and their relative capacity to innovate to meet market demand. In many cases, the role of PES functions as an effective broker for other actors in the labour market, and this appears to indicate the primary potential for PES services in this field.

PES do not generally have any involvement in developing qualifications: in most countries this is undertaken through established mechanisms as part of each nation's vocational education and training system. But they may play a role in sourcing qualifications and bringing employers and training providers together (Sweden) and/or in funding qualifications (Spain).

The operational and delivery structures for PES are extremely varied, and generally reflect the dominant policy structures in each country (centralised in France), a national service with significant local autonomy (Denmark, Sweden and Austria) and those where the employment service is strongly regionalised (Spain). Case study interviews with PES managers showed that most green skills initiatives are decentralised and operate at the local level. The UK example is a case in point; here, a national scheme funded by a UK-wide company is in fact made up of a series of small, local projects which partner with the individual PES offices operating in that area.

This localised approach to green skills and employment initiatives can bring advantages of ensuring schemes are responsive and tailored to local labour market conditions, allowing for flexibility, adaptation and innovation. In Austria, the social partners, the regional PES, and the regional council for education have formed a company vocational training network. Membership enables companies to buy subsidised training modules for training new recruits and upskilling their existing workers.

Three case study examples are provided in the boxes below.

**Box 2: Example of PES supporting high level green skills training in the Basque region, Spain**

The Green Employment Programme is the main activity that the Basque PES undertakes in relation to green jobs. It started in December of 2012 and is expected to finish in September of 2013, when the cohort involved will complete the programme. In terms of entry criteria, participants must be under 35 years old at the start of the training programme, unemployed and registered at the Basque PES and possess a university diploma or higher vocational training diploma. The companies involved all operate in the environmental goods and services sector and apply for funding from PES, including ESF assistance.

There are 560 participants and around 400 companies involved. The programme includes a classroom training period of between 350-450 hours, followed by the practical application of new skills through an internship of 450-550 hours. At the time of interview, most participants were beginning their internships after completing their classroom training.

According to a recent survey of participants, there is very high satisfaction in relation to the classroom training part of the programme. However, it remains too early in the programme to assess its results in terms of employment outcomes. This will be evaluated once participants have completed the final stage of the programme.

**Box 3: Example of PES guiding low skilled young people into green skills training, UK**

The Transform Project is run by British Gas, Accenture and the environmental charity Global Action Plan, in partnership with PES in the UK and began in January 2013 after a pilot programme in November and December 2012. The project aims to train unemployed young people for new jobs in energy efficiency retrofitting for UK homes. These form part of the government's policy to provide energy efficiency measures to low-income and vulnerable households.

The target group for the project is young people between the ages of 17 and 25 who are not in employment, education or training (NEET). This group were targeted due to high levels of youth unemployment and evidence of labour market 'scarring' effects for individuals who spend long periods unemployed while young. Participants need basic (Level 1) qualifications to be eligible.

The young people attend a week-long training course, for which they receive a certificate in Sustainability equivalent to advanced school leaving qualifications. They are trained to work with social housing tenants and to survey properties for possible upgrades to improve energy efficiency, including insulation and double glazing. The course also includes an element of work experience and all those who complete are guaranteed a job interview with British Gas for a fixed term contract on a local retrofitting project. The project aims to reach 1,400 young people over three years.

The role of the PES is largely as a recruitment partner, given they are the best means of gaining access to the types of young people the project wishes to target.

**Box 4: Example of PES supporting older workers in declining industries, France**

A project in Le Mans aims to create jobs in the wind energy sector for unemployed workers from the declining car industry in the region. The aim was to create a wind construction and maintenance industry because around 95% of car industry skills are transferable. The project concentrated on developing skills in mechanics and electro-mechanics, enabling the region to maintain 30 jobs and train a further 40 individuals so far. PES is working with the Le Mans regional development agency and specialist organisations in the wind energy sector in order to create a cluster of industrial maintenance organisations in the wind sector, plus an R&D centre based at the regional university in Le Mans and local engineering schools.

**Table 3 Examples of information, advice or training services provided to jobseekers**

| Country | Type of initiative | Funding available? | Date when initiative began | Duration of intervention | Volume and type of people and employers | How delivered/role of partners | Evaluation method |
|---|---|---|---|---|---|---|---|
| France | Workshops bringing jobseekers and employers in green sectors together, plus brokering of training for specific sectors (see Box 3). | Funded by PES | 2011 | Three hours per workshop, with presentations on different green industries and occupations | Targeted at those harder to help in the labour market. | Employers attend to present careers information | No formal evaluation but 60% of attendees at workshops decided to seek work in the green economy |
| Germany | No national programme as training provided by social enterprises, but information, advice and guidance provided by PES for secondary education students | Funded by PES | 2007 | Mix of short events, workplace visits etc. Green jobs portal available http://www.greenjobs.de/ | School children aged 14-16, 1801 students took part in 123 events in 2010 | Employers and higher education providers provide essential input in partnership with PES | No formal evaluation |
| Austria | Oberösterreich regional programme has numerous strands including subsidy for training programmes partly funded by ESF and | Subsidies for companies wanting to train employees in eco | Information not available | Green jobs portal available http://www.green-jobs.at<br>80 courses funded through ESF and PES | 31 companies, 680 participants Sept 2012- May 2013 | Via a training network of companies in environmental technology and recycling, to continue in | No formal evaluation available |

| Country | Type of initiative | Funding available? | Date when initiative began | Duration of intervention | Volume and type of people and employers | How delivered/role of partners | Evaluation method |
|---|---|---|---|---|---|---|---|
| | screening and free training for unemployed workers with guaranteed job on completion of training with PES acting as a co-ordinating/brokerage partner | energy technology. | | funds, 75% of content covers sector specific skills and 25% covers generic skills. An internship is recommended but not compulsory.<br>2 x 1 day seminars in photovoltaics and electronics | | waste recycling and renewable energies | |
| UK | Various training programmes led by employers/social enterprises, some with PES referrals, no national co-ordinated programme | No direct funding of green skills programmes but PES offers all vulnerable jobseekers participating in training initiatives funds for transport and childcare. | Information not available | Varies. Sector-Based Work Academies initiative offers free training lasting up to 6 weeks for employers with vacancies, in return for guaranteed job interviews for participating PES clients. | Varies. | Training programmes are coordinated and funded by business, charities or government, with PES acting as a referral agent. | No formal evaluation |

| Country | Type of initiative | Funding available? | Date when initiative began | Duration of intervention | Volume and type of people and employers | How delivered/role of partners | Evaluation method |
|---|---|---|---|---|---|---|---|
| Spain, Basque region | Fund to support training/internships for companies offering sustainable development goods/services, also available to employers associations and social partners | 4,983,000 Euros from December 2012 to September 2013 some of which is from ESF and some from the regional autonomous government | December 2012 | 350-450 hours classroom, internships 450-550 hours | 560 participants, 75% of which are graduates and 400 companies. Beneficiaries must be unemployed, aged under 35 and resident in Basque region | Partners apply for funding from PES. Employers provide work placement, training providers offer off-the-job training | None undertaken yet, but will be at end of programme in September 2013 |
| Wallonia, Belgium | 1) Green job taster sessions for unemployed people at training centres.<br>2) Career profiling of around 10 sustainable development occupations and steering young people towards these<br>3) Job fairs to match supply and demand | Overall investment is 337 million Euros, but only a proportion of this is allocated to these initiatives | 2010 | Vary between interventions | Not yet known | Not yet known | Not yet known |

| Country | Type of initiative | Funding available? | Date when initiative began | Duration of intervention | Volume and type of people and employers | How delivered/role of partners | Evaluation method |
|---|---|---|---|---|---|---|---|
| | of skills, bringing together individuals from target groups seeking work with employers | | | | | | |
| Sweden | Programme to develop technician skills for wind turbine operators in Titea, Sweden | Entirely funded by local PES | 2011 | Programme lasts 20 weeks and includes workplace based training | Data on number of participants unavailable but all gained employment after the programme | Local employer (wind farm) approached PES to find workers, PES ran procurement process to find suitable training provider and recruited trainees | No formal evaluation. Destinations of trainees monitored up to 3 months after completing training. |

**Aligning objectives of different partners and brokering relationships between jobseekers and employers can make PES activities effective**

Evidence on what works well and why is relatively limited as most programmes were not subjected to systematic evaluation. This is an area which PES should consider further, particularly during conditions of financial austerity.

The French example identified that **having a shared vision and mutually coherent goals** was important when working with other actors because it gives a common purpose to projects. Certainly identifying the most relevant partners to provide training and support is important and having a thorough knowledge of 'green' social enterprises and professional associations is essential for PES to play an effective brokering role.

Practical activities identified as particularly effective include **workshops to match jobseekers to employers offering green jobs** across a wide variety of occupations and sectors, including transport, logistics and construction (France and Belgium, Wallonia). In France, around 30% of attendees found employment immediately and others gaining advice and entering training, amounting to 36% in green jobs six months later. In some cases, people with labour market disadvantages had benefited including the long-term unemployed, those over 50, and young people with no work experience.

**Involvement of local employers** appears critical to providing placements, final destinations for jobseekers and ensuring that training provided is relevant (Sweden, France, UK, Spain). For one French example in Orleans, 80% of those participating found a job immediately after the project.

**Undertaking a process evaluation of pilot projects may help PES allocate future funds**

Most PES interviewees did not have strong views on lessons learned, partly because some of the projects were still in their early stages (UK, Spain). Among others this may indicate the potential value of conducting a process evaluation of how pilot projects and services had performed. Belgium (Wallonia) provided one example of how the second phase of its green economic plan had been revised based on the experience of the first phase. Experts from Spain pointed out the value of having accurate, local level information about the labour market and demand for green skills, while those in Sweden pointed out that running projects to support workers into green jobs used the same skills of PES staff as for any other type of occupation, and urged PES contemplating working in this field to 'start small' and not to feel too daunted.

**Offering short, standardised, transferable modules to complement existing training may help attract employers to participate and invest in green skills projects**

Attracting employers to participate in green skills projects is reliant upon making it easy for them to gain access to bite-sized, relevant training modules. Broader literature suggests that the development of training for green skilled employment is likely to be most successful where short, tailored modules are used, and can be added relatively easily to existing courses and qualifications (Forem, 2010). In this context, there are some risks that a localised delivery approach may risk duplication of effort in designing new modules/qualifications and lack of transferability between firms and regions. The fragmented and specialised nature of green industries could make it hard to ensure that all training providers were able to cover the range of competencies needed for green skills training (Austria). In the UK, a PES expert believed that validating possession of green skills would require greater standardisation of vocational qualifications and competences. This could be improved by effective employer representation from a range of firms and geographical areas to ensure that

training meets standards required by employers and more efficient recruitment models for the sector could be developed.

Where PES are drawing upon funding sources requiring significant monitoring and reporting such as ESF subsidies (e.g. Spain), this can be regarded as a risk which may discourage employers who do not have the resources to engage in procedures which they may regard as time-consuming.

# 5. Conclusions and recommendations

Although evidence on PES practice is limited due to the early development of some projects and lack of formal monitoring and evaluation, a number of pointers can be developed to encourage further reflection on what good practice in delivering green jobs may look like.

Forecasts to anticipate green skills needs across the EU often use a fairly narrow definition of 'green' jobs. This may underestimate changing skills needs in jobs across a wide range of sectors where 'green' skills may be desirable. Heavy use of 'top-down' skills needs forecasting means that employers' immediate and emerging needs may not be captured. PES and other labour market actors have the opportunity to work more closely with employers to understand their skills needs and ensure these are met through an adequate labour supply. **Reaching out to employers at a local level to understand their skills needs** is an important role for PES to play together with providers of vocational education and training. Where PES are making use of survey data and statistics, this needs investment in resources to ensure that the information is kept up to date, especially for roles which have a strong component of technical skills that may change rapidly.

Many 'green' skills needs are focussed at relatively high levels in jobs with specific technical expertise, often related to STEM skills. These do not coincide with types of vacancies that employers promote through PES. **Establishing direct partnerships with key/'anchor' local employers** with roles that jobseekers can fill relatively easily with some additional training is important, especially if firms are not convinced of the relevance of PES to help them fill higher skilled roles. Employers may not approach PES directly if they have no previous experience of working with them and do not perceive PES as fielding candidates with the required skills/experience.

A number of examples were found of projects that appear to have been relatively successful but have been discontinued due to financial pressures on public investment from national member states' governments e.g. Spain. This has led to a lack of employer demand for green skills, as markets shrank when subsidies were withdrawn. This illustrates a need for **policy alignment at national levels** across climate change, business/industry, consumer and employment/skills, combined with **investment by national governments to mitigate the effects of climate change**, especially where the consumer and business markets for environmental goods and services are not fully developed. Otherwise, PES may understandably focus their attention on supporting jobseekers into occupations and sectors where growth prospects are higher and more likely to be sustained. ESF support is available to help support green economic and employment growth and **PES may wish to consider using ESF funds more actively**.

The PES 2020 Strategy Output Paper emphasises the importance of PES becoming more focussed on meeting labour demand. In a situation of continuing volatility in job markets, being agile and flexible to be able to respond to emerging green skills needs may be important. This requires PES to **develop a detailed knowledge of the capacity and capability of partners including training providers** to help meet employers' requirements for green skills.

Approaches to delivering PES tend to reflect dominant policy approaches in terms of level of co-ordination e.g. centralised in France, regionalised in Belgium (Wallonia), Austria, Spain, and mainstreamed in Germany. The most effective approaches tend to operate from local levels where actors have a detailed knowledge of the needs of local employers and are able to collaborate effectively, with minimal bureaucracy, or where considerable discretion is given by national actors to local agencies to meet specific needs.

There is a potential role for PES in **promoting green skilled roles as offering good careers to young and unemployed workers**. This may involve talking about jobs which have a socially useful purpose in protecting or restoring the environment rather than 'green' jobs. Green jobs or work experience accessed through PES may carry some stigma of being associated with subsidised 'job creation' schemes, so there is an important role for PES to demonstrate their capability in signposting and supporting people into higher skilled and higher paid roles. Motivated and relatively highly skilled jobseekers are able to make effective use of online careers information, advice and guidance sources, but those who are disadvantaged in the labour market may require face-to-face guidance to prepare them to consider and undertake the qualifications and training required to enter novel, complicated or technical roles in the green economy.

PES do not necessarily need to lead projects to meet employers' green skills needs; this role can be fulfilled effectively by social enterprises. Given limited resources and the need to focus on operational efficiency, PES may wish to focus on promoting employment in sectors which have more substantial numbers of jobs. But there are **opportunities for PES to play a role as a broker** in supplying potential recruits or trainees with green skills, where employer demand is present.

PES do not always have a very clear understanding of the range and role of social enterprises and professional associations representing 'green' jobs or of the range of occupations which require green skills; mapping the role and potential of these agents as potential partners may be a useful exercise.

There is **limited evidence of 'scaling up' effective practice from local or regional projects across PES *within* countries**. This means there are opportunities for mutual learning between projects at country level and for greater sharing of information. Otherwise, small scale projects begun in one region may be isolated 'islands of excellence' and other areas attempting similar initiatives may be 'reinventing the wheel' and risking inefficiencies in service development, which is unfortunate at a time when resources are constrained. There is very limited evidence of monitoring and evaluation of the cost effectiveness and value for money of schemes in which PES are involved, as information on participation volumes and outcomes is usually the only data collected. The motivation behind some PES activities assumes that engagement with the green economy combined with getting jobseekers into work is worthwhile without validation. However, in a time of pressure on public finances, it would be worth PES taking a more rigorous approach to consider which are the most effective initiatives to achieve these goals. PES could take the opportunity **to share and disseminate information about 'what works'** within their own national networks.

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# Annex A

Table 1 National definitions of green jobs

| Country | Does definition allow statistical analysis? | Definition | Interviewees' comments |
|---|---|---|---|
| Austria | Yes | Based on EUROSTAT (2009). Austria uses two different data sources for defining and counting green jobs in the frame of the EGSS: the Labour Force Survey and national statistical definition 2009. Classifying schemes being revised, and publication was planned for 2011. | Narrow definition of green jobs noted at regional level so that of Employment and Social Committee of European Parliament is preferred which defines green jobs as activities which contribute within the context of a profession, to a) saving energy, b) utilising renewable energies, c) save natural resources and protect the eco system, d) preserve the biological diversity and e) avoid waste and air pollution |
| Belgium | No | No national definition of green jobs, policy-driven approach instead. | |
| Czech Republic | Work in progress | No formal definition of green jobs, but Czech Statistical Office working with EUROSTAT to identify environmental goods and services sectors, and estimate the number of green jobs in these sectors. | |
| Denmark | Work in progress | Ministry of Employment undertaking work on a definition of green jobs (early stage of the process). | |
| Finland | Yes | Definition of green activities, derived from standard classification of economic activity, adopted in 2009. Green employment refers to number of workers employed by firms with mainly green activities. | |
| France | Yes | No official definition, but statistical work conducted | French PES distinguishes between old and |

| Country | Does definition allow statistical analysis? | Definition | Interviewees' comments |
|---|---|---|---|
| | | by Ministry of Ecology and Sustainable Development to estimate number of green jobs based on OECD/Eurostat classification of environmental goods and services. Draws on French classification of products by activity and uses several statistical sources, such as employer surveys, trade-union registers, etc. National employment observatories gather information on labour market change and skills needs covering a list of green occupations in November 2011 which is regularly revised | new occupations and sectors in the green economy. Traditional 'green' industries include recycling, waste management, water recycling and management of nature parks. Newer 'green' subsectors include transport, construction and manufacturing, adapting to change required by new environmental legislation in terms of fuel use, emissions and building rules. Also, workers in sectors such as tourism will need to understand principles of environmental and energy conservation to meet growing interests of consumers for eco-holidays. |
| Germany | Yes | Definition refined since originally developed in 1996 by Federal Environment Agency (UBA). Green jobs cover: i) environmental goods and services (pollution management; cleaner production and technologies; resource management (Eurostat/OECD definition, 1999); *ii)* environment-related activities (*e.g.* nature and landscape conservation). Categories overlap so estimates are adjusted to eliminate double counting using a dual approach. First, demand-oriented evaluations use data on domestic demand (*e.g.* expenditure on environmental protection) to calculate number of jobs involved in production of environmental goods and services from which direct and indirect employment effects are derived. Second, supply-side analyses estimate numbers of green jobs directly using information sources including company surveys and panel surveys. When "green activities" cover only a fraction of the total | |

| Country | Does definition allow statistical analysis? | Definition | Interviewees' comments |
|---|---|---|---|
| | | workload, the number of green jobs refers to the corresponding share of the total workforce. | |
| Greece | No | Employment Observatory Research-Informatics SA (EORI) conducted business surveys in 2003/5 to collect information on occupational, educational and geographical structure of employment in all types of private businesses at local level to identify skill needs. Possible inclusion of green jobs in future surveys, depending on funding. | |
| Hungary | Yes | No official definition but Hungarian Central Statistical Office collects data to monitor economic activities related to environmental protection, distinguishing between environmental expenditure (investments) and environmental sectors. Statistics based on environmental expenditure provide total amount of environment-related investments and estimate of employee numbers. Statistics on environmental sectors measure production of environmental goods and services, and corresponding employment levels. | |
| Netherlands, Norway, Poland, Slovenia, Slovakia, Sweden | No | | |
| Portugal | Yes | No definition of green jobs. Since 2008, Statistics Portugal published annual environmental statistics covering nine environmental fields, based on OECD/Eurostat (1999) and CEPA 2000 (Classification of environmental protection activities and expenditure). Survey of employers requests | |

| Country | Does definition allow statistical analysis? | Definition | Interviewees' comments |
|---|---|---|---|
| | | information (by gender and by professional group) on numbers of employees that work for "majority of time" or "occasionally" in these nine fields. | |
| Spain | Yes | Qualitative definition adopted in 1990s by Ministry of Environment and used as a basis for studies by Ministry of Labour and Ministry of Environment quantifying number of green jobs in the Spanish economy. The approach consists in identifying green sectors, as defined by international organisations, such as the ILO, OECD or UNEP, within the national industry classification and the occupation classification. Specific employer survey also developed. | Spanish interviewees used the definition provided by the International Labour Organisation, which takes a broad view, referring to activities related to sustainable economy, emergent economic activities related to sustainable development and the environment |
| Sweden | No official conceptual definition is used by PES, statistical analysis likely to be possible if a definition was adopted | Long term projections, based on demographic and econometric models with a 15-20 years time horizon, analysis from Statistics Sweden, supplemented by employer surveys undertaken by PES | |
| UK | No official conceptual definition is used by PES, statistical analysis likely to be possible if a definition was adopted | Skills needs within 'green' industries defined in government policy document (BIS/Defra/DECC, 2011) but not identified systematically through national statistical data collection methods e.g. Employer Skills Survey 2012. | Lack of clarity in defining green skills, especially in relation to energy, e.g. offshore wind classed as energy industry rather than EGSS |

(Primary source (OECD, 2012): OECD Employment Outlook, Supplementary Material for Chapter 4 ("What Green Growth Means For Workers And Labour Markets: An Initial Assessment"), (OECD, Paris).)