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Industrial Relations in Europe 2012

Industrial Relations in Europe 2012

Chapter 5: Greening the social dialogue

The role of the social partners in the transition to green and greener jobs has been gradually increasing in recent years. However, more needs to be done to build a lasting and sustainable social dialogue that can help to meet the challenges posed by the move to a competitive, low-carbon and resource efficient economy.

Based on a draft by Christine Aumayr-Pintar and Christian Welz, Eurofound

5.1 Introduction: European-level policy on greening and social partner positions

This chapter aims to bring together different strands of recent research in the field of industrial relations and sustainability. It includes examples of social partner initiatives for managing the transition, results from a new study on the quality of green jobs[1], some incidence of environmentally-related restructuring within the utilities sector[2] and reports the results of a mapping exercise[3] on the level of representation in the newly emerging renewable energy industry across Europe. Based on these pieces of research, conclusions on the importance and proposals for the promotion of "greening" the social dialogue are drawn.

Within the framework of its Europe 2020 strategy, the European Union has re-confirmed its commitment to move towards a competitive, low-carbon and resource-efficient economy.[4] In line with this, a number of policies for coordinated Member State action have been advanced, the major ones being the following:

- European climate and energy policy set the following key targets (the 20-20-20 targets): that Member States jointly achieve a 20% energy reduction; source 20% of their energy from renewables; and cut their greenhouse gas emissions by 20% by 2020, compared to 1990. Binding legislation supporting implementation of these targets was contained in the EU climate and energy package 2008, which includes aspects such as the Emission Trading Scheme (EU ETS), an "effort sharing decision" for sectors not covered by the EU ETS, binding national targets for the use of renewables and a legal framework for the promotion of carbon capture storage[5].
- in its "2050 Low carbon Roadmap"[6] the European Commission sketches a pathway towards further greenhouse gas reduction of 80% - 95% by 2050, focusing on a range of sectors.

[1]Eurofound 2012a
[2]From the European Restructuring Monitor, ERM
[3]Eurofound 2012b
[4] See Commission Staff Working document: "Exploiting the employment potential of green growth" SWD(2012) 92 final.
[5]European Commission, 'The EU climate and energy package', (consulted May 2012) http://ec.europa.eu/clima/policies/package/index_en.htm
[6] European Commission 2011, COM 2011 (112) final

- the labour market implications of this transition phase will be supported by the New Skills and Jobs Agenda[7]

These policies are set out as the backbone of a policy-driven technological and social change. In, from an environmental point of view, an optimistic scenario, a new wave of "green restructuring" accompanied by green re- and up-skilling can be expected. While the extent of such change has been subject to some analysis (e.g. Cambridge econometrics et al. 2011[8], see European Commission 2009[9] for an overview), the quality of such a change and its implications for working conditions and employment have not been extensively analysed (see, however, EU-OSHA 2011a[10] and 2011b[11] for health and safety implications). Recent research by the European Foundation has tried to fill this gap.

The social partners at European level are engaged in this topic within different forums – particularly the sectoral social dialogue committees – (see chapter 7) and have issued a variety of position papers and opinions.

On the worker side, the concept of "Just Transition" was adopted by the Trade Union congress in Vancouver, ITUC (2010)[12]. It embraces a package of policy proposals aimed at fostering a socially just, environmentally sustainable transition. Policies include investment in green and labour intensive technologies and sectors, research and early assessment of social and employment impacts, social dialogue and the democratic consultation of all stakeholders, training and skills development and local analysis and economic diversification plans[13].
On the employer side, employer representatives stress the importance of maintaining competitiveness by ensuring an international level playing field for industry – (BusinessEurope 2008[14]) or by keeping the regulatory burden of environmental legislation low and empowering SMEs, through training, advice and access to funding, to play their part in fighting climate change (Ueapme 2010[15]). Fostering the adoption of cost-efficient 'climate' technologies, such as the construction of energy efficient housing, is a goal shared by all parties.

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[7] European Commission 2010, COM 2010 (682) final
[8]Cambridge Econometrics, GHK and Warwick Institute for Employment Research, 2011. 'Studies on Sustainability Issues – Green Jobs; Trade and Labour' Final Report for the European Commission, DG Employment.
[9]European Commission, 2009 'Employment in Europe 2009', Luxembourg: Office for Official Publications of the European Communities.
[10]European Agency for Safety and Health at Work (EU-OSHA), 2011a 'Foresight of New and Emerging Risks to Occupational Safety and Health Associated with New Technologies in Green Jobs by 2020. Phase I - Key drivers of change', Luxembourg: Publications Office of the European Union.
[11]European Agency for Safety and Health at Work (EU-OSHA), 2011b. 'Foresight of New and Emerging Risks to Occupational Safety and Health Associated with New Technologies in Green Jobs by 2020. Phase II - Key technologies', Luxembourg: Publications Office of the European Union.
12 ITUC (2010) 'Resolution on combating climate change through sustainable development and just transition' 2CO/E/6.10 (final).
[13] Rosemberg 'Building a Just Transition: The linkages between climate change and employment', in ILO, International Journal of Labour Research, 2010, Vol. 2, Issue 2.
[14]Business Europe 2008 'Combating Climate Change: Four key principals for a successful international agreement' http://www.businesseurope.eu/content/default.asp?PageID=568&DocID=21780
[15] UEAPME Position Paper 2010 'UEAPMEs views on SMEs and Sustainable Development in the current economic and environmental context'
http://www.ueapme.com/IMG/pdf/1009_pp_sustainable_development_final.pdf

In terms of employment, it is now generally assumed that overall, there will be little net gain in the number of jobs. While new jobs are expected to be created in certain sectors (such as renewable energy, environmental technologies and environmental consulting) other jobs might be transformed or lost, such as many of those in energy-intensive industries using conventional sources of energy). The vast majority of jobs, however, will have to become "greener", i.e. generating less environmental impact, and this will require new skills and attitudes. It is generally undisputed that the social partners have an important role to play in accompanying and easing such a transition. However, this role has not been sufficiently analysed in the past and the present chapter should be seen as a first contribution to filling this gap.

The recent economic and financial crisis has not reduced the number of green jobs but has affected the overall pace of greening across industry. While some companies are finding it hard to balance climate change with other needs in times of crisis, others capitalise on the new opportunities and contribute to jobs preservation and creation in Europe. Thus, it seems that the design, implementation and monitoring of actions aimed at mitigating the lasting effects of the crisis on greening is a key future challenge[16].

5.2 Role of the national social partners and their level of engagement

Back in 1994, the European Foundation for the Improvement of Living and Working Conditions (Eurofound)[17] undertook a study on social partners' cooperation in environmental protection in 10 countries of the EU-15. It concluded that social partners (with a few exceptions) did not feel responsible for environmental concerns. Where activities took place, they were unilateral and employee representatives focused on environmental concerns within their health and safety agenda. The social partners sometimes joined together to block state-imposed conditions regulating the environment, in order to avoid additional financial burdens. Recent research, however, has indicated a changing attitude of both sides of industry: The most recent Industrial Relations in Europe report (2010[18]) looked into the social partners; role in the transition towards a green economy. Drawing on a number of examples from the European Industrial Relations Observatory (EIRO), Eurofound (2009)[19], the report found that social partners in almost all Member States are actively promoting issues on the green agenda, thus exerting their influence on policy. This embraces lobbying activities (notably in relation to the climate and energy package 2008) but also consultation within tri- or multipartite forums and sometimes the conclusion of tripartite agreements. Autonomous regulation on the other hand, such as collective agreements or guidelines, remain rare in the case of greening, except at company level. However, the social partners have initiated and contributed to a wide range of activities in support of the transition to a competitive, low-carbon and resource efficient economy, including training and counselling, campaigns, research, environmental labels and others. For a general overview of all social recent social partner initiatives and activities, see chapter 7.

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[16]Eurofound 2012a

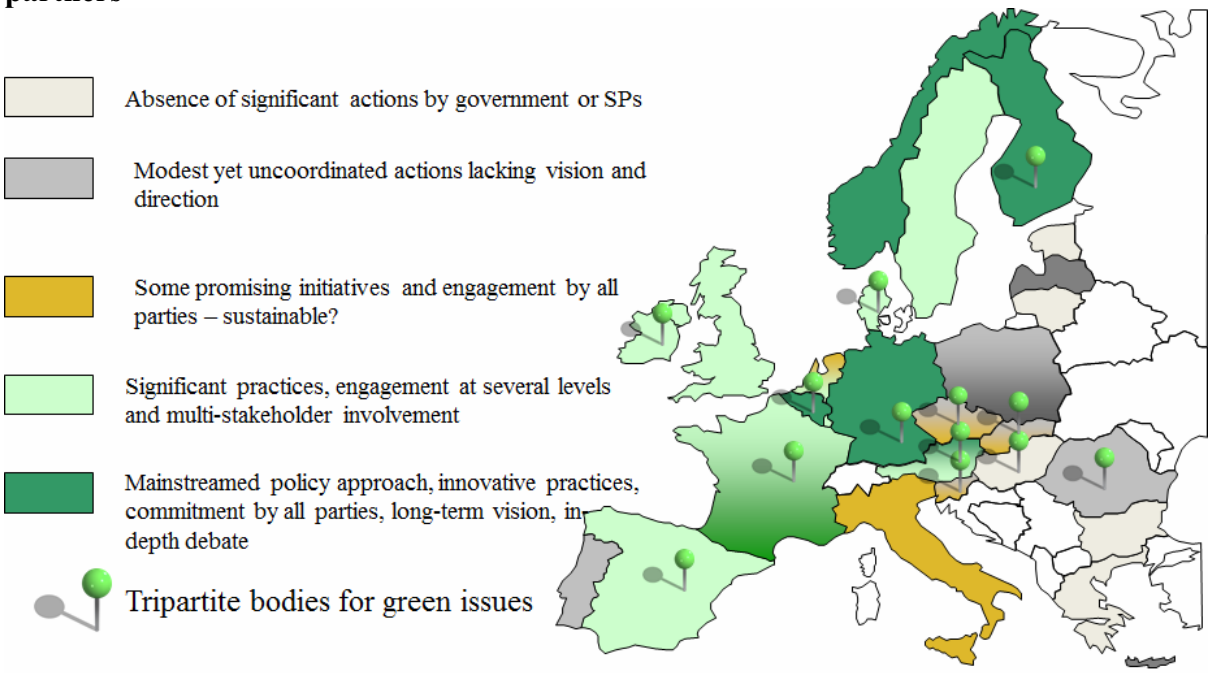
17 Eurofound 1994'Industrial Relations and Environmental Protection in Europe', Luxembourg: Office for Official Publications of the European Communities. EF/94/12/EN

[18]European Commission 2010, 'Industrial relations in Europe 2010'.

[19]Eurofound 2009 'Greening the European economy: responses and initiatives by Member States and the social partners', Broughton, Luxembourg: Office for Official Publications of the European Communities, EF/09/72/EN.

Chart 5.1 has been drawn based on the information provided in the individual national contributions of the above-mentioned report and modified according to discussions with stakeholders in various forums. The chart shows the stage of social partner and government involvement and indicates where tripartite bodies dealing with green issues are in place.

Chart 5.1: Level of engagement and mobilisation by national governments and social partners



Eurofound own elaboration, based on 2009 report: Greening the European economy

This map shows that social partners and governments across Europe are at different stages of social learning in relation to the green agenda. Nevertheless, examples of actions can be found everywhere. A few countries in mainly northern and western Europe report a wealth of interesting projects with strong social partner involvement (for example Germany, Sweden and the UK), whereas in Southern Europe as well as in the New Member States (NMS) only a small number of initiatives can be found. As for the trade union concept of Just Transition, Rosemberg (2010, p.145) notes: "although all (..). policy options [within the framework] have been tested and proved successful in various contexts, not a single country has yet organized a massive transformation as the one the Just Transition framework calls for."

5.3 Cooperative approaches in managing greening at sectoral and company level

The examples of cooperative approaches contained in table 5.1 all feature as „good practice" cases from the sectoral or company level. They have been selected based on the fact that social dialogue has been used to respond to employment challenges triggered by environmental concerns. A major prerequisite for such initiatives to come into being, is however, the mere existence of social partner organisations and a functioning social dialogue at the respective level. This is, as the next section shows, by no means guaranteed, especially in the newly emerging sectors.

Table 5.1: Examples of cooperative approaches in managing greening	
Sector	**Example**
Construction	**The joint collective training body OPCA[20] for construction in France** Sectoral OPCAs are bipartite bodies and responsible for the provision of continuing vocational training. OPCAs collect taxes from companies (1.6% of the payroll for companies with more than 20 employees) and use this money to fund training programmes for workers. Companies choose training from a list established by their regional OPCA antenna. The law encourages management and unions to sign agreements on training, and works councils must be informed of and express their view on the company's training plan. But in general, management is not tied by the wishes and demands of the unions and workers' representatives. During the last few years, priority has been given to training related to green construction. An example for an innovative construction training method is the "R&D concerto project in Lyon", which will be passed on to the entire OPCA network. Concerto is a European Commission programme, divided into 18 projects, which aims to promote energy savings, the development of renewable energies and energy storage in 45 communities across the EU. It produces a documented analysis of each trial to generate energy and manage demand, and is particularly targeted at high-quality environmental buildings with a local energy management system. In Lyon training courses were prepared in consultation with the local energy agency (ALE) and the Rhône department's construction industry employers' federation. An original learning approach was used to motivate building workers: the transfer of skills was fostered by mixing employees from different trades and encouraging them to learn from the personal experiences of others and by identifying problem situations in order to trigger learning.[21]
	Euroeneff project – Romania Romania is one of the NMS where the social partners have been actively working together on sustainable development issues over the past few years. The Euroeneff project, launched in October 2008, is a transnational initiative dedicated to training the construction industry workforce in energy-efficiency techniques. It aims to develop a multimedia guide to energy efficiency in building renovation for the trainers and teaching staff of the vocational schools and to improve the professional skills of the workforce, so making the sector more competitive. The Romanian partner in this project is the Vocational Institute of Builders (CMC), a non-governmental and non-profit organisation established in 2004 by the Romanian Association of Construction Employers (ARACO) and the National Trade Union Federation in Construction and Erection Works, AnghelSaligny. CMC is directly dependent on the Builders' Social Fund (CSC), a private social security operator organised in a parity structure led by the building employers' association and trade unions. The Euroeneff

[20] OPCAs (Organismes Paritaires Collecteurs Agréés) are bipartite joint social partner bodies at sectoral level in France. They are engaged in sector related training matters.

[21] Case taken from Eurofound 2011 ' Industrial relations and sustainability: The role of the social partners in the transition towards a green economy', Schuetze et al, Eurofound.

	project adapts a learning and teaching tool called FAINLAB, developed in Germany. FAINLAB covers some 15 professions in the construction industry, and with its multitude of aids, animations and video material, is a compilation of current knowledge. It also includes access to a large number of online information databases. Unlike the German version of FAINLAB, which focuses on apprentices, the English guide designed for Euroeneff has a broader target group and will focus on those already practising their trade (especially in SMEs), with an essential focus on energy efficiency issues in new-build and building renovation[22].
Energy	**The Lindoe Offshore Renewable Centre and its reskilling programmes – Denmark** In the Copenhagen region, a programme has been funded and implemented on retraining for staff from several shipyards to work in the offshore wind industry. Major funding has been ploughed into the creation of the Lindoe Offshore Renewable Centre (LORC) and its reskilling programmes, in cooperation with the social partners. The LORC is founded in the framework of the "Growth fora" and dedicated to renewable energies, especially offshore renewables. LORC is a research and development centre in which the technologies associated with offshore and wind energy are tested and produced. It organises courses, seminars and conferences. Current employees of the shipyard can improve their skills and change the content of their current jobs. The social partners participate in the Council of Vocational Education at national level, which devises the various training programmes and approves the various types of certification, including for the so called "green" or "low-carbon" industries where the social partners monitor the various climate-energy standards and legislative instruments. It also adapts the certification arrangements for vocational training. [23]
	EUREM – European energy managers: a new standardised qualification An example of an employer-driven international initiative (with various collaboration partners such as vocational training providers and research institutes) is the EUREM network which continued after EU funding had ceased. Within this network, a standardised qualification is provided for employees of energy providers or those working in energy-intensive industries. They promote company-wide energy savings and hence contribute to climate protection. The energy concepts of more than 2000 trained Energy Managers resulted in energy savings of 1,500,000 MWh, cost savings of 60 million Euros per year, a CO2 reduction of 400,000 tons per year and investments of 200 million Euros. Exchange between these newly trained energy managers is sought to be fostered within an international network. In the case of Austria, for instance, more than 200 energy managers have been trained to date through the Austrian Federal Economic Chamber (WKÖ). The proposals for energy savings resulted in

[22] Case taken from Eurofound 2011

[23] Example taken from Syndex 2011'Initiatives involving social partners in Europe on climate change policies and employment. Study by the European social partners, with financial support from the European Commission.'

	accumulated savings of the equivalent of 200,000 households. 80% of these projects were actually implemented[24].
	Company example of an electricity provider – Slovakia One Slovakian electricity producer is increasingly employing green business practices. Among other things it aims for the gradual replacement of fossil fuels by biomass in two power plants and has created two new photovoltaic power plants. It is estimated that the operation of each photovoltaic power plant will reduce the volume of greenhouse gas CO2 by 1200-1300 tons annually, in comparison with the production of the same volume of electricity in fossil-fuel power plant. The implementation of these measures has not had any significant impact on the number and structure of jobs. According to a trade union representative, management consults trade unions on the implementation of green business practices that allows smoother implementation of related new technologies and working methods. Management also cooperates with trade unions regarding training and skill development activities through formal and informal dialogue. Training and skill development objectives are agreed in a company collective agreement.[25].
Chemical industry	**Company example of an international plastic producer in the Netherlands** In 2007 this company introduced an ecological framework consisting of a life cycle-based assessment methodology, on which alternative solutions can be compared. Any product or service that creates more value with less environmental impact than competing alternatives commercially available, while fulfilling the same function, can be regarded as ecological under this framework. Trade unions are involved in the company's sustainability strategy through works council discussions about future skills and sustainability-oriented behaviour. There are joint efforts to integrate the sustainability dimension into employee appraisal forms, reward schemes and collective labour agreements, in order to encourage generation of more sustainable ideas. However, trade unions feel that they could be more actively engaged in the sustainability strategy, which would facilitate their own transition towards sustainability and benefit the social dialogue in the long-term. The company's remuneration structure has incorporated bonuses tied to performance on sustainability targets for higher-ranking employees. However, overall income levels have not changed significantly[26].
Non-metallic materials	**Social dialogue centre in the glass industry, Poland** In 2004, the employers' organisation PolskieSzkło (Polish glass industry), the Federation of Trade Unions in Chemicals, Ceramics and Glass, and the Secretariat of the Glass Industry NSZZ Solidarność signed a framework agreement on autonomous dialogue in the glass sector. The agreement provides for two annual meetings between representatives of employers and employees at which the major problems affecting the glass sector are discussed. This agreement has enabled common positions to be developed on environmental legislation and CO2 quotas allocated to the sector. The

[24]Example taken from http://www.ihk-eforen.de/display/eurem/About+EUREM
[25]Case taken from Eurofound 2012a.
[26]Case taken from Eurofound 2012a.

	social partners have created a Glass Industry Social Dialogue Centre with aid from the European Social Fund. The remit of the centre is fourfold: to constantly improve social dialogue in the glass industry; to carry out economic and technical analyses on the basis of the work by the social partners and relevant experts; to develop e-dialogue technologies; and to prepare training courses for employers and employees on topics relating to the glass industry (essentially, environmental issues and social dialogue)[27].
Transport	**AENA Airports Inc. (AENA), Spain** AENA is a Spanish state-owned company that operates Barcelona's El Prat airport. Along with public agencies and trade unions, AENA has promoted the development of a mobility plan to boost sustainable mobility for the 21,000 commuters who travel daily to workplaces within the airport's facilities. The case study showed that the development of the mobility plan, as opposed to mobility patterns dominated by private motor vehicles, clearly improved and increased public transport services, reduced harmful environmental effects, generated social and economic benefits and created new jobs in transport companies. AENA has managed to induce a cultural shift among airport employees. It encouraged a move from a culture based on the use of private vehicles to a sustainable mobility culture based on public transport. Sustainable mobility could not become a reality without the active participation of the different agents in the mobility commission, including workers'representatives, employers, public agencies, transport operators, the Association for the Promotion of Public Transport (an NGO) and the external mobility consultant (ALG)[28].

5.4 Representation within an emerging sector: electricity production from renewable energy sources (RES)

The increased production of electricity from renewable energy sources (hydro, wind, tidal, solar energy, biomass) is at the top of the joint energy policy agenda[29], and the EU Member States have included financial and other support measures for this type of business in their national energy strategies. However, in a number of countries these supports have recently been reduced or cut, either because of austerity measures, or as a result of falling production prices. While in some countries the growth of electricity production from renewables has already been largely achieved by the established electricity providers (e.g. in Austria or Denmark), a growing new business segment of smaller and decentralised electricity producers has emerged in many other countries. Representation on both sides of industry, however, poses a number of challenges, as a recent mapping exercise through the EIRO network showed[30].

[27]Example taken from Syndex 2011.
[28]Case taken from Eurofound 2012a. The same case, with many similar others about sustainable transport to the workplace, is referred to in the study "European Commuters for Sustainable Mobility Strategies" (ECOSMOS) carried out with the support of the Commission by a number of trade unions (CCOO, CGIL, ABVV and Auto Club Europa - DGB).
[29]Renewable energy directive: Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources
[30]Eurofound, 2012b

Coverage by established actors
In countries where renewable energy sources are already traditionally used by established providers (this is often the case for hydro energy), the industry is well covered by established actors. This is the case for instance in Austria (both on the trade union and the employer side), the United Kingdom (on both sides), Denmark (high degree of representation reported by the trade unions), Ireland (trade union representation in semi-state organisations in the renewables sub-sector is as high as in the fossil fuels sub-sector), Sweden, Norway, Luxembourg (both sides), Greece (on the trade union side), Lithuania (in the case of hydro), Slovak Republic, Slovenia (both sides) and Bulgaria (trade union density within hydro energy stands at about 30%). However, in most of these countries, smaller electricity providers within the newly emerging renewables sector are less likely to be covered and social dialogue within these sub-sectors is often practically inexistent.

Low levels of representation
In most other countries, there is little representation within the renewables sector from both sides of industry. Often this has been linked to the fact that newly-emerging areas (such as biomass, wind, and photo-voltaic) are primarily made up of small companies with few employees. In France, for example, the emergence of 'new' sources of energy seems to have a limited impact on industrial relations. In Spain, for the time being, company associations have not taken on the role of employers' organisations, and the presence of the unions is weak in this sub-sector. In Ireland, in the newer private sector companies in the renewables part of the sector, it is estimated that trade union representation is much lower than in the established providers. In Malta, the renewables industry is still in its infancy and it mostly relies on government subsidies to household when purchasing energy generating technology such as solar water heaters and photovoltaic panels.

In Cyprus, within the very small number of private enterprises active in the area of renewables, terms and conditions of employment are not set through collective bargaining but in individual contracts, so this sector remains essentially uncovered in terms of collective bargaining. In Poland trade union representatives also voice objections to the social dialogue concerning renewables. In the Netherlands, Romania, the Czech Republic, Slovak Republic and Hungary, little is known about the newly emerging renewables sector, but it is presumed that representation is low on both sides of industries because of the small number of employees in the average firm.

Active trade union strategies
In a limited number of Member States, trade unions are actively pursuing representation in the renewables sector. For example, in Germany the metalworking trade union IG Metall has called for greater action and is trying to organise workers in the solar and wind energy sector. The union cites examples of successfully concluded single-employer agreements or of setting up works councils in companies in these industries. However, IG Metall has not yet been able to conclude a sectoral collective agreement for the solar or wind energy industries. The German services trade union ver.di additionally criticises 'poor' collective agreements and co-determination structures in companies in the renewable energy sector. Whilst ver.di wants to set up a campaign which aimed at extending the usual collectively agreed standards and co-determination rights of the energy industry to the renewable energy sector, IG Metall is calling for the conclusion of separate collective agreements in the renewable energy sector, for example a sectoral collective agreement in the solar industry.

In Latvia, the main trade union LAB Enerģija consistently works with new emerging parts of the sector. Recently two new trade union organisations have joined LAB Enerģija. The results are limited regarding the newly emerging parts of the sector, because the majority of new enterprises are very small, with between two and five employees. In Portugal, SINDEL and FIEQUIMETAL are trying to recruit members and create organisational structures. In some cases the unions have begun negotiations on specific issues, as for instance between MFS – Acciona Energy and the FIEQUIMETAL member union SIESI. However, it seems that unions have not been able yet to create an organisation in these new companies that would be capable of acting. In Sweden, the trade union SEKO reports that workers in wind turbine-producing factories that are represented by the Union of Metalworkers (IF Metall) have been contacted through their workplace in an effort to persuade them to change trade union membership. There have been some disagreements over the sectoral attachment of workers in wind turbine manufacturing. However, according to the trade union SEF, most of the workers employed in constructing wind power facilities in Sweden come from abroad, notably Denmark and Germany. In the United Kingdom, all unions appear to seek to recruit in emerging areas. For instance, the trade union Unite states: 'Whether it be wind, wave hydro or photovoltaic, our aim is to ensure that the "new wave" generators are as organised as the existing and achieve terms and conditions that are at the cutting edge of our negotiations.' However, there are no reports of specific campaigns to recruit in these areas.

Emergence of new interest and business organisations

Among all 28 countries monitored in the above-mentioned Eurofound study, only one new social partner organisation was registered on the employer side. In Romania, in March 2009, 40 RES companies, most of them SMEs, united in an Employers Association for New Sources of Energy (Asociaţia Patronală Surse Noi de Energie, **SUNE**). In two countries (Germany and Denmark) it has been reported that established employers' organisations have opened new branches to represent parts of the newly emerging sectors. In Germany the association for the glass industry decided to set up a unit for the solar industry in 2008, a step reflected in a change of name to the Association for the German Glass and Solar Industry (Bundesarbeitgeberverband Glas und Solar, **BAGV Glas+Solar**). In Denmark, DI has formed a new branch federation within the organisation, DI Energy of which another federation, DI Bio Energy, is a part. However, these federations do not take part in collective bargaining.

In other countries, the emergence of interest organisations or different business associations without social partner status (i.e. not involved in collective bargaining) has been noted. This is the case for instance in Austria (Photovoltaic Austria (**PVA**) or Austrian Wind Energy Association (**IG** Windkraft), both are voluntary interest organisations for companies operating in solar and wind energy. In Germany in 2006, the Federal Employer Association of the Solar Sector (Bundesverband Solarwirtschaft, **BSW**) was created by a merger of the two organisations previously representing the solar industry in Germany. Three new employer organisations have been created in the renewable energy sector in Estonia: the Estonian Biogas Association (**EestiBiogaasi Assotsiatsioon)**, the Estonian Renewable Energy Association (Eesti Taastuvenergia Koda) and the Estonian Solar Energy Association (Eesti Päikeseenergia Assotsiatsioon). In Greece there were no employers' organisations in times of state monopoly. Business associations have been founded only in the past few years, after some producers, mostly in renewable energy sector came to the market. In the United Kingdom, the Renewable Energy Association (**REA**), or RenewableUK, represents members from the renewable industry. In Lithuania new employer organisations - LVEA, LITBIOMA, FTVA – have been recently established to assemble enterprises functioning in the RES sector. Although all three associations are members of the peak employers'

organisation – Confederation of Lithuanian Industrialists (**LPK**) – they do not take the role of sectoral social partners.

5.5 Job quality impacts of greening and social partner involvement

There are a number of job quality questions associated with green transition. These include the kind of impacts the green transition will have on the quality of jobs, and whether this will result in any changes in working conditions. Within its study, Eurofound 2012a[31] looked into different dimensions of job quality (skills development, career and employment security, health and well-being, and reconciliation of working and non-working life), and - based on a small online survey, an expert workshop, interviews with social partners, government representatives and experts, a literature research and a number of company case studies – tried to find out the effect that the process of greening might have on each of these dimensions. It is, however, very difficult to distinguish the impact of climate change from broader contextual factors affecting job quality, such as, for instance, technological change. Further, the impact of climate change on job quality could differ significantly across sectors, occupations, regions and time and the available literature does not provide sufficient evidence on whether a direct or indirect causality exists between climate change and job quality. Other available studies also point to a mixed effect of the greening of the economy on job quality (Cambridge Econometrics et al. 2011)

There will be a redefinition of many jobs across almost all sectors, as pointed out in the Commission Communication "Towards a job-rich recovery" COM(2012)173. The latter distinguishes two situations concerning the job creation potential of the green economy: on the one hand "high-carbon sectors will face the challenge of the transition to low carbon and resource-efficient economy with many jobs in these sectors to be transformed" while on the other hand "new jobs in green and low-carbon sectors will be created". This is why the document SWD (2012)92 that accompanies the Communication provides a very wide definition of "green jobs", understanding them as "covering all jobs that depend on the environment or are created, substituted or redefined in the transition process towards a greener economy". The Eurofound study takes a similar wide approach when examining the effects of green change which it studies in 10 sectors[32].

This section aims to give a flavour of the results of Eurofound's 2012 study, focusing on three sectors: construction, the energy sector and the chemical industry. Section 5.5.1 summarises the results of the online survey and, section 5.5.2 draws on evidence from the literature as regards expected effects on job quality.

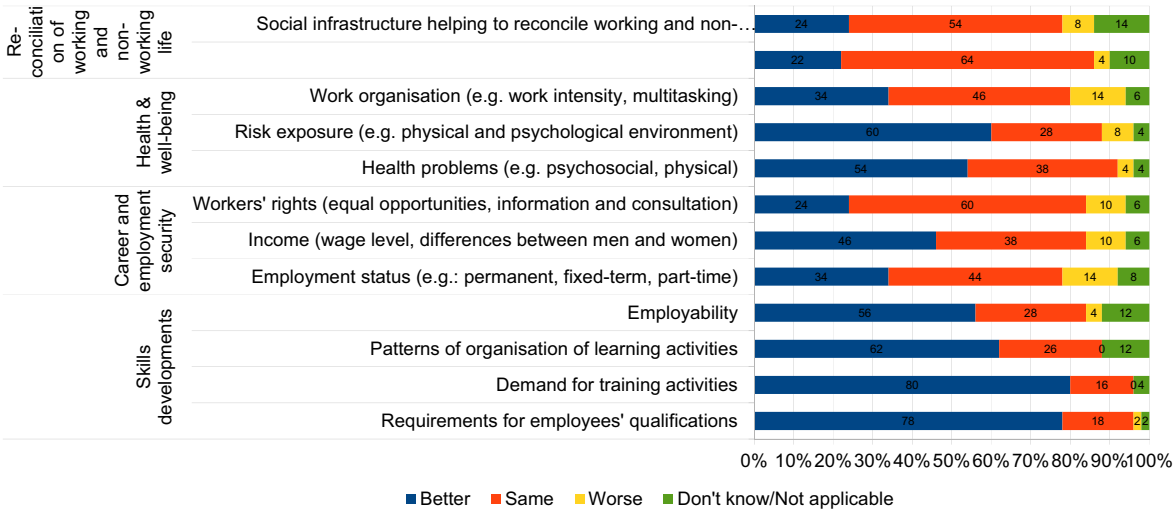
5.5.1 Online survey findings

In October and November 2011, Eurofound carried out a small online survey[33] (N=145) mainly among social partners, companies and government representatives on the job quality impacts of greening. The results have to be interpreted with caution and should be considered as a "range of expert opinions" rather than as hard evidence. The survey showed that:

[31]Eurofound, 2012a
[32]Automotive, chemicals, construction, distribution and trade, energy, furniture, non-metallic materials, shipbuilding, textiles and transport.
[33]Eurofound 2012a

- Training and qualification will become more important: approx. 80% of respondents, who agreed that greening affects job quality, indicated that employees working with green business practices face higher qualification requirements and more demand for training.
- Neither the working and non-working time ratio nor the social infrastructure is expected to be significantly affected by greening.
- The impact of climate change will be less significant on the career and employment security dimension than on the skills dimension. The majority of respondents who agreed that greening affects job quality expect either no changes or positive change in career and employment security, and particularly income. However, representatives from the sectoral level were in general more optimistic about the impact greening will have on workers' rights, their employment status and their income than those not responding for any sector.
- Employees working with green business practices are largely expected to have better health and be less exposed to risks. However, this finding contrasts with recent research[34], which indicates that greening, more intensively than in conventional jobs, creates new combinations of risks that still need to be assessed and managed.

Chart 5.2: Main differences in different aspects of job quality (i.e. better, same or worse) between employees working with green business practices and other employees, N=50 per category



Source: Eurofound 2012a, 2012b

5.5.2 Expected effects on job quality within selected sectors

While the above results are cross-sector, the study also examined greening processes more closely within 10 sectors. This section summarises some findings for three industries in which the impact of greening is expected to be relatively high. For an overview, see table 5.2.

[34] EU-OSHA 2011a and 2011b

Construction industry

The construction industry is among the most affected sectors in terms of absolute employment by the EU's climate policies. In particular, greening may have an impact on career and employment security. First, a large proportion of workers in the sector in some countries are self-employed, and are thus less financially able to take up the training activities necessary to better adapt to the greening of the construction sector.

In terms of composition of the workforce, the more skilled occupations remain male-dominated in all countries, with women comprising only 8% of all employees[35]. Women are better represented in administration and service employment, but their opportunities in green construction remain somewhat unused[36]. It should also be noted that some of the jobs that will be created to meet the 2020 targets, such as those involved in the construction of renewable electricity plants, may not be suitable for older workers, and they have also not attracted a large proportion of the growing female workforce)[37].

Greening may also affect the health of construction workers. For example, green construction creates a combination of known risks in new situations (e.g. installation of renewable energy equipment at height, the installation of new technology such as feed-in to smart grids). Potential risks also arise from dangerous substances used in new construction materials (e.g. when polishing, or grinding nano-containing bricks and paints) and in maintenance, demolishing or retrofitting activities. Further, workers participating in retrofitting are at risk of exposure to asbestos. Off-site construction could reduce risks on site, but transfer risks to other groups of workers[38]. In contrast to this, most of the sector respondents to Eurofound's online survey[39] indicated that workers involved in green construction have fewer health problems and lower risk exposure. Finally, the effects of greening in the construction sector tend to concentrate on geographical areas due to the availability of public support, a favourable investment climate or objective reasons (e.g. coastal areas for construction of wind farms). This can be expected to have an impact on the working and non-working life dimension of employees as well as working time arrangements for example if the place of work is far from an employee's home.

Research in the green construction sector (renovation and insulation) in the walqing project[40] was carried out in Belgium, Bulgaria, Hungary and Norway. In some of the "green" companies, greening amounts to an increased standardisation of work – firstly because it is implemented through new standards for results and processes. Secondly, it may imply the use

[35] Eurofound 2009b, 'Restructuring in the construction sector', Ward, T. and Coughtrie, D. Eurofound, Dublin.
[36]Sustainlabour 2009 'Green jobs and women workers: Employment, equity, equality', International Labour Foundation for Sustainable Development, Stevens et al., Madrid.
[37]Cambridge Econometrics, GHK and Warwick Institute for Employment Research 2011, 'Studies on sustainability issues – Green jobs; trade and labour, Final report for the European Commission, DG Employment', Cambridge Econometrics, Cambridge.
[38]EU-OSHA 2011b
[39]Eurofound 2012a
[40] WALQING: Work and Life Quality in New and Growing Jobs (FP7-SSH, 2010-2012 - http://www.walqing.eu/). For each country involved in the project, stakeholder interviews with relevant social partners and other sector experts and actors were carried out. A sectoral brochure on the "Green Construction Sector" with summaries of key findings and selected good practice examples is available online: http://www.walqing.eu/fileadmin/walqing_SectorBrochures_2_Construction.pdf

of more and more complex prefabricated parts that leave less to workers' discretion but reduce the work done on the site. During a seminar to discuss emerging research findings on the relationship between greening the economy and the quality of jobs[41], it became evident that environment-friendly innovation does not necessarily imply worker-friendly improvements.

Energy sector

The energy sector is among the sectors that will be most affected by the green transition, and this is likely to affect both low-paid unskilled and highly paid skilled occupations. Greening is therefore likely to have at least some effects across all dimensions of job quality in this sector.

Green jobs stemming from increased demand are more likely to employ men than women, and less likely to be part-time or temporary, according to some sources[42]. An extensive European study (WiRES[43]) looked into the aspect of female representation within the renewable energy sector based on the hypothesis that green restructuring processes could become a driver for the creation of new and better employment opportunities, particularly for women. However, the study discovered a number of challenges for women in accessing green jobs, in general, and in renewable energies, in particular. Most specifically, the new green jobs will be created in traditionally male-dominated industries and occupations and the masculine image of the sector could deter women from looking for a job there. Also the current female skills profile – with little focus on STEM (science, technologies, engineering and mathematics) subjects – and the male orientation of vocational training in many countries - acts as a further barrier to enabling women access to these new jobs. At the same time, the renewable energy sector requires workers with a certain level of expertise in the electricity and energy sector who are willing to travel, both factors that tend to discourage working women. On the other hand, some of the emerging job profiles, such as energy manager, could be appealing and affordable also for women.

WiRES research further highlighted the fact that there is a lack of specific social dialogue experiences in RES at national and EU level. Health and well-being are closely related to skills, and this differs between green and non-green jobs, mainly in energy production, such as renewables renewables. Many emerging energy sectors have specific risks related to 'engineering unknowns': mechanical failure, insufficiently tested technology, unavailability of guidance and training for workers, and infrastructure deficits[44]. Wind, solar, marine and bioenergy, battery technologies are listed among the top technologies with implications for occupational health and safety due to physical hazards, including in offshore installation and maintenance[45]. Inexperienced workers are likely to face hazards in bioenergy production[46]. Manual handling of waste and exposure to hazardous substances remains an issue, and public pressure is likely to mean that less waste is exported to developing countries[47] [48].

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[41] See walqing seminar "Greening the economy: What impact on the quality of work?", Brussels 29 September 2011 – Presentations available at: http://www.walqing.eu/index.php?id=62 -

[42]Cambridge Econometrics, GHK and Warwick Institute for Employment Research 2011

[43]ADAPT, UPEE, University of Szeged 2009 'WiRES – Women in the Renewable Energy sector' Final Report presented to the European Commission.

[44]EU-OSHA 2011b

[45]EU-OSHA 2011b

[46]EU-OSHA 2011b

[47]EU-OSHA 2011a

Chemical industry

The chemicals industry is one of the major contributors to greenhouse gas emissions and the process of greening will therefore have a significant impact on this industry, mainly through regulations such as the IPPC (Directive on Integrated Pollution Prevention and Control), the Environmental Liability Directive (ELD)[49], the European Emissions Trading System (ETS), the regulation on classification, labelling and packaging of substances and mixtures (CLP) and the REACH regulation. These regulations are also expected to have an impact on the skills required: most occupations in the sector will be required to have legislative and regulatory knowledge of environmental legislation and strong e-skills, but also skills in green marketing, environmental impact assessment skills, skills in life cycle analysis, knowledge of the ecology of products and skills in environmental communication.

In terms of social dialogue, new industries emerging in the green chemistry sector (e.g. genetics and biotechnologies) are less organised and many companies in these areas have no collective agreements. Thus, the quality of jobs in these industries may be less protected than in conventional areas of this sector[50].

For an overview of the impact of greening on job quality in construction, energy and chemicals, see table 5.2 below.

Table 5.2: Summary of expected job-quality impacts in three selected sectors

	Construction industry	**Energy**	**Chemical industry**
Skills development	High impact. Move towards more skilled jobs (high demand for, for example, technicians and (associate) professionals. High demand for recognition of green skills, training innovations (for example on-site training of workers), interdisciplinary (especially in retrofitting) and	High impact. High demand for hard transferable skills such as STEM. Highest need for new skills in renewables. Lower impact in waste and gas subsectors..	Moderate to high impact due to long time frame for greening of the sector. Lower impact on the pharmaceuticals sector which is more driven by climate change adaptation.

[48]Arbeiterkammer Wien, Institut für Wirtschaft und Umwelt 2000, Umwelt und Beschäftigung: Strategien für eine nachhaltige Entwicklung und deren Auswirkungen auf die Beschäftigung [Environment and employment: Strategies for sustainable development and their impact on employment], Fritz, O., Getzner, M., Mahringer, H. and Ritt, T., Vienna.

[49] TNO, ZSI and SEOR 2009, 'Investing in the future of jobs and skills. Scenarios, implications, and options in anticipation of future skills and knowledge needs'. Sector report: Chemicals, pharmaceuticals, rubber and plastic products, European Commission, Directorate-General Employment, Social Affairs, and Equal Opportunities, Brussels.

[50]Eurofound 2012a

	generic green skills Progress in green skills development is especially needed in SMEs and the relatively large informal construction sector.		
Career and employment security	High impact. Potentially high negative effects on self-employed workers who are harder to motivate and less financially able (outsourcing is increasing subcontracting and self-employment due to higher complexity of tasks). Women and youth underrepresented. Low sector attractiveness among youth – need to improve image of the sector and overall HR development in companies to attract new staff. Likely positive effects on equal opportunities from automation.	Moderate impact. In general green jobs in the sector are more likely to employ men than women. Jobs in traditional subsectors are less likely to be part-time or temporary; however jobs in renewables industries and energy services tend to be less well-paid and enjoy less secure employment conditions.	Moderate to high impact on less-organised subsectors within the green chemistry industry.
Health and well-being	High impact due to the potential for work accidents that is on average,3–4 times higher than in other sectors, and higher risk of exposure to dangerous substances causing occupational diseases compared to other workers (ILO, 2011a). Likely positive effects on health	Moderate impact. Many emerging energy sectors have specific risks related to 'engineering unknowns' Traditional industries less affected.	High impact (of emerging new technologies and substitution of chemicals for environmental reasons) due to sector specifics.

	from automation practices.		
Reconciliation of working and non-working life	High impact. Possibly highest negative impact for on-site self-employed workers engaged in project-based, fixed-term and seasonal work. However, standardisation of building elements, tight management of processes and use of eco-friendly materials may reduce occupational accidents and health problems (most likely – in large companies), at the expense of workers' autonomy and craftsmanship.	Moderate impact. As typically regionally concentrated, traditional power generation is phased out, workers will face a more pressing need for retraining and regional mobility (for example, longer commuting time). Inflexible working hours and multiple shifts widespread in renewables.	Moderate to high impact on less organised subsectors within the green chemistry industry.

Source: Eurofound 2012a

5.6 Green Restructuring

The transition process to "green" and "greener" jobs does not go always smoothly, as reported by the European Restructuring Monitor[51] suggest. See also 2012 research from Eurofound (Eurofound 2012c). While RES-oriented companies have been growing over the past few years, there are now reports of cases of closure or downsizing of solar and wind energy producers. However job growth in the green economy has been positive throughout the recession and is forecasted to remain quite strong. Only the energy efficiency and renewable energy sectors could create 5 million jobs by 2020.[52]

[51]Eurofound's European Restructuring events database: http://www.eurofound.europa.eu/emcc/erm/index.php?template=searchfactsheets (Dates in brackets refer to the announcement date registered on the factsheets).
[52] COM(2012) 173 final "Towards a job-rich recovery"

These include announcements from the German company Phoenix Solar that it will shed around 200 jobs, and the loss of 150 jobs at the UK-based Carillion Energy Services, a supplier of heating and renewable energy, which has been attributed to a government decision to halve the amount of money people receive for selling solar energy to the national grid in the UK. In Norway the Renewable Energy Corporations decided to close down its solar cell plant in Porsgrunn, with loss of 370 jobs, due to operating losses.

Nevertheless, there is also clear evidence of growth in research-intensive activities within the renewable energy subsector. For example, the renewable energy firm Swalec Smart Energy in the UK has announced that it is to create a new £7m renewable energy training centre with the creation of 250 jobs, co-financed by the Welsh government. Baltic Solar Energy, a company engaged in solar energy production, has launched a project which will lead to the creation of more than 100 new jobs in Vilnius during the next five years[53]. Further, five high-tech companies (Intersurgical, Sicor Biotech, Baltic Solar Solutions, ViaSolis, and Baltic Solar Energy) will lead a joint development project whereby a research and development centre for the solar power and digital optical storage technologies is being set up. Also in the UK, the energy giant Scottish and Southern (SSE) announced the creation of 100 jobs in Glasgow following the collaboration of the company with Mitsubishi Heavy Industries on the development of low carbon technology, including offshore wind farms and carbon capture. SSE said it expected employment to rise significantly over the next five years to up to 1000 posts. Further, in Romania, three new wind parks are created by Eolenvest, which announced its intention to hire 880 employees in 2012.

The bigger cases of restructuring, in terms of employees involved, have been seen among the "traditional" energy providers, with the first cases now being linked to the German political decision of denuclearisation following the Fukushima catastrophe. This includes 6000 job cuts in Germany at the German energy provider Eon and around 1000 job cuts by the end of 2016 at the German Energy Provider RWE Power. Further, the French public multinational industrial conglomerate Areva (120,500 employees), operating in the nuclear energy sector, will cut 1500 positions in Germany, close a plant in Belgium (160 employees) and reduce its workforce in France by natural departures of 200 to 250 employees per year by 2016. On the other hand, the French electricity producer and distributer EDF has announced its intention to recruit 5000 employees in 2012 as a way of compensating for large-scale departures due to retirement the coming years. 2200 jobs will be created in nuclear and engineering activities.

Together with the observation[54] that decisions to further invest in and promote[55] or to phase out nuclear energy[56] have been taken by Member States within their national energy strategies, it can be expected that some intra-European job-mobility within the nuclear energy sector will be seen in the years to come. This will most likely concern a high-skilled

[53]Case study in Eurofound 2012a
[54]Eurofound 2012b
[55]E.g.: France, the Czech Republic, the United Kingdom and other countries have announced to actively promote the usage of nuclear energy.
[56]E.g.: Germany and Italy, among others will

workforce such as nuclear engineers.

For further details, see table 5.3 below.

Table 5.3: Recent restructuring cases in renewable energy-producing industries and in the nuclear energy sector

Date announced	Country	Company	Sector	Announced nr. of jobs created/destructed
08-05-2012	EU	Phoenix Solar	Electricity from RES producer/Solar Manufacturing	-179
24-04-2012	NO	Renewable Energy Corporation	Electricity from RES producer	-200
28-02-2012	RO	Eolenvest	Electricity from wind energy producer	+880
15-02-2012	UK	Carillion Energy Services	Heating from RES	-150
04-01-2012	FR	EDF	Nuclear energy	+2200
16-12-2011	DE	RWE Power	Nuclear energy	-1000
14-12-2011	UK	Swalec Smart Energy	Electricity from RES producer	+250
26-10-2011	FR	Areva	Nuclear energy	-1560 to -1910
16-07-2010	UK	Scottish and Southern	Electricity from RES producer	+100
02-07-2010	LT	Baltic Solar Energy	Electricity from RES producer	+160

Source: European Restructuring Monitor, events database, Eurofound

In the renewables industry, increased competition from China has been named a major driver, of restructuring, together with 'homemade' pressure in the form of overcapacities worldwide in the solar cells market, which has decreased prices significantly. At the same time some Member States have changed their support schemes, for example lowering the feed-in-tariffs

or cutting other subsidies, often linked to the tight budget situation and austerity measures.

The Danish wind turbine blade manufacturer, LM Wind Power, has presented a labour force adjustment plan affecting the entire workforce (more than 200) of its plant located in Ponferrada (León, Spain). The dismissals are due to the economic downturn in Spain, the unfavourable climate in the wind turbine market and a decrease in demand for LM's products.

However, the solar manufacturing industry is growing in other countries. In Hungary, the creation of a substantial number of jobs has been announced by two companies: Orient Solar (+300) and Solar Energy Systems (+108). Further, in Slovenia, Bisol, in the photovoltaic sector, has announced a business expansion and the creation of 230 new jobs by the end of 2011. In Italy, in the region of Catania, Sicily, 3Sun, a joint venture created by Enel Green Power, Sharp and STMicroelectronics, is to create 400 new jobs by the end of 2012. It aims to manufacture innovative photovoltaic cells and panels. In June 2011 the company and the trade unions reached an agreement under which 3Sun will hire unemployed workers, with a particular focus on workers who have already worked in STMs on temporary contracts. In July 2011 3Sun had around 50 employees.

Such examples of direct transition are, however, rare. As with all sectoral and cross-sectoral restructuring processes, jobs are seldom created in the same location or region or the same subsector or occupation in which jobs have been destroyed. Furthermore they also do not necessarily affect the same people: while many redundancy announcements are linked to early retirements, posts in new positions might be filled by workers from elsewhere. In addition to the local-level social partners, the inclusion of sectoral social partners in such cases of restructuring is crucial.

For an overview of recent restructuring events in the green manufacturing industries, see table 5.4 below.

Table 5.4: Recent restructuring cases in "green" manufacturing industries

Date announced	**Country**	**Company**	**Sector**	**Announced nr. of jobs created/destructed**
03-07-2012	CZ	Schott Solar	Solar manufacturing	-500
18-06-2012	BG	Solarpro Holding AD	Solar manufacturing	-156
01-06-2012	DE	Solarworld	Solar manufacturing	-250
25-05-2012	DE	Odersun	Solar manufacturing	-260
17-04-2012	DE	First Solar	Solar manufacturing	-2000

11-01-2012	ES	Silicio Solar	Solar manufacturing	-295
30-11-2011	HU	Orient Solar	Solar manufacturing	+300
15-11-2011	FI	Moventas Wind	Wind turbine manufacturing	-120
18-10-2011	ES	LM Wind Power	Wind turbine manufacturing	-209
17-10-2011	NL	Solland Solar	Solar manufacturing	-190
06-07-2011	IT	3Sun	Solar manufacturing	+400
29-03-2011	HU	Solar Energy Systems	Solar manufacturing	+108
13-12-2010	PL	LM Wind Power Services	Wind turbine manufacturing	+200
10-12-2010	SI	Bisol	Solar manufacturing	+230
12-01-2010	DK	Siemens Windpower, Aalborg	Windmill production	+130
05-08-2010	DK	Siemens Windpower, Ballerup	Windmill production	+200

Source: European Restructuring Monitor, events database, Eurofound

5.7 Conclusions

Overall, the views of social partners on the industrial relations implications of the greening of the economy have changed from initially critical towards a more positive and supportive, yet differentiated, stance. At international, European and to varying degrees the national level, the social partners are actively involved in shaping policy responses to climate change and environmental protection. However, greening as such is not a topic of major importance to the social partners. The social partners at sectoral and company level in particular tend to be less active in this area, with the notable exception of the good practices cited in this chapter. In addition, the current recessionary times have perhaps also served to shift the social partners' focus away from this agenda. In this regard it would seem crucial that the higher level social partner organisations on both sides of industry work to ensure a trickle-down of their climate-change policies so that the social partners at lower levels (in sectors, regions and companies) can implement them on the ground.

There is also something of a gap between the level of participation and mobilisation of the social partners in the "old" and "new" Member States (the EU-15 and EU-10) and the degree of their exposure to these issues. The latter exhibit much higher shares of workers in the high-carbon industries in which major adjustments need to take place[1], while the social partners and governments are often not as active. The European level social dialogue is a forum where learning processes between the social patterns of different countries can be promoted. For more details on social dialogue in the EU-10, see Chapter 2.

Overall, industrial relations in green sectors (in particular in the newly-emerging subsectors such as electricity production from renewable energy) are still rather weakly developed. Efforts to establish representation in these industries can be found in some countries on both the trade union and the employer side. However, on neither side is this process advanced enough so enable proper social dialogue to take place. Time will tell whether the scattered landscape of business associations will develop into fully-fledged employer organisations with the right to bargain collectively for their members, and whether and how trade unions will be able to represent newly emerging green sectors. It has been noted several times by EIRO correspondents that these rather fragmented industries are outside the interest of social partners in many countries. However, this so-called failure of representation could be counterbalanced by governments, for instance by encouraging the foundation of new social partner organisations, by promoting and kick-starting the sectoral social dialogue in newly emerging green industries, by guaranteeing a broader coverage through legal extension mechanisms of collective agreements and thereby fostering the inclusion of small businesses in the dialogue. Sector-level social dialogue would then gain more importance. The establishment of a functioning social dialogue within green sectors is even more urgent, as the sector itself has come under some pressure. Large firm closures and restructuring events announced in the solar and wind industry are linked to some Member States' decisions to de-nuclearise, the change in the energy mix triggered by the renewable energy directive, recent changes in subsidies or trends in international manufacturing, so that further restructuring within established energy providers or equipment manufacturers is on-going.

It is up to sectoral and company level social partners themselves to engage in ensuring a successful transition of employees to new and – ideally – greener and decent jobs and to ensure that newly-emerging jobs can be filled by appropriately qualified people. Where direct transitions are not feasible – new jobs do not necessarily emerge in the same region or within the same companies – the importance of maintaining the employability of workers, promoting regional job creation, mobility of workers and ensuring a good match of jobs and workers is even more pressing. Here, the sectoral and regional-level stakeholders (including companies) will play a major role in developing tailored solutions.

Providing vocational training and re-training facilities at sectoral level is a promising approach, as the examples cited here show. The availability of such measures at sectoral level ensures that SMEs also have access to these facilities, which is crucial, bearing in mind that

[1]See Commission Staff Working document: "Exploiting the employment potential of green growth" SWD(2012) 92 final.

newly-emerging parts of sectors are often fragmented. A further challenge is to mainstream low-carbon skills into all kinds of training, curricula and apprenticeships.

Transitions to greener activities will only be successful if the quality of jobs in terms of working conditions and pay is ensured. The quality of green and greener jobs is difficult to assess and depends, amongst other things, on the sector. The skills and training dimension is expected to be the most affected by the process of greening, while other aspects of job quality such as health and well-being, the reconciliation of work and family life or career and employment security might be less subject to change. However, this should not prevent the social partners from focusing on continuous improvement in working conditions and job quality during the transition in general and in relevant cases in particular, as these results vary to a great extent across sectors and occupations.

At company level, transition could be achieved by various organisational 'eco-innovations'[57] in participation, such as involving employees' representatives or trade union representatives in green management structures with responsibility for environmentally-related training or energy audits or by including energy-efficiency targets and benefits for employees associated with their achievement into collective agreements.

Despite the above initiatives of social dialogue in the field of climate change, governments at all levels (European, national and local) remain the key player in promoting this policy-based transition. At the European level, the European Social Fund is an important tool to support the transition of labour force towards greener skills and jobs, especially in the context of the 20% climate mainstreaming objective in the 2014-2020 Multiannual Financial Framework. Eurofound and other research has highlighted some successful results of cooperation between the social partners, but more research on the role of the social partners role at different levels as well as monitoring of their involvement in this transition is needed.

[57]Eurofound 2012a.

References

Arbeiterkammer Wien, Institut für Wirtschaft und Umwelt2000,Umwelt und Beschäftigung: Strategien für eine nachhaltige Entwicklung und deren Auswirkungen auf die Beschäftigung [Environment and employment: Strategies for sustainable development and their impact on employment], Fritz, O., Getzner, M., Mahringer, H. and Ritt, T., Vienna.

Business Europe 2008 'Combating Climate Change: Four key principals for a successful international agreement'http://www.businesseurope.eu/content/default.asp?PageID=568&DocID=21780

Cambridge Econometrics, GHK and Warwick Institute for Employment Research, 2011. Studies on Sustainability Issues – Green Jobs; Trade and Labour. Final Report for the European Commission, DG Employment.

Eurofound (1994), *Environmental protection in Europe – The effects of cooperation between the social partners*, European Foundation for the Improvement of Living and Working Conditions, Dublin, 1994.

Eurofound 2009, *Greening the European economy: Responses and initiatives by Member States and social partners*, Andrea Broughton. http://www.eurofound.europa.eu/eiro/studies/tn0908019s/index.htm

Eurofound 2009b, *Restructuring in the construction sector,* Ward, T. and Coughtrie, D., Dublin. Eurofound 2011 The role of the social partners in the transition to a green economy. , http://www.eurofound.europa.eu/publications/htmlfiles/ef1126.htm

Eurofound, 2012a Growth and employment: Anticipating and managing the effects of greening of industries in the EU, Gaušas S. et.al.

Eurofound, 2012b "The Changing Business Landscape in the Electricity sector and Industrial Relations in Europe", Pedersini.

Eurofound, 2012c "After restructuring: Labour markets, working conditions and life satisfaction", Publications Office of the European Union, Luxembourg.

European Commission 2010, Industrial relations in Europe 2010.

European Commission 2010, The EU climate and energy package (online web page), last updated 2010, available online at http://ec.europa.eu/clima/policies/package/index_en.htm

European Commission 2011, An Agenda for new skills and jobs: A European contribution towards full employment COM(2011) 682 final.

European Commission, A Roadmap for moving to a competitive low carbon economy in 2050, COM(2011) 112 final.

European Commission, 2009. Employment in Europe 2009, Luxembourg: Office for Official Publications of the European Communities.

European Agency for Safety and Health at Work (EU-OSHA), 2011a. Foresight of New and Emerging Risks to Occupational Safety and Health Associated with New Technologies in Green Jobs by 2020. Phase I - Key drivers of change, Luxembourg: Publications Office of the European Union.

European Agency for Safety and Health at Work (EU-OSHA), 2011b. Foresight of New and Emerging Risks to Occupational Safety and Health Associated with New Technologies in Green Jobs by 2020. Phase II - Key technologies, Luxembourg: Publications Office of the European Union.

ITUC 2010 Resolution on combating climate change through sustainable development and just transition. 2CO/E/6.10 (final).

Simonas Gaušas (PPMI), Radosław Owczarzak (Eurofound) and Agnė Paliokaitė (PPMI), *Anticipating and managing the effects of greening of industries in the EU: skills development in the overall context of job quality*, draft working paper, presented on 23 February 2012 at the CEDEFOP Green Skills Forum, https://events.cedefop.europa.eu/GreenSkills-Forum2012

Syndex, 2011. Initiatives involving social partners in Europe on climate change policies and employment. European Commission. Summary report for the conference on 1 and 2 March 2011, in Brussels, Brussels.

OECD 2010 Greening Jobs and Skills: Labour market implication of addressing climate change

UEAPME Position Paper 2010 'UEAPMEs views on SMEs and Sustainable Development in the current economic and environmental context' http://www.ueapme.com/IMG/pdf/1009_pp_sustainable_development_final.pdf

UNEP, ILO, IOE, ITUC, 2011. Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication.