

A GREEN ECONOMY THAT WORKS FOR SOCIAL PROGRESS

Working Conditions in “Green Jobs” – Results from WiRES

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1. WiRES – WOMEN IN RENEWABLE ENERGY SECTOR

1. The Network

The Association for International and Comparative Studies in Labour Law and Industrial Relations, (Adapt) headed and carried out the “Working Conditions in ‘Green Jobs’” project along with WiRES partners, namely: the University of Szeged, Hungary and the Union for Private Economic Enterprise (UPEE), from Bulgaria.

The project was supported by an international and interdisciplinary research network, which gradually expanded over time, as the project attracted the interest of experts and stakeholders in the fields of social dialogue, renewable energies, equal opportunities and labour policies. The experts involved represented a number of institutions and authorities, namely: European and Italian social partners such as BUSINESSEUROPE, the Italian national trade union, Confederazione Italiana Sindacati Lavoratori (CISL) and its national sectoral affiliate in the electricity sector Federazione Lavoratori Aziende Elettriche Italiane, (FLAEI-CISL), a Bulgarian labour association at the National level the Institute for Social and Trade Union Research, ISTUR. The project was supported by local and regional authorities such as the City of Chemnitz-Zwickau in Germany and the Labour department of the Sardinia Region in Italy. Companies, including Enel Green Power, one of the leading players in renewables, also gave their active support to the project, together with other actors in the field, namely Etech Germany, an international network developing green technologies and research in related fields. Sound experience in the gender mainstreaming approach was provided by a network dealing with gender and Energy issues – LIFE-Genanet – and also the German project network Verein zur beruflichen Förderung von Frauen (VBFF). The National Counsellor for Gender Equality at Work in Italy made a considerable contribution to the project development by involving the National network of Gender Equality Counsellors. Aside from fostering an information exchange, the National Counsellor for Gender Equality at Work actively and widely supported and sponsored the project.

2. The Project

WiRES' main objective was to investigate the role of social dialogue in boosting female employment rates and improving working conditions of women workers in the renewable energy sector in Europe.

The idea of the project stemmed from the analysis of the impact of a new regulatory framework – at a European and national level – in the field of environmental protection, on employment and the labour market in the fight against climate change. The European Climate and Energy Package, adopted by the EU Commission in 2008, set new binding standards aimed at tackling climate change. One of the ambitious objectives was to increase the use of renewables (wind, solar, biomass, etc) to 20% of the total energy production (currently it is around 8.5%). Among the benefits of these measures, the Citizens' summary of the EU Climate

and Energy Package highlighted that about 1 million jobs would be created in the European renewable energy industry by 2020. While the employment impact is a controversial and debated issue around the world, experts agree that environmental legislation is going to significantly affect national economies, particularly production methods and processes. On the side of labour demand, the so called “job churn” effect is likely to be experienced, both across sectors and within the same industry: new jobs will be created; some occupations may be replaced; others will disappear without any replacement, while still different ones will change in terms of job content, required skills and work methods. Business-restructuring processes often entail potentially high costs, not only for the local or regional economies but also for the workers they concern, especially when the most vulnerable groups in the labour market, including women, are involved.

Besides this, in many European countries low female employment rates remain a challenging issue – especially in traditionally male-dominated sectors, such as the energy sector, where “non-traditional” occupations prevail. Scarce participation of women in the labour market goes hand in hand with the challenge of equal opportunities promotion, entailing issues such as fair treatment, recruitment, equal access to employment, the gender pay gap, career paths and family friendly policies. These issues are likely to represent a relevant bargaining ground in eco-industries like renewables, although, as our research points out, awareness still needs to be raised in this regard. The research question that inspired the WiRES project is whether social dialogue and industrial relations can support the restructuring processes related to the implementation of EU climate change policies, turning them into a driver for the creation of new and better employment opportunities for women. According to the WiRES project, the overarching objective that social dialogue could fulfil is to ensure the participation of trade unions and employers’ organizations in the elaboration and monitoring of EU Climate and Energy Package implementation with regard to its impacts on competitiveness, employment opportunities and social cohesion in the renewable energy sector. In particular this should be carried out through a gender mainstreaming approach, that is considering gender-related issues namely: equal opportunities, work-life balance, career ladders (with a special focus on the glass-ceiling phenomenon), pay gaps, and a balanced representation of social partners and industrial relations stakeholders. As far as work-life balance is concerned, flexible time arrangements, policies for care services and workload sharing in the private sphere deserve particular attention.

The assumption underpinning the WiRES research is that adaptation to change is a constant phenomenon in the life of companies and workers. Social dialogue at the European, national and company level can help in preventing or limiting possible negative social consequences of change. In the broader framework of the restructuring processes linked to climate change policies, collective bargaining can play a crucial role in tackling emerging issues related to equal opportunities by consequently preparing workers and companies to cope with current and future labour market challenges.

3. Policy Context

The Climate and Energy Package, issued by the EU Commission in January 2008 and adopted by the EU Parliament and Council in October 2008 ⁽¹⁾, sets new binding standards aimed at tackling climate change, to be introduced also by the Member States. These processes will necessarily entail relevant changes at local and company level. The restructuring of enterprises often entails costs that can be very high, not only for workers but also for the local

¹ The package comprises a set of directives, decisions and regulations. For the aims of this project, the focus was on Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

or regional economies. It is therefore essential to ensure that restructuring is well-managed, so that the competitiveness of enterprises is maintained and employment preserved while facilitating the transition of workers to other jobs of equivalent or even better quality. In order to face such transformations effectively, social partners and other stakeholders should be involved in the restructuring processes taking place across the industries belonging to the broader energy sector, including renewable energy (RE) industries. As an example, new participation and consultation rights related to the adaptation to climate change could be identified; roundtables addressing the impacts on the labour market should be encouraged either at sectoral or regional level; social partners and other stakeholders could join sectoral councils and engage in field research aimed at anticipating and identifying future skills needs at the regional, local, sectoral and the company level.

At the same time, low participation rates of the female workforce to the labour market is a key issue in most European Union countries. Hence, a possible hypothesis is that restructuring processes related to the enactment of climate change policies could turn into a driver for the creation of new and better employment opportunities, also for women, especially in new Member States and other specific geographical areas, where women are over-represented in low-paid jobs ⁽²⁾.

4. Female Employment in Europe

There is sound evidence that more women entering the labour market helps counterbalance the effects of a shrinking working-age population, thereby reducing the strain on public finances and social protection systems, widening the human capital base and raising competitiveness, and thus, increasing economic growth ⁽³⁾. However, quantitative and qualitative analyses show that a lot still has to be done in order to improve women's participation in the European labour market and in non-traditional occupations, including those in the Renewable Energy Sector (RES).

Historically, women have been more affected by unemployment than men. In 2000, the employment rate for women in the EU-27 was 53,7%, while the rate for men was 70,8% (Table 1) ⁽⁴⁾. In terms of unemployment, in the same year the rate for women in the EU-27 was around 10 %, while the rate for men was around 8 % ⁽⁵⁾. However, between 2000 and 2008 the employment situation for women began improving, with the employment gender gap in the EU-27 narrowing from 17,1% to 13,7%.

² Ibid.

³ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Strategy for equality between women and men 2010-2015, COM(2010)491 final, 21 September 2010, p. 3.

⁴ Eurostat, *Labour Market Statistics*, 2009, p. 20.

⁵ Eurostat 2011.

	Total		Men		Women		Gender gap	
	2000	2008	2000	2008	2000	2008	2000	2008
EU-27	62.2	65.9	70.8	72.8	53.7	59.1	17.1	13.7
EA-16	61.4	66.1	71.4	73.3	51.4	58.8	20.0	14.5
BE	60.5	62.4	69.5	68.6	51.5	56.2	18.0	12.4
BG	50.4	64.0	54.7	68.5	46.3	59.5	8.4	9.0
CZ	65.0	66.6	73.2	75.4	56.9	57.6	16.3	17.8
DK	76.3	78.1	80.8	81.9	71.6	74.3	9.2	7.6
DE	65.6	70.7	72.9	75.9	58.1	65.4	14.8	10.5
EE	60.4	69.8	64.3	73.6	56.9	66.3	7.4	7.3
IE	65.2	67.6	76.3	74.9	53.9	60.2	22.4	14.7
EL	56.5	61.9	71.5	75.0	41.7	48.7	29.8	26.3
ES	56.3	64.3	71.2	73.5	41.3	54.9	29.9	18.6
FR	62.1	65.2	69.2	69.8	55.2	60.7	14.0	9.1
IT	53.7	58.7	68.0	70.3	39.6	47.2	28.4	23.1
CY	65.7	70.9	78.7	79.2	53.5	62.9	25.2	16.3
LV	57.5	68.6	61.5	72.1	53.8	65.4	7.7	6.7
LT	59.1	64.3	60.5	67.1	57.7	61.8	2.8	5.3
LU	62.7	63.4	75.0	71.5	50.1	55.1	24.9	16.4
HU	56.3	56.7	63.1	63.0	49.7	50.6	13.4	12.4
MT	54.2	55.2	75.0	72.5	33.1	37.4	41.9	35.1
NL	72.9	77.2	82.1	83.2	63.5	71.1	18.6	12.1
AT	68.5	72.1	77.3	78.5	59.6	65.8	17.7	12.7
PL	55.0	59.2	61.2	66.3	48.9	52.4	12.3	13.9
PT	68.4	68.2	76.5	74.0	60.5	62.5	16.0	11.5
RO	63.0	59.0	68.6	65.7	57.5	52.5	11.1	13.2
SI	62.8	68.6	67.2	72.7	58.4	64.2	8.8	8.5
SK	56.8	62.3	62.2	70.0	51.5	54.6	10.7	15.4
FI	67.2	71.1	70.1	73.1	64.2	69.0	3.9	4.1
SE	73.0	74.3	75.1	76.7	70.9	71.8	4.2	4.9
UK	71.2	71.5	77.8	77.3	64.7	65.8	13.1	11.5

Table 1: Employment rates (%) by sex and gender gap, 2000 and 2008 (Eurostat, 2009)

After the economic crisis started in 2008, unemployment rose from 7,3% in 2008 to 9.6 % in 2010 ⁽⁶⁾. The EU average unemployment remained at 9.5 % in July 2011, unchanged over the last three months (with May and June figures revised upwards, from 9.4%) ⁽⁷⁾. Thus, since early 2011, the EU27 aggregate unemployment rate has been relatively stable. Nevertheless, this apparent stability hides a growing divergence by gender, age, skill level and nationality. For instance, as shown by Chart 1, the recession has actually had a greater impact on men than women ⁽⁸⁾.

⁶ Eurostat, *Euro area unemployment rate stable at 9,8%*, 1 December 2009, p. 1 and European Commission, *Social Europe Guide: Employment Policy (Volume 1)*, July 2011, p. 19.

⁷ European Commission, Employment, Social Affairs and Inclusion, *Growing Doubts over European Labour Market Recovery*, September 2011, p. 1.

⁸ European Commission, *Social Europe Guide: Employment Policy (Volume 1)*, July 2011, p. 22.

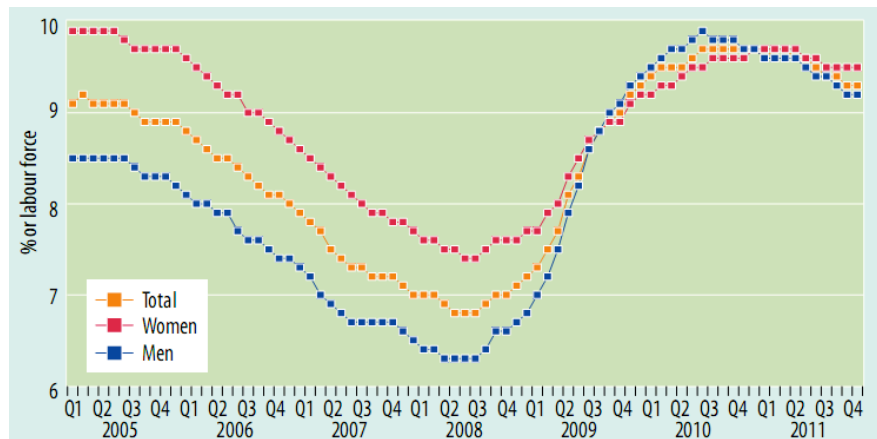


Chart 1: Unemployment rates in the EU (Source, European Commission, 2011)

However, according to the latest data, between July 2010 and July 2011, in the EU-27 the unemployment rate for males fell from 9.6 % to 9.3 %, while the female unemployment rate remained stable at 9.7 % (see Table 2) ⁽⁹⁾.

Moreover, despite the slight improvement between the last decade, in 2010 the EU female employment rate did not reach the Lisbon target of 60% ⁽¹⁰⁾, with marked differences among countries. Indeed, while some countries reported very high female employment rates – such as Denmark (71,1%) and Sweden (70,3%) – other countries dramatically remain under the European average. This is the case of Greece (48,1%), Italy (46,1%) and Malta (39,2%) ⁽¹¹⁾.

EU27	Year (annual average)				Month (Seas. Adjusted data)			Monthly		Annual	
	2000	2008	2009	2010	2010 July	2011 June	2011 July	Number or pps.	%	Number or pps.	%
Unemployment (1000)	19 528	16 829	21 525	23 158	23 162	22 693	22 711	18	0.1	-451	-1.9
Males	9 733	8 715	11 852	12 690	12 632	12 114	12 102	-12	-0.1	-530	-4.2
Females	9 795	8 114	9 674	10 468	10 531	10 580	10 609	29	0.3	78	0.7
Less than 25	4 999	4 217	5 234	5 333	5 288	5 145	5 115	-30	-0.6	-173	-3.3
Unemployment rate (%)	8.7	7.1	9.0	9.7	9.7	9.5	9.5	0.0	-	-0.2	-
Males	7.8	6.7	9.1	9.7	9.6	9.3	9.3	0.0	-	-0.3	-
Females	9.8	7.6	9.0	9.6	9.7	9.7	9.7	0.0	-	0.0	-
Less than 25	17.3	15.8	20.1	21.1	20.9	20.8	20.7	-0.1	-	-0.2	-

Table 2: EU unemployment rates in July 2011 (European Commission, 2011)

Despite these encouraging recent trends reflected in the increased number of women in the labour market, a lot remains to be done in the field of the *quality* of women's participation. This includes issues surrounding the gender pay gap, horizontal and vertical segregation, organisation of working time and work-life balance.

(i) Gender pay gap (GPG) ⁽¹²⁾

According to Eurostat, in 2009 women earned on average 17% less gross hourly than men in the EU- 27. The gender pay gap ranged from below 3% for Slovenia to above 30% for Estonia (Figure 1). Reasons for the existence and size of the GPG are diverse and may differ strongly

⁹ European Commission, Employment, Social Affairs and Inclusion, *Growing Doubts over European Labour Market Recovery*, September 2011, p. 2.

¹⁰ In 2010, the EU-27 employment rate was 58,2% (source: Eurostat)

¹¹ Eurostat.

¹² At a European level, the gender pay gap (GPG) is an important indicator used to monitor the inequality in pay between men and women all over Europe. It is defined as the relative difference, in percentage, between the average gross hourly earnings of women and men.

between Member States (e.g. the kind of jobs held by women, consequences of breaks in career or part-time work due to childbearing and decisions in favour of family life, etc).

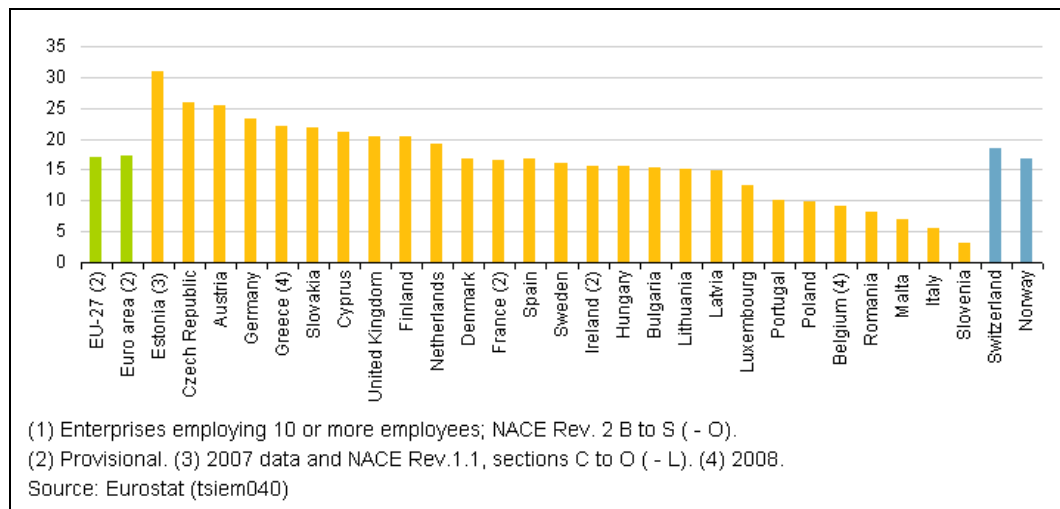


Figure 1: Pay gap between women and men

As stated by the European Commission ⁽¹³⁾, the gender pay gap extends well beyond the question of equal pay for equal work. This is an issue encompassing several aspects. First of all, the way women's competences are valued compared to men's within a firm organization. Indeed, jobs requiring similar qualifications or experience tend to be paid less when they are dominated by women. Secondly, the pay gap is also derived from segregation in the labour market as women and men still tend to work in different sectors/jobs. On the one hand, women and men are often over-represented in certain sectors, with 'female' jobs (mostly in health care, education and public administration) in general being less valued than typically male professions. On the other hand, within the same sector or company the jobs done by women tend to be of lower value and are less well paid (see section ii). Finally, the pay gap also reflects other inequalities in the labour market mainly affecting women – in particular their disproportionate share in family responsibilities and the difficulties in reconciling work with private life.

(ii) Horizontal and vertical segregation

Gender-based employment segregation is a resilient feature of European labour markets and it can be "horizontal" (when men and women commonly work in different types of occupations/sectors) and "vertical" (when women and men commonly work at different grades and levels of responsibility) ⁽¹⁴⁾. According to the European Commission ⁽¹⁵⁾, there has not been much positive evolution in aggregate levels of segregation in sectors and occupations between 2003 and 2008. In 2008, Estonia, Slovakia, Lithuania, Latvia and Finland faced high segregation in occupations and the same five countries (though in another order) have the highest levels of segregation in sectors (see figure 2 and 3⁽¹⁶⁾). Only recently, women have made some advances into some jobs, which were previously male-dominated (such as construction, electricity, gas and water supply, transport and communications, manufacturing

¹³ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Strategy for equality between women and men 2010-2015*, COM(2010)491 final, 21 September 2010.

¹⁴ For definitions see: European Economic and Social Committee, *Women and Labour Market*, April 2008, p. 12.

¹⁵ European Commission, *Report on Equality between women and men 2010*, 2010, p. 17.

¹⁶ European Commission, *Report on Equality between women and men 2010*, 2010, p. 26-27.

and agriculture). However, there has been less movement of men into female-dominated job sectors: social care jobs – childcare, teaching young children, nursing, eldercare – are among those which few men enter and thus remain women dominated sectors.



Figure 2: Gender segregation in occupations in EU Member States (2008)

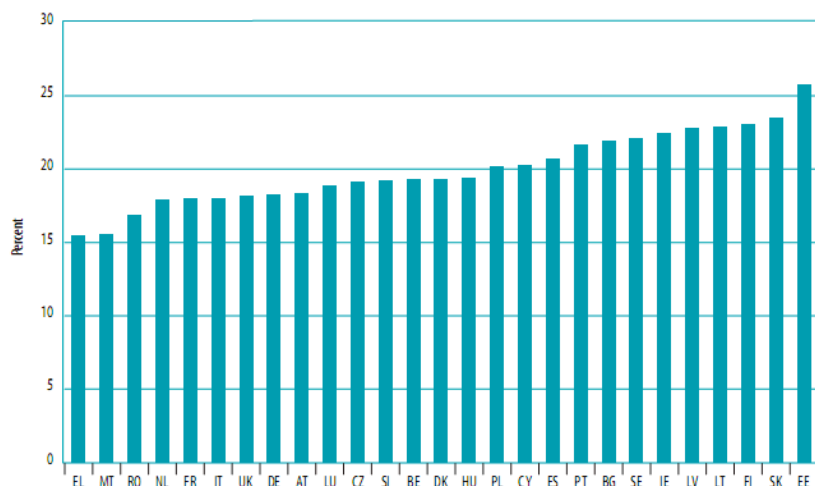


Figure 3: Gender segregation in economic sectors in EU Members States (2008)

Concerning vertical segregation, the most striking feature is the low percentage of women in managerial and decision-making posts. In most Member States, women continue to be under-represented in decision-making processes and positions, in particular at the highest levels, despite the fact that they make up nearly half the workforce and more than half of new university graduates in the EU. Women represent only one in ten board members of the largest publicly listed companies in the EU and 3 % among the presidents of the board (¹⁷).

(iii) Organisation of domestic and working lives

As reported by the European Commission (¹⁸), women's economic roles have been changing, with employment rates increasing for women across successive generations. But changes in family roles have been more modest. Although men are more involved in childcare than in the

¹⁷ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Strategy for equality between women and men 2010-2015*, COM(2010)491 final, 21 September 2010, p. 7.

¹⁸ European Commission, Employment, Social Affairs and Equal Opportunities, *Men and Gender Equality: tackling gender segregated family roles*, March 2010, p. 5.

past, domestic labour – housework and care for children and elders – is still predominantly the responsibility of women. On average in Europe employed women do more than three times the amount of domestic labour during the week than employed men. Men work longer employment hours but women have the longer ‘total working week’ when paid and unpaid work is summed (see Table 3 (¹⁹)).

Age of respondent	Men	Women
24 years or younger	3.2	10.4
25-39 years	9.2	31.8
40-54 years	8.6	26.9
55 years or older	5.2	17.9

Parental leave is only one part of the family policy framework for promoting a more gender egalitarian division of domestic labour. Another consideration is other working-time adjustments that are available to parents, such as part-time contracts and flexible work. Both these tools present advantages but also drawbacks. As reported by the European Economic and Social Committee (²⁰), if part-time work is a voluntary choice, it is positive as a transitory solution but becomes negative if it is prolonged, since it implies lower pay and consequently lower social security contributions. On the one hand, it can be positive to the extent that it frees up time for training or investing in another activity. On the other, it is negative in that it means that the individual concerned is not entitled to continuing training, which is often reserved for full-time employees. It is positive if it makes it easier for the individuals concerned to balance work and family life, but negative if it becomes synonymous with “marginal”, “non-standard” or “atypical” work and if it means that the workers in question are not covered by collective agreements on annual pay rises or other working conditions reserved for full-time workers. Moreover, there is the risk of the workers concerned, most of whom are women, being ‘ghettoized’ in insecure jobs.

With regard to flexible work, it could be positive if it is linked with an intention to manage working time (but only if it is backed up by proper social security coverage). Without this, it is negative in terms of the acquisition of social security entitlements, including the entitlement to retirement pensions.

4.1 Women in the renewable energy sector

The green economy has been scarcely analyzed from a gender perspective: previous studies and research have only briefly addressed gender issues. One reason for this is that the sectors where green jobs are mainly concentrated (²¹) are characterized by female workforce underrepresentation such as in science and technological intensive jobs (²²). A second reason is that studies have focused on strategies that governments have chosen to promote more environmental friendly jobs but without taking into consideration the situation of women.

The issue of renewable energies are considered priority among the most relevant climate change and employment policies. The production of energy from renewable sources is expected to have a positive effect on reducing greenhouse gases, but also an exponential occupational potential. Indeed, within the scenario, which considers the European policies and the targets set by the Climate and Energy Package, the European Commission has

¹⁹ European Commission, Employment, Social Affairs and Equal Opportunities, *Men and Gender Equality: tackling gender segregates family roles*, March 2010, p. 12.

²⁰ European Economic and Social Committee, *Women and the Labour Market*, April 2008, p. 15-16.

²¹ Green jobs can be created in all sectors and types of enterprises, in urban and rural areas, and in countries at all levels of economic development (ILO, 2011). Therefore, green economy refers to all sectors and jobs.

²² UNEP et al., *op. cit.*, p. 309.

estimated an increase in the new energy jobs of up to 1.7 million in 2010 and 2.5 million in 2020 only in the EU. Of this 60-70 % of the work force will be engaged in manufacturing , engineering and installation services, while the remainder in agriculture. A qualified workforce, involving specific skills for renewable energy, will account for about 30% of total employment with the rest of the workforce exploiting specific skills and competencies already acquired in other industrial sectors ⁽²³⁾.

Moreover, the renewable energy sector is a sector in which the EU not only predicted the creation of additional jobs ⁽²⁴⁾ but also started to encourage female participation ⁽²⁵⁾. These goals have been further stressed by the European Parliament which calls on the EU and the Member States to give higher priority to “green jobs” for women, taking into account the fact that the European Social Fund finances training projects in areas such as renewable energy ⁽²⁶⁾. This is a great challenge considering that the geography of renewables’ development varies across the EU and female workers are strongly under-represented in the renewables sector and especially in science and technology-intensive jobs.

In developed countries female employees are estimated as 20% of the total workforce, are mostly concentrated in staff profiles such as administration and public relations ⁽²⁷⁾. This situation might be replicated without considerable changes as well in new green businesses and in RES. Certain working arrangements, cultural issues and gender stereotypes may lead women to select general and non-technical studies and jobs instead of those in engineering, math and science. This contributes to an unbalanced gender representation in certain labour market occupations, especially in highly technical industries. For instance, the typical value chain of a company in the renewable energy sector includes core businesses where mainly engineers, technicians and specialized workers are employed. But these are professional profiles where women have traditionally been underrepresented, also as a consequence of a lack of skills and qualifications in hard sciences, at a macro level. Nevertheless, as the WiRES research showed, a number of multinational companies are developing gender-neutral and highly-qualified professional profiles, where women, whose qualification levels have noticeably increased and outpaced those of men, can gain considerable job opportunities. A possible role for social partners and stakeholders would be supporting the transition to low-emitting economies by guaranteeing that female labour force, typically employed in services, does not lose their jobs. Similarly, women who have spent a long time out of the labour market could be involved in information and awareness raising activities, as well as being targeted for educational and training opportunities for requalification, promoted jointly by local institutions and social partners.

Therefore, if RE can be part of the solution, it is also true that there are still challenges to be faced concerning female employment, from access to employment, to their working conditions and the safeguard and promotion of equal opportunities, also taking into account the traditional prevalence of the male-workforce in the energy industry ⁽²⁸⁾.

²³ Annalisa D’Orazio (GSE, IEF E Bocconi), *Prospettive e sviluppo delle tecnologie rinnovabili per la produzione di energia elettrica. Opportunità per il sistema industriale nazionale*, 2009, p. 16.

²⁴ European Commission, *Citizens’ summary of the EU Climate and Energy Package*, 2008.

²⁵ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Strategy for equality between women and men 2010-2015*, COM(2010)491 final, 21 September 2010.

²⁶ European Parliament, Resolution of 7 September 2010 on developing the job potential of a new sustainable economy.

²⁷ Sustain labour (2009).

²⁸ Green jobs are mostly so-called Non-traditional Occupations (also known as occupations where women represent 25% or less of the total workforce employed, according to the US Bureau of Labour Statistics). There is a lack of scientific literature on the issue, since debates are still in progress.

5. Methodology

The adopted methodology varied according to the different research phases and to the national situation analysed, but it included:

1. A descriptive analysis of female employment trends across the EU;
2. A selection of a set of indicators relevant to the analysis,;
3. Literature reviews of available articles, books, documents and conference proceeding, on the topics of the project from contractual and working time arrangements, to family-friendly policies and work-life balance instruments, to professional development and female entrepreneurship.
4. Consultations and interviews with employers and trade unions involved in the project. The WiRES team identified and contacted policy officers, project managers in charge of environmental or gender issues within the European and national social partners organizations via email.
5. Dissemination of the project's initiatives, results, events, deliverables by means of continuous contact at the national and international level with relevant stakeholders and institutions.

2. FINDINGS AND OUTCOMES

2.1. Outcomes

The most important WiRES expected result, i.e. increased awareness on gender issues related to green jobs, was achieved. A number of relevant stakeholders were involved in the project as partners, supporters or participants in the WiRES related events. Social partners, Institutions' representatives and prominent academics joined the network, bringing different perspectives and contributing to the debate concerning women in the renewable energy sector.

During the WiRES project, the European Parliament issued two important resolutions emphasizing the negative impact the crisis would have on women ⁽²⁹⁾ and calling on the EU and the Member States to give higher priority to "green jobs" for women, taking into account the fact that the European Social Fund finances training projects in areas such as renewable energy ⁽³⁰⁾.

The wide coverage of the project contributed to its appreciation in many countries, and by the EU institutions.

Moreover, a number of Adapt special newsletter and dossiers about WiRES were issued; they include the contributions of EU officials and experts from international organizations, like the ILO, as well as social partners at the EU level.

During the WiRES project a consultation of social partners operating in the energy sector, both at a national and European level, was launched. Around one hundred e-mails were sent to advertise the project and, at the same time, positive feedback was received. Representatives from employers and trade union organizations were requested to provide information about best practices on the role of social partners in initiating and influencing gender-oriented policies and practices in the field of renewable energy. In order to present a full picture of the research objectives, the WiRES team also asked national social partners for support in gathering information on collective agreements covering the renewable energy sector in each country. Unfortunately, apart from the British employers and trade unions representatives and EURELECTRIC officials, very little feedback was received. The WiRES

²⁹ EUROPEAN PARLIAMENT, *Resolution of 17 June 2010 on gender aspects of the economic downturn and financial crisis.*

³⁰ EUROPEAN PARLIAMENT, *Resolution of 7 September 2010 on developing the job potential of a new sustainable economy*

research team regrets to record limited support from the European Trade Union Confederation (ETUC) for the whole project.

2.2 Facts on the renewable energy sector: opportunities for women

Most of the articles and literature concerning the WiRES project were based on the assumption that the rise in green jobs is a consequence of the positive relationship between environmental policies and the expansion of the renewable energy sector. Nonetheless empirical research is not univocal on this. The lack of a shared definition of green jobs ⁽³¹⁾, together with different approaches to data create difficulties in making a quantitative or qualitative assessment of the effects of the green economy. Most of the studies make a slightly positive assessment, alternatively opting for a neutral position, suggesting that negative effects are less likely.

As far as the comparison between the traditional energy sector and the renewable energy sector is concerned, a study issued by UNEP in 2008 shows that, compared to fossil-fuel power plants, *renewable energy* generates more jobs per unit of installed capacity, per unit of power generated and per dollar invested as a result of three concurrent effects: the *spin-off effect* ⁽³²⁾, the *substitution effect* ⁽³³⁾ and the *catch-up effect* ⁽³⁴⁾. Despite the job creation potential of the renewable energy sector, women may face challenges in accessing green jobs in RES, as these tend to concentrate in traditionally male-dominated industries and occupations, and because women often lack the necessary skills, qualifications and experience needed in this sector. Moreover, unlike the US labour market, where green jobs may also be viewed as “green-collar jobs” ⁽³⁵⁾, European trends suggest that the green sectors do not curb the polarization tendency of the labour market, with both low-paid unskilled jobs, and highly skilled occupations.

Therefore, at a European level, policies should create new forms of green employment, to cope with the increasing polarisation of the labour market. To this aim, the availability of specific data related to the gender issue is essential. On the contrary, the research acknowledges that EU-wide indicators on women and the environment have not been developed yet, due to the absence of regular surveys on these topics in the EU Member States. Eurostat presents a very limited array of gender-disaggregated data, especially regarding employment in renewables, since this topic is only recently being investigated and awareness about gender imbalances in the energy sector and in the green economy are not considered a priority yet.

Some researcher suggested that the energy sector has a highly masculine image, which deters women. Moreover, there is a stereotype that women are not technologists and that they are not capable (even when provided with appropriate support) of building, operating and maintaining sophisticated technologies. This idea seems to be confirmed by the workforce gender composition in the energy sector. The share of female technical staff is at most 6%, in

³¹ UNEP, *Green Jobs: towards decent work in a sustainable, low-carbon world*, 2008 in www.adapt.it, Adapt Index, *Green Jobs*.

³² Employment tends to grow more quickly in the field of renewable energy as a consequence of the EU energy and climate policies.

³³ There will be a certain degree of substitution of employment, owing for instance to the shift from fossil fuels to renewable energy sources.

³⁴ The catch-up effect is commonly used to describe the economic growth of developing countries but, in a sense, it could also apply to single sectors.

³⁵ Green collar jobs represent an important new category of work force opportunities because they are relatively high quality jobs, with relatively low barriers to entry, in sectors that are poised for dramatic growth. The combination of these three features means that cultivating green collar jobs for people with barriers to employment can be an effective strategy to provide low-income men and women with access to good jobs-- jobs that provide workers with meaningful, community serving work, living wages, benefits, and advancement opportunities (R. Pinderhuges, *Green Colar Jobs - An Analysis of the Capacity of Green Businesses to Provide High Quality Jobs for Men and Women with Barriers to Employment*, 2007, p. 1).

decision-making positions it is about 4%, and in the top-management the share is less than 1%.

However, other studies, and in particular those issued by the OECD (³⁶), argue that women are most inclined to green issues compared to men. Thus, the renewable energy sector should represent a privileged outcome for female employment.

The WiRES research outlines several reasons to overcome the stereotypical view of women in the renewable energy sector and to create incentives for women towards green careers:

- A green job can provide the chance to earn more;
- Women can start with any skill levels.;
- Green jobs appeal to workers with a diversity of skills and interests;
- There are multiple ways to get started in a green job;
- Green job opportunities are available for workers of any age;
- Green employers are looking to hire.

2.3. Social dialogue for women in the renewable energy sector

The WiRES research was focused on the role of social dialogue in easing and possibly shaping the transition towards a greener economy. In particular, the purpose of this research was to show how social partners might contribute to make the renewable energy sector more gender-friendly.

In one year, the WiRES research highlighted that there is a lack of specific social dialogue experiences in RES, but it also acknowledges that prepared trade unionist and employers' representatives can support women access to RES in different ways.

First of all, in promoting education, training and skills development. Women risk finding themselves without the necessary qualifications to take advantage of the opportunities in the green economy, due to a lack of skills and expertise. The empirical study conducted within WiRES-suggested that the requirements for occupations in renewable energy tend to exclude women. A survey of the gender of graduates in different subjects-found that women were underrepresented in science, technology, engineering and mathematics. Vocational training programmes are seen as traditionally increasingly male-oriented especially in some countries. At the same time, the renewable energy sector requires workers with a certain level of expertise in the electrical/energy sector who are willing to travel: both factors that tend to discourage working women. Therefore, it will be necessary to increase and adapt the current and future workforce, providing students and workers with higher levels of qualifications. Creating a map of skill requirements is a vital first step as it can inform ad hoc programmes for potential skills upgrading. Assessments of the potential of green jobs and the monitoring of such skill needs, would constitute an ideal basis for ad hoc measures and for the adaptation of national vocational training and education systems over the medium term (³⁷). Proper measures for identification and anticipation of skills could also reduce gender inequalities. Some of the emerging job profiles, in fact, could be appealing and affordable also for women. Without qualified entrepreneurs and skilled workers, the available technology and resources for investments cannot be used or cannot deliver the expected environmental benefits and economic returns. Endeavours to close the current skills gap and anticipate future needs are essential for a transition to a green and low carbon economy.

Secondly, by lowering those barriers that hinders a wider participation in the workforce. According to EMCEF (2007), among the existing barriers for female participation, a relevant

³⁶ OECD, Gender and Sustainable Development: Maximising the Economic, Social, Environmental Role of Women, OECD, Paris, 2008.

³⁷ This would allow skills development to tie in directly with policies and investments, as reflected by the experiences reported by Ecorys *Overview of the links between the skills profile of the labour force and environmental factors*, 2008, concerning the identification of skills analysis methodologies.

role is played by flexible working hours, childcare needs and the culture of organization. In a dynamic industry as is renewable energy, company work-life balance policies should be developed and should be targeted both to women and men. In particular, if long working hours or shift turns are requested (e.g. for PV cells manufacturing), some measures and innovative working arrangements are needed in order not to disadvantage working parents. In some companies women with childcare responsibilities face significant difficulties in combining work and family life and this is often a barrier to their progression. As a consequence of the unequal care burden and the inability to prioritize income commitment within the family, women are often obliged to search for shorter and more flexible working hours. The result is often a hindrance to entry into occupations featuring high or irregular working hours and workload, or a re-segregation into occupational niches that tend to be more hour-friendly. This tends to be true especially among qualified women. In some cases the need for shorter working hours leads to part-time work, which is likely to further restrict the choice of occupation. Furthermore, formal childcare is often unavailable, unaffordable or of poor quality.

Thirdly, by reducing the gender pay gap. Mandatory pay audits should be introduced through collective bargaining, as they are reported to reduce the gender pay gap, in so far as they would provide transparency in relation to pay systems, thus enabling employees and unions to engage in deliberative learning processes with employers over narrowing the pay gap.

Although it is part and parcel of the macro sector of energy, the renewable energy sector needs to be addressed with proper instruments, owing to its expanding production capacity. This also means that trade unionists and employers' representatives should be trained to cope with the problems related to the emerging of new jobs, anticipating future skills needs and bridging the current skills gap.

It is not a surprise that there are still significant barriers hindering both access and participation of women in RES. As the research pointed out, the female workforce often lacks the skills and expertise required in filling the related job profiles. In addition to these access difficulties, traditional, cultural and organizational hurdles – in terms of work-life balance, the gender pay gap, occupational segregation, the glass ceiling, work-related-stress etc. – lead to a scant interest on the part of women in this sector, as well as in those characterized by the same employment conditions. As a result, women are not always ready to take advantage of the opportunities offered by the ecological conversion/evolution of the economy.

Nevertheless, social partners will have increasing opportunities to make the sector more gender-friendly, by promoting equal opportunities in a perspective of gender mainstreaming. Particular attention should be paid to education and training and skills development for WiRES.

3. SOCIAL DIALOGUE FOR WiRES ⁽³⁸⁾

3.1. The Green economy, labour market and social dialogue: challenges ahead

Ten years after the *Rio declaration on Environment and Development*, the transition to a low-carbon economy and its impact on the labour market remain among the key defining challenges of the 21st century. Although research on the green economy's job-creation potential has not led to a clear-cut analysis, most studies conclude that a neutral or slightly positive impact should be expected. A decade of discussion and debate, though, has led to

³⁸ The present paragraph is the result of the joint work of Lisa Rustico and Paolo Tomassetti, within the scope of the WiRES project.

increased awareness about the importance of accompanying these processes through social dialogue and social partnership ⁽³⁹⁾.

Social partners are expected to play three complementary roles in easing and somehow shaping the ecological conversion of the economy. First, as governments and institutions have recognized so far, social partners are main players in addressing climate change and environment-related issues: their contribution lies in influencing green policies and in driving production processes towards more sustainable pathways. Remarkably, the Electricity sector has played a major role in supporting the shift to the production of clean energy, in the field of renewable energies ⁽⁴⁰⁾. Second, in order to make the shift to a low-carbon and sustainable society as fair as possible, social partners are called to promote the conditions for decent jobs, in terms of health and safety, fair wages, making workplaces greener, gender equality, work-life balance. As already demonstrated ⁽⁴¹⁾, gender issues represent a major challenge in the transition to the green economy; social partners need to struggle in order to include gender issues among other labour market priorities. Finally, while guaranteeing equal opportunities and overall labour rights in green jobs, social partners are expected to take action in governing the green labour market, at the local level, outside companies' walls. In other words, they could act as a source of information about the potential – but also the risks – of green jobs. They have the opportunity to create the conditions to support human capital development and to facilitate labour demand and supply matching. In this connection, social partners can work towards workforce training and development programs, as well as towards outlining future occupational, training and professional needs.

According to the latest report on Industrial Relations issued by the European Commission ⁽⁴²⁾, at a national level social partners mainly engage in unilateral lobbying actions towards public authorities. Employers are concerned with the analysis of different energetic policies' opportunity-costs; they also require investments to export green technologies and incentives to adopt sustainable energetic policies at firm level. Unions, instead, express their concerns with reference to the following topics: new skills for new jobs, investments for the creation of new jobs and infrastructures. Joint actions are rare; the only exceptions have been recorded in Austria, where social partners expressed their views on the Action Plan on Environment and Economy, and in Germany, where social partners played an active and synergic role in the debate that has led to the abandonment of nuclear power.

The Commission also reports the paucity of social dialogue tripartite structures that have addressed the issue of employment impact of the green economy. Among the latter, the Dutch

³⁹ One of the latest *Commission staff working documents* on the functioning and potential of European sectoral social dialogue (SEC (2010) 964 final) reaffirms Social Dialogue as *one of the pillars of the European social model, and as a tool of social cohesion and resilience*.

⁴⁰ For instance, EURELECTRIC, the European social partner for the Electricity industry, published the *EURELECTRIC Environmental Guidelines* in 2003 and, in 2004, launched the *Roadmap for Sustainable Development*, an initiative aimed at providing EURELECTRIC members and staff with an approach to the core sustainable development values that should guide the organisation's strategic choices, the commitment to resources, activities and publications. Most recently, EURELECTRIC issued its *4th Environment and Sustainable Development Report* (EURELECTRIC 2010), which shows trends in environmental performance and the significant emission reductions made by the Electricity Industry during the last two decades. The report contains a special feature on *Power Choices*, a project that sets out EURELECTRIC's vision on how to establish pathways to carbon-neutral electricity generation in Europe by 2050 (EURELECTRIC, *Power Choices: Pathways to Carbon-Neutral Electricity in Europe by 2050*, Brussels 2009). As for the gas sector, EUROGAS has so far issued as many as twelve papers on the role natural gas plays in a sustainable energy market, such as the EUROGAS views (S/EUR)/87/806) on the Commission strategy paper for reducing methane emissions (COM(96)557), the EUROGAS Comments (S/EUR/97/924) on the Commission Communication on the energy dimension of climate change (COM(97)146), Climate Change / the road to Kyoto (COM(97)481) issued in 2007 and the 2008 *Position Paper on The role of natural gas in a sustainable energy market*. On the union side, for instance, the EMCEF-European Mine, Chemical and Energy Workers' Federation (EMCEF energy policy, 2006) underlines the need to promote renewable energies as they are essential to guarantee supply security in Europe.

⁴¹ See previous paragraphs.

⁴² European Commission, *Industrial Relations in Europe 2010*, in www.adapt.it, Adapt Newsletter n. 11, 22 March 2011.

Social and Economic Council, the Belgian Central Business Council and National Labour Council and the Spanish Table on climate change.

A third remark concerns the scarcity of experiences of firm level bargaining on green jobs and, in general, on climate change. Spain is an exception, as energy efficiency has been included in the guidelines for secondary bargaining; Belgium stands out as well for the 2009 agreement on "ecocheques". Nevertheless, the number of supplementary company level agreement in the field of environmental and energetic policies is increasing. The EU Commission reports two best practices: the Italian national collective labour agreement of chemicals, which broadens the competences of worker's representatives in charge of health and safety to environment; the British Trade Union Congress, which introduced in 2010 the so called "green reps", company level unionists in charge of monitoring the implementation of energetic policies and support programs to shift to a greener economy.

Fourthly, European social partners at the cross-sector level have included climate change in the joint action plan for 2009-2010. They have also promoted a joint study on the occupational dimension of policies for climate change and they plan to draft a joint opinion on this topic. While, at a sectoral level, green economy is debated in 8 of the 40 Committees for European Sectoral Social Dialogue (agriculture, chemicals, electricity, mining industry, iron, wood).

3.2. Social dialogue in the renewable energy sector: state of the art

Despite the positive future prospects, alternative energies remain at an early stage of development in comparison to the energy sector as a whole: the renewable energy sector is still playing a secondary role within the macro sector of energy, which continues to be characterized by higher investments in non-renewable energies. This entails the following effects at a national level. First, as regards to European countries there are no agreements in place to cover this sector as such. Second, against this background, it is rare to find specific social dialogue experiences in the field of alternative energies. Third, proper gender-oriented initiatives have not been implemented yet, thus undermining the creation of a gender-friendly sector as described above. This is the reason why the role of social dialogue is considered to be vital in preventing gender discrimination from spilling over into the renewable energy sub-sector.

The energy sector is currently covered by four *European Sectoral Social Dialogue Committees*, namely Chemical Industry, Electricity, Extractive Industry, Gas ⁽⁴³⁾. The European Sectoral Social Partners have made steps forward to promote a "fair" energy market, although proper social dialogue initiatives for the renewable energy sector have not been put in place yet. In fact, social partners are mostly inclined to discuss cross-sectoral issues like e.g. Demographic changes, Restructuring, Corporate Social Responsibility, Health and Safety, Gender Equality and Work Life Balance. This should be considered as an efficient way to make their national affiliates familiar with the European policies and, at the same time, to facilitate the implementation process of those cross-industry social policies developed by cross-sectoral European social partners, such as the agreements and framework of actions on *Lifelong Development of Competencies and Qualifications (2002)*, *Work Related Stress (2004)*, *Gender Equality (2005)* and *Harassment and Violence at Work (2007)*.

Looking at the EU Member States, the Renewable Energies landscape at national level refers to four industrial fields included in the macro sector of energy, namely Chemical Industry, Gas, Electricity and Water, with the exception of the Extractive Industry. Renewable Energies

⁴³ The *WiRES* research did not take into account social dialogue within the Extractive Industry, which is not representative of the renewable energy context.

are therefore covered at least by two different Collective Agreements, i.e. the *collective agreement for Chemical Industry*, as chemical products are used in many green technologies, and the *collective agreement for Utilities* or, where applicable, *Services* (Gas, Electricity and Water). Moreover, several companies operating in the field of Renewable Energies fall within the *Metalworkers' collective agreement*, as a result of their particular business. As a consequence of its wide scope, the Renewable Energy Sector is subject to different regulations. Indeed, it could be defined as a cross-industry sector. Consequently the lack of a delimited sector regarding alternative energies leads to the absence of proper social dialogue initiatives. This could be seen as a paradox, since the renewable energy sector exists, but it is not managed with proper tools.

The 2009 report issued by the *Dublin Foundation* ⁽⁴⁴⁾ shows a number of results. Firstly, there are a lot of examples of tripartite structures dealing with green issues, ranging from the *Environmental Councils* and ad hoc *Committees* established in Denmark and Finland, to the *Romanian National Standing Committee on Sustainable Development* and the *Slovenian Council for Sustainable Development*. Elsewhere, in Spain, social dialogue on green issues is carried out within the framework of the country's standard tripartite social dialogue structures and is linked to the debate on the modernisation of the economy. The report also shows recent development in France where a range of ad hoc working groups have been created and the *Economic and Social Council* (Conseil économique et social) has now become the *Economic, Social and Environmental Council* (Conseil économique, social et environnemental).

Secondly, there are a number of examples of bilateral dialogue on green issues between management and labour. In Denmark, for instance, a bilateral initiative called the "*Energy Camp*" brings together social partners and businesses associations to develop practical initiatives and identify common goals on environmental and climate change issues. Elsewhere, in Norway, the trade union confederation (LO) and the Confederation of Norwegian Enterprise (Næringsli ets Ho edorganisasjon, NHO) published a joint statement encouraging their members to join green campaigns and highlighting the importance of challenges related to climate change.

Thirdly, both employers and trade unions have been active in raising awareness of the main green issues among their members: on the employers' side, activities focus on issues concerning compliance with environmental legislation, reducing emissions, enhancing competitiveness in the green economy, and making the most of the business opportunities presented by the new green economy. Among other things, the following examples have been reported: the *Malta Chamber of Small and Medium-sized Enterprises* (GRTU) has organised a number of public meetings to explain the obligations and opportunities arising from the EU Directive on waste management and the Directive on waste collection of packaging to its members; in the UK, the Confederation of British Industry (CBI) holds regular events on issues related to climate change for its members; an innovative competition organised by the *Association of Building Entrepreneurs of the Czech Republic* (Svazvpodnikatelů e stavebnictví ČR, SPS ČR) aims to inform the Czech public about construction projects that are environmentally friendly, but which are also modern and affordable. On the other hand, trade unions encourage social dialogue, negotiation, seminars and overall dissemination of good practices within companies or public organisations on the subject of environment, as well as promoting the use of renewable energy. In this framework, this paper highlights, among other things, the following good practices: the German trade union federation, DGB, is providing experts to give information and assistance to local authorities wishing to carry out energy-efficient refurbishment of buildings; the Trade Union Confederation (TUC) in the UK has issued a guide for trade union representatives and members who are interested in becoming involved in green issues at the workplace.

⁴⁴ EUROFOUND, *Greening the European Economy*, 2009 in www.adapt.it Observatory, *Green Jobs*

Fourthly, many employers' and trade union organisations have put in place information and training programmes for their members on green issues ⁽⁴⁵⁾.

Nonetheless, the Eurofound report confirms that no formal social dialogue is yet in place that deals specifically and only with the renewable energy sector. The role of social partners seems therefore to be restricted within the wider area of environmental and sustainable development. They are key stakeholders in implementing the "green agenda", although they have failed to create formal structures of social dialogue for the renewable energy sector. This means that the second role that they are expected to play – i.e. addressing the existing mismatch between skills supply and demand in the green economy, anticipating future skills needs as well as ensuring fair working conditions for green jobs – has been overshadowed.

As far as gender issues are concerned, the European social partners representing the electricity industry are notably committed to equality and diversity and have worked together on these topics. This led to the publication in December 2006 of the Equal Opportunities & Diversity – Toolkit/Best Practices Guide, which aims at promoting understanding and awareness of the management of equality and diversity in the workplace. This is, undoubtedly, an example of good practice, but a lot remains to be done. First of all, because this is the sole specific reported case so far, in the electricity sector. Second, when it comes to equal opportunities and gender equality, it is important to look at the challenges outside the companies' boundaries, mainly in terms of placement and replacement.

These considerations might suggest that gender policies in the specific renewable energy context remain limited and are only tackled at a company level. Energy companies that operate in the EU market can be divided into two groups. The first group includes traditional big energy companies (e.g. Shell, Eni, Total, Statoil etc.), which are developing their capacity to take advantage of the opportunities offered by the renewables sector. These companies continue to invest in non-renewable energies in order to face the need to modernize the transmission and distribution grids as well as investing in the construction of new low-carbon generation power stations. The second group includes new generation businesses specifically set up in field of renewable energies.

All these companies interact with a universe of smaller enterprises, encouraging the development in the green economy. Accordingly, so far the sector has been dominated, at least from a quantitative point of view, by smaller independent companies ⁽⁴⁶⁾ which probably have no agreements with the trade unions, especially those falling within the second group and in countries where company or territorial social dialogue is not fully developed. In those contexts, experiences of social dialogue are likely to be limited to the core issues of employment law and gender equality is not addressed in any systematic way.

4. CONCLUSIONS

The conclusion that can be drawn from this analysis is that social dialogue in the renewable energy sector is still weak. Renewables are not yet playing a leading role within the macro sector of energy. But the renewable energy sector is definitely part and parcel of the sector. But it has been said that, owing to its dynamism and employment potential, the renewable energy sector requires proper social dialogue initiatives. The social partners involved, both at the national and international level, are the same for the two sectors. This, perhaps, could also explain some considerations pointed out by the Eurofound ⁽⁴⁷⁾ according to which:

⁴⁵ See Annex 1.

⁴⁶ SUSTAINLABOUR, *Desarrollando las renovables, Renovando el desarrollo*, 2010 and Ires, Filctem Cgil, *Lotta ai cambiamenti climatici e fonti rinnovabili. Gli Investimenti, le Ricadute Occupazionali, le Nuove Professionalità*, 2010

⁴⁷ EUROFOUND, *Greening the European Economy*, 2009.

- 1) In some countries, employers still fear that transition to a greener economy will increase costs and therefore reduce competitiveness.
- 2) While in some countries trade unions see the emergence of new green industries as a recruitment opportunity, in other countries they fear the decline of more traditional industries with strong trade union membership and recognise that it may be harder to recruit members in new green industries.

Therefore there seems to be a sort of competition between the two sectors, which the national and European environmental and green policies contribute to amplify. This is certainly a central reason behind the scant development of social dialogue in the renewable energy sector.

The road map to change should move from a consideration: although the energy sector continues to be characterized by higher investments in non-renewable energies, it has been widely reported that the production capacity of alternative energies is increasing. This is expected to produce two effects:

- 1) The acquisition of relevance of the renewable energy sector within the macro sector of energy. Social partners in the renewable energy sector will have more opportunities to make their voice heard within the energy landscape in the years ahead.
- 2) Self-determination of social partners within the field of renewable energies. Collective bargaining as well as new distinct national social dialogue structures, strictly relevant to the emerging employment issues related to the green economy, will start to be arranged in the forthcoming years. This will allow new social partner organisations or sub-sections of existing organisations to fully accomplish their role, widely described in this article, within companies and, notably, in the labour market.

Ad hoc social dialogue processes and structures covering the renewable energy sector as such might be a first step to make the transition towards a green economy an opportunity for women workers too. As the research pointed out, the female workforce often lacks the skills and expertise required to filling the related job profiles. In addition to these access difficulties, traditional cultural and organizational hurdles – in terms of work-life balance, the gender pay gap, occupational segregation, the glass ceiling, work-related-stress etc. – involves limited interest for women in this sector, as well as in those featured by the same employment conditions. Moreover, gender stereotypes deepen gender segregation. As a result, women are not ready to take advantage of the opportunities offered by the ecological conversion/evolution of the economy.

In order to make the sector more accessible and more attractive towards women, social partners are called to support, first of all, vocational education and training in parallel with the anticipation and forecasting of future skills needs for WiRES. Secondly, they are called to play a key role in promoting gender mainstreaming for policies to make renewable energy sector more women friendly by guaranteeing a better reconciliation between work and private life. Thirdly, stereotype views may be eradicated by taking awareness actions and disseminating information about the opportunity offered by a green career. Only by providing women with the right skills, the proper working conditions, and enjoyable career perspectives, social dialogue can help women grab hold of the opportunities offered by the low carbon economy.

5. IMPROVING WORKING CONDITIONS: POLICY RECOMMENDATIONS OF WiRES

Taking into consideration the results of WiRES research, this section reports what social partners can do to make the renewable energy sector a gender-friendly sector. Some of these

actions should receive more attention as they improve the general working conditions not only for women, but also for men employed in RES.

1. To prepare ad hoc social dialogue processes and structure for RES

The WiRES results show that proper experiences of social dialogue for the renewable energy sector are still lacking. Therefore, social partners do not have enough room to address the specific needs of the employees of this sector. Thus, it is necessary to evaluate the feasibility of arranging ad hoc social dialogue processes and structures for RES (e.g. sectoral specific committees) in order to allow social partners to fully accomplish their role to make the ecological conversion of the economy as fair as possible.

2. To promote education, training and skills development

According to WiRES results, social partners could play an important role in decreasing the mismatch between labour supply and demand in the renewable energy sector, and in general, in the green economy. The research acknowledges that the requirements for some of the most widespread occupations in renewable energy tend to exclude women as they lack the skills and expertise needed for these jobs. Endeavors to close the current skills gap and anticipate future needs are essential for a transition to a low carbon economy. Given this scenario, social partners could support educational institutions in curriculum design as well as in organizing multidisciplinary learning environments within companies in RES. This underpins a lifelong learning perspective, which is essential in shifting towards a green economy. Good practices are reported in Annex 1.

3. To address issues such as work-life balance, the gender pay gap, occupational segregation, and the glass ceiling

Among the existing barriers for female participation in the labour market, a relevant role is played by flexible working hours, childcare needs and the culture of an organization. Therefore, social partners are requested to promote gender mainstreaming for policies in RES. These policies could be integrated by the promotion of a more environmental friendly behaviour within companies.

4. To remove stereotypes

The results show that the renewable energy sector has a highly masculine image which deters women. Moreover it is reported that there is a stereotype view that women are not technologists and that they are not capable (even when provided with appropriate support) of building, operating and maintaining sophisticated technologies. Social partners should play an active role in erasing these stereotypical views by means of information, training, mentoring, coaching, including psychological support services.

6. ANNEXES

Annex 1

Initiatives by the social partners at European level in the field of vocational training and retraining in the green economy

Country	Practices
Ireland	The employers' confederation IBEC provides environmental training for members; this includes a Foundation Course in Environmental Management for managers wishing to get up to speed on current environmental performance trends, standards legislation and solutions.
Norway	The Norwegian Association of Local and Regional Authorities along with the Confederation of Unions for Professionals and the Norwegian Union of Municipal and General Employees have organized a conference for safety representatives and trade union representatives, in order to develop their knowledge and expertise in relation to green issues. The trade union confederation LO and its member unions have set up courses on climate change for shop stewards.
Belgium	Regional plans: research and training in green technologies. National social dialogue structures – namely, the National Labour Council and the Central Economic Council – are currently active in relation to environmental issues and are preparing a joint statement on green jobs. An innovative scheme exists in Belgium, whereby long-term jobseekers are trained to carry out energy assessments and help advice on energy-saving measures. These people are called 'energy trimmers' and help to implement energy-saving measures in buildings through 'energy trimming companies', which are not-for-profit organisations. The schemes exist in all regions of the country.
Spain	Social dialogue on green issues is carried out within the framework of the country's standard tripartite social dialogue structures and is linked to the debate on the modernisation of the economy.
Italy	The government has set up a fund to finance research projects on energy efficiency and the use of renewable energy sources in urban areas. The trade fair SolarExpo and the employment agency Adecco have developed training and retraining courses for technicians in the solar panel and wind farm industry. Under this scheme, skills that are particularly relevant to these industries are taught. The Association of Energy Producers from Renewable Sources organises company training and information courses on European and national regulations in the energy and environment sector.
Finland	The National Commission on Sustainable Development acts as an important tripartite forum where different stakeholders can present their ideas, goals and programmes, as well as engage in a broad debate about ecological sustainability. The employer organisation EK has published a guide on corporate responsibility, which contains tools for self-evaluation and development for companies. The construction industry branch and the biotechnology industry association Finnish Bioindustries have also published their own principles

	on corporate social responsibility, business ethics and sustainable development.
Hungary	Regional operational programmes, provisions for the setting up of regional crisis-management funds to help in cases of company restructuring and to support vulnerable enterprises by providing exemptions from payroll taxes to enable companies to maintain their workforce.
Denmark	Environmental Economic Council – economic advisory body, established by law in 2007. 24 members representing trade unions, employers, non-governmental organisations NGOs, independent experts and the Danish government.
Slovenia	Seminars have been held for business representatives to help them prepare for legislative changes related to the green economy.
Austria	National and local governments have launched a joint initiative, known as Masterplan Environmental Technology, aiming to set up a joint strategy for policymakers, business and relevant research institutions to improve the competitiveness of the Austrian environmental technology industry. The government is looking at reforming the country's vocational training scheme in order to meet increasing business demand for skilled workers in the environmental technology sector. On the employer side, courses are run by the Austrian Federal Economic Chamber to help members reduce energy consumption.
Luxembourg	A conference to debate climate protection and economic and employment prospects was organised by government ministries and the Chamber of Employees in February 2009.
Estonia	Much effort has been invested in raising public and consumer awareness of green issues through a variety of means – including the development of a network of local environmental education centres, the provision of training days and seminars, and the holding of national and international conferences.
Poland	The celebration of Earth Day 22 April 2009 included information campaigns, educational initiatives and workshops. Government training courses are offered in order to train technicians in environmental management, as well as in health, safety and environment at the workplace.
Portugal	The General Workers' Union is preparing to introduce environmental issues into its training activities for collective agreement negotiators.
The UK	The employer organization, the Confederation of British Industry CBI, highlights that skills are needed in areas such as science, technology, engineering and maths, technical competencies and a range of new business skills. The CBI makes a range of recommendations on how to increase the number of workers with these skills: these include encouraging a greater focus on such skills in schools and proposing ways to encourage education providers to work with business to meet the demand for these types of skills. The CBI has been running regular events on issues related to climate change for its members. For example, in 2009, it is running a series of three breakfast seminars on the subject of environmental legislation for people involved in property management and leasing. The TUC operates a range of courses for trade union representatives,

	helping them to address the following issues: identify environmental changes that affect the workplace; research and identify appropriate environmental legislation, policies and information; and identify environmental problems and opportunities for trade union action.
Germany	<p>The Confederation of German Trade Unions and affiliates participate in two working groups – one on energy and the other on the environment – within the country's tripartite 'Alliance for jobs, training and competitiveness' initiative.</p> <p>A joint body has been established to provide information and training to works councils on environmental protection issues.</p> <p>The trade union confederation DGB, in cooperation with the educational institution DGB Bildungswerk and the German Ministry for the Environment, Nature Conservation and Nuclear Safety, runs a project in German entitled 'Resource efficiency in firms'. The project trains works council members and employees in detecting und implementing ways to improve energy efficiency. The training is part of a programme that leads to a certified degree as an 'efficiency expert'. The metalworking trade union IG Metall cooperates with the employer association of the aluminium industry in implementing this project at workplace level.</p>

Annex 2

Variable pay and ecological conversion of working environments.

Energy saving and energy efficiency targets have recently become the subject-matter of collective bargaining as they can be linked to the variable part of the salary. The *green salary* represents a strategic solution as it enables, on the one hand , businesses to involve their workforce in fulfilling energy saving and energy efficiency targets in an effective way; on the other hand , it enables employees to gain economic advantage by adopting sustainable practices (Adapt, 2011).

The potentialities of these agreements, for which bargaining units inside the companies play a key role, have also been highlighted by the recent Opinion of the European Economic and Social Committee *«New awareness of the need for more restrained consumption will free up resources, which can then be used for other things. Trade union agreements on measurable targets and distribution of profits among businesses and workers could be a useful way of raising widespread awareness of the importance of saving energy»* (EESC, 2011). Research carried out in the field of performance bonuses in collective bargaining in Italy (Adapt, 2011) points out that, over a sample of 200 company collective agreements, 10% of the agreements subordinate the performance bonus to the fulfilment or confirmation of the environmental certifications (of products or production processes), among which there are ISO14000 and Ecolabel. ISO14000 is a rule issued by the International Standardization Organization which provides the standards requirements for the implementation of an environmental management system and for the attainment of the respective certification. Ecolabel is the European mark for ecological quality which awards those products and services that respect the ecological criteria established at a European level and which have a low environmental impact during their entire life cycle, from their production to their use and final disposal. In general, all indicators referable to the environmental sustainability targets can be integrated in the performance bonus or in other schemes of variable pay (Box 1). Together with the

traditional indicators constituting the performance bonus (such as profitability, productivity and quality), an incentive salary system connected to the energy saving targets has been recently introduced in the company supplementary agreement of Heineken in Spain, covering more than 2000 employees. Among the foreseen targets, whose fulfilment awards 20% of the performance bonus, there are: reduction of water consumption, of greenhouse gas emissions produced by plants and administrative offices, and reduction of waste generated by each unit of production. Among other international experiences, it is possible to observe some cases of companies that, in order to determine the performance bonus or the managerial bonus, use independent indicators – such as the Dow Jones Sustainability Index (DJSI) [1] – for measuring the environmental sustainability targets. This is the case of AkzoNobel, a Dutch multinational company specialized in the production of paints and other chemical products, which connects 50% of those bonuses set aside for senior managers to the confirmation of the company in the first three positions of the DJSI list of the reference sector (World Business Council for Sustainable Development, 2010).

BOX 1. Sample review of the indicators of the results bonus connected to the environmental sustainability's targets

- Level of water, electric energy and gas consumption;
- Ability of a specific unit of production to differentiate waste;
- Level of waste generated during the whole production cycle;
- Level of use of those products with high environmental impact;
- Level of sound pollution;
- Ranking level in the Dow Jones Sustainability Index;
- Attainment of ISO certification;
- Attainment of Ecolabel mark;
- Number of emissions quotas produced within the ETS system.

[1] Independent index including 342 businesses in the world, selected among 2.500 for their sustainability. 30% of the index refers to environmental sustainability. www.sustainability-index.com

P. Tomassetti (Adapt), *Il ruolo delle parti sociali nella transizione verso la green economy*, Prisma 3/2011, to be published.