



Changing business landscape and industrial relations in the EU electricity sector

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The electricity sector in Europe has undergone radical reform since the mid-1990s. Within the framework of the broader energy sector, a series of EU Directives has accompanied the liberalisation of national markets and the establishment of an internal electricity market under a common regulatory framework. The business landscape has changed from one in which national markets were dominated by monopolist operators to an integrated EU market with large companies on a continental, and increasingly global, scale. In the past decade, EU policies promoting renewable energy sources (RES) in electricity generation, as well as in heating and transport, have contributed to further transform the market structure, with the emergence of new firms, often SMEs, and the progressive dispersion of generating plants. Employment has fallen considerably since the mid-1990s and restructuring and reorganisation have marked the electricity sector ever since. While the business structure has undergone considerable change, industrial relations have remained relatively stable, with continuing high union density rates and collective bargaining coverage.

Introduction

Since the second half of the 1990s the electricity sector in the European Union has undergone several significant transformations. The first important change was the inclusion of the electricity sector in the energy sector liberalisation initiatives of the European Union. Indeed, the Directive on the liberalisation of the electricity industry was the first energy directive to be enacted in 1996, requiring transposition into national legislation by 1998. Further measures were introduced in 2003 to be transposed into national law by 2004, with the provisions on the complete liberalisation of the market coming into force in 2007, including for domestic end users. The latest and most important recent European initiatives to transform the electricity sector are those included in the 2009 ‘third package’ to further develop and strengthen the internal market for electricity and gas, as well as the strategy for the promotion of renewable energy sources (RES) introduced in 2001.

Since the first liberalisation directive, the EU electricity sector has undergone important restructuring. The former monopolist operators were often transformed into multinational energy companies with operations in many European countries and around the world. Competition between them and with private operators increased. Mergers and acquisitions contributed to redefine the structure of the market. Company reorganisation and downsizing were widespread. Industrial relations and collective bargaining played a significant role in this transformation phase, as documented by earlier work of the European Industrial Relations Observatory, EIRO (EIRO report on [Industrial relations in the public utilities, TN0502101S](#)). Now, with the [Energy Strategy for Europe](#), new challenges and transformations will probably affect the EU electricity sector.

This report aims to provide information on recent developments in the EU electricity sector and highlight the emerging tendencies in 27 EU Member States and Norway as far as employment and industrial relations are concerned, with a special emphasis on the role and impact of RES. Since there is no comparable information on the state of representation and collective bargaining for all of these countries, this report seeks to fill this gap by:

- Providing a comparative overview of the business structure and recent developments in the electricity sector.
- Mapping the industrial relations actors in the electricity production sector with a view to assessing whether new actors come into being, or whether the newly emerging parts of the industry are covered by the established actors.

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- Assessing the scope and coverage of collective agreements, particularly for the renewable energy industry.
- Determining whether and to what extent a potentially changing business landscape is accompanied by a change in industrial relations.

These issues will be addressed after a brief overview of European policies in the electricity sector, focusing in particular on the strengthening of the internal electricity market and on RES. The report is based on national contributions by [EIRO correspondents in the 27 EU countries and Norway](#). For detailed information on individual countries, readers should refer to the national reports, which accompany this overview.

European energy policies

Overview

The opening up of the market introduced by the 1996 EU liberalisation directive ended the legal monopoly situation which had long marked the electricity sector in almost all EU countries. It also heralded important changes in the organisation of the industry and in prevalent corporate governance models, with the shift of operators from the public to the private sector. Besides the more evident and widespread adoption of private sector managerial practices, this also involved the application of the private sector legal framework to employment relations. This necessitated adjustments and the introduction of transition measures in all countries where the electricity sector was formerly covered by special employment statutes.

In the mid-2000s the European Commission carried out a comprehensive review of the implementation and achievements of European energy policies in the electricity and gas sectors in the EU (Communication from the Commission to the Council and the European Parliament, [Prospects for the internal gas and electricity market \(106Kb PDF\)](#), COM(2006) 841 final and Communication from the Commission, [Inquiry pursuant to Article 17 of Regulation \(EC\) No 1/2003 into the European gas and electricity sectors \(Final Report\) \(59Kb PDF\)](#), COM(2006) 851 Final). The Communications pointed to a set of issues which had to be addressed, including appropriate implementation of the legal framework, continuing obstacles to competition, and the enhancement of the role of sectoral regulators. The response to this assessment was the launch of the third energy package (Communication from the Commission to the Council and the European Parliament, [An Energy Policy for Europe \(125Kb PDF\)](#), COM(2007) 1 Final), which led to the enactment of [Directive 2009/72/EC concerning common rules for the internal market in electricity](#).

More recently, another important set of policies has been having a significant impact on the electricity sector: policies aimed at the promotion of RES. The move to renewable energy sources is supporting the entrance of new operators which are often characterised by territorial dispersion, small size in terms of generation capacity, capital-intensive operations, and limited direct impacts on sectoral employment. These features of new RES operators have important technical consequences for the infrastructure and the organisation of the sector, because they require more interconnections (and increased supply management capacity), but they are likely to have only limited effects on sectoral employment. This is because the large employment gains linked to RES development are predicted to take place mostly outside the electricity sector, especially in construction and installation, and maintenance (Commission Staff Working Document [‘Exploiting the employment potential of green growth’](#), 2012, p. 8)

In sum, the general tendencies emerging in the sector since the late 1990s include:

- The implementation of the liberalisation of national markets and the promotion of the EU single market for electricity and subsequent initiatives to supplement the initial reforms,

which have so far led to the [2009 third package](#) for the EU internal market for gas and electricity.

- The (at least formal) separation between generation, transmission, distribution and sale of electricity.
- The establishment of national-level regulators and of European regulatory agencies and bodies, including the [Agency for the Cooperation of Energy Regulators](#) (ACER) and the [European Network of Transmission System Operators for Electricity](#) (ENTSO-E).
- The emergence of new operators as well as the extension of the operations of the national incumbents to other EU countries, with an overall increase in competition in the EU market.
- The transformation of traditional monopolist operators, which often included their privatisation, the unbundling of the transmission networks, and significant reorganisation.
- Sectoral reorganisation has been particularly significant, with a shift from vertically integrated and often monopoly operators at national level to a plurality of smaller companies operating in the various sector segments – generation, transmission, distribution and marketing. The former operators had homogeneous employment relations systems whereas the new smaller companies operate under different regulatory frameworks and distinct employment relations systems. This tendency to a disarticulation of the sector along the main phases of generation, distribution and sale of electricity was accompanied by a widespread use of outsourcing of a number of services, from maintenance and metering to customer care. This contributed to the fragmentation of employment and working conditions as well as of representational and collective bargaining models.
- Lately, the development of RES has gained centre stage in the discussion over the electricity sector. The role of social dialogue in developing and implementing RES policies and in anticipating skill changes may be important.

Single market for electricity

The so-called [third package](#) for the establishment of the single market for gas and electricity was introduced in July 2009 and included [Directive 2009/72/EC concerning common rules for the internal market in electricity](#) as well as [Regulation \(EC\) No 713/2009 establishing an Agency for the Cooperation of Energy Regulators](#) and [Regulation \(EC\) No 714/2009 on conditions for access to the network for cross-border exchanges in electricity](#), together with equivalent interventions in the gas sector ([Directive 2009/73/EC concerning common rules for the internal market in natural gas](#) and [Regulation \(EC\) No 715/2009 on conditions for access to the natural gas transmission networks](#)). The package entered into force in September 2009 and Member States had 18 months to transpose it into national legislation, so that new rules have been fully operating since March 2011.

With a view to establishing the [internal energy market](#), Directive 2009/72/EC introduces a number of common provisions on generation, transmission, distribution and supply of electricity and also covers public service obligations, consumer rights and conditions for effective competition between operators. The objectives of achieving Europe-wide high service standards in terms of a competitive, secure and environmentally sustainable electricity market are pursued mainly by:

- enabling Member States to impose public service obligations on security, security of supply, regularity and quality of service, price, environmental protection and energy efficiency;
- ensuring that all customers have the right to change supplier and to change it easily, as well as to receive relevant information on their consumption and on the supplier and that an efficient and independent mechanism to manage complaints and disputes is in place;

- requiring that vertically integrated companies implement the separation (unbundling) between generation and transmission activities and keep separate accounts for transmission and distribution activities;
- granting third-party access to transmission and distribution systems based on published tariffs;
- improving the regulatory framework by strengthening the powers and independence of national energy regulators and by introducing Europe-wide bodies (ACER and ENTSO-E) as new tools to harmonise market and network operation rules at EU level.

As clearly stated, the ‘third package’ continues in the direction of the first liberalisation Directive of 1996. It aims to strengthen competition, through stronger consumer protection among other measures, and to enhance the integration of the national markets into an effective EU-wide system. It also integrates some newer policy objectives that have appeared on the EU agenda since the mid-1990s, relating particularly to supply security and environmental sustainability. The unbundling of vertically integrated operators and the entry of new competitors into the different market segments have a huge effect on employment and industrial relations. This is not only in terms of internal labour policies but also of and outsourcing decisions aimed to increase company competitiveness.

In general, these developments, as shown by earlier EIRO research (EIRO report on [Industrial relations in the public utilities, TN0502101S](#)), tend to increase the fragmentation of employment and industrial relations systems, overcoming the homogeneity of traditional arrangements under the system where there was a single or a few monopoly operators. National industrial relations systems provide a framework for managing such tendencies; this framework may be weakened if the collective bargaining structure is strongly organised along sectoral lines or reinforced in cases where decentralised company-level bargaining is prevalent. However, the experience of the UK shows that the emergence of a small number of large operators as a result of post-liberalisation mergers and acquisitions may encourage within-group harmonisation of human resources management (HRM) and industrial relations practices. This reduces the complexity and fragmentation of the early liberalisation phases.

Renewable energy sources

[Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market](#) introduced important innovations in the EU energy policy framework as it envisaged a set of indicative national targets concerning the consumption of electricity produced from RES, consistent with the overall EU target of 22% in 2010; the possibility for Member States to establish national support schemes to promote growth in the use of RES for electricity production; and measures at national level to ensure access to the transmission and distribution network of the electricity produced from RES, sometimes with priority over non-RES. According to the Directive, ‘renewable energy sources shall mean non-fossil energy sources (wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases)’ (art. 2(a)).

This intervention, which expressly referred to electricity production and consumption, has been progressively integrated in the broader EU agenda on the use of energy from RES, so that [Directive 2009/28/EC on the promotion of the use from renewable sources](#) eventually introduced a general framework and specific mandatory national targets concerning energy consumption from RES, including in transport (formerly covered by [Directive 2003/30/EC on the promotion of the use of biofuels and other renewable fuels for transport](#)). The Directive targets are an integral part of the overall 20-20-20 EU goal of reducing greenhouse gas emissions by 20%, increasing the share of renewables in energy consumption to 20% and improving energy efficiency by 20% by 2020.

The new policy orientation was driven by the difficulties envisaged in meeting the previous targets in electricity consumption and fuel consumption, identified by Directive 2001/77/EC and Directive 2003/30/EC respectively, as well as by the potential for higher effectiveness of an integrated approach, which focuses on overall consumption rather than on separate sectoral targets. The rationale and details of this new approach were illustrated in the 2007 Commission Communication [Renewable Energy Road Map. Renewable energies in the 21st century: building a more sustainable future \(127Kb PDF\)](#), which was part of the First Strategic European Energy Review and opened the debate which eventually led to the adoption of the Directive 2009/28/EC. The development of RES has also been identified as an important element in the Second Strategic European Energy Review, especially as a means to increase security through diversification of the energy supply and as the ‘EU’s greatest potential source of indigenous energy’ (2008 European Communication [Second Strategic Energy Review. An EU Energy Security and Solidarity Action Plan \(93Kb PDF\)](#)).

According to the 2012 Commission Communication [Renewable Energy: a major player in the European market \(86Kb PDF\)](#), ‘the renewable energy goal is a headline target of the Europe 2020 strategy for smart, sustainable and inclusive growth’ (p. 2):

Renewable energy enables us to diversify our energy supply. This increases our security of supply and improves European competitiveness creating new industries, jobs, economic growth and export opportunities, whilst also reducing our greenhouse gas emissions. Strong renewables growth to 2030 could generate over 3 million jobs, including in small and medium sized enterprises. Maintaining Europe’s leadership in renewable energy will also increase our global competitiveness, as ‘clean tech’ industries become increasingly important around the world.

RES are indeed a key component of the EU energy policy. The Commission Communication [Energy Roadmap 2050 \(102Kb PDF\)](#) envisages that the share of RES ‘rises substantially in all scenarios, achieving at least 55% in gross final energy consumption in 2050’ (p. 7). Although the EU was in line with achieving its 2020 RES goals at the beginning of 2012, the uncertainty linked to the current economic crisis could hinder private investment and therefore lead to a decrease in the growth of RES. Similarly, the lack of precise post-2020 policies for RES has been identified as a possible reason for lower investment. Therefore, the European Commission outlined in the 2012 Commission Communication [Renewable Energy: a major player in the European market](#) a number of policy options ‘to ensure continuity and stability, enabling Europe’s renewable energy production to continue to grow to 2030 and beyond’ (p. 3).

The sustained growth of RES after 2020 should be achieved by regulatory frameworks that effectively support the integration of RES into the internal market; improved and cost-effective support schemes; increased trade of energy from RES, better energy infrastructure which ensures easy and effective interconnection of RES producers; and RES technological innovation.

Finally, it must be noted that the promotion of RES is also an important part of the [European Energy Programme for Recovery \(EEPR\)](#), which was ‘set up in 2009 to co-finance projects (59 so far), designed to make energy supplies more reliable and help reduce greenhouse emissions, while simultaneously boosting Europe’s economic recovery’. This programme includes nine off-shore wind projects, which cover some 15% of the overall €4 billion budget. According to the 2012 Commission Report [On the implementation of the European Energy Programme for Recovery \(51Kb PDF\)](#), ‘the state of implementation of the projects shows a diverse picture, with one project already completed; others well on track, but some facing major delays’ (p. 7). Despite some delays, it is also interesting to note that ‘the EEPR projects are also generating important learning effects’ (p. 8) in the field of offshore wind energy.

According to the above-mentioned analyses and projections, RES will play an increasingly important role in future EU energy supply and consumption. As shown in Table 1, considerable

progress needs to be made to achieve the 2020 target. RES are particularly important in those countries where they traditionally have a large share of electricity generation (Table 2), mainly due to the orographic characteristics of the country and the importance of hydro-power (as in Austria and Norway, for instance). Moreover, it should be underlined that the RES targets are not only achieved through increases in generation capacity and output, but also through gains in energy efficiency, which reduces consumption levels as well as imports.

It is worth noting that imports in renewable resources have increased in recent years, especially in certain countries such as Denmark, Netherlands and the UK, where in 2010 they represented over 20% of RES inland consumption, up from marginal levels at the beginning of the decade (Source Eurostat, *Supply, transformation, consumption – renewables and wastes – annual data*). Indeed, the contribution of energy efficiency and imports is highlighted in many EU documents, including the recent Commission Communication [Renewable Energy: a major player in the European market](#), which underscores the potential of cooperation and trade especially with southern Mediterranean countries.

Table 1: Share of renewable energy in gross final energy consumption (2006–2010), target for 2020 and progress up to 2010 (%)

	2006	2007	2008	2009	2010	Target 2020	Target ^a 2010	Gap ^b 2010	Growth ^c 2010
EU27	9.0	9.9	10.5	11.7	12.5	20.0	62.5	31.8	9.7
BE	2.6	2.9	3.3	4.5	5.1	13.0	39.2	24.0	24.0
BG	9.6	9.3	9.8	11.9	13.8	16.0	86.3	65.6	10.9
CZ	6.5	7.4	7.6	8.5	9.2	13.0	70.8	41.5	10.4
DK	16.5	18.0	18.8	20.2	22.2	30.0	74.0	42.2	8.6
DE	6.9	9.0	9.1	9.5	11.0	18.0	61.1	36.9	14.9
EE	16.1	17.1	18.9	23.0	24.3	25.0	97.2	92.1	12.7
IE	2.9	3.3	3.9	5.1	5.5	16.0	34.4	19.8	22.4
GR	7.0	8.1	8.0	8.1	9.2	18.0	51.1	20.0	7.9
ES	9.0	9.5	10.6	12.8	13.8	20.0	69.0	43.6	13.3
FR	9.6	10.2	11.3	12.3	12.9	23.0	56.1	24.6	8.6
IT	5.8	5.7	7.1	8.9	10.1	17.0	59.4	38.4	18.5
CY	2.5	3.1	4.1	4.6	4.8	13.0	36.9	21.9	23.0
LV	31.1	29.6	29.8	34.3	32.6	40.0	81.5	16.9	1.2
LT	16.9	16.6	17.9	20.0	19.7	23.0	85.7	45.9	4.1
LU	1.4	2.7	2.8	2.8	2.8	11.0	25.5	14.6	25.0
HU	5.1	5.9	6.6	8.1	8.7	13.0	66.9	45.6	17.6
MT	0.2	0.2	0.2	0.2	0.4	10.0	4.0	2.0	25.0
NL	2.7	3.1	3.4	4.1	3.8	14.0	27.1	9.7	10.2

AT	26.6	28.9	29.2	31.0	30.1	34.0	88.5	47.3	3.3
PL	7.0	7.0	7.9	8.9	9.4	15.0	62.7	30.0	8.6
PT	20.8	22.0	23.0	24.6	24.6	31.0	79.4	37.3	4.6
RO	17.1	18.3	20.3	22.4	23.4	24.0	97.5	91.3	9.2
SI	15.5	15.6	15.1	18.9	19.8	25.0	79.2	45.3	6.9
SK	6.6	8.2	8.4	10.4	9.8	14.0	70.0	43.2	12.1
FI	29.9	29.5	31.1	31.1	32.2	38.0	84.7	28.4	1.9
SE	42.7	44.2	45.2	48.1	47.9	49.0	97.8	82.5	3.0
UK	1.5	1.8	2.3	2.9	3.2	15.0	21.3	12.6	28.3
NO	60.6	60.5	62.0	65.1	61.1	67.5	90.5	7.2	0.2

Notes: a) % Target achieved in 2010; b) % Gap (target minus 2010 level) filled in 2010; c) % Growth rate per year in the 2006–2010 period.

Source: Eurostat, Share of renewable energy in gross final energy consumption.

**Table 2: Electricity generated from renewable sources
(% of gross national electricity consumption, 1995–2010) and 2020 target**

	1995	2000	2005	2006	2007	2008	2009	2010	Target 2020 ^a	% Growth 2000s ^b
EU27	12.9	13.6	13.6	14.2	15.1	16.4	18.3	19.9	-	4.7
EU25	12.7	13.4	13.3	14.0	15.0	16.3	18.2	19.7	-	4.7
BE	0.9	1.2	2.3	3.1	3.7	4.6	6.1	6.8	20.9	47.5
BG	5.6	7.4	11.8	11.2	7.5	7.4	9.8	15.2	20.8	10.6
CZ	3.9	3.6	4.5	4.9	4.7	5.2	6.8	8.3	14.3	13.2
DK	5.2	15.3	26.3	24.0	27.0	26.7	27.5	33.1	51.9	11.6
DE	4.8	6.1	10.0	11.4	14.1	14.6	16.2	16.9	38.6	17.6
EE	0.1	0.2	1.3	1.5	1.5	2.0	6.1	10.8	4.8	437.9
IE	4.1	4.9	6.7	8.5	9.5	11.7	14.1	12.8	42.5	16.1
GR	8.4	7.7	10.0	11.8	6.8	8.3	12.5	16.7	39.8	11.7
ES	14.2	15.6	14.3	17.6	19.5	20.6	25.8	33.1	40.0	11.1
FR	17.8	14.9	11.0	12.2	13.0	14.1	13.6	14.5	27.0	-0.3
IT	14.9	15.9	13.7	14.1	13.3	16.2	20.5	22.2	26.4	4.0
CY	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.7	16.0	355.6 ^c
LV	47.1	47.7	48.4	37.7	36.4	41.2	49.2	48.5	59.8	0.2
LT	3.3	3.4	3.9	3.6	4.6	4.7	5.5	7.8	21.0	13.0
LU	1.7	2.5	2.9	3.1	3.3	3.6	3.7	3.1	11.8	2.3

HU	0.6	0.6	4.5	3.5	4.3	5.4	7.0	7.1	10.9	102.5
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	:
NL	1.5	2.7	6.3	6.7	6.2	7.7	9.2	9.3	37.0	23.8
AT	72.4	72.5	58.8	57.5	60.7	62.3	67.7	61.4	70.6	-1.5
PL	1.4	1.7	2.6	2.9	3.5	4.3	5.8	7.0	19.1	31.5
PT	27.5	28.8	15.5	28.9	29.6	26.4	33.3	50.0	55.3	7.4
RO	28.0	28.8	35.8	31.4	26.9	28.4	27.9	34.2	42.6	1.9
SI	28.9	31.7	24.2	24.4	22.1	29.1	36.8	33.1	39.3	0.4
SK	17.3	16.2	16.6	16.5	16.6	15.5	17.9	20.5	24.0	2.7
FI	27.0	28.6	26.8	24.0	25.9	30.8	25.8	26.5	33.0	-0.7
SE	48.1	55.5	53.8	47.6	51.5	55.0	56.4	54.5	62.9	-0.2
UK	2.0	2.6	4.2	4.5	4.9	5.4	6.6	6.7	31.0	16.3
NO	104. 5	114.7	108.4	98.3	106.1	109.4	103.0	90.0	-	-2.2

Notes: a) As for the National Renewable Energy Action Plans of the European Member States; b) % Growth rate per year in the 2000–2010 period; c) % Growth since 2007.

Source: Eurostat, *Electricity generated from renewable sources – annual data. For 2020 targets*, Energy research Centre of the Netherlands (ECN), <http://www.ecn.nl/nreap>, Database version of 28 November 2011

National policies to promote renewable energy sources

In order to achieve the mandatory national targets introduced by the 2009 Directive, Member States may apply different support schemes to promote the use of RES in electricity generation. In general, EU countries use a combination of tools (Table 3). A recent analysis by the European Commission ([Staff working document accompanying the EC Communication on Renewable Energy: a major player in the European energy market \(277Kb PDF\)](#)) shows that most European countries use feed-in tariffs (FIT). These are guaranteed prices for RES producers over a certain number of years, so that investment is insulated from variations in market prices. Other forms of support include feed-in premiums (RES producers receive a premium for the electricity they sell but without a fixed price), quota obligations (whereby RES producers receive a premium by selling 'green certificates' to suppliers which must provide a certain share of their electricity from RES), investment grants (contributions to the start-up, investment) and other schemes such as tax reductions or exemptions, and other financial incentives.

The level of support varies greatly across EU countries. A 2011 study on [Financing Renewable Energy in the European Energy Market \(277Kb PDF\)](#) carried out for the DG Energy of the European Commission provides estimates of what it would cost each EU Member State to promote the use of RES. Considering all support schemes for electricity, heating and transport, it is not surprising that the larger countries in terms of population and GDP represent the vast majority of the total €35 billion net support expenditure estimated for 2009. Germany spent almost €11 billion, Italy and Spain both around €5 billion, France about €3 billion, and the UK and Sweden some €2 billion each. Sweden's high level of expenditure represents an exception among the relatively less populated countries of the EU. Another interesting element is the general prevalence of support expenditure for electricity, which accounts for the greatest share of total expenses in the majority of countries. Heating is the main target for support measures in Austria, Denmark, Finland and Sweden, and transport is especially important in France and also Germany, although in the latter country electricity receives the largest part of overall support.

Table 3: RES support schemes in the EU (2012)

	Feed-in tariffs	Feed-in premiums	Quota obligations	Investments grants	Tax reductions/exemptions	Financial incentives
AT	1					
BE	1		1	1	1	
BG	1					1
CY	1			1		
CZ	1	1		1		
DE	1	1				1
DK		1				
EE	1	1				1
ES	1	1			1	
FI				1	1	

FR	1					
GR	1			1	1	
HU	1			1		
IE	1					
IT	1	1	1			
LT	1		1	1		
LU	1			1		
LV	1		1	1	1	
MT	1			1		1
NL		1			1	1
PL			1		1	1
PT	1					
RO			1			
SE			1		1	
SI	1	1				1
SK	1				1	
UK	1	1	1		1	
N.	21	9	8	10	10	7

Note: '1' indicates that the relevant support scheme is present.

Source: [Staff working document accompanying the EC Communication on Renewable Energy: a major player in the European energy market](#), p. 6.

Looking at a relative measure of the net support expenses for electricity by referring to final electricity consumption, the different efforts to promote RES in electricity generation across EU countries (Table 4) can be appreciated. Spain, Germany and Italy spent most to promote RES in 2009, followed by Belgium, Denmark, the UK and Portugal. Among the countries with low levels of support of RES in electricity are a number of central and eastern European countries, but also Finland and Cyprus.

Table 4: RES support schemes in the EU: total and relative expenses (2009)

	Net support expenditure (€million) ^a	Final electricity consumption (GWh) ^b	Support level (€/MWh)
AT	454	58,983	7.7
BE	413	77,255	5.3
BG	18	26,847	0.7
CY	2	4,751	0.4
CZ	207	54,913	3.8

DE	6,148	495,573	12.4
DK	142	31,393	4.5
EE	8	6,650	1.2
ES	3,804	252,986	15.0
FI	8	77,080	0.1
FR	496	417,955	1.2
GR	49	54,713	0.9
HU	82	33,150	2.5
IE	32	24,969	1.3
IT	2,473	290,016	8.5
LT	2	8,371	0.2
LU	17	6,114	2.8
LV	1	6,103	0.2
MT	0	1,707	0.0
NL	391	103,950	3.8
PL	320	112,717	2.8
PT	195	47,855	4.1
RO	11	37,607	0.3
SE	143	123,374	1.2
SI	8	11,292	0.7
SK	8	23,098	0.3
UK	1,435	322,717	4.4
EU27	16,867	2,712,139	6.2

Note: authors' calculations based on a) bottom-up estimations of net support costs and b) Final energy consumption of electrical energy.

Source: a) ECOFYS (2011), [Financing Renewable Energy in the European Energy Market](#), p. 40; b) Eurostat, [Supply, transformation, consumption - electricity - annual data](#).

In recent years, some adjustments have been introduced to national energy policies in support of RES. This was initially done to take account of the cost-effectiveness of subsidies: something also envisaged by the 2009 EU Directive. Incentives were reduced as RES investment and production costs decreased, in order to avoid over-subsidising the industry and thereby producing distortions and an unsustainable supply structure. Second, support schemes were re-calibrated with a view to promote a balanced mix of energy sources and correct possible unexpected results, such as the crowding-out of other economic activities (for instance, the replacement of crops by photovoltaic cells in agricultural fields). Third, in certain cases, support schemes have

been reduced within the framework of public budget cuts linked to the sovereign debt crisis of 2011–2012.

Although the general trend is certainly towards reduction and recalibration, there are some cases where RES support policy remained unchanged or even higher levels of aid were introduced. Incentive schemes were strengthened in Austria and Norway, whereas in Denmark, Latvia, Malta, Sweden and Slovenia they remained stable. In Norway, the increased budget for RES development was among the early measures enacted in 2009 to tackle the financial crisis.

Support schemes for RES were reconfigured in a number of countries. In Cyprus, the Cyprus Energy Regulatory Authority (CERA) put forward proposals to the government to strengthen the promotion of solar power, but this included a reduction of FIT to take into consideration the lower costs of photovoltaic cells. Germany increased support for RES between 2006 and 2011, but in early 2011 a change in policy was announced to take into consideration both the dynamism of the RES market, whose growth had surpassed expectations, as well as the reduced cost of photovoltaic plants and the unwanted effects in agriculture, where the growth of production for biomass electricity generation led to an intensification of competition for land and very high rents. In the Czech Republic, incentives for photovoltaic generation have been reduced significantly to avoid excessive growth in capacity. A new tax has been imposed, cancelling the formerly granted tax holiday and reducing FIT for photovoltaic compared to other RES. The Czech government has also imposed a cap on annual RES development, so that the EU target is met but not exceeded, with a view to limiting total expenses. Slovakia also reduced subsidies for photovoltaic energy substantially in 2011, and only installations on buildings remain eligible for support. In early 2012 Italy announced a redefinition of all incentives in the field of renewable resources. Priority was given to technologies expected to have a strong positive effect on the Italian production system and to avoid distortions at territorial level and negative impacts on other sectors, notably in the agro-food business. Although the overall expenditure is expected to grow in the next few years, the average support levels for RES will be reduced, especially for photovoltaic generation, and the incentive structure will favour certain technologies (such as concentrated solar power) or applications (such as generation with urban waste). In addition, controls on the annual installed capacity will be introduced. In Romania, in 2011, the number of green certificates was reduced for certain RES such as geothermal and biomass. Additional plans to reduce and restructure the incentive system were announced in Estonia and Hungary and are being implemented in the Netherlands.

In the UK, the 2010 budget cuts affected a number of incentives for RES and in 2011 the FIT for photovoltaic electricity was reduced to take into account the lower cost of cells. The economic crisis was a relevant reason to reduce FIT in Spain in 2010; in Portugal, the measures introduced to cut public expenses include a reduction in the number of licences granted for RES production, with a view to limiting the overall support expenses.

Market structure

The present market structure is characterised by the presence of large operators which are usually the former national major players and now operate in an EU-wide market and sometimes develop cooperation and partnerships in new projects and markets.

Table 5 shows two interesting trends which have characterised the business landscape in the electricity sector in the 2000s. On one hand, there has certainly been an increase in competition in generation, as is clearly indicated by the general growth in the number of operators producing at least 95% of overall generation (with only a few exceptions, like Luxembourg and the UK). On the other hand, the number of main operators (that is those generating at least 5% of the whole production) is rather stable. In 11 cases out of 28, there is no change in the number of main operators; the remaining cases are split between increase and decrease, with eight and nine cases respectively.

The combination of a general increase in operators and relative stability in the number of main generators indicates that the new producers often represent a small fraction of the overall capacity and do not significantly affect market concentration. Only in Ireland, Lithuania and Sweden did both indicators grow significantly, so that the increase in the number of suppliers seems to be able to affect competition between large operators. Moreover, the cases of decrease in the number of main generators highlight the other emerging tendency in the electricity sector; that is, the consolidation of supply around a small number of major producers. Indeed, in Luxembourg and the UK, the consolidation of supply (that is the fall in the number of generators representing at least 95% of all production) seems to lead to an increase in large competitors (as indicated by the number of main producers). Conversely, in Hungary, Austria and Norway a relevant increase in the number of producers is accompanied by a significant decrease in the number of main operators.

The growth of the number of main operators is usually the effect of the subdivision of former large operators, rather than the consequence of the emergence of new start-ups. Conversely, the reduction in the number of generation companies is typically linked to mergers and acquisitions. The amount of investment needed to establish a traditional power plant represents a powerful entry barrier. As previously mentioned, however, such a barrier is not always present in the case of RES, which may require far less initial investment, given the lower generation capacity and the comparatively lower cost of equipment. However, the low installed capacity often means that the impact on market structure and concentration is limited.

Despite this general picture, it can be said that the dominant position of the national largest operator has indeed been eroded during the 2000s, although not to a large extent. In fact, the market share of the largest operator usually diminished in the 2000s throughout EU by about 10%. The most significant declines (between 40% and 60% of the initial share) took place in Ireland, Spain, Italy and Lithuania. Overall, out of the 25 countries for which data were available in 2010, the largest operator produced over 50% of the total national electricity consumption in 11 cases, while it produced less than 30% in seven cases (Germany, Spain, Italy, Poland, Sweden, the UK and Norway).

A similar general picture emerges from the analysis of the retail electricity market. As shown in Table 6, the number of national retailers grew between 2003 and 2010 in a significant number of cases, but still a minority (13 cases out of 28). More importantly, the number of main retailers (that is, selling at least 5% of total national electricity consumption) has remained stable in 12 cases and diminished in six. The simple average of the share of the final market of the main electricity retailers is 80% in the 26 countries for which the relevant information is available, with 23 countries above 50% and only one below 40% (Germany, with 37.3%).

Table 5: Electricity-generating companies (2003–2010)

	No. of companies representing $\geq 95\%$ of total		Main generating companies ^a				% Market share of largest generator	
			No.	No.	% Generation	% Capacity		
	2003	2010	2003	2010	2010	2010	2003	2010
BE	2	4	2	3	91.0	80.0	92.0	79.1
BG	13	22	5	5	73.3	57.5	:	:
CZ	20	24	1	1	73.0	84.5	73.2	73.0
DK	>1000	>1000	2	2	68.0	63.0	41.0	46.0
DE	>450	>450	4	4	70.4	53.8	32.0	28.4
EE	2	6	2	1	89.0	82.0	93.0	89.0
IE	5	8	3	6	89.0	71.0	85.0	34.0
EL	1	4	1	1	85.1	86.2	100.0	85.1
ES	:	:	5	4	66.1	63.1	39.1	24.0
FR	4	>5	1	1	86.5	81.5	89.5	86.5
IT	79	185	4	5	61.0	64.0	46.3	28.0
CY	1	1	1	1	100.0	100.0	100.0	100.0
LV	5	11	1	1	88.0	92.0	91.0	88.0
LT	5	9	2	5	81.9	83.3	79.7	35.4
LU	9	3	1	2	92.6	76.0	80.9	85.4
HU	30	68	6	3	65.9	49.7	32.3	42.1
MT	1	1	1	1	100.0	100.0	100.0	100.0
NL	≥ 87	700	4	5	60.0	59.0	:	:
AT	34	126	7	4	55.6	56.9	:	:
PL	31	68	7	5	44.3	25.6	19.2	17.4
PT	36	107	3	2	56.7	63.2	61.5	47.2
RO	11	10	7	6	88.7	67.5	:	33.6
SI	3	3	3	2	94.8	94.1	50.3	56.3
SK	6	8	1	1	80.9	71.5	83.6	80.9
FI	25	29	4	4	64.3	58.0	27.0	26.6
SE	7	24	3	5	80.0	73.0	46.0	42.0
UK	22	19	6	8	77.3	78.4	21.6	21.0
NO	161	184	6	3	41.7	44.9	30.7	29.8

Notes: a) 'main' generating companies are those which produce at least 5% of the national net electricity generation.

Source: Eurostat, [Electricity market indicators](#)

Table 6: Electricity retailers (2003–2010)

	Retailers		Main retailers ^a		% Market share of main retailers
	2003	2010	2003	2010	2010
BE	45	37	2	3	84.5
BG	8	36	8	5	84.6
CZ	365	324	8	3	87.9
DK	>113	>33	5	:	:
DE	940	1,000	4	3	37.3
EE	42	41	1	1	73.0
IE	6	8	4	5	97.0
EL	5	11	1	1	93.7
ES	375	202	6	4	72.6
FR	166	177	1	1	85.0
IT	390	268	3	3	55.0
CY	1	1	1	1	100.0
LV	1	4	1	1	99.9
LT	8	15	3	3	87.1
LU	11	11	3	4	91.4
HU	12	38	7	5	78.0
MT	1	1	1	1	100.0
NL	42	36	≥3	3	75.0
AT	160	129	:	6	92.0
PL	175	146	3	7	70.3
PT	5	10	1	4	97.0
RO	8	56	8	8	66.8
SI	8	16	6	7	99.0
SK	18	77	5	5	86.4
FI	>100	>100	3	3	:
SE	127	134	3	3	47.9

UK	24	22	7	6	91.5
NO	223	184	4	5	47.5

Notes: a) 'main' retailers are those which sell at least 5% of the total national electricity consumption.

Source: Eurostat, [Electricity market indicators](#)

If we take a closer look at the main actors of the generation segment of the electricity market (Table 7), it is possible to further specify the basic features of the electricity sector in the EU. As mentioned above, major national producers are usually the successors of former state-owned monopolists, which – either directly or through the allocation of their original power generation capacity to a number of new undertakings – have been transformed into private law joint stock companies. The ownership structure of the present operators still includes a substantial presence of public shareholdings, which in a number of cases maintain the control of the company. This is not only the case in Member States that joined the Union in the mid-2000s and are still in the process of transforming their electricity sector, but also in Nordic countries for instance. The emerging tendency, however, is to open shareholding to the public at large, via quotation on the stock exchange (initial public offerings (IPOs)) as well as to foster the involvement of institutional investors or industrial partners. In this second case, the new industrial partner is usually actively involved in the company management.

These moves to divestiture and privatisation have enabled the major national players to internationalise their operations, especially via joint ventures (established in the countries where the original public owners kept non-marginal stakes) or acquisitions (where privatisation has been complete and public ownership has been entirely divested or remains at a marginal level).

The European electricity sector therefore reflects not only the persistence of strong players at national level, but the creation of an ever integrating EU electricity system, whereby large producers are now present in many countries and some have a leading role on a cross-country scale. And this trend is not limited to generation, or to traditional large-scale power stations. Indeed, the reorganisation and unbundling of distribution as well as the liberalisation of trade have provided electricity companies with more opportunities for internationalisation, and several EU companies are now operating on a continental scale, in all segments of the electricity market. Indeed, many large operators are nowadays present in a significant number of EU countries, beyond their country of origin. Table 7 provides some limited illustration of this situation because it covers only generation and includes only the main national players.

In addition, new RES technologies represent a further opportunity to diversify business strategy and to invest abroad, often with the mobilisation of lower financial resources than in the case of traditional plants and with the opportunity to benefit from the support framework established for RES at EU and national levels. Indeed, the prevalence of established operators is also apparent in electricity generation with RES (Table 8). This is particularly relevant to the types of RES which represent the largest part of the present and expected RES contribution to electricity generation in 2020. According to the National Renewable Energy Action Plans of the European Member States, the main RES in 2020 will be wind power (40%), followed by hydro power (30%) and biomass (20%). Solar energy is expected to account for no more than 10% of overall generation, whereas geothermal and tidal power will contribute marginally to the overall production. Although there is certainly scope for the entry of new operators in generation, the importance of wind, hydro and biomass power allows current large operators to be key players in the RES segment, because they can benefit from their traditional know-how (especially in hydro and biomass) and from their technical and investment capacity (for instance, in the case of offshore wind farms). Conversely, solar energy, which probably provides more scope for small and

dispersed production facilities, is expected to contribute only a relatively limited share of RES electricity in the medium term and currently involves mainly non-industrial producers – for instance households and firms which install photovoltaic systems on their premises, primarily for their own consumption.

In general, it is possible to say that all traditional electricity producers have diversified into RES. Examples of established electricity companies which are now operating in the RES sector include the provincial Austrian energy companies BEWAG (Burgenland) and Wienstrom (Vienna), which have invested in wind, biomass and photovoltaic generation. Wienstrom, for instance, has been operating the largest European forest biomass power plant since 2006 in cooperation with the Austrian Federal Forest administration (ÖBf). In Denmark, DONG Energy has prioritised generation through RES and focused in particular on wind and biomass. Other countries where the main operators are important players in the RES segment include Italy, Norway, Sweden, Slovakia and the UK.

In relation to de-carbonisation and supply security, a number of EU countries are counting on the contribution that nuclear power can make to electricity generation. The recent incidents at Fukushima power station in Japan after the tragic earthquake and tsunami of March 2011 prompted a number of countries to reconsider their nuclear power policy. Germany announced its intention to phase out nuclear power generation by 2022, and Italy abandoned plans to build nuclear power stations following a referendum. However, in a number of countries such as the Czech Republic, Poland, Romania, Slovakia and the UK, nuclear power generation is still an important and strategic position in the medium term. Due to the importance of know-how and investment and to the public sensitivity of nuclear power, this is another factor which may preserve the predominance of established electricity operators.

Table 7: Main electricity producers

AT	Verbund is the main operator, which covers some 40% of demand. The Republic of Austria is the majority owner (51%) of Verbund. It is listed on the stock exchange (20%). Other important players in the electricity market are utilities owned by provinces, such as BEWAG (Burgenland) and Wienstrom (Vienna).
BE	Electrabel (fully owned by GDF Suez group) is the main operator. EDF Luminus is the second-largest producer (EDF owns 63.5% of the shares).
BG	Most of the main operators are owned by the state-owned Bulgarian Energy Holding (BEH EAD), including the main Thermal Power Plant (TPP) Maritsa East 2, the Nuclear Power Plant (NPP) Kozloduy, and the National Electricity Company (NEK), which operates most of the country's hydroelectric power stations. Other important power stations are subsidiaries of the Italian Enel group (TPP Maritsa East 3) and of the Czech CEZ group (TPP Varna).
CY	Electricity Authority of Cyprus, a semi state company, is the only significant generator of electricity in Cyprus.
CZ	CEZ is the largest producer. It is majority owned by the state (around 70%). Its shares are traded on the Prague and Warsaw stock exchanges.
DE	The four leading companies in Germany are E.ON, RWE, EnBW and Vattenfall. Vattenfall is 100% owned by the Swedish State. E.ON and RWE have important institutional shareholdings (79% and 64% respectively), while EnBW is more than 90% directly owned by local authorities. Also in RWE local authorities are the largest single investor with 16% of the shares.

DK	The main producer is Dong Energy, which is owned by the Danish state (76%) and the consumer-owned energy company SEAS-NVE (11%); the second major player is Vattenfall.
EE	Eesti Energia is the main electricity operator and it is fully owned by the Republic of Estonia.
ES	The three main electricity operators are Iberdrola, Endesa (part of the Enel Group) and Gas Natural Fenosa.
FI	Fortum is the most important electricity producer. It is majority owned by the prime minister's office.
FR	The two main electricity companies are GDF Suez and Electricité de France (EdF). The French state has a 36% stake in GDF Suez and some 85% in EdF.
GR	PPC (Public Power Corporation; Dimosia Epikhirisi Ilektrismou, DEI) is the main operator. It is majority owned (51%) by the Greek state while some 45% is traded on the stock exchange.
HU	Magyar Villamos Muvek is the main actor in the Hungarian electricity market.
IE	The Electricity Supply Board, a semi-state company, is the major electricity producer.
IT	The largest producers are Enel (around 30%) Edison (10%) and Eni (10%). Enel and Eni are listed companies with the Italian state as the leading shareholder (with around 30% and 10% of the overall capital respectively); Edison is part of the EDF group.
LV	Latvenergo is the main national operator besides many municipal companies.
LT	Lietuvos Energija is the major player. Vilniaus, part of the Veolia-Dalkia group, is a significant player.
LU	Enovos is the major electricity group in Luxembourg. The state has a relative majority in the company shareholding structure. Other important shareholders are the energy companies E.ON, RWE and Electrabel.
MT	Enemalta is the unique electricity operator in Malta.
NL	Nuon, Essent and Eneco are the three larger electricity companies.
NO	The most important company is Statkraft Energi.
PL	Polka Grupa Energetyczna (PGE), a state majority-owned public stock company, is the largest electricity operator in Poland. Other important operators are Tauron (the second largest producer), Enea and Energa, all controlled by the State Treasury. EDF Poland is the third producer.
PT	EDP is the main operator. In 2012, the state sold 21% of the EDP shareholding to the China Three Gorges Corporation, which now holds a relative majority stake in the public listed company. The state maintained a 4% shareholding.
RO	The main operator in the electricity market is Complexul Energetic Oltenia, which covers some 31% of the market, followed by Hidroelectrica (27%) and Nuclearelectrica (19%). They are all state-owned companies.
SE	The electricity sector is dominated by Vattenfall, E.ON and Fortum. Vattenfall is fully owned by the Swedish state, Fortum is controlled by the Finnish government, and E.ON's major shareholders are institutional investors.

SI	Holding Slovenske Elektrarne (HSE) is the major electricity sector operator.
SK	Slovenske Elektrarne (SE), part of the Italy-based Enel Group with a minority state ownership, is the major electricity provider accounting for around 80% of generation.
UK	EDF Energy, RWE npower, E.ON UK are the main electricity producers and they are all subsidiaries of foreign-based multinational companies.

Source: EIRO national reports (2011); Eurostat 2012, 2010; corporate Annual Reports of the electricity operators, various years.

Table 8: Renewable energy sources and nuclear energy

	RES operators ^a	Main RES in 2020 ^b	Nuclear energy
AT	Established	Hydro (80%) and biomass (10%)	Banned since 1978
BE	Newcos	Biomass (48%) and wind (45%)	The phasing out of nuclear power decided in 2003 for 2015–2030 is currently highly debated
BG	Established + Newcos	Hydro (49%) and wind (34%)	High and stable contribution (45%)
CY	Newcos	Solar (45%) and wind (42%)	No plans
CZ	Established + Newcos	Biomass (53%) and Hydro (19%)	Will become the largest source (increase from 32% in 2005 to 47% in 2050)
DE	Established	Wind (48%) and biomass (23%)	To be phased out by 2020
DK	Established	Wind (57%) and biomass (43%)	No plans
EE	Established + Newcos	Wind (80%) and biomass (18%)	Nuclear is among the options. There are no nuclear sites at the moment
ES	Established	Wind (50%) and hydro (25%)	It is currently a relevant source. No debate reported
FI	Established	Hydro (43%) and biomass (39%)	Current debate on the construction of further sites in order to strengthen de-carbonisation and increase self-sufficiency
FR	Established	Hydro (46%) and wind (37%)	It is currently a key source. No debate reported
GR	Established	Wind (58%) and hydro (23%)	No nuclear sites. No debate reported
HU	Newcos	Biomass (59%) and wind (28%)	It is currently a relevant source. No significant debate reported
IE	Established + Newcos	Wind (86%) and biomass (7%)	No nuclear sites. No debate reported

	RES operators^a	Main RES in 2020^b	Nuclear energy
IT	Established - Newcos	Hydro (42%) and wind (20%)	The plans for building new nuclear power plants have been cancelled
LT	Established + Newcos (micro enterprises)	Wind (42%) and biomass (41%)	Important in perspective after the closure of important plants
LU	Established + Newcos	Biomass (43%) and wind (31%)	No nuclear sites. No debate reported
LV	Established + Newcos	Hydro (54%) and biomass (22%)	Discussed joint plant with Lithuania
MT	None so far	Geothermal (49%) and wind (30%)	No nuclear sites. No debate reported
NL	n.a.	Wind (64%) and biomass (33%)	One nuclear site. No debate reported
NO	Established	Mainly hydro (no specific numbers available)	No nuclear sites. No debate reported
PL	Established	Wind (47%) and biomass (44%)	Envisaged to be important in the future (no plants so far)
PT	Established + Newcos	Wind (41%) and hydro (40%)	No nuclear sites. The current policies envisage no nuclear power in the future
RO	Newcos	Hydro (63%) and wind (27%)	Nuclear power is meant to remain an important energy source
SE	Established	Hydro (70%) and biomass (17%)	It is the second energy source and is expected to remain important
SI	Established + Newcos	Hydro (84%) and biomass (11%)	Nuclear is a relevant source of electricity generation (35% in 2010)
SK	Established	Hydro (68%) and biomass (21%)	Nuclear power is an important source of electricity and current policies aim to maintain this prominent contribution
UK	Established	Wind (67%) and biomass (22%)	Nuclear power is an important source of electricity and current policies aim to maintain this prominent contribution

Notes: a) Main RES operators: 'Established' are existing large national producers active also in traditional resources; 'Newcos' are new operators exclusively active in RES generation; b) Share of RES in electricity generation in 2020, according to projections included in the National Renewable Energy Action Plans of the European Member States.

Source: EIRO national reports 2011. For 2020 RES contribution to total electricity generation, Energy research Centre of the Netherlands (ECN), <http://www.ecn.nl/nreap>, Database version of 28 November 2011

Employment trends

The first phase of the liberalisation and opening up of the EU electricity sector was marked by important waves of reorganisation (EIRO report on [Industrial relations in the public utilities, TN0502101S](#)). As shown by Table 9, employment in the electricity sector has fallen, sometimes drastically, in many countries in the 2000s. The notable exceptions are the UK, where employment grew substantially in the mid-2000s, and Sweden. Indeed, reorganisation and restructuring seem to be long-term trends in the sector, as the reconfiguration of the various market segments is still ongoing, both because institutional reforms proceed at a different pace in the various EU countries and because reorganisation is driven by the changes affecting the electricity sector and the proactive responses of operators. This trend and possibly the economic downturn resulted in further job shedding in the 2008–2009 period – even in the UK and Sweden, which saw significant falls in 2009. However, in a number of countries, employment levels seem to have stabilised by the end of the decade and there are signs of job creation. Currently, most sectoral employment is in generation and distribution, which employ some 40% of total workers each (Table 10). Although expanding, the electricity trade segment employed, at the end of the 2000s, some 10% of the overall sectoral workforce.

Table 9: Employment in the electricity sector and trends (1995–2009)^a

	1995	2000	2005	2006	2007	2008 (NACE Rev2)	2009	Var% 2007/ 2000	Var% 2009/ 2008
BE	21,005	18,523	15,912	15,189	15,759	:	:	-14.9	
BG	:	31,810	32,018	30,427	28,139	29,191	28,845	-11.5	-1.2
CZ	33,104	25,854	18,949	16,396	:	15,799	16,136	-36.6 ^b	2.1
DK	12,722	10,030	9,523	8,987	9,191	9,537	9,574	-8.4	0.4
DE	:	219,637	207,700	207,522	204,061	195,207	196,574	-7.1	0.7
ES	46,740	38,117	31,741	34,106	37,858	43,822	44,210	-0.7	0.9
FR	:	:	114,386	113,220	112,802	:	:	-1.4 ^c	
IT	115,966	94,264	68,071	64,373	61,773	59,194	59,643	-34.5	0.8
CY	1,123	:	:	:	:	1,427	1,473	27.1 ^d	3.2
LV	:	:	6,725	6,294	5,664	5,808	5,461	-15.8 ^c	-6.0
LT	:	14,989	11,026	10,644	10,280	9,971	9,031	-31.4	-9.4
HU	:	32,499	22,187	21,692	16,449	16,488	16,165	-49.4	-2.0
NL	:	:	:	:	:	23,869	22,180		-7.1
AT	31,361	26,954	23,737	21,827	21,105	22,563	22,537	-21.7	-0.1
PL	:	:	90,416	89,212	87,653	87,955	87,648	-3.1 ^c	-0.3
PT	:	14,109	9,862	9,550	:	9,135	8,983		-1.7
RO	:	:	53,948	51,314	51,047	50,623	52,645	-5.4 ^c	4.0
SI	:	:	6,581	6,590	6,633	6,824	7,015	0.8 ^c	2.8
SK	:	21,295	:	:	:	11,313	9,794		-13.4
FI	12,636	14,687	12,123	12,840	12,001	:	12,272	-18.3	
SE	:	21,323	23,256	23,593	22,505	24,048	22,319	5.5	-7.2

UK	:	:	62,079	70,669	81,986	80,842	75,429	32.1 ^c	-6.7
NO	:	15,340	13,822	13,883	13,334	13,097	13,665	-13.1	4.3

Notes: a) Employment data refer to NACE Rev1.1 until 2007 and to NACE Rev2 from 2008; b) % change between 2006 and 2000; c) % change between 2007 and 2005; d) % change between 2008 and 1995. Data on Estonia, Ireland, Greece, Luxembourg and Malta are not available.

Source: Eurostat - Annual detailed enterprise statistics on electricity, gas and water supply (NACE Rev.1.1 E) until 2007 and Annual detailed enterprise statistics for industry (NACE Rev.2 B-E) from 2008.

Table 10: Electric power generation, transmission and distribution, number of enterprises and employees, 2009*

		Electric power generation, transmission and distribution (NACE REV2)	Production	Transmission	Distribution	Trade
AT	Enterprises	775	665	6	72	32
	Employees	22,040	8,770	2,838	8,702	1,730
BE	Enterprises	:	:	4	:	38
	Employees	:	:	1,031	:	5,893
BG	Enterprises	836	754	13	14	55
	Employees	28,416	13,953	:	7,256	:
CY	Enterprises	1	1	0	0	0
	Employees	1,473	1,473	0	0	0
CZ	Enterprises	993	:	:	:	:
	Employees	15,692	:	:	:	:
DK	Enterprises	1,231	1,032	17	99	83
	Employees	8,756	3,764	601	3,779	612
EE	Enterprises	80	50	2	12	16
	Employees	:	2,320	:	:	:
FI	Enterprises	338	146	11	100	81
	Employees	12,272	6,681	:	:	2,156
FR	Enterprises	6,148	:	:	:	184
	Employees	122,217	:	:	:	3,765
DE	Enterprises	1,173	:	:	:	:
	Employees	(196,574)	:	:	:	:
GR	Enterprises	:	:	:	:	:
	Employees	:	:	:	:	:
HU	Enterprises	359	269	:	:	60
	Employees	15,856	8,978	:	:	1,564

		Electric power generation, transmission and distribution (NACE REV2)	<i>Production</i>	<i>Transmission</i>	<i>Distribution</i>	<i>Trade</i>
IE	Enterprises	:	:	:	:	:
	Employees	:	:	:	:	:
IT	Enterprises	2,213	1,873	8	93	239
	Employees	57,144	22,869	3,525	24,545	6,205
LV	Enterprises	204	167	6	19	12
	Employees	5,459	1,871	570	2,972	46
LT	Enterprises	139	75	15	27	22
	Employees	9,008	3,612	1,037	4,236	123
LU	Enterprises	44	35	0	3	6
	Employees	:	:	0	:	:
NL	Enterprises	687	522	35	7	123
	Employees	21,522	6,226	9,535	:	:
NO	Enterprises	853	640	1	102	110
	Employees	13,665	6,960	803	4,562	1,340
PL	Enterprises	1,378	1,202	25	96	55
	Employees	86,173	28,686	2,702	51,907	2,878
PT	Enterprises	613	590	2	12	9
	Employees	8,502	3,992	:	:	107
RO	Enterprises	460	331	7	40	82
	Employees	52,448	30,673	1,932	16,801	3,042
SK	Enterprises	49	13	:	:	24
	Employees	9,776	5,934	:	:	2,921
SI	Enterprises	431	399	5	14	13
	Employees	6,714	2,499	565	3,449	202
ES	Enterprises	12,470	12,033	12	408	18
	Employees	32,716	14,304	1,576	13,327	3,509
SE	Enterprises	1,372	1,014	3	187	168
	Employees	20,544	11,362	:	:	2,428
UK	Enterprises	515	373	11	92	39
	Employees	75,156	:	:	47,565	:
Total	Enterprises	428,975	184,927	26,715	189,101	38,521
	Employees					

*Note: * Since some data are not available, often for confidentiality reasons due to the small number of firms active in the sector, the numbers for the various branches are not always consistent with the sector total. The same is true for the overall total. Data on Malta are not available.*

Source: Eurostat, Annual detailed enterprise statistics.

Industrial relations

Despite the big changes in the European electricity sector, the industrial relations landscape remains relatively stable, with social partners and collective bargaining strongly positioned. The main elements of stability are highlighted in the following paragraphs.

Representation

Representation of both employers and workers is performed by the established actors, which have been present at least since the liberalisation of the sector, but in many cases were active in the traditional monopolistic arrangements. Density rates of unions and employer associations remain quite high and, at least in the case of trade unions, unionisation is generally above the national average. There are no indications of a tendency to set up new employer associations and trade unions in recent years, or of restructuring of representation linked to sectoral developments. The only exception reported is the establishment in Romania of a brand new employer organisation in 2007, when 16 private operators in the energy sector founded the Association of Energy Utility Providers (Asociația Companiilor de Utilități din Energie, ACUE).

Although some unions have been created in recent years through mergers of former organisations, these transformations are linked to internal objectives (such as organisational and financial consolidation) rather than to sectoral issues. In Austria, where representation is traditionally organised along professional lines, mergers involved representation of all groups of workers in the electricity sector. In the case of private sector white-collar workers, GPA-djp was founded in January 2007 by merging the Union of Salaried Employees (GPA) with the Printing, Journalism and Paper Union (DJP); for blue-collar workers, the Metalworking, textiles, Agriculture and Food-Processing union (GMTN) and the Union of Chemical Workers (GdC) merged in 2009 to form PRO-GE; for municipal workers, GdG-KMSfB was established in June 2009, whereby the former Municipal Employees' Union (GdG) merged with the Arts, Media, Sports and Liberal Profession Union (KMSfB), in order to help redress the financial situation of KMSfB. Similarly, in Belgium, the union of energy workers affiliated to ACV merged to form a larger sector federation (ACV-CSC BIE), which now covers construction, industry and energy. In Estonia, representation in the energy sector was reorganised in 2011 when the Estonian Oil Shale Producers Trade Union Confederation (EPTAL) was transformed into the Independent Trade Union of Mining and Energy Workers (Kaevurite ja Energeetikute Soltumatu Ametiühing). The aim was to economise on financial resources and provide better support to workers in disputes and bargaining rounds. In Greece, the company union of the major electricity producers (PPC) changed its name to Genop/DEI-KHE to reflect the transformation into a sectoral union, but with no consequences, so far, on the membership scope, which remains confined to PPC. In Portugal, FIEQUIMETAL implemented a major reorganisation, which created four regional unions for manufacturing and energy by integrating a large part of its previous member unions, with a view to streamlining the organisational structure and its operations. In Slovakia, the Slovak Trade Union Federation of Energy Workers (SOZE) and the Chemicals Trade Union Federation of the Slovak Republic (OZCH SR) merged in 2009 to found the Energy-Chemicals Trade Union Federation (ECHOZ). In Sweden, the white-collar union Unionen was set up in 2008 by the White-collar workers in industry (Sif) and the Salaried Employees' Union (HTF).

In the field of employer representation, the new associations which have been set up following the development of the RES sector do not engage in employer representation (for example, in collective bargaining), but operate as trade associations and typically focus on the relations with policymakers as well as the provision of services to associate companies (see Table 10 for details and examples). Minor transformations in employer representation include the change of name of the former Association of Austrian Electricity Companies (VEÖ) into Austrian Energy (OEE), which took place in 2010. Other similar changes occurred in Germany, where the employer association for the glass industry changed its name to the Association of the Glass and Solar Industry (BAGV Glas+ Solar), and in Denmark, as Danish Industry (DI) established a new branch federation, DI Energy, which in turn has DI Bio Energy among its affiliates. However, neither DI Energy nor DI Bio Energy are involved in collective bargaining and they act solely as trade associations.

It is interesting to note that, where union pluralism is present, there is strong continuity in the structure of representation within the companies involved in reorganisation and privatisation, including where the former undertaking has been separated into different business entities. This trend can be noted in particular in central and eastern European countries where rather strong industrial relations continue in the electricity companies after privatisation and divestiture, despite the general situation of weak unions and low collective bargaining rates in the overall economy.

Collective bargaining

Collective bargaining is well established and generally follows the national patterns in terms of degree of centralisation vs. decentralisation. However, the relevance of large operators increases the importance of company bargaining, which in some cases appears as the dominant bargaining level, even in national systems where sectoral agreements generally prevail (Table 11).

In Austria, besides the two main agreements respectively for white- and blue-collar workers in the private electricity sector (which cover more than 80% of the sectoral workforce), three agreements for municipal companies are in place in the cities of Vienna, Graz and Innsbruck, which cover all local public utilities, including electricity. In Germany there is no single sectoral framework for collective bargaining, in contrast with the traditional lines of sectoral pattern bargaining at Lander (state) level. Rather a combination of single-employer and multi-employer bargaining can be found. If we consider the four main producers, E.ON is covered by the energy sector agreement, Vattenfall and RWE have single-employer bargaining structures at group-level, while EnBW is covered by the agreement signed by the regional Baden-Württemberg Electric Industry Association. Besides private electricity companies, in Germany there is an agreement for municipal energy companies.

In Spain, collective bargaining takes place within the main companies at group level. The unions underline that the lack of a sectoral agreement in the electricity industry allows a great differentiation of employment and working conditions between the larger operators and their sub-contractors as well as SMEs. Therefore, the unions are pressing for the establishment of a sector agreement which would include subcontractors. In Poland, multi-employer agreements prevail in the electricity sector, contrary to the general features of collective bargaining in that country. However, in 2009, RWE Polska, with the unions' approval, left the multi-employer agreement and signed a new company-level agreement, which includes an employee appraisal system, a commitment to job security, and medical benefits. Of particular relevance to such agreements is the establishment of employee board-level representation on the management and supervisory boards. Multiple collective agreements are also present in Sweden for white- and blue-collar workers respectively, as well as for municipal workers.

Coverage rates are also high and often collective bargaining affects (almost) the whole sectoral workforce. This is a consequence of a number of factors: the strength of both employer and union representation, the importance of large employers, and sometimes the presence of extension

mechanisms, as in Belgium, France and, until 2010, Hungary. The markets segments not covered by collective bargaining are generally marginal and they concern essentially the newly established SMEs which operate in RES with few and usually highly skilled employees. These are often non-union firms with individualised employment relations and bargaining.

Despite this general lack of representation and collective bargaining in this (presently) small segment of the electricity market, at least two attempts to extend the reach of union representation and collective bargaining were reported in Germany and Portugal. In Germany, IG Metall is trying to organise workers in the RES sector, with some success in terms of single-employer agreements signed and of new works councils established. IG Metall is moreover pressing for the creation of a new sectoral agreement for RES, such as the solar and wind industries. Conversely, ver.di would like to extend the collectively agreed standards and the codetermination rights of the energy sector to RES companies. In Portugal, SINDEL and FIEQUIMETAL are trying to extend membership and collective bargaining to the new RES operators other than the market leader EDP. For instance, in the case of the Portuguese operations of MFS – Acciona Energy, a multinational company active in wind and photovoltaic generation – the unions succeeded in starting negotiations on certain issues. However, the achievements in terms of union presence in new RES companies seem very limited so far in Portugal.

It should be mentioned, however, that although coverage rates remain high, the ‘reach’ of sectoral collective bargaining has been eroded in recent years in parallel with the reduction of employment levels due to outsourcing of technical and market services (such as maintenance and customer care). In many cases, in fact, such services are now included in other sectoral industrial relations systems or may be carried out by firms with no union representation and no collective bargaining.

Another important element which underscores the strength of collective representation in the electricity sector concerns the outcomes of collective regulation, which tends to provide higher protections in the electricity sector compared with other industries. For instance, the crucial indicator of wage levels, if not always wage increases, seems to put the electricity sector – and the energy sector more generally – well above the national average. For instance, in Austria sectoral wages are some 80% higher than the national average; in Bulgaria in 2011 they were about twice the national average, with higher levels in generation than in distribution; in the Czech Republic there are similarly higher wage rates in the electricity sector, especially in the main producer CEZ, where the basic wage is almost twice the average and further bonuses also exceed the standard. Other countries with higher than average wage levels in the electricity sector include Estonia (+29%), Hungary, Lithuania (+50%), Malta, Portugal (+150% in EDP), Romania (+170% in the main producers), Slovakia (+70%), Slovenia (+34%), and Sweden. There are a number of sectoral features which can explain such relative advantage in wages, including notably high labour productivity, in a capital intensive industry, with a prevalent presence of large companies and strong industrial relations. Moreover, the legacy of previous deeper market regulation and monopolist positions may partly account for the difference (for data on labour productivity in the EU, see Eurostat, [Energy Sector in Europe](#) (140Kb, PDF), 2009).

In this respect, the recent economic recession does not seem to have greatly influenced collective bargaining in the electricity sector. As in the previous decade, the most recent years have been marked more by the internal reorganisation of the sector and of the operators following the liberalisation initiatives at both EU and national levels.

However, at least in some countries, the current economic and public debt crisis has had an impact. In Cyprus an informal wage freeze was agreed in 2011 in the public and semi-state sectors, after wage moderation in 2010. In Greece, the liberalisation of the electricity sector has been included in the Memorandum of Understanding together with the privatisation of PPC. Besides the envisaged restructuring and layoffs linked to these transformations, collective bargaining has been suspended and wages were cut by 35% compared to the 2009 level (18% in

2010 and 17% in 2011). A number of bonuses have also been cut. In addition, fixed-term employment was cut by 50% in 2011 and starting from 2012 it will be reduced by 10% every year. In Ireland, both ESB and Bord Gais started talks with the unions over a cost saving programme in 2011. The measures under discussion include substantial job cuts, via voluntary severance and early retirement. Even if they are outside the remit of industrial relations, mention must be made of the measures introduced in Hungary in 2010 in order to reduce the state deficit, notably a cut in guaranteed feed-in tariffs for RES producers. These measures were harshly criticised by firms, because they put great pressure on their liquidity and endangered their investment plans. In Latvia, an agreement was reached at Latvenergo to reduce the impact of the crisis which included the postponement of wage increases connected to inflation and the reduction in holidays. The agreement did not, however, prevent a loss of 600 jobs, which was achieved through incentives for voluntary redundancies.

Social dialogue

Social dialogue on energy policies and issues is present and active in many countries. It does not always take place within specific bodies, but also in an ad-hoc manner, on particular issues. Energy policies are usually discussed with trade unions and employer organisations and sometimes with the public at large, through wide ranging consultations. It seems that only a few countries have not seen any significant social dialogue in the electricity sector in recent years. These cases include Spain, France, Greece, Hungary, Ireland, and Malta (Table 11).

Examples of wide consultations over energy policy can be found in Austria in 2010 and Germany as early as 2006–2007, as well as in Hungary. Although not generalised, formal bodies are present in many countries. In Belgium the social partners can contribute to the debate on energy policies in a number of forums, and notably the social and economic councils at federal and regional levels (CCE/CRB, SERV, CESR W) as well as in the Federal Council for Sustainable Development, and the Consumption Council. Widespread consultation was reported in Bulgaria, through the tripartite sectoral council for social partnership, hearings at the Economy and Energy Parliamentary Commission as well as in the State Energy and Water Regulatory Commission (SEWRC). Other cases include the Czech Republic, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Romania, Slovenia, the Slovak Republic and the UK. It is interesting to note that central and eastern European countries are prominent in this group and it is probably true that social dialogue tends to be more formalised in these countries than in older EU Member States, where ad-hoc consultations often take place. If the widespread presence of social dialogue is certainly an important institutional feature in the EU electricity sector, it is also important to stress that in a number of cases trade unions are critical of the practice of consultations and believe they have little influence on actual policy choices. Such criticisms were voiced in Lithuania and Poland.

In some cases, representatives of the social partners sit on the regulatory bodies and can in this way exert influence on policy recommendations for the governments. For instance, in Belgium the national social partners are members of the board of CREG (Commission de Régulation de l'Electricité et du Gaz), the federal regulator for electricity and gas. In Spain, although no instances of proper social dialogue were mentioned, it can be noted that sectoral employers sit on the regulatory body of the energy sector, the National Energy Commission (Comisión Nacional de la Energía, CNE) and can in this way participate in the implementation and discussion of energy policies. The lack of consultation has been addressed by the Malta Employers' Association (MEA), which in 2010 put forward a request for the establishment of a tripartite committee with the inclusion of experts to discuss an Energy pact for the years 2011–2015. The request has so far not been met.

Finally, it should be noted that tripartite dialogue is often focused on energy policies as such, rather than on the consequences for employment levels and conditions. An important debate that

emerged with the economic crisis is on energy prices and the effects on both competitiveness of firms and household consumption. This is reportedly a topical issue in Belgium, and partly in Finland.

Table 11: Trade union density and collective bargaining structure and coverage in the electricity sector

	Trade union density	Collective bargaining	Social dialogue on energy policies
AT	70–80%	Sectoral (separate for white- and blue-collar workers). Three company-level agreements for the bigger municipal utility companies (Vienna, Graz and Innsbruck). Coverage is 100% (civil servants in municipal companies are excluded from collective bargaining and are covered by civil service regulations).	Ad-hoc, informal
BE	High	Sectoral. The Joint committee 326 is the legal forum for collective bargaining with general effectiveness in the electricity and gas sector. Coverage is 100%	Organised within statutory bodies, such as the federal and regional social and economic councils and the Federal Council for Sustainable Development
BG	62%	Sectoral and company level. The industry-wide agreement is negotiated within the sectoral council for social partnership, which also negotiates the annual agreement for minimum social security thresholds. New small firms operating in the RES sector are not covered by collective bargaining. Overall coverage is at least 62%	In the tripartite branch council for social partnership with the Ministry of Economy, Energy and Tourism and at meetings of the State Energy and Water Regulatory Commission (SEWRC)
CY	98%	Intersectoral for semi-state companies as well as company level in EAC, the only significant producer. Sectoral coverage is practically 100%	The union were not consulted in the drafting of the 2020 energy policy. The unions and EAC participate actively in the discussion over the sector reform and liberalisation.
CZ	Above 50%	Sectoral agreement supplemented by company agreements. Coverage is around 50%	The energy policies are discussed within the Tripartite Council for the Economic and Social Agreement. In March 2011 the Council for the Energetic and Raw Material Strategy of the Czech Republic has been established with a consultative role. Employer representatives sit in the council but union representatives do not. In October 2011, OS ECHO union was included in the council's working groups at the union's request

	Trade union density	Collective bargaining	Social dialogue on energy policies
DE	n.a.	Both multi-employer and single-employer agreements for private electricity companies and one agreement for municipal energy companies. Coverage is high, but no data are available for the electricity sector alone. All major producers are covered.	There is no statutory framework for social dialogue at national or sectoral level. In 2006–2007 the government staged a broad-ranging consultation on the energy policy. Social partners have been active and have begun various initiatives in the field of energy policies.
DK	High	Sectoral and company level. Coverage above 50%	Ad-hoc, consultations take place at national level
EE	n.a.	Company-level n.a.	Ad-hoc. While employers have been involved in the definition of the recent energy policies, trade unions were not consulted.
ES	n.a.	Company-level (group-level) bargaining in the main companies. In the main companies, coverage is practically 100%	None
FI	Very high	There are three industry-wide agreements for blue-collar workers (ET with JHL and Sähköliitto), white-collar workers (ET with Ammattiliitto Pro and SKL) and professional and managerial staff (ET and Ylemmät Toimihenkilöt, YTN).	Consultation takes place on a permanent basis
FR	Detailed data are not available but overall high	Sectoral (electricity and gas) and supplementary company agreements. Since 2004 the social partners have also negotiated the sectoral basic salary. Extension procedures are commonly used so that nearly 100% coverage is ensured. It must be mentioned, however, that a relevant proportion of the workforce has public employee status (64% of sectoral employees in 2004) and it is therefore not covered by collective agreements, but by managerial decisions following union consultations.	None
GR	Around 90%	The main producer PPP is covered by a company agreement, whereas the other producers apply the general intersectoral agreement signed by the Hellenic Federation of Enterprises (SEV) and Greek General Confederation of Labour (GSEE).	None

	Trade union density	Collective bargaining	Social dialogue on energy policies
HU	Over 80% in the main companies	Sectoral agreement bargained within the industry Sub-Sectoral Social Dialogue Committee (Villamosipari Alágazati Párbeszéd Bizottság, VAÁPB) and company agreements. The sectoral annual wage agreement was extended until 2010, but it was not extended further in 2011.	None
IE	High in the semi-state companies. Much lower in the new private RES operators	Company-level agreements	Limited ad-hoc bilateral discussion
IT	High	Sectoral and company agreements. High coverage (about 90%)	Ad-hoc
LV	Trade unions are present in Latvenergo and companies derived from its subdivision (around 70%). In private companies union presence is very low.	Company-level agreements in Latvenergo and the de-merged companies.	Consultation takes place within the National Tripartite Cooperation Council and in the Council of the National Economy at the Ministry of the Economy, which has an Energy Subcommittee.
LT	30–40%	Company-level agreements are in place in all major electricity companies. They cover around 40% of sectoral employees.	The Committee for Energy (CE) of the Tripartite Council of the Republic of Lithuania (LRTT) is responsible for analysing energy issues. According to the unions, social partners' involvement is low in practice.
LU	n.a.	There is no sectoral agreement. All major companies, including municipal companies, are covered by company agreements.	The National Energy Council is the consultative body for energy policies. Social partners were also consulted on an ad-hoc basis about the transformation of the electricity sector and actors.
MT	High	Company-level agreements at Enemalta for different occupational groups. Coverage is 100% as Enemalta is the only electricity operator in Malta.	None

	Trade union density	Collective bargaining	Social dialogue on energy policies
NL	High	Sectoral agreements which can be supplemented by company agreements	The social partners were consulted on an ad-hoc basis within the Social and Economic Council (SER), which is a permanent advisory board at national level.
NO	Around 80%	Sectoral agreements which can be supplemented by company agreements	The social partners were represented on the Government ad-hoc committee on future energy production and demand.
PL	Around 50% (between 60% and 70% in the largest groups)	Two sectoral agreements for the energy sector and energy sector-related activities. In some companies, firm-level agreements may supplement the sectoral agreement or be an alternative to it. For instance, RWE Polska, with the unions' agreement, left the multi-employer agreement in September 2009 and signed a company deal.	A Tripartite Taskforce for the Energy Industry operates within the Tripartite Commission at the Department of Social Dialogue and Partnership since May 1998. The body dealt with the reorganisation of the energy sector and recently on the 2020 energy policies. Trade unions criticise the functioning of the body because they believe their opinions are not taken effectively into consideration.
PT	High in EDP, lower elsewhere	Company-level agreements, notably in the EDP group	Ad-hoc consultations at national level
RO	Over 90%	Company agreements cover the main companies and over 90% of employees (the last sectoral agreement for the whole energy sector terminated in 2010, but is should resume according to the new law on collective bargaining, possibly with a different sectoral scope).	The social partners are consulted on energy policies within the Social Dialogue Committee of the Ministry of Economy, Commerce and Business Environment (MECMA).
SE	Around 90%	Sectoral framework agreements and complementary company deals. There are three main collective agreements for blue-collar workers in the private sector, white-collar workers in the private sector and a single agreement for blue- and white-collar workers in municipal and state energy companies. Coverage is almost 100%.	Ad-hoc consultations. They usually take place at national level through the employer and trade union confederations.

	Trade union density	Collective bargaining	Social dialogue on energy policies
SI	n.a.	The collective agreement for the 'electro-economy' was signed as far back as 1996 by the Ministry of Economy and the Trade Union of Energy Sector Workers of Slovenia (SDE). It applies to all workers in the electricity sector. The sectoral agreement may be supplemented by company deals.	The tripartite Economic and social council for Energy (ESOE) monitors economic and social conditions and contributes to the preparation of new legislation through recommendation and proposals and can present initiatives for new legislation.
SK	Around 60%	Two sectoral agreements signed by the employer association ZZES with the two main competing unions ZOES and ECHOZ. Largest companies also have supplementary company agreements. Coverage is very high, close to 100%. Only small firms in RES are not covered.	Energy policies are discussed in the national tripartite Energy Economic and Social Council (HSR). In recent years trade unions have harshly criticised the government's energy policies, notably in the field of liberalisation of distribution.
UK	About 45%	Company or more usually sub-company agreements for specific plants or groups of workers. Overall coverage is almost 60%. Small new RES operators are believed to be less covered by collective bargaining.	At present, energy policies are discussed within the Green Economy Council and the tripartite Business Energy Forum. Moreover, social partners are consulted bilaterally on specific issues (on an ad-hoc basis). In 2010, there was also a broad consultation on electricity market reform.

Growth of RES and impact on employment and industrial relations

The development of RES has not so far changed either employment or industrial relations in a significant way. On the one hand, most of the employment gains linked to RES development are envisaged to take place outside the electricity sector in equipment manufacturing and distribution, project development, construction and installation, and maintenance and 'for many of these technologies, the construction phase is the most labour intensive one', except for biomass-based renewable energy use (Commission Staff Working Document 'Exploiting the employment potential of green growth', p. 8). In terms of industrial relations, this means that RES are not having a substantial impact on representation and collective bargaining. If RES projects are carried out by former operators, there is a substantial continuity of both industrial relations processes and contents, whereas if RES are mainly taken up by new operators, small size and low employee numbers often leave them outside representation and the collective bargaining process (although they may be covered by collective bargaining, if there is an extension mechanism). Indeed, quite often the new RES companies are non-union and do not engage in collective bargaining. In Cyprus, for instance, where RES are in the first development phase and the Electricity Authority of Cyprus (EAC), despite the liberalisation, maintains a de-facto monopoly, the small number of SMEs which operate in the RES sector are thought to regulate employment relations with their generally high-skilled workers through individual contracts.

At present, where the institutional setting supports or even mandates collective representation or collective bargaining coverage through extension mechanisms, there may be some incentives for new RES companies to join established actors, in order to be in a position to influence the employer association positions. In Belgium, for instance, where collective bargaining is organised according to the mandatory sector joint committees, most newcomers are members of the established sectoral employer association FEBEG. At the same time, it should be mentioned that this institutionalisation of representation and collective bargaining may sometimes be a source of tension: in August 2011, Lampiris, a new 100% green energy retailer, left FEBEG and announced its intention to start working on establishing an alternative employer organisation, which would be closer to the interests of the new electricity operators.

Despite this general situation, a notable development is certainly the growth of RES business associations. These are almost invariably trade associations, which lobby for the interests of their members vis-à-vis policymakers and political authorities and do not develop any forms of joint regulation of employment relations. Such associations have been set up in a significant number of countries, including Austria, Belgium, Germany, Estonia, Spain, Greece, Hungary, Italy, Latvia, Portugal and Romania (Table 12).

As for employee representation, there are no new trade unions which focus specifically on RES. The fact that many RES-related activities are actually carried out by the existing electricity companies reduces the impact on both representation and collective bargaining. In Denmark, for instance, since most RES activities are developed by established electricity companies, both trade union representation and collective bargaining coverage are extensive. A similar situation is reported in Finland, Norway and Poland. However, it must be underlined, as mentioned above, that in most cases the sector of small new RES companies shows little, if any, union presence and collective bargaining coverage. Belgium appears to be an exception, as trade union representation seems well developed even in the new, smaller RES operators.

In other countries, trade unions are targeting the RES sector to boost their membership. Although it has not carried out a specific campaign, the Austrian white-collar GPA-djp union disseminates information about the outcomes of collective bargaining in the electricity sector in the emerging RES companies, as part of its usual initiatives to recruit new members. In Germany, IG Metall has started specific actions to organise workers in the RES sector, notably solar and wind energy. It has succeeded in concluding some single-employer agreements and has established a number of works councils in this sector and is now pressing to set up an industry-wide collective agreement for solar and wind energy. In Italy, trade unions are aware of the challenges to trade union representation posed by the growth of new small RES companies and are trying to recruit members as part of their ordinary initiatives. In Lithuania, the sectoral union LAB Energija works to extend membership to new emerging RES, even though most of these companies are small in size. Recently, two new union organisations joined it and some workers have joined the union individually. In Portugal, SINDEL and FIEQUIMETAL are trying to recruit members and establish representation structures outside the EDP Group, including in the RES sector. In the UK, all trade unions are seeking to recruit new members in the emerging part of the electricity sector. Unite – The Union, for instance, aims to ‘ensure that the “new wave” generators are as organised as the existing ones, and achieve terms and conditions that are at the cutting edge of our negotiations’.

In a number of countries, the prevalence of small and micro firms, as well as the low employment levels in the new RES segment of the electricity sector, mean that there is little or no union presence and no specific initiatives have been started to extend membership or collective bargaining. This is the case, for instance, in Bulgaria, Cyprus, the Czech Republic and Estonia (but the unions are planning initiatives to extend union presence in the whole energy sector), Hungary (where there is an extended sectoral agreement), Ireland and Lithuania.

Table 12: Employer and trade union organisations in the electricity sector

	Main operators/traditional sources		Renewable energy sources	
	Employer associations	Trade unions	Employers	Trade unions
AT	OEE	GPA-djp (white collars), PRO-GE (blue collars), GdG-KMSfB (municipal workers)	Trade associations, such as Photovoltaic Austria (PVA) and the Austrian Wind Energy Association (IG Windkraft)	GPA-djp disseminates information to recruit new members
BE	FEBEG	ACV-BIE, Gazelco ACOD-CGSP, ACLVB-CGSLB, ACV Publieke Diensten (Infrax e.g)	There are territorial trade associations: ODE Flanders and the Walloon EDORA. They often associate single technology platforms, like Flemish Wind Energy Association (VWEA).	Only a small part of sectoral employment is in small independent producers. Union presence is anyway widespread
BG	Bulgarian Branch Chamber of Energy (BBCE)	National Federation of Energy Workers (NFEW CITUB), Independent Trade Union Federation of the Workers in the Energy Industry (ITUFWE CITUB), 'Energetics' Federation (FE Podkrepa CL), – 'Nuclear Energy' Federation (FNE Podkrepa CL)	No new associations	No trade unions in the small independent producers (mostly micro and small firms). The main RES is hydro power which is covered by NEK
CY	None. The Electricity Authority of Cyprus bargains directly with the unions	Free Pancyprian Organisation of EAC Personnel (EPOAI SEK, Union of EAC Scientific Personnel (SEPAIK POAS, Local Authority Workers' and Employees' Trade Union (SIDIKEK PEO, Union of EAC Shift Workers (SYVAIK POAS)	No new associations	No trade unions in the small independent producers, which mostly employ skilled workers under individual contracts

	Main operators/traditional sources		Renewable energy sources	
	Employer associations	Trade unions	Employers	Trade unions
CZ	<p>Czech Association of Energy Sector Employers (ČSZE)</p> <p>The Employers' Association of Mining and Oil Industries (Zaměstnavatelský svaz důlního a naftového průmyslu ČR, ZSDNP)</p> <p>Water Management Association (Svaz vodního hospodářství, SVH)</p> <p>Association of the Pulp and Paper Industry (Asociace českého papírenského průmyslu, ACPP)</p>	<p>Český odborový svaz energetiků (Czech Energy Workers Trade Union, ČOSE), trade union ECHO (OS ECHO), Trade Union of Workers in Mines, Geology and the Oil Industry (Odborový svaz pracovníků hornictví, geologie a naftového průmyslu, OS PHGN), Trade Union of Workers in the Woodworking Industry, Forestry and Water Management (Odborový svaz pracovníků dřevozpracujících odvětví, lesního a vodního hospodářství v ČR, OS DLV)</p>	<p>SVH and ACPP cover respectively one generator in hydro power (Povodí ohře) and in biomass (Mondi Štětí a.s.). CEZ is also present in both kinds of generation.</p> <p>New operators in RES are not likely to be associated with employer organisations</p>	<p>OS DLV is the relevant trade union in Povodí ohře and Mondi Štětí a.s. The majority of new RES firms being small companies are likely not to be covered by trade union representation</p>
DE	<p><u>E.ON</u>: Energy Collective Bargaining Association (Tarifgemeinschaft Energie) comprising the employer organisations</p> <p>Arbeitgebervereinigung energiewirtschaftlicher Unternehmen (AVE) and the Arbeitgebervereinigung Bayerischer Energieversorgungsunternehmen (AGV)</p> <p><u>Vattenfall</u>: Arbeitgeberverband energie- und versorgungswirtschaftlicher Unternehmen (AVEU) and the Bundesverband Braunkohle, the German federal association of all lignite-producing companies (DEBRIV)</p> <p><u>RWE</u>: Arbeitgeberverband von Gas-, Wasser- und Elektrizitätsunternehmen (AGWE)</p> <p><u>EnBW</u>: Arbeitgeberverband der Elektrizitätswirtschaft Baden-Württemberg</p>	<p>United Services Union (Vereinte Dienstleistungsgewerkschaft, ver.di), Mining, Chemicals and Energy Industrial Union (Industriegewerkschaft Bergbau, Chemie, Energie, IG BCE), the German Metalworkers' Union (Industriegewerkschaft Metall, IG Metall)</p>	<p>There is a trade association in the solar energy sub-sector, the Federal Employer Association of the Solar Sector (Bundesverband Solarwirtschaft, BSW). BSW does not engage in collective bargaining</p>	<p>IG Metall is trying to organise workers in the renewable energy sector, e.g. solar and wind energy. There are examples of single-employer agreements or of setting up works councils, but there are no specific multi-employer agreements in this sector</p>
DK	<p>The Confederation of Danish Industries (DI)</p>	<p>Danish Association of Professional Technicians (Teknisk Landsforbund), Danish Union of Electricians (Dansk El-forbund), United Federation of Danish Workers (3F), The Union of Commercial and Clerical Employees in Denmark (HK), Danish Metalworkers Union (Dansk Metal)</p>	<p>DI has formed DI Energy and, within it, DI Bio Energy. These organisations do not participate in collective bargaining but act as trade associations</p>	<p>Since RES are developed in established companies, the coverage of the new segments is good and no special initiatives have been started</p>

	Main operators/traditional sources		Renewable energy sources	
	Employer associations	Trade unions	Employers	Trade unions
EE	Estonian Employers' Confederation (ETTK), Association of Estonian Electrical Industry (ETL) Estonian Association of Electrical Enterprises (EETEL), which is not engaged in collective bargaining	Association of Estonian Energy Workers' Trade Unions (EEAÜL), Independent Trade Union of Miners' and Energy Workers (Kaevurite ja Energeetikatöötajate Sõltumatu Ametiühing)	There are a number of trade associations which are not involved in industrial relations: Estonian Wind Power Association (ETEA), Estonian Biofuel Association (EBÜ), Estonian Power and Heat Association (EJKÜ), Estonian Solar Energy Association (Eesti Päikeseenergia Assotsiatsioon). The Estonian Renewable Energy Association (Eesti Taastuvenergia Koda) was established in 2011 by EJKÜ, ETEA and Estonian Vesktivaramu	Only a very small minority of union members work in the renewable energy sector. There have been no special initiatives so far, but EEAÜL has plans to extend membership in the future in the whole energy sector

	Main operators/traditional sources		Renewable energy sources	
	Employer associations	Trade unions	Employers	Trade unions
ES	Spanish Association of the Electricity Industry (Unión Española de la Industria Eléctrica, UNESA)	General Workers' Confederation (Unión General de Trabajadores, UGT), Trade Union Confederation of Workers' Commissions (Comisiones Obreras, CCOO), Workers' Trade Unionist Confederation (Unión Sindical Obrera, USO), General Confederation of Labour (Confederación General del Trabajo, CGT), Basque Workers' Solidarity (Solidaridad de Trabajadores Vascos, ELA-STV), the Galician Trade Union Interconfederation (Confederación Intersindical Galega, CIG). In Iberdrola, there are a number of independent unions: the Energy Sector Independent Union (Sindicato Independiente de la Energía, SIE) and the Association of Professionals and Technicians of the Energy Sector (Asociación de Técnicos y Profesionales de la Energía, ATYPE); in Endesa the Independent Union of the Energy Sector (Asociación Sindical Independiente de la Energía, ASIPE) is present	Spanish Association of Renewable Energy Producers (Asociación de Productores de Energías Renovables, APPA)	No information
FI	Finnish Energy Industries (Energiateollisuus ry, ET)	Trade Union for Public and Welfare Sectors (JHL), Finnish Electrical Workers' Union (Sähköalojen ammattiliitto, Sähköliitto), Trade Union Pro (Ammattiliitto Pro), Finnish Engineers' Association (Suomen Konepäällystöliitto, SKL), Federation of Public and Private Sector Employees (Jyty), Technics and Health (KTN), Federation of Professional and Managerial Staff (Ylemmät Toimihenkilöt, YTN)	They have joined the established actors Biomass energy is linked to the pulp manufacturing process, so that the largest forestry firms are producing the most energy/electricity from biomass. The most important companies in this subsector are pulp and paper machinery companies organised into the Finnish Forest Industries (Metsäteollisuus ry)	Emerging RES are organised in the established trade unions of the electricity sector or, in the case of biomass linked to the pulp industry, in the relevant union federations.

	Main operators/traditional sources		Renewable energy sources	
	Employer associations	Trade unions	Employers	Trade unions
FR	French Electricity Union (Union Française de l'Électricité, UFE)	<p>There are a number of sector federations: CGT Federation of Mining and Energy (Fédération CGT des Mines et de l'Énergie, FNME-CGT), Federation of Chemicals and Energy (Fédération Chimie Énergie, FCE-CFDT), Energy and Mines (FO Énergie et Mines), Federation of Chemicals, Mining, Textile and Energy (Fédération Chimie Mines Textile Energie, CFTC-CMTE), Federation of Electric and Gas Industries (Fédération des Industries électriques et gazières, IEG CFE-CGC), Union of engineers, managers, technicians, and foremen in the nuclear industry (Syndicat des ingénieurs, cadres, techniciens, agents de maîtrise et assimilés de l'énergie atomique, SICTAM CGC).</p> <p>In addition, most unions have special branches in large energy companies</p>	The main established actors are the main players in RES	No detailed information. RSE are mainly developed by established companies where representation is well established
GR	Hellenic Electricity Association (HELAS), Hellenic Association of Independent Power Producers (ESAI). They are not involved in collective bargaining.	GENOP/DEI-KHE	Greek Association of RES Electricity Producers (ESIAPE), Hellenic Scientific Association of Wind Energy (ELETAEN), Association of Energy Producers with Photovoltaic Systems (SPEF), Hellenic Association of Photovoltaic Companies (HELAPCO), Solar Energy Industries Association (EBIE)	No information on trade union presence in RES outside established companies

	Main operators/traditional sources		Renewable energy sources	
	Employer associations	Trade unions	Employers	Trade unions
HU	Alliance of Electricity Sectors Employers' Associations (Villamosenergia-ipari Társaságok Munkaadói Szövetsége, VMTSZ), Hungarian Miners Association	Federation of Electricity workers' Unions (Egyesült Villamosenergia-ipari Dolgozók Szakszervezeti Szövetsége, EVDSZ), Mining and Energy Industry Workers' Union (Bánya- és Energiaipari Dolgozók Szakszervezete, BDSZ)	Hungarian Co-generation Power Plant Association, Biomass Power Plant Association, Hungarian Renewable Energy Association	Trade union presence is very low because companies are small with few employees. There are no initiatives to extend membership to the RES sector
IE	Irish Business and Employers Confederation (IBEC)	Unite, ESB Officers Association (ESBOA), Technical Engineering and Electrical Union (TEEU), Services, Industrial, Professional and Technical Union (SIPTU), Union of Construction Allied Trades and Technicians (UCATT)	The sector is covered by IBEC	The main RES operator in the wind segment (Airtricity) is a non-union company. In new private RES operators the presence of unions is weak
IT	Assoelettrica, Federutility	Filcem-Cgil, Flaei-Cisl, Uilcem.uil	Associazione Produttori Energia da Fonti Rinnovabili (APER), Federazione Italiana Produttori di Energia da Fonti Rinnovabili (FIPER), Gruppo Imprese Fotovoltaiche Italiane (GIFI)	Trade union presence is low in the small new RES companies. Trade unions are trying to recruit new members as part of ordinary activities

	Main operators/traditional sources		Renewable energy sources	
	Employer associations	Trade unions	Employers	Trade unions
LV	Latvian Employers' Confederation (Latvijas Darba Devēju konfederācija, LDDK)	Trade Union Energija (Latvijas Arodbiedrība 'Enerģija', LAB 'Enerģija')	Latvian wind energy association (Vēja enerģijas asociācija, VEA), Small hydro energy association (Mazās hidroenerģētikas asociācija, MHEA), Latvian biogas association (Latvijas Biogāzes asociācija, LBA), Latvian thermogasification association (Latvijas Termogazifikācijas asociācija), Latvian biomass association LATbio (Latvijas biomasas asociācija LATbio, LATbio) and several other less active organisations (Latvian National Geothermal association (Latvijas Nacionālā Ģeotermālā asociācija, LNGA), Solar Energy association (Saules Enerģijas asociācija, SEA). The National Energy Confederation (Nacionālā enerģētikas konfederācija) organises smaller associations and represents the energy sector in negotiations with the government, and International association ENERĢIJA (Starptautiskā asociācija ENERĢIJA). None of this associations is member of LDDK and they do not seek employer organisation status	LAB Enerģija works to extend membership to new emerging RES, even if most companies are small. Recently, two new unions joined it and some workers have joined individually

	Main operators/traditional sources		Renewable energy sources	
	Employer associations	Trade unions	Employers	Trade unions
LT	Lithuanian National Association of Electricity Network Owners (NETVA), Lithuanian Electricity Association (LEEA). They are not employer associations.	Lithuanian Energy Workers' Trade Unions Federation (LEDPSF)	Lithuanian Wind Electricity Association (LVEA), the Lithuanian Biomass Energy Association LITBIOMA (LITBIOMA), the Association of Photo Electric Technologies and Business (FTVA). None is involve in collective bargaining. They have joined the peak employer association LPK.	Trade unions are usually not present in new small and micro RES companies
LU	There is no sectoral employer association (some electricity firms and the grid operator Creos are affiliated to Fedil)	Service and Energy-OGBL, LCGB	None	No information
MT	No sectoral employer organisation	GWU – Chemicals and energy section, UHM Tourism and Services, Enemalta Professional Officers Union (EPOU), Enemalta Senior Staff Union	The RES segment is not developed	n/a
NL	No information	FNV Abvakabo, CNV Publike Zaak, NMHPN-CMHF	No information	No information
NO	Energi Norge. Municipal companies may be affiliated to KS Bedrift, Statnett is part of Spekter	EL&IT Forbundet (blue-collar workers), Norwegian Society of Engineers and Technologists (NITO), the Norwegian Society of Graduate Technical and Scientific Professionals (TEKNA)	The RES segment is covered by established actors	The RES segment is covered by established actors
PL	Federacja Związków Pracodawców Energetyki Polskiej (The Federation of Polish Power Industry Employer Unions)	NSZZ 'Solidarność', Ogólnopolskie Porozumienie Związków Zawodowych (The All Poland Alliance of Trade Unions), Forum Związków Zawodowych (Trade Unions Forum)	The RES segment is covered by established actors	The RES segment is covered by established actors

	Main operators/traditional sources		Renewable energy sources	
	Employer associations	Trade unions	Employers	Trade unions
PT	CIP (Confederation of Portuguese Industry – Confederação da Indústria Portuguesa). CIP is not engaged in collective bargaining in the electricity sector. There is no proper sectoral employer organisation, as EDP bargains directly with the unions	SINDEL (National Union of Manufacturing and Energy), FIEQUIMETAL (Federation of Unions in the Metal, Chemical and Electronic Industries and in Energy)	APREN (Association of Renewable Energies). It is a trade association	Union presence outside the EDP Group is relatively low. Trade unions are trying to extend membership to the new RES segments
RO	APEN Employers Organisation (Asociația Patronală Energia – APEN), affiliated to the Energetica Employers Federation (Federația Patronală Energetica – FPEN). Some operators are directly affiliated to FPEN, Association of Companies of Energy Supplier (Asociația Companiilor de Utilități din Energie, ACUE). ACUE is a trade association	Company unions affiliated to different federations: Termoelectrica Federation (Federația Termoelectrica), Mining Energy Federation Craiova (Federația Energie Mină Craiova, FEM), National Mining and Energy Federation (Federația Națională Mine Energie, FNME), Energetica Federation, Unions National Trade Unions Federation of Electricity (Federația Națională a Sindicatelor din Electricitate Unions), Trade Union Federation Hidrosind (Federația Sindicală Hidroelectrică Hidrosind, Hidrosind)	Employers Association for New Sources of Energy (Asociația Patronală Surse Noi de Energie, SUNE), a member of APEN	No information
SE	EnergiFöretagens Arbetsgivareförening (EFA), the Municipality Companies' Cooperative Organisation (Kommunala Företagens Samorganisation, KFS), and Arbetsgivarförbundet Pacta (Pacta). The main operators are members of EFA. KFS and Pacta associates municipal and state companies	Private companies (even if state-owned): the Swedish Electricians Union (Svenska Elektrikerförbundet, SEF), the Union of Service and Communication Employees (SEKO), the Trade Union for Professionals in the Private Sector (Unionen), the Confederation of Executives and Managerial Staff (Ledarna), the Swedish Association of Graduate Engineers (Sveriges Ingenjörer) <u>Municipal and state companies:</u> the Swedish Municipal Workers' Union (Kommunal), SEKO, Vision (Vision – previously SKTF), Ledarna, Sveriges Ingenjörer	The RES segment is covered by established actors	The RES segment is covered by established actors. However, there are non-union companies (for instance in wind power) and there are no significant photovoltaic producers
SI	Energy Industry Chamber	Trade Union of Energy Sector Workers of Slovenia (Sindikat delavcev dejavnosti energetike Slovenije, SDE)	The Energy Industry Chamber partly covers RES. No new organisations were created	No information

	Main operators/traditional sources		Renewable energy sources	
	Employer associations	Trade unions	Employers	Trade unions
SK	Zväz zamestnávateľov energetiky Slovenska (ZZES), Združenie zamestnávateľov vo vodnom hospodárstve na Slovensku (ZZVH)	Združenie odborárov energetiky Slovenska (ZOES), Chemicko-energetický odborový zväz (ECHOZ), Odborový zväz Drevo-Lesy-Voda	The RES segment is covered by established actors. There are no initiatives to extend representation to new small RES firms	The RES segment is covered by established actors. There are no initiatives to extend representation to workers of new small RES firms
UK	The Association of Electricity Producers (AEP), the Energy Networks Association (ENA), Energy Retail Association (ERA), the Nuclear Industry Association (NIA). All of these are trade associations.	GMB, Unison, Unite the Union, and Prospect.	The Renewable Energy Association (REA), RenewableUK. They are both members of AEP. They are trade associations	All trade union are seeking to recruit members in new RES segments

Social partners' views

The transformation of the electricity sector following liberalisation is still a major point of interest for the social partners because it had important consequences that are still affecting employment and working conditions. For instance, in Belgium, sectoral trade unions and the employer association are still working on the harmonisation of the employment conditions of workers hired before the 2003 liberalisation and after. Moreover, the increased segmentation between high-skilled professional staff in technical and marketing positions and low-skilled sales jobs, often in outsourced call-centres or even as self-employed salespersons, is perceived as an issue, especially by Belgian trade unions.

Actually, the segmentation of the sector and outsourcing is a growing concern in a number of countries. In Bulgaria, trade unions maintain that distribution companies are outsourcing activities in order to reduce labour costs and thereby restrict the scope of collective representation and bargaining. In Germany, ver.di and IG Metall focus more on the weakness of trade union representation and collective bargaining in the RES sector and, as outlined above, are trying to extend their presence to these new market segments. According to the union EEAÜL, intensification of work is the most significant effect of the employment reductions recently implemented in the electricity sector after reforms. In Spain, subcontractors are reported to often use self-employed workers or fixed-term contracts, with increasing working time flexibility. Also, small RES companies contribute to the segmentation of employment and working conditions in the electricity sector in Spain, so that national trade unions are favouring the establishment of a sectoral or inter-sectoral agreement to cover all employees, including those employed by subcontractors and small RES firms. In Lithuania, sectoral reorganisation and the economic crisis came at the same time so that it is particularly difficult to disentangle the two effects. The main effects of restructuring were a direct fall in employment levels and an intensification of work for those who remained. The Latvian trade union Energija criticises restructuring and layoffs in the national electricity company Latvenergo, especially in these times of economic recession, as well as recourse to outsourcing. In Sweden, both trade unions and employer organisations note the

increase in work segmentation, with the growth of outsourcing and temporary agency work, which led to significant job losses in the main electricity companies. In the UK, the main objectives of the trade unions have been to preserve employment, pay and working conditions in the long process of sectoral reorganisation through the mergers and acquisitions which have marked the latest decade.

Energy policy and its consequences on businesses and employment is another important issue for debate by the social partners. In Germany the employers have criticised the decision to phase out nuclear power, because they believe it is a necessary source of domestic electricity to avoid import-dependence, at least while RES are not fully developed. The employers have also condemned the introduction of new taxes, because they maintain the higher burden may put as many as 100,000 jobs at risk. On the other hand, the German ver.di trade union is drawing attention to the competencies that will be necessary in the future, especially in connection with the introduction of smart grids and the increased importance of IT and telecommunication skills. A similar concern is voiced by the Estonian associations of the RES sector, ETEA and EJKU, which believe that the need for qualified workers must be met in the very near future, otherwise the development of RES may be hindered. In Bulgaria, companies in the traditional segment of electricity generation underline that de-carbonisation targets impose large investments that are difficult to bear, especially considering the current economic crisis. In Spain, trade unions believe that RES will be a strategic source of employment growth and therefore maintain that they should be supported. In Hungary, the employer associations harshly criticised the cut in RES incentives, which they believe endangers the sustainability of investments, and lament their low involvement in the definition of energy policies. In Italy, the social partners underline that the extent and level of support for RES risks making traditional forms of power generation less convenient and reducing the utilisation of large traditional power stations, thereby worsening the problems of excess capacity and the reduction in demand brought about by the economic crisis. Therefore, according to the social partners, energy policy must be carefully considered with a view to avoiding the creation of an artificial advantage for RES, and it is important to develop an energy strategy which clearly identifies the objectives that need to be met. In this respect, the major Italian national trade union confederations and the main employer confederation released a joint statement in December 2011 to support investment in energy efficiency, which they believe would bring high potential gains in terms of economic growth and employment creation. In Portugal, the trade unions have strongly criticised the liberalisation of the electricity sector and the privatisation of EDP, and currently underline the negative consequences of the segmentation of the sectoral workforce that emerged after the liberalisation. Employers, on the other hand, stress the need to reduce energy costs among other things, the construction of nuclear power stations in the future.

It appears that the crisis has not had a significant impact on the electricity sector so far. In general, the social partners consider that the consequences have been less serious than in other sectors. Some employment effects have been reported in certain countries, however. In Bulgaria, the economic downturn is forcing employers to cut expenses and outsource some activities. In the Czech Republic, wage freezes and outsourcing are the main measures introduced to address the crisis. In Denmark, restructuring and layoffs have been underway since 2008, but the unions cannot assess whether they are linked to the recession or to long-term trends triggered by the liberalisation process. In Finland, 2009 saw a decrease in the number of trainees and some job losses. In Ireland, in late 2011, ESB was seeking an agreement with the unions to secure labour cost savings of some 20%, which could include around 1,000 voluntary redundancies. Other significant cases of collective redundancies are reported in Romania.

Commentary

This report provides evidence to show that the European electricity market is characterised by both change and continuity.

- The most striking transformation has certainly been the creation of a genuine internal market over the past 15 years or so following the various EU-led liberalisation and reform interventions, as well as the proactive adaptation of large electricity companies to the changing business environment. This includes the emergence of significant continental and global players in the energy sector out of the former monopolist operators. They often maintain a leadership position in their original market, but they now operate on a global scale, so that reference to the European market, rather than to national markets, may be increasingly appropriate in the near future.
- Another, more recent, change is the development of RES and the emergence of new electricity operators, often SMEs, which contribute to overall production in a more dispersed and fragmented way than traditional large power stations. So far, this important change has not had a significant impact on employment and industrial relations, mostly because the traditional large electricity companies are investing substantially in RES and therefore remain major players in the emerging RES market segments as well. Moreover, new RES technologies tend to be capital intensive, so that employment creation is concentrated in engineering, manufacturing and construction, rather than in electricity generation. This also means that new RES companies are often SMEs and more difficult to unionise and involve in collective bargaining. However, RES are set to become increasingly important in the EU energy sector and they will require new skills and possibly new organisational patterns. Trade unions and employer organisations in a number of countries are actively seeking to establish representation and collective bargaining in the new RES segments, and this type of initiative will probably become more important in the future.
- As stated above, continuities can be found mostly in industrial relations, especially if the large operators are taken into consideration. The sector appears well organised in terms of both trade union presence, with unionisation usually above the national average, and employer associational density. Collective bargaining coverage is also high. And the presence of large companies tends to make company bargaining crucial in many cases, even when industry-wide agreements are in place. In this respect, the low unionisation and bargaining coverage of new RES companies represents a challenge for trade unions and it will be important to see the results of the initiatives mentioned above. So far, the social partners have proved able to face relevant restructuring and to jointly address a significant decrease in employment levels over the past decade. Therefore, they look well equipped to deal with the ongoing sectoral transformations, including RES development. However, a further segmentation of employment and labour relations, beyond those produced by reorganisation and outsourcing, cannot be ruled out.
- Social partners are usually involved in dialogue about sectoral policies, although they do not always feel that their opinions are effectively influencing policymaking. Tripartite bodies are significantly present, especially in central and eastern European countries, whereas in a number of countries consultations take place on an ad-hoc basis, when proposals are put forward by governments. Due to the importance of the energy policy for businesses and employment, social partners also participate in the debate by preparing their own policy documents and sometimes they release joint statements and proposals.

The EU electricity sector provides an interesting example of the substantial continuity of industrial relations systems in a very dynamic business environment, affected by both important institutional reforms and increasing market competition. Certainly, the continuities in industrial

relations can be partly explained by a number of factors, including the persistent importance of large companies, and notably of the successors of previous monopoly operators, the presence of significant levels of public ownership and the role of regulation. However, competition, diversification and expansion at EU level are nowadays realities, which compel electricity companies; further pressures are exerted by financial markets, both in the case of listed companies and of those which issue bonds – that is, on all major market players. Therefore, the continuing strength of industrial relations probably also shows that representation and collective bargaining, together with forms of worker participation, can contribute to enabling companies to compete effectively, thanks to the productivity and quality gains driven by joint regulation.

The current economic crisis seems to have left the electricity sector relatively unaffected, possibly because of the key position that energy markets have in our economically advanced society. But the pace of change has not slowed and the current EU policy objectives in terms of RES development, energy efficiency and de-carbonisation will greatly affect the sector in the future decades. It could be that, after more than 10 years of reorganisation and restructuring, employment levels will stabilise, at least in the countries where reform started in the early 2000s or before. There might even be some scope for job creation. And the expectations are focused mainly on the trade segment and new RES. Yet, the new policy objectives which aim at 2030 and 2050 are quite challenging and seem to demand further innovation and probably restructuring in all market segments, at least in its ‘industrial’ parts – generation, transmission and distribution.

Industrial relations can accompany and guide such changes, as they did in the past. This may require further transformations in industrial relations structures and processes. At present, there is seemingly no convergence across EU countries towards decentralisation at company level or centralisation at the sectoral level of collective bargaining. The role of EU-level processes, like those developed within EWC, may increase in the future and probably already deserve more attention given the importance of large EU players. The issue of skill requirements was rarely mentioned in the national reports, but may be crucial in the next decade. The electricity sector appears today to be an industry where all these challenges are strong and industrial relations will certainly be tested.

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