Dossier
Adapt
Associazione per gli Studi Internazionali e Comparati sul Diritto del lavoro e sulle Relazioni industriali

In collaborazione con il Centro Studi Internazionali e Comparati Marco Biagi

Green jobs: nuove opportunità o nuovi rischi?

a cura di Rodosveta Gospodinova, József Hajdú e Lisa Rustico

Allegato

Slide presentate al convegno
Green jobs: nuove opportunità o nuovi rischi per l'occupazione femminile?

4 febbraio 2010, Roma

WiRES

Il presente Dossier è realizzato nell'ambito del progetto di ricerca *WiRES*. *WiRES* (*Women in Renewable Energy Sector*) è un progetto promosso da Adapt, co-finanziato dalla Commissione europea, DG Affari sociali, occupazione e pari opportunità, budget heading 04.03.03.01, *Industrial Relations and Social Dialogue*.
L'esclusiva responsabilità di questo Dossier è dell'Autore e la Commissione europea non è responsabile dell'utilizzo che potrebbe essere fatto delle informazioni in esso contenute.

Associazione per gli Studi Internazionali e Comparati sul Diritto del lavoro e sulle Relazioni industriali

Progetto co-finanziato dalla Commissione europea

WiRES

Women in Renewable Energy Sector

Lisa Rustico

Roma, 4 febbraio 2010

* Il logo WiRES è creato con l'eco-font *Spranq eco sans*, che permette di ridurre l'uso di inchiostro e l'inquinamento nella stampa

Questa presentazione è parte del progetto WiRES.

WiRES (*Women in Renewable Energy Sector*) è un progetto co-finanziato dalla Commissione europea, DG Occupazione, Affari Sociali e Pari Opportunità (linea di finanziamento 04.03.03.01, Relazioni Industriali e Dialogo Sociale).

Il consorzio di WiRES

WiRES coinvolge una rete internazionale e interdisciplinare di cui fanno parte esperti in: dialogo sociale europeo, energie rinnovabili, pari opportunità, istruzione e formazione professionale, diritto del lavoro e relazioni industriali, economia ambientale e del lavoro.

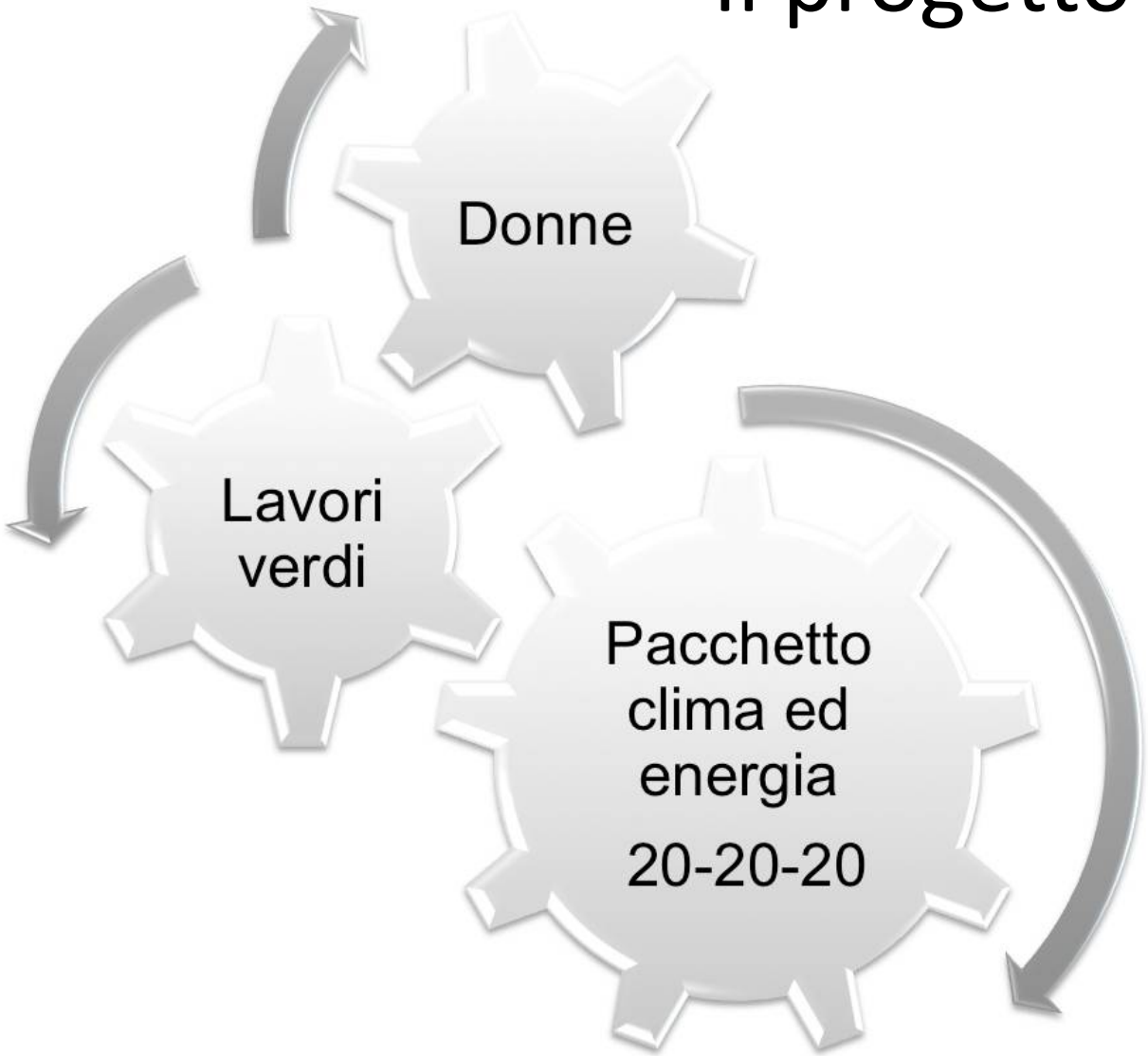
Sono partner di WiRES:

Adapt – Associazione per gli Studi Internazionali e Comparati sul Diritto del lavoro e sulle Relazioni industriali
Prof. Michele Tiraboschi – Italia

Università di Szeged, Facultà di Giurisprudenza
Jòzsef Hajdù – Ungheria

UPEE – Union for Private Economic Enterprise
Radosveta Gospodinova – Bulgaria

Il progetto



Quale ruolo per il dialogo sociale e le relazioni industriali?

Background

- **Pacchetto clima ed energia, Commissione europea, ottobre 2008**:
  - Norme vincolanti per risparmio energetico e promozione ambientale
  - Impatto occupazionale: i lavori verdi
    - *Citizens' summary of the EU climate and energy package*: 1 milione di posti di lavoro?
    - Il "*job churn effect*"

- **Occupazione femminile e pari opportunità**
  - Tassi di occupazione femminile aumentano … ma non abbastanza: Italia 46,3% *vs* UE-27 58,2% *vs* target di Lisbona 2010 60%
  - Pari opportunità

Obiettivi della ricerca: il ruolo del dialogo sociale

- Nuovi diritti di partecipazione e consultazione?
- Tavole rotonde per gestire l'impatto occupazionale a livello settoriale o regionale?
- Innalzare i tassi di occupazione femminile?
- Migliorare le condizioni di lavoro nel settore delle rinnovabili?
- Pari opportunità: accesso al mercato del lavoro, percorsi di carriera, differenziali retributivi, conciliazione vita-lavoro?
- Anticipazione e previsione dei fabbisogni professionali e coerente progettazione dei percorsi di istruzione e formazione professionale (reingresso nel mercato del lavoro)?

Fasi della ricerca

- Prima fase: impatto occupazionale per le donne nel settore delle rinnovabili in Europa. Identificazione di indicatori, problemi e sfide.

- Seconda fase: esperienze del dialogo sociale. Ruolo dei tavoli di settore, in relazione all'accesso e alle condizioni di lavoro delle donne nei settori delle rinnovabili.

- Terza fase: casi studio regionali per l'identificazione di buone pratiche e raccomandazioni di *policy.*

Diffusione della ricerca

- www.adapt.it: pubblicazioni on-line di Adapt (Bollettino settimanale, bollettini speciali, dossier, *working paper*) e Osservatorio Green Jobs
- Media dei partner e dei *supporters*
- Tre workshop in Europa (marzo, maggio, luglio 2010)
- Un rapporto finale
- Una guida di buone pratiche per le parti sociali
- Un convegno internazionale a Bruxelles (novembre 2010)

WiRES: un *network* aperto

Per collaborare al progetto, ricevere informazioni e pubblicazioni, partecipare agli eventi di WiRES

www.adapt.it

lisa.rustico@unimore.it

Associazione per gli Studi Internazionali e Comparati sul Diritto del lavoro e sulle Relazioni industriali

Progetto co-finanziato dalla Commissione europea

WiRES

Women in Renewable Energy Sector

Lisa Rustico

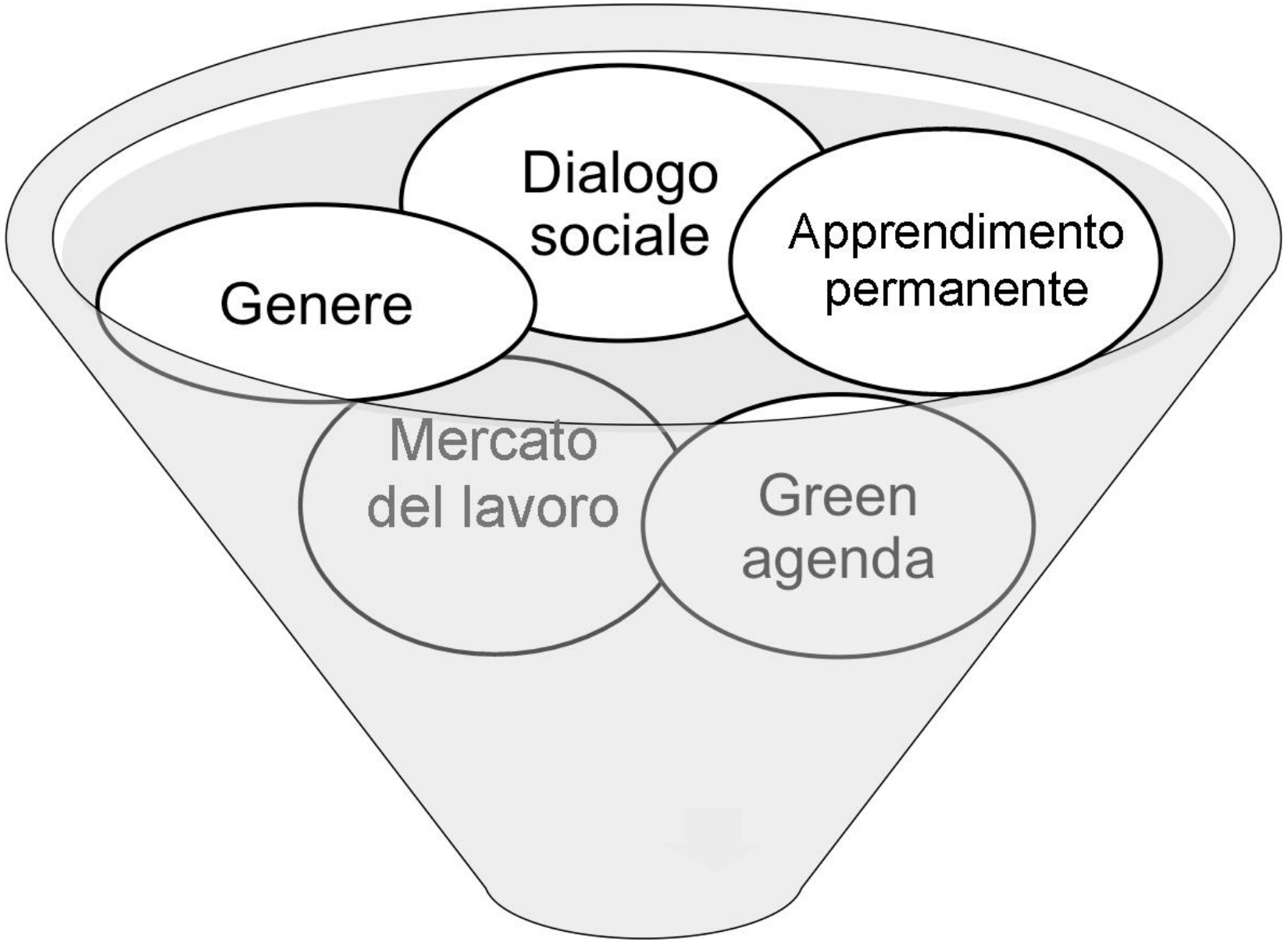
Roma, 4 febbraio 2010

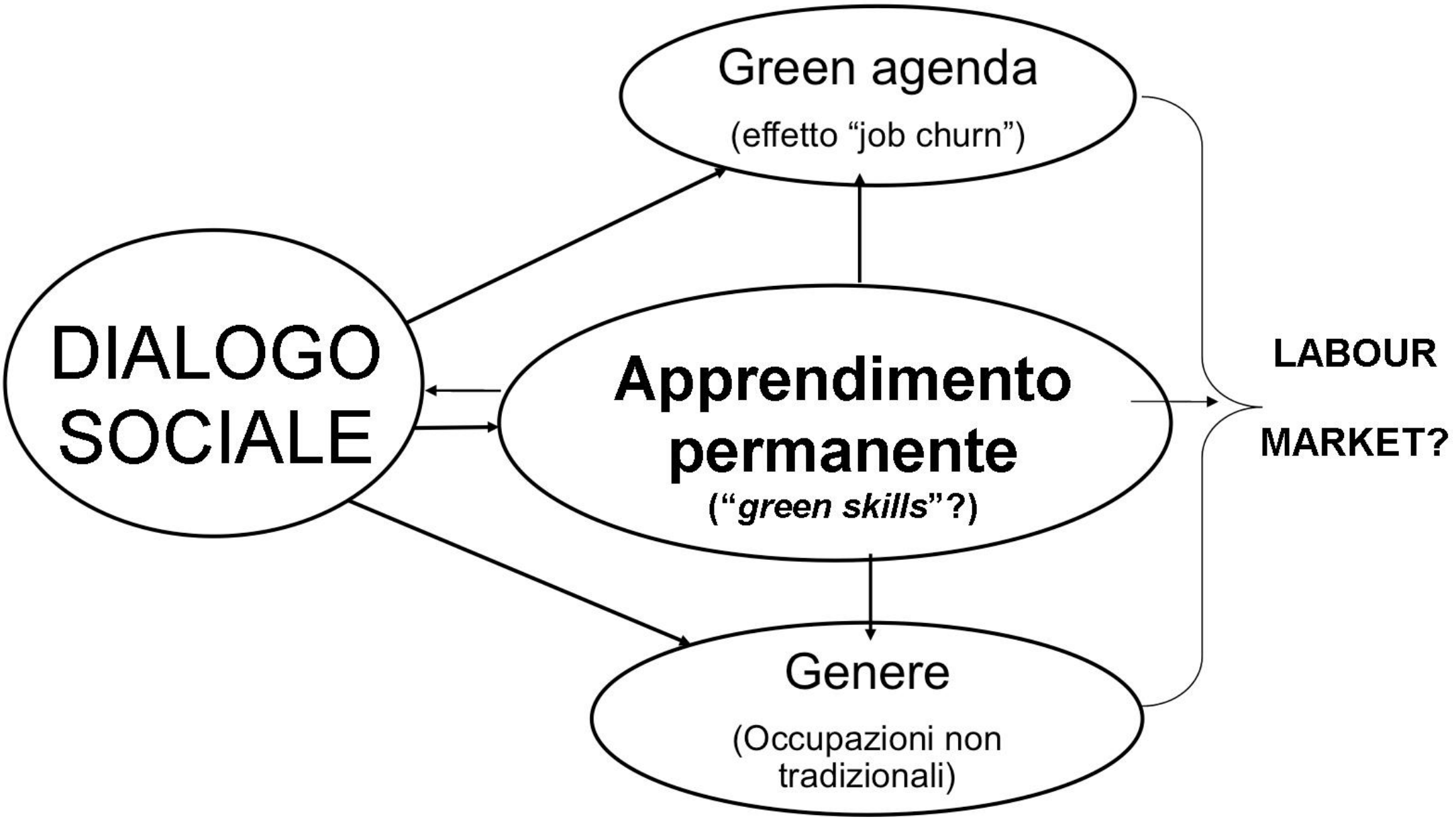
* Il logo WiRES è creato con l'eco-font *Spranq eco sans*, che permette di ridurre l'uso di inchiostro e l'inquinamento nella stampa

Questa presentazione è parte del progetto WiRES.

WiRES (*Women in Renewable Energy Sector*) è un progetto co-finanziato dalla Commissione europea, DG Occupazione, Affari Sociali e Pari Opportunità (linea di finanziamento 04.03.03.01, Relazioni Industriali e Dialogo Sociale).

APPRENDIMENTO PERMANENTE PER LA *GREEN ECONOMY*


Dialogo sociale
Genere
Apprendimento permanente
Mercato del lavoro
Green agenda


Green agenda
(effetto "job churn")
DIALOGO SOCIALE
Apprendimento permanente
("green skills"?)
LABOUR MARKET?
Genere
(Occupazioni non tradizionali)

1. IL DIALOGO SOCIALE E LA *GREEN AGENDA* IN EUROPA

- Risposte, iniziative, strumenti
- Priorità e reali sfide

2. LE SFIDE DEL DIALOGO SOCIALE PER L'OCCUPAZIONE FEMMINILE NEI LAVORI VERDI

- Accesso in settori non tradizionali (quote?)
- Selezione (non discriminazione)
- Livelli retributivi
- Organizzazione sindacale
- Formazione

3. COMPETENZE PER I LAVORI VERDI …

- Definizioni: contenuto, livelli, settori, ecc.
- Non basta ridefinire l'offerta di istruzione e formazione professionale per i "lavori verdi" (velocità del cambiamento tecnologico)
- È una sfida sociale e culturale: se parliamo di una economia verde non possiamo che estendere a tutti i settori e tutti i livelli una ridefinizione delle competenze.
- ***Greening lifelong learning.***

3. COMPETENZE PER I LAVORI VERDI … E LE DONNE

- Pari opportunità educative e formative (e di orientamento) dovrebbero essere garantite alle donne (anche per i profili professionali tecnici).
- Ma non parliamo solo di "installatrici di pannelli solari" ...
- Affrontare il cambiamento climatico è una più ampia sfida sociale e culturale che le donne possono guidare sin da ora: l'istruzione primaria e la sfida della *greening education.*
- L'inserimento in nuovi settori verdi … con il supporto del dialogo sociale!

4. IL DIALOGO SOCIALE: UN FARO PER L'APPRENDIMENTO PERMANENTE NELLA *GREEN ECONOMY*

1. Inclusione sociale: informazione, consapevolezza, trasparenza
2. Approccio per competenze: quali *skills* creano valore sulla catena del valore? Identificare e validare l'apprendimento non-formale e informale
3. Rispondere ai fabbisogni di formazione e riqualificazione dei lavoratori e delle imprese coinvolti in processi di ristrutturazione dopo il pacchetto UE clima ed energia
4. *Placement*
5. Anticipazione e previsione dei futuri fabbisogni professionali

WiRES: un *network* aperto …

Per collaborare al progetto, ricevere informazioni e pubblicazioni, partecipare agli eventi di WiRES

www.adapt.it

lisa.rustico@unimore.it

Associazione per gli Studi Internazionali e Comparati sul Diritto del lavoro e sulle Relazioni industriali

Progetto co-finanziato dalla Commissione europea

WiRES

Women in Renewable Energy Sector

Michele Tiraboschi

Roma, 4 febbraio 2010

* Il logo WiRES è creato con l'eco-font *Spranq eco sans*, che permette di ridurre l'uso di inchiostro e l'inquinamento nella stampa

Occupati e tassi di occupazione (uomini, donne, totale)

	Occupati (in migliaia)				Tasso di occupazione (in %)			
	Media 2008	Variaz. percentuali 2008 su 2007	I trim. 2009	Variaz. in punti percentuali su I trim. 2008	Media 2008	Variaz. in punti percentuali 2008 su 2007	I trim. 2009	Variaz. in punti percentuali su I trim. 2008
Maschi	14.064	0,0	13.753	-1,2	70,3	-0,4	68,5	-1,2
Femmine	9.341	1,9	9.213	-0,4	47,2	0,6	46,3	-0,6
Totale	23.405	0,8	22.966	-0,9	58,7	0,1	57,4	-0,9

Fonte: Istat

Lavoro a tempo parziale per genere - Italia

	Valore assoluto (in migliaia)		Variaz. Assolute	Incidenza % sul totale dipendenti	
	Media 2008	I trim. 2009	I trim. 2009 su I trim. 08	Media 2008	I trim. 2009
Maschi	457	429	-10	4,6	4,4
Femmine	2.120	2.122	52	28,1	28,4
Totale	2.577	2.550	42	14,8	14,9

Fonte: Istat

Occupazione a tempo parziale (in % del totale occupati)
Confronti tra i principali Paesi UE (2008)

	Maschi	Femmine	Totale
Italia	4,6	28,1	14,8
Germania	8,4	44,9	25,2
Francia	5,6	29,3	16,7
Regno Unito	9,8	41	24,2
Spagna	4,0	22,6	11,8
EU 15	7,6	36,1	20,4
EU 27	7,0	30,6	17,6

Fonte: Eurostat

Ricorso alla Cassa Integrazione

	Gennaio-Luglio 2008			Gennaio-Luglio 2009		
	CIGO	CIGS e in deroga	Totale	CIGO	CIGS e in deroga	Totale
Ore autorizzate	53.976.230	62.182.441	116.158.671	324.703.288	138.701.434	463.404.722
Ore utilizzate	37.018.014	52.399.777	89.417.791	194.615.695	87.733.898	282.349.593
Tiraggio *	68,6%	84,3%	76,9%	59,9%	63,3%	60,9%
Numero beneficiari (stima)	352.156	107.086	459.242	1.108.273	183.058	1.291.331
Quota beneficiari per genere (stima):						
- Maschi	*89%*	*63%*		*79%*	*66%*	
- Femmine	*11%*	*37%*		*21%*	*34%*	

** Ore utilizzate su autorizzate*

(fonte: INPS)

Persone in cerca di occupazione e tassi di disoccupazione - Italia

	Persone in cerca (in migliaia)				Tasso di disoccupazione (in %)			
	Media 2008	Variaz. percentuali 2008 su 2007	I trim. 2009	Variaz. % su I trim. 2008	Media 2008	Variaz. percentuali 2008 su 2007	I trim. 2009	Variaz. in punti perc. su I trim. 2008
Maschi	820	14	1.010	19,3	5,5	0,6	6,8	1,1
Femmine	872	11	972	6,3	8,5	0,7	9,5	0,5
Totale	1.692	12	1982	12,5	6,7	0,7	7,9	0,9

Fonte: Istat

Tassi di disoccupazione femminile
Confronti tra i principali paesi UE – 2008

	Tasso di disoccupazione femminile (in %)
Italia	8,5
Germania	7,9
Francia	6
Regno Unito	6,6
Spagna	15,7
EU 15	7,8
EU 27	7,8

Fonte: Eurostat

Tassi occupazione femminile: dato regionale

	Maschi		Femmine		Totale	
	Tassi di occupazione (15-64)	Tassi di disoccupazione	Tassi di occupazione (15-64)	Tassi di disoccupazione	Tassi di occupazione (15-64)	Tassi di disoccupazione
Piemonte	73,4	4,1	57,1	6,4	65,3	5,0
Valle d'Aosta	75,7	2,6	59,9	4,2	67,9	3,3
Lombardia	76,7	3,0	57,2	4,8	67,0	3,7
Trentino	77,3	2,1	59,7	3,7	68,6	2,8
- Bolzano	79,1	1,9	61,7	3,0	70,5	2,4
- Trento	75,5	2,4	57,7	4,5	66,7	3,3
Veneto	77,0	2,4	55,6	5,2	66,5	3,5
Friuli	74,8	2,7	55,5	6,4	65,3	4,3
Liguria	73,0	4,0	54,7	7,1	63,8	5,4
Emilia Romagna	78,2	2,4	62,2	4,3	70,2	3,2
Toscana	74,6	3,3	56,2	7,3	65,4	5,1
Umbria	74,1	3,3	56,8	6,8	65,4	4,8
Marche	73,4	3,9	56,0	5,7	64,7	4,7
Lazio	71,8	5,9	49,0	9,7	60,2	7,5
Abruzzo	71,2	5,1	46,8	8,6	59,0	6,6
Molise	66,7	6,9	41,5	12,5	54,2	9,1
Campania	58,0	10,5	27,3	16,8	42,5	12,6
Puglia	63,6	9,4	30,2	15,8	46,7	11,6
Basilicata	64,2	8,7	34,9	15,2	49,6	11,1
Calabria	57,6	10,1	30,8	15,7	44,1	12,1
Sicilia	59,6	11,9	29,1	17,3	44,1	13,8
Sardegna	64,4	9,9	40,4	15,8	52,5	12,2
Italia	70,3	5,5	47,2	8,6	58,8	6,8
Nord	76,2	2,9	57,5	5,2	67,0	3,9
- Nord-ovest	75,4	3,4	56,9	5,5	66,2	4,3
- Nord-est	77,2	2,4	58,4	4,8	67,9	3,4
Centro	73,1	4,6	52,7	8,2	62,8	6,1
Mezzogiorno	61,1	10,0	31,4	15,7	46,1	12,1

Fonte: Istat, CFL

Tassi occupazione per genere
Target 2010 e confronti tra i principali paesi UE - 2008

	Maschi	Femmine	Target Lisbona	Totale	Target Lisbona
Italia	70,3	47,2	60%	58,7	70%
Germania	75,9	65,4		70,7	
Francia	69,8	60,7		65,2	
Regno Unito	77,3	65,8		71,5	
Spagna	73,5	54,9		64,3	
EU 15	74,2	60,4		67,3	
EU 27	72,8	59,1		65,9	

Fonte: Eurostat

Tassi occupazione femminili per diverse condizioni familiari e classi d'età - Italia (2008)

	15-64 anni	25-34 anni	35-44 anni	45-54 anni
Persona isolata	61,0	79,0	84,0	73,5
Coppia con figli	44,0	52,0	57,0	53,0
Coppia senza figli	46,0	77,0	74,0	54,8
Monogenitore femminile	54,2	61,0	73,0	71,0
Totale	46,6	59,0	62,0	56,9

Fonte: CNEL, Istat

	2002	2006	2007	
European Union (27 countries)	:	17.7	17.5	(p)
European Union (25 countries)	:	18.1	17.8	(p)
European Union (15 countries)	:	18.7	18.3	(p)
Euro area (EA11-2000, EA12-2006, EA13-2007, EA15-2008, EA16)	:	17.2	17.4	(p)
Belgium	:	9.5	9.1	
Bulgaria	18.9	12.4	12.4	
Czech Republic	22.1	23.4	23.6	
Denmark	:	17.6	17.7	
Germany (including ex-GDR from 1991)	:	22.7	23.0	
Estonia	:	30.3	30.3	(p)
Ireland	15.1	17.2	17.1	
Greece	25.5	20.7	20.7	(p)
Spain	20.2	17.9	17.6	(p)
France	:	15.4	16.9	
Italy	*:*	*4.4*	*4.4*	*(p)*
Cyprus	22.5	21.8	23.1	
Latvia	:	15.1	15.4	
Lithuania	13.2	17.1	20.0	
Luxembourg (Grand-Duché)	:	10.7	10.0	
Hungary	19.1	14.4	16.3	
Malta	:	5.2	5.2	(p)
Netherlands	18.7	23.6	23.6	
Austria	:	25.5	25.5	
Poland	7.5	7.5	7.5	
Portugal	:	8.4	8.3	
Romania	16.0	7.8	12.7	
Slovenia	6.1	8.0	8.3	
Slovakia	27.7	25.8	23.6	
Finland	:	21.3	20.0	
Sweden	:	16.5	17.9	
United Kingdom	27.3	24.3	21.1	
Croatia	:	:	:	
Former Yugoslav Republic of Macedonia, the	:	:	:	
Turkey	:	-2.2	:	
Iceland	:	:	:	
Norway	:	16.0	15.7	
Switzerland	:	18.6	18.7	
United States	:	:	:	
Japan	:	:	:	

Differenziale retributivo per genere

Fonte: Eurostat (settembre 2009)

WiRES: un *network* aperto

Per collaborare al progetto, ricevere informazioni e pubblicazioni, partecipare agli eventi di WiRES

lisa.rustico@unimore.it

Energie Rinnovabili: il quadro di riferimento e l'esperienza di Enel Green Power

Roma – 4 febbraio 2010

Francesco Starace

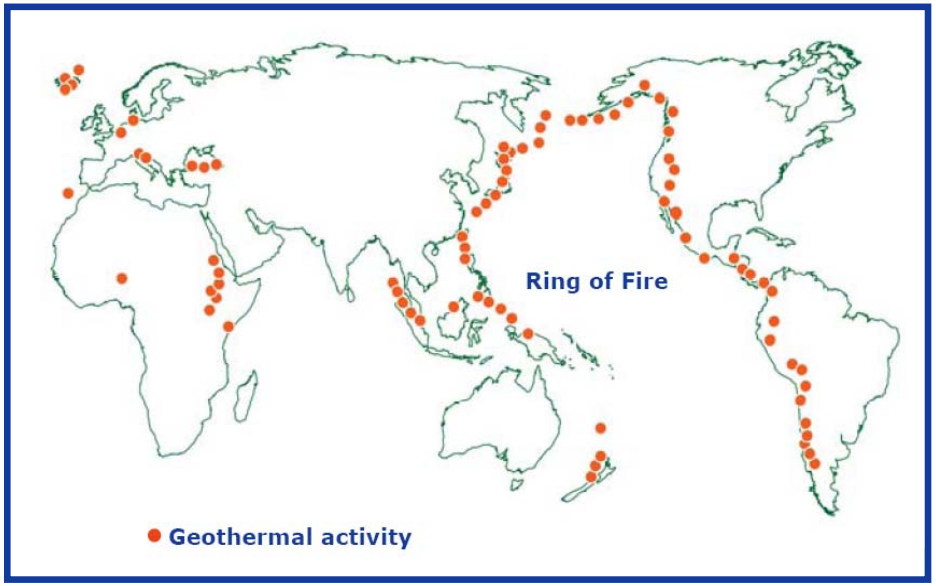
Agenda

Enel Green Power in the Renewable Energy Sector

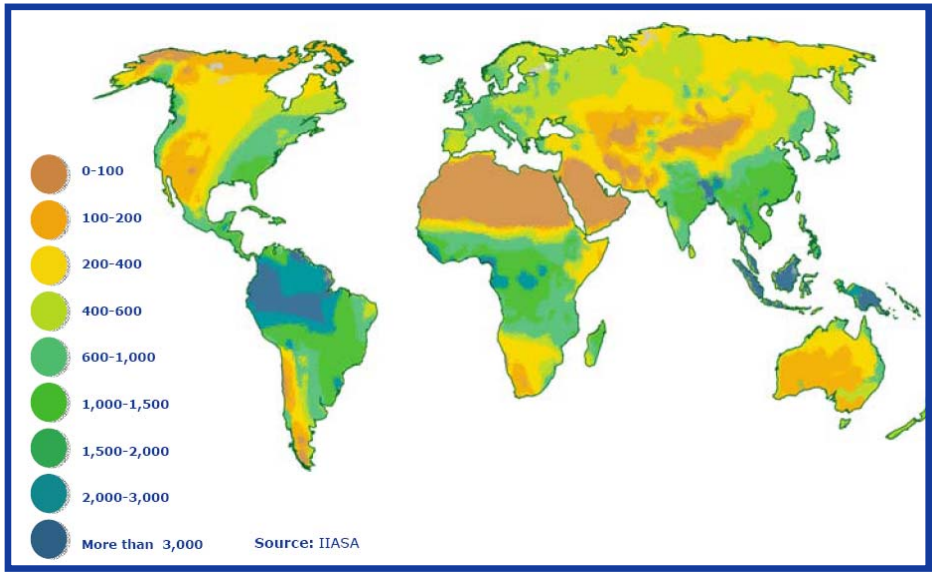
Enel Green Power Overview

Global Resources Availability

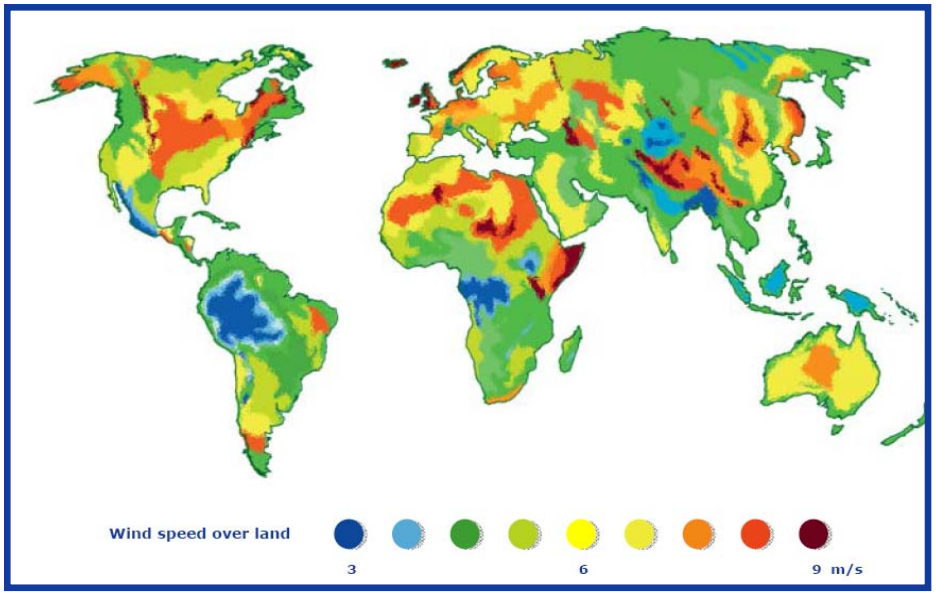
Geothermal



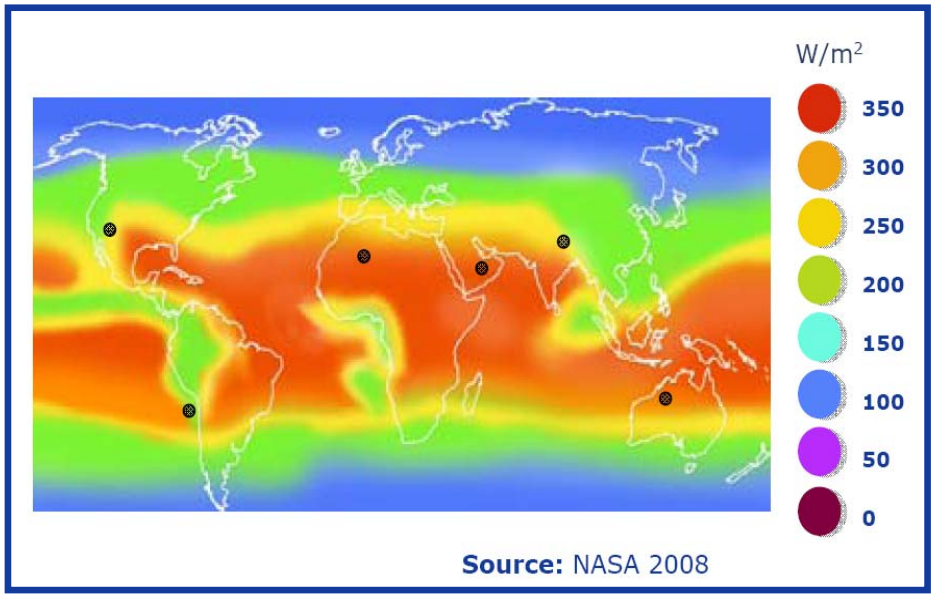
Hydro



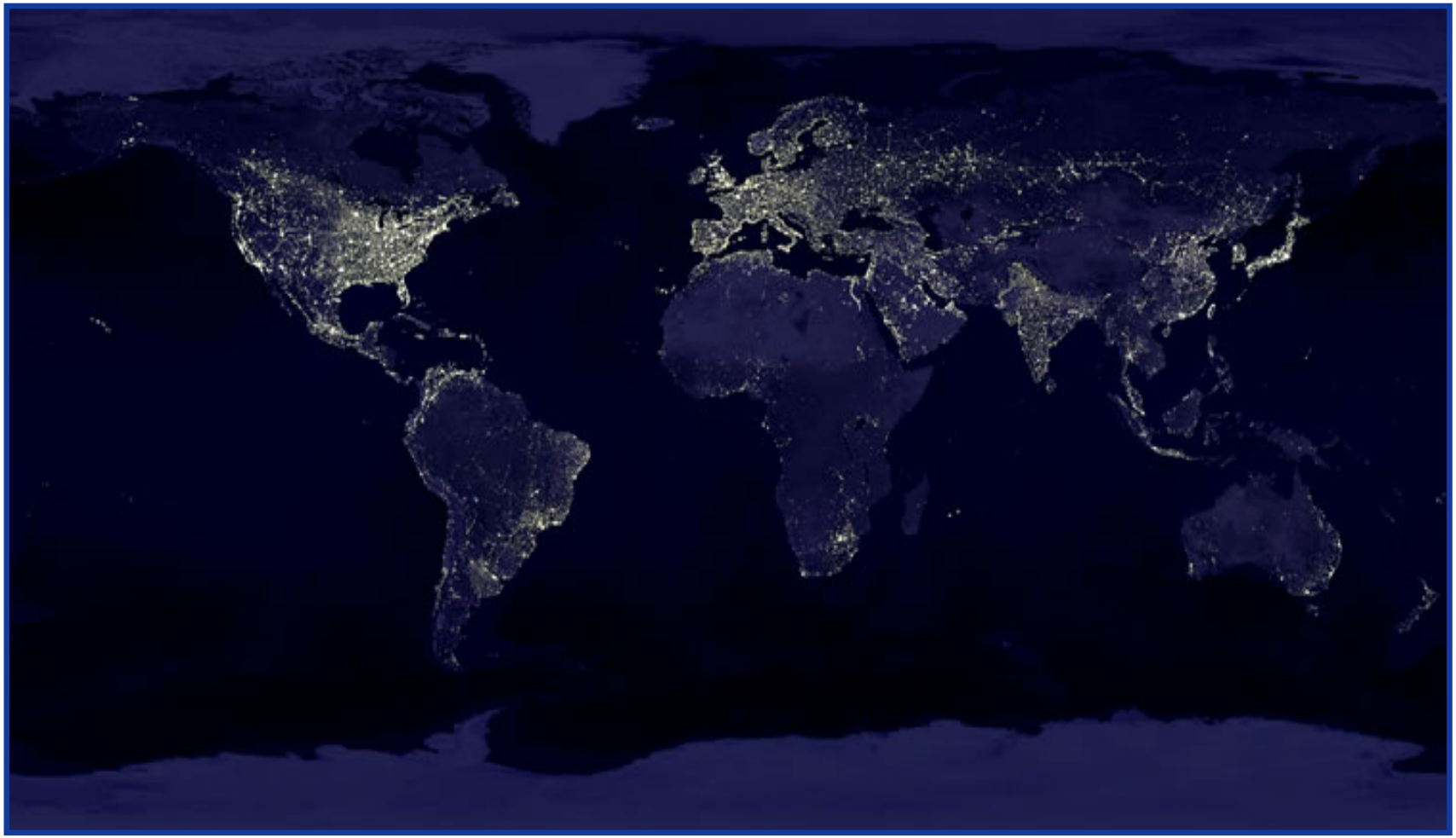
Wind



Solar

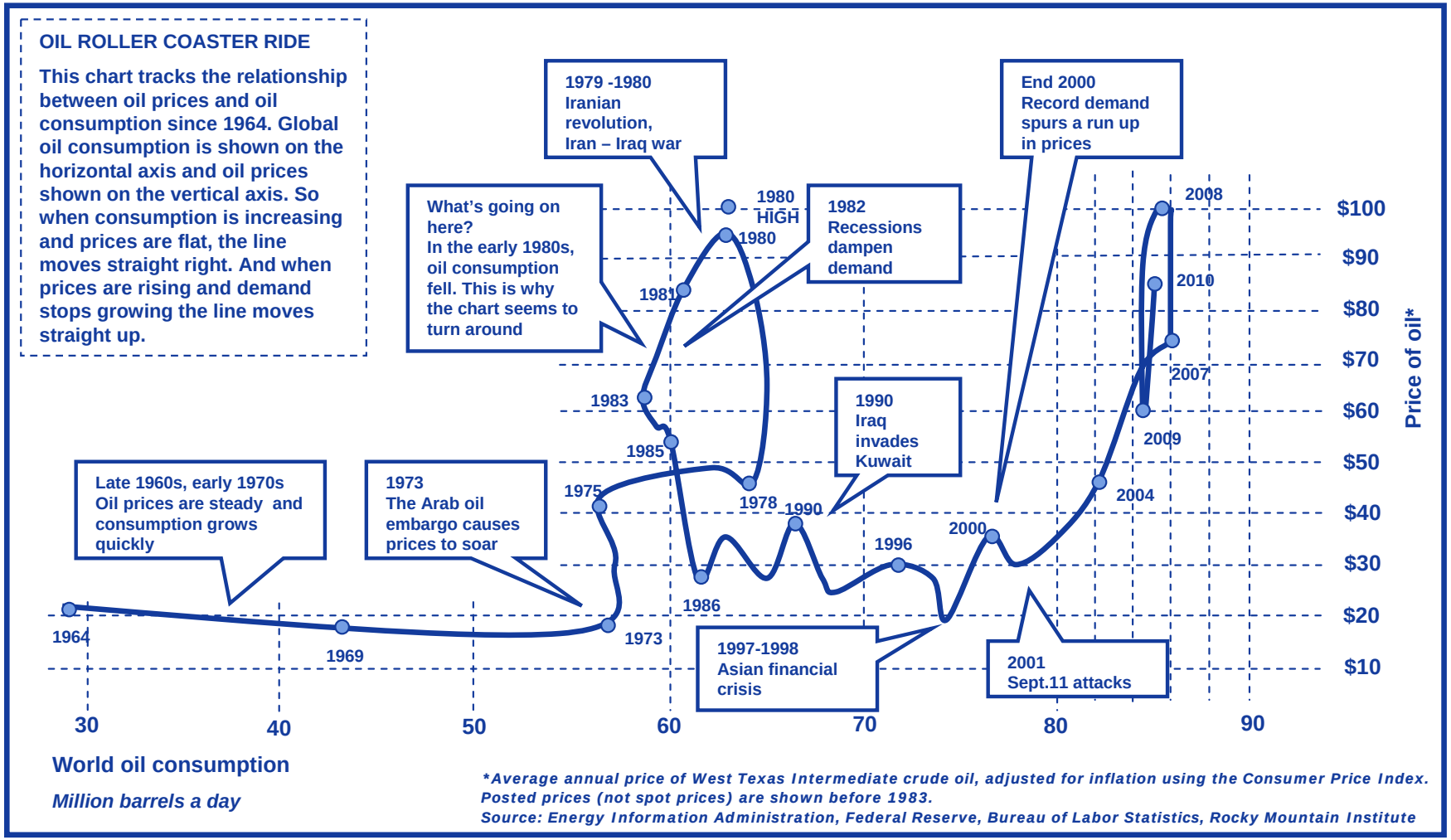


Global Energy Demand



Enel Green Power

Graphical Oil Path - 1964 – 2010



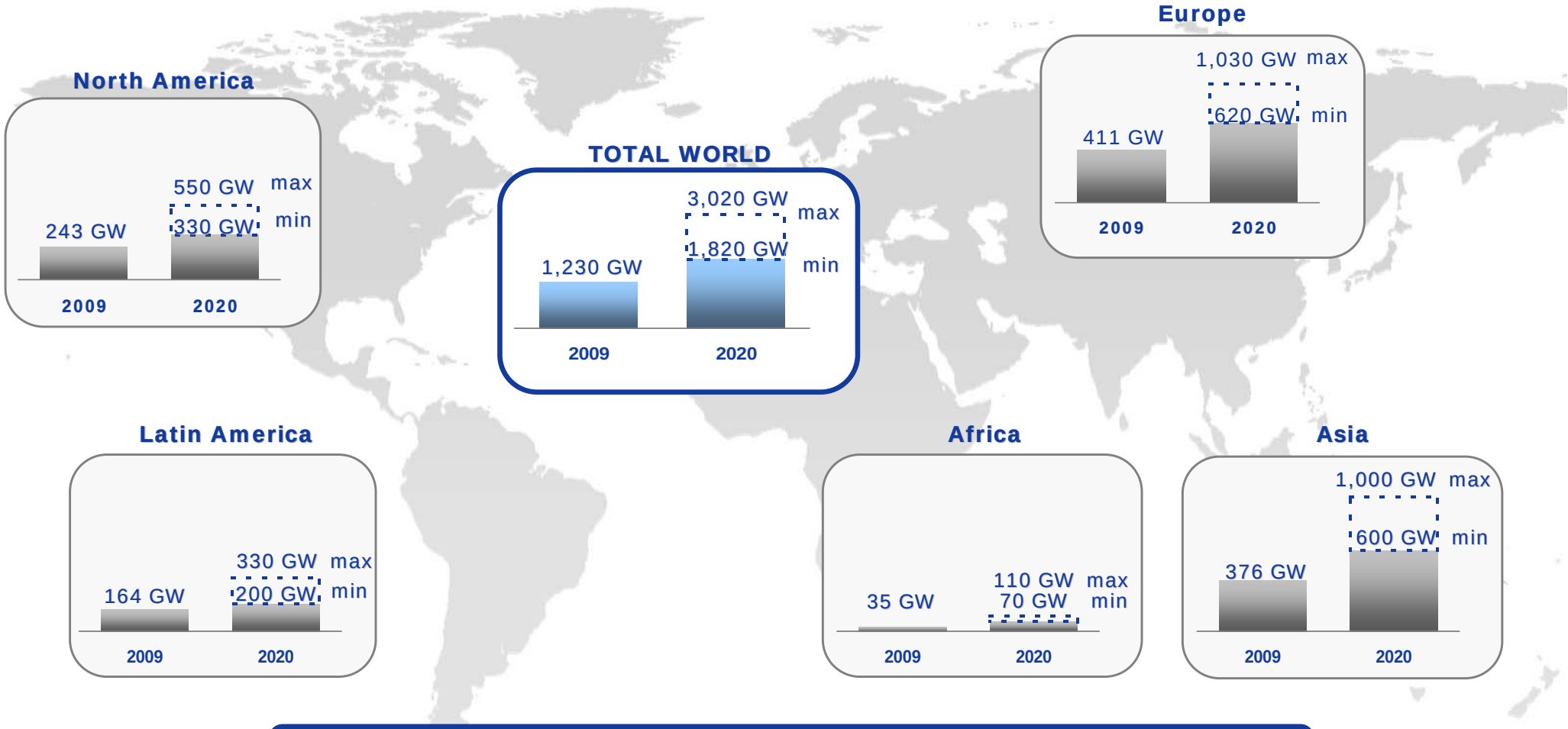
Barclays Capital Projections *(Source - Weekly Oil Data Review 22/01/10)**:***

- ***Demand 2009 84,6 mb/d***
- ***Average WTI 2009 62 $/b***
- ***Demand 2010 85,6 mb/d***
- ***Average WTI 2010 85 $/b***

Enel Green Power

Renewable energies: strong fundamentals in all geographies

Estimates of renewables installed capacity, 2009-2020



Up to 1,900 GW of renewable capacity additions

Source: Enel estimates based/WEO 2008/GWEC 2008 (2008); WEO 2008 Reference Scenario (2020 min); Industry reports/McKinsey (2020 max)

All technologies have grown as expected

Technology	Global installed base 2008	Global installed base 2009	Δ capacity GW	Δ capacity %	Δ Expected growth 2008-2020	Investments 2009 - € bn
Hydro	~960 GW	~990 GW	+30	3%	3%	~ 65
Biomass	~50 GW	~60 GW	+10	20%	23%	~ 40
Geothermal	~10 GW	~10 GW	n.m.	n.m.	11%	n.m.
Wind	~120 GW	~150 GW	+30	25%	19%	~ 50*
Solar	~15 GW	~20 GW	+5	33%	36%	~ 18*
TOTAL	**~1,155 GW**	**~1,230 GW**	**+75**	**7%**	**9%**	~ 170

~ 170 bn € worth of investments associated with 2009 additional capacity

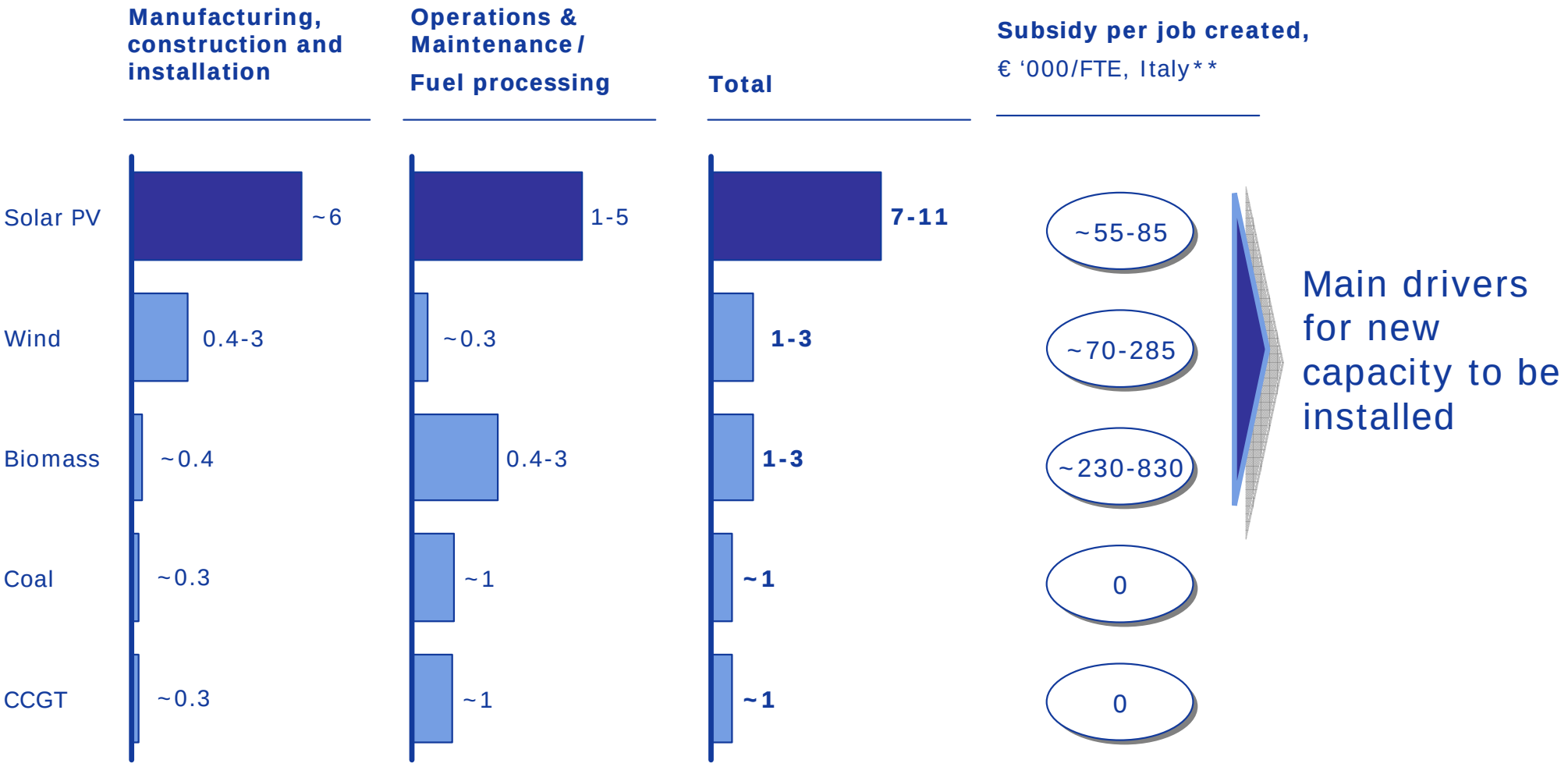
Source: Enel estimates based on IEA, EPIA, GWEC, EER.

* Calculated on 2008 equipment value

Enel Green Power

Renewable energies can create jobs and sustain the creation of new industry segments

FTE created by industry establishment for each MW*



* Based on findings from a range of studies published in 2001-04. Assumed capacity factor: 21% for solar PV; 35% for wind; 80% for coal; 85% for biomass and CCGT

** Assuming 400 €/MWh feed-in and 1,500 hrs. for solar PV, 100 €/MWh (180 €/MWh – spot price) and 2,000 hrs. for wind, 100 €/MWh (180 €/MWh – spot price) and 6,500 hrs. for biomass

Source: World Watch Institute, "Renewable Global Status Report 2006" (quoted in "Green Jobs", September 2008)

Global economic effects on power sector jobs by 2020 (1/2)

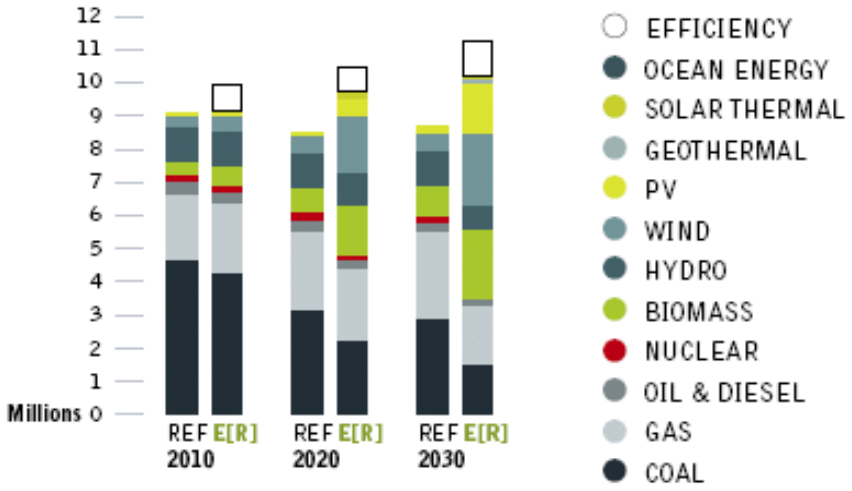
Global: total power sector jobs

BUSINESS AS USUAL		ENERGY [R]EVOLUTION	
2010	9.1 million	2010	9.3 million
2020	8.5 million	2020	10.5 million
2030	8.6 million	2030	11.3 million
Total loss in energy sector over period	**500,000**	**Total gain** in energy sector over period	**2 million**

JOBS IN RENEWABLES DO NOT BALANCE OUT LOSSES IN COAL SECTOR BY 2030

2.7 MILLION MORE JOBS IN 2030 THAN WITH 'BUSINESS AS USUAL'

Global: jobs by specific technology in 2010, 2020 and 2030



From a largely coal dependent economy to a huge renewable and energy efficiency deployment

Source: EREC/Greenpeace, Aug09.

Global economic effects on power sector jobs by 2020 (2/2)

Estimated world jobs – Breakdown by energy type

(millions)

	REFERENCE SCENARIO			[R]EVOLUTION SCENARIO		
Jobs	2010	2020	2030	2010	2020	2030
Coal	4.65 m	3.16 m	2.86 m	4.26 m	2.28 m	1.39 m
Gas	1.95 m	2.36 m	2.55 m	2.08 m	2.12 m	1.80 m
Nuclear, oil and diesel	0.61 m	0.58 m	0.50 m	0.56 m	0.31 m	0.13 m
Renewable	1.88 m	2.41 m	2.71 m	2.38 m	5.03 m	6.90 m
Energy supply jobs	**9.1 m**	**8.5 m**	**8.6 m**	**9.3 m**	**9.7 m**	**10.2 m**
Energy efficiency jobs	0	0	0	0.1 m	0.7 m	1.1 m
Total jobs	**9.1 m**	**8.5 m**	**8.6 m**	**9.3 m**	**10.5 m**	**11.3 m**

note THIS UNDERESTIMATES ENERGY EFFICIENCY JOBS BECAUSE IT ONLY INCLUDES JOBS ADDITIONAL TO THE REFERENCE SCENARIO.

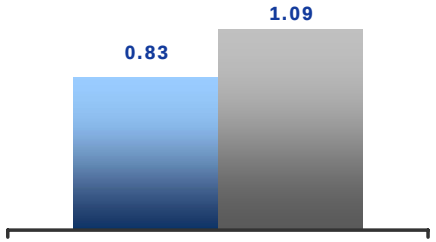
A strong shift for a more sustainable energy mix is considered a stimulus for the economy and employment

Source: EREC/Greenpeace, Aug09.

European Community: economic growth effects by 2020 (EU-27)

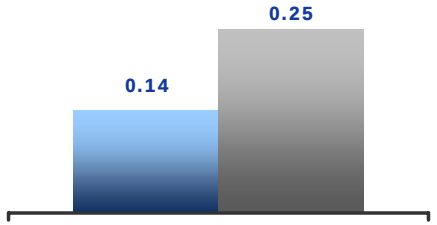
Gross value added of the RES sector as a ratio of GDP

(%)



Net GDP impact of RES policies as a ratio of GDP

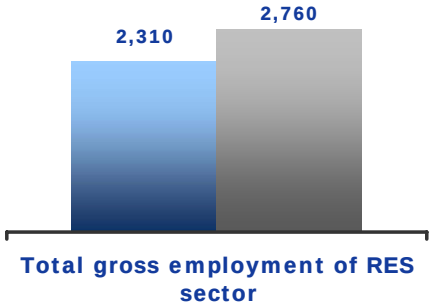
(%)



- **BAU= Business As Usual (Projection)**
- **ADP*= Accelerated Deployment Policy (Projection).**

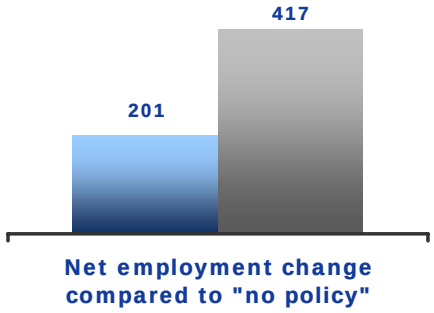
Gross increase in jobs in the RES sector as a result of RES policy

,000 employees



Net increase in jobs in the whole economy as a result of RES policies

,000 employees



Achieving the 2020 RES target leads to a net increase in GDP of ~0.25% and generates ~410,000 net additional jobs

*It assumes an improvement of RES support incentives for all the EU member States to meet the RES 2020 target (a continuation of national RES policies, both FIT and quota systems). It is included the possibility to transfer the State's surplus/deficit (trading) as a complementary option to fulfill the target.

Source: 'The Impact of renewable energy policy on economic growth and employment in EU', EC DG Energy and Transport, Apr09.

Italy: 20-20-20 EU target GWh

Source	Generation 2008 (TWh)	Capacity 2008 (MW)	Government Position Paper	
			Generation 2020 (TWh)	Capacity 2020 (MW)
Hydro	42.90	17,623	43	20,200
Wind	5.84	3,537	23	12,000
Solar PV	0.19	431	13	9,500
Solar CSP	0.00	0		
Geothermal	5.52	711	10	1,300
Biomass	5.97	1,555	14	2,415
Tidal & Wave	0.00	0	1	800
Total	**60.42**	**23,857**	**104**	**46,215**

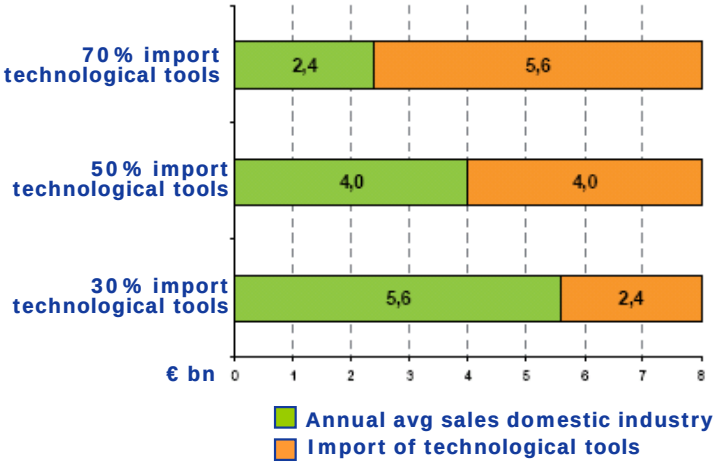
~ 30 % of energy by renewable sources by 2020:

- **+40 TWh of renewable generation**
- **+50 bn € of new investments in energy production equipment**
- **+250.000 new employees in the RES sector**

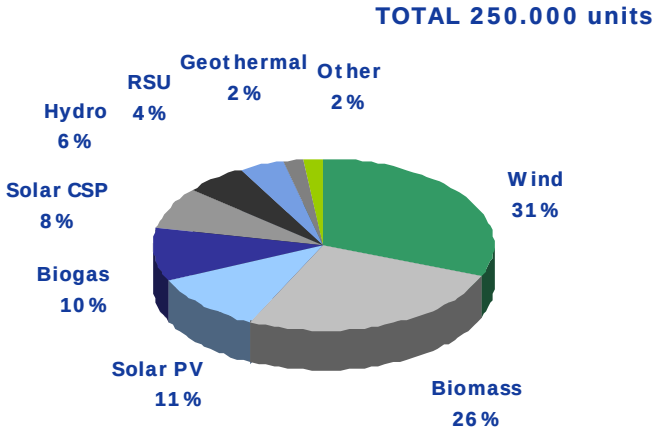
Enel Green Power

Italy: economic growth effects by 2020

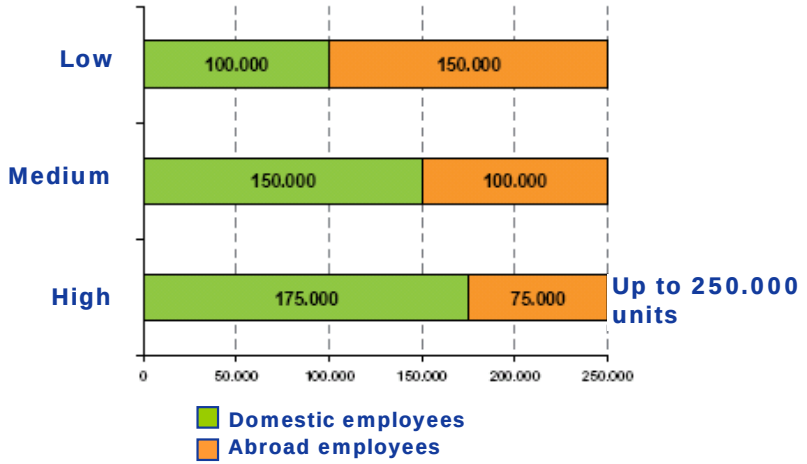
Renewable technologies investment scenarios (annual average: 8 €bn)



Potential employment by sources (under the 20-20-20 policies scenario)



Employment in 2020



The potential employment in 2020 will be related mainly to:

- **wind (~78,000 units)**
- **solar (~50,000 units)**

Source: IEFE-Bocconi, GSE, May09

Italy: wind employment potential by 2020

Potential employment in 2020 by type and region

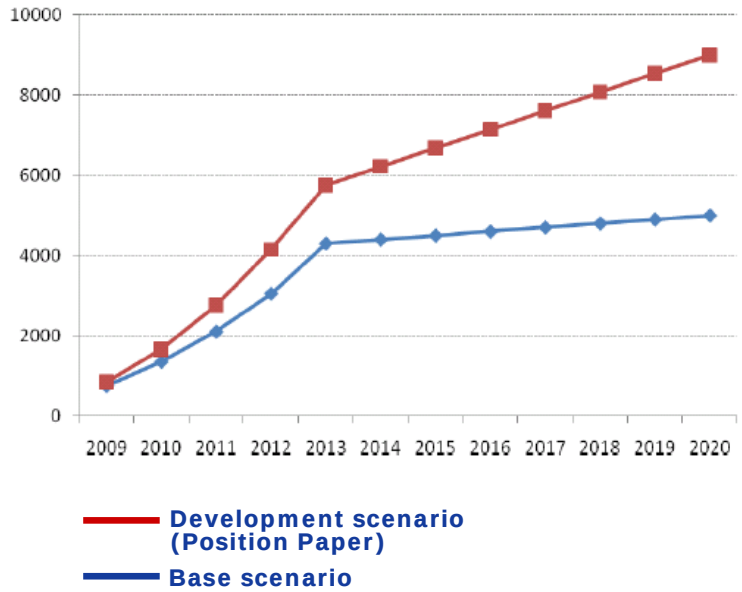
POTENZIALE EOLICO PER REGIONE	Studi preliminari	Sviluppo ecostruzione	Installazione, manutenzione e gestione O&M	Diretti	Indiretti	Totale
Puglia	1.037	6.187	4.491	2.463	9.251	11.714
Campania	946	3.628	4.165	2.246	6.492	8.738
Sicilia	938	3.606	2.993	2.228	5.309	7.537
Sardegna	889	2.600	2.846	2.111	4.223	6.334
Marche	790	2.312	2.540	1.877	3.764	5.641
Calabria	630	1.841	2.013	1.495	2.989	4.484
Umbria	543	1.589	1.736	1.290	2.578	3.868
Abruzzo	444	1.300	1.422	1.056	2.111	3.166
Lazio	444	1.875	1.422	1.056	2.685	3.741
Altre	1.339	5.062	4.382	3.178	7.608	10.787
Totale	**8.000**	**30.000**	**28.010**	**19.000**	**47.010**	**66.010**

Puglia, Campania and the islands cover ~50% of the potential employment

Source: ANEV 2008.

Italy: photovoltaic growth effects by 2020

Solar PV growth scenarios (MW)



Development scenario impact (mn €): 750 MW avg installed/year

	Spesa	Impatto	Occupazione attivata*		Valore aggiunto
			Cantiere	Regime per anno	
Agricoltura	0	**90**	30	-	45
Estrazioni di minerali	0	**1.861**	85	-	137
Alimentari, bevande, tabacco, tessili, carta	0	**853**	266	-	225
Cockerie, raffinerie, chimiche, farmaceutiche, metallo	19.699	**30.326**	9.985	-	8.419
Macchine, apparecchi meccanici e mezzi di trasporto	3.717	**5.842**	2.186	-	1.658
Legno e manifatture	0	**478**	148	-	140
Costruzioni, Energia e acqua	3.355	**6.334**	1.924	-	2.490
Commercio, Alberghi e ristoranti	0	**5.725**	1.296	-	1.871
Altri servizi	2.467	**14.011**	7.565	-	7.559
Totale	**29.239**	**65.520**	**23.486**	**22.000**	**22.543**

The total impact on the employment under the government Position Paper is ~23,000 employees per year

Source: I-Com, 'Il possibile contributo del settore fotovoltaico al sistema Italia', 21Jan 2010.

Solar in Italy: two collaboration agreements

Photovoltaic factory in Catania

- **Enel, Sharp and ST** (1/3 per partner)
- Capacity by 2011: **160 MW/year**
- Investment: **320 mn €**
- Financing through **equity, project finance non-recourse and public subsidy**
- Future **expansion of capacity** (up to 480 MW/year within 2014)
- Further collaboration in **R&D** to be defined

Solar plants in EMEA

- **Enel e Sharp** (50% per partner)
- Target for the total capacity of solar plants: **500 MW within 2016**
- Geography: **EMEA** (Europe, Middle East and Africa) with **particular focus on Italy, Spain, Greece, France and Portugal**

Enel Green Power

Photovoltaic factory in Catania

	Inizial Phase	Possible future expansion
Timing	• Production start 2011	• 2012-2014
Capacity	• 160 MW/year	• + 320 MW/year Total capacity 480 MW/year
Investment	• 320 mn €	• ~450 mn € Total investment ~770 mn eur
Employment impact		
Direct	• ~250 employees	• Additional ~450 employees (~800 total employees)
Indirect during construction	• 4-500 employees average during the construction	• 4-500 employees average during construction
Indirect during operation	• ~250 employees (1° level suppliers)	• 1:1 respect to the factory personnel

Enel Green Power

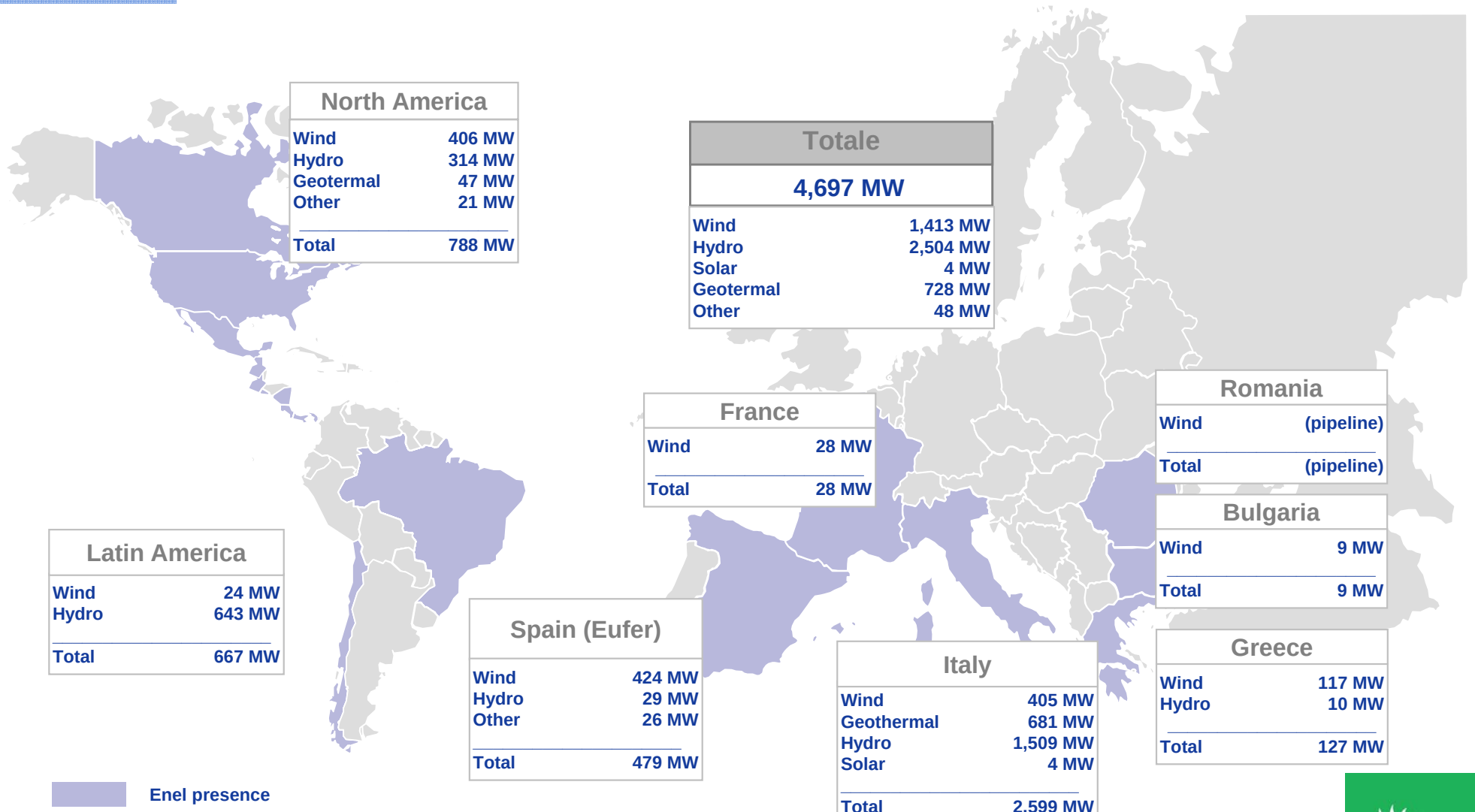
Agenda

Enel Green Power in the Renewable Energy Sector

Enel Green Power Overview

Geographical presence Enel Green Power

Installed capacity (MW), 9M2009



Note: Endesa presence NOT included

Leveraging on competencies

Hydro

2.5 GW installed globally

- Long lasting competencies
- Skills ranging from development to operation and maintenance
- Project pipeline in Italy and Latin America

Established competencies in development and O&M

Geothermal

0.7 GW installed globally

- Skills in development, exploration, engineering and construction, O&M
- Development of new projects in Latin America and North America

Fully integrated geothermal operator

Wind

1.5 GW installed globally

- Large pipeline, split among geographies to maximize optionality and return on investment
- Flexibility in turbines procurement, taking advantage of industry shake-up (overcapacity, cost reduction)

Well positioned to take advantage of sector shake-up

Solar PV

Strong position in the fast growing Italian market

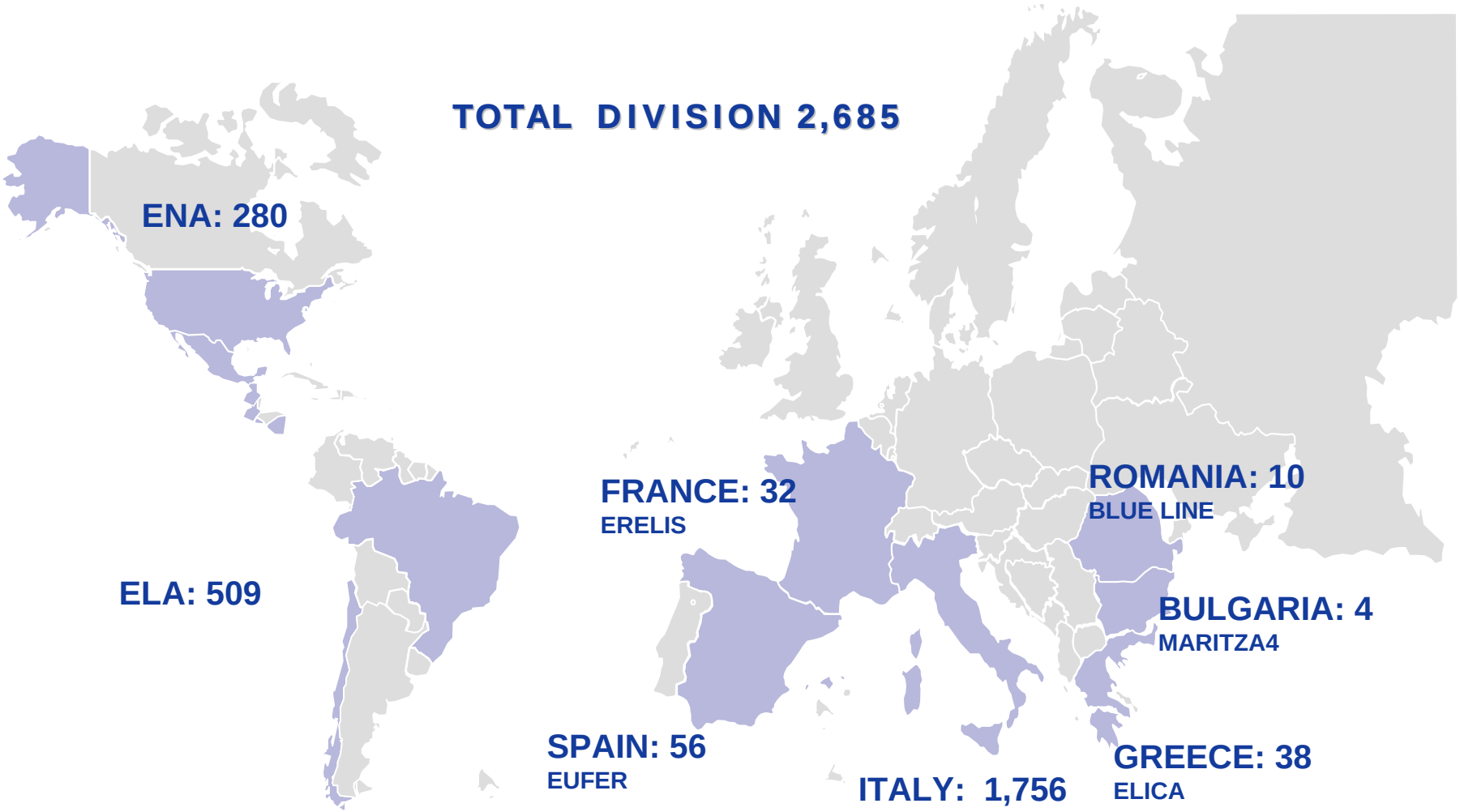
- Leading retail network in Italy (Enel.si)
- Competence Centre (within R&D Division) in Italy
- Upstream integration into cell/module manufacturing (in progress)

Unique position in the solar PV value chain

Leveraging competencies across all geographies

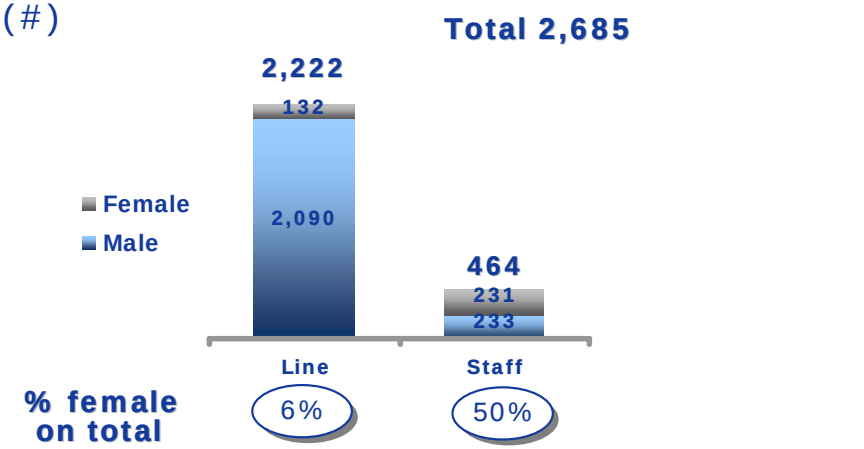
Enel Green Power

Headcount 2009

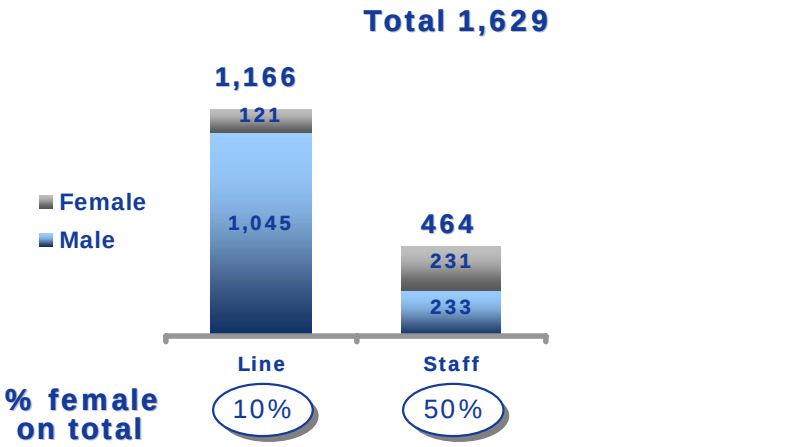


EGP resources composition
As of end 2009

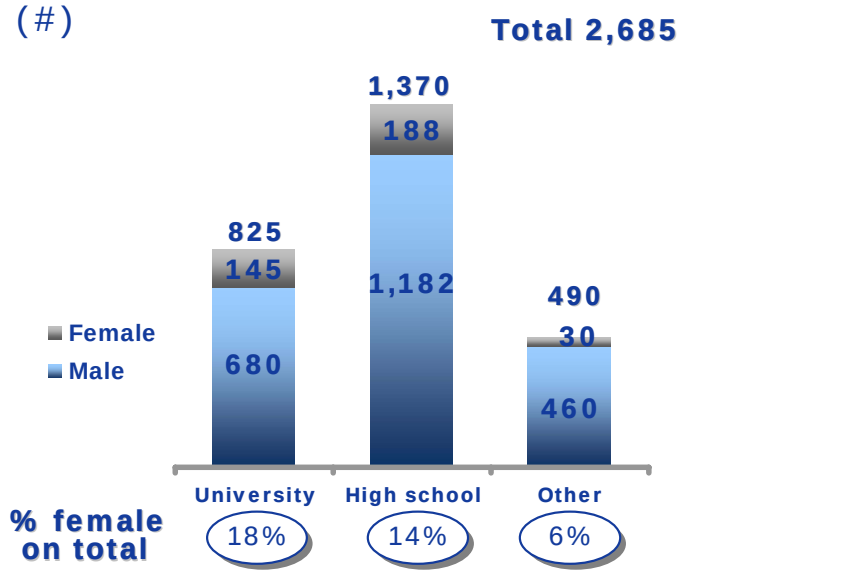
Headcount total Division (with blue collars)



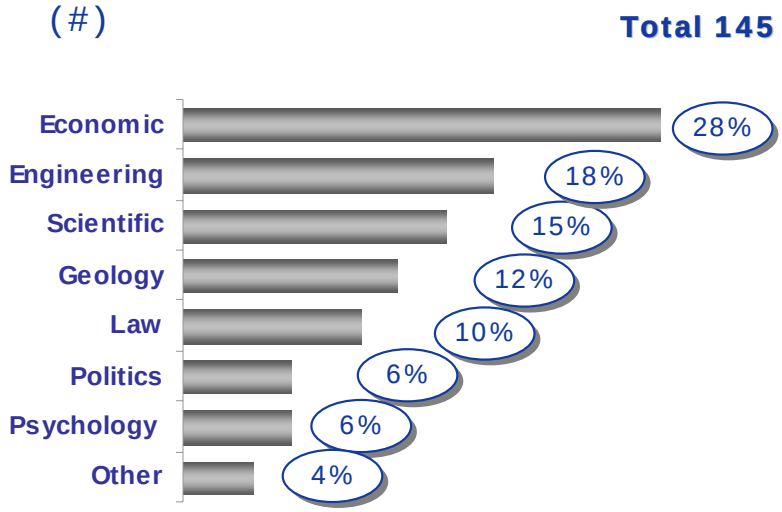
Headcount total Division (without blue collars)



Educational rank

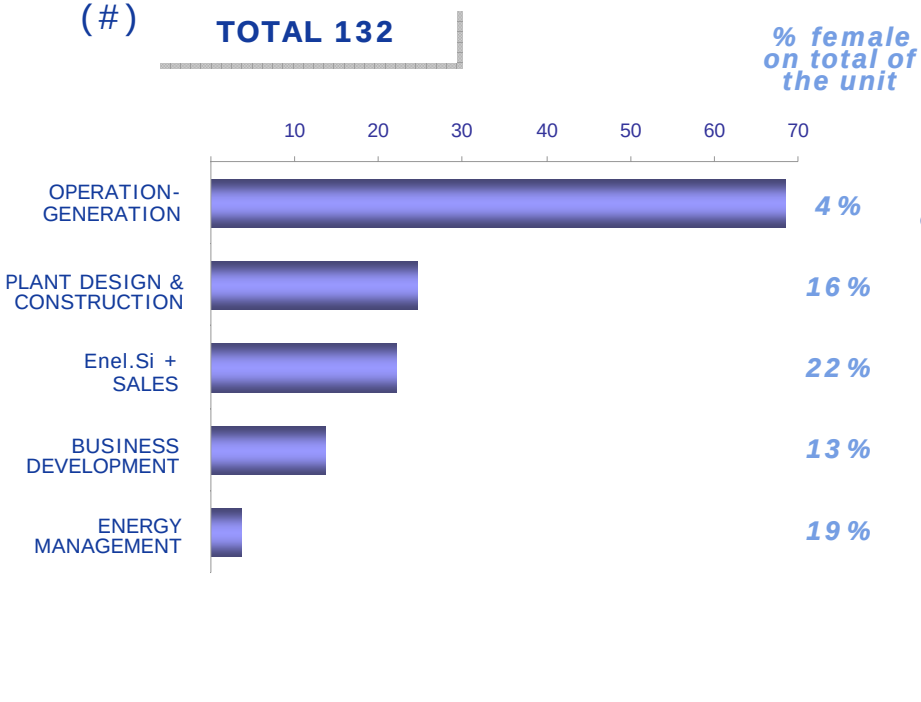


Type of university graduates per female

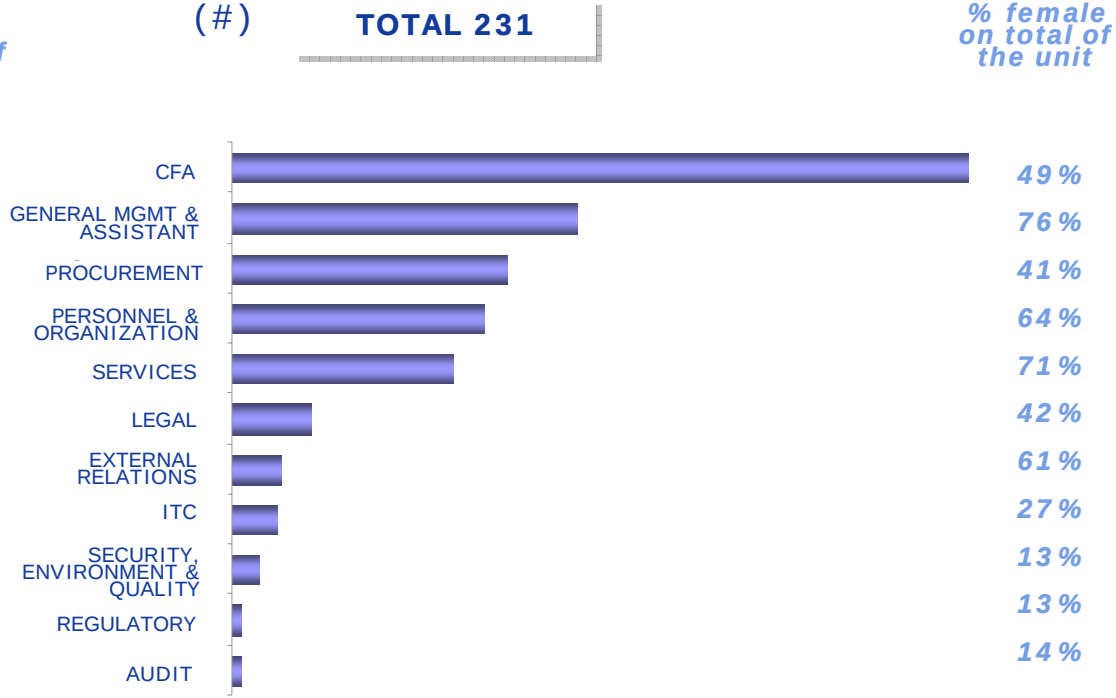


EGP resources composition: female competencies
As of end 2009

Line headcount per competencies*



Staff headcount per competencies*



High prevalence of technical and commercial activities. The female presence is constantly concentrated on the staff, in each units of the Company

(*) Blue collars included.

Development model

Staff Functions: ICT, Communication, Corporate, AFC, Regulatory, Legal, HR, Audit, Procurement

Business Development	EPC / Integration M&A	O&M
▪ Project identification ▪ Screening ▪ Valuation ▪ Permitting ▪ Approval process ▪ CapEx allocation	▪ Realization of approved projects ▪ Integration of acquisitions ▪ CapEx expenditure	▪ Plant operation ▪ Production optimization ▪ Continuous improvement ▪ EBITDA generation

Industrial approach to value creation

Enel Green Power

Green jobs profiles in a RE company

Based on value chain business drivers and value creation main profiles are:

- **Business Developer**
- **Project Manager**
- **Procurement Manager / Buyer**
- **Plant Manager / Operation Manager / Maintenance Manager**

- **Staff functions: ICT, Communication, Corporate, AFC, Regulatory, Legal, HR, Audit**

In the actual development phase of the industry following transversal skills are crucial:

- **Develop adequate legislative frameworks**
- **Communicate effectively with local communities**
- **Develop economic-industrial capacities to develop and sell products**
- **Develop Innovation and R&D capabilities**

Enel Green Power

How we see the industry evolving

	The industry so far	The industry in the future
Technology mix	• Wind-only portfolio	• Balanced portfolio of technologies
Geographic presence	• Polarized presence	• Diversified presence
Long-term sustainability	• Heavy dependence on incentive schemes	• Lower / limited dependence on incentive schemes
Financing	• Debt	• Debt and Operating cash flows
Key Performance Indicators	• **Growth** • **MW** (Installed capacity)	• **Return on Investment** • **TWh** (Energy production)

A new paradigm for renewables: sustainable and profitable growth

Enel Green Power

Le pari opportunità in Enel: un esempio di dialogo sociale

Roma – 4 febbraio 2010

Cristina Cofacci – Paola Giannone

Industrial relations in Enel: overview

70% people unionized

- Two out of three (and in some company of the Group even more) of our employee are members of the unions (three main brands, approximately 30 30 10 %).

“High quality ” relations

- Unions’ exponents use to be really representative of the workforce, normally they are people working in the company and who know its business very well
- We run a public interest service in a strategic sector, we have a tradition of High profile relations with the unions, a social dialogue trustful and widespread is considered as a useful investment

Unions like an asset

- Main current issues change management and business restructuring processes, more than provisions and salaries (matters of bargaining)
- Unions able to get people consensus, to gather and report ideas and proposals

From the national Monopoly to a Worldwide Utility:
a deep change even for union and labor relations

State Owned monopoly → **Private multinational company** → **Worldwide utility**

1963-1992 — **2009**

- national power “market”
- no competitors
- influence of politics

- Unions heavily involved in many sectors of HR (organisation, recruiting by open competition)
- wide, unionized, workforce
- internal career

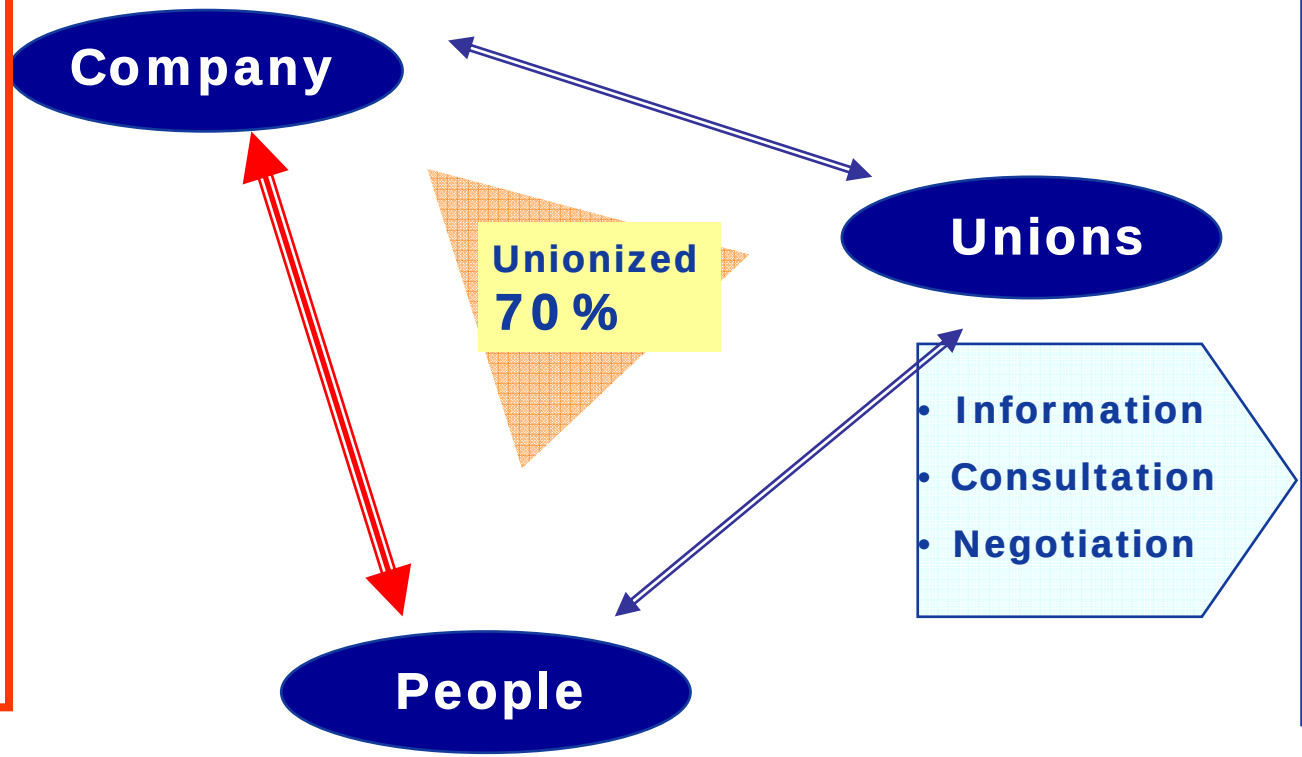
- 23 countries
- markets (power & gas) liberalized
- 1.4 millions shareholder

- clear distinction of roles/ responsibilities
- Unions out of managerial choices
- new european regulation
- new subject to deal with: the EWC
- new themes: the CSR

A model of two ways communication

INDIVIDUAL

- Compensation
- Performance
- Training
- Developement
- Career planning
- Differences
- worthiness



COLLECTIVE

- General agreements
- Sceneries
- Protection
- Organisation
- Work environement
- CSR
- Prevention / conflicts mgt

A new scenery, new challenges for the social dialogue

The situation / the problem

The instruments

- People all over the world
- Trans-national integration (first R.E. Div.)
- How to manage change and its impact on the employees
- New ways and subjects representing the workforce (v. EWC)
- The same values (Code of Ethics, Corporate Social Responsibility, v. Agreement 27.04.09)
- Respect of different regulations, cultures
- Respect of all stakeholders and true dialogue with each of them, first people and their representatives

The agreements signed on April 27th 2009

The Enel Corporate Social Responsibility Protocol and the Observatory on the Industrial, Ambiental and Occupational Policies represent the completion of a condivision process upon common “sustainable development” principles.

Focus on:

Enel Corporate Social Responsibility Protocol

- Sustain the promotion of actions taken to promote company CSR policies, working towards a constant emphasis on the person’s centrality (responsible competition)
- Share the principles relating to the fundamental rights of workers, and the committment to respect, promote and implement them in all the States in which Enel operates
- Relaunch, in line with the provisions of the Enel’s Code of Ethics on the promotion and training of the Human Resources, the role and operations of the “Joint body on training and employability”, as a way to enhance the “bilateral approach” to training activities

The agreements signed on April 27th 2009

Focus on:

Observatory on the Industrial, Ambiental and Occupational Policies

- Joint body formed by Enel and trade unions' representatives
- Ideal place for the labour relations upon Enel's industrial, ambiental and occupational policies
- Issues relating to the safety of procurements, liberalisation of the electricity sector, environmental conservation and Enel's industrial policy development

The EWC (european work council) experience

According to the EU law (directive 94/45), as a Group of european dimension, Enel had to establish a new trade-union organism, the EWC, with the aim to improve employees' right to information and consultation

After a previous request from the european Unions (EPSU, EMCEF), and a long period of negotiations, in december 2008 was signed the agreement that defines the establisment and the regulation of the EWC in Enel

This agrement is a faithful representation of Enel philosophy about industrial relations and in fact extends the existing process of informing and consulting (not bargaining) to all Group companies operating within the European Community

Equality and diversity in Enel

COMMISSIONE NAZIONALE PARITARIA PER LE PARI OPPORTUNITÀ IN ENEL

Enel was the **first italian Company** to **transpose** and **implement** the European guidelines about "**Equal Opportunities**" within a productive enterprise

In agreement with the **Unions**, the **Enel Top Management** had concretley supported the **idea of a Commission**, focused on organizational issues of gender

Il the **collective agreement** of **1989**, infact, establishes and regulates the activities operation of a National Joint (6 members by Company/6 members by Unions) Commission for Equal Opportunities, as a **first example of bilateralism** in the landscape of Industrial Relations, in Italy and in the electricity sector

Since then there have been many steps forward……..

Enel
L'ENERGIA CHE TI ASCOLTA.

Equality and diversity in Enel

Corporate Social Responsibility

Code of Ethics

Welfare system & People care

Equal Opportunity Committee

Equal Opportunities Committee

COMMISSIONE NAZIONALE PARITARIA PER LE PARI OPPORTUNITÀ IN ENEL

The Commission has consistently been an **active part** in enhancing diversity and promoting of practical implementation of the “non-discrimination” principle

Monitoring Biennal Report 125/91; studies and surveys

Information Booklet on Parental Leave

Search Mentoring for female leadership;
Equal opportunities & diversity Toolkit;
“International” project

Enel
L'ENERGIA CHE TI ASCOLTA

The women in the Company

The women present at Enel in those years were 7% of staff, were totally absent from the categories of blue collars and executives, had an average no higher education …..

…… today

Women are about **13%** of the total workforces in the Enel Group,

Italy **17%**

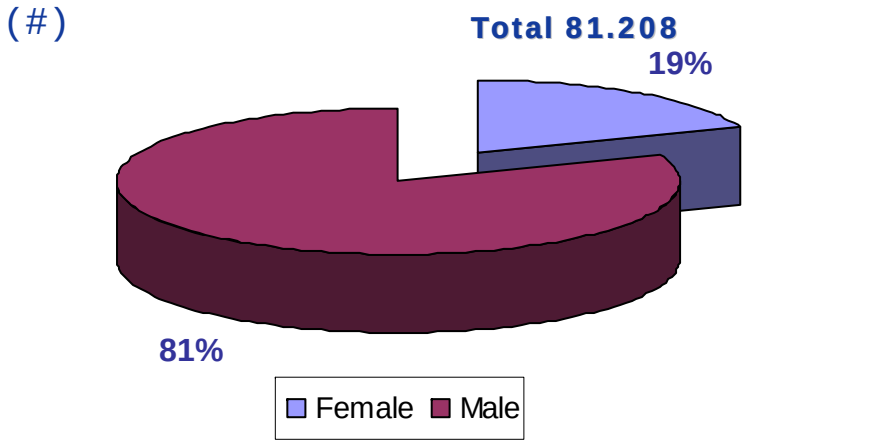
Executives:	10,9%
Supervisors:	20,7%
White collars:	23.8%
Blue collars:	0,2%

These numbers are so far from those of 1990 although recent, especially with regard to

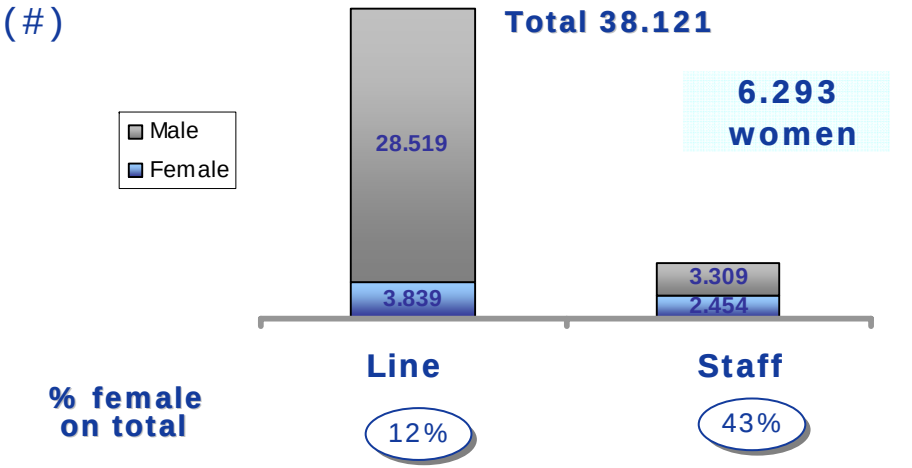
Executives:	3 % in 1990
Supervisors:	3.5% in 1990

Enel resources composition
As of end 2009

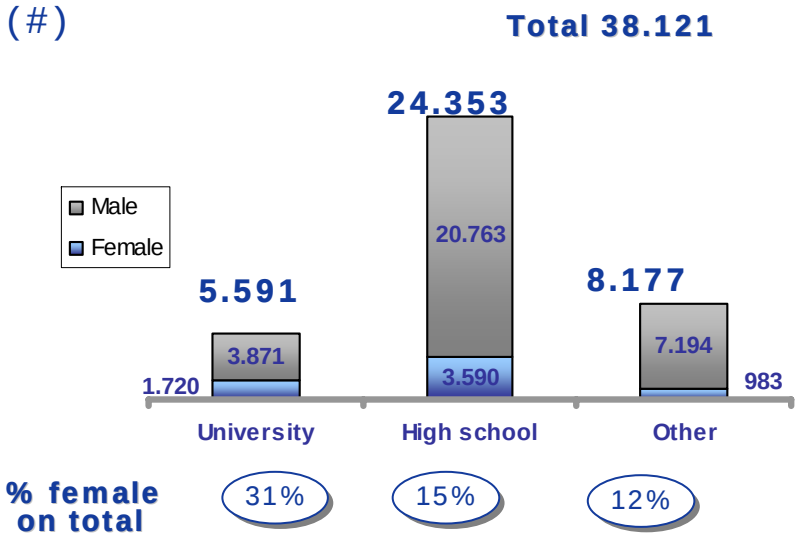
Headcount total



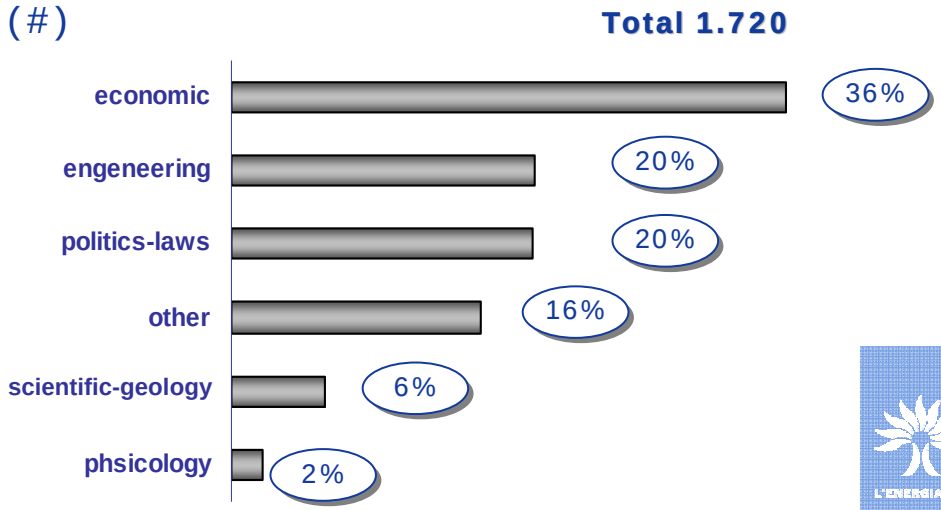
Italy: headcount



Italy: educational rank

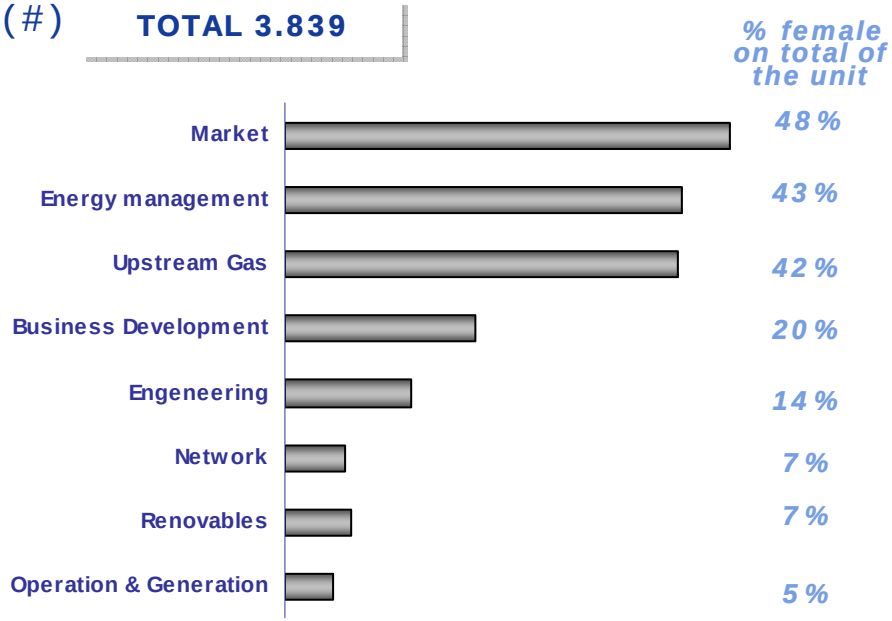


Italy: type of university graduates per female

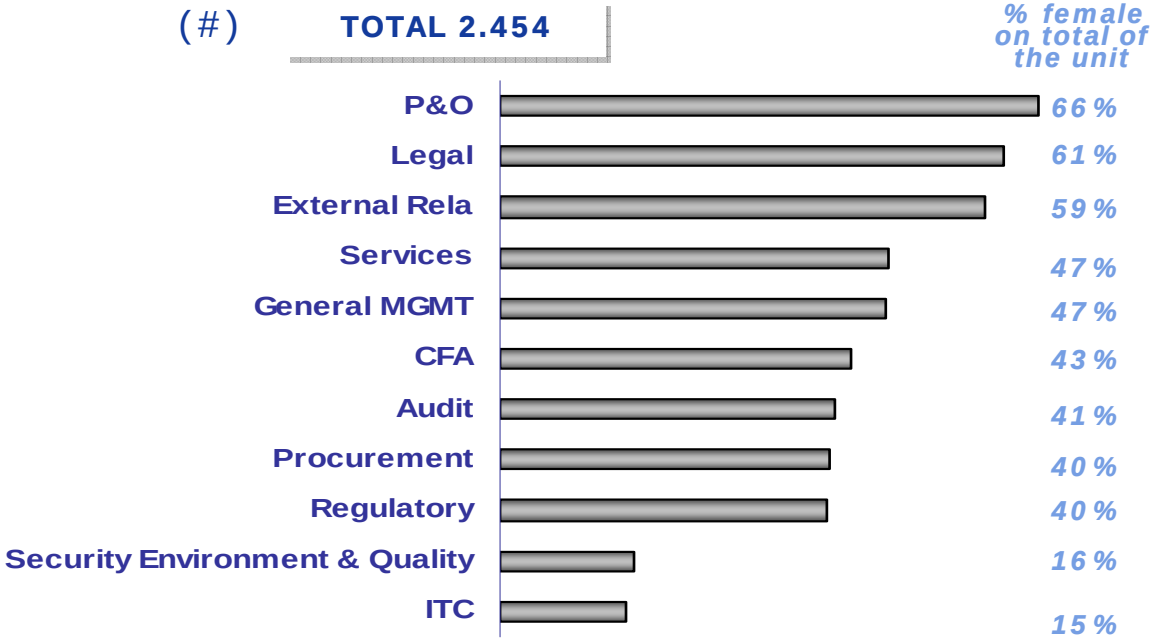


Enel resources composition: female competencies
As of end 2009

Line headcount per competencies*



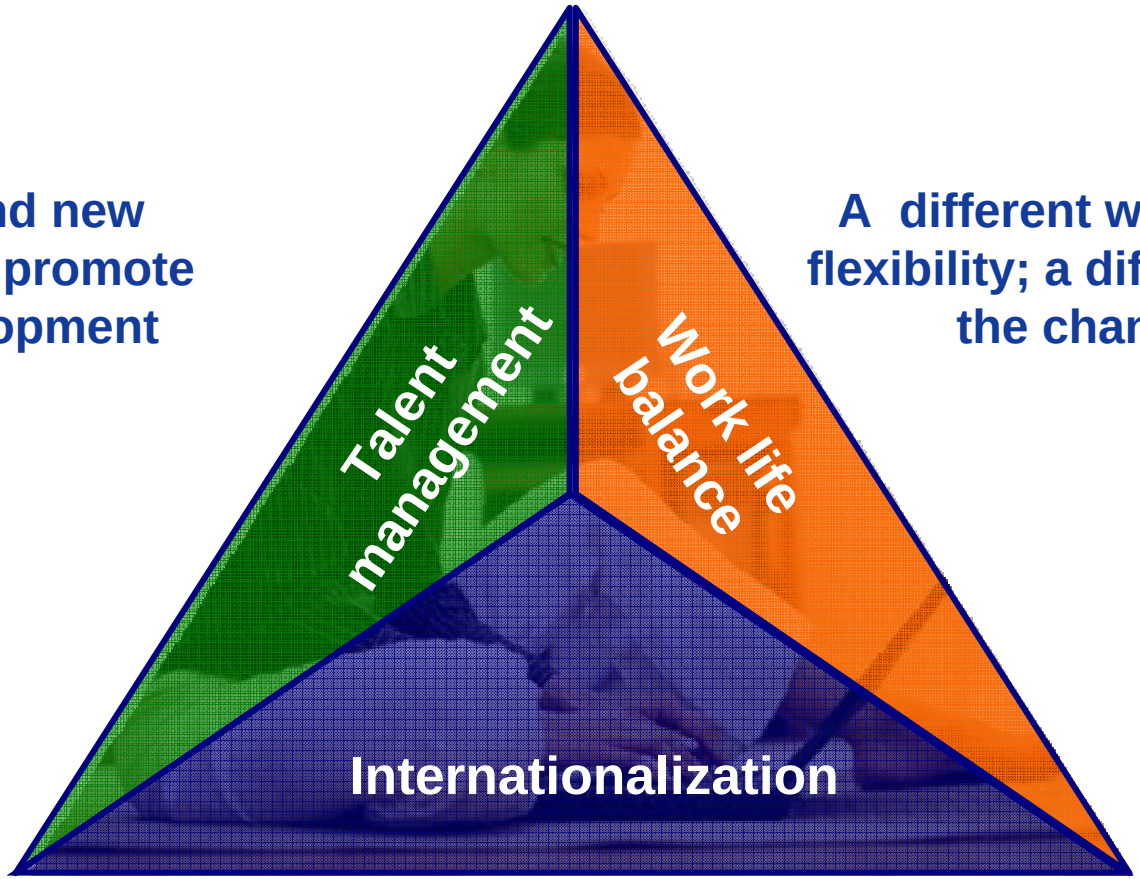
Staff headcount per competencies*



(*) Blue collars included.

Equality and diversity: the new frontiers

New tools and new approaches to promote female development



A different way to think about flexibility; a different feedback to the changing needs

When “diversity” is not only the gender approach……

Back up

The premises of the agreement

Preamble

The international strategic and operational expansion of the Enel Group in recent years means that it is now a "Community-scale undertaking" as pursuant to Directive 94/45, Art.2 section 1.b), which aims to "improve employees' right to information and consultation" by establishing a European Works Council (hereafter "EWC").

Enel intends to confirm the distinctive features of its industrial relations system, extending the processes of informing and consulting with employees and their representatives to all Group companies operating within the European Community.

The Enel company philosophy provides for high-quality industrial relations, enabling the employee representatives to express their opinions and proposals in relation to company strategy, with a view to seeking possible points of convergence between the Parties, while respecting their respective roles and related responsibilities.

The Parties agree that further growth in an increasingly competitive market can be consolidated, respecting the diversity of national cultures and traditions, by using dialogue and employee participation as strategic tools in managing change and the increasing challenges facing the Group.

The Parties acknowledge Enel's European Works Council as a fundamental instrument in the gradual extension and consolidation of "high quality" and "faithful" social company dialogue with employees and employee representatives on the company's strategic, social and economic objectives, in tune with Enel's new *mission* to *generate and distribute value in the international energy market, operating at the service of the community while respecting the environment.*

The premises of the agreement

Whereas: omissis

considering also that:

shared and transparent relations with all stakeholders commit Enel to connect company activity with quality of work and life, also from a Corporate Social Responsibility standpoint;

the establishment of a European Works Council (EWC) of Enel Group employees is jointly acknowledged as positive by the Parties in terms of growing trans-national integration between the companies of the Group and between the companies and employee representatives, for the purposes of promoting the growth, competitiveness and employment of the Group through participation;

the EWC does not prejudice the rights to information and consultation of workers in force in individual Member States and does not impact upon negotiating competence provided to trade union representatives under existing laws and agreements in individual States.

The Parties hereby agree to the following:

omissis

How do we “share” knowledge with EWC

Art. 3 – Definition of Information and Consultation

“Information” shall be deemed to mean the transmission of data by central management to the EWC members in order to enable them to acquaint themselves with the subject matter and to examine it; information shall be given at such time, in such fashion and with such content as are appropriate to enable EWC members to undertake an in-depth assessment of the possible impact and where appropriate prepare consultations with central management.

“Consultation” shall be deemed to mean establishment of dialogue and exchange of views between EWC and central management or any more appropriate level of Management, at such time, in such fashion and with such content (as) enables EWC members to express an opinion on the basis of the information provided – in a written and an exhaustive manner - about the proposed measures to which the consultation is related, without prejudice to the responsibilities of the management, and within a reasonable time, which may be taken into account by the central management.

The management shall provide a response to the opinions expressed.

Collective bargaining is not included among the EWC competencies.

The matters we “share” with EWC

Art. 4 – Objects of Information and Consultation

The EWC shall be informed and consulted on Group activities and in particular on:

- The economic/financial situation
- Activity and investment programmes
- Significant changes to Group structure, mergers, acquisitions and transfer of activities and/or undertakings
- Employment status and prospects
- Downsizing or closure of companies or productive units that may have trans-national consequences
- Transfer of production between EU States and outside the EU
- Introduction of new work methodologies and new production processes
- Trans-national mobility of Group employees
- Health and safety in the workplace
- Environmental policies
- Initial and continuous professional training
- Equal opportunities and non-discrimination

The EWC shall also be informed and consulted on the international strategy of the Group, as well as the Sustainability Plan and the contents of the Sustainability Report.

Green Energy: Which impact on employment?

The boom and bust of the Spanish green jobs miracle

ADAPT

Rome, 4 February 2010

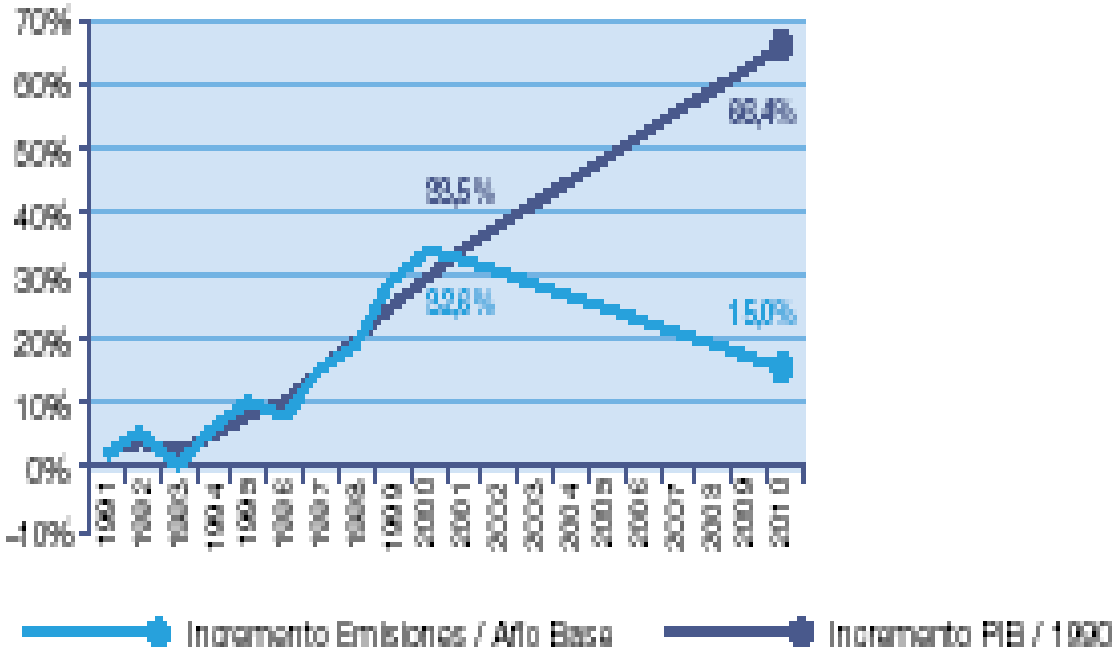
Gabriel Calzada

Prof. Asociado URJC

Green jobs: the context of a new fashion

- Kyoto
  - Global Warming Policy
- Economic Crisis
  - Green job creation
  - Economic Stimulus

Spanish Kyoto commitment



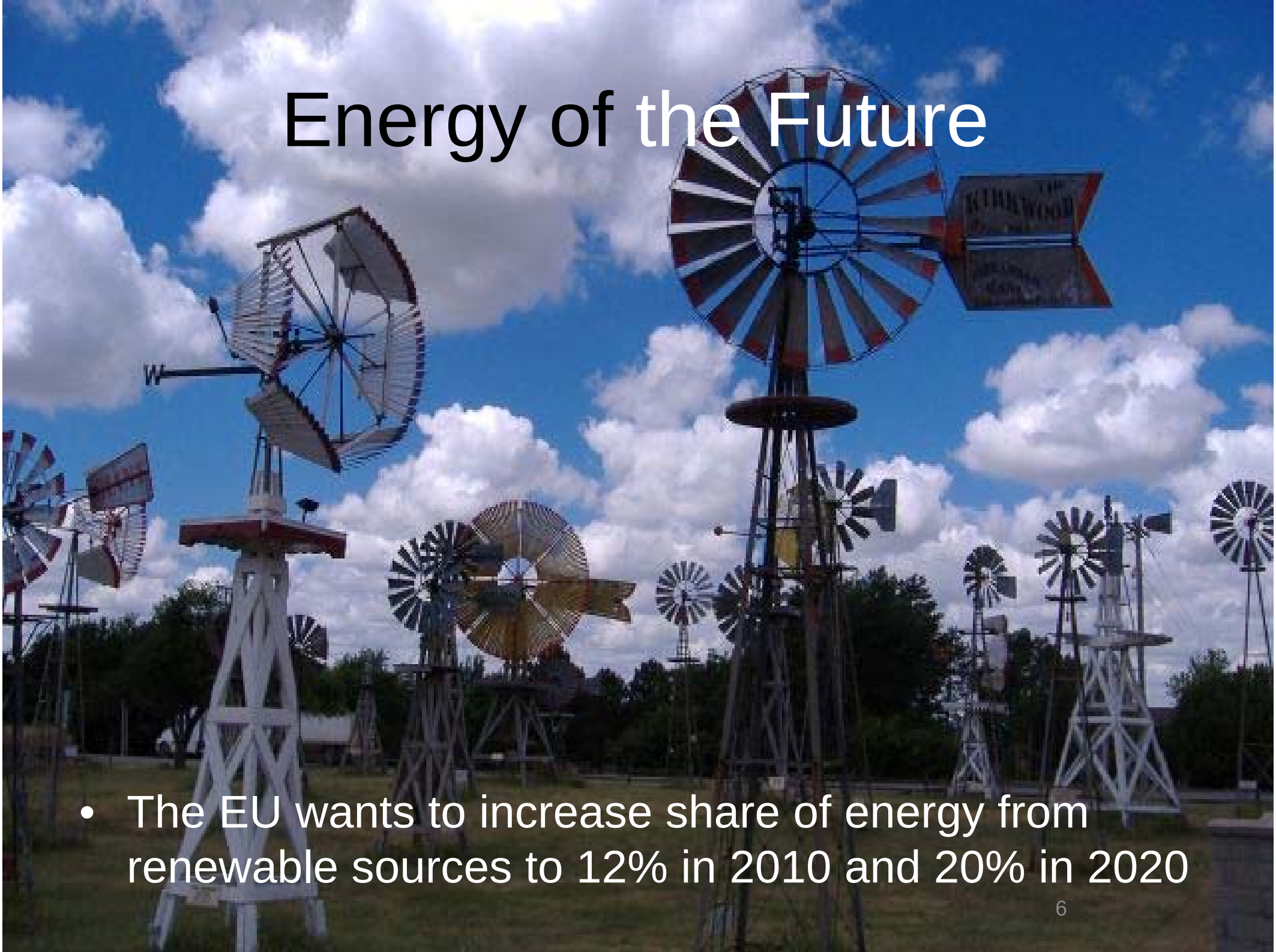
Regulating to comply Kyoto

- The Electricity and Gas Sectors Planning. Transport Net Development 2002-2011
- Strategy for Energy Savings and Efficiency in Spain 2004-2012
- Plan for Developing Renewable Energies 2000-2010
- New Renewable Energies Plan 2005-2010
- Law of Integrated Control and Pollution Prevention
- Efficiency and energetic savings in buildings Measures:
  - Regulation for Thermal Installations of Buildings
  - Technical Code of Buildings
  - Energetic Certification of Buildings
- Updating Plan for agricultural equipments
- The Spanish Forest Plan
- Hydroforestry restoration Plan
- Plan for complementary aid for forest development and organization
- Subsidies Plan for sustainable management of public forests
- National Plan against Desertification
- The first National Plan for Municipal Solid Wastes 2000-2006
- National Plan for Dangerous Waste
- National Plan for Polluted Lands
- National Plan for the modernization of vehicles
- Strategic Plan for Infrastructure and Transport
- Another key element is the distribution of those allowances among the owners of those installations whose activity produce CO2
  - National Allocation Plan
  - National Registry for Greenhouse Gas Emission Allowances

Crisis

- 19,7% unemployment
- Over 4 million unemployees in Spain

Energy of the Future

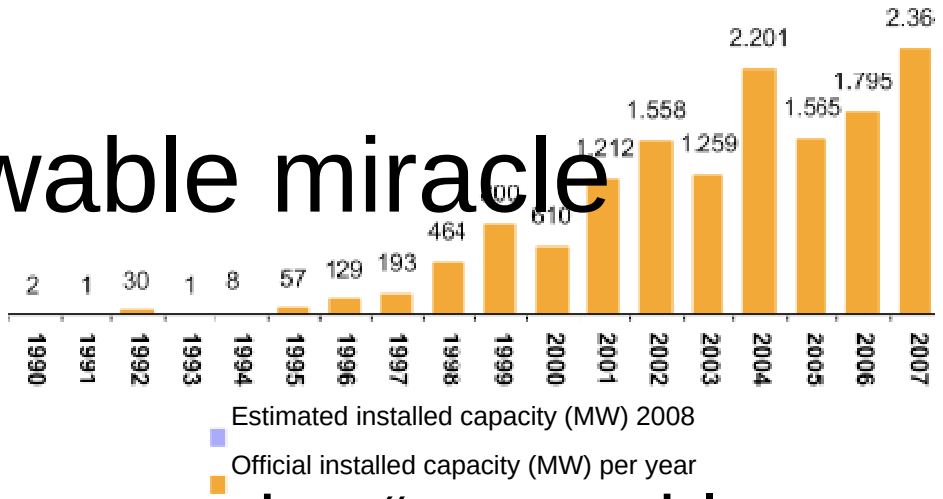


- The EU wants to increase share of energy from renewable sources to 12% in 2010 and 20% in 2020

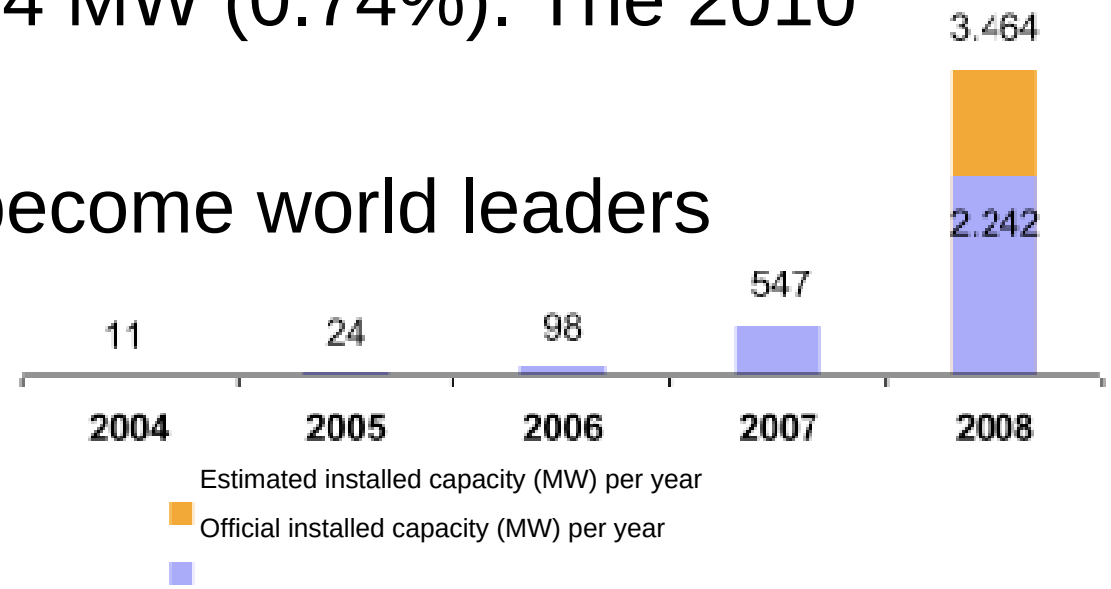
The green jobs´ rethoric

- Obama: renewable energy “can create millions of additional jobs and entire new industries.”
- Barroso: public support to renewables is “an opportunity that should create thousands of new businesses and millions of jobs in Europe. We must grasp that opportunity.”
- Zapatero: “investment in green energy creates jobs and is the way out of the crisis”

The Spanish renewable miracle



- Spain has been a leader in promoting “renewable energy”. By the end of 2008 26.137 MW installed in “special regime”
- Wind energy has largest share: 14,836 MW (10.2%)
- Solar energy has 2934 MW (0.74%). The 2010 target was 371 MW
- Spanish companies become world leaders



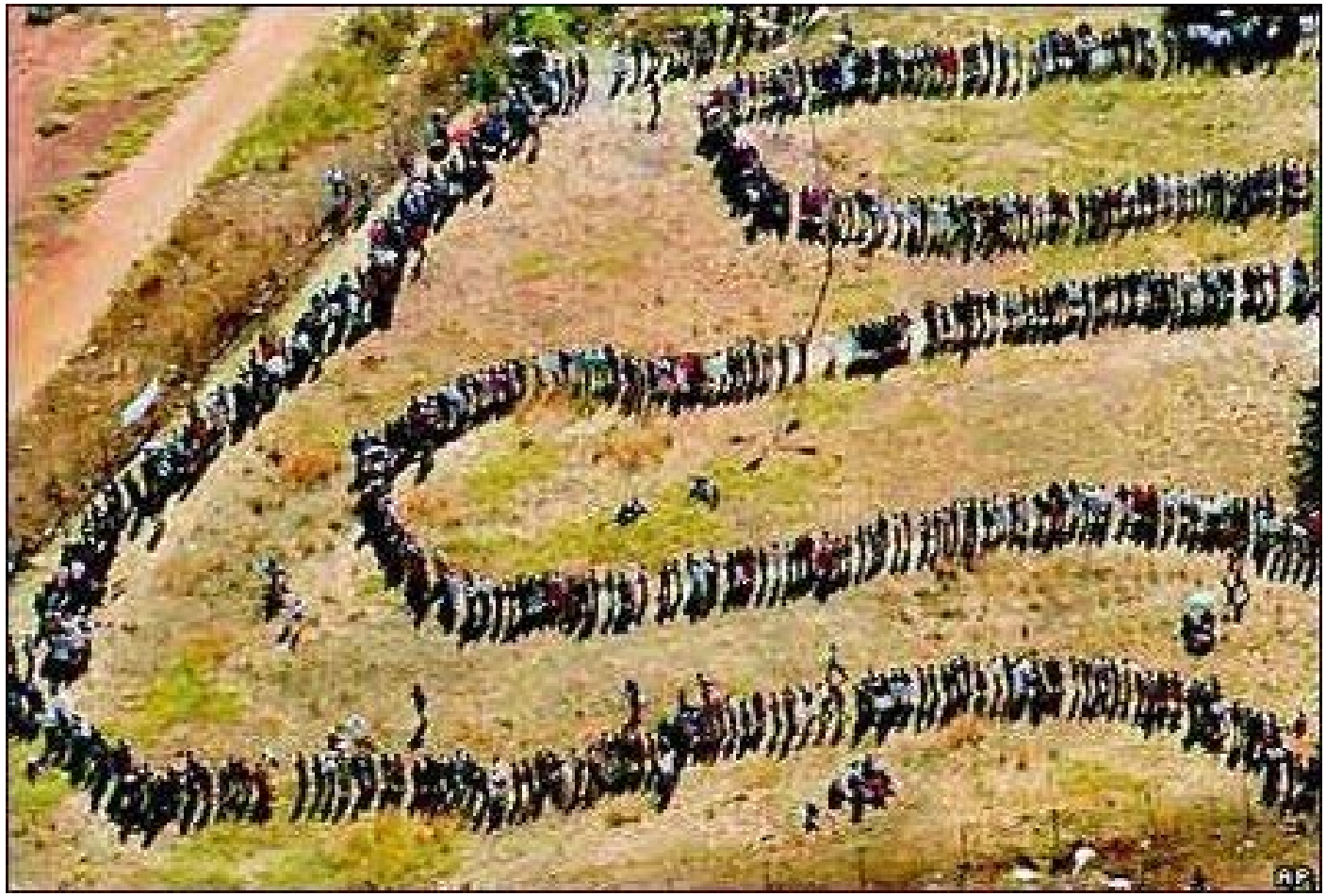
The renewable bubble

- Big leverage: 80/20

Green rain

- Wind subsidies: 90% over market price for 15 years then 80% over
- Solar subsidies: 575% over market for 25 years then 460%
- 12 to 20% return

Waiting lists



Inside the renewable bubble

- Big production means jobs:
  - 50,200 according to MITRE
  - 26,000 only in the solar sector since 2000.
- It also means big subsidies:
  - 28.6 billion Euro
  - 0.7% of installed energy (solar) gets 9,6 bill Euro

	Number of direct jobs	Number of indirect jobs (difference)	Total jobs	Total subsidy (spent and committed) in M€, NPV @ 4 %	Subsidy M€/ job	Total Investment (in M €)	Investment (in M€)/job
WIND	6825	8175	15000	1643638	1095758667	14723	9,81533E+11
MINI-HYDRO	1475	3225	4700	255128	542825532	106704	2,2703E+11
PHOTOVOLTAIC	14500	0	14500	968348	667826207	161315	1112517241
TOTAL	11491	19122	50200	2867114	571138247	3192154	65887251

Playing with the bubble

- Who pays? Energy distributors
- “Deficit Tarifario” (DT): 15.7 billion
- The green premiums represent 2/3 of the DT
- Only in 2008 the renewable subsidies account for 3.5 billion Euros

Green jobs or green unemployment?

- Each green job has cost €571,138 subsidies
- Oportunity cost

$$\frac{Subdidy\_to\_renewables\_per\_worker}{Average\_capital\_per\_worker} = \frac{571{,}138}{259{,}143} = 2.2$$

  – Stock of capital per worker: €259,143
  – Every green job comes at the price of 2.2 jobs
- The annual subsidy to renewables per job is €55,946

$$\frac{Annual\_subsidy\_to\_renewables\_per\_worker}{Average\_productivity\_per\_worker} = \frac{55{,}946}{25{,}332} = 2.2$$

- Oportunity cost
  – Average productivity per worker: €25,332
  – Every green job comes at the price of 2.2 job

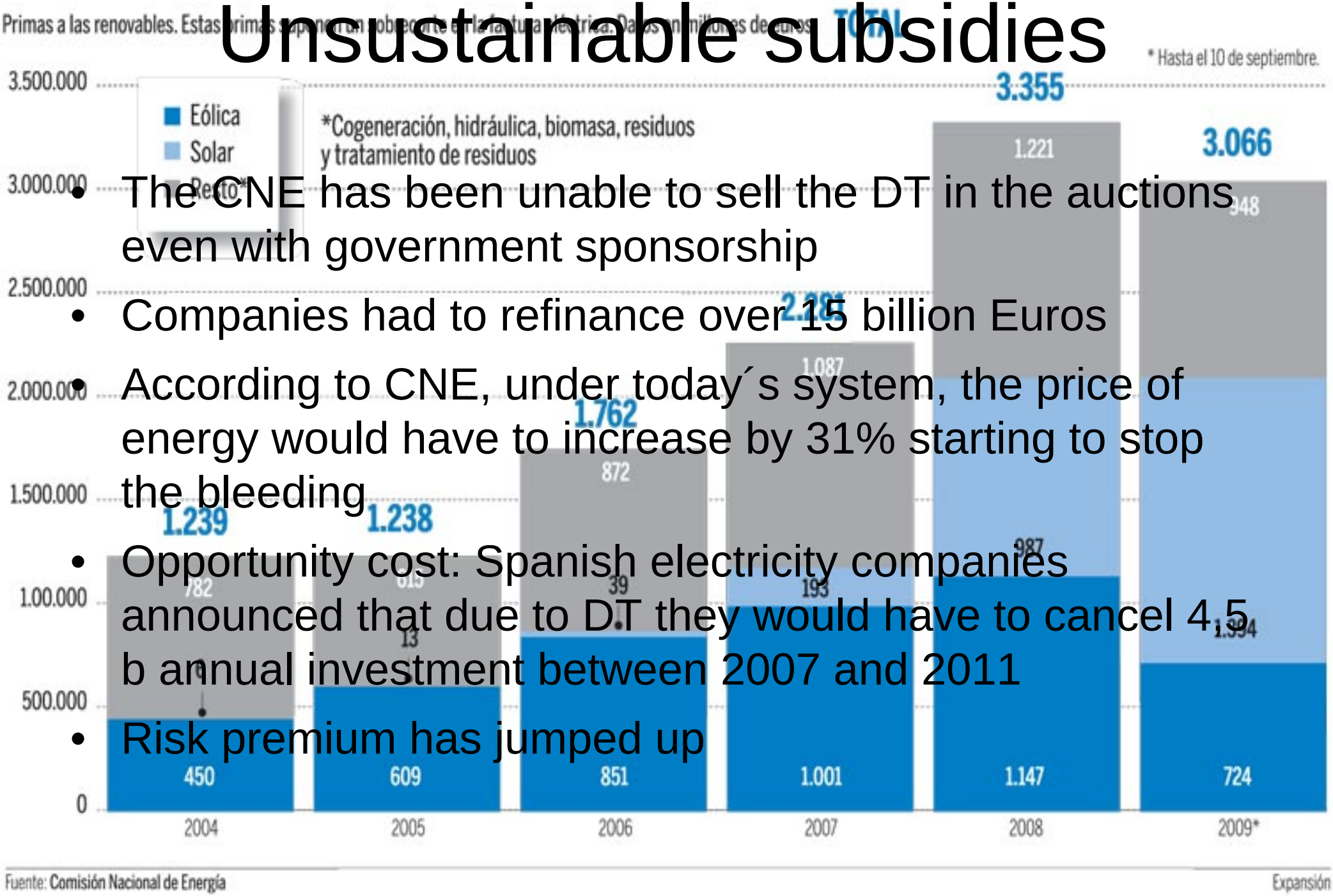
This
incur
progr
the a
alloca
paran
appro
stock
mean
Spain

In this se
average
green job
contribute
been con
the avera
sector tha
the latter
which jus
preservat

More air!

- 9.58% in maintenance and operation
- 24% in administration, marketing and projects
- 66.27% in construction, fabrication & installation

Unsustainable subsidies



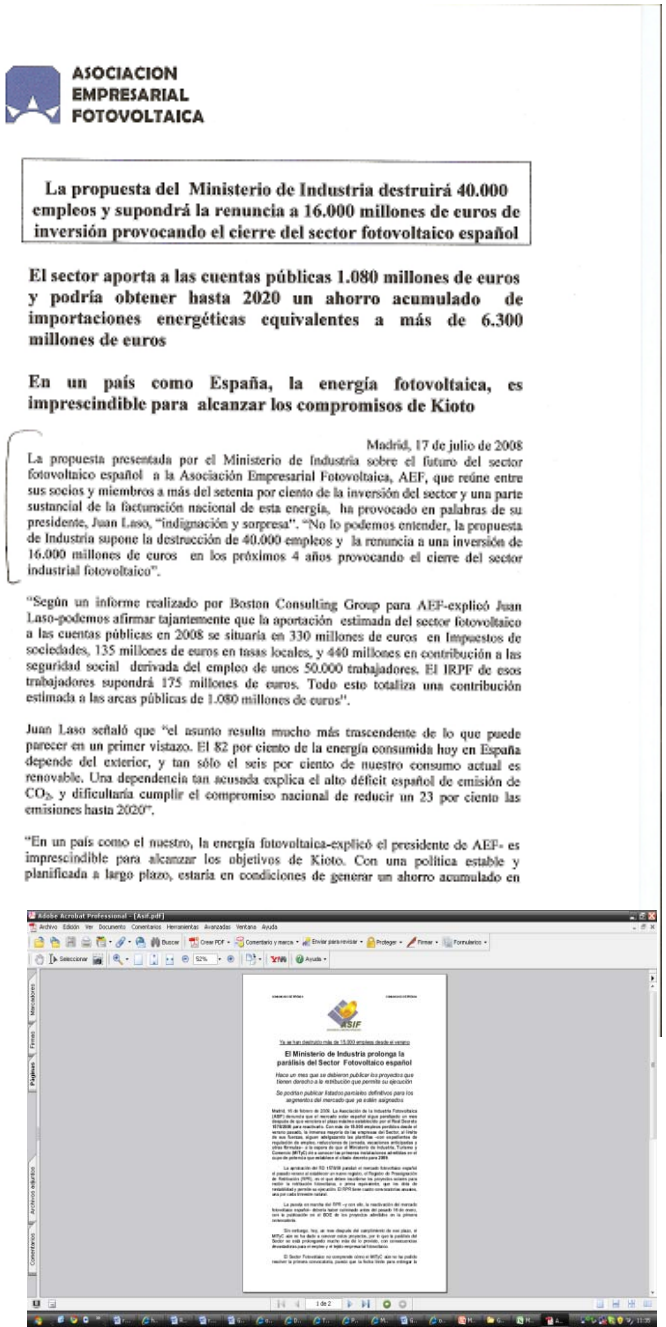
- The CNE has been unable to sell the DT in the auctions even with government sponsorship
- Companies had to refinance over 15 billion Euros
- According to CNE, under today´s system, the price of energy would have to increase by 31% starting to stop the bleeding
- Opportunity cost: Spanish electricity companies announced that due to DT they would have to cancel 4.5 b annual investment between 2007 and 2011
- Risk premium has jumped up

Sustainable energy?

- Miguel Sebastian declared renewable energies are “green and clean but very costly”.
- The government had to reduce by 30% the subsidy to solar energy and placed a cap of 300 new solar MW (2253 MW had been installed in 2008).
- Now the Spanish green industry is falling down and going abroad to find more generous governments

Unsustainable jobs

- The softening of the renewable support in 2007 brought about 10,000 job losses
- Last year´s softening threatens to result in thousands of new green jobs´losses



ASOCIACION EMPRESARIAL FOTOVOLTAICA

La propuesta del Ministerio de Industria destruirá 40.000 empleos y supondrá la renuncia a 16.000 millones de euros de inversión provocando el cierre del sector fotovoltaico español

El sector aporta a las cuentas públicas 1.080 millones de euros y podría obtener hasta 2020 un ahorro acumulado de importaciones energéticas equivalentes a más de 6.300 millones de euros

En un país como España, la energía fotovoltaica, es imprescindible para alcanzar los compromisos de Kioto

Madrid, 17 de julio de 2008

La propuesta presentada por el Ministerio de Industria sobre el futuro del sector fotovoltaico español a la Asociación Empresarial Fotovoltaica, AEF, que reúne entre sus socios y miembros a más del setenta por ciento de la inversión del sector y una parte sustancial de la facturación nacional de esta energía, ha provocado en palabras de su presidente, Juan Laso, "indignación y sorpresa". "No lo podemos entender, la propuesta de Industria supone la destrucción de 40.000 empleos y la renuncia a una inversión de 16.000 millones de euros en los próximos 4 años provocando el cierre del sector industrial fotovoltaico".

"Según un informe realizado por Boston Consulting Group para AEF-explicó Juan Laso-podemos afirmar tajantemente que la aportación estimada del sector fotovoltaico a las cuentas públicas en 2008 se situaría en 330 millones de euros en Impuestos de sociedades, 135 millones de euros en tasas locales, y 440 millones en contribución a las seguridad social derivada del empleo de unos 50.000 trabajadores. El IRPF de esos trabajadores supondrá 175 millones de euros. Todo esto totaliza una contribución estimada a las arcas públicas de 1.080 millones de euros".

Juan Laso señaló que "el asunto resulta mucho más trascendente de lo que puede parecer en un primer vistazo. El 82 por ciento de la energía consumida hoy en España depende del exterior, y tan sólo el seis por ciento de nuestro consumo actual es renovable. Una dependencia tan acusada explica el alto déficit español de emisión de CO_2, y dificultaría cumplir el compromiso nacional de reducir un 23 por ciento las emisiones hasta 2020".

"En un país como el nuestro, la energía fotovoltaica-explicó el presidente de AEF- es imprescindible para alcanzar los objetivos de Kioto. Con una política estable y planificada a largo plazo, estaría en condiciones de generar un ahorro acumulado en

BP: 480

Green unemployment

- Spain had the 4th highest electricity prices for industrial consumer in 2009

Outsourcing

Green jobs


GREEN JOBS NOW
GREEN JOBS NOW
GREEN JOBS NOW
I'M
GREEN JOBS
GREEN JOBS FOR America

Job creation

Green jobs?


Gracias

The record night

- Record wind production in the first days of November: over 50% of that night production
- At what cost? 6.5

Subprime jobs

- The sector companies calculated they will have to fire over 40% of the workers
- The only way to generate jobs in this field is by creating artificially produced expectations
- The sector generates almost no stable jobs (ISTAS)
  - 9.58% in maintenance and operation
  - 24% in administration, marketing and projects
  - 66.27% in construction, fabrication & installation

Spain is the model

The bust

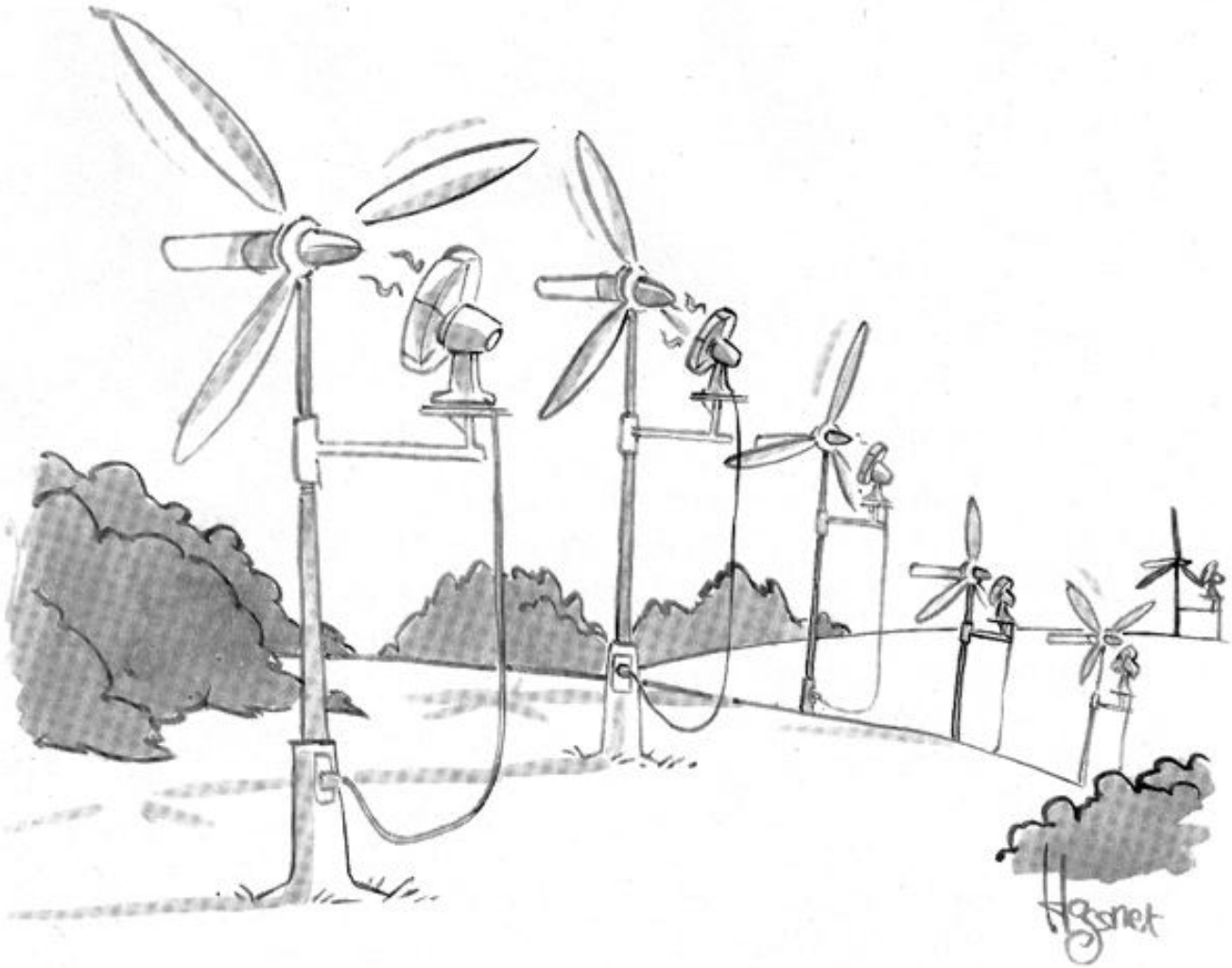
Unsustainable energy

- The reduction of the subsidies in September has reduced the market value to a fracti

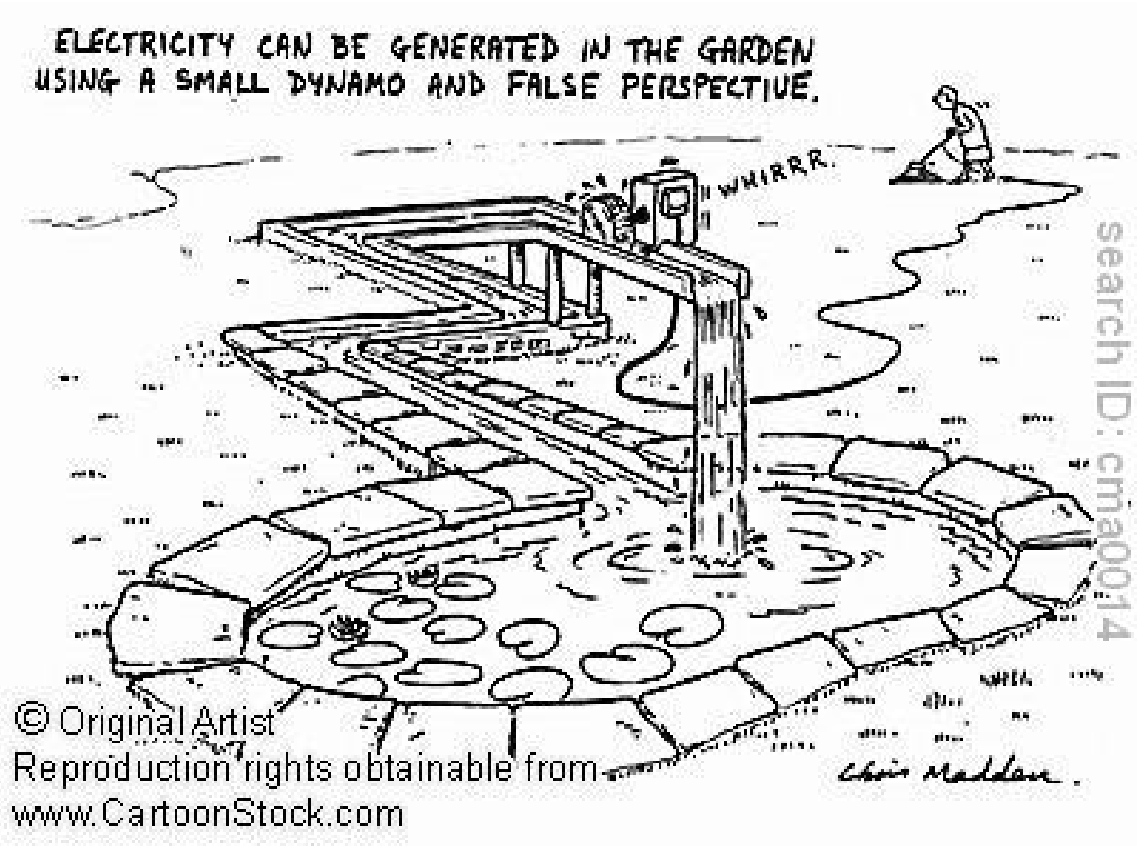
The bubble bursts

Subprime energy

- Last year only 750 MW out of the 15000 MW (5%) solar and wind energy installed counted to REE to calculate the coverage rate of the Spanish system

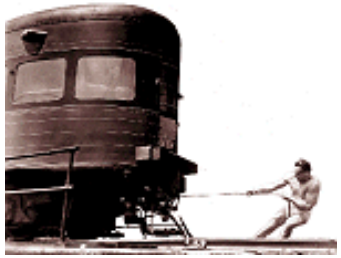


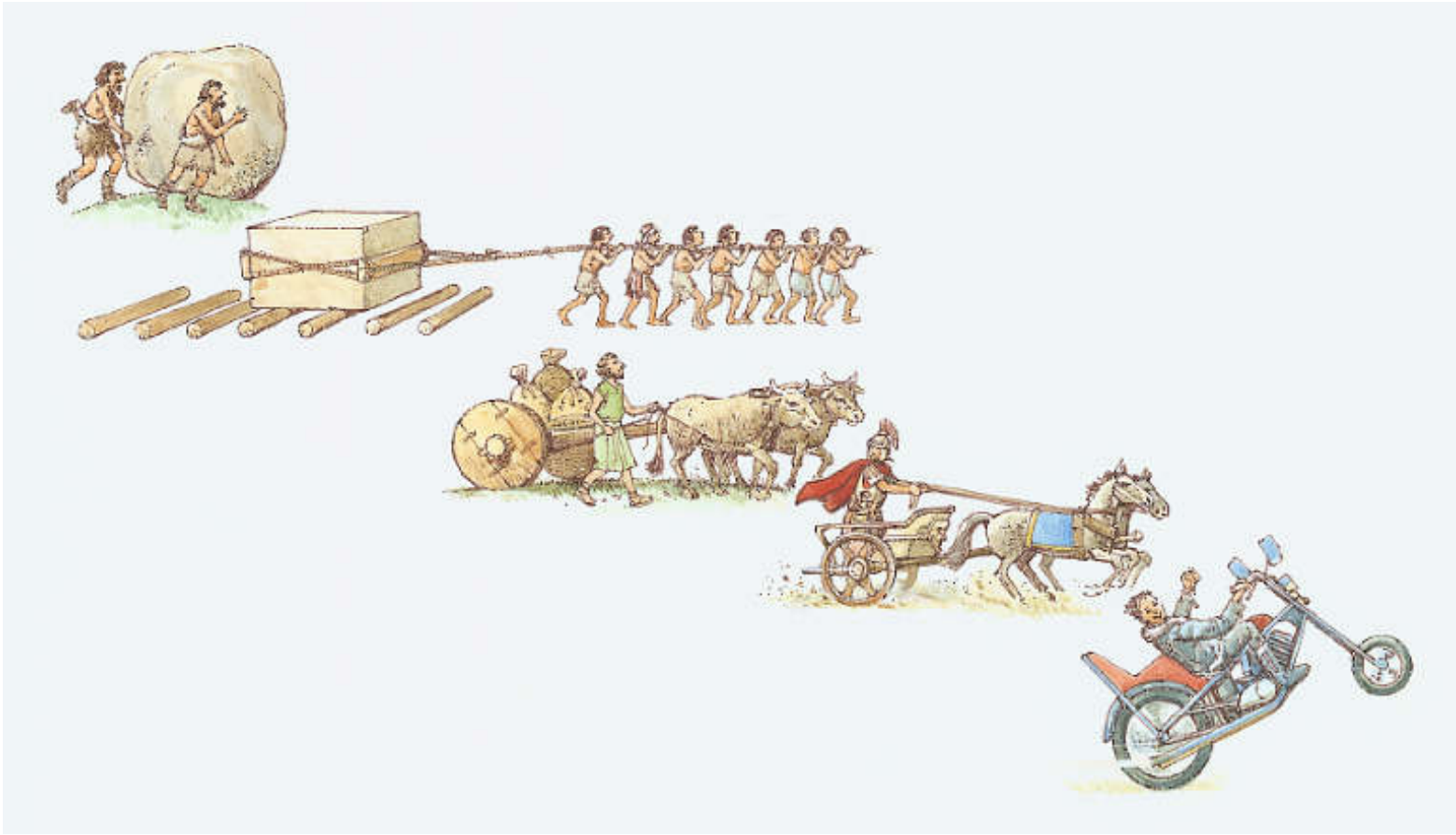

SEEN AT: WWW.FUNNYTHREAT.COM




gettyimages


gettyimages





Climate policy, energy and the crisis

- Spain has one of the largest current account deficits (10%)
- 2/3 energy deficit (oil)
- EU Climate policy (Cap and trade scheme and renewable subsidies) is largely responsible
- Under the present credit-crunch Spain has either to increase exports or diminish energy dependency to offer credit

The economics of expensive energy

- Expected incomes and costs are what drives investments
- To produce you have to combine resources
- The cheaper some of them are, the more possibilities exist to use them in different productive processes (offering interesting products at good prices to the consumer)

The economics of expensive energy

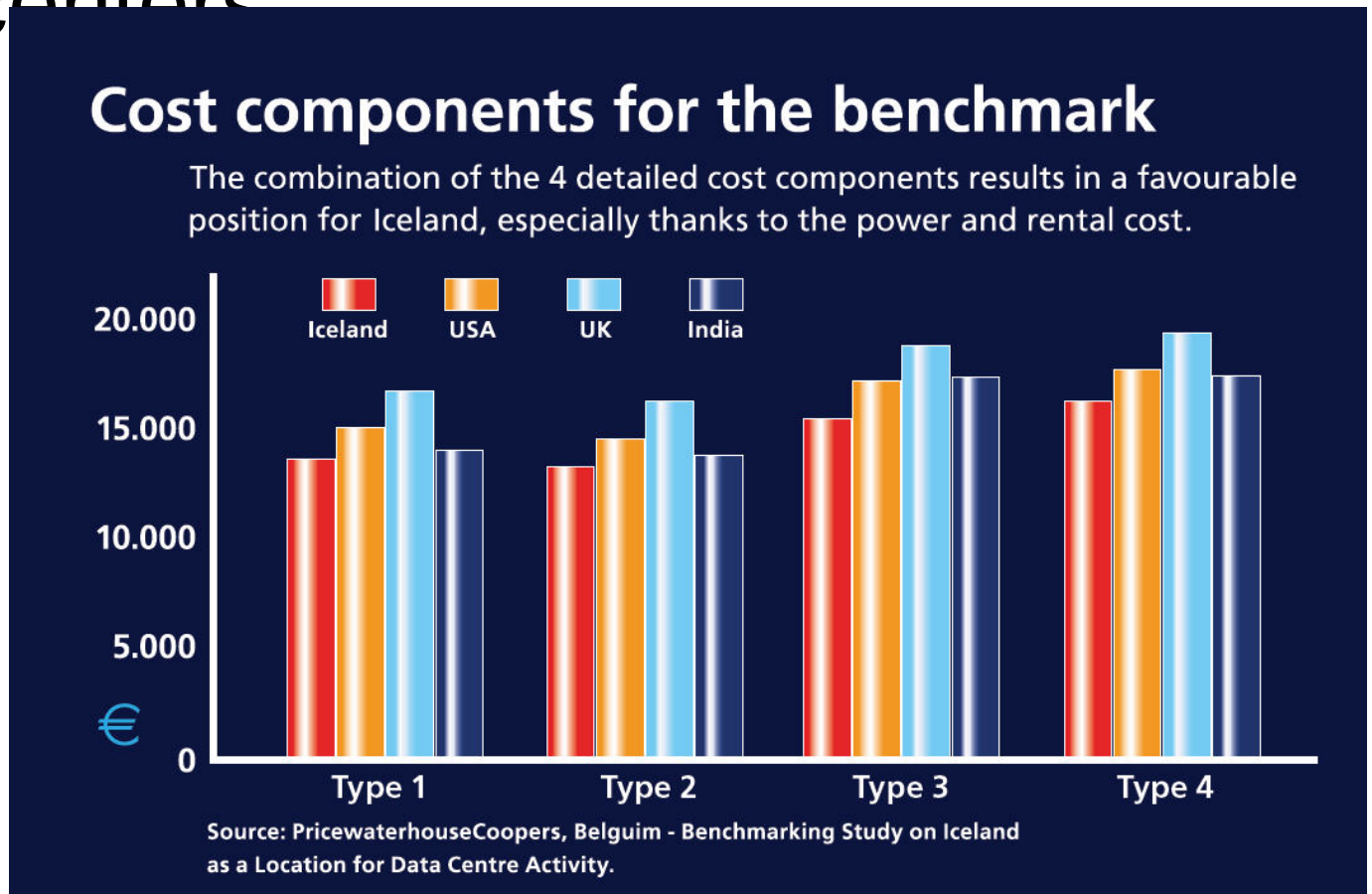
- Some factors, like wages in the US, are relatively high
- But if combined with other cheaper and intensively used factors of production, such as low energy cost, the unitary cost can be competitive
- Reducing the unitary costs will open new markets to layers of the population are not still marginal consumers
- Expanding the market will create new investment, therby creating new jobs (despite high wages)

Energy and the new economy

- The total electricity consumed by major search engines in 2006 was 5 gigawatts (Las Vegas)
- George Gilder: “The web machine is on track to be consuming half of world´s output electricity by end of this decade”
- Microsoft´s power consumption has risen 10 times in the past three years
- At 15 cents per kilowatt-hour, power dominated Google´s calculus of costs
- James Snow: "We ran out of power before we ran out of space"
- Microsoft and Yahoo are building me-too data centers in Quincy and Wenatchee, Washington

Energy and the new economy

- China plans to build 30 new nuclear plants
- Comparative cost to establish data-centers

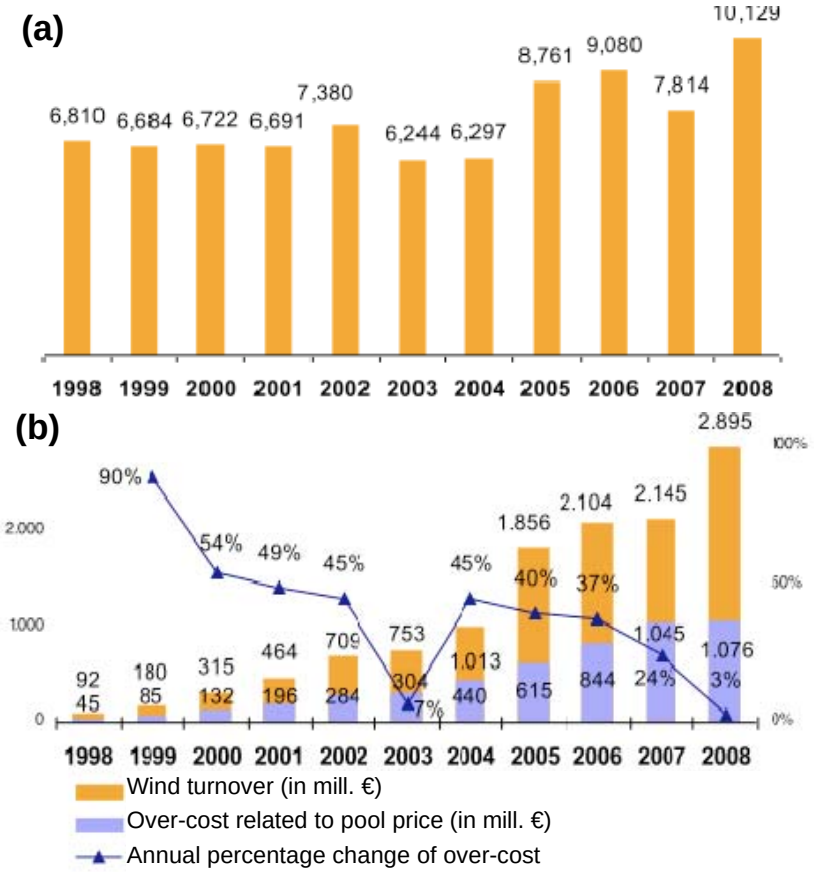


EU climate policies and the crisis

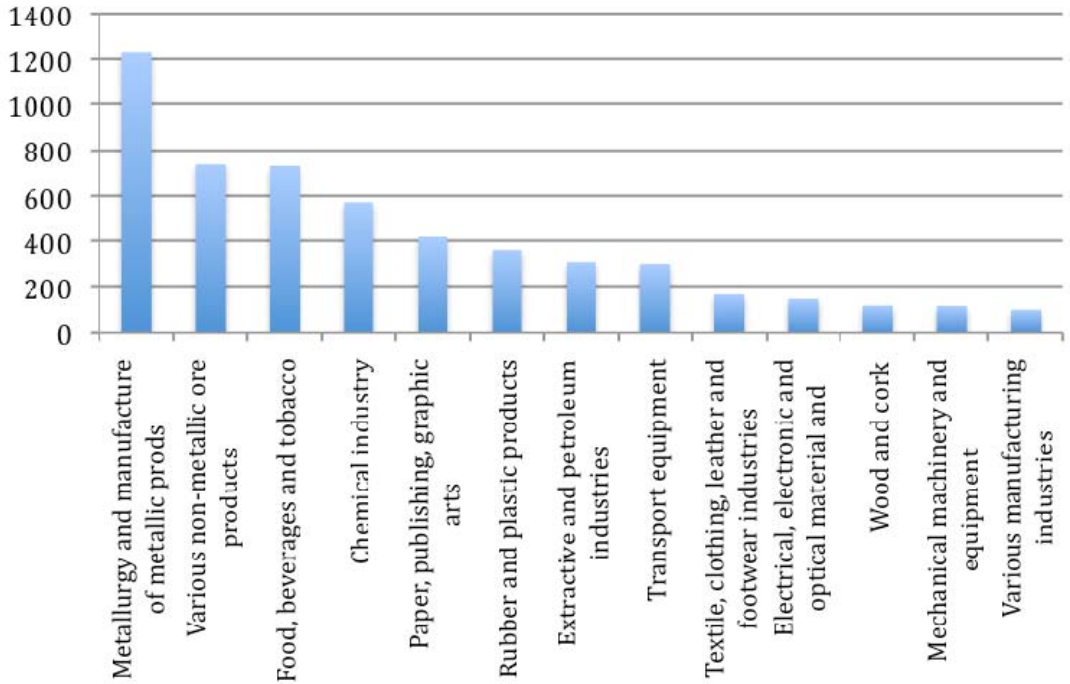
- Increases public spending when reductions are most needed
- Redirects scarce real savings to inefficient ways of producing energy, thereby increasing costs of production
- Makes it impossible to reduce trade deficit and restart credit markets
- Subprime jobs and unemployment source
- Reduces competitiveness

Average kWh price. Total retribution and over-cost26 (mill. €) of wind energy (1998-2008) Over-cost related to pool price (in mill. €)

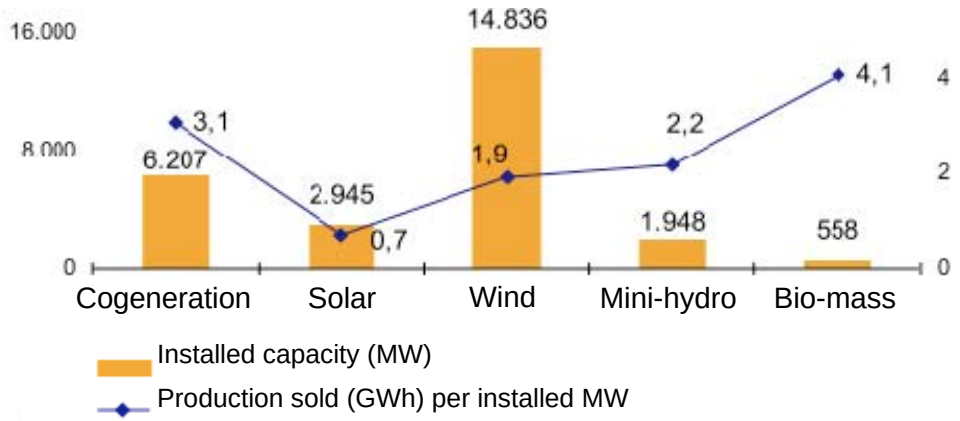
Annual percentage change of over-cost



Electricity consumption (in millions of €)



Official installed capacity (MW) and production (GWh) to installed MW ratio for technologies under the "special regime" (2008)

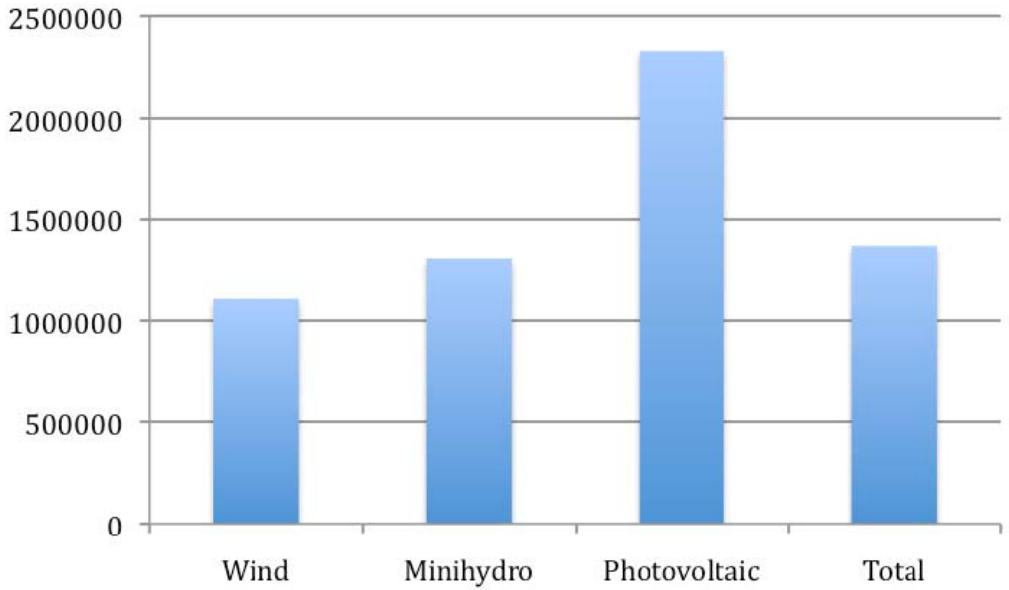


Overcost 1998-2008

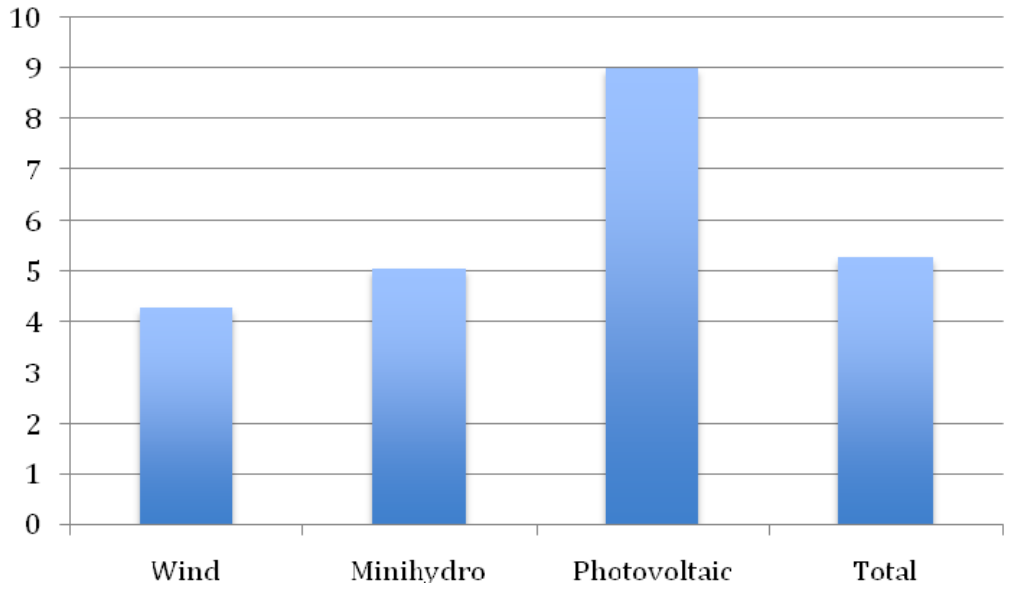
	2000	2001	2002	2003	2004	2005	2006	2007	2008
PHOTOVOLTAIC									
Production (in GWh)	14	2	4,64	9	18	40	106	454	2054
Capacity installed (in MW)	1	2	5,47	11	21	42	142	451	2934
Average selling price (in € / MWh)	22658	24896	28536	30825	36692	39904	42744	43471	45136
WIND									
Production (in GWh)	4544	6925	9564	12063	15965	20955	23143	26789	28579
Capacity installed (in MW)	2060	3295	4580	6273	8152	10021	11845	12931	14836
Average selling price (in € / MWh)	6731	6696	7389	6244	6294	8759	9216	7907	10129
MINI-HYDRO									
Production (in GWh) less than 10 MW	2983								
Production (in GWh) over 10 MW	1015	4391	3895	5091	4678	3790	4144	4004	4203
Capacity installed (in MW) less than 10 MW	1013								
Capacity installed (in MW) over 10 MW	375	1459	1492	1606	1649	1712	1878	1882	1949
Average selling price (in € / MWh) less than 10 MW	6972								
Average selling price (in € / MWh) over 10 MW	667	6564	7331	6591	6649	8792	8946	7742	9631

	2000	2001	2002	2003	2004	2005	2006	2007	2008	OVER-COST NPV @ 4%
AVERAGE POOL PRICE (In €/ MWh)	3913	3859	4422	3726	3565	586	5438	4007	6288	
OVER-COST PHOTOVOLTAIC (in M€) (1)	26	42	112	244	596	1362	395	1795	79794	105488
OVER-COST WIND (in M€) (1)	12805	19646	28376	30375	43568	60749	87434	10448	10977	548538
OVER-COST MINI-HYDRO (in M€) less than 10 MW (1)	9125									
OVER-COST MINI-HYDRO (in M€) over 10 MW (1)	2798	11878	11331	1458	14427	11112	14537	14955	14051	137828
TOTAL OVER-COST NPV@4 % (SPENT @ Dec 31st, 2008)										791854

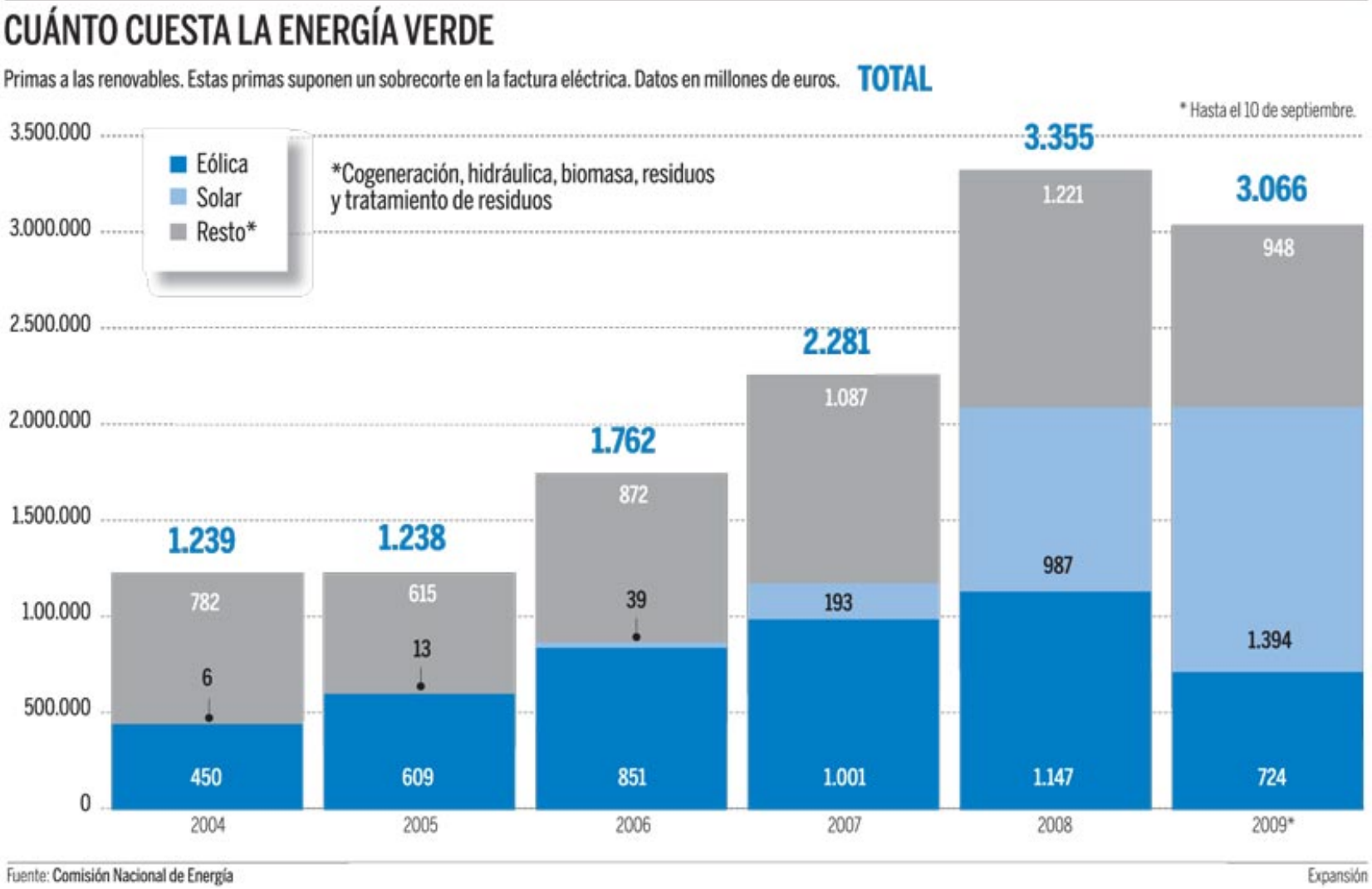
Subsidy per MW in €



Employment destroyed per installed megawatt



Green puff


CUÁNTO CUESTA LA ENERGÍA VERDE
Primas a las renovables. Estas primas suponen un sobrecorte en la factura eléctrica. Datos en millones de euros.
TOTAL
* Hasta el 10 de septiembre.
Eólica
Solar
Resto*
*Cogeneración, hidráulica, biomasa, residuos y tratamiento de residuos
3.500.000
3.000.000
2.500.000
2.000.000
1.500.000
1.00.000
500.000
0
1.239
782
6
450
1.238
615
13
609
1.762
872
39
851
2.281
1.087
193
1.001
3.355
1.221
987
1.147
3.066
948
1.394
724
2004
2005
2006
2007
2008
2009*
Fuente: Comisión Nacional de Energía
Expansión

The renewable bubble

Green Spain

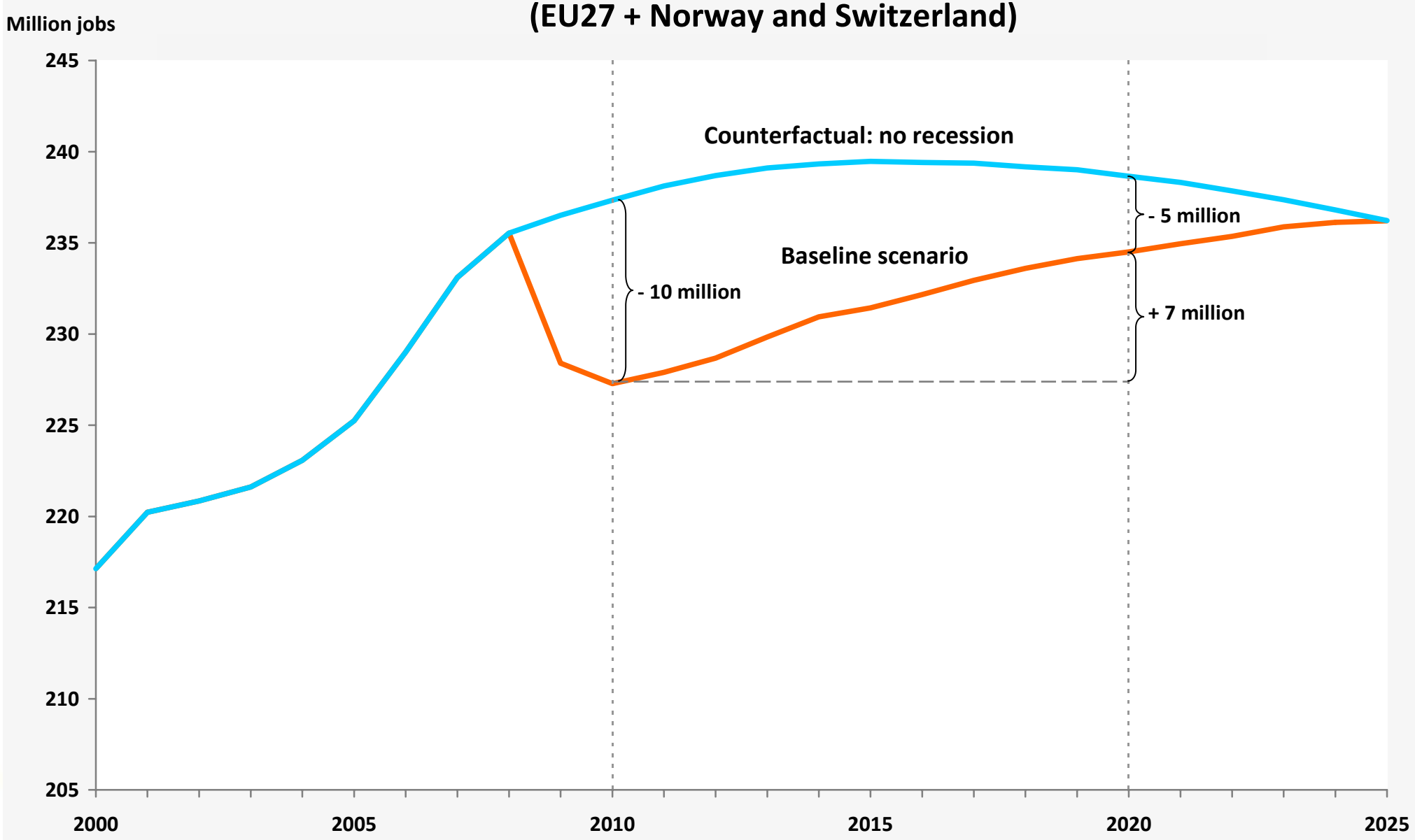
CEDEFOP | European Centre for the Development of Vocational Training

Anticipation of labour market needs: skills for green jobs

Peter Szovics
Cedefop

Scenarios on the employment impact of the recession

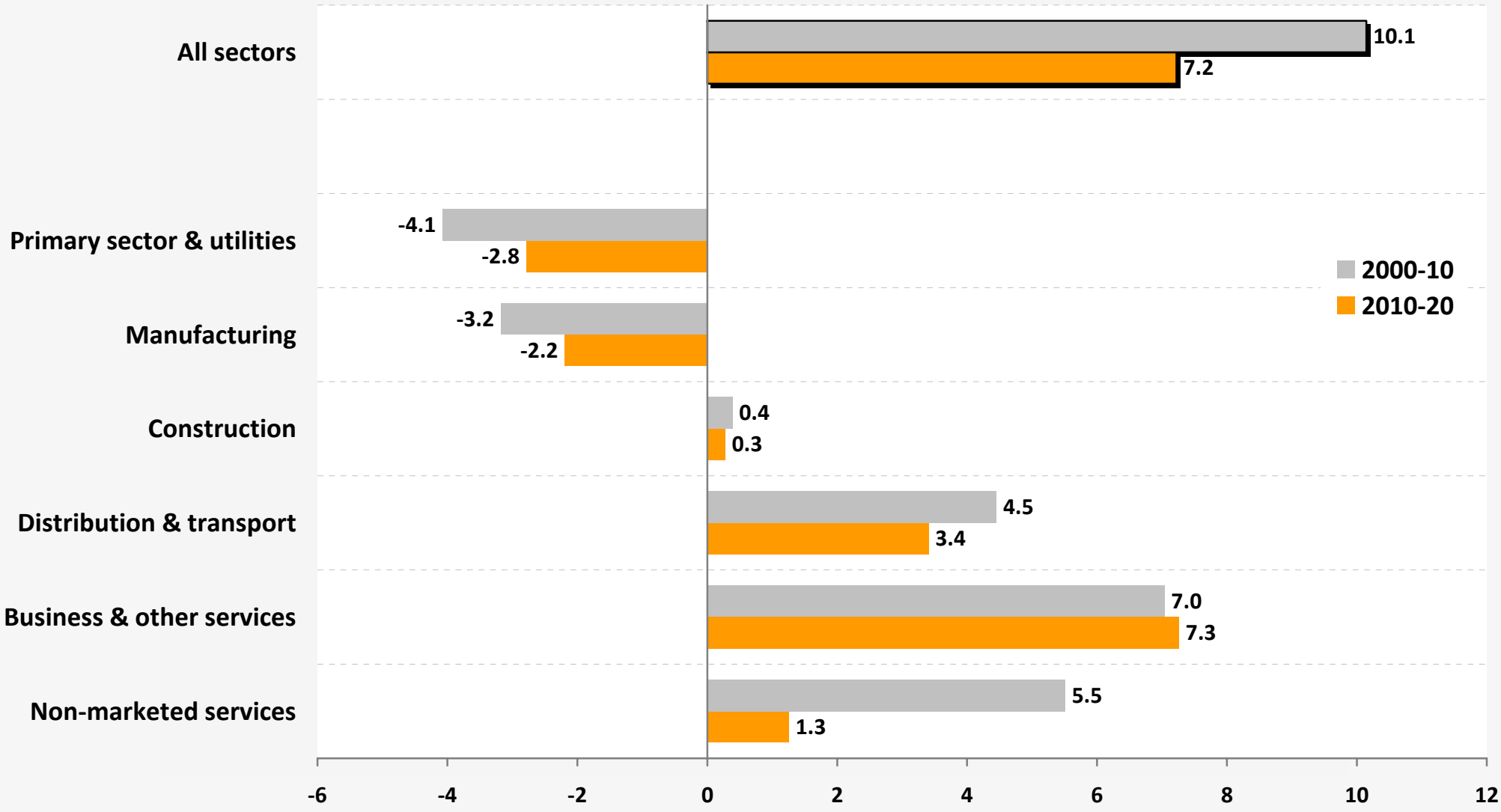
(EU27 + Norway and Switzerland)



Source: Cedefop 2010

Sectoral employment change 2000 - 2020

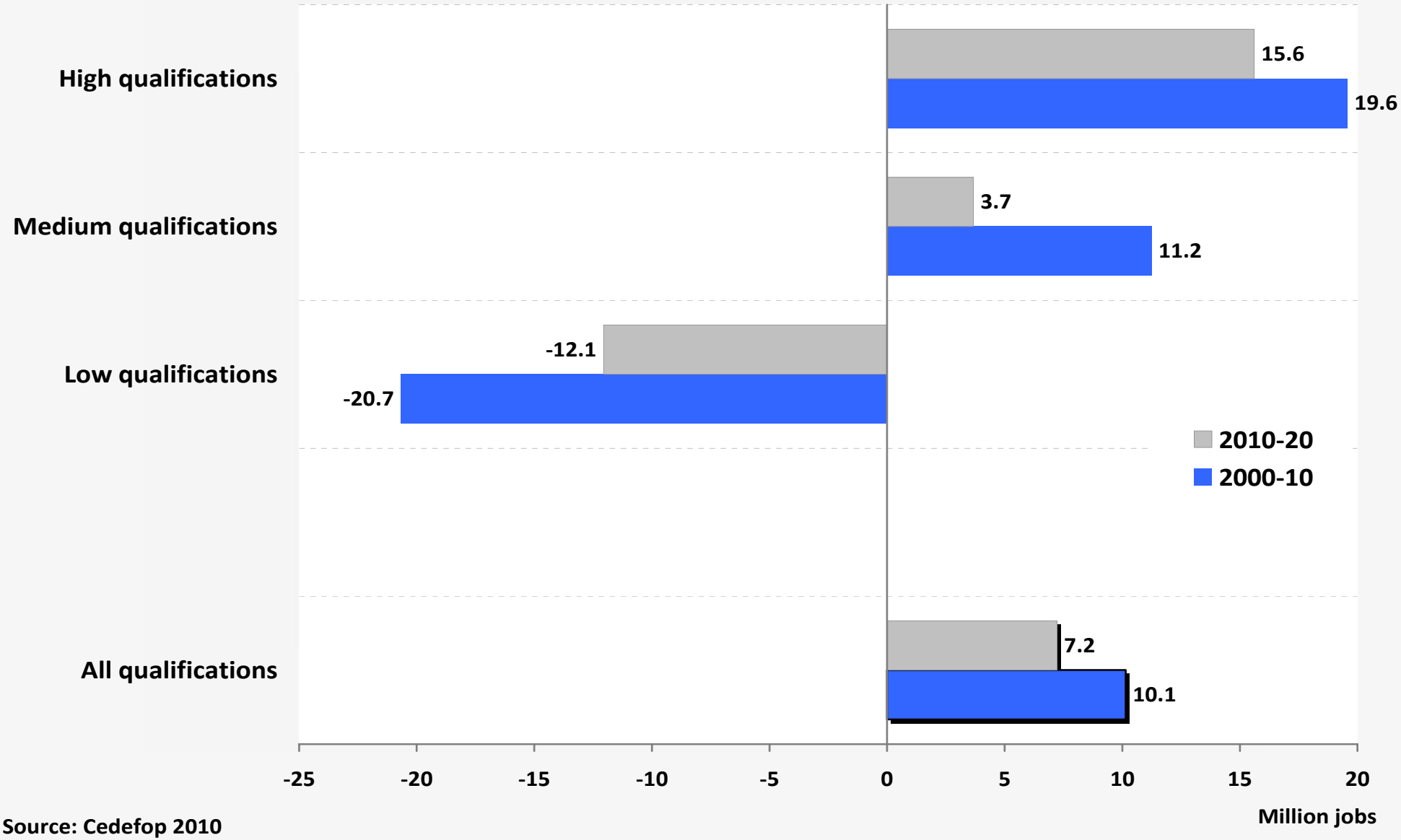
(EU27 + Norway and Switzerland)



Source: Cedefop 2010

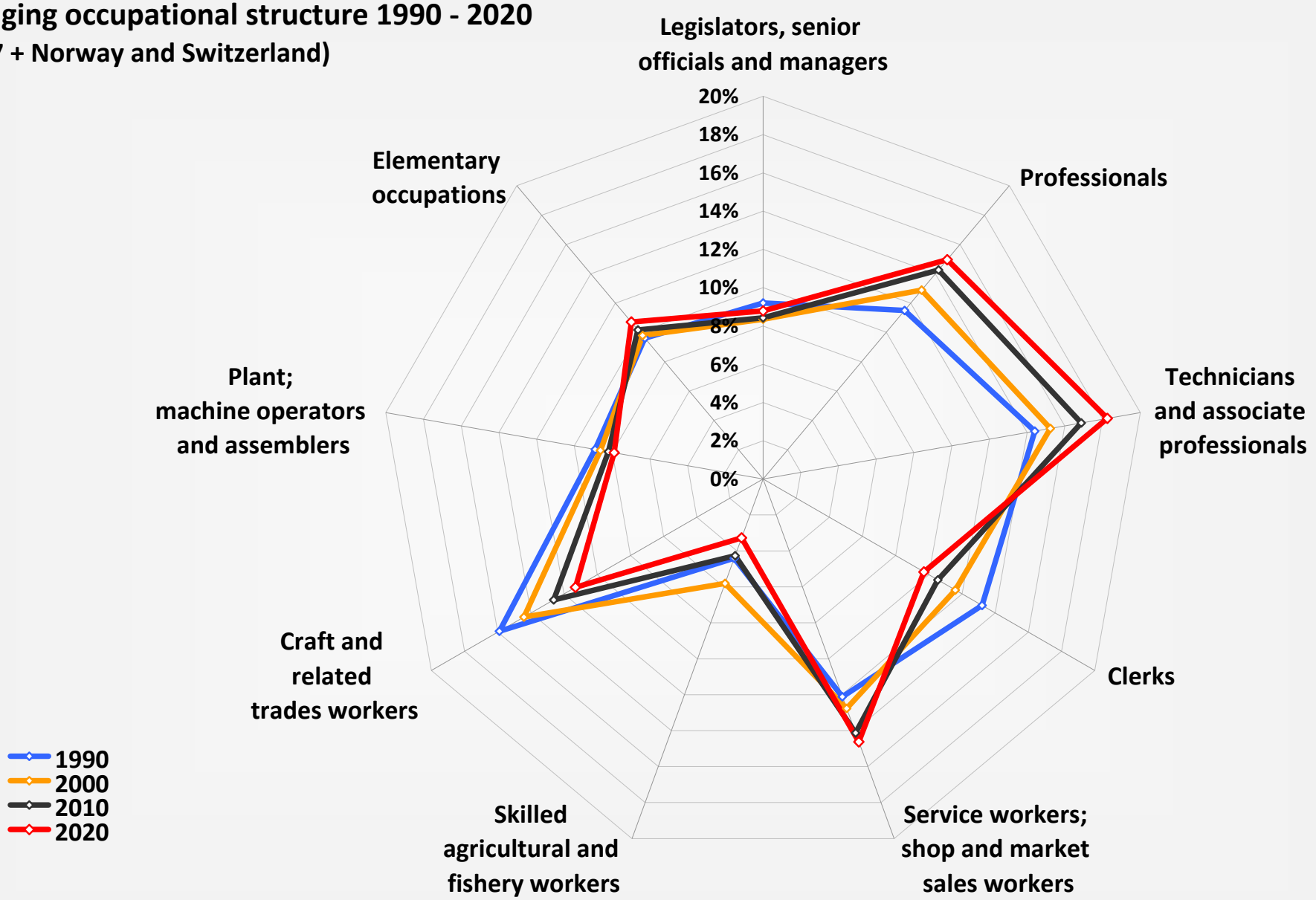
Demand for qualifications 2000 - 2020: net change of jobs

(EU27 + Norway and Switzerland)



Source: Cedefop 2010

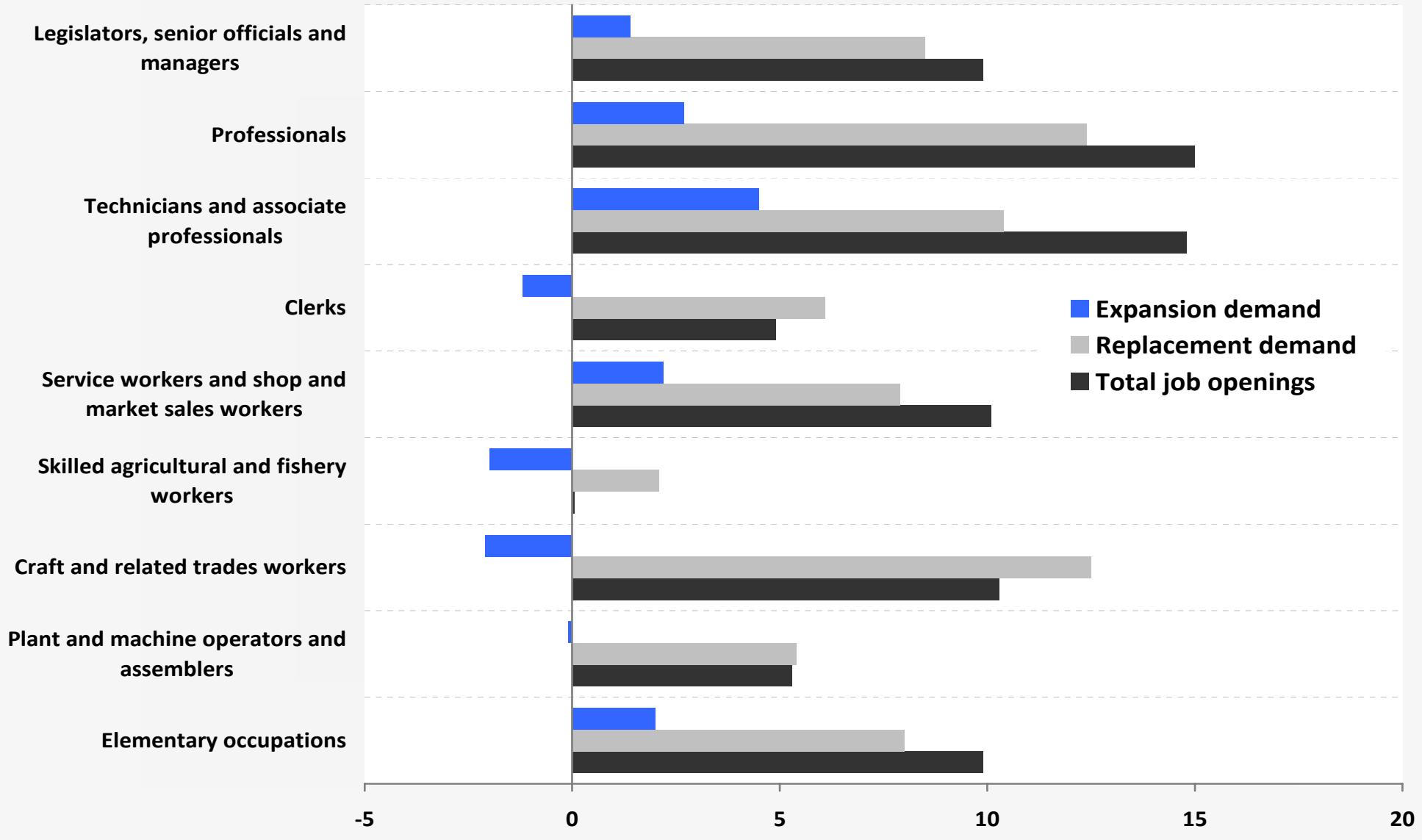
Changing occupational structure 1990 - 2020
(EU27 + Norway and Switzerland)



Source: Cedefop 2010

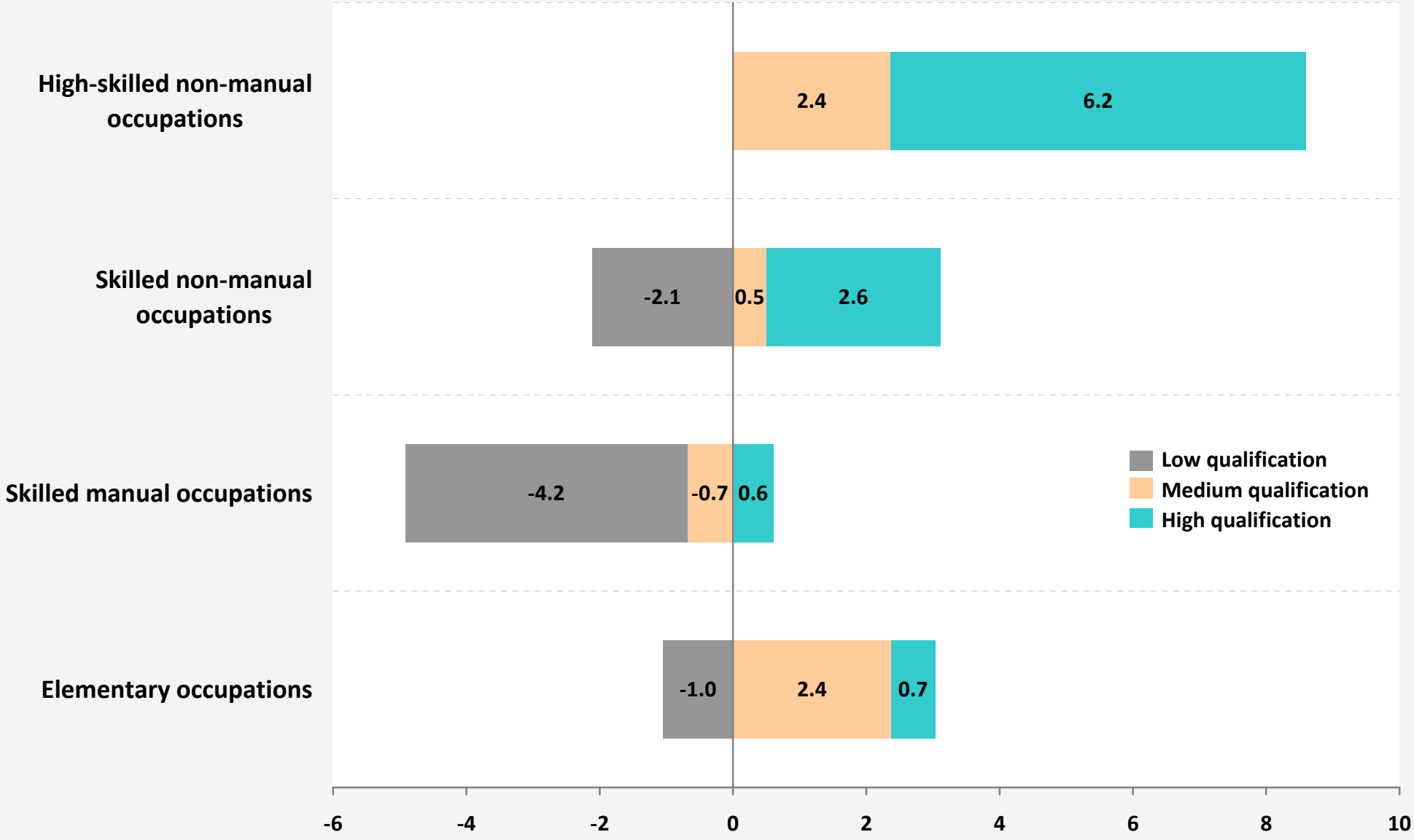
Job opportunities 2010 - 2020: change of jobs by occupational groups

(EU27 + Norway and Switzerland)



Source: Cedefop 2010

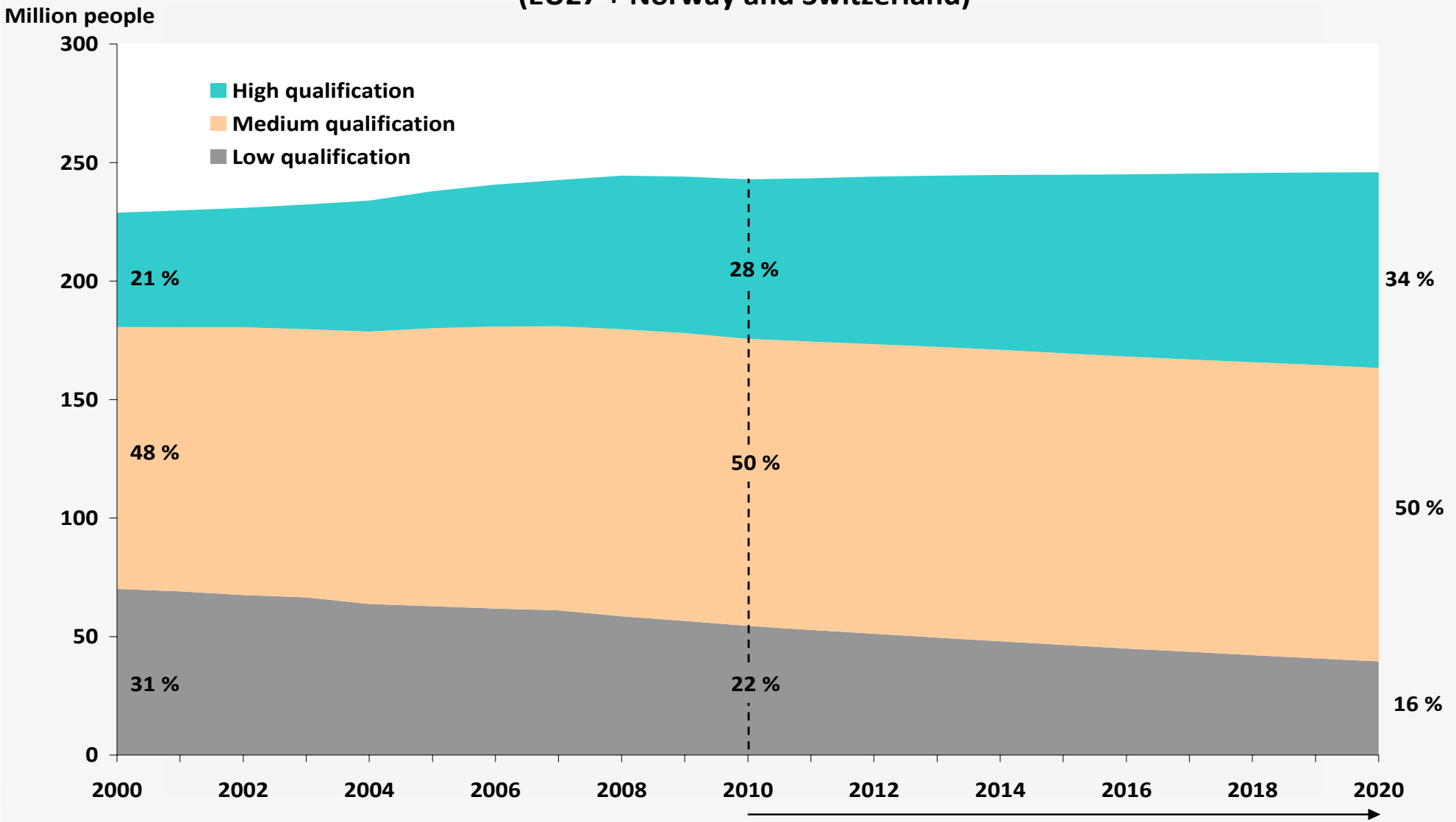
Net demand change by occupational groups and qualifications 2010 - 2020 (EU27 + Norway and Switzerland)



Source: Cedefop 2010

Supply trends 2000 - 2020: Labour force by qualification

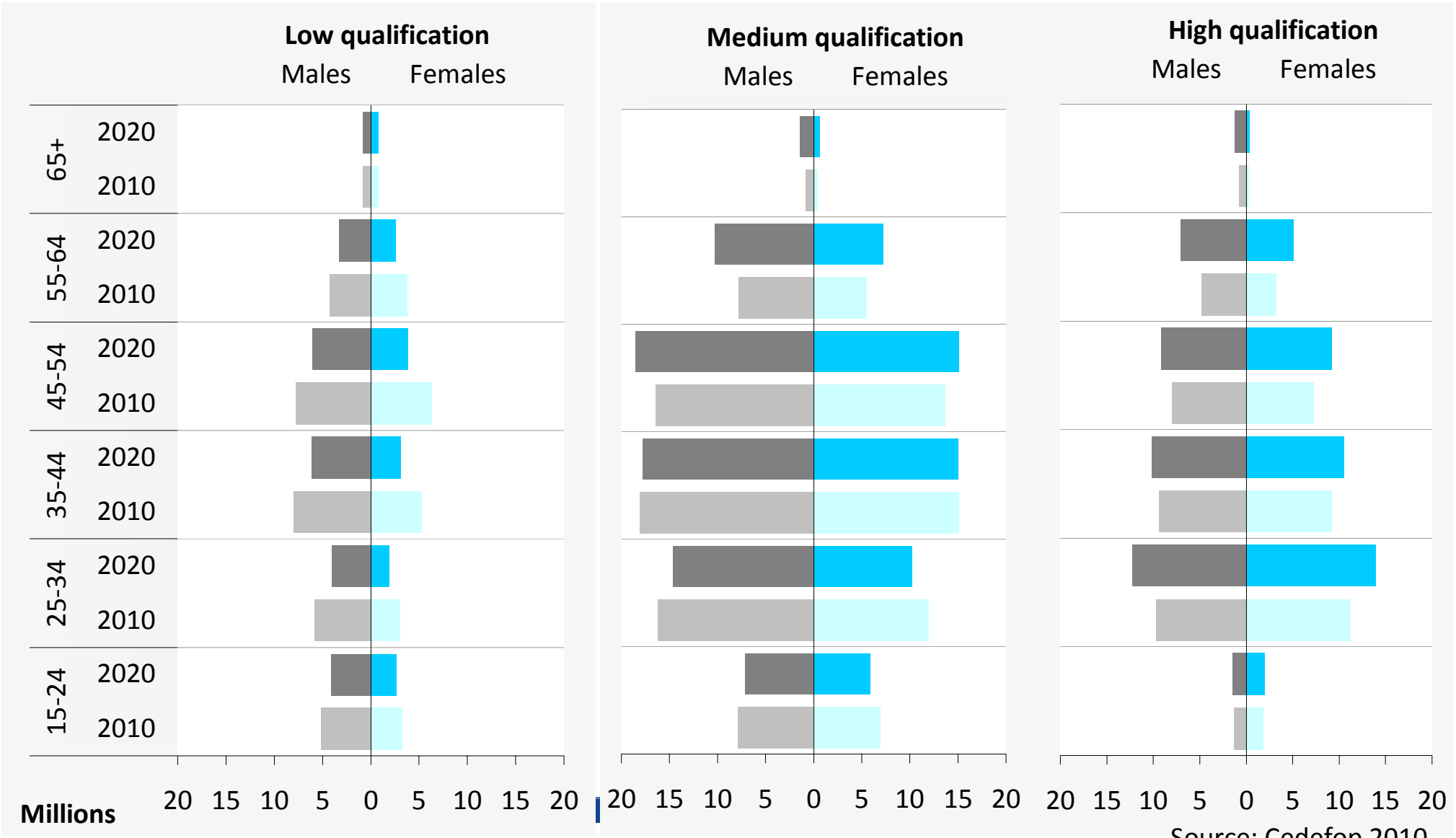
(EU27 + Norway and Switzerland)



Source: Cedefop 2010

NB: Labour force aged 15 years and older

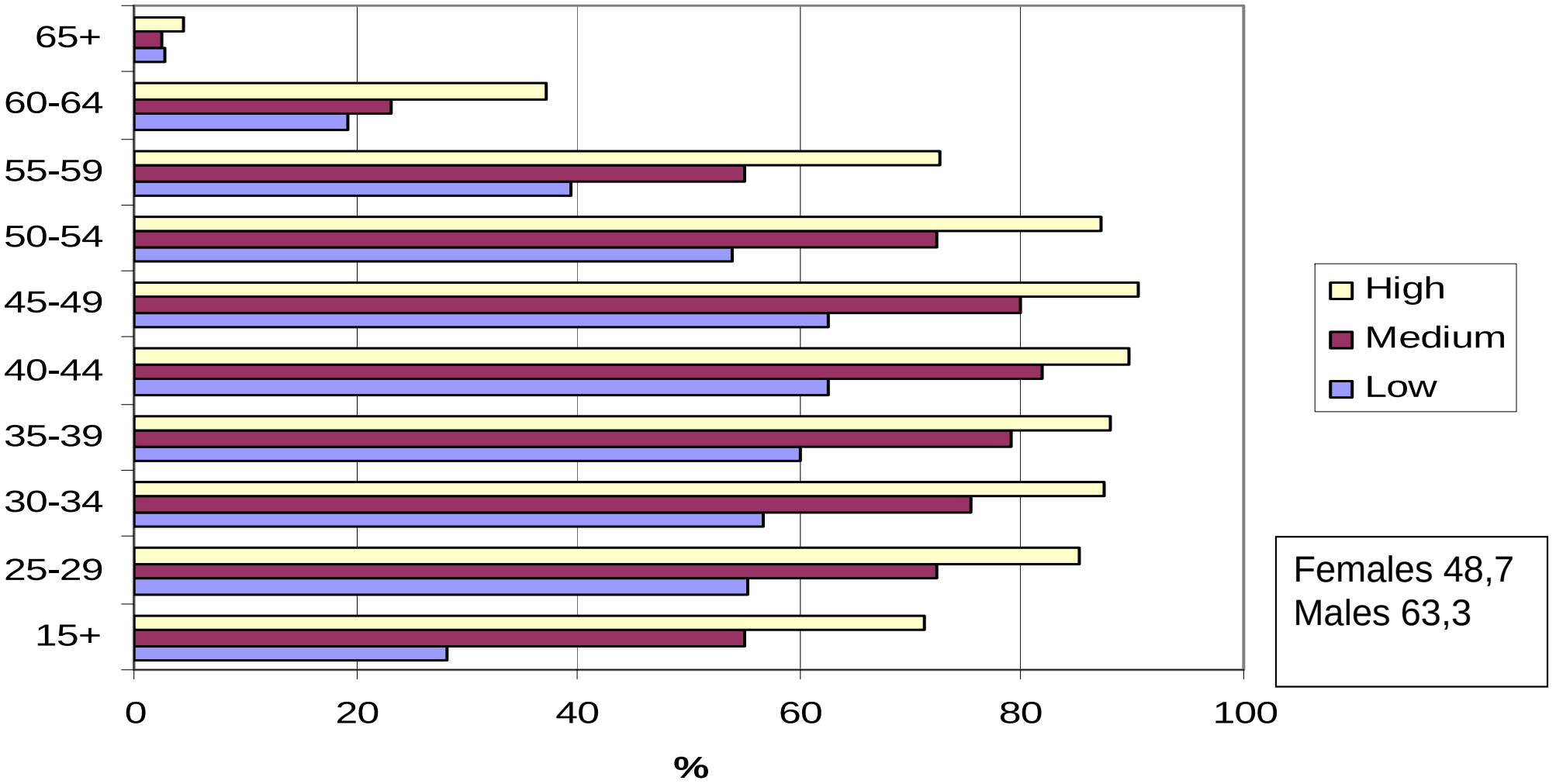
Labour force 2010 and 2020 by age, gender and qualification (EU27 + Norway and Switzerland)



Source: Cedefop 2010

Activity rates

by age group and qualification, females, EU-27+Norway and Switzerland in 2010 (e)



Source: Cedefop 2010

Green jobs measurement

- How do we measure green jobs?
  - UNEP, OECD/Eurostat (EGSS)
- What methodology to use for employment calculation?
  - Direct, indirect, induced
  - Multireg, Astra, Nemesis, Green-X, POLES, PACE, E3ME, PRIMES, GAINS, GEM-E3
- What can we say about job quality and social dimension?

Skills for green jobs

- Identify strategic skill development responses in six EU Member States

  Cedefop: DK, EE, FR, DE, ES and UK; ILO: Australia, Bangladesh, Brazil, China, Costa Rica, Egypt, India, Indonesia, South Korea, Mali, the Phillippines, South Africa, Thailand, Uganda and the USA
- Challenges, policies and strategies
- Methods, tools, systems and institutional frameworks
- Skill response on education and training – case studies
  - (re)training needs,
  - *new* green-collar occupations,
  - new types of skills, (greening of existing occupations).

Main activities relevant to the green economy

Clean Energy

Power Generation
- Solar
- Wind
- Clean coal (sequestration, infrastructure)
- Other clean power generation (Geothermal, hydro, biomass, wave / tidal, methane capture, nuclear)

Cleantech Infrastructure
- Infrastructure management
- Supply chain management

Power Storage Technology
- Battery technology and fuel cells

Transport & Sustainable Biofuels
- Low carbon transportation
- Bio-diesel, ethanol

Environmental Resource Management

Water
- Desalination / purification
- Wastewater treatment
- Distribution and management
- Water efficiency

Agriculture
- Irrigation innovation
- Clean pesticides
- Consumer food purity
- Seeds
- Timberland and Forestry
- Organic

Waste Management
- Recycling
- Toxin management
- Energy from waste
- Land remediation

Land management & Protection
- Land conservation
- Environmental restoration
- Sea defences
- Carbon sequestration

Energy & Material Efficiency

Advanced Materials
- Advanced coatings
- Lightweight substitutes
- Solvents and biodegradables

Building Efficiency
- Building management including green data centre management
- Heating & cooling systems
- Lighting systems
- Insulation
- Micro generation / micro CHP

Power Grid Efficiency
- Transmission (including smart grids)
- Smart metering
- Storage
- Infrastructure

Materials management
- Recycling
- De-materialization
- Durability and reparability of products

Environmental Services

Manufacturing Services
- Pollution control
- Energy and material efficiency
- Clean production techniques
- Integrated systems

Business Services
- Insurance
- Logistics inc. transportation
- Green focused banking
- Microfinance
- Consultancy/advisory
- Intellectual property
- Weather

Retail Services
- Green product and services
- Labelling
- Communication
- Low carbon services

Cleaner production & diversification

Energy intensive
- Extractive industries
- Steel
- Cement
- Bricks
- Pulp & Paper
- Speciality chemicals
- Petrochemicals
- Ceramics

Manufacturing
- Food & Drink
- Automotive
- White goods
- Furniture
- Electronics
- Textiles

Engineering
- Metal finishing

Emerging skill needs

MS	Sector	Occupation
EE	Construction	Energy auditor of buildings
	Waste Management	Oil shale waste remediation specialists
ES	Automotive	Automotive technicians
	Renewable energy	Solar energy entrepreneurs
	Renewable energy	Wind plant technicians
DE	Renewable energy	Solar energy technicians
	Waste management	Recycling and waste management technicians
	Construction	Plant mechanics for sanitary, heating and air conditioning systems
UK	Energy and utilities	Smart meter experts
	Wind, wave and tidal	Project managers and electrical engineers
	Financial services	Carbon emissions traders
	Automotive	Technicians; manufacturers
FR	Construction Agriculture	Plumbers, boiler installers, masons (other occupations involved in retrofitting)
	Waste management	Waste recycling operators
DK	Construction	Architects, designers, manufacturers of green building components and systems
	Renewable energy	Wind turbine operators

Skills response strategies

- Current education & training systems can reflect and adapt (e.g. training for automotive workers for electric cars)
- Need is largely for up-skilling of existing occupations (few new occupations)
- Responses are required where
  - timescales of responses by existing systems is likely to be too slow (e.g. negotiation of new qualifications) AND/OR
  - rapid growth in demand creates shortfalls (e.g. RE managers, energy auditors)

Skills response strategies

- Underlying weaknesses in the provision of education and training of generic skills and competencies undermine more specific responses & initiatives
  - Leadership, Management, Communication
  - Science, technology, engineering and mathematics skills (esp. DK, UK)
- DE, DK and EE tend to rely more on established VET systems, embedding responses in formal VET
- ES, FR, UK tend to develop more broadly based initiatives, using public-private arrangements and with industry taking a more prominent role

Green Jobs: new opportunities or new risks for female employment?

The role of Industrial Relations and Social Dialogue Prospective

Giulia Rossi
International Doctoral Research School in Labour Relations, Adapt-Fondazione Marco Biagi, University of Modena and Reggio Emilia, Italy

Rome, 4 February 2010

Outline

- Climate change and labour market outcomes: some methodological tools
- Renewable energies (RES) support policies and labour market outcomes: some peculiarities
- Female employment and green economy: risks and opportunities
- Female employment and green economy: the Social Dialogue perspective

Climate change and labour market outcomes: some methodological tools

Climate change and economic growth: a controversial relationship

- Since the Industrial Revolution emissions of greenhouse gases (GHGs) have increased more than proportionally in respect to the disposal capacity of the planet
- Pessimistic VS. Optimistic Perspective
- Need to replace the traditional model of development with a new model less dependent on carbon compounds. It will mean changes in the production systems, and consequently on employment.

Climate change and labour market outcomes: some methodological tools (2)

An important concern in the political and academic debate is the impact of climate change policy on employment.

Following Fankauser et al. (2008) we should think to the employment impact of climate policy in three stages:

- *A short-term effect* (direct employment effect)
- *A medium-term effect* (economy-wide effect)
- *A long-term effect* (dynamic effect)

Climate change and labour market outcomes: some methodological tools (3)

The nature of job created may differ from the nature of jobs lost and this will impact on labour productivity and pay.

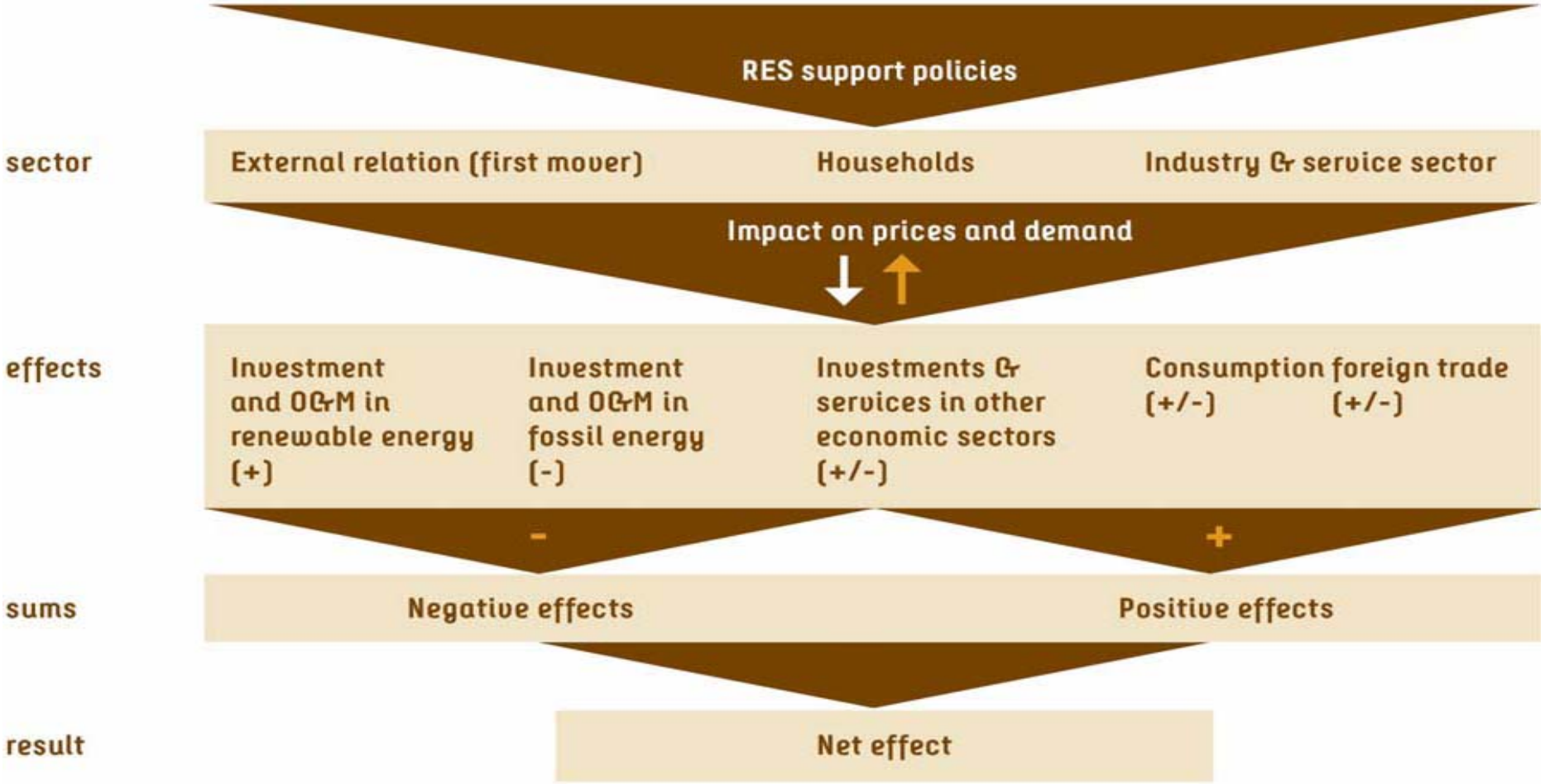
For this reason, according to OECD (2004), we should take into account:

- Positive and negative employment effects
- Direct and indirect employment effects
- Temporary and sustainable employment effects
- Part-time and full-time jobs
- Newly created and maintained jobs

RES support policies and labour market outcomes: some peculiarities

The impact of RES support policies on employment has to account for some economic mechanisms which induce adjustment reactions and consequential effects.

- Price and costs effects: impact of price (energy costs) on industry and households.
- Structural demand effects: impact of demand on industry, household, trade.
- Multiplier and accelerator effects: impact of households and industry behaviour on other economic sectors
- Innovation/productivity effects: impact of innovation or productivity on industry and households.



Note: O&M = Operation and Maintenance

RES support policies and labour market outcomes: some peculiarities (3)

The final impact of RES support policies on employment will depend from some specifics of RES technologies and support schemes. In general, RES support schemes set off different adjustment reactions among firms and private households which are then felt as structural effects on a sectoral and regional levels.

RES support policies and labour market outcomes: some peculiarities (4)

The sum of these adjustment reactions and their consequential effects will result in changed macroeconomic variables which will affect employment levels and composition.

Source: EmployRES, *The impact of renewable energy policy on economic growth and employment in the European Union*, April 2009

► We can not say in advance if the net impact of a RES support policy on employment will be positive or negative.

Female employment and green economy

"If green economy initiatives do not take into account relevant social factors, such as income equality, job quality and gender equality, they may maintain or even aggravate, the negative social and distributive trends of the traditional economy" (Sustainlabour, 2009).

Female employment and green economy: risks

1. Increase in the occupational gender-segregation

- Most of green jobs are expected to be in the secondary sectors of construction, manufacturing and energy production, where women are significantly under-represented (e.g. according to a survey conducted by I.Blanco e G.Rodrigues in 2008 around 1100 wind energy organizations in 30 countries, 78% of wind energy employment were males).
- Also in those sectors where there is an high incidence of women workers (e.g. services), men dominate the better paid positions, such as engeneering, financial and business services where most tertiary green positions are likely to be created.
- Certain working arrangements, related to RES technologies, may not match with specific gender-related needs (e.g. shift-work is very common for photovoltaics cells manufacturing)

Female employment and green economy: risks (2)

2. Increase in the gender pay-gap

- In almost all European Countries the gender wage gap is increasing across the wage distribution.
- The Advisory Committee on Equal Opportunities for Women and Men has identified five types of causes of the gender pay gap in Europe:
  - The undervaluing of women's work
  - Horizontally and vertically segregated labour market
  - Wage structure
  - Reconciliation of work and family life
  - Traditions and stereotypes

Female employment and green economy: risks (3)

3. Occupational Health and Safety issues

- Some new risks may be related to new working positions or new working arrangements.
- Occupational Health and Safety challenges vary across the different stages of the supply chain.
- Implications of occupational exposure to some technologies (e.g. nanotechnologies) is an issue at stake in the international debate.

Female employment and green economy: opportunities

1. Increase female participation in Non-Traditional Occupations

- Theoretically women can perform all categories of green jobs in the primary, secondary and tertiary sectors of the economy. Technological progress has reduced the need for greater physical strenght and it means that green economy can be an opportunity to increase female participation through better-paid, non-traditional jobs

2. Creation of new and better opportunities in other female-dominated sectors

- Greening the economy also means creating new opportunities in those female-dominated sectors, especially in developing countries (e.g. informal agricolture, forestry or eco-system restoration)

Female employment and green economy: opportunities (2)

3. Reduction of health and safety risks

- In both green and non-green sectors, this process could reduce occupational health and safety hazards, providing greater female access to a wider range of jobs.
- *"Gender dimension of climate change"*: gender roles and relations shape vulnerability and people's capacity to adapt to climate change (Intergovernmental Panel on Climate Change, *Fourth Assessment Report*, 2007) → just as women and men are vulnerable in different ways to the consequences of climate change, their view regarding the risks associated with climate change also vary.

Female employment and green economy: the social dialogue perspective

The overarching objective of social dialogue is to assure participation of trade unions and employers' organizations in the elaboration and monitoring of RES support policies' implementation with regard to its impact on competitiveness, employment opportunities and social cohesion.

Female employment and green economy: the social dialogue perspective (2)

In particular, it should be carried on through a gender mainstreaming approach in relation to:

1. Gender-segregated labour markets.

- Female access in green sectors should be encouraged (e.g. through anti-discriminatory laws and family-friendly measures)
- Female transition from other sectors into non-traditional jobs should be encouraged (e.g. through targeted schemes, quotas, targeted training initiatives)

- Exploring and promoting innovative forms of working arrangements

Female employment and green economy: the social dialogue perspective (3)

2. Gender pay-gap

- Transparency policies in relation to wage composition and structure should be encouraged. Information about earning possibilities are particularly relevant for persons being employed for the first time.
- Training courses on negotiation skills should be provided
- Collective bargaining practices should include a provision concerning the implementation of the principle of equal pay between gender
- Women positions within the social partnership structure, in particular in decision-making jobs should be strenghten. At the same it is relevant to review working representation structures in companies with a view to act more efficiently in favour of gender equality.

Female employment and green economy: the social dialogue perspective (4)

3. Occupational Health and Safety issues

- Training courses on health and safety risks related to specific working arrangements must be provided.
- Inclusion of new emerging risks related to the implementation of new energy technologies within the debate on Occupational Health and Safety Issues.

Thank you for your attention!

ISFOL
AREA PROGETTO AMBIENTE

Figure professionali innovative in riferimento a settori strategici per lo sviluppo sostenibile

Tendenze del mercato del lavoro ambientale

Offerta formativa ambientale

Spendibilità sul mdl di segmenti formativi ambientali (qualifiche, lauree, diplomi universitari, master)

Metodologie e modelli innovativi per la progettazione di attività formative ambientali in chiave sistemica (indicatori di qualità)

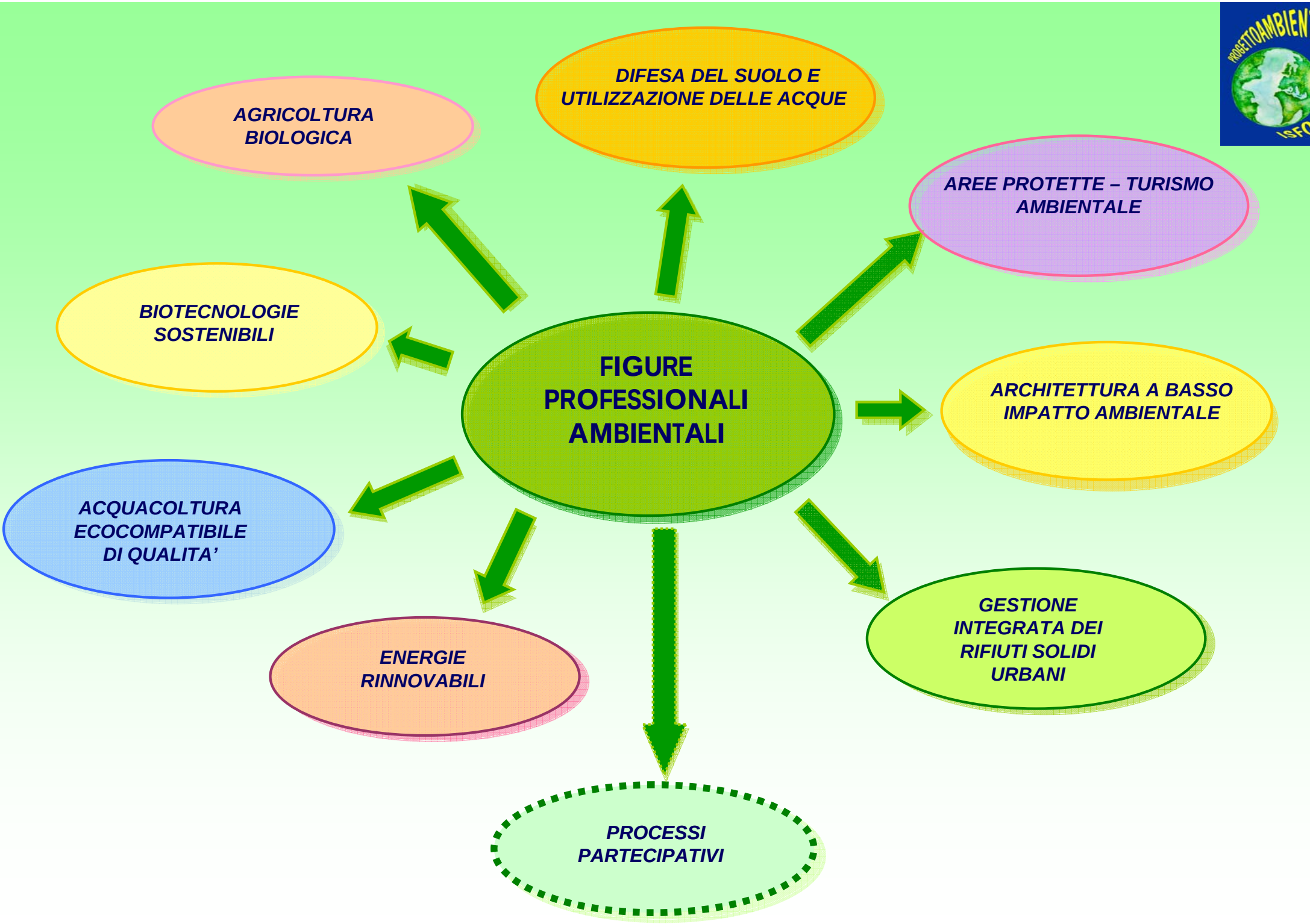


FIGURE PROFESSIONALI AMBIENTALI
DIFESA DEL SUOLO E UTILIZZAZIONE DELLE ACQUE
AGRICOLTURA BIOLOGICA
AREE PROTETTE – TURISMO AMBIENTALE
BIOTECNOLOGIE SOSTENIBILI
ARCHITETTURA A BASSO IMPATTO AMBIENTALE
ACQUACOLTURA ECOCOMPATIBILE DI QUALITA'
GESTIONE INTEGRATA DEI RIFIUTI SOLIDI URBANI
ENERGIE RINNOVABILI
PROCESSI PARTECIPATIVI

ISFOL
AREA PROGETTO AMBIENTE

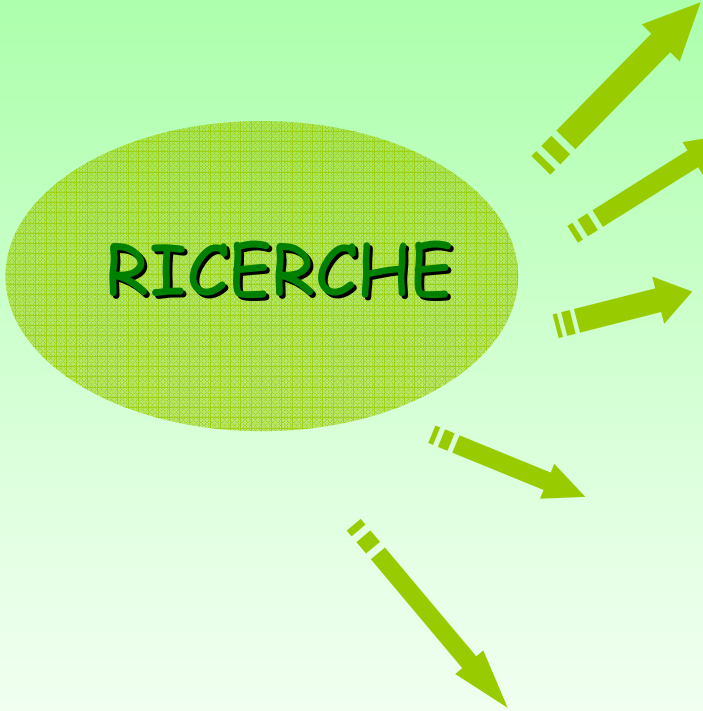


Figure professionali innovative in riferimento a settori strategici per lo sviluppo sostenibile

Tendenze del mdl ambientale (dati ISTAT)

Offerta formativa ambientale

Spendibilità sul mdl di segmenti formativi ambientali (qualifiche, lauree, diplomi universitari, master)

Metodologie e modelli innovativi per la progettazione di attività formative ambientali in chiave sistemica (indicatori di qualità)

IMPATTO DELLA FORMAZIONE AMBIENTALE SUL MERCATO DEL LAVORO

- Le professioni ambientali si inseriscono nel mercato del lavoro?
- In quali spazi di mercato?
- Con quali caratteristiche e modalità di presenza?

IMPATTO DELLA FORMAZIONE AMBIENTALE SUL MERCATO DEL LAVORO

ASPETTI OGGETTIVI

Iter formativo e lavorativo

Condizione rispetto al mercato del lavoro (occupato, disoccupato, in cerca di prima occupazione)

Corrispondenza tra formazione acquisita e occupazione conseguita

ASPETTI SOGGETTIVI

Atteggiamenti e comportamenti

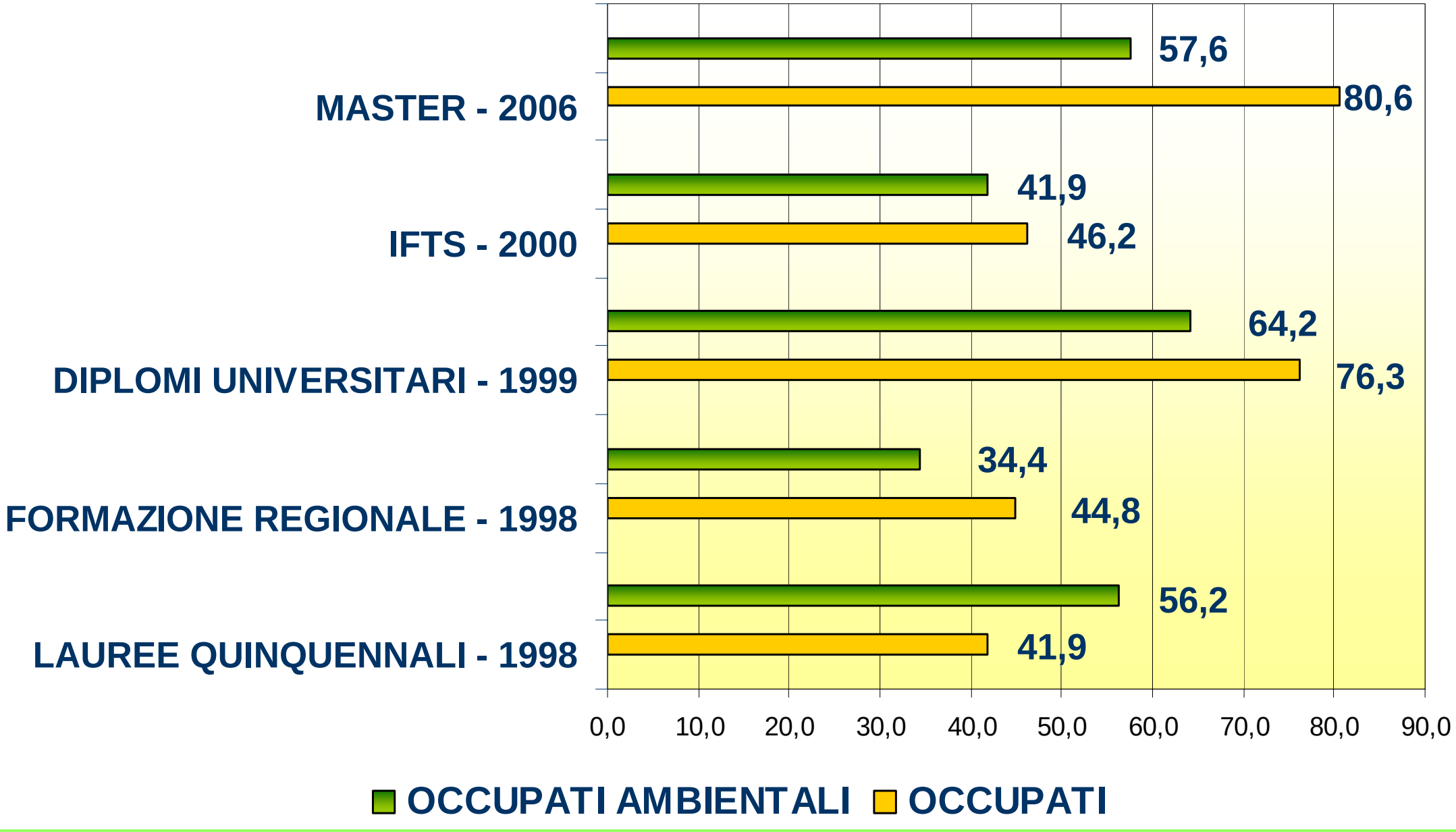
Aspettative e desideri

Strategie e progetti per il futuro

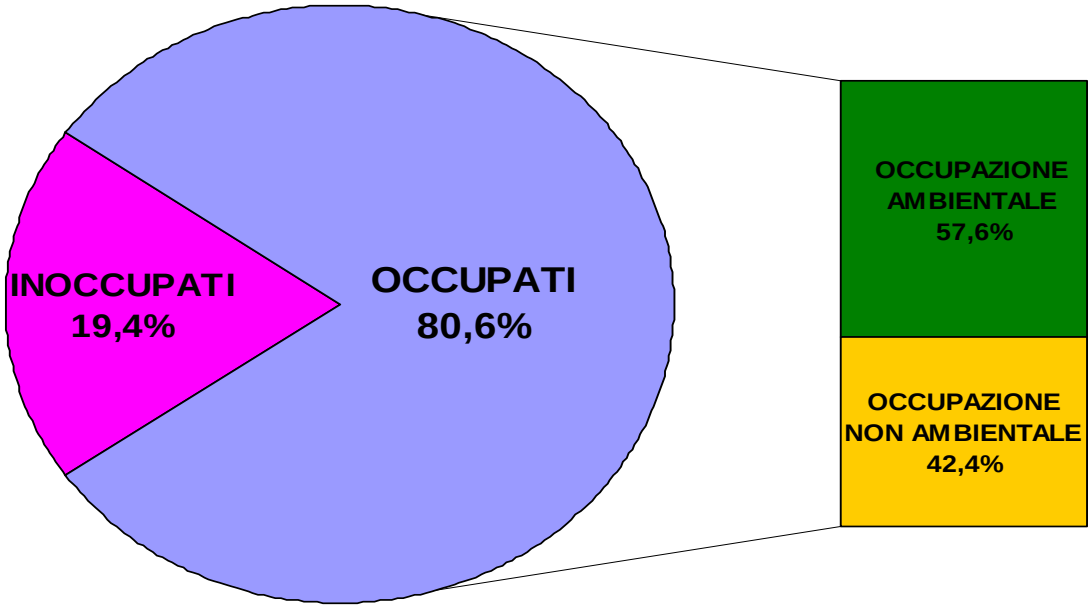
Le scelte formative e lavorative e i cambiamenti indotti dalle tematiche della sostenibilità

- **Utilizzo di una metodologia unitaria (lauree, diplomi universitari, qualifiche, master)**
- **Intervista ad un anno dal conseguimento del titolo di studio**
- **Rappresentatività a livello nazionale e circoscrizionale**

IMPATTO DELLA FORMAZIONE AMBIENTALE SUL MERCATO DEL LAVORO



MASTER AMBIENTALI

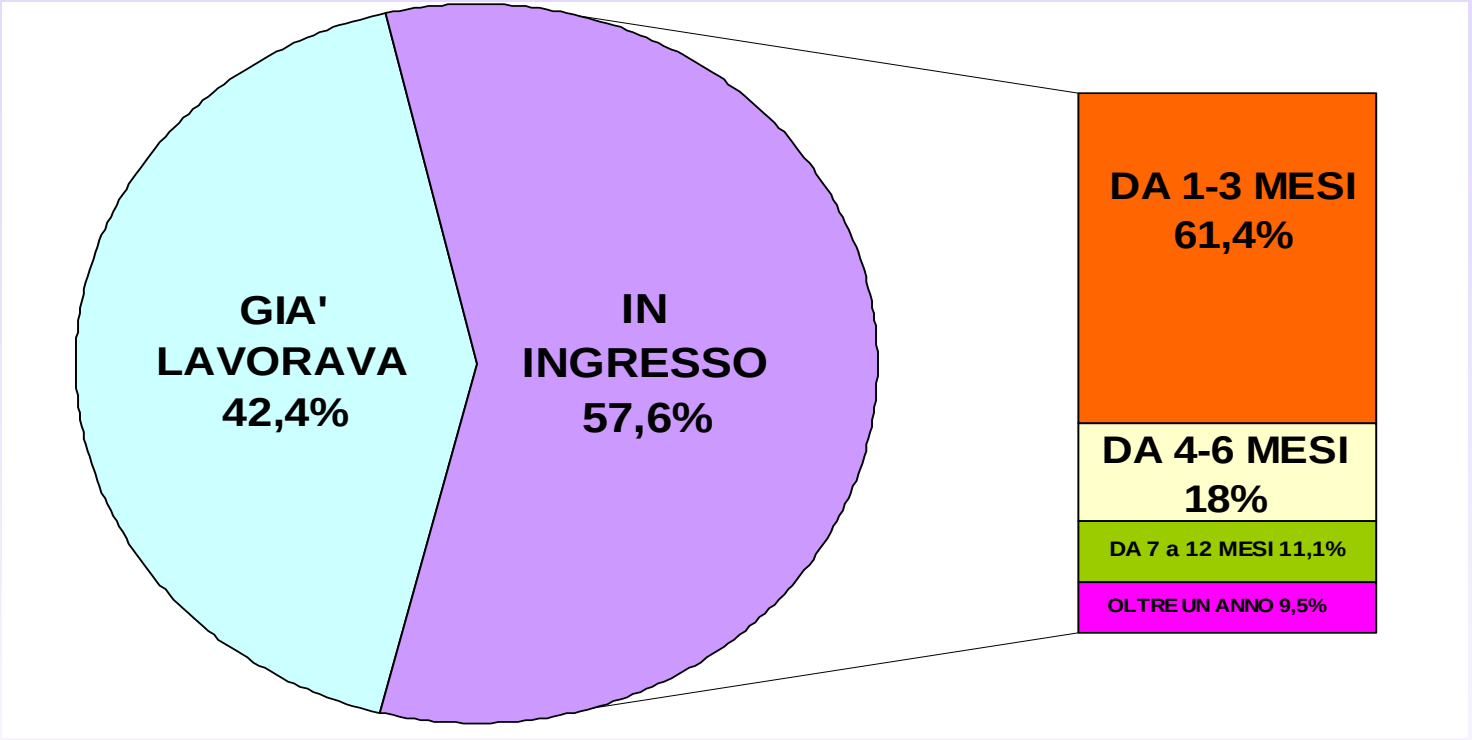


	OCC.	OCC. AMB.
M	83,3 %	61,0 %
F	77,2 %	53,8 %

TIPOLOGIA	
Master I livello	75,6 %
Master II livello	85,0 %
Alta formazione	83,3 %
Master privati	81,0 %

AREA TEMATICA	
Disinq. risparmio, controllo	86,1 %
Conserv. tutela, valorizzazione	78,7 %
Agricoltura ecocompatibile	63,6 %

TEMPI E MODALITA' DI INSERIMENTO



	M	F
DA 1-3 MESI	62,3 %	60,4%
DA 4-6 MESI	20,4%	15,4%
DA 7 a 12 MESI	10,2%	12,1%
OLTRE UN ANNO	7,1%	12,1%

Concorso pubblico	20,1 %
Rete amicale - parentale	19,2 %
Prosecuzione stage/tirocinio	19,2 %
Domanda di assunzione	12,8 %

CARATTERISTICHE OCCUPAZIONE

CARATTERE OCCUPAZIONE

	Tot.	M	F
❑ Tempo indeterminato	22,6	27,9	16,7
❑ Lavoro autonomo	22,9	25,6	19,9
❑ Tempo determinato	24,4	20,9	28,2
❑ Co.co.co / prest. prof.	19,8	16,3	23,7

PROFESSIONE

	Tot.	M	F
❑ Prof. intell. scientif. elevata specializ.	31,1	30,8	31,4
❑ Legislatori, dirigenti e imprenditori	5,2	6,4	3,8
❑ Professioni intermedie (tecnici)	31,7	35,5	27,6
	68,0	72,7	62,8

REDDITO	Tot.	M	F
meno di 1.000 euro	32,0	22,1	43,0
1.000 – 1-500 euro	28,4	29,1	27,6
1.500 – 2.000 euro	11,6	16,3	6,4
2.000 – 3.000 euro	4,5	5,2	3,8
Non indicato	23,5	27,3	19,2

COERENZA LAVORO - FORMAZIONE	Tot.	M	F
molto e abbastanza	67,6	70,3	64,7

GRADO SODDISFAZIONE DEL LAVORO	88,1 %
Occupati settori ambientali	91,5 %
Occupati settori non ambientali	83,4 %

SODDISFAZIONE LAVORO AMBIENTALE	Tot.	M	F
Molto	50,8	48,6	53,6
Abbastanza	40,7	43,8	36,9
Poco	5,8	4,8	7,1
Niente	2,6	2,9	2,4

FIGURE PROFESSIONALI

- **Manager del governo del territorio**

  Opera in connessione con la pianificazione del territorio e delle infrastrutture, svolge una funzione di promozione, coordinamento e controllo

- **Manager esperto nella programmazione energetico-ambientale-territoriale**

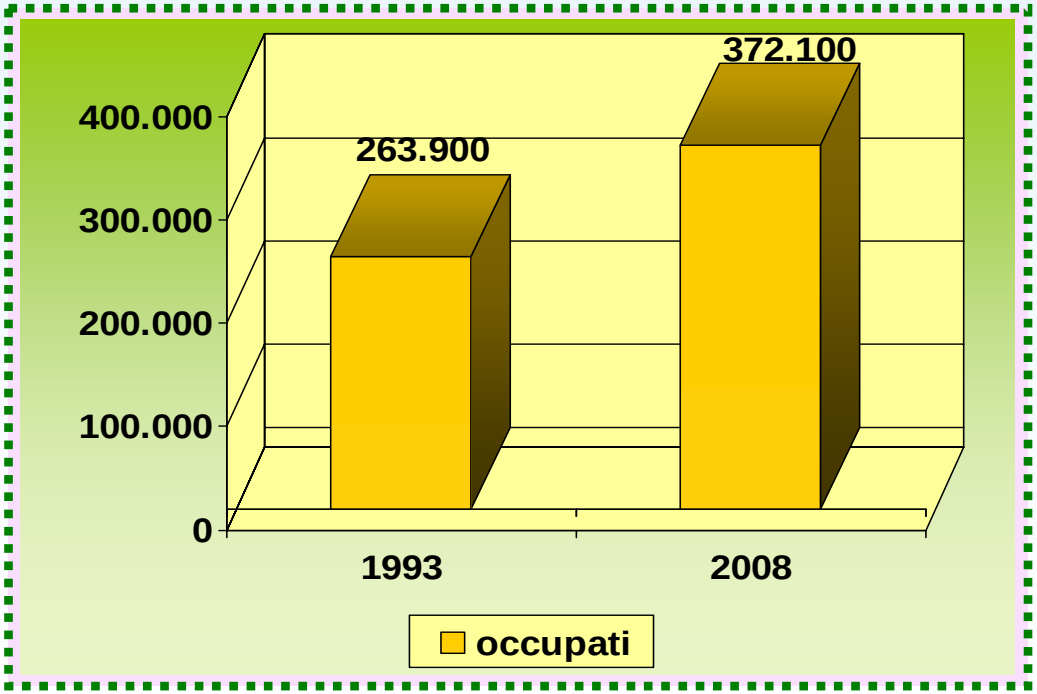
  Programma, coordina e gestisce gli interventi relativi all'utilizzo di energie rinnovabili nel territorio e alle relative infrastrutture

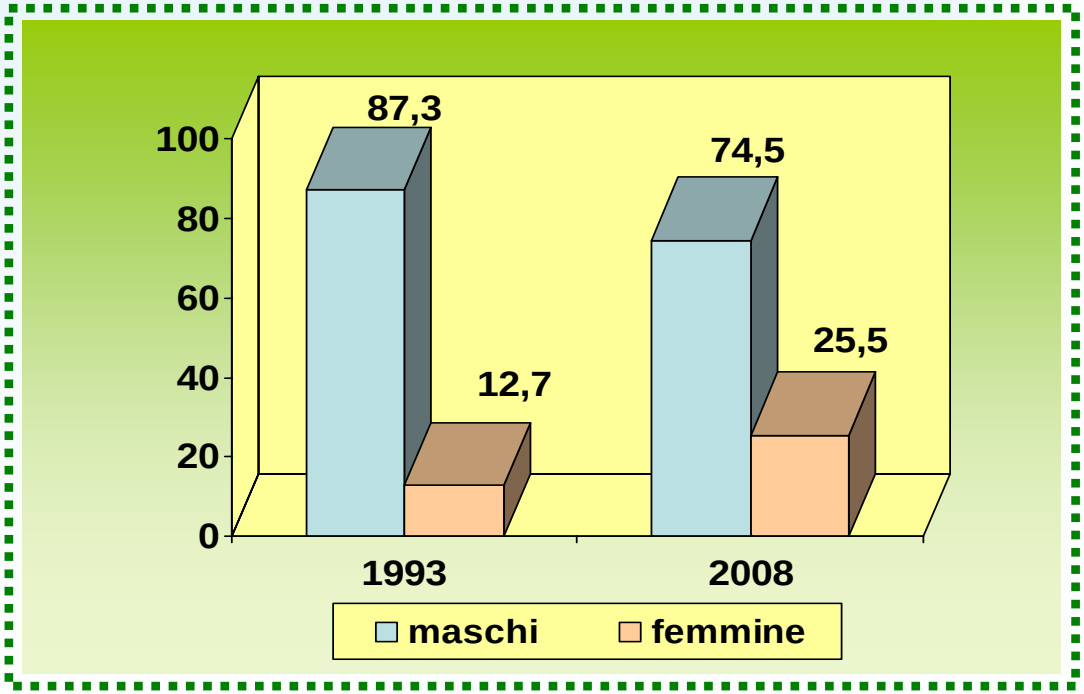
- **Esperto di progettazione di sistemi di energie rinnovabili**

  Gestisce e coordina la progettazione di diversi sistemi di energie rinnovabili, intervenendo sulla distribuzione delle energie in un determinato territorio e sulla loro composizione/combinazione.

TENDENZE DEL MERCATO DEL LAVORO AMBIENTALE

- Analisi dei dati sulle forze di lavoro Istat dal 1993 al 2008
- Rilettura e reinterpretazione delle fonti statistiche con una diversa aggregazione delle professioni per l'ambiente
- Professioni ambientali o sono disseminate in ambiti non esclusivamente ambientali o compresse in una concezione di ambiente in chiave difensivistica





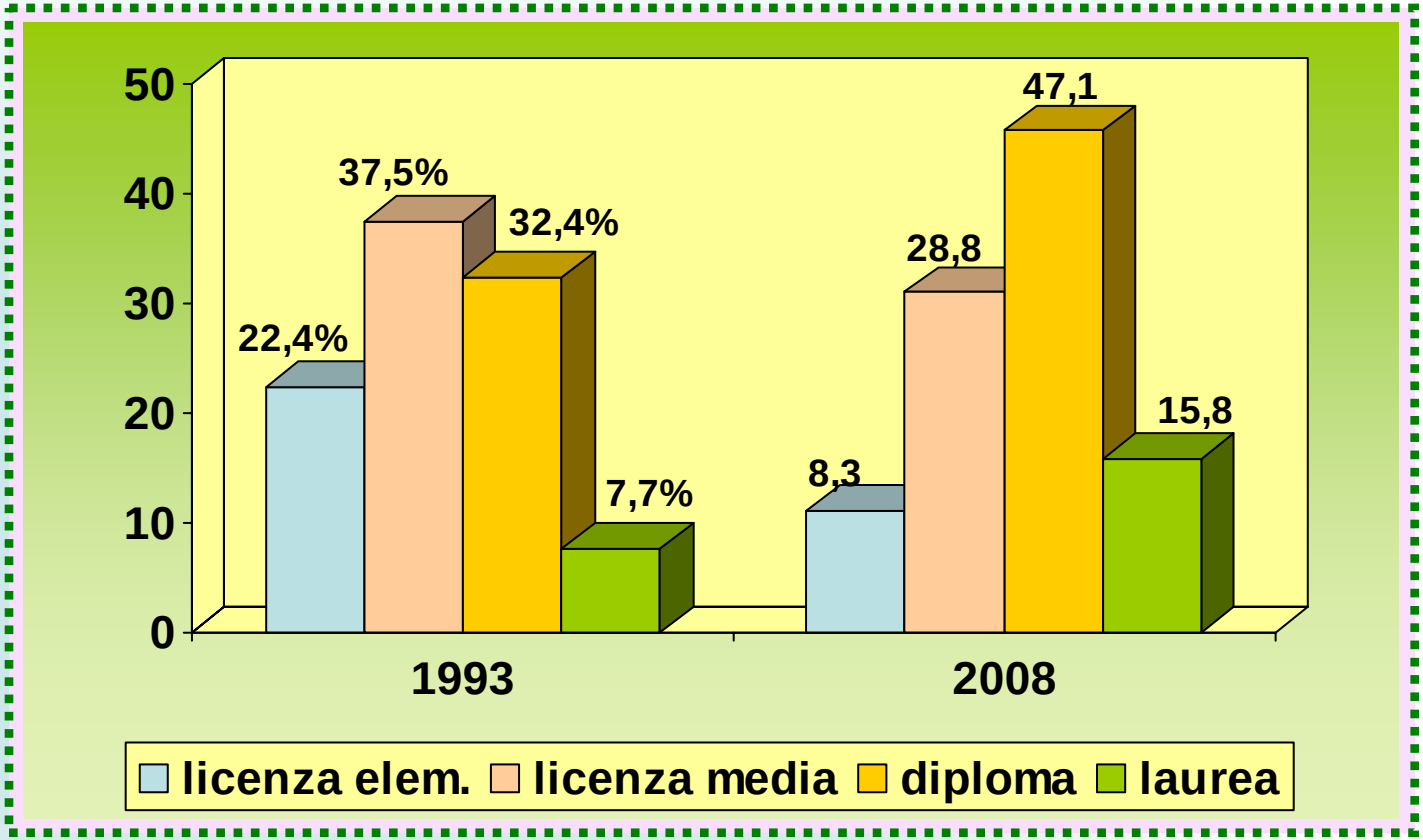
Occupati + 41%	Maschi + 20,4 %	Femmine + 181,8 %

TITOLO DI STUDIO

Spostamento verso l'alto del titolo di studio

I dati relativi al 2008 evidenziano un incremento degli occupati in possesso di un diploma e di una laurea (dal 40% nel 1993 al 63% nel 2008)

Aumenta lo scarto maschi-femmine rispetto al diploma e alla laurea a vantaggio delle donne (87,2% contro il 54,6%)



Connotazione medio-alta delle professioni ambientali in relazione alla necessità di acquisire saperi e competenze in grado di far fronte alla complessità delle tematiche ambientali

ASPETTI OCCUPAZIONALI

- Incremento delle professioni intermedie di tipo tecnico (14,1% nel 1993; 39,7% nel 2008)
  - Le donne sono inserite in posizioni medio-alte, in professioni intermedie e di elevata specializzazione (F 63,5%; M 32,2%)
  - 1/3 degli uomini è confinato in professioni che non richiedono specializzazione (F 11,3%)

- Diminuiscono le posizioni impiegatizie (41%; F 57,8%; M 35,3%), aumentano le posizioni direttive e i co.co.co, soprattutto per le donne (F 5,4%; M 1,7%)

- Circa il 73% degli occupati ha un lavoro a tempo indeterminato (80-84% fino al 2003), in costante aumento il lavoro a tempo determinato (dal 4,1 al 12,4%), soprattutto tra le donne (15,8%), ed il lavoro autonomo (14,1%; M 12,6% F 18,7%)

- Circa il 90% svolge un lavoro a tempo pieno (M 93,5; F 77,5%)

- Età media più elevata per la componente maschile che ha più di 45 anni nel 55% dei casi contro il 26% delle donne, affacciatesi da poco nel mondo dei servizi e delle tecnologie ambientali e decisamente più giovani (meno di 34 anni il 37% contro il 22% degli uomini)

- Le donne conseguono posizioni medio-alte (più degli uomini), coerenti con titolo di studio, ma sono più precarie; minore stabilità controbilanciata da svolgere lavoro più qualificato e rispondente ad aspettative e al percorso formativo

SETTORI DI INTERESSE AMBIENTALE

- **Interessanti aumenti nel settore del turismo e della difesa, controllo, disinquinamento**

- **Stabili o in contrazione il settore dei rifiuti e delle risorse agro-forestali**

Criticità :

❑ **Settore rifiuti: carenza di attività di pianificazione e coordinamento per una gestione integrata del ciclo dei rifiuti, arretratezza di alcuni settori produttivi non attenti a linee di produzione meno inquinanti, inadeguatezza di figure professionali**

❑ **Settore turismo: sottostimate le potenzialità del settore come sistema integrato di risorse naturali, produttive, storiche, archeologiche e culturali che potrebbero aprire spazi occupazionali sia nella gestione delle aree protette, marine e terrestri, che nella valorizzazione di forme produttive plurime di compatibilità ambientale.**

SETTORE ENERGETICO

- Crescita dell'occupazione tra il 1993 e il 2008 che passa da 5.300 a 14.200 occupati
- Le attività svolte, riferite prevalentemente alla realizzazione e manutenzione degli impianti, sono riconducibili a professioni di livello intermedio di tipo tecnico (19%) e di tipo operativo (81%)
- Nonostante i recenti sviluppi, permangono ritardi, inadeguatezze e sottodimensionamento del settore energetico rispetto ad altri paesi europei, in riferimento alle rinnovabili, all'efficienza energetica e risparmio energetico (trasporti e bioarchitettura). Campi di nuova economia in grado di aprire nuovi e interessanti spazi occupazionali

Forte incremento di percorsi formativi

OFFERTA FORMATIVA AMBIENTALE

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Formazione	**1.562**	**1.066**	**1.408**	**1.270**	**1.378**	**1.290**	**877***	**1.129**
Energia v.a.					99	143	137	238
Energia %					7,2	11,1	15,6	21,1
Università	**503**	**455**	**565**	**670**	**743**	**786**	**781**	**696**
Master	**165**	**177**	**222**	**236**	**176**	**217**	**275**	**208**
Energia v.a.					9	20	19	30
Energia %					5,1	9,2	6,9	14,4
Totale	**2.230**	**1.698**	**2.195**	**2.176**	**2.297**	**2.293**	**1.933**	**2.033**

* Censimento completo su offerta formativa pubblica (da 508 nel 2006-07 a 534 nel 2007-08), parziale su offerta privata

- Investimento nella formazione ambientale molto consistente e articolato
- Progressiva segmentazione e ampio ventaglio di opportunità formative rispetto ai destinatari e alle aree tematiche affrontate
- Oscillazioni e rallentamenti nell'espansione quantitativa della formazione professionale
- Maggiore articolazione dell'offerta sul versante del lifelong learning soprattutto sui temi del disinquinamento, monitoraggio e certificazione
- Ampio spazio e diversificazione della formazione universitaria e dei master

Green economy – impact on female employment

Supranational legal issues

József Hajdú

Treaty of Lisbon

Article 1a

- The Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and **respect for human rights**, including the rights of persons belonging to minorities. These values are common to the Member States in a society in which pluralism, **non-discrimination**, tolerance, justice, **solidarity and equality between women and men prevail**.

Article 2

- 3. The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, **aiming at full employment** and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance.

- It shall combat social exclusion and **discrimination**, and shall promote social justice and protection, equality between women and men, solidarity between generations and protection of the rights of the child.

Treaty of Lisbon: Shared competence

Article 2 C

- 1. The Union shall share competence with the Member States where the Treaties confer on it a competence.

- 2. Shared competence between the Union and the Member States applies in the following principal areas:
- (a**) internal market;**
- **(b) social policy, for the aspects defined in this Treaty**;
- **(c) economic, social and territorial cohesion**;
- (d) agriculture and fisheries, excluding the conservation of marine biological resources;
- (e) environment;
- (f) consumer protection;
- **(g) transport;**
- (h) trans-European networks;
- (i) **energy**;
- (j) area of freedom, security and justice;
- (k) common safety concerns in public health matters, for the aspects defined in this Treaty.

Treaty of Lisbon: social dialogue

Article 5b

- In defining and implementing its policies and activities, the Union shall aim to combat **discrimination based on sex**, racial or ethnic origin, religion or belief, disability, age or sexual orientation.'

- *Article 136a*
- The Union **recognises and promotes the role of the social partners** at its level, taking into account the diversity of national systems. It shall facilitate dialogue between the social partners, respecting their autonomy.

- The Tripartite Social Summit for Growth and Employment shall contribute to social dialogue.'.

I. LEGISLATION RELATING TO RES

Chronology:

- Commission **Green Paper** of 20 November 1996 on renewable sources of energy [COM(96) 576final - Not published in the Official Journal].
- **Nov. 1997**: Commission publishes **White Paper** setting out a Community Strategy and Action Plan for renewable energy. [Commission Communication of 26 November 1997 on energy for the future: renewable sources of energy - White Paper for a Community strategy and action plan [COM(97) 599 final- Not published in the Official Journal].
- **Sept. 2001**: EU adopts **Directive** 2001/77/EC Directive on the Promotion of Electricity from Renewable Energy Sources.
- **Directive 2002/91/EC** of 16 December 2002 on the **energy performance of buildings.**
- **May 2003**: EU adopts **Directive [2003/30/EC Directive]**on the promotion of the use of biofuels or other renewable fuels for transport.
- Decision No **1230/2003/EC** of the European Parliament and of the Council of 26 June 2003 adopting a multiannual programme for action in the field of energy: "Intelligent Energy -- Europe" (2003-2006) [Official Journal L 176 of 15.7.2003].
- **Commission Communication** of 26 May 2004 on the share of renewable energy in the EU. Commission Report in accordance with Article 3 of Directive 2001/77/EC

Cont. (1)

- **Communication** from the Commission of 7 December 2005 - ***Biomass Action Plan*** [COM(2005) 628 final - Official Journal C 49 of 28.02.2005].
- **Commission Communication** of 7 December 2005 "The support of electricity from renewable energy sources" [COM(2005) 627 final - Official Journal C 49 of 28 February 2006]
- **Decision** 1639/2006/EC of the European Parliament and of the Council of 24 October 2006 establishing a Competitiveness and Innovation Framework Programme(2007-2013).
- **Communication** from the Commission to the Council and the European Parliament of 6 October 2006: "Mobilising public and private finance towards global access to climate-friendly, affordable and secure energy services: **The Global Energy Efficiency and Renewable Energy Fund"** [COM(2006) 583 final - Not published in the Official Journal].
- **10 Jan. 2007**: Commission presents **Renewable Energy Roadmap** as part of its energy and climate change package. [Commission Communication of 10 January 2007: "***Renewable Energy Road Map***. Renewable energies in the 21st century: building a more sustainable future" [COM(2006) 848 final - Not published in the Official Journal].
- **March 2007**: EU summit endorses a binding target to source 20% of the bloc's energy from renewable sources by 2020.

Cont. (2)

- **Communication** from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions of 13 November 2008 – 'Offshore Wind Energy: Action needed to deliver on the Energy Policy Objectives for 2020 and beyond' [COM(2008) 768 final – Not published in the Official Journal]
- **23 Jan. 2008**: Commission presents a proposal for a new renewables **Directive**.
- **9 Dec.2008**: Political agreement on the Renewables Directive .
- **11-12 Dec. 2008**: EU summit agrees final version of the Renewables Directive.
- **Directive** 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (Text with EEA relevance).
- **30 June 2009**: EU issues template for National Renewable Energy Action Plans (NREAPs).
- **30 June 2010**: Deadline for EU states to present National Renewable Energy Action Plans.

- **2020**: Target date for EU objective of sourcing 20% of energy from renewable sources.

II. SOCIAL DIALOGUE (LEGAL SOURCE)

- 1. **Parties**: These can be direct relations between the social partners themselves ("bipartite") or relations between governmental authorities and the social partners ("tripartite").

- **Examples** of social dialogue activity include mutual information, open discussion, concertation (on-going tripartite dialogue), exchanges of opinions, consultation and negotiation (agreements /common opinions).

- **Sources:** European social dialogue is enshrined in the Treaty of Maastricht (articles 138 and 139; ex 118a and 118b) and it is promoted by the European Commission as an instrument for a better governance and promotion of social and economic reforms.

- **Types**: There are two approaches:
  1) cross-industry social dialogue and
  2) sectoral social dialogue.

Social dialogue

- The concept of “social dialogue” pervades discussions of labour relations in Europe.

- Value: In the estimation of many scholars and policymakers, the concept opens the way to an entirely new and potentially transformative paradigm in deliberative democracy.

Sectoral social dialogue

- The European sectoral social dialogue was formalised in a European Commission decision of 20 May 1998 - 98/500/EC on the sectoral social dialogue committees.

Maastricht Art. 138

Article 138

- 1. The Commission shall have the task of promoting the consultation of management and labour at Community level and shall take any relevant measure to facilitate their **dialogue** by ensuring balanced support for the parties.

- 2. To this end, before submitting proposals in the **social** policy field, the Commission shall consult management and labour on the possible direction of Community action.

- *3. If, after such consultation, the Commission considers Community action advisable, it shall consult management and labour on the content of the envisaged proposal. Management and labour shall forward to the commission an opinion or, where appropriate,a recommendation.*

- *4. On the occasion of such consultation, management and labour may inform the Commission of their wish to initiate the process provided for in Article 139. The duration of the procedure shall not exceed nine months, unless the management and labour concerned and the Commission decide jointly to extend it.*

Maastricht Art. 139

Article 139

1. *Should management and labour so desire, the **dialogue** between them at Community level may lead to contractual relations, including agreements.*

2. *Agreements concluded at Community level shall be implemented either in accordance with the procedures and practices specific to management and labour and the Member States or, in matters covered by Article 137, at the joint request of the signatory parties, by a Council decision on a proposal from the Commission.*

III. MAINSTREAMING GENDER EQUALITY

- Combating discrimination is a major challenge for the European Union. The Union is founded on the principles of liberty, democracy, respect for human rights and fundamental freedoms, as well as the rule of law. Hence the EU must take all measures necessary to combat discrimination of all kinds, notably as regards employment and the labour market.

  The focus is on creating better living and working standards for women and men by alleviating poverty, promoting human rights and fostering gender equality and equal opportunities for all.

Cont.

- For many years the focus of EU action in the field of non-discrimination was on preventing discrimination on the grounds of nationality and sex (NB: The European Commission refers to sex discrimination as 'gender' discrimination).

- In 1997, however, the Member States approved unanimously the Treaty of Amsterdam. Article 13 of this new Treaty granted the Community new powers to combat discrimination on the grounds of sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation.

- Since the Treaty of Amsterdam came into force in 1999, new EC laws, or Directives, that have been enacted in the area of anti-discrimination are the Racial Equality Directive, 2000/43/EC, and the Employment Equality Directive, 2000/78/EC.

Directive 2000/78/EC of 27 November 2000, establishing a general framework for equal treatment in employment and occupation

- Employment and occupation are crucial to ensuring equal opportunities for all and in large measure contribute to the full participation of citizens in economic, social and culture life. However, many cases of discrimination have been identified in the field of employment and the labour market.

- The Member States ban discrimination in the field of employment and occupation. However, the scope of this prohibition, its content and enforceability vary from country to country. Hence the Directive is designed to lay down a general minimum framework in this area.

Scope of the Directive

- **Scope**
- The proposal concerns the following areas:
- conditions of access to employed or self-employed activities, including promotion;
- vocational training;
- employment and working conditions (including pay and dismissals);
- membership of and involvement in an organisation of employers or workers or any other organisation whose members carry on a particular profession.
- This applies as much to the public sector as to the private sector including public bodies as well as for paid and unpaid work.

The concept of discrimination

- **The concept of discrimination**
- The proposal for a directive aims to combat both direct discrimination (differential treatment based on a specific characteristic) and indirect discrimination (any provision, criterion or practice which is neutral on its face but is liable to adversely affect one or more specific individuals or incite discrimination). Harassment, which creates a hostile environment, is deemed to be discrimination. Reasonable arrangements must be made to guarantee the principle of equal treatment for disabled persons, limiting it to cases which do not involve unjustified difficulties.

- **Minimum requirements**
- The proposal contains a "non-regression" clause which concerns Member States whose legislation provides for a higher level of protection than that afforded by the Directive.

Cases in which differences in treatment are authorised

- ***- Genuine occupational qualifications***
- In certain cases differences in treatment may be justified by the nature of the post or the conditions in which the job is performed.
- ***- Differences in treatment on grounds of age***
- Differences in treatment on grounds of age are permissible when they are objectively and reasonably justified by a legitimate labour market aim and are appropriate and necessary to the achievement of that aim (protection of young people and older workers, requirements as to the extent of job experience, etc.).
- ***- Positive action***
- Member States have the right to maintain and adopt measures intended to prevent or compensate for existing inequalities (measures to promote the integration of young people, the transition from work to retirement, etc.).

- **The Employment Equality Directive 2000/78/EC**
- Implements the principle of equal treatment in employment and training irrespective of religion or belief, disability, age or sexual orientation in employment, training and membership and involvement in organisations of workers and employers.
- Includes identical provisions to the Racial Equality Directive on definitions of discrimination and harassment, the prohibition of instruction to discriminate and victimisation, on positive action, rights of legal redress and the sharing of the burden of proof.
- Requires employers to make reasonable accommodation to enable a person with a disability who is qualified to do the job in question to participate in training or paid labour.
- Allows for limited exceptions to the principle of equal treatment, for example, where the ethos of a religious organisation needs to be preserved, or where an employer legitimately requires an employee to be from a certain age group to be recruited.

Green jobs – increasing legal provisions in the field of renewable energy sector

(Introduction)

József Hajdú

Definitions beforehand

- **What is meant by…..?**
- ***RES****: Renewable energy sources*
- ***RES-E****: Electricity production from renewable energy sources*
- ***RES-H****: Production of heat and cold from renewable energy sources*
- ***Biofuels:*** *Mainly includes biodiesel and bioethanol*
- ***Biomass:*** *Includes solid biomass, biowaste and biogas*
- ***PV:*** *Photo-voltaic – technology for the production of electricity from solar energy*

The long-term strategic priorities of EU

- Unveiled by the Spanish Presidency:

  1. the 'EU 2020' strategy for growth and jobs - which is to replace the Lisbon Agenda
  2. financial supervision,
  3. social agenda,
  4. **energy and climate change**, and
  5. strengthening the EU's external action.

Background targets of RES

- Renewable sources of energy - wind power, solar power (thermal and photovoltaic), hydro-electric power, tidal power, geothermal energy and biomass - are an essential alternative to fossil fuels.
- Using these sources helps not only to reduce greenhouse gas emissions from energy generation and consumption but also to reduce the European Union's (EU) dependence on imports of fossil fuels (in particular oil and gas).
- In order to reach the ambitious target of a 20% share of energy from renewable sources in the overall energy mix, the EU plans to focus efforts on the electricity, heating and cooling sectors and on biofuels.
- In transport, which is almost exclusively dependent on oil, the Commission hopes to increase the current target of a 5.75% share of biofuels in overall fuel consumption by 2010 to a 10% share by 2020.

- The growth of renewable energy sources also stimulates employment in Europe, the creation of new technologies and improves our trade balance.

(cont.)

- Supporting the development of renewable and alternative energy sources is a key objective for the structural and cohesion funds. The EU and the Member States must therefore promote the development of renewable energy sources through regional policy.

- The Commission also points out that support for biomass production and use must comply with Community state aid policy.

Biomass and research

- The Commission's proposal for the Seventh Framework Programme gives a high priority to biomass research.
- The Commission plans in particular to look at how best to take forward research into the optimisation of agricultural and woody crops for energy purposes, and into conversion processes.
- Lastly, through the Intelligent Energy for Europe programme (2007-2013), the Commission will support the dissemination of techniques that reflect European objectives for renewable energy.

Background

- This Biomass Action Plan is part of the new EU energy policy set out in the Green Paper on energy published in March 2006. Most of the recommendations it contains were supported by EU Heads of State or Government at the spring European Council of 23 and 24 March 2006. Developing safe, competitive and sustainable energy is therefore one of the EU's priorities in relaunching the Lisbon Strategy.

Related legislations

- Commission Communication of 26 May 2004 on the share of renewable energy in the EU. Commission Report in accordance with Article 3 of Directive 2001/77/EC - evaluation of the effect of legislative instruments and other Community policies on the development of the contribution of renewable energy sources in the EU and proposals for concrete actions [COM(2004) 366final - Not published in the Official Journal].

- Commission Communication of 26 November 1997 on energy for the future: renewable sources of energy - White Paper for a Community strategy and action plan [COM(97) 599 final- Not published in the Official Journal].

- Commission Green Paper of 20 November 1996 on renewable sources of energy [COM(96) 576final - Not published in the Official Journal].
-
- Commission Communication of 10 January 2007: "***Renewable Energy Road Map***. Renewable energies in the 21st century: building a more sustainable future" [COM(2006) 848 final - Not published in the Official Journal].
-

Renewable energy road map

- The Road Map sets out the Commission's long-term strategy for renewable energy in the European Union (EU). The aim of this strategy is to enable the EU to meet the twin objectives of increasing security of energy supply and reducing greenhouse gas emissions.

- An assessment of the share of renewable energy in the energy mix and the progress made in the last 10 years shows that more and better use could be made of renewables.

- In the Road Map, the Commission proposes setting a mandatory target of 20% for renewable energy's share of energy consumption in the EU by 2020 and a mandatory minimum target of 10% for biofuels. It also proposes creating a new legislative framework to enhance the promotion and use of renewable energy.

-
- The Renewable Energy Road Map assesses the share of renewable energy in the energy mix and the progress made in this area. It also includes the target of producing 20% of total EU energy consumption from renewable energy sources by 2020, as well as measures for promoting renewable energy sources in the electricity, biofuels and heating and cooling sectors.
-

Legal background

I. POLICY ORIENTATION

Road map (cont.)

- In 1997, the EU set itself the target of generating 12% of gross domestic energy consumption from renewable sources by 2010. Despite the considerable progress that has been made, the Commission is of the opinion that this target will not be met.
- The **difficulties** encountered in meeting this target can partly be explained by:

  a) the high cost of renewable energy owing to the investment required and the fact that externalities (the "external" cost of the different energy sources, particularly their long-term impact on health or the environment) have not been taken into account, which gives fossil fuels an artificial advantage;

  b) administrative problems resulting from installation procedures and the decentralised nature of most renewable energy applications;

  c) the opaque and/or discriminatory rules governing grid access;

  d) inadequate information for suppliers, customers and installers;

  e) the fact that the 12% target is expressed as a percentage of primary energy, which puts wind power at a disadvantage (a sector that has experienced considerable growth during the period in question).

Furthermore, the progress made by the Member States has been patchy and highly uneven. The absence of a legally binding target and the gaps in the Community's legal framework for renewable energy have meant that real progress has only been possible in the few Member States whose determination has outweighed their changing political priorities.

Objectives for the future

- The Road Map sets an overall mandatory target of 20% for the proportion of renewable energy figuring in gross domestic consumption by 2020. Setting targets at European level will make it possible to ensure that national policies on this issue remain relatively stable.

- The Commission wishes to set a minimum target of 10% for biofuels for 2020. This target will be accompanied by an amendment to Directive 98/70/EC on fuel quality, in order to include the contribution made by biofuels.

- The Road Map provides for each Member State to adopt mandatory targets and action plans in line with its potential. These action plans must include specific measures and objectives for the three following sectors: electricity, biofuels and heating and cooling. This flexible approach will leave Member States enough room for manoeuvre. Suitable legislation will be proposed in 2007.

Directive 2001/77/EC

- In accordance with Directive 2001/77/EC, all Member States have adopted national targets for the proportion of **electricity** consumption from renewable energy sources.

- If all Member States meet their national targets, 21% of total electricity consumption in the EU will be produced from renewable energy sources by 2010. Although some Member States are on track to meet their target, it seems that the majority of counties are behind schedule, and the EU will only manage to produce 19% of its electricity from renewable sources by 2010. Additional efforts are therefore required.

- In 2005, the breakdown of renewable energy sources for electricity production in the EU was as follows: 66.1% from hydropower, 16.3% from wind power, 15.8% from biomass, 1.2% from geothermal energy and 0.3% from solar power (thermal and photovoltaic).

Directive 2003/30/EC

- The 5.75% target for the contribution of **biofuels** to total fuel consumption by 2010, set on the basis of Directive 2003/30/EC, will probably not be met either unless current policies are strengthened.
- Only two Member States met the intermediate target of 2% for the contribution of biofuels by 2005. In 2005, biodiesel accounted for 81.5% of total biofuel production in the EU, while bioethanol accounted for 18.5%.
- The EU has not so far adopted any legislation with the direct aim of promoting heating or cooling from renewable sources.

Intelligent energy for Europe (2003-2006)

- Decision No **1230/2003/EC** of the European Parliament and of the Council of 26 June 2003 adopting a multiannual programme for action in the field of energy: "Intelligent Energy -- Europe" (2003-2006) [Official Journal L 176 of 15.7.2003].

Aim of the Intelligent energy for Europe

- The programme was aimed at providing financial support for local, regional and national initiatives in the field of renewable energy, energy efficiency, the energy aspects of transport, and international promotion. The budget is 200 million for the period 2003-2006.

- The specific aims are:

  - to provide the necessary factors to promote energy efficiency and develop renewable energy sources with a view to reducing energy consumption and CO2 emissions;

  - to develop resources and instruments which can be used by the Member States to monitor and evaluate the impact of the measures adopted by the Member States;

  - to promote efficient and intelligent schemes for the production and consumption of energy, based on solid and sustainable foundations, through awareness-raising and education.

- To achieve these aims, the programme must ensure that there is a real change in energy behaviour in the EU on the part of individuals as well as industry and enterprise. It must also develop instruments to ensure effective follow-up, monitoring and evaluation.

Fields of action Intelligent energy for Europe

- The programme is divided into four fields, some of which match the earlier programmes to provide and reinforce continuity:
- The SAVE field, which is concerned with improving energy efficiency and the rational use of energy, in particular in the construction sector and industry. Budget: 69.8 million;
- The ALTENER field, which is concerned with the promotion of new and renewable energy for the centralised and decentralised production of electricity and heat, and their integration into the local environment and energy systems. Budget: 80 million;
- The STEER field, which is concerned with supporting initiatives relating to the energy aspects of transport and fuel diversification by using renewable energy sources. Budget: 32.6 million;
- The COOPENER field, which is concerned with supporting initiatives for the promotion of renewable energy and energy efficiency in developing countries. Budget: 17.6 million.

Intelligent Energy Executive Agency

- Commission Decision of 23 December 2003 setting up an executive agency, the "Intelligent Energy Executive Agency", to manage Community action in the field of energy in application of Council Regulation (EC) No 58/2003.
  The Agency is responsible for implementing the tasks concerning Community aid under the programme, except for programme evaluation, monitoring of legislation and strategic studies, or any other action which comes under the exclusive competence of the Commission.
- The Agency is responsible for the following tasks:
- managing all the phases in the lifetime of specific projects in the context of implementing the "Intelligent Energy for Europe" programme on the basis of the work programme;
- adopting the instruments of budget implementation for revenue and expenditure and carrying out all the operations necessary to manage the Community programme and, in particular, those linked to the award of contracts and grants;
- gathering, analysing and passing on to the Commission all the information needed to guide the implementation of the Community programme.

2nd Intelligent energy for Europe programme (2007-2013)

- Decision 1639/2006/EC of the European Parliament and of the Council of 24 October 2006 establishing a Competitiveness and Innovation Framework Programme(2007-2013).

- The CIP strengthens and develops business and innovation support services which disseminate information to businesses on Community policies, legislation and programmes, particularly concerning the internal market and framework research programmes. These services also offer businesses information on innovation, technology and knowledge transfer and provide feedback from them for impact assessments and policy development.

Directive 2009/28/EC
(25.6.2009)

-
- Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (Text with EEA relevance).

- This Directive establishes a common framework for the production and promotion of energy from renewable sources.

- The Directive is part of a package of energy and climate change legislation which provides a legislative framework for Community targets for greenhouse gas emission savings. It encourages energy efficiency, energy consumption from renewable sources, the improvement of energy supply and the economic stimulation of a dynamic sector in which Europe is setting an example.

- Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

- This Directive establishes a common framework for the use of energy from renewable sources in order to limit greenhouse gas emissions and to promote cleaner transport.
- To this end, national action plans are defined, as are procedures for the use of biofuels.

National targets and measures

- Each Member State has a target calculated according to the share of energy from renewable sources in its gross final consumption for 2020. This target is in line with the overall '20-20-20' goal for the Community.
- Moreover, the share of energy from renewable sources in the transport sector must amount to at least 10 % of final energy consumption in the sector by 2020.

National Action Plan of 2009/28/EC Directive

- **National renewable energy action plans**
- The Member States are to establish national action plans which set the share of energy from renewable sources consumed in transport, as well as in the production of electricity and heating, for 2020. These action plans must take into account the effects of other energy efficiency measures on final energy consumption (the higher the reduction in energy consumption, the less energy from renewable sources will be required to meet the target). These plans will also establish procedures for the reform of planning and pricing schemes and access to electricity networks, promoting energy from renewable sources.

Cooperation between MSs

- Member States can “exchange” an amount of energy from renewable sources using a statistical transfer, and set up joint projects concerning the production of electricity and heating from renewable sources.
- It is also possible to establish cooperation with third countries. The following conditions must be met:
- the electricity must be consumed in the Community;
- the electricity must be produced by a newly constructed installation (after June 2009);
- the quantity of electricity produced and exported must not benefit from any other support.

Access to and operation of the grids

- Member States should build the necessary infrastructures for energy from renewable sources in the transport sector. To this end, they should:
- ensure that operators guarantee the transport and distribution of electricity from renewable sources;
- provide for priority access for this type of energy.

- The Directive takes into account energy from biofuels and bioliquids. The latter should contribute to a reduction of at least 35 % of greenhouse gas emissions in order to be taken into account. From 1 January 2017, their share in emissions savings should be increased to 50 %.
- Biofuels and bioliquids are produced using raw materials coming from outside or within the Community. Biofuels and bioliquids should not be produced using raw materials from land with high biodiversity value or with high carbon stock. To benefit from financial support, they must be qualified as “sustainable” in accordance with the criteria of this Directive.

The Global Energy Efficiency and Renewable Energy Fund

-
- Aim: to set up a Global Fund of risk capital with a budget of 100 million to mobilise private investment in projects promoting energy efficiency and renewable energy in developing countries and emerging economies.

- Legal source: Communication from the Commission to the Council and the European Parliament of 6 October 2006: "Mobilising public and private finance towards global access to climate-friendly, affordable and secure energy services: The Global Energy Efficiency and Renewable Energy Fund" [COM(2006) 583 final - Not published in the Official Journal].
-

- The Global Energy Efficiency and Renewable Energy Fund (GEEREF) proposed by the European Commission will help mobilise private investments in energy efficiency and renewable energy projects.
- It will provide benefits in terms of the environment, climate change and air quality and will also have social and economic benefits in terms of business, job and income creation at local level.

Overcoming investment barriers

- Boosting renewable energy and energy efficiency technology calls for investment, in particular in developing countries and emerging economies. Although the prospects are promising, several factors block the participation of private-sector investors and projects and businesses have major difficulties in raising risk capital, which provides vital collateral for lenders.
- One of the key reasons causing this block to investments is the significantly higher cost of initial investment in renewable energy generation than for conventional energy. While these costs are compensated by much lower running costs, private-sector investors still regard the longer repayment periods as too risky.
- The various risks in developing countries are another hurdle, which means that investors look for additional reassurances.
- Moreover, renewable energy technologies are often suited to small and medium sized projects with less than 5-10 million in total capital, whilst international finance institutions and the private sector traditionally do not invest in such small-scale projects.

Legal background

II. ELECTRICITY

Directive 2001/77/EC

- Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity from renewable energy sources in the internal electricity market

- The Directive follows up the 1997 White Paper on renewable energy sources which set a target of 12% of gross inland energy consumption from renewables for the EU-15 by 2010, of which electricity would represent 22.1%. With the 2004 enlargement, the EU's overall objective became 21%. The Directive also constitutes an essential part of the package of measures needed to comply with the commitments made by the EU under the Kyoto Protocol on the reduction of greenhouse gas emissions.

- European companies are currently among the world leaders in developing new technologies connected with RES electricity. The Directive aims to give a boost to stepping up the contribution of these energies while respecting the principles of the internal market.

Scope of the directive

- The Directive concerns electricity produced from non-fossil renewable energy sources such as wind, solar, geothermal, wave, tidal, hydroelectric, biomass, landfill gas, sewage treatment gas and biogas energies. The definitions in Directive 96/92/EC concerning common rules for the internal market in electricity are also applicable to this Directive.

National targets for consumption of electricity from renewable sources of energy

- The Member States which joined the EU in 2004 must apply the provisions of Directive 2001/77/EC on producing electricity from renewable energy sources. Their Accession Treaty sets national indicative targets for the proportion of electricity produced from RES (RES-E) in each new Member State the result of which is an overall objective of 21% for the EU-25.

- The Member States must adopt and publish, initially no later than 27 October 2002 and then every five years, a report setting the indicative Member State targets for future RES-E consumption for the following ten years and showing what measures have or are to be taken to meet those targets. The Member State targets must take account of the reference values set out in the Annex to the Directive for Member States' indicative targets concerning the share of electricity produced from renewable energy sources in gross electricity consumption in 2010. They must also be compatible with all the national commitments entered into as part of the commitments accepted by the Community in Kyoto.

Evaluation national level

- Member States were required to publish on 27 October 2003, and every two years subsequently, a report which includes an analysis of success in meeting the national targets. The report was also to indicate what climatic factors are likely to affect meeting the targets and to what extent the measures taken are consistent with national commitments regarding climate change.

Evaluation on Community level

- At Community level, the Commission is to publish a biannual report, the first on 27 October 2004, based on the national reports assessing the extent to which:

  a) the Member States have progressed towards achieving the national targets;

  b) the national indicative targets are compatible with the global indicative target of 12% of gross domestic energy consumption in 2010, and in particular with the indicative share of 22.1% of electricity from renewable energy sources out of the total electricity consumption of the Community in 2010.

- Should the Commission's report conclude that the national targets are liable to be inconsistent with the main objectives of the Directive, the Commission may present proposals to the European Parliament and to the Council with respect to the targets, including, if need be, proposals for obligatory targets.

Administrative procedures

- One major barrier to the further development of RES-electricity is the administrative and planning procedures that potential generators must respect, which is particularly a problem for small and medium-sized companies (SMEs), which make up a significant proportion of companies in this sector.

- With this in mind, Member States are required to review their existing legislative and regulatory frameworks concerning authorisation procedures in order to reduce regulatory and non-regulatory obstacles, to rationalise and speed up administrative procedures and to ensure that the rules are transparent and non-discriminatory. What is more, it is important for the rules to take account of the particular characteristics of the different technologies using renewable energy sources.

National targets and measures

- Each Member State has a target calculated according to the share of energy from renewable sources in its gross final consumption for 2020. This target is in line with the overall '20-20-20' goal for the Community.
- Moreover, the share of energy from renewable sources in the transport sector must amount to at least 10 % of final energy consumption in the sector by 2020.

National renewable energy action plan

- The Member States are to establish national action plans which set the share of energy from renewable sources consumed in transport, as well as in the production of electricity and heating, for 2020.
- These action plans must take into account the effects of other energy efficiency measures on final energy consumption (the higher the reduction in energy consumption, the less energy from renewable sources will be required to meet the target).
- These plans will also establish procedures for the reform of planning and pricing schemes and access to electricity networks, promoting energy from renewable sources.

Cooperation between MSs

- Member States can “exchange” an amount of energy from renewable sources using a statistical transfer, and set up joint projects concerning the production of electricity and heating from renewable sources.
- It is also possible to establish cooperation with third countries. The following conditions must be met:
- the electricity must be consumed in the Community;
- the electricity must be produced by a newly constructed installation (after June 2009);
- the quantity of electricity produced and exported must not benefit from any other support.

Commission Communication "The support of electricity from renewable energy sources"

- Commission Communication of 7 December 2005 "The support of electricity from renewable energy sources" [COM(2005) 627 final - Official Journal C 49 of 28 February 2006].
- The Commission considers that harmonisation of the rules in the field of renewable energy is not feasible at present. However, in the long term, this would be the path to take.
- It focuses specifically on public support allocated to assist the market penetration of electricity produced from renewable energy sources (RES-E).

Existing support scheme

- The existing support schemes cover the following:

  a) feed-in tariffs exist in most of the Member States. These systems are characterised by a specific price, normally set for a period of around seven years, that must be paid by electricity companies, usually distributors, to domestic producers of green electricity;

  b) the **green certificate system**, currently in force in Sweden, the United Kingdom, Italy, Belgium and Poland. RES-E is sold at the conventional market price. In order to finance the additional cost of producing green electricity, and to ensure that it is generated in sufficient quantities, all consumers are obliged to purchase a certain number of green certificates from RES-E producers according to a fixed percentage (quota) of their total electricity consumption/generation;

  c) tendering systems exist in two Member States (Ireland and France). Under this procedure, the State issues a series of invitations to tender for the supply of RES-E, which will be sold at market price. The additional cost is passed on to the final consumer in the form of a special tax;

  d) tax incentives used exclusively in Malta and Finland.

- The different forms of renewable energy affected by this support include:
- wind energy, for which analyses show that support is too low for any take-off in a quarter of the Member States. Another quarter of Member States provide enough support but still obtain mediocre results. Feed-in tariffs are currently the most effective systems for wind energy in Germany, Denmark and Spain;
- biomass forestry requires the use of straw, which is taken into account in analyses of biomass forestry. Denmark is the main country using this type of biomass. In close to half of all European countries, support for this form of renewable energy is still insufficient to develop this high potential sector;
- the biogas sector is closely linked to environmental policy for waste treatment. In nearly 70% of cases not enough support is provided for the development of this technology;
- the other renewable energy sources to benefit from this support are hydroelectricity and photovoltaic solar energy (especially in Germany). There are several other sources of renewable energy (geothermal, wave, tidal, solar thermal, etc) which, although they receive support in some Member States, have not yet been developed on an industrial scale.

Internal market and State aid issues

- Support for renewable sources of energy falls under the Community framework for State aid for environmental protection, whereas at the national level, the rules on State aid can influence the type of support scheme.
- The Commission stresses that the market is dominated by one or several power companies that are too often vertically integrated. The existence of distribution and transport grid operators should guarantee all generators fair grid access, respecting the rules of competition.
- The support covered by the Community framework for State aid for environmental protection may distort competition. These economic effects may however be justified and compensated for by the beneficial effects for the environment.

Towards harmonisation the rules?

- Harmonisation between potential and actual development of renewable energies varies greatly among the Member States. In the short term, harmonisation seems unlikely. The Commission regards harmonisation of the rules in this sector as being desirable, as any changes to the system in the short term might disrupt some markets.

Legislation

III. BIOMASS (BIOFUEL & BIOLIQUIDS)

Biomass Action Plan

- Definition:
- **Biomass**
- Biomass, i.e. all organic plant and animal products used to produce energy (or in agriculture), currently accounts for around half (44 to 65%) of all renewable energy used in the EU.
- Biomass currently meets 4% of the EU's energy needs (69 million tonnes of oil equivalent (toe)). The aim is to increase biomass use to around 150 million toe by 2010.

- Communication from the Commission of 7 December 2005 - Biomass Action Plan [COM(2005) 628 final - Official Journal C 49 of 28.02.2005].

- To cope with the increasing dependence on imported energy, the European Union (EU) must bring into play a new energy policy, the three main objectives of which are competitiveness, sustainable development and security of supply.

- It is in this wider context of an integrated and coherent energy policy and, in particular, of promoting renewable energy sources that the Commission is presenting this Biomass Action Plan.

-

Three sectors of biomass

- The predicted cost of expenditure linked to renewable energy is estimated at EUR 9 billion per year.

- The Commission identifies three sectors in which biomass use should be prioritised:

  a) heat production,

  b) electricity production and

  c) transport.

1. Bimass for heating

- Heating is without a doubt the sector which uses the most biomass, and does so simply and cheaply in terms of technology. However, paradoxically, biomass is growing slowest in this sector.
- The Commission plans to use various measures to improve this situation, including:
- adopting new specific legislation on renewable energy in heating;
- amending the Directive 2002/91/EC on the energy performance of buildings;
- carrying out a study of how to improve the performance of household biomass boilers and reduce pollution.
- However, it appears that renewable fuels are more suited for use in district heating than individual heating. Their use should therefore be promoted by making them more competitive, cost-effective and convenient to use.

Directive 2002/91/EC of 16 December 2002 on the energy performance of buildings.

- **The four key points of the Directive are:**

  a) a common methodology for calculating the integrated energy performance of buildings;

  b) minimum standards on the energy performance of new buildings and existing buildings that are subject to major renovation;

  c) systems for the energy certification of new and existing buildings and, for public buildings, prominent display of this certification and other relevant information. Certificates must be less than five years old;

  d) regular inspection of boilers and central air-conditioning systems in buildings and in addition an assessment of heating installations in which the boilers are more than 15 years old.

- Energy performance certificates should be made available when buildings are constructed, sold or rented out.

- The Directive specifically mentions rented buildings with the aim of ensuring that the owner, who does not normally pay the charges for energy expenditure, should take the necessary action.

Scope of the Directive (cont.)

- The Directive concerns the residential sector and the tertiary sector (offices, public buildings, etc.). The scope of the provisions on certification does not, however, include some buildings, such as historic buildings, industrial sites, etc. It covers all aspects of energy efficiency in buildings in an attempt to establish a truly integrated approach.
- The Directive does not lay down measures on moveable equipment such as household appliances. Measures on labelling and mandatory minimum efficiency requirements have already been implemented or are envisaged in the Action Plan for Energy Efficiency.

2. Electricity from biogas

- The Commission points out that there are many ways of generating electricity from renewable energy sources. Attention should focus on the Directive 2001/77/EC on renewable energy in electricity generation in order to achieve the full potential of biomass in this area.

3. Biofuels for transport

- As with electricity production, the transport sector is also governed by Community legislation in the form of the Directive 2003/30/EC on biofuels for transport.

- The different types of biofuels are as follows:
  a) bioethanol: produced by the fermentation of plants rich in sugar/starch;
  b) biodiesel: a diesel-quality fuel produced from biomass or used frying oils and used as biofuel;
  c) ETBE: etherised bioethanol;
  d) biogas: a fuel gas produced by the fermentation of organic matter by bacterial populations in the absence of oxygen;
  e) biomethanol: methanol produced from biomass;
  f) bio-oil: an oil fuel produced by pyrolysis (molecular decomposition of biomass through the application of heat and in the absence of air).

- The biofuels can be made available as:
- pure biofuels;
- blended biofuels;
- liquids derived from biofuels.

- The Member States must ensure that the minimum share of biofuels sold on their markets is 2% by 31 December 2005 at the latest, and 5.75% by December 2010. Any Member State setting lower objectives will have to justify this on the basis of objective criteria.

- The Directive 2003/30/EC will provide a stimulus to the rural economy through the creation of new sources of income and employment. In many cases in the agri-food and forestry industries, biofuels could turn problematical waste production into a sustainable product.
- Directive 2003/30/EC is repealed by Directive 2009/28/EC with effect from 1 January 2012.

Biofuels and bioliquids

- The Directive takes into account energy from biofuels and bioliquids. The latter should contribute to a reduction of at least 35 % of greenhouse gas emissions in order to be taken into account. From 1 January 2017, their share in emissions savings should be increased to 50 %.

- Biofuels and bioliquids are produced using raw materials coming from outside or within the Community. Biofuels and bioliquids should not be produced using raw materials from land with high biodiversity value or with high carbon stock. To benefit from financial support, they must be qualified as “sustainable” in accordance with the criteria of this Directive.

Policies and measures

- The Commission will propose measures to improve the Internal Market and **remove the barriers** to developing renewable energy in the electricity sector and the heating and cooling sector by, for example, reducing the administrative burden, improving transparency and provision of information, and adjusting and increasing the number of installations and interconnection systems.
- The Commission will also propose measures to **support, encourage and promote** renewable energy sources, including an incentive/support system for biofuels and the use of public procurement, particularly in the transport sector.
- The Commission will continue to cooperate closely with those involved in the renewable energy sector (grid authorities, European electricity regulators and the renewable energy industry) to enable **better integration of renewable energy sources into the power grid**.

Policies and measures (cont.)

- The Commission will encourage optimal use of the existing financial instruments, such as the Structural and Cohesion Funds, as well as instruments that focus on supporting research and disseminating technology, such as the next Strategic Energy Technology Plan, the Framework Programme for Research and Technological Development or the " Intelligent Energy for Europe " Programme.

- The Commission will also ensure the continued exchange of best practices and the inclusion of the external costs of fossil fuels in their price (in particular through energy taxes).

- Member States and local and regional authorities are encouraged to make maximum use of the instruments available to them and promote the development of renewable energy sources, e.g. through administrative simplification and improved planning.

- The Commission also plans to remove unjustified or discriminatory technical barriers to using biofuels.

- As Europe is better at producing bioethanol than biodiesel, the Commission will encourage the use of ethanol (in place of methanol *) to reduce demand for diesel.

- In terms of agriculture, the reform of the Common Agricultural Policy (CAP) introduced a special "aid for energy crops". In 2006 the Commission will evaluate the implementation of this and, if necessary, will put forward proposals reflecting the Union's objectives in terms of biofuels. In addition to this the Commission will fund an information campaign on the priorities for energy crops and the prospects for exploiting them.
- Statistics for forestry * show that around 35% of the annual growth in EU forests remains unused. To address this, the Commission is currently preparing an action plan, which should be adopted in 2006. The plan will, in particular, examine the matter of generating electricity from wood. The Commission will also review the impact of the energy use of wood and wood residues on forest-based industries.
- Waste is also an underused energy resource. For this reason the Commission is currently developing a thematic strategy on preventing and recycling waste, and is preparing a proposal on the revision of the waste framework legislation.
- Animal by-products not destined for human consumption are increasingly being recovered for energy. Consequently, the Commission plans to review the regulatory framework governing such production processes, so that new sources of energy may be opened up while maintaining current levels of protection for public and animal health.

Legislation

4. OFFSHORE WIND ENERGY

Communication 2008/768/EC

-
- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions of 13 November 2008 – 'Offshore Wind Energy: Action needed to deliver on the Energy Policy Objectives for 2020 and beyond' [COM(2008) 768 final – Not published in the Official Journal].

- Electricity from wind represents around 4% of the total production of electricity from clean energies in the EU. Nevertheless, its importance is tending to increase insofar as wind energy, together with natural gas, represents the fastest-growing generation technology and has reached rates of around 20% in some Member States.

Aim

- This Communication aims at promoting the development of maritime and offshore wind energy in the European Union.
- Maritime wind energy can make a significant contribution to the three key objectives of the new Energy Policy, which are:
- reducing greenhouse gas emissions;
- the security of supply;
- improving the competitiveness of the Union.

Benefits from wind energy

- This type of energy has a number of benefits compared to the production of onshore wind energy:
- production units at sea are larger than on land;
- winds are stronger and more stable at sea than on land;
- wind farms at sea cause less concern among neighbouring citizens.
- This type of wind farm can be beneficial for the protection of certain marine ecosystems and can also allow other new uses of the sea to be developed, especially offshore aquaculture, which can benefit from the substructures of wind farms.
- This energy is also a vast, indigenous, clean and renewable source.

Potential of wind energy

- It appears entirely possible to envisage, by 2020, that its utilisation will be 30 to 40 times greater than the current installed capacity of offshore wind farms.
- Other sources of energy production should also be developed on a large scale, such as tidal, wave, thermal or marine current energy.
- It is therefore necessary to have a clear legislative and political framework in order to exploit this type of energy fully. It is possible, in this perspective, to develop synergies between the Energy Policy for Europe and the new Integrated Maritime Policy for the Union.
- At European level, the existing framework has been supplemented by the third “internal energy market package” of October 2007 and by the “energy and climate” package presented in January 2008. The timely adoption and implementation of these two packages will form the EU’s main contribution to promoting offshore wind energy.

Obstacles of offshore wind energy

- The first obstacle to the development of maritime wind energy is the **competition that it faces from the onshore wind energy sector and the oil and gas industry for financing, equipment and expertise.** Businesses in the maritime wind energy sector encounter difficulties in financing the projects or technologies necessary for the development of this type of energy.
- The second obstacle lies in **the absence of electrical transmission systems at sea**, and in **Member States' lack of experience** with integrated spatial planning in the marine environment which may lead to the abandonment of certain projects. Moreover, the potential synergies between offshore projects and cross-border inter-connectors of regional electricity markets are currently not being exploited.
- Third, **not all of the protected areas in the marine environment have been designated yet**.Consequently, it is difficult to define the boundaries of maritime wind farms. It is therefore crucial that Member States should designate the protected areas and exchange information on the environmental impact of wind farms.
- Finally, offshore projects are bigger than onshore projects. **The energy produced at sea, i.e. in an uninhabited area,will be difficult to distribute on land.** It is therefore necessary to extend the interconnection capacity.

Offshore wind farms

- The development of maritime wind energy is a relevant alternative because it contributes to the implementation of clean energies.
- Measures must be taken to enable the provision of the technologies and infrastructures necessary for the development of offshore wind farms. The European Strategic Energy Technology Plan (SET plan), adopted in 2008, constitutes the basic framework which will make it possible to meet the main technological challenges facing this sector by 2020. That plan identifies doubling the production of offshore wind farms as one of the key challenges for meeting the 2020 targets. This will make it possible to maintain the Union's dominant position in the area of wind farm technology.
- The Commission highlights maritime wind energy in its 2009 energy work programme and intends to support research in this field. It also encourages Member States to define the role of offshore wind farms clearly in their national plans envisaged in the context of the implementation of the new Directive concerning the promotion of renewable energy proposed by the Commission in January 2008.
- The Commission undertakes to encourage transmission system operators and energy regulators to strengthen their cooperation in order to quickly put in place more favourable regulatory conditions encouraging investment in transnational offshore grids, cross-border trade and the development of efficient balancing power markets.
- Another challenge lies in integrated spatial planning of the marine environment in order to reconcile the sectoral interests of environmental and species protection with the production of clean energy, and in this context the Commission will also seek to facilitate regional cooperation in the planning of the electricity grid and the planning of offshore wind farm sites.

- **Sustainable Consumption and Production Policies - Action Plan**
- On 16 July 2008 the European Commission presented a series of proposals on sustainable consumption and production that will contribute to improving the environmental performance of products and increase the demand for more sustainable goods and production technologies. The proposals also seek to encourage EU industry to take advantage of opportunities to innovate.

- The building blocks of the European Union's policy on sustainable consumption and production include:
- Integrated Product Policy (IPP)
- Integrated Product Policy is an approach that seeks to reduce the environmental impacts of products throughout their life cycle (from the mining of raw materials to production, distribution, use and waste management). The intention is to address potential environmental impacts at each stage of the life cycle.
- EIPRO - Environmental Impact of Products - Phase 1
- The EIPRO study supports the development of the EU Integrated Product Policy. It identifies which products have the greatest environmental impact, using a life cycle approach.
- IMPRO - Environmental Improvement of Products - Phase 2
- The second phase of the work will attempt to identify possible ways in which the life-cycle environmental impacts can be reduced for some of the products that are among those with the greatest environmental impacts. The analysis will first consider improvement potentials that are technically feasible. Following this, the associated socio-economic impacts will be considered and analysed. See the latest developments here.
- Thematic Strategy on the Sustainable Use of Natural Resources
- The objective of the strategy is to reduce the environmental impacts associated with resource use and to do so in a growing economy. Focusing on the environmental impacts of resource use will be a decisive factor in helping the EU achieve sustainable development.
- Thematic Strategy on Waste Prevention and Recycling
- This long-term strategy aims to help Europe become a recycling society that seeks to avoid waste and uses waste as a resource.
- Eco-Management and Audit Scheme (EMAS)
- The EU Eco-Management and Audit Scheme (EMAS) is a management tool for companies and other organisations to evaluate, report and improve their environmental performance.
- Ecolabel Scheme
- It is a voluntary scheme designed to encourage businesses to market products and services that are kinder to the environment and for European consumers - including public and private purchasers - to easily identify them.
- Environmental Technologies Action Plan (ETAP)
- Since 2004, ETAP covers a spectrum of actions to promote eco-innovation and the take-up of environmental technologies.
- ETAP complements the DG's regulatory approaches and directly addresses the three dimensions of the Lisbon strategy: growth, jobs and the environment.
- Green Public Procurement (GPP)
- Green Public Procurement is much more than just purchasing recycled paper for offices. It is about tapping into a huge market where the environmental impact related to the production, transportation, use and disposal of goods and related services can be reduced.
- Eco-design of Energy Using Products Directive (EuP)
- The environmental impacts of Energy-using Products take various forms, such as energy consumption and related negative contribution to climate change, consumption of materials and natural resources, waste generation and release of hazardous substances. Eco-design, which means the integration of environmental considerations at the design phase, is arguably the best way to improve the environmental performance of products.
- European Compliance Assistance Programme - Environment & SMEs
- Small and medium-sized enterprises (SMEs) traditionally find it harder to comply with environmental legislation than their larger counterparts. The European Commission has proposed an Environmental Compliance Assistance Programme to make it easier for SMEs to comply with their obligations and improve their environmental performances.

Il Dossier è realizzato in collaborazione con i soci di Adapt

ABI • ACLI • Adecco Italia S.p.A. • Ali S.p.A. • Alleanza Lavoro • ANCC-Coop • ANCE • Assaereo • Associazione Industriali della Provincia di Vicenza • Assolavoro • Assosistema • Banca Popolare dell'Emilia Romagna • Barilla G. e R. F.lli S.p.A. • Campagnolo S.r.l. • CIA • CISL • CISL FP • CNA • CNA Modena • CNA Pensionati • Comune di Milano • Confagricoltura • Confapi • Confartigianato • Confcommercio • Confcooperative • Confesercenti • Confindustria • Confindustria Belluno Dolomiti • Confindustria Bergamo • Confindustria Verona • Confprofessioni • Confsal • Coopfond/Legacoop Nazionale • Cremonini S.p.A. • CSQA Certificazioni S.r.l. • Electrolux Zanussi Italia S.p.A. • Enel S.p.A. • ENPALS • Esselunga S.p.A. • Fastweb S.p.A. • Federalberghi • Federchimica • Federdistribuzione • Federfarma • Federmeccanica • Federtrasporto • Fiat S.p.A. • FILCA-CISL • FIPE • FISASCAT-CISL • FIT-CISL • Fondazione Studi Consulenti del Lavoro • Fondirigenti • Formedil • GE Oil & Gas • Generazione vincente S.p.A. • Gi Group S.p.A. • Gruppo Manutencoop • IKEA Italia Retail S.r.l. • Il Sole 24 Ore S.p.A. • INAIL • INPS • Isfol • Italia Lavoro S.p.A. • Manpower S.p.A. • MCL • Metis S.p.A. • Micron Technology Inc. • Obiettivo Lavoro S.p.A. • Poste Italiane S.p.A. • Provincia di Verona • Randstad Italia S.p.A. • Synergie Italia Agenzia per il Lavoro S.p.A. • Telecom Italia S.p.A. • UGL • UIL • Umana S.p.A. • Unindustria Bologna • Unindustria Treviso

Dossier Adapt – Pubblicazione on-line della Collana Adapt

Approfondimento sui temi delle relazioni industriali e di lavoro – Numero 4 del 25 febbraio 2010 – Allegato

Registrazione n. 1609, 11 novembre 2001 – Tribunale di Modena