Tendances Carbone
The Monthly Bulletin on the European Carbon Market
cdc climat research
March 2011
No 56
A newsletter of CDC Climat Research in partnership with BlueNext and METNEXT

2010 emissions review: economic recovery and “decarbonisation”

Our 2010 compliance estimates suggest that surplus allowances in 2010 were lower than in 2009; in fact, the emission levels of the sectors covered by the European Union Emission Trading Scheme (EU ETS) are expected to rise by 2.3%. Two main factors explain the increase in emissions, namely the return to economic growth and an increase in energy demand – tempered by a certain amount of “decarbonisation” of electricity generation.

European industry began expanding again in 2010. European industrial production recorded an increase of 3.4%, following a two-year contraction, which included falls of 4.7% in 2009 and 11.2% in 2008. However, the economic recovery was not as strong in the sectors covered by the EU ETS, which expanded by 2.4% in 2010, following a 4.4% contraction in 2009 and a 9.4% contraction in 2008. The top performers among those sectors were the metal and steel industries (+7.8%), while the cement industry was the worst performer (–10.9%).

Energy demand was boosted by this economic growth, as well as by temperatures that were lower than the overall European average in 2010, except for the two summer months. Our European temperature indicator shows that temperatures were abnormally low during the months of January, May and December 2010, which respectively boosted European electricity generation to 3%, 4% and 5% above normal levels.

This sustained demand led to a 1.5% increase in electricity generation in 2010 compared with 2009. However, generation conditions shifted toward an energy mix that generated lower emissions.

- The quantity of electricity generated from fossil fuels, which represented 52% of the electricity generated in Europe, remained stable in 2010, showing a slight rise of 0.7%. Up until the spring of 2010, profit margin levels at gas and coal power stations in Germany and the United Kingdom contributed to arbitrage opportunities that favoured burning gas. These opportunities declined at the end of the year due to the strong increase in the price of fuels compared with the price of coal.
- The share of lower carbon emission sources rose in 2010, rising by 3% both for nuclear electricity and hydro-electricity generation. In addition, the record dam capacity contributed to a 96% increase year-on-year in hydro-electricity generation in Spain. Even though it still only represents 5% of gross European electricity generation, the amount of electricity generated from renewable energy sources remained stable between 2009 and 2010, although the growth rate among major EU ETS carbon emitters was very different, particularly between Poland (+48%), Spain (+50%), Italy (+35%), France (+23%), and Germany (–38%).

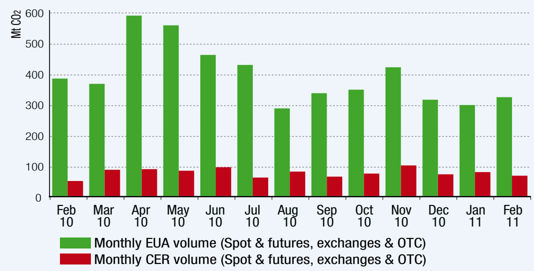
Finally, according to our estimates, the electricity sector, where demand increased by at least 20 $MtCO_2$ compared with 2009, is still expected to have been the sector with the largest deficit (c. 170 $MtCO_2$) in 2010. Although the deficits of the German and United Kingdom electricity sectors increased by 101 $MtCO_2$ and 43 $MtCO_2$ respectively, the sector deficit is believed to have contracted by 10 $MtCO_2$ and 7 $MtCO_2$ respectively in Spain and France.

Emilie Alberola - CDC Climat Research
emilie.alberola@cdcclimat.com
Nicolas Stephan - CDC Climat Research
nicolas.stephan@cdcclimat.com

Key points

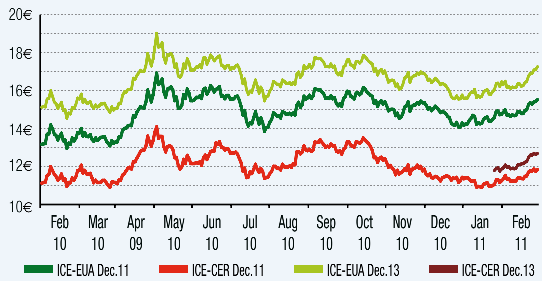
- As of march 4th, 15 registries have now been re-opened: Germany, the United Kingdom, Poland, Spain, France, the Netherlands, Belgium, Bulgaria, Slovakia, Austria, Portugal, Ireland, Estonia, Norway and Luxembourg
- Spot market volumes remained low, despite the recovery that may have been expected with the re-opening of registries
- EUA prices remained stable, due to their close relationship with rising energy commodity prices
- The share of EUA and CER contracts traded on the OTC market hit a record high of 32%, which was previously achieved in March 2010

EUA volumes rose by 8.6% while CER volumes declined by 15.2%



Sources: ICE, BlueNext, EEX, NordPool.

The increase in the price of the EUA and CER Dec. 11 contracts over the month was 4.4%



Source: ICE

EUA-CER Dec. 11 price spread: + 9.8% at 3,69€/tCO_2

Source: ICE

Energy

Primary energy prices and electricity prices

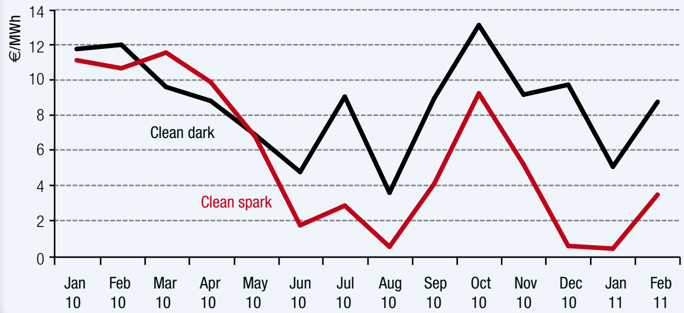
			February 2011	
Coal	API # 2 CIF ARA (First month in USD/t)		119.3	▼
Natural gas	NBP (spot in €/MWh)		21.7	▼
	TTF (spot in €/MWh)		21.8	▼
Crude oil	Brent (First month in USD/b)		104	▲
Electricity	Germany (€/MWh)	Spot	52.5	▲
		Calendar	47.2	▼
	United Kingdom (€/MWh)	Spot	54.8	▼
			55.3	▼
		Next winter	52.6	▼

Sources: CDC Climat Research, Thomson Reuters

Clean dark, clean spark sreads and switching price

	Clean spark (€/MWh)		Clean dark (€/MWh)		Switching Price (€/tCO$_2$)	
	spot	cal.12	spot	cal.12	spot	cal.12
Germany	3.5	– 6.8	8.8	2.6	18.8	22.9
United Kingdom (* winter 2011)	11	4.7*	19.2	14.9*	23.7	23.2*

German baseload – monthly average of spot clean dark and clean spark spreads



Sources: CDC Climat Research, Thomson Reuters

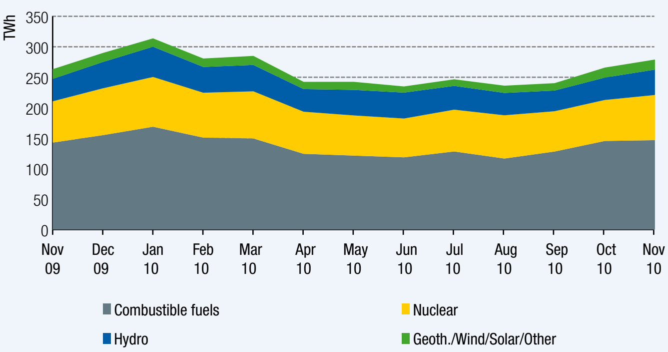
The price of Brent Crude registered an average 7.3% increase compared with the previous month in February 2011. Brent Crude ended the month at US$112.10 per barrel, the highest level since August 2008, due to market concerns regarding events in the Middle East, and especially in Libya, where 65% of the country's oil production was halted. The price CIF ARA coal fell by 5% over the month, while average spot-contract TTF and NBP gas prices were also down 4% and 3% respectively. The rise in the EEX electricity price, combined with the fall in coal and gas prices, raised the level of clean spark and clean dark spreads in Germany to €3.5/MWh and €8.8/MWh respectively. In the medium-term, the combination of the fall in the basic electricity price on EEX and the relatively more significant increase in the price of gas compared with the price of coal for delivery in 2012 has reduced clean spark margins by considerably more than clean dark margins for the same maturity, limiting the arbitrage opportunities for using gas.

Production

Electricity production (TWh)

EU 20 (in TWh)	Nov. 10	Since jan.10	Past year (% change)
Production	279	2,867	1.68%
of which - Combustible fuels	146	1,498	0.80%
- Nuclear	74	778	3.15%
- Hydro	41	445	3.03%
- Geoth./Wind/Solar/Other	16	145	–0.96%

** Gas, coal, oil.*

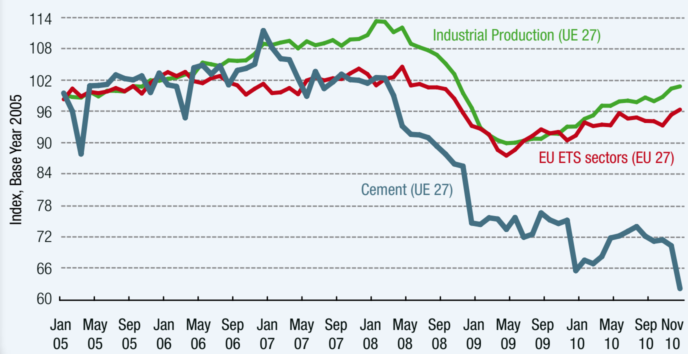


Source: CDC Climat Research, from IEA data

Production indices (indice, base year, 2005)

EU 27	Nov. 10	Last month (%)	Year-on-Year (%)
Indust. Prod (excl. construction)	100.8	0.4%	3.4%
EU ETS sectors production*	96.4	1.0%	2.4%
Electricity, gas and heating	103.2	3.5%	4.0%
Cement	62.1	–11.7%	–10.9%
Metallurgy	92.1	–2.4%	3.1%
Oil refinery	93.4	–2.0%	1.9%

** Index weighted by EU ETS sectors's weight in average total allocation over 2008-2012*



Source: CDC Climat Research from Eurostat data

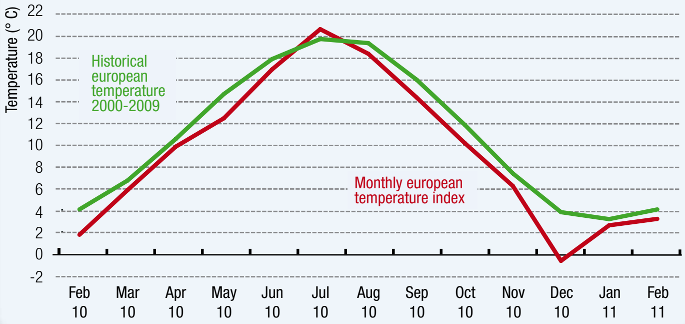
Our new electricity generation indicator provides details of electricity generation in the 20 EU ETS member countries. In November 2010, European electricity generation amounted to 279 TWh, a monthly increase of 5.2%. 52% of the electricity generated since January 2010 was from fossil fuels, up 0.8% compared with 2009. Renewable energy accounted for 5% of the electricity generated in 2010, a 0.9% drop compared with 2009, while nuclear and hydro-electricity's shares were up 3% respectively. Our EU ETS sector production index rose by 1% in December 2010, returning to its highest level since October 2008. The sector that suffered most was the cement production sector, which experienced a significant 11% fall as a result of the cold temperatures recorded at the end of 2010.

Temperature impact

European temperature index (°C)

- Average of the MetNext Weather indices for 18 European countries, weighted according to the emission allowances allocated to each country.

	Jan. 11	Feb. 11
Monthly average (°C)	2.74	3.33
Monthly average (°C) 2000-2009	3.3	4.19
Monthly minimum (°C)	–1.14	–0.38
Monthly maximum (°C)	3.52	5.13

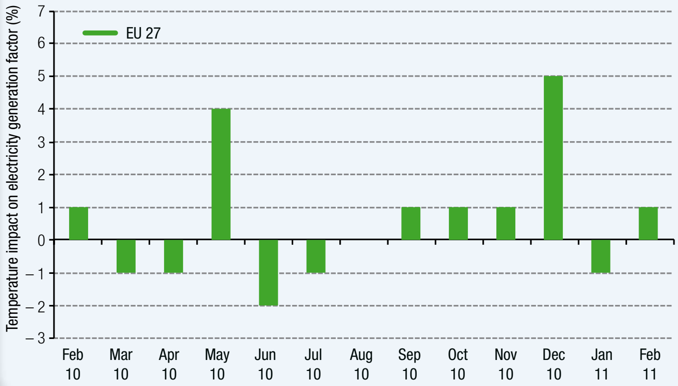


Source: Metnext Weather

Temperature impact on electricity generation factor

- The impact factor, which is calculated on the basis of a statistical electricity generation model, expresses the temperature impact in relation to average weather patterns for the 10 years between 2000 and 2009.

	Jan. 11	Feb. 11
EU 27	–1%	1%



Source: Metnext Weather

Our EU ETS temperature index now covers 18 EU ETS member countries. In February 2011, our temperature index, which is weighted according to the size of each country in the EU ETS, was 3.3°C, which represents a difference of –0.8°C compared with its ten-year average. The Northern and Eastern European areas were those that experienced the most abnormal temperatures, particularly Sweden (–3.4°C), Poland (–3.2°C), and Hungary and Norway (–2.1°C). Conversely, the temperature recorded in the United Kingdom was 1.3°C above the ten-year average. We are applying a factor that assesses the impact of weather on the sensitivity of electricity generation, enabling us to assess the consequences of these abnormal temperatures on electricity generation. The impact of the –0.8°C temperature difference relative to the 10-year average observed in February was to boost European electricity generation, while temperatures close to the seasonal average lowered individual countries' electricity output, particularly in Germany and in France, where the impact factors amounted to –7% and –11% respectively.

Institutional environment

EUA supply (tCO_2eq)

	2008	2009	2010
Allowances allocated (kt)	**1,954,286**	**1,954,246**	**1,987,217**
Combustion installation	1,256,395	1,253,687	1,279,900
Cement clinker	211,254	211,654	214,614
Iron and steel	184,416	184,603	184,656
Mineral oil refineries	153,333	153,123	157,357
Pulp, paper and board	38,026	38,406	39,433
Glass	25,034	25,363	25,767
Other activities	22,933	24,170	22,684
Coke ovens	22,531	22,409	22,031
Metal ore	21,825	21,982	21,591
Ceramic products	18,539	18,848	19,183
Allowances auctioned	**44.00**	**72.00**	**93.51**

Sources: CITL, UK Debt Management Office, EEX

CER and ERU supply (tCO_2eq)

	Feb. 11	Last month change
Number of CDM projects	**6,977**	**+120**
of which - registered	2,703	+145
with - CER issued	844	+27
Cumulative volume of CER issued (Mt)	496	+21
CER available until May 2013 - CDC Climat Research estimate (Mt)	1,125	–5
Number of JI projects	414	+15
of which - registered	206	+13
Cumulative volume of ERU issued (Mt)	102	+4,5
via - Track 1	28	+4
via - track 2	74	+1

Sources: CDC Climat Research, UNEP Risoe

In February 2011, after examining the registrars' reports on the introduction of security measures, the European Commission approved the gradual reopening of 15 registries, which represent some 72% of EU ETS emission allowances. Within the framework of the Kyoto Protocol, the UNFCCC Compliance Committee decided on February 3rd that Bulgaria would be re-connected to the ITL, the international registry, after being suspended for non-compliance with reporting directives for seven months. On February 23rd, Member States reacted favourably to the proposals made by the Commission at the end of January, in order to strengthen the integrity and security of the EU ETS following the cyber-theft of allowances from several registries. The Commission is organising a stakeholders' meeting on March 15th, in order to continue discussions on the issue. On February 21st, Germany, Poland and the United Kingdom informed the Commission that they were withdrawing from the common allowance auction platform from 2013 onwards, in preparation for Phase 3 of the EU ETS. This means that almost 60% of the allowances auctioned will arrive on the market via the common platform.

Carbon markets dashboard

Primary market - EUA auctions ($MtCO_2$)

Countries			Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11
United Kingdom	Price (€/t)		12.66	13			15.6	14.65		15.58	15.46	14.51		14	14.36
	Volume (Mt)		4.4	4.5			4.4	4.4		4.4	4.4	4.4		4.4	4.4
Germany	Price (€/t)	Spot	12.89	12.86	14.07	15.17	15.27	14.17	14.57	15.14	15.28	14.63		14.14	14.66
		Futures	13.03	13.05	14.29	15.52	15.42	14.01	14.57	15.4	15.33			14.51	14.87
	Volume (Mt)	Spot	1.2	1.5	1.2	1.2	1.5	1.2	1.5	1.2	1.2	4.35		1.2	1.2
		Futures	2.28	2.85	2.28	2.28	2.85	2.28	2.28	2.28	2.28			2.28	2.28
Others	Price (€/t)			12.78	14.1						14.9	14.75			
	Volume (Mt)			0.2	4						2	2.2			

Sources: UK Debt Management Office, EEX

Primary market - CER and ERU issued ($MtCO_2$)

		Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11
Cumulative volume of CER issued UNEP-Risoe (Mt)		386	-	407	418	421	424	430	439	450	475	496	546	553
CER available until May 2013 - CDC Climat Research estimate (Mt)		1,225		1,200	1,200	1,200	1,250	1,200	1,175	1,175	1,130	1,125	1,100	1,115
Cumulative volume of ERU issued (Mt)	Track 1 (Mt)	16		17	18	20	20	21	23	23	24	28	28	31
	Track 2 (Mt)	70		70	69	71	72	73	72	73	73	74	74	75

Sources: UNEP-Risoe, CDC Climat Research

Secondary market - Prices (€/t) and volumes: EUA, CER, ERU ($MtCO_2$)

			Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11
Spot market (BlueNext)		Price EUA	12.87	12.87	14.24	15.3	15.32	14.21	14.62	15.31	15.1	14.76	14.22	14.13	14.56
		Volume EUA	30,129	39,359	44,527	24,671	23,344	13,769	10,404	12,928	11,816	18,875	8,001	1,603	884
		Price CER	11.66	11.74	12.79	13.22	12.95	12.2	12.68	13.71	13.39	12.3	11.75	11.38	11.57
		Volume CER	4,253	7,871	4,189	2,574	4,476	3,562	4,097	3,032	1,362	3,988	5,185	4,633	5,117
		Spread EUA-CER	1.21	1.12	1.12	1.45	2.07	2.36	2.01	1.93	1.6	1.86	2.46	2.75	2.97
		Price ERU											11.77	11.35	11.51
		Volume ERU											1,129	115	141
Futures Markets (ICE)	Dec.11	Price EUA	13.48	13.49	14.71	15.9	15.83	14.7	14.99	15.69	15.64	15.08	14.62	14.54	14.98
		Volume EUA	32,702	28,550	33,921	58,667	58,607	47,593	32,970	43,235	54,446	77,440	105,774	190,681	208,412
		Price CER	11.38	11.36	12.38	12.81	12.66	11.92	12.28	13.06	12.88	11.83	11.39	11.12	11.50
		Volume CER	10,857	14,377	19,796	16,944	21,177	16,709	20,621	18,100	18,744	28,167	20,944	23,133	27,516
		Spread EUA-CER	2.1	2.13	2.33	3.09	3.17	2.78	2.7	2.63	2.75	3.24	3.23	3.41	3.47
		Price ERU										11.66	11.29	11.05	11.38
		Volume ERU										150	1,085	556	70
	Dec.12	Price EUA	14.12	14.16	15.44	16.57	16.41	15.25	15.5	16.16	16.12	15.56	15.06	14.98	15.53
		Volume EUA	60,161	41,779	58,457	57,720	61,990	61,694	39,749	35,618	47,238	66,596	46,144	67,444	69,670
		Price CER	11.70	11.50	12.24	12.58	12.71	11.92	12.23	12.92	12.70	11.55	11.15	10.99	11.30
		Volume CER	13,848	28,613	27,879	27,567	35,217	19,887	21,209	15,586	22,602	35,979	23,244	39,993	25,014
		Spread EUA-CER	2.42	2.66	3.2	3.98	3.7	3.32	3.27	3.24	3.42	4.01	3.9	3.98	4.23
		Price ERU										11.38	11.05	10.91	11.208
		Volume ERU										0	300	436	50
	Dec.13	Price EUA	15.2	15.25	16.61	17.66	17.44	16.34	16.61	17.33	17.31	16.61	16.07	15.96	16.50
		Volume EUA	15,150	4,274	11,330	10,529	7,390	6,291	3,495	4,816	16,654	9,437	14,088	18,143	26,090
		Price CER												11.87	12.20
		Volume CER												685	1,580
		Spread EUA-CER												4.09	4.29

Sources: BlueNext, ICE

Emission-to-cap by EU ETS sector and country: difference between distributed allocations of allowances and verified emissions

	2008	2009
Combustion	–253,397,039	–120,915,422
Cement clinker	20,892,716	60,194,224
Iron and steel	51,556,093	90,276,044
Mineral oil refineries	–1,796,150	6,915,696
Pulp, paper and board	6,490,531	10,530,426
Glass	2,359,395	5,973,881
Other activities	210,431	4,294,176
Coke ovens	1,542,298	6,672,287
Metal ore	4,182,364	10,949,370
Ceramic products	5,144,719	9,795,989
Total	**–162,814,642**	**84,686,671**

Source: CITL

	2008	2009
Germany	–83,873,120	–40,057,951
Unites Kingdom	–51,500,013	–15,768,178
Italia	–9,544,324	18,764,954
Poland	–3,192,707	9,902,609
Spain	–9,593,781	13,522,322
France	5,860,886	18,612,770
Czech Republic	5,116,459	13,256,216
The Netherlands	–6,279,933	2,717,921
Romania	7,388,820	24,449,364
Others	–17,196,929	39,286,644
Total	**–162,814,642**	**84,686,671**

Source: CITL

CDC Climat Research is the research department of CDC Climat, a subsidiary of the Caisse des Dépôts dedicated to the fight against climate change. CDC Climat Research provides public research on the economics of climate change.
The herein opinion and analysis bind neither BlueNext S.A. nor Metnext S.A
ISSN: 1953- 0439

CDC Climat Research
Publication manager: Benoît Leguet
Editor in Chief: Nicolas Stephan, Tel : + 33 1 58 50 77 72
nicolas.stephan@cdcclimat.com
47, rue de la Victoire - 75009 Paris