

Aviation in the EU ETS: ECJ clears the runway

The inclusion of the aviation sector from January 1st 2012 onwards represents a new step in the implementation of the EU Emissions Trading Scheme (EU ETS). Following the steady expansion of the EU ETS' scope to new Member States since 2005, the European Commission is now adding around 5,000 European airline companies and foreign companies that do business in Europe to the industrial and manufacturing sectors.

As the aviation sector aims to reduce its emissions by 3% compared with its average historical (2004-2006) annual emission in 2012, and then by 5% per year between 2013 and 2020, it will receive 214.7 MtCO₂ in allowances in 2012, and then 210.3 MtCO₂ per year from 2013 onwards. This allocation will be mostly free of charge, although 15% of the allowances will be put up for auction, and 3% will be set aside for new operators. The aviation sector will therefore become the second largest economic sector in the EU ETS, after energy generation.

Against the current backdrop of an economic recession in Europe, a low carbon price, and discussions regarding the potential intervention of the European Commission on the allowance supply, this addition to the sectors included in the scope of the EU ETS could reinforce the EU's CO₂ emission reductions policy, which is based on a carbon price, in three ways:

- **The aviation sector is likely to represent a new source of demand for allowances.** Assuming that emissions increase by 2.5% per year on average between 2012 and 2014, and then by 2% per year over the period between 2015 and 2020, airline companies would already be short of allowances in 2012. Their overall requirement, in terms of the allowances to be covered by purchases or market credits, is estimated at 420 MtCO₂ over the period between 2012 and 2020, i.e. 52.4 MtCO₂ per year. The use of Kyoto credits, for up to 15% of the 2012 emissions cap, and then for 1.5% of certified emissions between 2013 and 2020, provides the opportunity to import up to around 63 MtCO₂ between 2012 and 2020. Nonetheless, airline companies are expected to enter the market gradually, depending on their emission coverage needs, even though the low carbon price is already encouraging them into action.

- **The inclusion of the aviation sector is first and foremost a test of the EU's proactive climate policy to engage other countries to develop a climate policy, without breaking international law.** Indeed, around two-thirds of the airline companies affected by the EU ETS are of non-European origin. Some countries, especially the United States and China, are opposing the system, based on two arguments: the unilateral and extra-territorial nature of the system, and the infringement of the founding UNFCCC principle of "common but differentiated responsibilities". In response to the legal appeal launched by US airline companies, the European Court of Justice confirmed that the system was compatible with international law in late December 2011. Despite this verdict, the Chinese Air Transport Association (CATA) let it be known at the beginning of 2012 that it would continue its legal action against the EU.

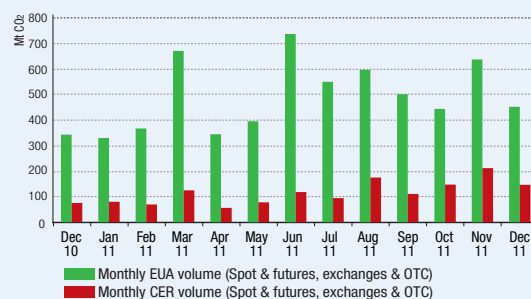
- **This sector extension also amounts to a first practical experiment** regarding the benefits of an emission allowance trading system for the sector, which could provide material for the International Civil Aviation Organisation (OACI)'s discussions on the possibility of drawing up a future sector agreement.

At term, it is still possible that the European Commission could exempt the airline companies of major emitting countries if they adopt domestic measures equivalent to the EU ETS. This would nevertheless be a significant victory for European climate policy and its leadership.

Key points

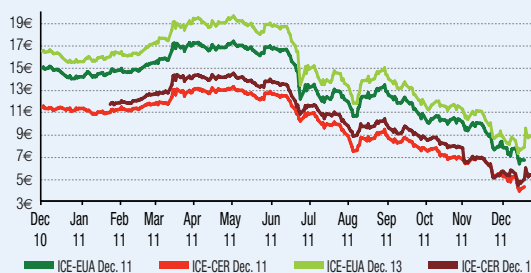
- 1) The European Court of Justice upheld the directive that includes the aviation sector in the EU ETS from January 1st 2012.
- 2) The European Commission granted Estonia 3 million additional EUAs for the period between 2008 and 2012.
- 3) The Climate Change Committee approved two draft regulations on monitoring, reporting and verifying CO₂ emissions.
- 4) In 2011, the volume of transactions amounted to 6,053 million EUAs, 1,418 million CERs and 62.8 million ERUs (up 20%, 53% and 1,406% respectively compared with 2010).

Monthly volumes were down: EUAs (-29%), CERs (-31%), ERUs (-19%)



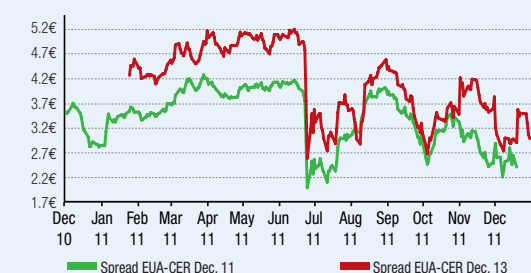
Sources: ICE Futures Europe, BlueNext, Nasdaq OMX, EEX, LCH Clearnet, GreenX

The Dec. 2013 EUA-CER spread narrowed by 20% compared with a 5% contraction for the Dec. 2012 contract



Source: ICE Futures Europe

Dec. 2012 EUA and CER contracts were down 19% and 27% respectively



Source: ICE Futures Europe

Energy

Primary energy prices and electricity prices

		Dec. 2011	
Coal	API # 2 CIF ARA (First month in USD/t)	111.3 ▼	
Natural gas	NBP (spot in €/MWh)	22.6 ▼	
	TTF (spot in €/MWh)	22.4 ▼	
Crude oil	Brent (First month in USD/b)	107.7 ▼	
Electricity	Germany (€/MWh)	Spot	44.4 ▼
		Calendar	52.6 ▼
	United Kingdom (€/MWh)	Spot	50.9 ▼
		Next summer	53.4 ▼
		Next winter	60.6 ▼

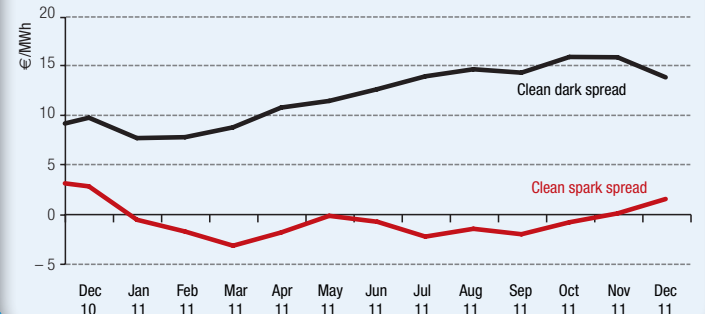
Sources: CDC Climat Research, Thomson Reuters

Clean dark, clean spark spreads and switching price

	Clean spark (€/MWh)		Clean dark (€/MWh)		Switching Price (€/tCO ₂)	
	spot	forward	spot	forward	spot	forward
Germany*	-3.3	1.6	8.4	13.9	20.4	21.8
United Kingdom*	9.2	3.1	23.3	27.0	25.8	27.8

* Germany, 2013 calendar contract, United Kingdom, summer 2012 contract.

German baseload – monthly average of Cal. 2013 clean dark and clean spark spreads



Sources: CDC Climat Research, Thomson Reuters

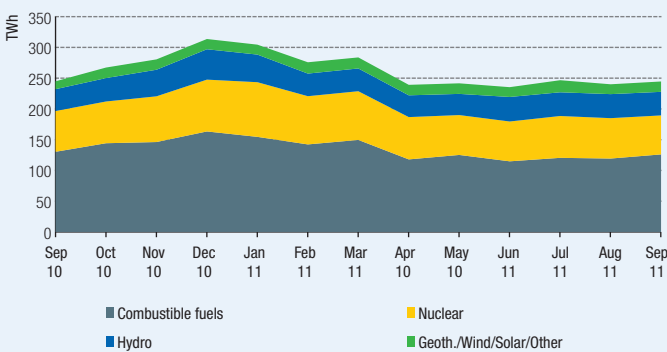
Despite predictions of a recession in Europe and the United States, the price of Brent Crude remained at very high levels, due mainly to tensions in the Middle-East. The price of energy commodities with short-term maturities fell nonetheless, due to the drop in demand (economic stagnation and mild weather conditions): next month Brent Crude was down 2.5%; next month CIF ARA coal was down 2.8%, spot TTF gas was down 5.9%, and spot NBP gas was down 4.4%. The price of front year contracts also fell, with NBP and TTF gas down 7.1%, although CIF ARA coal rose by 2.9%. As a result, the monthly day ahead German electricity contract price fell sharply (by 23.1%), compared with a limited fall of 3.7% for the calendar 2013 contract. The rise in the cost of coal for the period to 2013, combined with the fall in electricity prices, is hurting coal power plant margins, while the fall in gas prices has significantly boosted gas power plant margins. The forward CO₂ switch price reached €21.80 and €27.80 per tonne respectively in Germany and the United Kingdom.

Production

Electricity production (TWh)

EU 20 (in TWh)	Sept. 11	Since Jan. 11	Past year (% change)
Production	244.6	2,311.4	-1.8%
of which - Combustible fuels	126.0	1,170.2	-3.5%
- Nuclear	63.3	641.8	0.8%
- Hydro	38.3	344.2	-9.8%
- Geoth./Wind/Solar/Other	16.8	155.1	25.7%

* Gas, coal, oil.

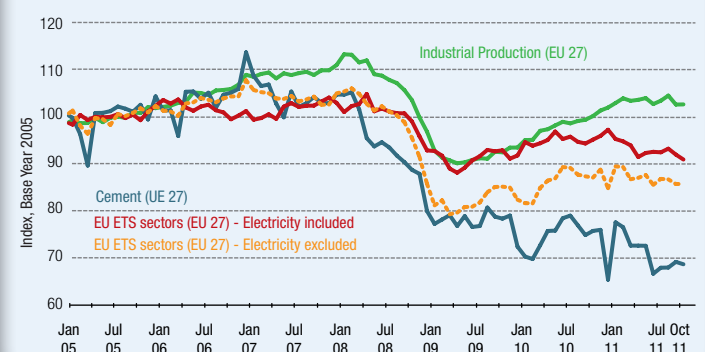


Source: CDC Climat Research, from IEA data

Production indices (Index base year 2005)

EU 27	Oct. 11	Last month (pts)	Year-on-Year (pts)
Indust. Prod (excl. construction)	102.6	0.0	-0.2
EU ETS sectors production*	90.9	-1.0	-2.7
Electricity, gas and heating	93.7	-1.6	-3.4
Cement	68.7	-0.5	-2.8
Metallurgy	95.0	-0.3	0
Oil refinery	89.7	0.2	-1.5

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



Source: CDC Climat Research from Eurostat data

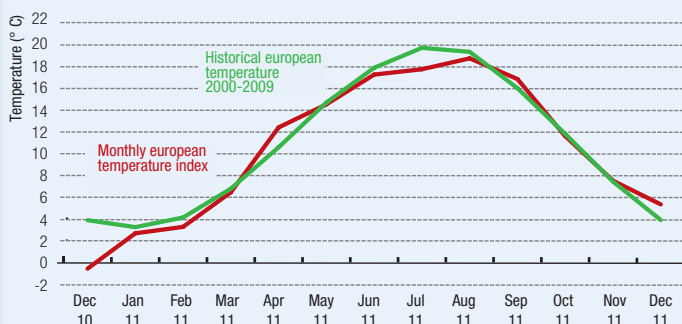
Doubts over the euro zone economy are still putting downward pressure on industrial confidence indices in the EU (-1 pt). Inventories are still high, while company directors remain pessimistic about their order book trend in euro zone countries. Manufacturing output indices for October 2011 were unchanged compared with the previous month, except for the EU ETS sectors, which registered a one point drop, due mainly to the fall in electricity generation (-1.6 pts). The metal ore production (+9.2 pts) and ceramic products (+2 pts) sectors reported the strongest growth. Aggregate European electricity generation between January and September 2011 reached 2,311.4 TW, down 1.8% compared with 2010. This contraction was accompanied by the increased use of nuclear power (+0.8%) and renewable energies (+25.7%), and by a fall in the use of hydropower (-9.8%) and fossil fuels (-3.5%).

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.

	Nov. 11	Dec. 11
Monthly average (°C)	7.6	5.4
Monthly average (°C) 2000-2009	7.5	4.0
Monthly minimum (°C)	4.5	2.2
Monthly maximum (°C)	11.7	7.9

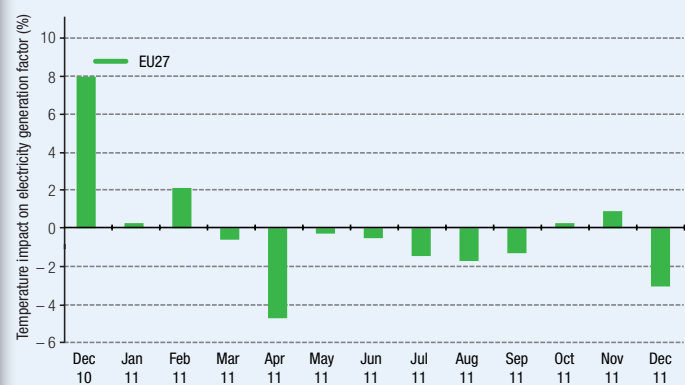


Source: Metnext Weather

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.

	Nov. 11	Dec. 11
EU 27	0.9%	-3%



Source: Metnext Weather

The temperatures recorded in Europe in December turned out to be mild; the EU ETS index reached 5.4°C, well above the ten-year trend of 4.0°C. Temperatures were milder than average in Finland (+4.4°C), Germany (+2.5°C), Poland (+2.5°C), and France (+2.3°C). Temperatures were, however, below the ten-year average in Spain (-2.0°C), and Ireland (-1.4°C). The aggregate impact of these temperatures was a 3% reduction in gross electricity generation in the EU 27. The Metnext Impact Factor shows that the mild temperatures recorded reduced electricity generation by 7.2% in France, 6.4% in the Netherlands, and by 5.3% in Germany compared with normal temperature conditions. The level of rainfall in Oslo was 41 mm above the ten-year trend, which contributed towards improving the reservoir fill rate in the Nordic Region, where fill rates are 6.8% above the ten-year average.

Institutional environment

EUA supply

	2008	2009	2010
Allowances allocated (kt)	1,950,156	1,967,787	1,984,218
Combustion installation	1,254,227	1,265,113	1,278,989
Cement clinker	209,805	212,571	214,147
Iron and steel	184,454	184,786	184,213
Mineral oil refineries	153,205	153,850	156,964
Pulp, paper and board	37,803	38,740	39,332
Glass	24,864	25,238	25,246
Other activities	22,531	22,508	22,845
Coke ovens	21,928	21,982	21,978
Metal ore	18,215	18,640	18,660
Ceramic products	23,122	24,360	21,845
Allowances auctioned (Mt)	44.00	72.00	85.63

Sources: CIL, UK Debt Management Office, EEX

CER and ERU supply

	Dec. 11	Last month change
Number of CDM projects	9,045	+210
<i>of which - registered</i>	3,743	+123
<i>with - CER issued</i>	1,354	+84
Cumulative volume of CER issued (Mt)	816	+33
CER available until May 2013 - CDC Climat Research estimate (Mt)	1,325	0
Number of JI projects	541	+18
<i>of which - registered</i>	311	+3
Cumulative volume of ERU issued (Mt)	108	+3
<i>via - Track 1</i>	97	+1
<i>via - Track 2</i>	12	+1

Sources: CDC Climat Research, UNEP, Riseo

The European Commission finally granted Estonia 3 million additional EUAs as part of its Phase II allocation (i.e. 13.3 million EUAs per year). On December 21st, the European Court of Justice upheld the Directive that includes the aviation sector in the EU ETS from 2012 onwards. The European Parliament's Environment Committee voted for amendments to the Commission's draft Directive on Energy Efficiency, which was issued in June 2011; the option of reviewing the Phase III allocation cap is expected to be decided when the ITRE Committee votes on the end of February, and in a plenary session in April. On December 15th, the European Commission proposed an Energy 2050 Roadmap, which explores seven energy mix scenarios aiming to play a role in reducing emissions by between 80% and 95% by 2050, while improving the competitiveness and security of energy supplies. The decisions taken at the Durban Summit in December 2011 formalised the extension of the Kyoto Protocol and its initiatives, but had no significant impact on the EU ETS.

Carbon markets dashboard

Primary market - EUA auctions (MtCO₂)

Countries		Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug 11	Sep-11	Oct-11	Nov-11	Dec-11
United Kingdom	Price (€/t)		14.00	14.36	15.59			16.34	13.17		12.31	10.38	9.72	-
	Volume (Mt)		4.40	4.40	4.40			3.50	3.50		3.50	3.50	3.50	-
Germany	Price (€/t)	Spot	14.14	14.66	15.92	16.45	16.62	15.12	12.49	11.94	11.62	10.21	9.69	-
		Futures	14.51	14.87	16.54	16.92	16.69	15.55	12.63	12.41	11.67	10.35	(n.a)	-
	Volume (Mt)	Spot	1.20	1.20	1.50	1.20	1.50	1.50	1.20	1.50	1.20	1.20	3.27	-
		Futures	2.28	2.28	2.85	2.28	2.28	2.85	2.28	2.45	2.28	2.28	(n.a)	-
Others	Price (€/t)							12.70 *	12.13		11.34	10.37	8.55	7.13
	Volume (Mt)							1.10	2.95		1.75	4.00	3.93	0.85

Sources: EEX, UK Debt Management Office, Athens Stock Exchange*

Primary market - CER and ERU issued (MtCO₂)

		Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug 11	Sep-11	Oct-11	Nov-11	Dec-11
Cumulative volume of CER issued UNEP-Risoe (Mt)		496	546	553	576	605	624	647	670	708	745	759	783	816
CER available until May 2013 - CDC Climat Research estimate (Mt)		1,125	1,100	1,115	1,125	1,130	1,150	1,150	1,175	1,225	1,250	1,300	1,325	1,325
Cumulative volume of ERU issued (Mt)	Track 1 (Mt)	16.6	24.1	24.9	26.8	27.9	28.3	32.2	36.9	43.3	50.3	76.9	95.5	96.8
	Track 2 (Mt)	4.2	4.7	4.7	8.3	8.5	8.6	9.1	9.6	10.0	10.0	10.2	10.2	11.6

Sources: UNEP-Risoe, CDC Climat Research

Secondary market - Prices (€/t) and volumes: EUA, CER, ERU (ktCO₂)

		Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug 11	Sep-11	Oct-11	Nov-11	Dec-11	
Spot market (BlueNext)	Price EUA	14.2	14.1	14.6	15.7	16.3	16.5	15.2	12.6	12.2	11.7	10.3	9.4	7.4	
	Volume EUA	8,001	1,603	884	7,298	5,464	2,538	4,111	4,498	6,109	4,551	3,003	2,499	2,718	
	Price CER	11.8	11.4	11.6	12.5	13.1	12.8	11.7	10.0	8.7	8.4	7.4	6.6	4.8	
	Volume CER	5,185	4,633	5,117	3,127	2,950	1,483	3,952	1,055	2,921	2,439	2,528	1,256	1,618	
	Spread EUA-CER	2.5	2.8	3.0	3.2	3.2	3.7	3.5	2.6	3.5	3.3	2.9	2.8	2.6	
	Price ERU	11.8	11.4	11.5	12.5	13.0	12.7	11.6	9.9	8.5	8.2	7.2	6.4	4.7	
	Volume ERU	1,129	115	141	235	330	0	1	150	0	0	23	10	727	
Futures Markets (ICE)	Dec. 11	Price EUA	14.6	14.5	15.0	16.5	17.0	16.8	15.4	12.7	12.3	11.8	10.4	9.5	7.4
		Volume EUA	105,774	190,681	208,412	398,313	201,118	227,804	395,370	329,864	353,066	288,030	231,492	307,452	151,311
		Price CER	11.4	11.1	11.5	12.5	13.0	12.7	11.8	10.1	8.7	8.4	7.3	6.6	4.9
		Volume CER	20,944	23,133	27,516	52,102	31,325	33,150	39,164	35,720	62,339	35,872	48,447	55,317	48,695
		Spread EUA-CER	3.23	3.41	3.47	4.02	3.92	4.05	3.60	2.60	3.7	3.5	3.1	2.9	2.5
		Price ERU	11.29	11.05	11.385	12.46	12.93	12.64	11.67	10	8.47	8.14	7.1	6.5	4.7
		Volume ERU	1,085	556	70	1,002	0	552	325	25	7,550	3,160	4,898	9,013	8,050
	Dec. 12	Price EUA	15.06	14.98	15.5255	17.17	17.8	17.56	16.03	13.32	12.86	12.3	10.8	10	7.8
		Volume EUA	46,144	67,444	69,670	123,705	70,472	75,281	148,830	108,235	113,470	100,058	115,322	175,003	193,068
		Price CER	11.2	11.0	11.3	12.3	12.9	12.7	11.8	10.3	8.8	8.5	7.4	6.6	4.7
		Volume CER	23,244	39,993	25,014	48,272	15,872	24,143	43,733	30,800	63,087	36,361	55,588	64,442	60,857
		Spread EUA-CER	3.9	3.98	4.23	4.83	4.93	4.89	4.19	3.06	4.02	3.76	3.40	3.40	3.10
		Price ERU	11.05	10.91	11.208	12.23	12.77	12.57	11.74	10.16	8.66	8.3	7.2	6.5	4.6
		Volume ERU	300	436	50	370	0	525	1,750	250	3,350	3,260	200	2,625	2,446
Dec. 13	Price EUA	16.07	15.96	16.4965	18.36	19.13	18.88	17.22	14.29	13.69	13.15	11.6	10.6	8.4	
	Volume EUA	14,088	18,143	26,090	35,657	34,401	34,612	85,200	48,253	59,362	41,790	42,578	63,891	56,595	
	Price CER		11.9	12.2	13.6	14.2	13.9	12.7	11.0	9.8	9.3	8.3	7.4	5.3	
	Volume CER		685	1,580	2,297	1,324	5,790	11,906	3,720	25,427	11,936	17,109	64,442	11,176	
	Spread EUA-CER		4.1	4.3	4.7	4.9	5.0	3.9	3.3	3.9	3.8	3.3	3.2	3.1	

Sources: BlueNext, ICE Future Europe

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

	2008	2009	2010		2008	2009	2010	
Combustion	-253,550,053	-113,953,229	-127,220,592	Source: CITL	Germany	-84,222,673	-37,074,525	-53,462,742
Cement clinker	20,182,819	59,906,658	62,985,897		United Kingdom	-52,601,823	-17,273,131	-16,955,792
Iron and steel	51,597,174	90,456,616	70,376,100		Italia	-9,116,362	24,502,770	10,910,263
Mineral oil refineries	-1,831,556	7,400,996	13,486,862		Poland	-3,139,504	10,799,547	5,481,031
Pulp, paper and board	6,559,985	10,878,883	9,424,977		Spain	-9,919,501	13,516,237	28,641,386
Glass	2,328,312	5,898,098	5,311,627		France	5,880,211	18,592,403	16,050,484
Other activities	1,542,298	6,750,301	2,904,448		Czech Republic	5,116,459	13,282,127	12,192,415
Coke ovens	4,264,021	10,949,370	8,912,954		The Netherlands	-6,278,816	2,755,940	480,287
Metal ore	4,931,225	9,583,215	9,678,352		Romania	7,689,008	24,829,146	27,310,537
Ceramic products	273,567	4,300,969	125,808		Others	-17,109,207	38,241,363	25,338,564
Total (t)	-163,702,208	92,171,877	55,986,433		Total (t)	-163,702,208	92,171,877	55,986,433