

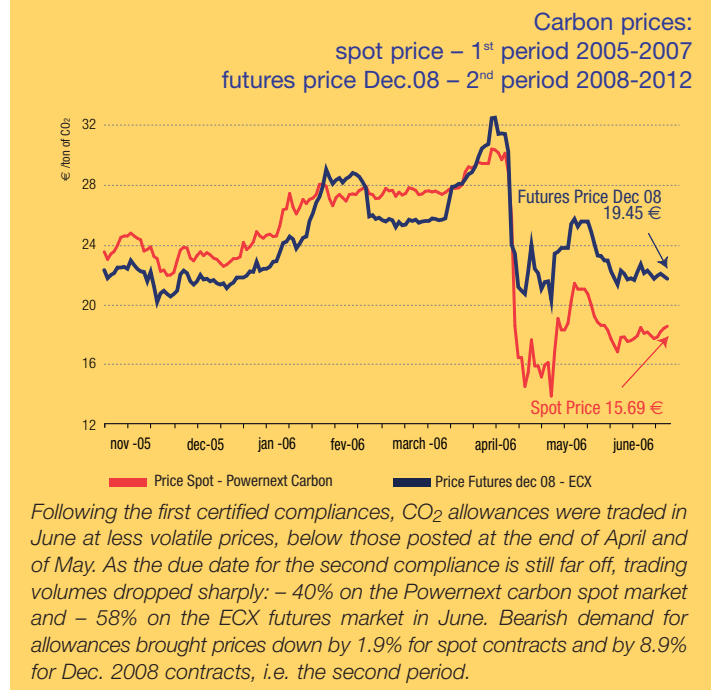
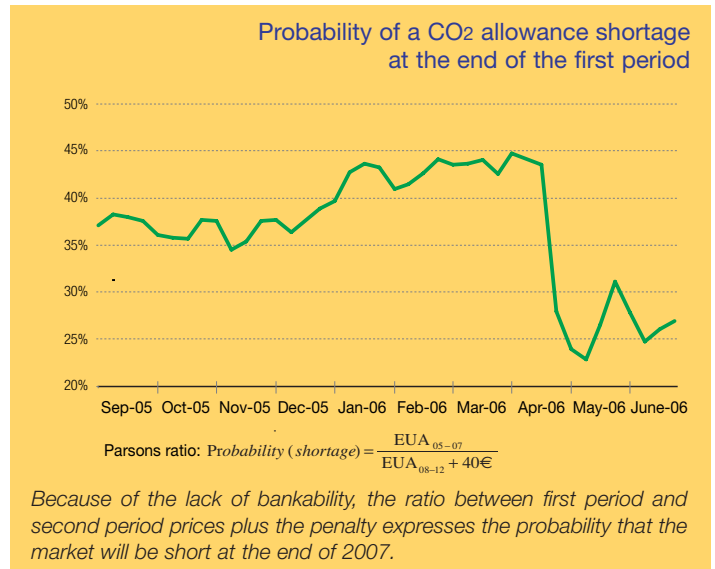
Shortage, Inter-period Pricing, and Banking

The recent release of 2005 emissions data has revealed that the EU ETS is not as short as previously thought and prompted much speculation about the tightness of the system. Attention has focused on the dramatic change in the level of EUA prices, but the more interesting feature is the relationship between 1st and 2nd period prices for it reveals the probability of a shortage at the end of the 1st period.

It is virtually certain that the EU ETS will then be either long or short; the odds of a perfect match between 1st period EUAs and emissions are extremely small. Inevitably, some poor soul will either be holding worthless EUAs or paying the price for being uncovered, 40 euros plus the value of a 2nd period EUA. This binary outcome places a limit on 1st period prices that, when coupled with the constraint on inter-period banking, allows a probability of shortage to be calculated taking into account all the uncertainties ... weather, economic growth, energy prices, and the abatement response to carbon prices. At any point in time, this probability is indicated by the ratio of the 1st period price to the 2nd period price plus 40 euros, which represent the penalty.

If it were certain that the system would be long at the end of 2007, the 1st period price would be zero. Conversely, certainty of shortage implies a 40 euro premium. Given all the uncertainties, the probability lies somewhere between and market prices tell us where, as indicated by the graph to the right. Since September, the market estimate of this probability increased steadily from around 35% to almost 50% and the recent news reduced it to around 25%. All in all, this is a reasonable adjustment of expectations.

Actually, there is a chance of a third outcome, which is that the inter-period prices will line up as if there were unrestricted banking between the two periods. This possibility is suggested by the curious fact that the 2nd period price is now 1/3 lower than it was in April even though 2nd period allocations will be less because of the recently released 2005 data. Something else has changed. In fact, limited banking can occur, most obviously with CERs. Whatever the quantity available at the end of 2007, they can be used in either period depending on the 07/08 price relationship. Ditto for unused French or Polish EUAs. Far from being deplorable exceptions, these provisions, like CERs, have useful price-stabilizing properties that remove supply from the 1st period and add it to the 2nd, or vice versa, depending on the inter-period price relationship. Other forms of arbitrage across the banking constraint also exist. All of



these measures create an end-of-period inventory that can be used in either period. If it is big enough, 1st and 2nd period prices will line up; if not, the binary outcome will occur to the distress of some poor soul, who can only hope that neither the French nor Polish governments will restrict the limited ability to bank 1st period EUAs that now exists.

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The Tendances carbone's team wishes to thank Professors Ellerman and Parsons for having accepted to write this month's point of view.

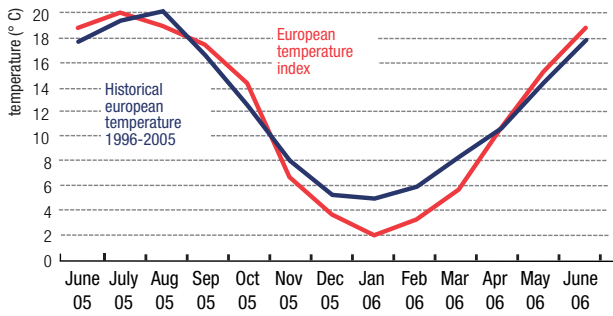
Source: Powernext Carbon, ECX, PointCarbon

European temperature index (°C)

Average of Powernext Weather indices* – France, Germany, UK and Spain – weighted by the allowances allocated to each country.

	May	June
Monthly average (°C) - 2006	14.8	18.2
Monthly average (°C) - 1996-2005	14.0	17.3
Monthly maximum (°C) - 2006	10.8	11.4
Monthly minimum (°C) - 2006	17.4	21.2

Source: Climate Task Force - Caisse des Dépôts

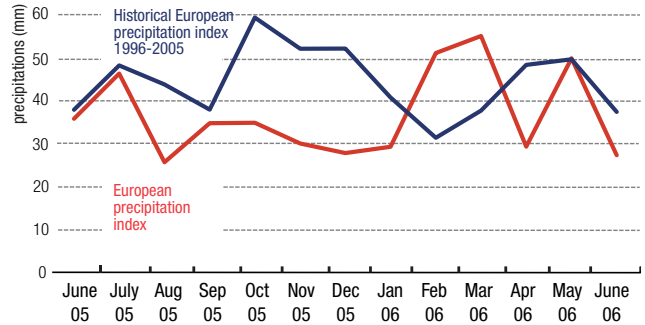


European precipitation index (mm)

Average of precipitation indices for Paris, Berlin, London and Madrid, weighted by the hydroelectric share in each country's electric power mix.

	May	June
Monthly precipitation - 2006	50	27
Monthly precipitation - 1996-2005	50	37
Cumulative over 12 months	447	439
Cumulative over 12 months 1996-2005	540	540

Source: Climate Task Force - Caisse des Dépôts



Overall, June was warm and dry throughout Europe. Southern Europe is heading for another summer drought. Spring 2006 figures show that rainfall was almost twice heavier than usual in the Alps (cities such as Berne and Zurich experienced their rainiest spring since 1864). The surplus rainfalls offset the deficit recorded during the previous autumn and winter. In France, hydropower plants on the Rhône benefited from snowfalls in May, which ensured sufficient water supply in June. However this situation contrasted with critical water shortage in other regions that lacked effective rainfall, mainly the Paris basin and the south of the Garonne River. In Scandinavian Countries, water reserves remain relatively low, despite heavy rainfall in June.

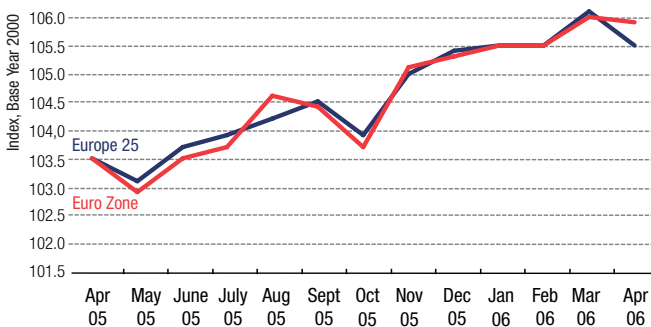
* The Powernext Weather indexes are defined on the basis of average temperatures, weighted by the population of the representative regions that make up each country.

European industry production index

Index of production of all industries, excluding construction (Base Year 2000)

	April index 2006	Monthly variation (%)	Variation/12 months (%)
Europe 25	105.9	- 0.1	+ 2.1
Euro zone	105.5	- 0.6	+ 1.9

Source: Eurostat

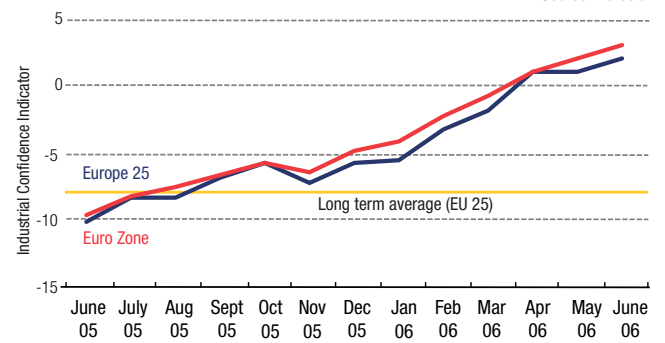


Opinion of Business Leaders

Industrial Confidence Indicator
Balance of responses (difference from the long-term average)

	May 2006	June 2006
Europe 25	1	2
Euro zone	2	3

Source: Eurostat



Despite a slight drop, industrial production remained steady in April and did not thwart the economic recovery. The decline mainly affected the energy sector: - 2.7% in the Euro Zone and - 2.1% in the EU of 25. At the national scale, industrial production rose in seven Member States including Ireland (+ 7.6%), Sweden (+ 1.2%), Finland (+ 1.0%), and Germany (+ 0.7%). On the other hand, it fell in fourteen other countries including France (- 1.4%), Italy (- 1.0%), the United Kingdom (- 0.5%) and Spain (- 0.3%). Boosted by encouraging growth, + 0.6% in the First Quarter for the Euro Zone, the confidence of European business leaders continued to rise in June. This confidence was consolidated by order book increases in industry: + 2.3% in the Euro Zone and + 1.7% in the EU of 25 in April, chiefly in metallurgy (+ 5.3% in the EU of 25), chemicals (+ 3.2% in the EU of 25) and machine and equipment manufacturing (+ 5.2% in the EU of 25). Industrial activity is expected to remain steady during the second half-year.

Energy prices

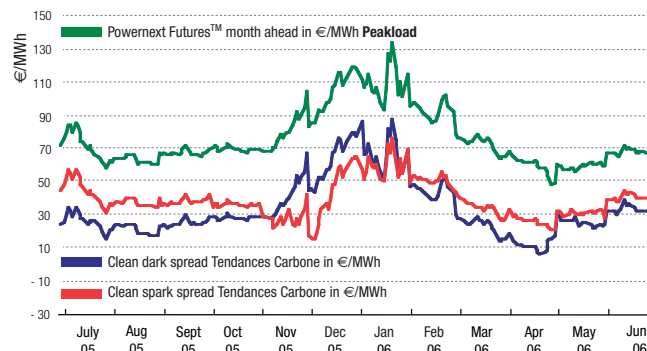
	May 2006	June 2006
Average closing price		
Natural Gas Zeebrugge Month Ahead	39.62 €/BTU	38.65 €/BTU
Amsterdam coal CIF ARA Month Ahead	46.67 €/t	49.61 €/t
Powernext Futures™ month ahead	Base	39.29 €/MWh
	Peak	44.87 €/MWh
	58.74 €/MWh	67.62 €/MWh
Difference between the price of electricity and the price of natural gas, corrected for the price of CO ₂ : Clean Spark spread	29.88 €/MWh	39.89 €/MWh
Difference between the price of electricity and the price of coal, corrected for the price of CO ₂ : Clean Dark spread	29.09 €/MWh	37.77 €/MWh
Price of the CO ₂ quota that establishes equilibrium between the prices of coal and natural gas	13.27 €	9.80 €

Source: Reuters, Powernext, Climate Task Force - Caisse des Dépôts

Primary energy prices



Price of electricity and price difference between electricity and primary energy prices



The methodology used in the Tendances Carbone Energy guidelines has undergone three significant changes. From now on, Powernext Carbon spot prices will be included in calculating spreads; the emissions factors that will henceforth be used for coal- and gas-burning plants are the average factors for the 25 members in 2003. These figures are provided by the International Energy Agency; and our standard market for the price of natural gas is now Zeebrugge. In the first two weeks of June, electric power prices did not benefit from the slight drop in the difference between the prices of primary energies, which brought down the demand for allowances by power producers. In the last five days of the month, the slight increase in the natural gas price and the decline in the coal price, following the end of the Drummond mine strike in Colombia, fostered an allowance price increase. It took nearly one euro and closed at €15.69, a level that is now encouraging marginal production using natural gas.

European Union: National Allocation Plans, National Registries and CO₂ Allowances

	NAP I - 2005-2007		NAP II - 2008-2012		
	No. of 2005 EUAs allocated in MtCO ₂ (including reserves)	National share of EUAs allocated in Europe	No. of allowances allocated per year in MtCO ₂ (including reserves)	Annual allocation trend Phase I - II.	Step of the process (July 4)
Germany	495.0	23.2%	482.0 ⁽¹⁾	- 3.4%	Submitted June 30
Poland	239.1	11.1%	279.6 ⁽¹⁾	16.9%	Submitted July 4
United Kingdom	221.5	10.3%	238.0 ⁽²⁾	7.4%	Consultation finished
France	155.9	7.3%	149.7 ⁽²⁾	- 4.0%	Consultation underway
Netherlands	89.0	4.1%	109.2 ⁽²⁾	22.7%	Consultation finished
Greece	74.4	3.5%	75.7 ⁽³⁾	1.7%	Consultation underway
Belgium	62.9	2.8%	37.9 ⁽²⁾	- 39.7%	Consultation underway
Finland	45.5	2.1%	39.6 ⁽³⁾	- 13.0%	Consultation underway
Portugal	38.2	1.8%	33.9 ⁽²⁾	- 11.3%	Consultation underway
Ireland	22.3	1.0%	23.0 ⁽²⁾	3.1%	Consultation finished
Estonia	18.9	0.9%	24.5 ⁽³⁾	29.6%	Submitted June 30
Lithuania	12.3	0.6%	11.9 ⁽²⁾	- 2.9%	Consultation underway
Latvia	4.6	0.2%	6.8 ⁽³⁾	47.8%	Submitted July 4
Bulgaria	49.7	Enter in 2007	56.1 ⁽²⁾	12.9%	Consultation underway
TOTAL EU 25	2,151.5	100%	-	-	-

⁽¹⁾ Source : European commission - ⁽²⁾ Source : National governments - ⁽³⁾ Source : PointCarbon
 N.B: The scope of the installations concerned may have varied between NAP I and NAP II, with the inclusion of new facilities.

Source: Climate Task Force - Caisse des Dépôts

Thanks to its new national operational registry, Poland was finally able to deliver the allowances to its installations on July 3. As a result, 99.4% of the first period allowances are now available for trading. In preparation for the second period, Member States were required to submit their NAP II to the European Commission on June 30. Submissions have been delayed for most countries. Only Estonia and Germany complied with the deadline. The binding character of these allocation projects varies significantly: it would increase in Germany (- 17 MtCO₂) and in France (- 6.2 MtCO₂) and diminish in the Eastern European countries including Poland (+ 40.5 MtCO₂). Around mid-June while publishing the 2004 greenhouse gas emission of the 25 Member States, the European Environment Agency reminded that it was important for Member States to ensure that their second National Allocation Plans would be sufficiently strict to achieve their Kyoto targets.

Dashboard

CO2 Markets

			Jan - 06	Feb - 06	March - 06	April - 06	May - 06	June - 06	
Spot market (Powernext carbon)	Average closing price in €	Low price traded	21.77	25.25	26.00	13.19	10.14	13.65	
		Average price traded	23.92	26.19	26.37	26.71	14.81	14.99	
		High price traded	26.50	26.97	26.68	29.75	19.10	16.00	
	Volume in t	Daily average	89,364	84,350	100,304	115,778	143,158	77,095	
		Total monthly	1,966,000	1,687,000	2,307,000	2,084,000	2,720,000	1,619,000	
Futures Market (ECX)	Dec 2006	Average closing price in €	Low price traded	22.30	26.15	26.70	13.55	9.30	14.00
			Average price traded	24.70	26.88	27.07	27.18	15.09	15.31
			High price traded	27.10	27.95	27.50	30.45	19.65	16.30
	Dec 2007	Average closing price in €	Low price traded	22.75	27.15	27.60	14.25	9.80	14.60
			Average price traded	25.34	27.80	28.03	28.14	15.73	15.95
			High price traded	27.55	28.85	28.45	31.50	20.45	17.05
	Dec 2008	Average closing price in €	Low price traded	19.70	24.20	23.55	18.80	17.80	19.00
			Average price traded	21.58	26.60	24.33	28.09	21.26	19.98
			High price traded	24.65	28.15	26.80	32.25	24.20	21.30
	Volume in t	Daily average	1,648,619	1,331,900	970,913	2,285,889	2,426,409	1,003,318	
		Total monthly	33,991,000	26,638,000	22,331,000	41,146,000	53,381,000	22,073,000	
	Total european market volume in t (PointCarbon)			67,851,000	51,598,000	50,167,000	81,881,000	80,605,000	43,852,000

Source: Powernext Carbon, ECX, PointCarbon

Climate

> Temperatures (°C)	July-05	Aug-05	Sept-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	April-06	May-06	June-06
Germany - monthly average	19.3	16.9	16.3	12.1	5.0	1.4	-1.6	0.6	2.6	9.1	14.1	17.6
Germany - difference monthly and decennial average	0.9	-2.3	1.5	1.8	-0.1	-0.3	-2.7	-2.1	-3.1	-0.3	0.1	0.5
Spain - monthly average	25.2	24.7	21.6	18.5	12.2	9.1	8.4	9.2	13.4	15.9	19.8	22.8
Spain - difference monthly and decennial average	1.0	0.0	-0.1	0.5	-0.7	-1.3	-1.6	-1.5	0.1	1.0	1.8	0.3
France - monthly average	20.9	19.3	18.0	15.7	7.3	3.4	3.4	3.8	7.4	11.3	15.4	19.4
France - difference monthly and decennial average	0.8	-1.6	0.9	2.3	-0.6	-1.9	-1.5	-2.0	-1.5	0.2	0.1	0.6
UK - monthly average	17.0	16.5	15.6	12.6	6.1	4.5	4.4	4.0	4.9	8.5	12.0	15.5
UK - difference monthly and decennial average	0.2	-0.9	0.8	1.4	-1.4	-0.6	-0.6	-1.6	-2.3	-0.5	-0.1	0.5

Source: Powernext Weather

> Precipitations (mm)	July-05	Aug-05	Sept-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	April-06	May-06	June-06
Berlin - monthly precipitation	142.9	57.1	55.0	35.0	21.8	49.5	20.4	43.8	33.5	12.8	62.5	13.2
Berlin - difference monthly and decennial precipitation	80.0	-3.3	9.5	-16.1	-15.3	9.6	-22.6	-1.3	-4.6	14.3	9.9	-34.6
Madrid - monthly precipitation	0.0	0.4	4.3	64.4	45.1	10.2	37.4	35.0	45.8	13.6	7.4	35.5
Madrid - difference monthly and decennial precipitation	-10.1	-11.9	-18.3	19.3	-5.1	-34.9	5.6	8.2	15.6	-25.3	-32.1	22.4
Paris - monthly precipitation	35.8	23.2	39.9	17.8	25.2	25.8	28.8	62.2	68.8	31.0	60.4	28.8
Paris - difference monthly and decennial precipitation	-26.0	-28.5	-1.4	-50.4	-31.8	-34.0	-14.3	34.8	28.0	-28.4	6.0	-13.6
London - monthly precipitation	40.6	48.4	46.8	70.8	29.8	45.4	16.4	40.4	37.0	27.8	99.8	10.2
London - difference monthly and decennial precipitation	5.1	-2.5	3.0	-2.8	-38.7	-8.4	-32.4	1.9	2.2	-20.9	58.7	-46.0

Source: WeatherOnline UK

Economic activity

	July-05	Aug-05	Sept-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	April-06	May-06	June-06
Total industry production index (excluding construction and seasonally adjusted), base = 2000												
Europe 25	103.9	104.2	104.5	103.9	105.0	105.4	105.5	105.5	106.0	105.9	-	-
Euro zone	103.7	104.6	104.4	103.7	105.1	105.3	105.5	105.5	106.1	105.5	-	-
Industry confidence indicator												
Europe 25	-8	-8	-7	-6	-7	-6	-6	-3	-2	1	1	2
Euro zone	-8	-8	-7	-6	-7	-5	-4	-2	-1	1	2	3

Source: Eurostat

Energy prices

	July-05	Aug-05	Sept-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	April-06	May-06	June-06	
Natural gas Zeebrugge, 1 st maturity date, in €/BTU	32.40	31.66	37.17	44.35	76.62	91.60	71.39	56.82	49.97	42.31	39.62	38.65	
Coal CIF ARA, 1 st maturity date, in €/tonne	51.78	47.77	47.14	45.16	43.86	44.42	45.29	50.79	53.54	51.25	46.67	49.61	
Powernext Futures™ month ahead, in €/MWh	Base	51.63	46.82	48.88	51.89	56.40	72.00	74.94	68.76	54.83	46.11	39.29	44.87
	Peak	72.51	62.67	67.06	69.25	79.50	103.72	109.56	93.48	72.73	59.64	58.74	67.62
Difference in prices of electricity and of natural gas, corrected for the price of CO ₂ : Clean Spark spread in €/MWh	44.73	36.34	37.22	35.27	26.45	41.47	59.54	50.15	33.77	25.47	29.88	39.89	
Difference in prices of electricity and of coal, corrected for the price of CO ₂ : Clean Dark spread in €/MWh	33.19	27.18	31.16	34.21	45.24	59.07	74.24	52.70	31.21	19.01	29.09	37.77	
Brent crude oil, 1 st maturity, in \$/baril	57.91	63.62	63.80	59.50	56.23	57.23	63.86	61.14	63.03	70.57	70.98	69.78	

Source: Reuters, Powernext, Caisse des Dépôts



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