

The EU ETS as bellwether of a flawed European Internal Energy Market

Half a decade ago, Europe embarked towards three goals: competitiveness, security of supply and fighting climate change. After a promising start, as Benoit Leguet stressed, the fleet's flagship—the EU ETS—is in distress. A first attempt to dampen a torrent of excess quotas into its cargo bay has failed; new attempts are unlikely to succeed before 2015. EU ETS troubles, however, are a symptom of a deeper failure to stay the course toward the three goals. As former IEA DG Claude Mandil put it when concluding an insightful CGEMP Electricity Markets meeting at Paris Dauphine, Europe has come to disregard both 'climate' and 'market'. A surprising statement at a time when every other line in the EU's prose is a call for action on these two fronts. But an accurate diagnosis of how inefficiently the promising 2008 vision is being pursued.

As we develop in a work for FONDAPOL now at print¹, Europe has let intermediate targets—starting with the '3x20 by 2020'—become ends to themselves. Five years ago, such targets were effective in raising awareness on the need to fight climate change. Pursued without cost-benefit analysis in an ocean of policy mandates, they have turned into blindfolds. Prices emerging in the wholesale power market are so far from general equilibrium prices that they now *detract* from competitive investments. Achieving the *European Energy Roadmap to 2050* would absorb several *trillion* euro, a Herculean task indeed. Yet, in terms of the three founding goals, the proposed effort has either limited (climate, security) or counterproductive (competitiveness) effect.

Limited: as we show, decarbonizing by 90% an electric system that will emit less than 3% of global carbon by 2050 will reduce by less than 0.9% the stock of Earth-warming carbon (i.e. carbon above 270 ppm) in the atmosphere. This will result in delaying climate change by at most four month over half a century. Such results –or even larger results– could be achieved for much less through a market-based efficient allocation centered, as envisioned in 2008, around a properly functioning EU ETS rather than around layer upon layer of policy mandates.

Counterproductive: in all but name EU states pursue industrial policies that put the interests of politically correct producers above those of consumers. While there is a role for subsidies to fast-track some technological developments, Europe has locked itself into a straightjacket in which any RES source is supported in proportion to its lack of competitiveness. Subsidies may even be proportional to the square of such gap when, for instance, UK offshore-wind investors clamor for deployments on a larger scale because they are further behind on the learning curve².

As deplored by European Parliament President Martin Schulz³, the Commission's right hand ignores what the left hand is doing: hence the surrealistic view of countries rushing to interconnect in the name of an 'internal energy market' in which governments set market shares for renewables, set prices, tamper with the merit order, force out and then subsidize backup capacities and, at the expenses of the poorer, create massive solar rents in favor of inefficient middle class roof-owners.

The silver lining in the near-collapse of the EU ETS is an invitation for Europe to shelve self-righteous Roadmaps and self-referenced targets. A pause in interconnection would give time to design genuine market policies that would enable efficient resource allocation in support of competitiveness, security and climate. Then, if properly governed, the EU ETS could become again the flagship for an ambitious yet efficient effort on these three fronts.

Albert Bressand

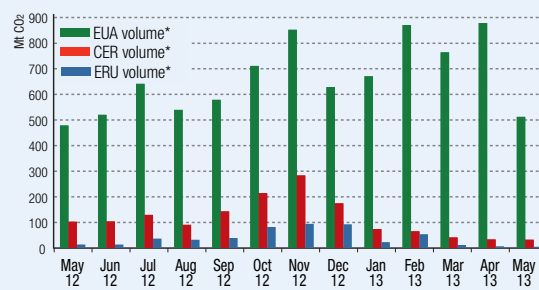
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1. Albert Bressand, *Bonnes intentions et mauvais calculs : La transition énergétique européenne*, FONDAPOL, juin 2013.
2. *Offshore Wind Cost Reduction Pathways Study*, The Crown Estate, Londres, 2011.
3. In Sylvie Kaufmann, L'Air du Monde, chronique, *Le Monde*, 28 mai 2013, p. 22.

Key points

- **The EU ETS verified emissions: 1,950 MtCO₂ in 2012, i.e. a 2% fall compared with 2011 and a 13.5% fall compared with 2008.**
- **Phase 2 compliance: an excess amount of 1,425 Mt including the use of 1,059 million international credits.**
- **Backloading: the European Parliament's ENVI Commission will vote again on 19 June.**
- **Competitiveness: the European Commission is launching a consultation process regarding a review of the list of sectors exposed to carbon leakage for the period between 2015 and 2019.**

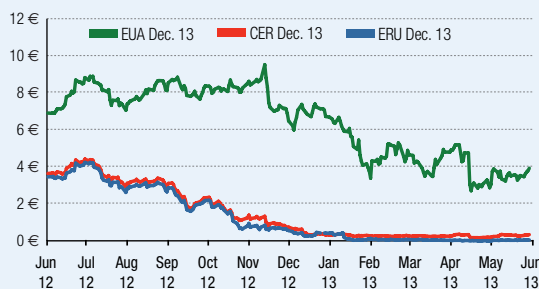
Trading volumes: EUA -41.7%, CER -2.9%, ERU -29.1%



* Spot & futures, exchanges & OTC cleared

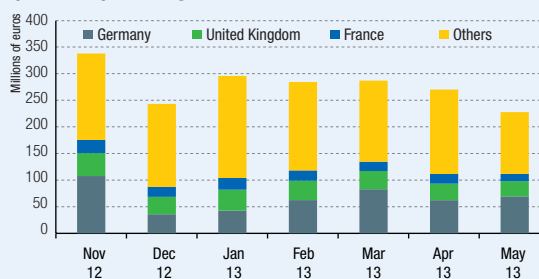
Source: CDC Climat Research calculation, based on data from BlueNext, EEX, ICE Futures Europe, NYMEX, Nasdaq OMX, and LCH Clearnet

Price of the Dec 13 contract: +20.6% EUA %



Source: CDC Climat Research, ICE Futures Europe

Income from Phase 3 auctions: €227.7 million (-15.7%) in May 2013



Source: CDC Climat Research based on data from ICE Futures Europe, EEX

Energy

Primary energy prices and electricity prices

| | | May 2013 | |
|-------------|--|-------------|--------|
| Coal | API # 2 CIF ARA (First month in USD/t) | 82.8 ▲ | |
| Natural gas | NBP (spot in €/MWh) | 26.6 ▼ | |
| | TTF (spot in €/MWh) | 26.7 ▼ | |
| Crude oil | Brent (First month in USD/b) | 103.3 = | |
| Electricity | Germany (€/MWh) | Spot | 34.0 ▼ |
| | | Calendar | 38.8 ▼ |
| | United Kingdom (€/MWh) | Spot | 57.8 ▼ |
| | | Next summer | 58.2 ▼ |
| | | Next winter | 64.7 ▼ |

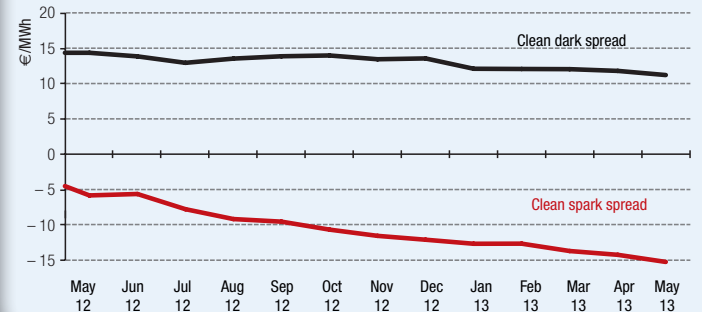
Sources: CDC Climat Research, Thomson Reuters

Clean dark, clean spark spreads and switching price

| | Clean spark (€/MWh) | | Clean dark (€/MWh) | | Switching Price (€/tCO ₂) | |
|-----------------|---------------------|---------|--------------------|---------|---------------------------------------|---------|
| | spot | futures | spot | futures | spot | futures |
| Germany* | -20.8 | -15.4 | 8.8 | 11.2 | 32.0 | 30.1 |
| United Kingdom* | 9.7 | 4.6 | 32.0 | 32.0 | 31.3 | 29.6 |

* Germany, 2014 calendar contract, United Kingdom, summer 2014 contract.

German baseload – monthly average of Cal. 2014 clean dark and clean spark spreads



Sources: CDC Climat Research, Thomson Reuters

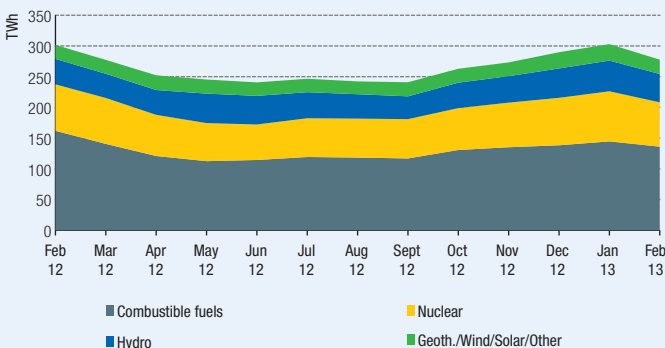
The price of Brent Crude remained relatively stable in May, staying above the US\$ 100 per barrel mark despite a few changes in response to macroeconomic factors (fall in the Chinese Purchasing Index, announcements from the FED). The spot gas price continued on the downward trend that began in April, with the NBP and TTF falling by 5.0% and 4.8% respectively, due to the contraction in Norwegian supplies and to a fall in demand. The price of CIF ARA month-ahead coal posted a slight 1.3% increase over the month, due to support from technical factors, although it remained at a low level that reflected the over-supply on the global coal market. The gradual recovery of temperatures in Europe lowered electricity consumption and resulted in a further fall in the price of forward (2014) electricity in Germany, which declined to €34.0 per MWh, its lowest level since May 2005. The spot price also declined in the United Kingdom, posting a 5.0% fall, in line with the downward trend seen in April, while the price for 2014 delivery registered a slight 1.0% fall. Clean dark and spark prices dropped in the United Kingdom and Germany, in response to the trend in energy prices, while the profitability of gas-fired power stations remained markedly higher.

Production

Electricity generation (TWh)

| EU 20 (in TWh) | Feb. 13 | Feb. 12 | Year-on-Year (% change) |
|------------------------------|---------|---------|-------------------------|
| Production | 277.7 | 301.7 | -7.9% |
| of which - Combustible fuels | 136.1 | 161.8 | -15.9% |
| - Nuclear | 72.1 | 75.7 | -4.7% |
| - Hydro | 46.1 | 41.4 | 11.5% |
| - Geoth./Wind/Solar/Other | 23.4 | 22.8 | 2.7% |

* Gas, coal, oil.

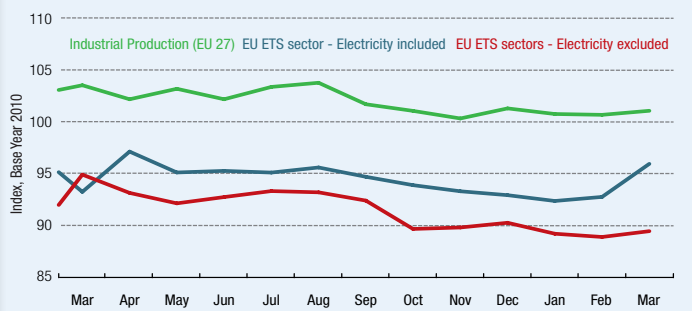


Source: CDC Climat Research, from IEA data

Production indices (Index base year 2010)

| EU 27 | Mar. 13 | Last month (pts) | Year-on-Year (pts) |
|--|---------|------------------|--------------------|
| Indust. Prod. (excl. construction) | 101.1 | 0.4 | -1.2 |
| EU ETS sectors production* (incl. electricity) | 95.9 | 3.2 | 1.3 |
| EU ETS sectors production* (excl. electricity) | 89.5 | 0.6 | -2.5 |
| Electricity, gas and heating | 99.3 | 4.6 | 3.3 |
| Cement | 75.6 | 0.5 | -5.1 |
| Metallurgy | 96.1 | 1.3 | -2.1 |
| Oil refinery | 95.2 | 0.8 | -0.3 |

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



Source: CDC Climat Research, from Eurostat data

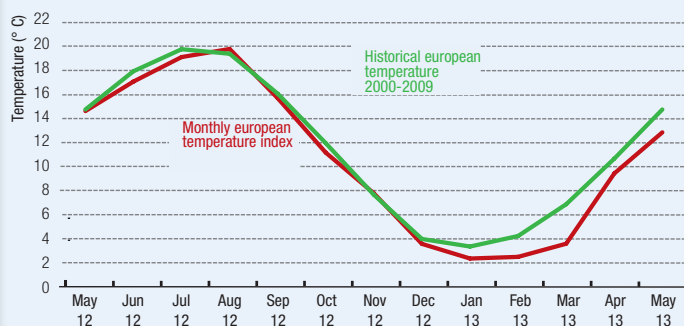
The economic environment remained depressed in May, although the European Business Climate Indicator rose by 0.3 point to 0.8. The May PMI manufacturing sector business index rose by 0.9 pt in the eurozone, which fuelled hopes of an economic recovery. Our EU ETS sector output index continued on its upward trend in March 2013, rising by 3.2 pts, although the production index for the manufacturing sector rose by only 0.4%. Electricity generation provided strong support for this increase, due to a 4.6 pts increase in March, which was driven by demand for heating as a result of the low temperatures. All the other sectors also saw a monthly increase in their output index, including refining (+0.8), steel (+1.3) and cement (+0.5). Overall, although the output index for all sectors remains down sharply for the past year, and they have not yet returned to their 2008 level, our EU ETS output index rose by 1.3 pt. European electricity generation amounted to 277.7 TWh in February. Compared with February 2012, electricity generation from fossil fuel and nuclear sources fell by around 16% and 4.7% respectively, while electricity generation from hydropower and renewable energies increased by 11.5% and 2.7% respectively.

Temperature impact

European temperature index (°C)

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

| | Apr. 13 | May 13 |
|--------------------------------|---------|--------|
| Monthly average (°C) | 9.4 | 12.8 |
| Monthly average (°C) 2000-2009 | 10.6 | 14.8 |
| Monthly minimum (°C) | 3.5 | 9.7 |
| Monthly maximum (°C) | 14.5 | 16.3 |

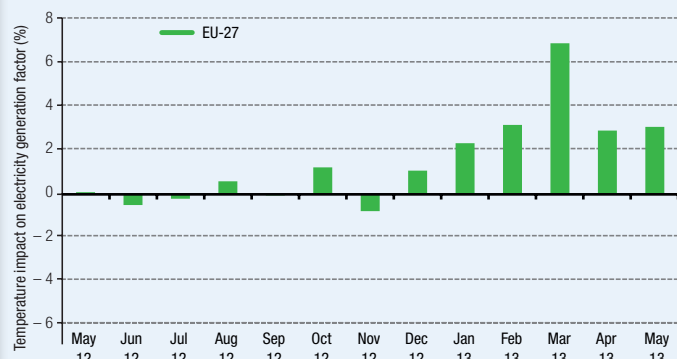


Source: Climpact Metnext

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.

| | Apr. 13 | May 13 |
|-------|---------|--------|
| EU 27 | 2.2 | 3.1 |



Source: Climpact Metnext

The month of May remained characterised by unusually low temperatures in Europe, in keeping with the winter of 2013, which was rather cold. The average weather & economy index within the EU-27 was 1.9°C lower than the ten-year trend. However, the situation on the continent was somewhat varied, as temperatures were relatively mild in Northern Europe (+2.0°C in Norway and +1.8°C in Finland, once again compared with historical averages), but were colder than usual in the South West (-2.0°C in Germany and Spain, -2.8°C in Italy and -3.2°C in France). The temperatures in Eastern European countries were more in line with the seasonal average. According to the Climpact Metnext weather & economy model, the temperatures recorded increased gross electricity generation in Europe by 3.1%. Spanish dams, which benefited from rainfall levels that remained substantial in Southern European countries, were still largely above their ten-year level, as is now the case for dams in Northern European countries.

Institutional environment

EUA supply

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|----------------|----------------|----------------|----------------|----------------|
| Total free allocations (Mt) | 1,958.5 | 1,973.7 | 1,998.3 | 2,015.9 | 2,049.5 |
| Combustion | 1,259.5 | 1,269.3 | 1,289.6 | 1,303.8 | 1,331.8 |
| Oil refining | 152.7 | 152.9 | 156.7 | 156.7 | 159.0 |
| Coking plants | 22.5 | 22.5 | 22.8 | 22.6 | 22.5 |
| Metal ores | 21.9 | 22.0 | 22.0 | 22.1 | 22.1 |
| Steel production | 185.0 | 184.8 | 185.2 | 186.2 | 186.2 |
| Cement | 211.4 | 214.2 | 214.6 | 214.8 | 215.5 |
| Glass | 25.2 | 25.5 | 25.7 | 26.2 | 26.3 |
| Ceramic products | 18.8 | 19.1 | 19.2 | 18.6 | 18.3 |
| Paper | 38.5 | 39.2 | 40.1 | 39.8 | 40.6 |
| Other activities | 22.9 | 24.2 | 22.3 | 25.2 | 27.3 |
| Total allocations auctioned (Mt) | 44.4 | 78.4 | 92.1 | 93.1 | 87.5 |

Sources: CTL, UK Debt Management Office, EEX

CER and ERU supply

| | May 13 | Last month change |
|---|---------------|-------------------|
| Number of CDM projects | 10,967 | -34 |
| <i>of which - registered</i> | 6,896 | +141 |
| <i>with - CER issued</i> | 2,337 | +43 |
| Cumulative volume of CER issued (Mt) | 1,335 | +27 |
| CERs available until 2015, EU ETS eligible - CDC Climat Research estimate (Mt)* | 2,115 | -5 |
| Number of JI projects | 784 | +2 |
| <i>of which - registered</i> | 599 | +2 |
| Cumulative volume of ERU issued (Mt) | 738.4 | +64 |
| <i>via - Track 1</i> | 714.5 | +63 |
| <i>via - Track 2</i> | 23.9 | +1 |

* CDC Climat Research's model: <http://www.cdcclimat.com/The-risks-of-CDM-projects-how-did-only-30-of-expected-credits-come-through,900.html?lang=fr>

Sources: CDC Climat Research, UNEP, Riseo

On May the 13th, Member States authorised the European Commission (EC) to open negotiations on linking the EU ETS and the Australian ETS. Following the rejection in April of the EC's proposal of backloading, the ENVI Commission will vote on a new report that includes 53 new amendments on June the 19th. Said Commission will also discuss its draft resolution on structural reforms to the EU ETS, which primarily suggest altering the linear factor of 1.74% as soon as possible, limiting access to international carbon allowances, and introducing a reserve price for auctions. On June the 5th, the EC published a draft regulation aimed at defining limits for the international carbon allowances used by the EU ETS during Phase 3: according to the proposed rules, fixed installations will be able to use these international credits during the period 2008-2020, up to the higher limits between those set by the national Phase 2 NQAP or the 11% limit for free allowance allocations granted during that period. On June the 6th, the EC launched a public consultation process regarding a review of the list of sectors exposed to carbon leakage for the period 2015-2019. The process will run until August the 30th.

Carbon markets dashboard

Primary market - EUA auctions in Phase 3

| | | May-12 | Jun-12 | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 |
|---|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Common Auction Platform + United Kingdom & Germany | Price (€/t) | - | - | - | - | - | 7.54 | 7.01 | 6.31 | 5.05 | 4.37 | 4.06 | 3.85 | 3.40 |
| | Volume (Mt) | - | - | - | - | - | 3.00 | 48.19 | 38.51 | 59.63 | 65.03 | 70.61 | 70.19 | 66.45 |
| Auction Revenues (M€) | Germany | - | - | - | - | - | 22.62 | 107.67 | 35.89 | 42.61 | 62.46 | 82.86 | 62.31 | 69.46 |
| | United Kingdom | - | - | - | - | - | - | 43.03 | 32.71 | 39.40 | 36.38 | 34.23 | 31.05 | 28.69 |
| | France | - | - | - | - | - | - | 24.73 | 18.73 | 21.97 | 19.37 | 17.50 | 18.14 | 13.48 |
| | Others | - | - | - | - | - | - | 162.35 | 155.78 | 191.70 | 166.09 | 152.26 | 158.58 | 116.04 |
| | Total | - | - | - | - | - | - | 22.62 | 337.79 | 243.11 | 295.68 | 284.30 | 286.86 | 270.07 |

Sources: EEX, ICE Futures Europe

Primary market - CER and ERU issued (MtCO₂)

| | | May-12 | Jun-12 | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 |
|--|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Cumulative volume of CER issued UNEP-Risoe (Mt) | | 943 | 959 | 974 | 995 | 1,009 | 1,036 | 1,094 | 1,155 | 1,198 | 1,208 | 1,271 | 1,308 | 1,335 |
| Cumulative volume of ERU issued (Mt) | Track 1 (Mt) | 151.3 | 152.8 | 157.1 | 206.2 | 214.0 | 232.7 | 233.2 | 385.7 | 564.6 | 600.0 | 651.3 | 651.3 | 714.5 |
| | Track 2 (Mt) | 16.6 | 16.8 | 17.3 | 18.8 | 19.1 | 19.4 | 20.0 | 363.8 | 22.6 | 22.7 | 22.9 | 22.9 | 23.9 |

Sources: UNEP-Risoe, CDC Climat Research

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

| | | May-12 | Jun-12 | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | |
|-----------------------|---------------|--------------------|---------|--------|---------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| ICE Futures Europe | Daily spot | Price EUA phase 2 | 6.67 | 7.15 | 7.45 | 7.55 | 7.75 | 7.86 | 7.46 | 6.64 | 5.18 | 4.59 | 4.07 | 3.88 | 3.51 |
| | | Volume EUA phase 2 | - | - | - | - | - | - | - | 265 | 635 | 17,518 | 3,429 | 7,368 | 3,930 |
| | | Price EUA phase 3 | - | - | - | - | - | - | - | 6.79 | 5.19 | 4.59 | 4.09 | 3.88 | 3.51 |
| | | Volume EUA phase 3 | - | - | - | - | - | - | - | 59 | 322 | 1,579 | 6,023 | 78,306 | 10,801 |
| | | Price CER | 3.58 | 3.65 | 3.34 | 2.90 | 2.10 | 1.49 | 0.89 | 0.40 | 0.17 | 0.15 | 0.17 | 0.09 | 0.39 |
| | | Volume CER | - | - | - | - | - | - | - | - | 327 | 1,099 | 1,541 | 1,901 | 0 |
| | Dec.13 | Price EUA | 7.21 | 7.69 | 7.98 | 8.05 | 8.18 | 8.24 | 7.78 | 6.88 | 5.35 | 4.71 | 4.18 | 3.94 | 3.56 |
| | | Volume EUA | 115,382 | 86,167 | 100,827 | 99,723 | 125,361 | 172,430 | 200,276 | 189,911 | 418,524 | 577,206 | 443,144 | 494,819 | 321,897 |
| | | Price CER | 3.90 | 3.96 | 3.66 | 3.24 | 2.35 | 1.68 | 1.07 | 0.52 | 0.38 | 0.34 | 0.33 | 0.32 | 0.36 |
| | | Volume CER | 17,842 | 14,262 | 13,537 | 16,445 | 26,805 | 38,256 | 34,684 | 52,279 | 41,549 | 26,190 | 21,420 | 20,693 | 21,014 |
| | | Price ERU | 3.97 | 3.73 | 3.44 | 3.01 | 2.17 | 1.46 | 0.76 | 0.44 | 0.25 | 0.14 | 0.13 | 0.09 | 0.11 |
| | | Volume ERU | - | 100 | 500 | 665 | 5,343 | 12,815 | 18,506 | 24,314 | 9,407 | 7,344 | 1,425 | 4,804 | 2,940 |
| | Dec.14 | Price EUA | 7.69 | 8.22 | 8.48 | 8.56 | 8.71 | 8.69 | 8.20 | 7.22 | 5.61 | 4.94 | 4.37 | 4.11 | 3.72 |
| | | Volume EUA | 38,724 | 36,878 | 58,473 | 50,089 | 37,884 | 59,562 | 69,731 | 42,296 | 70,721 | 78,927 | 79,675 | 112,934 | 59,334 |
| | | Price CER | 4.14 | 4.18 | 3.79 | 3.43 | 2.51 | 1.78 | 1.15 | 0.59 | 0.43 | 0.38 | 0.37 | 0.35 | 0.39 |
| | | Volume CER | 2,552 | 4,081 | 12,152 | 8,270 | 5,157 | 11,757 | 7,128 | 3,505 | 5,883 | 4,361 | 2,089 | 3,885 | 1,949 |
| | Dec.15 | Price EUA | 8.10 | 8.68 | 8.98 | 9.04 | 9.20 | 9.08 | 8.61 | 7.57 | 5.87 | 5.15 | 4.55 | 4.28 | 3.88 |
| | | Volume EUA | 28,946 | 9,110 | 20,847 | 22,887 | 16,553 | 21,338 | 24,491 | 28,890 | 41,647 | 57,190 | 49,718 | 61,556 | 34,689 |
| Price CER | | 4.40 | 4.40 | 3.91 | 3.50 | 2.62 | 1.89 | 1.23 | 0.68 | 0.51 | 0.43 | 0.41 | 0.38 | 0.46 | |
| Volume CER | | 1,542 | 2,980 | 2,776 | 2,493 | 2,520 | 5,030 | 4,094 | 2,738 | 2,281 | 2,767 | 710 | 1,706 | 4,087 | |

Sources: ICE Futures Europe

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

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|-------------------|---------------|-------------|-------------|--------------|--------------|
| Combustion | -253.1 | -113.5 | -125.8 | -76.9 | -42.4 |
| Oil refining | -1.4 | 7.6 | 14.3 | 16.0 | 20.2 |
| Coking plants | 1.5 | 6.8 | 2.9 | 3.1 | 5.7 |
| Metal ores | 4.3 | 11.0 | 8.8 | 8.9 | 9.7 |
| Steel production | 51.6 | 89.3 | 71.4 | 72.8 | 73.9 |
| Cement | 20.9 | 61.4 | 61.0 | 62.8 | 70.3 |
| Glass | 2.5 | 6.1 | 5.5 | 5.4 | 5.0 |
| Ceramic products | 5.3 | 10.0 | 10.2 | 9.6 | 9.2 |
| Paper | 6.9 | 11.3 | 10.0 | 11.1 | 11.6 |
| Other activities | 0.2 | 4.3 | 1.3 | -0.7 | 1.4 |
| Total (Mt) | -161.3 | 94.2 | 59.8 | 112.1 | 164.5 |

Source: CTL

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|-------------------|---------------|-------------|-------------|--------------|--------------|
| Germany | -84.0 | -36.6 | -54.4 | -49.5 | -28.6 |
| United Kingdom | -50.8 | -15.0 | -16.8 | 2.5 | -2.5 |
| Italy | -8.5 | 24.1 | 8.5 | 5.3 | 12.2 |
| Poland | -3.1 | 10.8 | 5.9 | 4.2 | 15.6 |
| Spain | -9.6 | 13.7 | 29.5 | 18.4 | 17.0 |
| France | 5.5 | 17.5 | 23.4 | 33.9 | 25.2 |
| Czech Republic | 5.2 | 12.2 | 10.6 | 12.2 | 17.1 |
| The Netherlands | -6.8 | 2.8 | 0.1 | 8.9 | 10.5 |
| Romania | 7.7 | 24.9 | 27.7 | 23.6 | 25.8 |
| Others | -17.0 | 39.8 | 25.3 | 52.7 | 72.3 |
| Total (Mt) | -161.3 | 94.2 | 59.8 | 112.1 | 164.5 |

Source: CTL