

Towards a recalibrated EU ETS for 2030: assessment of the legislative proposal to revise the EU ETS Directive

On July 15th, the European Commission published its proposal for a revision of the “European Emissions Trading System” or EU ETS for the post 2020 period, transposing the European Council conclusions of October 2014. This proposal is part of a “summer package” of legislative proposals to enable the transformation of the European energy system (revision of the directive on the energy labelling of appliances, public consultation on the energy market design, etc.) and is the second piece of legislation for Phase IV of the EU ETS. After the adoption of legislation on market stability reserve (MSR) in early July by the European Parliament, the revised EU ETS Directive will define the rules of operation of the EU ETS for 2021-2030, to recalibrate and strengthen its efficiency.

The political objectives for the EU ETS post 2020 were set out by the European Council: a target of reducing CO₂ emissions from sectors covered by the EU ETS by 43% in 2030 compared to 2005, spurring a linear reduction of emissions cap of 2.2% from 2021 onwards, a market stability reserve, the continuation of free allocation, the implementation of innovation and modernization funds and solidarity mechanisms. Nevertheless, several decisions were still pending.

Regarding the specific rules of free allocation, the proposed mechanism is a continuation of the existing rules, albeit with updates of reference activity levels every 5 years against 8 years in phase III and a uniform reduction of benchmarks by 1% per year between 2008 and 2025 for all sectors. The binary dynamic to protect sectors at risk of carbon leakage is retained: 50 sectors, representing 93% of industrial emissions, will be allocated 100% of benchmark levels and other sectors only 30%.

To support energy and industrial transformation, the European Commission proposes a new toolbox of funding mechanisms. To extend the experience of the NER 300 program, the innovation fund will be filled with 450 million allowances, coming from the free allocation budget and unallocated allowances in phase III. The pursuit of transitional free allocation for countries with incomes below 60% of the EU average will promote the modernization of their electricity sector. Finally, the new modernization fund, supplied by the auctioning of 310 million allowances (2% of the cap), will encourage investment in energy efficiency and the modernization of energy systems in low-income countries.

What effect will the new rules have on the operation of the EU ETS, including its ability to provide economic incentive consistent with the goal of reducing CO₂ emissions by 2030? According to our initial evaluations, the supply of allowances will be modified as follows:

- The -43% objective and the linear reduction factor of 2.2% per year will lead to a supplementary effort in emissions reduction of 556 Mt CO₂e in phase IV. In terms of sharing of the emission cap, 57% will be auctioned and, excluding 400 million allowances to be allocated to the Innovation Fund, 40.4% of the cap will be available for free allocation to industry, i.e. 6.3 billion allowances against 6.6 billion for the eight years of Phase III.
- The action of the MSR operational from 2019, and with the placement of 900 million backloaded allowances into the reserve, will limit the allowances surplus to 2 billion in 2020 (against 3.6 billion without MSR) and reduce it progressively from 2021 to 2030 until 500 million allowances.
- The free allocation will decrease from 715 million in 2021 to 539 million in 2030. As a result of the extended list of sectors identified at risk of carbon leakage, a correction factor (CSCF) will necessarily be applied, which could reduce up to 15% the amount of free allocation to industrial sectors, regardless of their exposure, that comes on top of the uniform decline of benchmarks. The preferred option is therefore to reduce the free allocation of all sectors by around 30%, rather than targeting the sectors genuinely at risk.

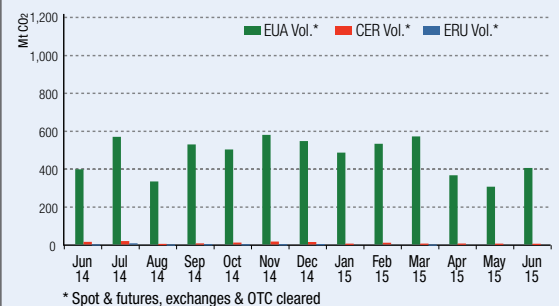
In the end, if not revolutionary, these new rules are evolutionary. For the power sector, the efficiency of this new architecture of the EU ETS will rely on the ability of the MSR to restore the short term scarcity in line with the 2030 target, together with an overhaul of market designs that fit with the renewables deployment agenda. However, for industrial sectors, a roadmap for the transition to a low carbon economy does not emerge as clearly. Proposals for free allocation are close to the statu quo, whereas they have proved not to drive innovation and carbon efficiency adequately. Furthermore, it is not certain that they will effectively protect sectors most exposed to carbon leakages until 2030.

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Key points

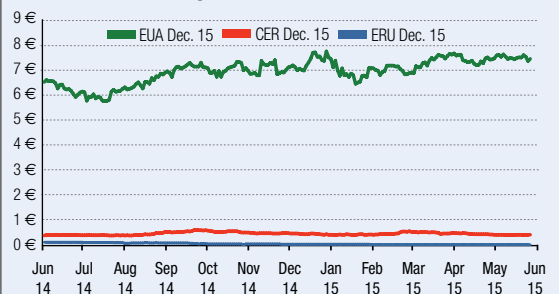
- **EU ETS –Directive :** On July 15th, the EU Commission released a legislative proposal to revise the EU ETS Directive post-2020, translating into legislation the October 2014 Council Conclusions
- **EU ETS carbon leakages provisions:** The legislative proposal includes a 43% share of free allocation from 2021 to 2030, a new Carbon leakage list representing 93% of industrial emissions, an update of production levels and benchmarks every five years.

Trading volumes: EUA +32.5%, CER -13.8%



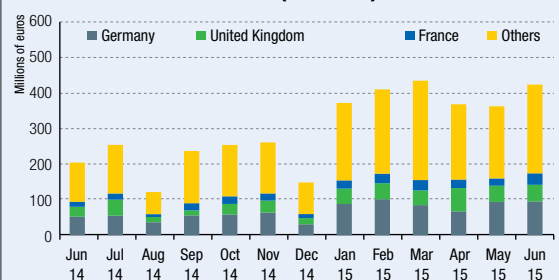
Source: CDC Climat Research calculation, based on data from EEX, ICE Futures Europe, NYMEX, Nasdaq OMX, and LCH Clearnet

Dec 15 contract price: EUA +0.3%



Source: CDC Climat Research, ICE Futures Europe

Monthly proceeds from Phase 3 auctions: 423.8 M€ in June 2015 (+16.8%)



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

Energy

Primary energy prices and electricity prices

| | | June 2015 | |
|-------------|--|-------------|--------|
| Coal | API # 2 CIF ARA (First month in USD/t) | 57.8 ▼ | |
| Natural gas | NBP (spot in €/MWh) | 20.6 ▼ | |
| | TTF (spot in €/MWh) | 20.5 ▼ | |
| Crude oil | Brent (First month in USD/b) | 63.8 ▼ | |
| Electricity | Germany (€/MWh) | Spot | 31.0 ▲ |
| | | Calendar | 31.7 ▲ |
| | United Kingdom (€/MWh) | Spot | 57.8 ▲ |
| | | Next summer | 58.9 ▼ |
| | | Next winter | 63.7 ▼ |

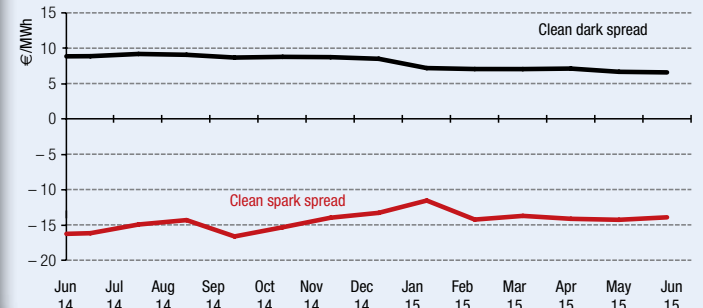
Sources: CDC Climat Research, Thomson Reuters

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* | -12.8 | -13.9 | 6.3 | 6.6 | 39.8 | 42.3 |
| United Kingdom* | 13.1 | 13.8 | 32.4 | 33.2 | 39.6 | 39.9 |

* Germany, 2016 calendar contract

German baseload – monthly average of Cal. 2015 clean dark and clean spark spreads



Sources: CDC Climat Research, Thomson Reuters

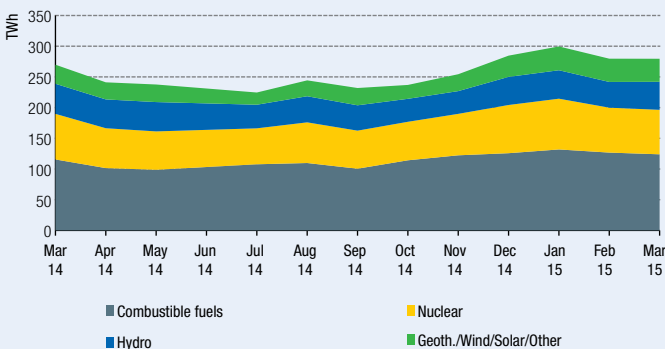
The price of Brent declined slightly in June, reaching a monthly average of 63.8 \$/b, in an international context marked by an expected rise in Iranian exports following the conclusions of an agreement and an abundant production from OPEC countries. Coal prices were also down to 57.8 \$/t. High temperatures during the month contributed to the moderation in demand for gas, but the unavailability of important European pipelines have had an upward impact on prices, which on average, remained at the same level compared to May : 20.6 €/MWh and 20.5 €/MWh for spot prices NBP and TTF. The electricity prices on the spot German market recovered slightly from their historically levels of the previous month and were at 31 €/MWh while the contract for delivery in December 2015 was traded on average at 31.7 €/MWh. The fundamentals of the electricity market have remained relatively low, with generous nuclear output in France, a comfortable renewable energy production, and low consumption. The German clean dark spread increased to 6.2 €/MWh on the spot markets and to 6.6 €/MWh on the futures markets, while the clean spark spread increased on the spot markets and future markets term. The theoretical CO₂ «switch» price was calculated to 39.8 €/tCO₂ in the German spot power market and 39.6 €/tCO₂ in the British spot power market.

Production

Electricity generation (TWh)

| EU 20 (in TWh) | Mar. 15 | Cumulative from Jan. 15 | Year-on-Year (% change) |
|------------------------------|---------|-------------------------|-------------------------|
| Production | 279.6 | 851.4 | 2.7% |
| of which - Combustible fuels | 124.0 | 382.6 | 6.6% |
| - Nuclear | 72.4 | 228.3 | -0.4% |
| - Hydro | 45.7 | 133.8 | -7.7% |
| - Geoth./Wind/Solar/Other | 37.5 | 114.1 | 19.2% |

* Gas, coal, oil.

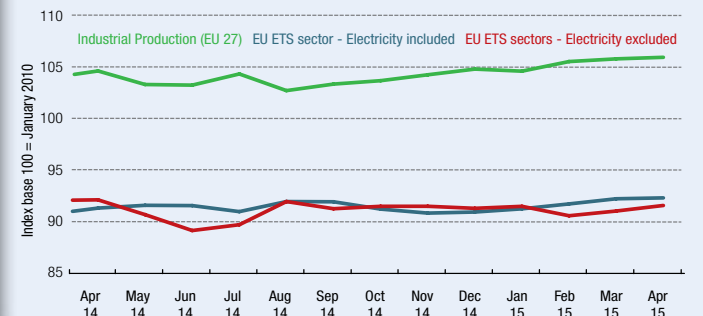


Sources: CDC Climat Research, from IEA data

Production indices (Index base year 2010)

| EU 27 | Apr. 15 | Last month (pts) | Year-on-Year (pts) |
|--|---------|------------------|--------------------|
| Indust. Prod. (excl. construction) | 105.9 | 0.2 | 1.3 |
| EU ETS sectors production* (incl. electricity) | 92.3 | 0.1 | 1.0 |
| EU ETS sectors production* (excl. electricity) | 91.6 | 0.5 | -0.5 |
| Electricity, gas and heating | 92.7 | -0.2 | 1.8 |
| Cement | 76.4 | 1.5 | -3.6 |
| Metallurgy | 107.8 | 1.3 | -5.1 |
| Oil refinery | 95.8 | -0.5 | 3.4 |

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

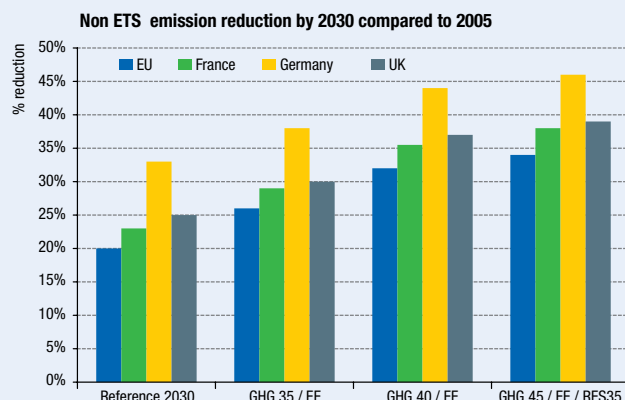
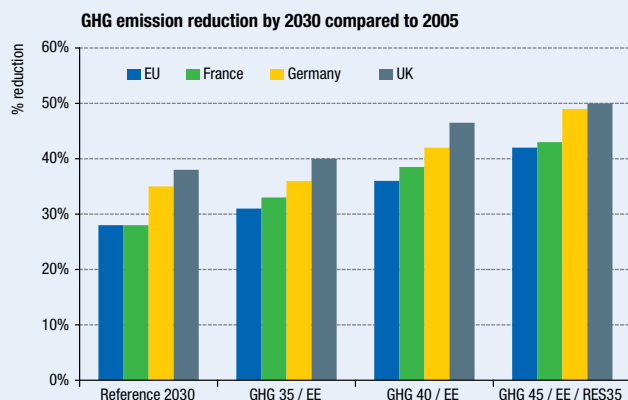


Sources: CDC Climat Research from Eurostat data

Industrial production in the EU-27 countries increased by 0.2% in April 2015 compared to the previous month and by 1.3% compared to April 2014. The monthly increase of 0.2% in industrial production was driven by the production of non-durable consumer goods (+2.1%), while production of energy and consumer durables were down 0.7% and 0.2%. The largest decreases in industrial production were recorded in the Netherlands (-3.6%), Lithuania (-3.4%) and Estonia (-1.0%) and the highest increases in Latvia (+10.9%), Denmark (+4.6%) and Ireland (+3.0%). Our production index EU ETS sectors (including electricity) increased slightly to 92.3 pts, as did the index excluding electricity to 91.6 pts. Electricity production in the EU's 20 countries reached 279.6 TWh in March 2015, up 2.7% compared to February 2015. Compared to 2014, cumulative production since the beginning of the year increased by 2.7%, cumulative production of renewable generation by 19.2% and cumulative production of fossil electricity by 6.6%, while hydropower output decreased by 7.7%.

Coordination of CO₂, EE and RES policies

The EU 2030 emission reduction target: impact on Member States



Note: Reference refers to the scenario with no additional climate and energy policies on the trajectory of the 2020 objectives; GHG 35, 40 et 45 refer to the scenario with a 35%, 40% and 45%, GHG target, RES 35 refers to the scenario with a 35% EU level renewable energy target in the final consumption.

Source: European Commission, Impact Assessment, A policy framework for climate and energy in the period from 2020 up to 2030, 2014.

On June 16th, the EU Commission presented the Renewable energy progress report. The study highlighted that 25 EU countries are expected to meet their 2013/2014 interim renewable energy targets. In 2014, the projected share of renewable energy in the gross final energy consumption is 15.3%. The EU's 2020 renewables target has resulted in around 326 Mt of avoided CO₂ emissions in 2012, rising to 388 Mt in 2013. It has also led to a reduction in the EU's demand for fossil fuels to the tune of 116 Mtoe in 2013, enhancing EU's security of supply. Since the interim targets will become tougher in the coming years, some EU countries will have to intensify their efforts and make use of mechanisms which allow them to cooperate with other EU countries. The report also examined the EU's target for 10% renewable energy in transport. The 2014 projected share is 5.7% meaning that achieving the target will be challenging but feasible, with some EU countries making good progress. The EU Commission is currently examining progress made by Member States to transpose the Energy Efficiency Directive. Overall, 27 Member States (all except Malta) have received a letter of formal notice for failing to fully transpose the Directive by the June 2014 deadline. On July 15th, as part of its summer package, the Commission proposed a revision of Energy efficiency labels to enhance their clarity, and launched a consultation concerning the overhaul of power market design to enable a better integration of renewable energy sources.

Institutional environment

Phase 3 supply balance table

| | 2013 | 2014 | 2015* | 2016* | 2017* | 2018* | 2019* | 2020* |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Auctions (MtCO₂) | 804 | 532 | 675 | 779 | 985 | 992 | 1,302 | 1,633 |
| Free allocation (MtCO₂) | 843 | 767 | 813 | 789 | 765 | 741 | 717 | 693 |
| Total | 1,647 | 1,299 | 1,488 | 1,568 | 1,750 | 1,733 | 2,019 | 2,326 |

* Estimations

Free allocation status table

| EU Member State | 2013 | 2014 | 2015* |
|-----------------|------------|------------|------------|
| France | 82 | 81 | 73 |
| Germany | 169 | 163 | 159 |
| United Kingdom | 66 | 64 | 56 |
| Others | 526 | 459 | 246 |
| TOTAL | 843 | 767 | 630 |

* Until 31st March

CER and ERU supply

| | June 15 | Last month change |
|---|---------------|-------------------|
| Number of CDM projects | 12,302 | +2.0 |
| <i>of which - registered</i> | 7,647 | +6.0 |
| <i>with - CER issued</i> | 2,804 | +16.0 |
| Cumulative volume of CER issued (Mt) | 1,634 | +39.0 |
| Number of JI projects | 788 | 0.0 |
| <i>of which - registered</i> | 604 | 0.0 |
| Cumulative volume of ERU issued (Mt) | 863.5 | 0.0 |
| <i>via - Track 1</i> | 838.1 | 0.0 |
| <i>via - Track 2</i> | 25.4 | 0.0 |

On July 15th, as part of its summer package, the EU Commission released a legislative proposal to revise the EU ETS Directive post-2020. It enforces the change of the linear factor to 2.2% onwards to meet the 43% reduction for ETS sectors by 2030. The share of allowances auctioned by Member States and the modernization fund is proposed to be 57%, meaning that 43% of EU allowances will be distributed for free or available for the Innovation fund. Regarding carbon leakage, a new set of rules are proposed. A new list of sectors deemed to be exposed to carbon leakages was proposed, accounting for 93% of industrial emissions, and 54 sectors. Sectors on this list will still receive 100% free allocation until 2030, while other sectors will receive 30%. Benchmarks values will be updated twice, in 2021 and 2026, being reduced by 1% per year of the value that was set based on 2007-2008 data. If a deviation from this pathway is observed, a lower or higher rate would be applied, ranging from 0.5% to 1.5%. Reference production levels will be updated twice during the 2021-2030, meaning that allocation decisions will be made for a period of five years, but could be adjusted if outputs fluctuate beyond a set of thresholds. Around 400 million allowances will be made available until 2030 for new entrants. Member States will be highly encouraged to provide compensation for indirect costs from their auctioning revenues.

Sources: CDC Climat Research, European Commission, ICE Futures Europe, EEX

Sources: CDC Climat, UNEP-DTU

Carbon markets dashboard

Primary market - EUA auctions in Phase 3

| | | Jun-14 | Jul-14 | Aug-14 | Sep-14 | Oct-14 | Nov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | Jun-15 |
|---|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Common Auction Platform + United Kingdom & Germany | Price (€/t) | 5.54 | 5.91 | 6.23 | 5.96 | 5.99 | 6.78 | 6.74 | 6.89 | 7.20 | 6.72 | 7.01 | 7.39 | 7.44 |
| | Volume (Mt) | 37.02 | 43.28 | 19.52 | 39.79 | 42.05 | 38.56 | 22.04 | 54.06 | 57.00 | 64.67 | 52.55 | 49.09 | 56.97 |
| Auction Revenues (M€) | Germany | 52.45 | 55.37 | 36.75 | 56.07 | 58.71 | 63.97 | 31.17 | 88.04 | 101.65 | 84.94 | 67.35 | 93.96 | 95.40 |
| | United Kingdom | 27.82 | 44.97 | 14.93 | 14.13 | 29.65 | 33.78 | 17.15 | 43.38 | 44.97 | 41.54 | 65.55 | 45.63 | 46.75 |
| | France | 14.01 | 17.35 | 7.90 | 20.14 | 21.35 | 20.03 | 11.51 | 23.14 | 26.76 | 28.96 | 23.96 | 20.46 | 32.18 |
| | Others | 110.32 | 136.70 | 62.03 | 146.78 | 144.45 | 143.52 | 88.78 | 217.71 | 236.84 | 279.33 | 211.53 | 202.74 | 249.46 |
| | Total | 204.60 | 254.39 | 121.61 | 237.13 | 254.15 | 261.30 | 148.61 | 372.27 | 410.23 | 434.77 | 368.40 | 362.79 | 423.79 |

Sources: EEX, ICE Futures Europe

Primary market - CER and ERU issued (MtCO₂)

| | | Jun-14 | Jul-14 | Aug-14 | Sep-14 | Oct-14 | Nov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | Jun-15 |
|--|--------------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|--------|--------|
| Cumulative volume of CER issued UNEP-DTU (Mt) | | 1,466 | 1,472 | 1,480 | 1,491 | 1,504 | 1,512 | 1,512 | 1,525.7 | 1,540.8 | 1,544.7 | 1,551.3 | 1,595 | 1,634 |
| Cumulative volume of ERU issued (Mt) | Track 1 (Mt) | 824 | 824.1 | 824.4 | 824.4 | 824.4 | 824.5 | 824.5 | 838.1 | 838.1 | 838.1 | 838.1 | 838.1 | 838.1 |
| | Track 2 (Mt) | 25.4 | 25.4 | 25.4 | 25.4 | 25.4 | 25.4 | 25.4 | 25.4 | 25.4 | 25.4 | 25.4 | 25.4 | 25.4 |

Sources: UNEP-DTU, CDC Climat Research

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

| | | | Jun-14 | Jul-14 | Aug-14 | Sep-14 | Oct-14 | Nov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | Jun-15 |
|-----------------------|---------------|--------------------|--------|---------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| ICE Futures Europe | Daily spot | Price EUA phase 3 | 5.52 | 5.96 | 6.26 | 6.01 | 6.09 | 6.91 | 6.97 | 6.97 | 7.27 | 6.80 | 7.10 | 7.44 | 7.46 |
| | | Volume EUA phase 3 | 20,937 | 11,897 | 5,173 | 17,953 | 5,530 | 7,793 | 10,180 | 9,324 | 25,327 | 23,640 | 23,244 | 13,768 | 16,321 |
| | | Price CER | 0.14 | 0.16 | 0.17 | 0.15 | 0.13 | 0.08 | 0.04 | 0.46 | 0.42 | 0.41 | 0.49 | 0.45 | 0.40 |
| | | Volume CER | 167 | 1,530 | 1 | 242 | 255 | 319 | 8,622 | 860 | 4,436 | 3,202 | 833 | 161 | 83 |
| | Dec.15 | Price EUA | 5.80 | 6.16 | 6.44 | 6.16 | 6.21 | 7.03 | 7.15 | 7.06 | 7.35 | 6.85 | 7.14 | 7.48 | 7.50 |
| | | Volume EUA | 56,911 | 114,684 | 64,504 | 94,922 | 119,746 | 140,392 | 180,590 | 356,677 | 377,226 | 394,219 | 268,144 | 200,863 | 211,772 |
| | | Price CER | 0.29 | 0.40 | 0.40 | 0.39 | 0.38 | 0.52 | 0.54 | 0.46 | 0.42 | 0.41 | 0.49 | 0.45 | 0.40 |
| | | Volume CER | 3,454 | 3,951 | 1,636 | 1,535 | 3,644 | 3,724 | 2,654 | 1,863 | 2,796 | 1,408 | 3,440 | 3,048 | 2,108 |
| | Dec.16 | Price EUA | 6.02 | 6.35 | 6.62 | 6.30 | 6.34 | 7.17 | 7.35 | 7.17 | 7.47 | 6.93 | 7.22 | 7.56 | 7.58 |
| | | Volume EUA | 33,286 | 61,189 | 28,171 | 47,533 | 40,921 | 40,926 | 39,009 | 55,893 | 46,588 | 50,070 | 39,148 | 35,365 | 72,609 |
| | | Price CER | 0.29 | 0.40 | 0.41 | 0.39 | 0.38 | 0.52 | 0.54 | 0.52 | 0.42 | 0.40 | 0.49 | 0.44 | 0.39 |
| | | Volume CER | 0 | 0 | 10 | 50 | 850 | 500 | 550 | 500 | 0 | 0 | 200 | 298 | 654 |
| | Dec.17 | Price EUA | 6.02 | 6.35 | 6.62 | 6.30 | 6.34 | 7.17 | 7.35 | 7.34 | 7.63 | 7.06 | 7.34 | 7.67 | 7.68 |
| | | Volume EUA | 33,286 | 61,189 | 28,171 | 47,533 | 40,921 | 40,926 | 39,009 | 15,087 | 19,340 | 28,076 | 8,049 | 27,783 | 32,838 |
| | | Price CER | 0.29 | 0.40 | 0.41 | 0.39 | 0.38 | 0.52 | 0.54 | 0.46 | 0.42 | 0.40 | 0.49 | 0.44 | 0.39 |
| | | Volume CER | 0 | 0 | 10 | 50 | 850 | 500 | 550 | 0 | 0 | 0 | 0 | 0 | 0 |

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 | 2013 |
|-------------------|---------------|-------------|-------------|--------------|--------------|---------------|
| Combustion | -253.1 | -113.5 | -125.8 | -76.9 | -42.4 | -137.8 |
| Oil refining | -1.4 | 7.6 | 14.3 | 16.0 | 20.2 | -36.7 |
| Coking plants | 1.5 | 6.8 | 2.9 | 3.1 | 5.7 | -1.5 |
| Metal ores | 4.3 | 11.0 | 8.8 | 8.9 | 9.7 | -0.2 |
| Steel production | 51.6 | 89.3 | 71.4 | 72.8 | 73.9 | 38.5 |
| Cement | 20.9 | 61.4 | 61.0 | 62.8 | 70.3 | 26.7 |
| Glass | 2.5 | 6.1 | 5.5 | 5.4 | 5.0 | -1.2 |
| Ceramic products | 5.3 | 10.0 | 10.2 | 9.6 | 9.2 | 2.0 |
| Paper | 6.9 | 11.3 | 10.0 | 11.1 | 11.6 | 4.1 |
| Other activities | 0.2 | 4.3 | 1.3 | -0.7 | 1.4 | -1.0 |
| Total (Mt) | -161.3 | 94.2 | 59.8 | 112.1 | 164.5 | -107.1 |

Source: CTL

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------|---------------|-------------|-------------|--------------|--------------|---------------|
| Germany | -84.0 | -36.6 | -54.4 | -49.5 | -28.6 | -106.3 |
| United Kingdom | -50.8 | -15.0 | -16.8 | 2.5 | -2.5 | -52.0 |
| Italy | -8.5 | 24.1 | 8.5 | 5.3 | 12.2 | 21.5 |
| Poland | -3.1 | 10.8 | 5.9 | 4.2 | 15.6 | -76.4 |
| Spain | -9.6 | 13.7 | 29.5 | 18.4 | 17.0 | 31.7 |
| France | 5.5 | 17.5 | 23.4 | 33.9 | 25.2 | 24.8 |
| Czech Republic | 5.2 | 12.2 | 10.6 | 12.2 | 17.1 | -18.3 |
| The Netherlands | -6.8 | 2.8 | 0.1 | 8.9 | 10.5 | -3.0 |
| Romania | 7.7 | 24.9 | 27.7 | 23.6 | 25.8 | 15.1 |
| Others | -17.0 | 39.8 | 25.3 | 52.7 | 72.3 | 55.7 |
| Total (Mt) | -161.3 | 94.2 | 59.8 | 112.1 | 164.5 | -107.1 |

Source: CTL