

The Economics of Climate Change

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Part 3: Policy Instruments

continued

Cap and Trade in application: The EU Emissions Trading Scheme (ETS) Lecture 13

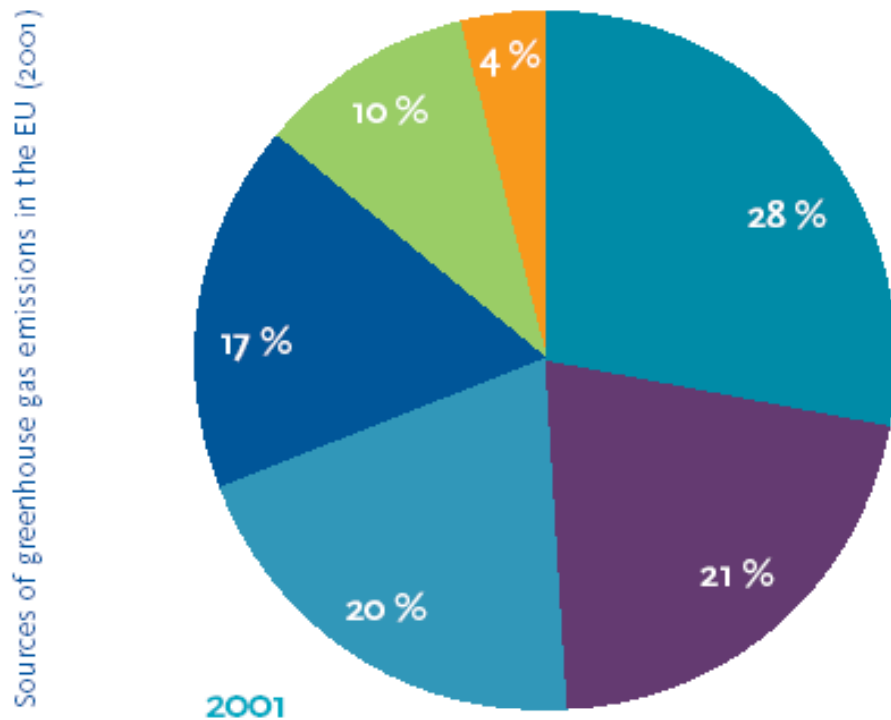
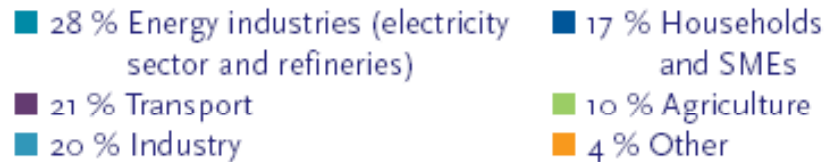
CO2 trading – the ‘EU-ETS’

- **Emissions trading program in EU**
 - EU long time in favor of standards or taxes
 - For a long time, strong opposition in Kyoto negotiations against emissions trading
 - After Emissions trading between countries was agreed upon in Kyoto negotiations, Europe started to think about emissions trading to achieve its greenhouse gas reductions in cost-efficient way
- How did the European Union implement its (carbon) emissions trading system???

EU emissions trading

- Started in 2005
 - First phase 2005-2007 (“warm-up”)
 - Second phase 2008-2012 (as Kyoto protocol), then 5 year periods
- Covers 25 countries
 - First emissions trading system which links different national-level programs
- Covers initially only CO₂, later other greenhouse gases might be added
- Covers 4 broad sectors
 - Production and processing of iron and steel
 - minerals (cement, glass, ceramic)
 - Pulp and paper
 - Energy production
 - For each installation type, certain technology and capacity thresholds
 - About 11400 installations covered
 - Not included: chemicals, transport, household, small emitters

EU emissions trading



Source: European Environment Agency

- **Emissions trading covers**

- 45% of CO₂ emissions
- 30% of total greenhouse gas emissions

EU emissions trading

- Trading rules fixed at European level
 - Banking possible
 - No banking from phase 1 into phase 2 allowed by member states (problem: Kyoto-target)
- Allocation rules
 - Countries can develop National Allocation Plans (NAPs)
 - Free allocation, 5% (10%) can be auctioned
- Member states can decide upon emissions budget
- Total supply of emissions allowances only determined after all countries have decided their allocation plans
- Different ways of monitoring, registries for allowances, etc.
 - Penalty of 40€ (Phase 1), 100€ (Phase 2)

EU emissions trading - Assessment of NAPs

- Total number of allowances must be consistent with Kyoto targets (considering other sectors as well)
- Allocation consistent with the potential, including the technological potential, of activities to reduce emissions. Distribution of allowances maybe based on average emissions of greenhouse gases by product in each activity and achievable progress in each activity.
- not discriminate between companies or sectors in such a way as to unduly favour certain undertakings or activities
- information on how new entrants will be able to begin participating
- may accommodate early action
- list of the installations covered by this Directive with the quantities of allowances intended to be allocated to each.

EU emissions trading - Allocation in NAPs

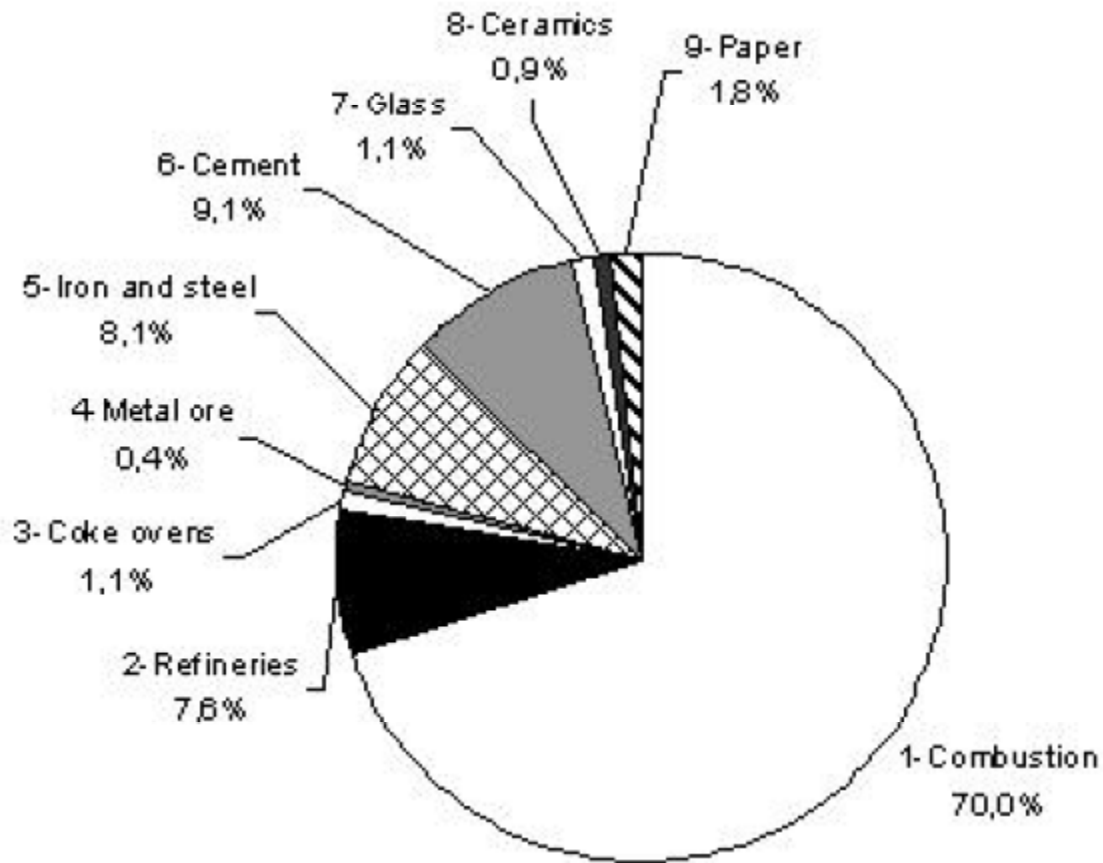
- Generally Member States allocated allowances which only imply a small reduction in participating sectors
- Low prices predicted first

The Commission required ex post changes to allocation plans if

- if the allocation chosen by a Member State for the 2005-2007 trading period jeopardises the achievement of its Kyoto target (excessive allocation)
- if the volume of allowances for the 2005-2007 trading period is inconsistent with assessment of progress towards the Kyoto target, i.e. the allocation exceeds projected emissions
- if a Member State intends to make so-called “ex-post adjustments” to allocations. This means that the Member States plans to intervene in the market after the allocation is done, and redistribute the issued allowances among the participating companies during the 2005-2007 trading period.

<http://europa.eu.int/rapid/pressReleasesAction.do?reference=MEMO/05/84&format=HTML&aged=1&language=EN&guiLanguage=en>

EU emissions trading - Allocation by Industry



Source: Alberola et al (2008)

EU emissions trading - Prices

“What determines the price of allowances?”

The Commission has no view on what the price of allowances should be.

The price is a function of supply and demand as in any other free market. Market intermediaries quote prices for allowances offered or bid for. The Commission will not intervene in the allowance market. Should distortions occur, competition law would be applicable as with any other market.”

(<http://europa.eu.int/rapid/pressReleasesAction.do?reference=MEMO/05/84&format=HTML&aged=1&language=EN&guiLanguage=en>)

EU emissions trading - Experience

- EU ETS started **on time** (but step by step)
- **11,500 installations** across energy-intensive sectors of EU-25 monitoring their CO₂ emissions
- Phase 2005-7 allocation: as of 20 June 2005, Commission had made decisions on all 25 national allocation plans
- As a result of Commission decisions, proposed allocations were cut by over 290 million allowances phase 1
- A total of close to **2.2 billion allowances** were put into circulation annually 2005-7
- May 2006: release of verified 2005 emissions data

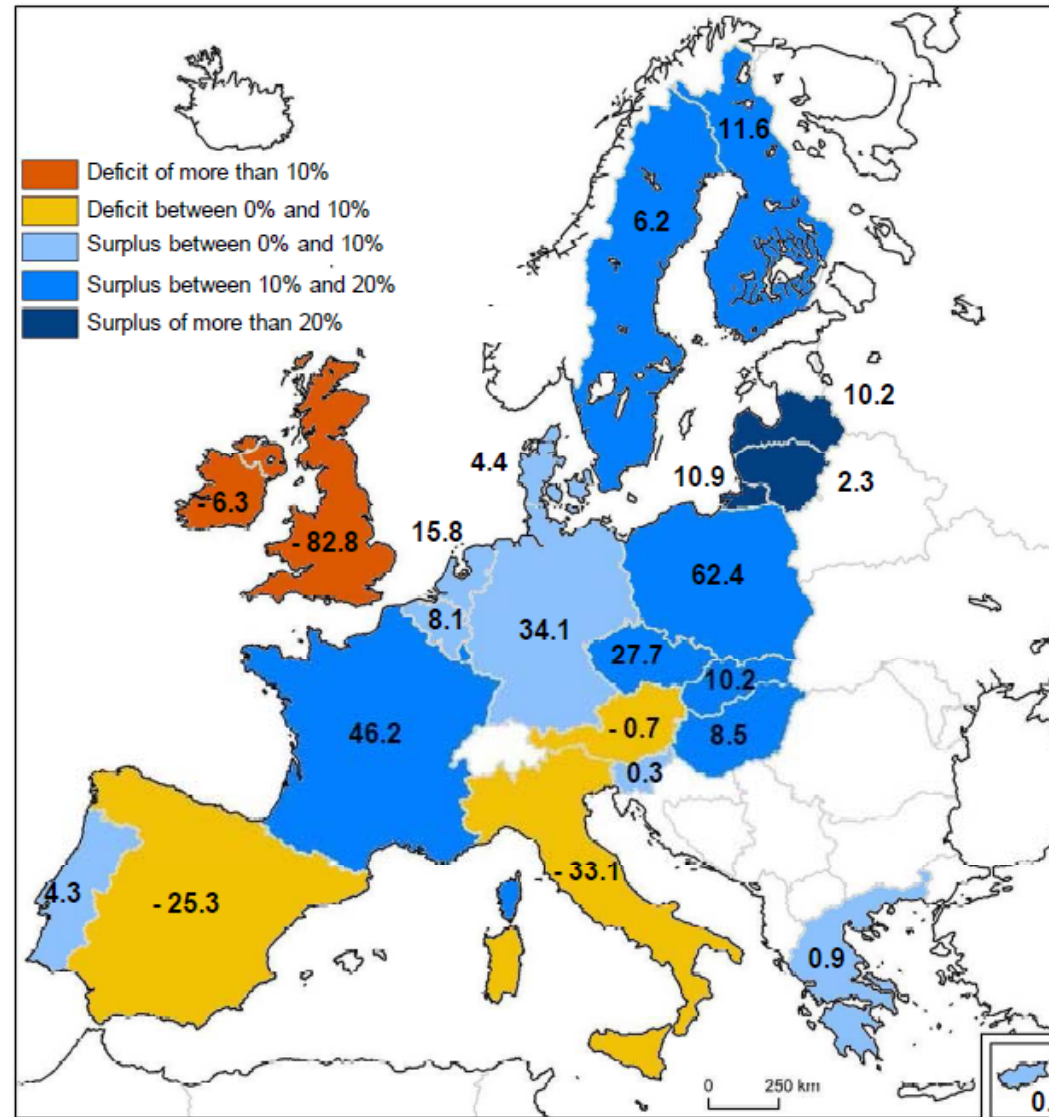
Permit Prices



1. High volatility: price shock in April-May 2006 (compliance data release).
2. First period allowance price converges towards zero: surplus of allowances and no banking between periods.
3. Higher prices for second period allowances due to expected scarcity with stricter NAPII decisions and European Council commitments.

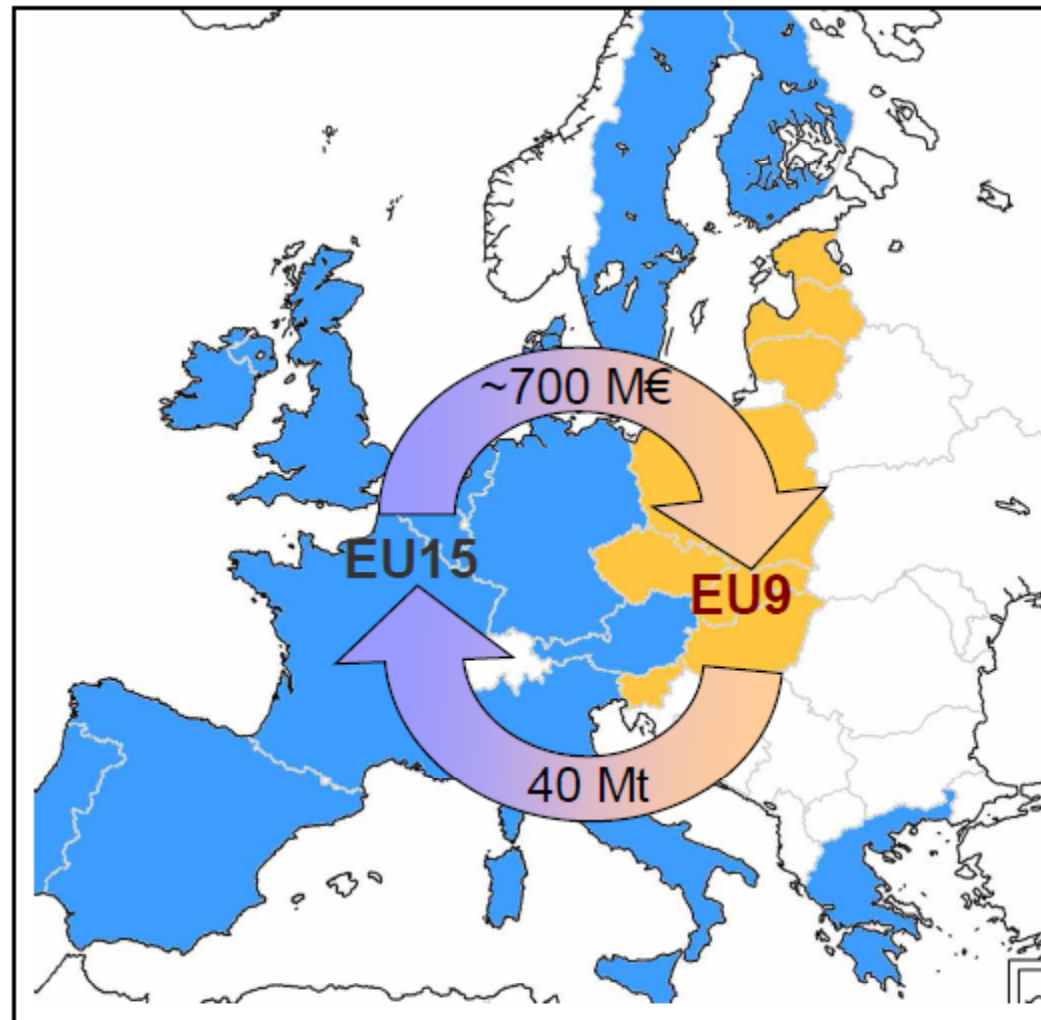
Source: Convery et al (2008)

Net position (allocation/emission balance) by country in Mt, 2005 and 2006

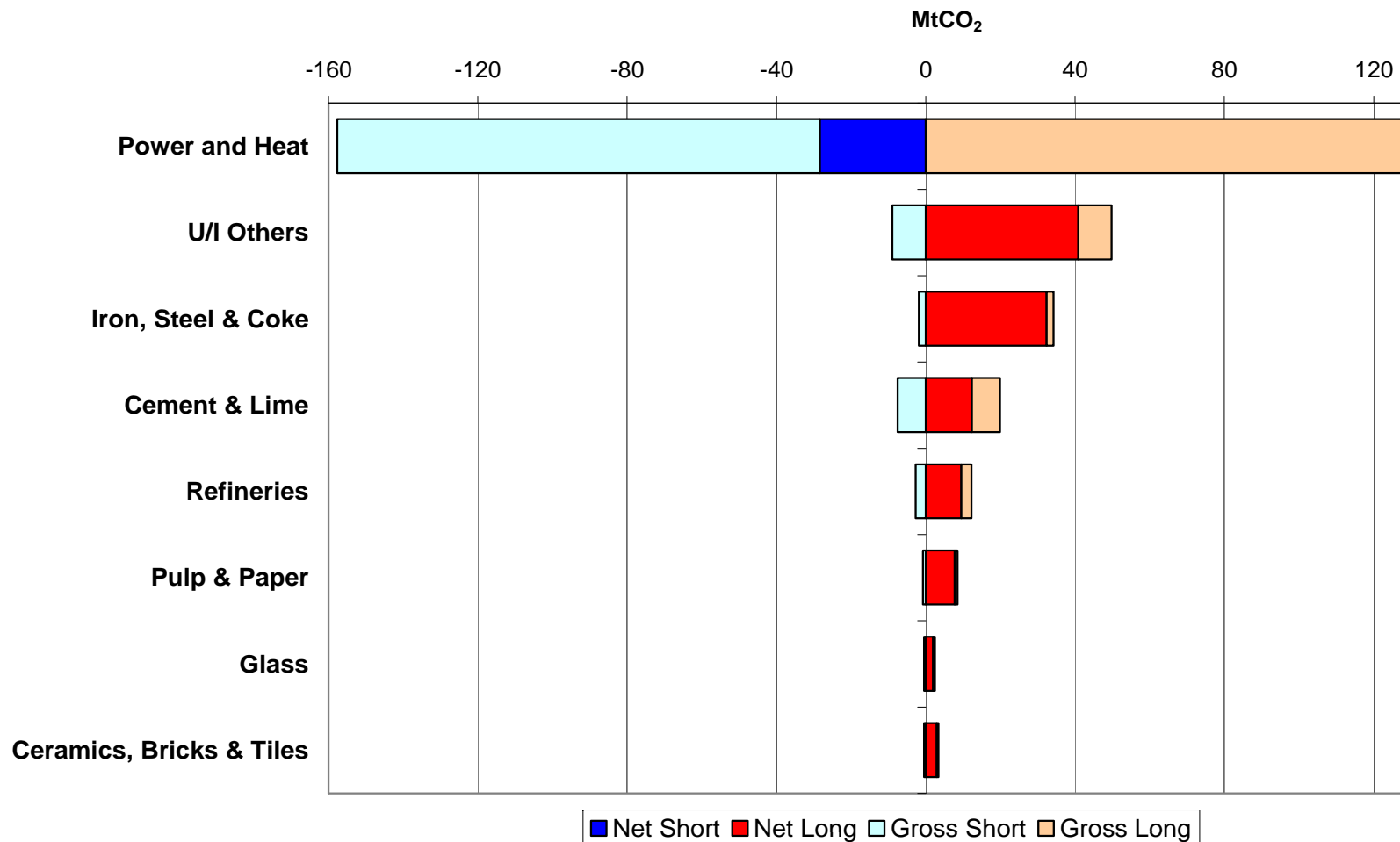


Source:
Convery et al (2008)

Transfers between EU 15 and new Member States in 2005 & 2006



EU emissions trading - Short/Long Positions



Source: Buchner 2007

Approved allowances for 2005-2007, verified emissions in 2005, proposed caps for 2008-2012, approved caps for 2008-2012 and additional emissions covered in 2008 to 2012

Member State	1 st period cap	2005 verified emissions	Proposed cap 2008-2012	Cap allowed 2008-2012	Additional emissions in 2008-2012 ^[3]
Austria	33.0	33.4	32.8	30.7	0.35
Belgium	62.08	55.58 ^[4]	63.33	58.5	5.0
Czech Rep.	97.6	82.5	101.9	86.8	n.a.
France	106.0	131.3	132.8	132.8	0.1
Germany	499	474	482	453.1	11.0
Greece	74.4	71.3	75.5	69.1	n.a.
Ireland	22.3	22.4	22.6	21.15	n.a.
Latvia	4.6	2.9	7.7	3.3	n.a.
Lithuania	12.3	6.6	16.6	8.8	0.05
Luxembourg	3.4	2.6	3.95	2.7	n.a.
Malta	2.9	1.98	2.96	2.1	n.a.
Netherlands	95.3	80.35	90.4	85.8	4.0
Poland	239.1	203.1	284.6	208.5	6.3
Slovakia	30.5	25.2	41.3	30.9	1.7
Slovenia	8.8	8.7	8.3	8.3	n.a.
Spain	174.4	182.9	152.7	152.3	6.7 ^[5]
Sweden	22.9	19.3	25.2	22.8	2.0
UK	245.3	242.4 ^[6]	246.2	246.2	9.5
SUM	1784.38	1646.51^[7]	1790.84	1623.85	51.7

Units: Million tons of CO₂ (that is Mt), Source: EU press release IP/07/459, <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/459&format=HTML&aged=0%3Cuage=EN&guiLanguage=en>

EU emissions trading - Costs issues

- Predicted costs (recent studies by EU commission):
 - Kyoto targets at an annual cost of €2.9 to €3.7 billion (less than 0.1 % of GDP in the EU)
 - Without the Emissions Trading Scheme costs could reach € 6.8 billion
- Higher Electricity prices?
 - Changes in electricity prices not a consequence of emissions trading, but of implementation of emission targets (Kyoto Protocol)
 - carbon constraint gives value to the allowances and leads to changes in relative prices in the EU economy. Goods that contain more carbon will be relatively more expensive than goods that contain less carbon.
 - Complex pricing decisions in power market. Emissions trading just one determinant under many; but: drop in carbon price simultaneously with drop in electricity price