

Cost and Competitiveness Impact of EU ETS Phase 3 on the Chlor-Alkali Sector

Introduction and Purpose

On 23 January 2008, the European Commission presented its Proposal for amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowances trading system of the Community (“the Proposal”).

Under the Proposal, the ETS is extended to cover a number of additional industrial sectors which are listed in Annex 1. New Article 10b provides that the Commission should identify Energy Intensive Industries (EIIs) that are exposed to risk of “carbon leakage” as a result of the internalisation of carbon costs, and should make proposals for mitigating measures to support those industries.

The chlor-alkali sector is not listed in Annex 1. The Chlor-Alkali industry is not a direct emitter of CO₂ but undeniably an energy intensive industry. Electricity costs account for typically 50% of the manufacturing costs to produce chlorine and caustic soda and the ability to pass on these costs to downstream producers is extremely limited. Thus the sector will suffer from higher electricity cost resulting from climate change measures and consequently there is a risk of carbon leakage.

Recital 19 of the Proposal recognises that for certain energy intensive sectors and sub-sectors where it can be substantiated that there is a risk of carbon leakage and where electricity constitutes a high proportion of production cost, actions may be taken to support those sectors i.e. allocation of free allowances.

However, as the Proposal stands today the Recital 19 is not covered in the Articles and the Chlor-Alkali sector is not included in Annex 1. Euro Chlor therefore proposes a number of amendments to the Proposal in order to recognise those industries referred to in Recital 19 where electricity constitutes a high proportion of the manufacturing cost and consequently safeguard against the risk of carbon leakage in order to maintain a competitive industry.

The purpose of this paper is to summarise Chlor-Alkali sector’s case and to suggest amendments to the Proposal.

Cost and Competitiveness Impact of the EU ETS on the Chlor-Alkali Industry

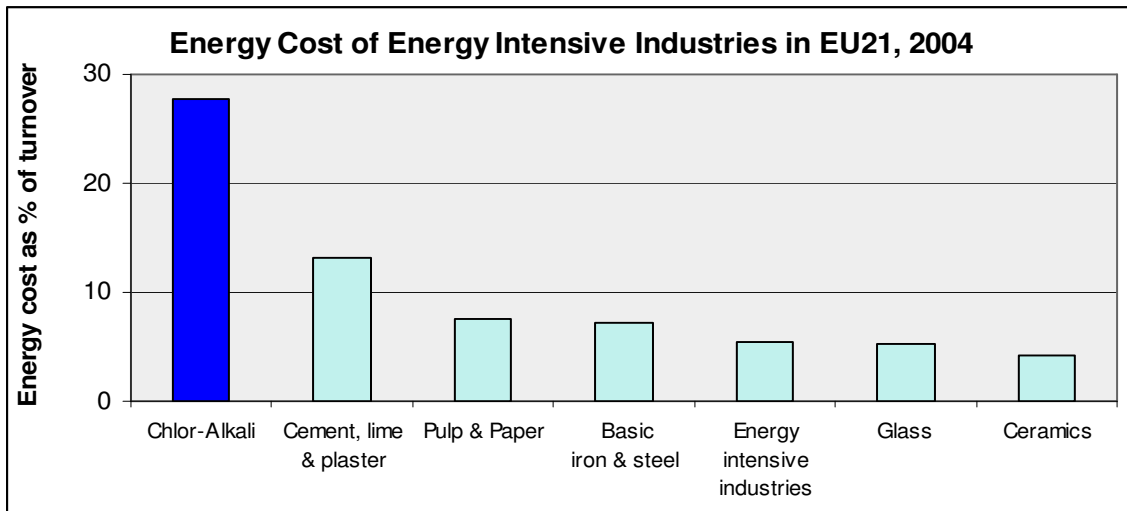
Euro Chlor will work with the authorities to demonstrate that the chlor-alkali industry is an exposed sector. However, the key points of the Chlor-Alkali sector’s case is presented below:

Chlorine and caustic soda are produced by the electrolysis of brine. Electrolysis is, by definition, both an energy intensive and electro-intensive process. This is clearly recognised in the Energy Tax Directive¹.

The chart below has been developed using data Figure 2 of the recent ECFIN² report on the cost of carbon to energy intensive industries. It shows that the Chlor-Alkali industry is one of most energy-intensive of all industrial sectors.

¹ Article 2.4 (b) of the Energy Tax Directive 2003/96/EC

² DG ECFIN report “ Imposing a unilateral carbon constraint on energy-intensive industries and its impact on international competitiveness – data & analysis”

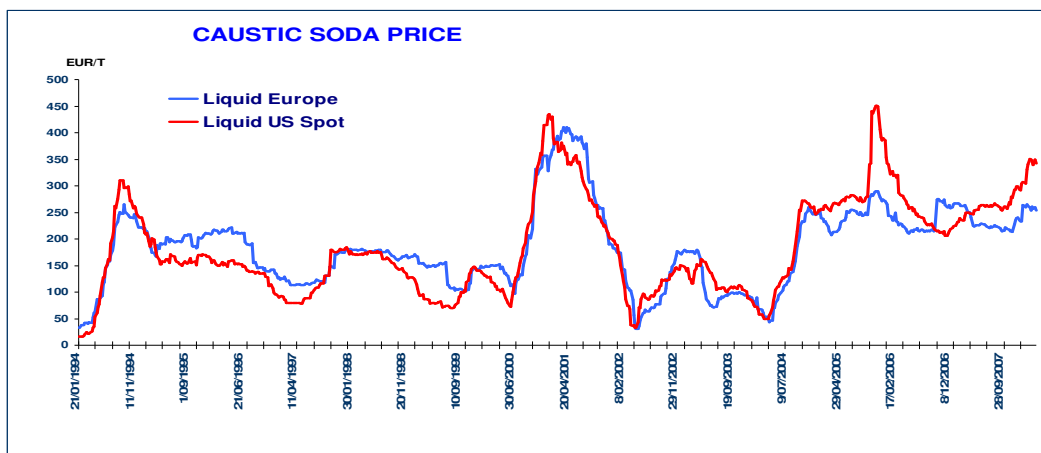


The chart assumes an electricity price of €51/MWh. There is virtually zero carbon pass-through in this price, yet this electricity is already significantly more expensive than in competing regions, viz. the US Gulf, Saudi Arabia, China and Russia³.

A class-leading chlor-alkali (membrane) plant requires 2.8 MWh of electricity to make an ECU⁴ by the process of electrolysis. Assuming an average carbon intensity for electricity produced in the EU of 600kg CO₂/MWh, the carbon intensity of the sector is 1.7 teCO₂/ECU.

The chart above assumes an ECU has a price of €571. This is at the top of its historic trading range, so the 28% figure in chart is at the lower end of its range. Assuming carbon allowances are priced at 25 €/te, and the cost of these is passed through in electricity prices, the cost of carbon to the chlorine industry will be between 7% and 9% of turnover⁵, depending on technology. Typical operating margins for chemical companies specialising in speciality chemicals is around 8.7%⁶. Generally, commodity chemical companies operate at lower margins.

The charts below show how EU prices for key products of the industry (caustic soda and PVC) compare with US and Asian prices.

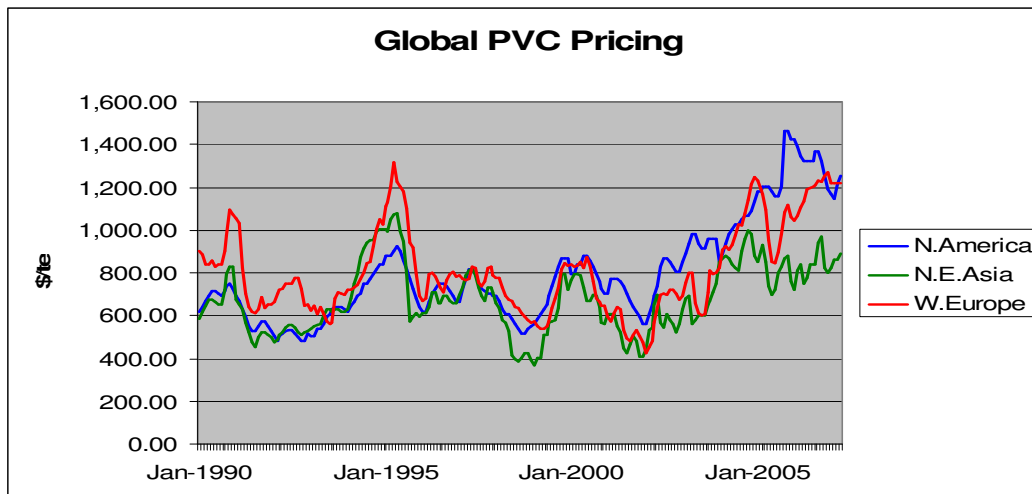


³ Exhibit 6.6 of Prochemics report (see <http://www.eurochlor.org>)

⁴ ECU = Electrochemical Unit = 1 tonne of Chlorine and 1.13 tonne of caustic soda

⁵ Euro Chlor calculation. Based on ECFIN report, Annex 2 Table 3 for the chlor-alkali industry.

⁶ Page 161 of GHK report prepared for the European Commission November 2007.



These charts demonstrate that European prices for these products are closely correlated with US prices. All regions operate as a single market, and therefore European producers will be unable to raise prices in order to pass on carbon costs. If the cost of carbon cannot be passed on to customers, it will have to be absorbed by producers. However, it has already been shown that the carbon costs will be of sufficient magnitude to virtually eliminate the current operating margin of the sector. By way of example, EDC is the first tradable derivative of chlorine. The margin on EDC in 2007 is €33/te. With CO₂ at €25/te, this margin will disappear. With CO₂ at €40/te, it will become negative.

As part of the EU Mercury Strategy, European chlor-alkali producers have made a firm commitment to phase out mercury cell technology by 2020 at the latest. The ECFIN report shows that this technology accounted for 55% of capacity in 2004. World-wide, the demand for chlor-alkali products is strong, and these plants will have to be replaced by new capacity somewhere. If operators are unable to generate a reasonable operating margin in Europe, they have no incentive to build new plants in Europe, or to invest in the conversion of mercury cell technology to membrane cell technology.

Unless the indirect cost of carbon incurred by operators in Europe is mitigated, the replacement plants will be constructed in lower cost countries such as China, Russia or Saudi Arabia. Currently, none of these countries is carbon constrained, so carbon leakage will inevitably occur.

What is required to prevent carbon leakage?

The Proposal for amending Directive 2003/87/EC needs to be revised to recognise, explicitly, the risk of carbon leakage for those sectors where electricity constitutes a high proportion of the production cost. The risk **is** recognised in Recital 19, but, unfortunately, not in Article 10, which is over-riding.

Euro Chlor requests that electricity-intensive installations should be allocated free allowances to compensate them for the cost of carbon built into electricity prices. Allocation should be calculated using performance-based benchmarks, and Euro Chlor is currently working on proposals for such a methodology. The free allocation should be drawn from the pool of allowances earmarked to be auctioned to the Electricity Generation Industry (EGI). In effect, this means that the EGI will buy the vast majority of their allowances at auction, and a small minority would be provided from electricity-intensive installations. Euro Chlor's suggested amendments to the Proposal are attached as Appendix 1.

As an alternative to the free allocation of allowances, it would be possible to achieve a similar outcome by recycling auction revenues. Whilst this is not Euro Chlor's preferred solution, it would only require the addition of a new article 10.3 (h), providing for recycle of auction revenues to electricity-intensive installations. (Appendix 2)

In conclusion, Euro Chlor amendments recognise that, for electricity-intensive industries, indirect carbon leakage is a greater threat than direct carbon leakage. Therefore, it is crucial that the chlor-alkali industry is recognised in the Directive and that appropriate mitigating measures are taken in order to ensure that electricity-intensive industries will have a future in Europe, and carbon leakage will be avoided.

Amendments to the Commission's Proposal for extending the EU Emission Trading Scheme

The purpose of these amendments is to recognise explicitly the risk of carbon leakage from electricity-intensive sectors, and to include measures to avoid this happening. The mitigating measure involves the issue of free allowances to the operators of electricity intensive production facilities listed in new Annex III.

Amendment to Article 2: new (1) (a)

<i>New article 2 (1) (a) to be added</i>	This Directive shall also apply in so far as this is specifically provided for hereunder to installations listed in Annex III.
<p><i>Justification</i></p> <p>The Proposal currently provides for a number of mitigating measures in case the production sectors covered by the ETS system having to buy CO₂ allowances suffer from non-EU competition not subject to a similar ETS system (so-called 'carbon leakage'). However, industry sectors not yet included in the ETS system for which the purchasing of electricity constitutes a major portion of their production cost will suffer from the same effect because they must purchase their energy from electricity providers that are included in the ETS system. Their production cost will therefore be substantially increased and their product prices will be higher than the production prices of their competitors in third countries not subject to similar legislative measures (so-called 'indirect carbon leakage'). These sectors need to be compensated for those threats to their competitiveness.</p>	

Amendment to Article 10.1

<i>Article 10.1 to be amended as follows</i>	From 2013 onwards, Member States shall auction all allowances which are not allocated free of charge in accordance with Articles 10a and 10c.
<p><i>Justification</i></p> <p>This amendment is consequent to the addition of new Article 10c.</p>	

New Article 10c

<i>New Article 10c to be added</i>	<p>Not later than June 2009, the Commission shall, after consulting with all relevant social partners, submit to the European Parliament and to the Council an analytical report assessing the situation with regard to those electricity-intensive production facilities listed in Annex III where electricity constitute a high proportion of production cost and where products are in competition from third countries not having equivalent emission reduction measures in place ('indirect carbon leakage'). By December 2009, the Commission shall adopt measures in accordance with the procedure pursuant to Article 22 allocating an adequate amount of free allowances to these facilities that they may use with their electricity providers. These measures shall be regularly updated every five years in accordance with the procedure of Article 22.</p>
<p><i>Justification</i></p> <p>The Proposal currently provides for a number of mitigating measures in case the production sectors covered by the ETS system having to buy CO₂ allowances suffer from non-EU competition not subject to a similar ETS system (so-called 'carbon leakage'). However, industry sectors not yet included in the ETS system for which the purchasing of electricity constitutes a major portion of their production cost will suffer from the same effect because they must purchase their energy from electricity providers that are included in the ETS system. Their production cost will therefore be substantially increased and their product prices will be higher than the production prices of their competitors in third countries not subject to similar legislative measures (so-called 'indirect carbon leakage'). These sectors need to be compensated for those threats to their competitiveness.</p>	

*New Annex III***List of Electricity-intensive production facilities referred to in Articles 2 and 10**

<i>New Annex III to be added</i>	- Electrolysis processes for chlor-alkali manufacturing <hr/> <hr/> <hr/>
<p><i>Justification</i></p> <p>The Proposal currently provides for a number of mitigating measures in case the production sectors covered by the ETS system having to buy CO₂ allowances suffer from non-EU competition not subject to a similar ETS system (so-called ‘carbon leakage’). However, industry sectors not yet included in the ETS system for which the purchasing of electricity constitutes a major portion of their production cost will suffer from the same effect because they must purchase their energy from electricity providers that are included in the ETS system. Their production cost will therefore be substantially increased and their product prices will be higher than the production prices of their competitors in third countries not subject to similar legislative measures (so-called ‘indirect carbon leakage’). These sectors need to be compensated for those threats to their competitiveness.</p>	

Amendments to the Commission's Proposal for extending the EU Emission Trading Scheme

The purpose of these amendments is to recognise explicitly the risk of carbon leakage from electricity-intensive sectors, and to include measures to avoid this happening. The mitigating measure involves the recycling of some of the auction revenues to the electricity intensive production facilities listed in new Annex III.

Amendment to Article 10 (3): New clause (h)

<p><i>New Clause (h) to be added</i></p>	<p>3. At least 20% of the revenues generated from the auctioning of allowances referred to in paragraph 2, including all revenues from the auctioning referred to in point (b) thereof, should be used for the following:</p> <p>(a) to reduce greenhouse gas emissions, including by contributing to the Global Energy Efficiency and Renewable Energy Fund, to adapt to the impacts of climate change and to fund research and development for reducing emissions and adapting, including participation in initiatives within the framework of European Strategic Energy Technology Plan;</p> <p>(b) to develop renewable energies to meet the commitment of the Community to using 20% renewable energies by 2020, and to meet the commitment of the Community to increase energy efficiency by 20% by 2020;</p> <p>(c) for the capture and geological storage of greenhouse gases, in particular from coal power stations;</p> <p>(d) for measures to avoid deforestation, in particular in Least Developed Countries;</p> <p>(e) to facilitate developing countries' adaptation to the impacts of climate change; (f) to address social aspects in lower and middle income households, for example by increasing their energy efficiency and insulation; and</p> <p>(g) to cover administrative expenses of the management of the Community scheme.</p> <p><i>(h) to adequately compensate those electricity intensive production facilities where electricity constitute a high proportion of production cost and where product are in competition from third countries not having equivalent emission reduction measures in place ('indirect carbon leakage'). These production facilities are listed in Annex III to this Directive. Revisions of Annex III may be effected pursuant to the procedure of Article 22.</i></p>
<p><i>Justification</i></p> <p>The Proposal currently provides for a number of mitigating measures in case the production sectors covered by the ETS system having to buy CO₂ allowances suffer from non-EU competition not subject to a similar ETS system (so-called 'carbon leakage'). However, industry sectors not yet included in the ETS system for which the purchasing of electricity constitutes a major portion of their production cost will suffer from the same effect because they must purchase their energy from electricity providers that are included in the ETS system. Their production cost will therefore be substantially increased and their product prices will be higher than the production prices of their competitors in third countries not subject to similar legislative measures (so-called 'indirect carbon leakage'). These sectors need to be compensated for those threats to their competitiveness.</p>	

New Annex III

List of Electricity-intensive production facilities referred to in Article 10

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<p><i>Justification</i></p> <p>The Proposal currently provides for a number of mitigating measures in case the production sectors covered by the ETS system having to buy CO₂ allowances suffer from non-EU competition not subject to a similar ETS system (so-called ‘carbon leakage’). However, industry sectors not yet included in the ETS system for which the purchasing of electricity constitutes a major portion of their production cost will suffer from the same effect because they must purchase their energy from electricity providers that are included in the ETS system. Their production cost will therefore be substantially increased and their product prices will be higher than the production prices of their competitors in third countries not subject to similar legislative measures (so-called ‘indirect carbon leakage’). These sectors need to be compensated for those threats to their competitiveness.</p>	