Euro Chlor
representing the chlor-alkali industry

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Questions and answers on the Chlor-Alkali Sector and the EU Emission Trading scheme (ETS)

Introduction

On 23 January 2008, the European Commission presented its Proposal for amending Directive 2003/87/EC on the EU Emission Trading Scheme (ETS). This Proposal aims to improve and extend the greenhouse gas emission allowances trading system of the Community. Under the Proposal, the ETS is extended to cover a number of additional industrial sectors which are listed in Annex 1. The Chlor-Alkali sector is NOT listed in this 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. Here again, the Chlor-Alkali Industry is not mentioned as an Energy Intensive Industrie with a serous risk of carbon leakage.

This document offers some answers to often raised questions in the debate why the Chlor-Alkali Industry should be included in the whole of the Proposal and explains some of the technical terms used.

1. What is de role of electricity in the Chlor-Alkali production?

Chlorine and its co-product caustic soda, very important building blocks for the whole of the chemical and pharmaceutical industry, are inevitably produced *together* in the **electrolysis of brine**: a strong electric current is sent through the water/salt solution. This electrochemical process leads to the generation of gaseous chlorine, dissolved caustic soda (sodium hydroxide) and hydrogen. So, physically and chemically, the electric current (which is a stream of electrons) is essential to the chlor-alkali reaction. One could even state that electricity is **feedstock as well as energy source** for the Chlor-Alkali production.

2. How important is the role of electricity in this process?

The role of electricity in the electrolysis process is indispensable. No reaction takes place if the right amount of electric energy (typically 3.3 MWh per tonne of chlorine produced) is not sent through the electrolysis cells. **Electricity accounts for about 50 per cent of total production cost**.

3. Is the Chlor-Alkali Industry an Energy Intensive Industry?

Indeed it is. **The European Chlor-Alkali industry consumes 36 TWh of electricity per year** (terawatt hour or 10^{12} Watt hour/y). **Energy cost amounts to up to about 28% of turnover in the Chlor-Alkali industry**, that is more than double the share of energy cost in the turnover of the cement industry and even four times the share of the energy cost in the turnover of the basic iron and steel industry.

4. Is the Chlor-Alkali Industry an important CO_2-emitter?

We must differentiate the notions "direct emitter" and "indirect emitter" of CO_2. Since there are no combustion processes in the Chlor-Alkali production, **the sector is not a direct emitter of greenhouse gases.** Only a limited amount of heating (with the according limited CO_2 emission) is applied in the generation of process steam. Through its very important electricity consumption however, the Chlor-Alkali Industry is clearly an **indirect emitter** of CO_2: **emissions occur during the production of the electricity the sector uses**.

5. What is "carbon leakage"?

All European industries, including the Chlor-Alkali industry, must compete on global markets. Carbon leakage is the technical term for the inevitable shift and delocalisation of direct or indirect CO_2 emitting industries to other regions in the world if "local" (e.g. European) anti-climate change environmental measures would raise production cost up to unacceptable levels. Carbon would be emitted elsewhere. This would of course also lead to "investment leakage".

6. Is the Chlor-Alkali Industry exposed to carbon leakage?

The Chlor-Alkali production cost, the caustic prices and the prices of Chlor-Alkali derivatives are closely linked. The whole of the Chlor-Alkali sector cannot pass through the surplus cost of ETS (the cost of carbon) in its value chain. It is thus unfairly exposed to international, global competition. That means that the Chlor-Alkali industry, although it is only an indirect emitter, merits to be treated in the same way as other Energy Intensive Industries

7. What does the Chlor-Alkali Industry expect from the revised ETS?

In view of the fact that the **European Chlor-Alkali industry clearly is an Energy Intensive Industry,** an important *indirect* CO_2-emitter (through the production of the electricity it so badly needs), and an operator on global markets not permitting to pass on the supplementary cost of carbon in the ETS, it is obviously exposed to carbon leakage. It should therefore be allocated free emission allowances compensating for the cost of carbon built into the electricity prices.

8. Does the Chlor-Alkali Industry expect to get full and free emission allowances?

No, the Chlor-Alkali industry does not go for a free ride. It wants a fair ride, in order to guarantee its long term future in Europe, meaning **the allocation of free emission allowances compensating for the real cost of carbon it only indirectly and inevitably emits**. In other words, the Chlor-Alkali industry wants to be part of the mechanism allocating free allowances to sectors meeting the criteria to be recognised as being energy intensive, but happen to be electro-intensive. **These allowances should be allocated according to a benchmark** reflecting the best performers in terms of energy efficiency. Companies performing worse than the benchmark will have to pay the difference.

9. What are benchmarks?

In the global warming issue, reducing greenhouse gas emissions is an essential response. Performance benchmarking on this aspect is a basis for allocation of emission rights in the Emissions Trading System (ETS). The benchmark system supports highly efficient European production supplying energy efficient products with lower carbon footprints. The

better performers with regard to the benchmark will be awarded more allowances. For companies ranging above the benchmark, this fact would consist of an incentive to reduce emissions and avoid extra costs.

10. How could a suitable benchmarking system be organised for the Chlor-Alkali Industry?

The process of arriving at a benchmark for the Chlor-Alkali industry would start with an overview of actual electricity consumption (in terms of MWh per ECU, ECU being Electrochemical Unit or the energy required to produce the “natural” duo of one tonne chlorine together with 1,1 tonne caustic soda. This would lead to a discussed and negotiated proposal of a benchmark number, to be related to a European average figure for MT CO_2 emitted per MWh electricity consumed always keeping in mind that the Chlor-Alkali Industry is not a direct but an indirect emitter)..The general benchmark principle (see question 9) could then be applied.