

The Chemical Industry

Facing Challenges and Providing Solutions

Among the challenges of the next decade are energy and climate policy, material efficiency and sustainable use of natural resources. Chemistry and the chemical industry can provide solutions to many of these problems.

Aimo Kastinen

The chemical industry uses a lot of energy, but with its products we can also save energy. The best operators already have a positive energy balance. Chemistry can play a central part in solving climate- and energy-related problems of the future.

Whether this in fact happens in the EU area and Finland shall be resolved in the next few years. It is essential that wise choices are made in all areas of energy policy. With short-sighted subsidy policy and taxation policy or emissions-trading solutions that have been poorly implemented, there may be long-term negative effects on the whole of society.

Emissions trading raises the cost of energy

The policy announcements concerning the EU's third emissions-trading period, starting in 2013, were made last December. As a result of a year-long debate, a compromise was reached in which the views of industry were also accommodated. However, fundamental questions such as determination of the carbon-leakage sector have been transferred for resolution via comitology procedures, and compensation procedures for electricity-intensive industry have been transferred to the national level.

Emissions trading will expand in the third period to cover new basic industry companies in the chemicals sector that have a heat generation of more than 20 megawatts. Also included in the scope of application are new greenhouse gases, such as nitrous oxide.

As a general rule, the companies will purchase emissions allowances needed by them via an auction. It has not yet been resolved as to which businesses belong to the carbon-leakage sector and will receive allowances free of charge. Initially, it seems that chemical

companies fulfil the carbon-intensity and/or trading-intensity criterion of the emissions-trading directive, and thus they will receive at least part of their allowances free of charge.

Based on experiences in the first periods, the effect of emissions trading on the price of electricity is known very well. The market price of electricity is determined by the most expensive means of generation at a given time, which in the Nordic countries is normally coal-fired condensing.

This form of pricing mechanism provides generators of hydroelectric and nuclear power with significant additional revenue and leads to a corresponding additional cost for energy users. The situation will become even more unfair in the third period.

The price of electricity is one of the most significant cost factors in basic industries, so it is essential to find ways of making the situation more reasonable. So far, market-based means have included the establishment of a collective purchasing organisation or partnerships in energy production.

At the start of the year, The Federation of Finnish Technology Industries commissioned a report from Pöyry Oy on the possibility of arranging a pricing mechanism whereby those buying electricity would pay the actual costs resulting from emissions trading to the electricity generators. In the model presented by Pöyry, this requirement would be satisfied, and it would not compromise the goal of carbon-free energy production.



Innovations in chemistry help solve environmental and energy problems.



COMMENT

Reach Implementation in Trouble

The operational hypotheses of those drafting the Reach regulation seem to have been flawed.

The estimated volume of administrative procedures was as much as an order of magnitude smaller than the actual level. The SIEF collaboration between competing companies is not running as smoothly as expected. The IT systems of the European Chemicals Agency have not operated according to plan. Application instructions have arrived late.

In practice, there is only a year left for the registration of the first phase. The number of problems will not diminish and, if anything, is growing. A huge amount of work has been done and is still being done in businesses so that the regulation can be enforced according to the planned schedule.

However, if this turns out to be unfeasible, it should be possible to change the deadlines. So far, neither the EU commission nor the European Chemicals Agency has specified what kind of corrective measures could be undertaken if this is necessary.

Aimo Kastinen

Operating in Helsinki, Finland, the European Chemicals Agency is the authority to manage the Reach process at Community level.



Päivi Ikonen



In the emissions-trading directive, the link between emissions trading and the price of electricity was recognised along with the fact that the rising price of electricity may jeopardise the existence of electricity-intensive export industries in the EU. The opportunity for electricity-price compensation was provided to member states, but subsequent developments have started slowly.

Finnish national policy was announced last November in a report issued to Parliament on energy and climate policy. This report deals primarily

with solutions to be implemented in the decade commencing in 2010. The Government has prepared a new long-term paper which shall be presented to Parliament in the autumn.

In addition, the Government has made specific decisions, such as the wind-power feed-in tariff decision, which means an additional annual cost of around 200 million euros for energy users. Energy taxation decisions, for their part, raise costs by several hundred million, as from 2011.

The industry has actively raised its

energy efficiency in two energy-saving periods implemented since 1992. During the third period which ends in 2016, an improvement in energy efficiency of 9 % is sought. Included in the agreement are all energy-intensive companies in the chemical industry and the majority of small- and medium-sized enterprises.

Innovations in chemistry solve problems

When solutions to climate and energy

Huge Task Under Way

Implementing Reach has proven far more difficult than anyone had ever imagined, says Cefic, the European Chemical Industry Council.

Reach is a very complex and demanding piece of legislation. Companies that have to register their substances need to have the data ready in less than two years if they are producing more than 1,000 tonnes of a substance per year. They also need to share their data and form Substance Information Exchange Forums (SIEF).

Instead of 150,000 or so pre-registrations, the number turned out to be at least 2.7 million. This twentyfold greater-than-expected number of pre-registrations has created huge difficulties both for the IT system in the European Chemicals Agency (ECHA) and with companies preparing registrations.

ECHA recently launched an awareness campaign called "The clock is ticking—form your SIEF now", which intends to raise awareness of the urgent need for action if companies are to



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The Reach clock is ticking, but many problems need yet to be solved before chemical companies can form properly acting SIEFs.

meet the first substance registration deadline of 30 November 2010.

Much additional guidance for SIEF formation has been published by ECHA and the chemical industry, but it will be up to the chemical companies to solve all practical problems before they can establish a properly acting SIEF and prepare a registration dossier.

It is extremely important that chemical manufacturers and importers manage to do this, as all other industrial branches depend on chemical substances. It will not be in the interest of anyone if companies fail to register their substances on time.

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The TESS Toolbox is freely available, without cost, at www.reach-serv.com.

TESS Toolbox to Help SMEs

The product of an EU-financed project, TESS (Toolbox to Support Environmental and Sustainable Systems) is an easy-to-use set of tools especially intended to assist small- and medium-sized enterprises to comply with the Reach regulations and to migrate towards alternative, more sustainable manufacturing chains with lower impacts on human health and the environment.

The toolbox is useful for all actors within Reach, including manufacturers, importers, downstream users and trade associations. It can also be used for solving case studies in Reach-related training.

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problems and sustainable use of natural resources are sought, innovations in chemistry and products of the chemical industry play a pivotal role.

Chemistry is producing lighter, stronger and more durable materials than before and is using less energy in the process. Totally new possibilities are provided by surface chemistry and nanotechnology.

An example of the use of renewable energy is biofuels. With the help of chemistry, the energy input required by other activities is also reduced.

Chemical technology can be used for example in the future recovery of carbon dioxide emitted from power stations; in construction work, we can benefit from lighter structures and better thermal insulation.

Europe's chemical industry has a long heritage and a lot of expertise. Our global competitiveness is improved by the synthesis of information technology and materials technology.

So, we have a good starting point for the exploitation of innovations. However, a condition for development is the

encouragement of policy that supports innovation instead of restrictive standardisation. The recommendations of the EU commission's chemical industry high level group published in the winter will act as a good signpost in the future. □

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