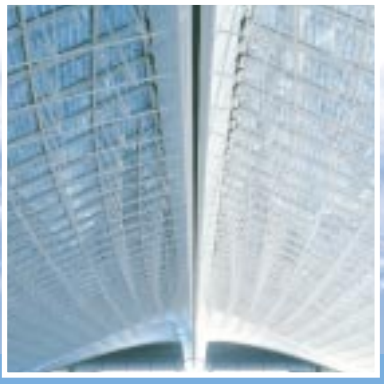


The European Steel Industry and Climate Change

EUROFER

European Confederation of Iron and Steel Industries

European steel industry - modern and efficient

The steel industry in the European Union employs directly about 280 000 persons and produces about 160 million tonnes of crude steel per year, which represents more than 20 percent of world production. The steel industry operates in a highly competitive environment on a global market, where rigorous cost management is imperative for maintaining and strengthening the industry's competitiveness.

For this reason, European steel producers have a tradition of developing new processes to reduce energy and raw material consumption. Steelmaking processes have been developed and refined during a very long time. Today's processes are large-scale and highly efficient in terms of energy and raw material use. The European steel industry has come far on the experience curve, resulting in high and growing marginal costs for further improvements.

Steelmaking is capital intensive and the average plant life is very long, which makes changes to new technologies possible only in a timeframe of several decades.

Steelmaking and sustainable development

The European steel industry is committed to sustainable development and a continuous improvement of its environmental performance, and it has an excellent track record in this respect. Large reductions of emissions have been made during the last few decades, and energy and raw material use is highly efficient.

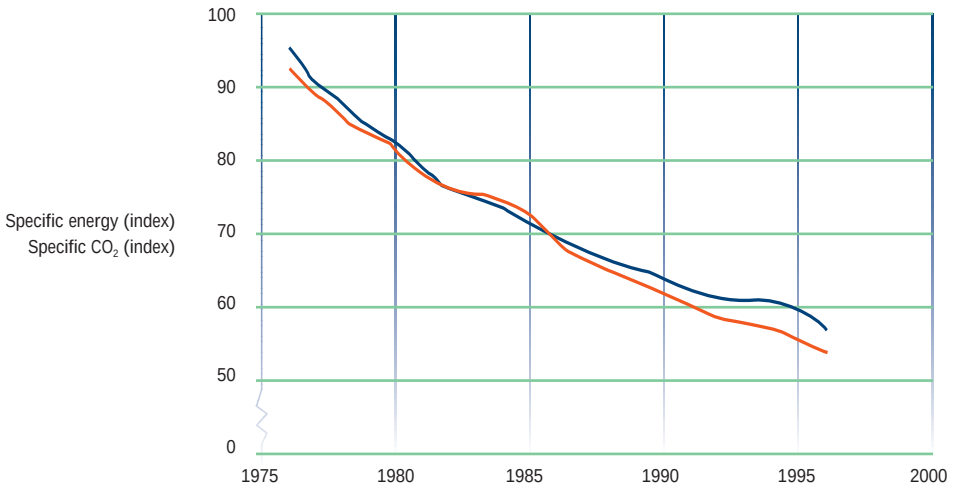
Steel is one of the world's most recycled materials. The use of ferrous scrap as a raw material helps in preserving natural resources and contributes significantly to a sustainable development. Recycling of steel allows the saving world-wide of about 600 million tonnes of iron ore and 200 million tonnes of coke each year. About 47 percent of EU steel production is made from recycled scrap.

■ EU Steel Industry Energy Consumption per Tonne of Finished Steel

■ EU Steel Industry CO_2 Emissions per Tonne of Finished Steel

3-year moving averages

Source: Eurostat



Energy efficiency and carbon dioxide emissions

The steel industry's generation of carbon dioxide (CO_2) is mainly associated with the chemical reaction of carbon and iron ore in blast furnaces producing molten iron, which is then converted to steel. All of the carbon in blast furnaces is used for such reduction, i.e. not for combustion.

The minimisation of energy input has always been a major challenge for European steelmakers. A dramatic reduction of carbon input/output has been achieved. The development has gone so far that theoretical limits according to the laws of physics are being approached. Further major reductions are becoming progressively more and more difficult and uneconomic, because the marginal cost for further reductions is prohibitive.

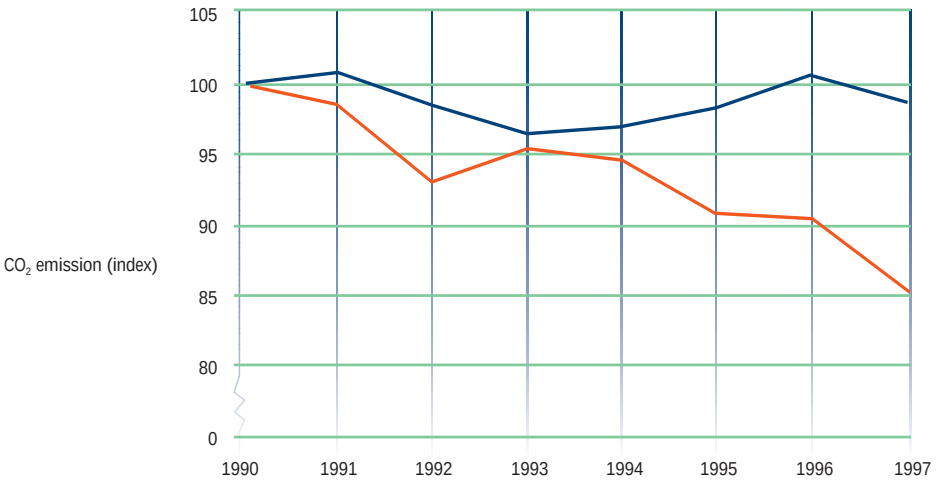
Steel producers already today use the most sophisticated energy and gas management systems for optimised use of energy in their processes. Gaseous by-products are used as fuels, replacing primary energy. Thermal energy in cooling water, waste gases, and residual products is recovered to a high degree.

A balance must often be found between conflicting environmental objectives. For example, reduction of dust emissions to meet new limit values by means of high-efficiency filters usually also causes a higher energy demand. Efforts to recycle iron-containing residual products at steel mills in order to save raw materials and energy are increasingly thwarted by new waste legislation.

■ Total EU15 CO_2 emissions (1990-1997)

■ EU Steel Industry CO_2 emissions (1990-1997)

Source: Eurostat



Can CO_2 emissions in steelmaking be reduced further?

Vast resources have been spent on development of steelmaking processes, and massive investments have been made in new plants and equipment. The result is that the existing processes today are operating close to the theoretical minimum as regards energy use. In the timeframe of the Kyoto Protocol, there is consequently no scope for significant CO_2 emission reductions. Individual plants in some cases may be able to achieve some further reductions by fine-tuning of their energy-management systems. Some reductions will also be achieved through a gradual shift towards more electric-arc furnace steelmaking.

Significant reductions for the steel industry as a whole may be possible only long-term (several decades), if completely new processes can be developed and successfully introduced. This would require large investments in research and development, pilot-plant testing, and finally scaling up to full-size plants. Presently, there are no new break-through processes on the horizon promising significantly lower CO_2 emissions in steelmaking.

The limited impact of research and development to meet the Kyoto targets is confirmed in the European Commission's report *Economic Foundations for Energy Policy* (December 1999). This conclusion is especially valid for capital-intensive industries such as the steel industry.

Steel-industry contribution

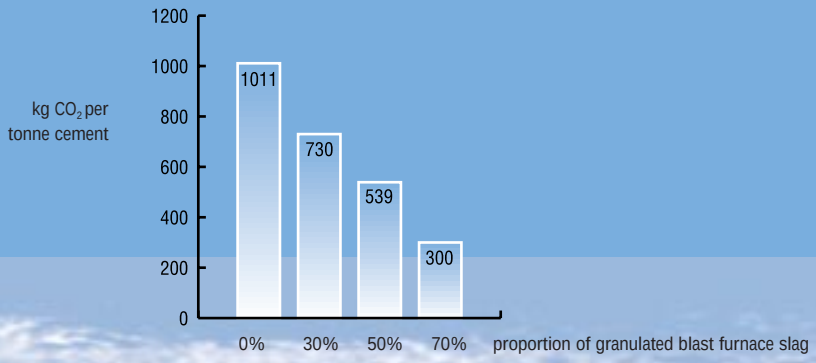
The steel industry's main future contribution to CO_2 emission reduction will be to use remaining potential in the steelmaking process and to further develop the use of by-products and to work with its customers to help design better, longer lasting, more energy- and material-efficient products.

Recent development of high-strength steels has enabled customer industries to reduce the weight and improve the energy efficiency of steel-containing products such as passenger cars, packaging and civil engineering constructions. The improvements in protective coatings for steel have increased the life of steel-containing products.

The production of steel involves the production of valuable by-products. For example, slags are processed into building materials such as cement and aggregates providing a major contribution to the environment by reducing CO_2 emissions and the need for new raw materials.

Slag use in cement production to reduce CO_2 emissions

Source: Thyssen Krupp Steel

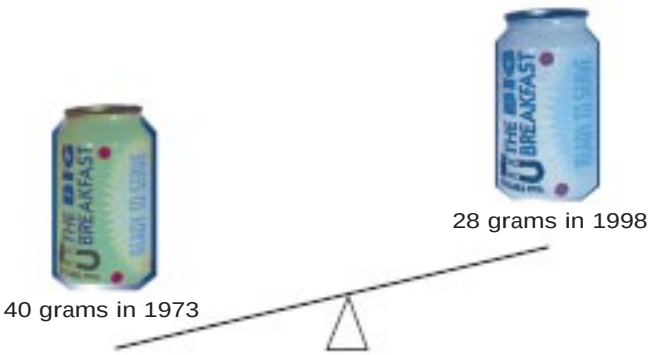


ULSAB - Ultra Light Steel Auto Body

Source: ULSAB Consortium

33 cl steel can body weight in Europe

Source: APEAL



EU and national policies and measures

EUROFER believes that policies and measures, whether EU or national, should satisfy the following requirements to be effective in supporting the steel industry's efforts to improve its energy efficiency further:

- They should deliver the environmental objective in the most economical way.
- They should not damage the competitiveness of the industry.
- They should not place a cap on the expansion, volume, or added value of the sector.
- They should provide flexibility so that the sector, and individual companies in the sector, can pursue those options most suited to its own circumstances in a market-based environment.
- They should take account of past achievements towards a high energy efficiency.
- Subsidiarity should apply, because circumstances differ from one Member State to another.

European Parliament - Brussels

EU Council - Brussels

Energy tax

As shown by a recent consultant report for the European Commission, an energy tax is unlikely to result in any appreciable reduction of CO_2 emissions in the steel industry. The effect of an energy tax on the industry would be to

- push up input costs, not reduce unit energy consumption;
- reduce funds available for investments and R&D for improvement of energy efficiency;
- increase the probability of relocation of steel production to non-EU countries not signatories to the Kyoto Protocol.

Potential consequences of unrealistic targets

If EU steel producers were to be subjected to unrealistic targets regarding energy efficiency or CO_2 emissions, in the short term there is a great risk that they would lose business to non-EU competitors, who may not be subject to any CO_2 emission limitations. The net result could therefore be an increase of global CO_2 emissions.

In a longer time perspective, EU steel producers may have to move production to countries not subject to emission limitations according to the Kyoto Protocol, either by relocation of own production units or by increased purchases of semi-finished steel such as slabs, again with a possible net increase of global CO_2 emissions.

Voluntary and negotiated agreements covering the steel industry

EUROFER supports the idea of voluntary or negotiated agreements at national level. Because of the investment time scales in the sector and because of the limits on improvements in energy efficiency, such agreements are best considered in a timeframe of a few decades.

Currently, the steel industries in five Member States are covered by agreements, i.e. in Finland, France, Germany, Luxembourg, and The Netherlands. This implies a coverage of about 50 percent of EU steel production. An agreement is close to completion in the United Kingdom, which would result in about 60 percent coverage.

Flexible Kyoto mechanisms

EUROFER supports the Kyoto flexible mechanisms for countries to meet their Kyoto targets. If governments determine that targets are needed for individual companies, EUROFER supports the use of the Clean Development Mechanism, Joint Implementation, and Emissions Trading as flexible means to help companies achieve their targets.

The system for initial allocation of emission allowances is critical. The global competitiveness of the steel industry must be a key consideration. The initial allocation of emission allowances could be made by benchmarking combined with negotiated agreements at national level or other methods seen as equitable by the companies concerned.

For emissions trading (ET) to be useful for EU steel companies, EUROFER believes the following conditions should be satisfied:

- ET must not cause a cap on the expansion, volume, or added value of the sector or its companies.
- Allocation and other ET rules must not distort competition.
- Trading should be done by companies, not the sector.
- An EU trading scheme should be compatible with a global system.
- ET rules should be flexible and compatible with other Kyoto mechanisms. Credits under all mechanisms should be tradable globally within and between all sectors.
- ET should be designed to avoid conflicts with technical and legal regulations.
- An EU framework for negotiated agreements should be developed. The Commission communication COM(96)561 provides a good basis.
- The major contribution of steel in helping steel users produce more energy-efficient products (through new high-strength steels, custom-designed steel components, etc.) should be reflected in credits given to steel companies in an ET system.
- A common global system for measurement, monitoring, reporting, and verification is needed.
- Banking of emission rights for use in later years should be possible.
- Transaction costs must be kept to a minimum to ensure lowest cost of meeting targets.
- Baselines and reference cases must be clear, to encourage early action.
- The system must be simple, flexible, practical, and transparent.

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