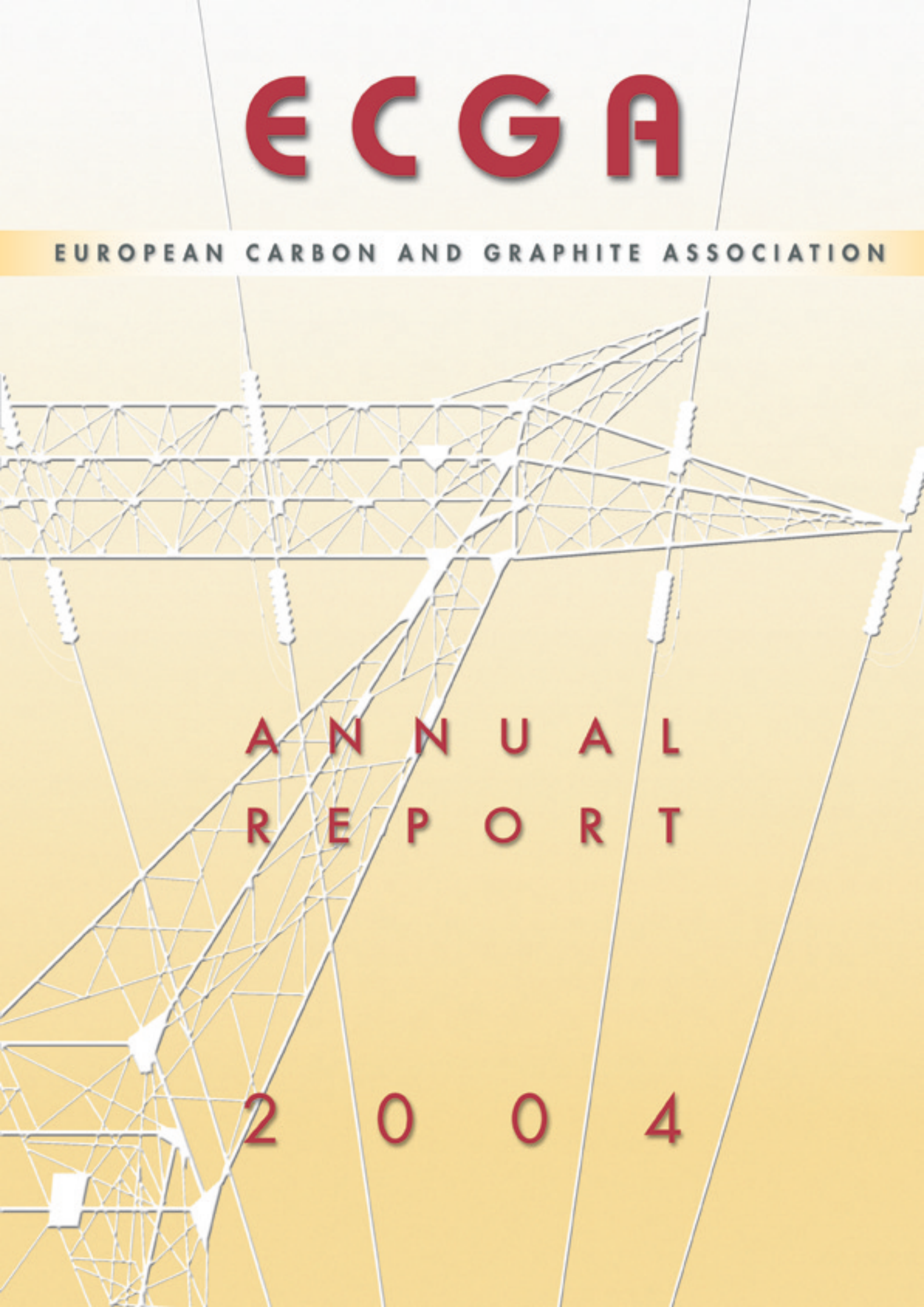
ECGA

EUROPEAN CARBON AND GRAPHITE ASSOCIATION



ANNUAL REPORT

2004




High steel demand pushes the need for productivity gains

Europe's carbon and graphite industry and its major customers - especially the steel industry - showed a considerable increase in volume in the year 2004 because of the worldwide recovery of the global economic situation driven by China. For the first time, the production of crude steel was above 1 billion metric tons in 2004. The BOF route accounted for most of the growth, while Electric Arc Furnace steel production was influenced by increases in scrap and energy prices.
These negatively impacted the profitability of the EAF steel producers despite the increased market price of steel.

The strong demand for steel as well as for EAF steel, however, led to a shortage of certain raw materials, e.g. needle coke, which caused price increases for those products. Because of high increases in energy and logistic costs, which could only partially be transferred to the customers in terms of higher prices, the European carbon and graphite industry could not take full advantage of the overall favourable demand situation. The strong devaluation of the US-$ further exacerbated the position.

One of the steady drivers for the EAF steel producer will be the continuous improvement of their processes, whereby UHP electrode usage will gradually supersede that of HP electrodes. An accelerating trend of productivity gains by using high diameter UHP electrodes will occur.

The aluminium industry also developed positively due to the increasing demand from the areas of transportation, construction, and packaging, especially cans. Therefore, prices in US-$ went up considerably, whereas the price increase in Euro was less significant.

The graphite electrode producers launched a complaint against imports of graphite electrodes from India because of anti-dumping and anti-subsidy practices which contravene international agreements. The European Commission decided to impose duties on those imports from India.

As several member companies experienced difficulties with the granting of licences for the export of so-called dual-use graphite products to certain countries such as China, ECGA is looking at possibilities to improve the situation.

The European carbon and graphite industry faces major challenges in the area of environment, occupational health, and safety. The risk assessment evaluation of coal tar pitch - an indispensable raw material for our industry - has to be carried out with utmost care, because otherwise the potential costs could be prohibitive. The carbon and graphite industry is not yet affected by emission-trading activities, but the situation may change after 2007 when all greenhouse gases will be covered and more industries will be included in the scheme.

The access of 10 new members to the European Union will certainly also create challenges for ECGA. We are looking to broaden the ECGA membership base and increase our clout vis-à-vis the European authorities with carbon and graphite companies from these countries.

I would like to thank all member companies for their contributions, especially in the working committees, and I gratefully acknowledge our Secretary General and her team in Brussels for their great performance.

Dr Klaus Warning, President

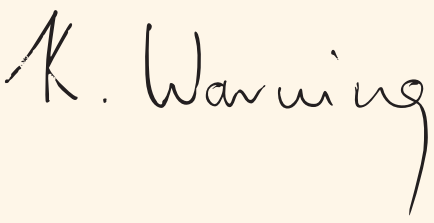
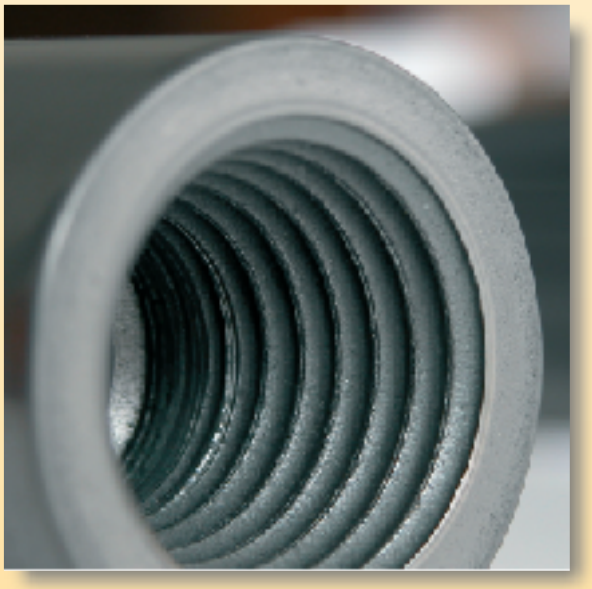


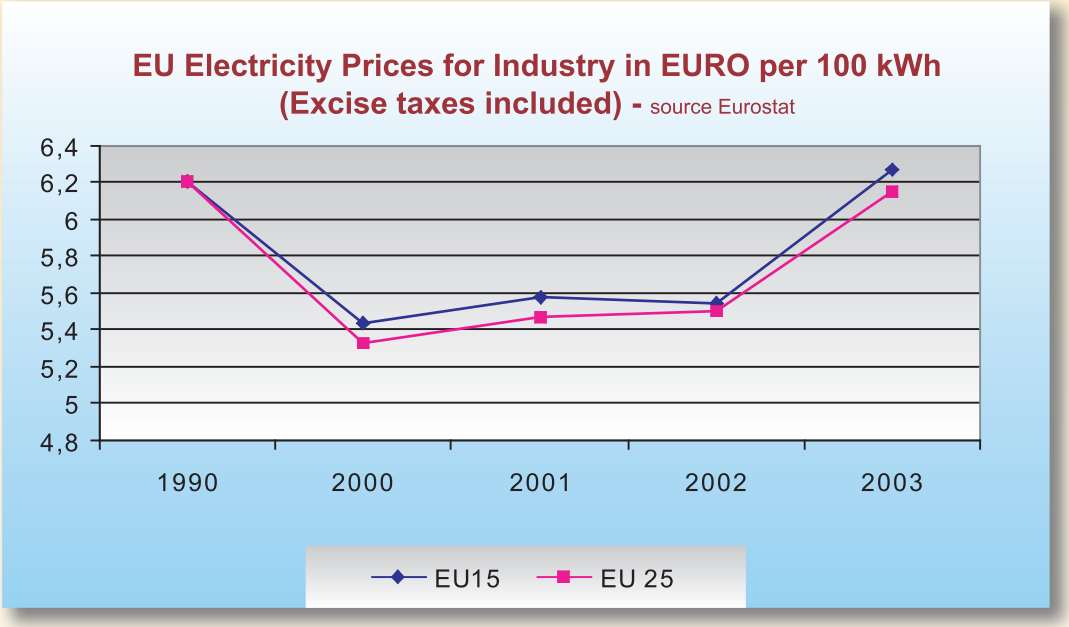
Table of contents



1. European Policy Issues

The EU Energy Policy

The secure supply of energy at competitive prices and the development of energy prices are key factors for the carbon and graphite industry since it is one of the main cost factors for example for graphitisation. The industry is monitoring the development of the EU's energy supply policies very closely. Energy prices, despite the intended liberalisation, are today higher than in 1990 and do not foster the competitiveness of producers that have to compete with worldwide operators.



Emission trading

The EU emission trading scheme coming into effect on 1 January 2005 is expected to increase costs rather than alleviate them. The format for monitoring and reporting was approved by the Member States in March 2004.
The carbon and graphite industry is not included in the scheme as of 1 January. However, the industry is monitoring these first steps with great concern since the additional costs which the industry would incur, if the European emission trading scheme were extended, would be very important for many installations. The review of the national allocation plans and the review of the general implementation will be of utmost importance to the sector.

2. Environment, Health & Safety Performance

Mr M Rouy,
GrafTech International
(Ucar S.N.C.), chairman

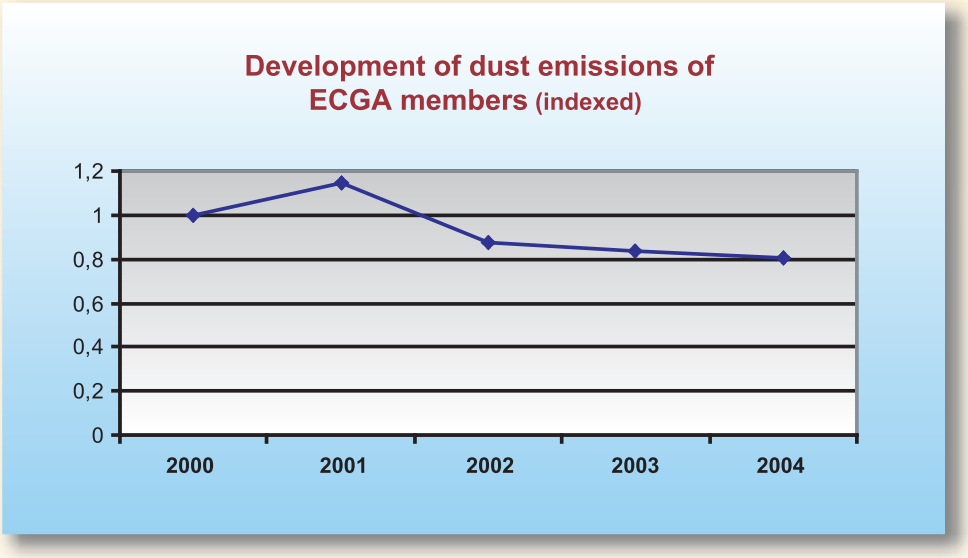
Participating members: Mr T Akyel (ERFTCARBON GmbH & Co KG), Dr EG Astrup (Elkem Carbon/ Elkem ASA SS), Dr R Neuert (SGL Carbon)

For several years, ECGA members have been committed to reporting their environmental performance on a European scale in addition to their company specific reports and they continue to do so. Thus they are able to provide also their aggregated figures for 2004 for various environmental media concentrating on those which are of most relevance for the sector.

Emissions to air are one of the main areas of concern for ECGA members.

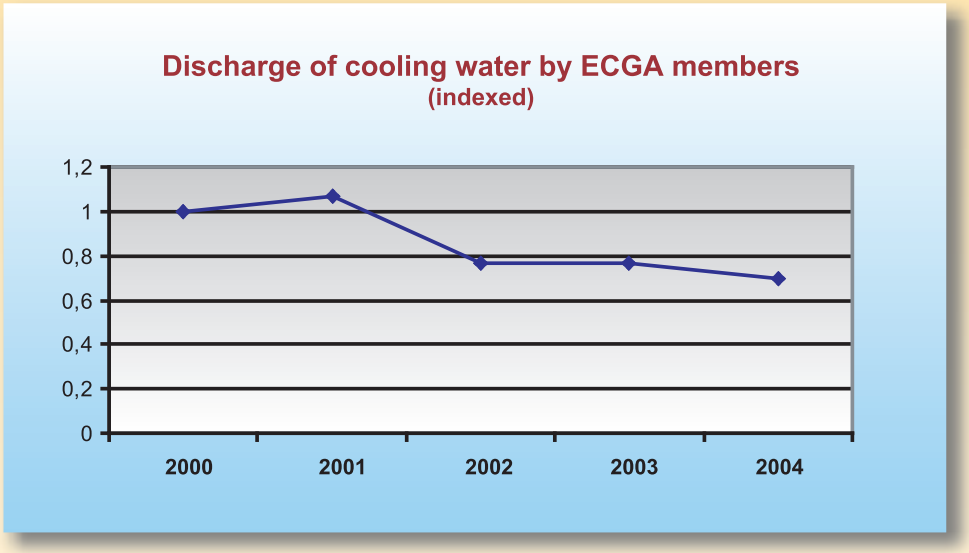
AIR EMISSION

The following graph, showing the evolution of dust emissions in the sector, mirrors the global downward trend observed for many years in the field of air emissions. Having come down considerably in the previous decade, the improvements achieved here are due to optimization of the processes.



WATER CONSUMPTION AND DISCHARGE

The volume of cooling water, which is a major factor in the sector and in effect means a reduction in net water consumption, has also been significantly decreased and stabilized thanks to a systematic recycling policy inducing water conservation.



WASTE

Generation of waste classified as "Hazardous Waste" is still slightly increasing. This is not due to a change in production technology or practices, but is mainly due to changes in the EU and national regulations and their enforcement in the EU Member States, which now classifies a larger number of wastes as hazardous which previously had not been classified as such.

At the same time the following graph shows that the production of waste classified as "Non-hazardous Waste" has remained stable since the year of reference thanks to a better reuse and/or recycling of non hazardous waste and carbonaceous by-products

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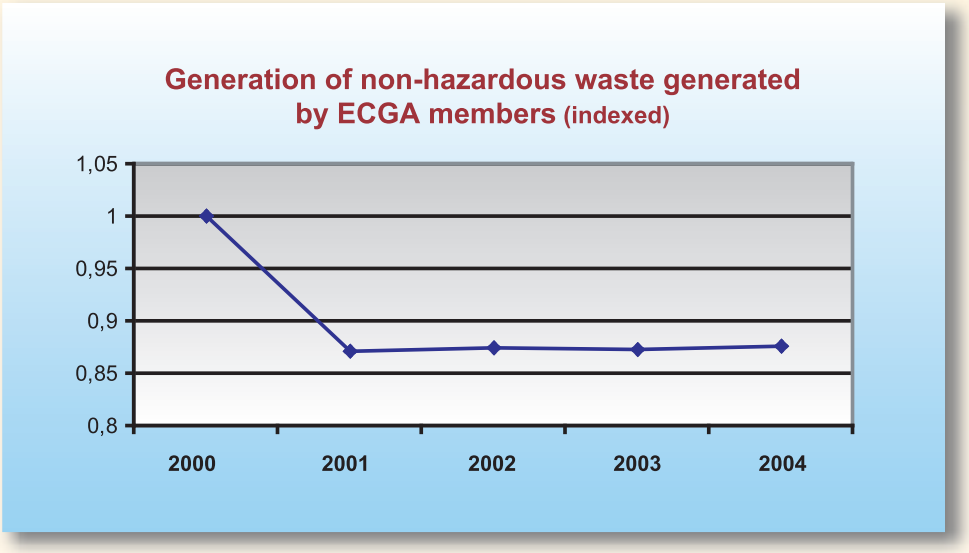
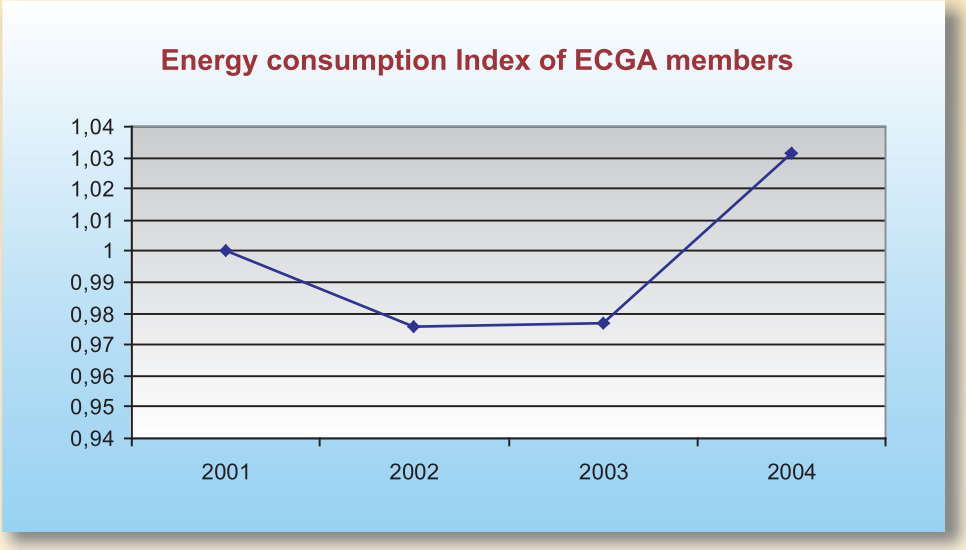
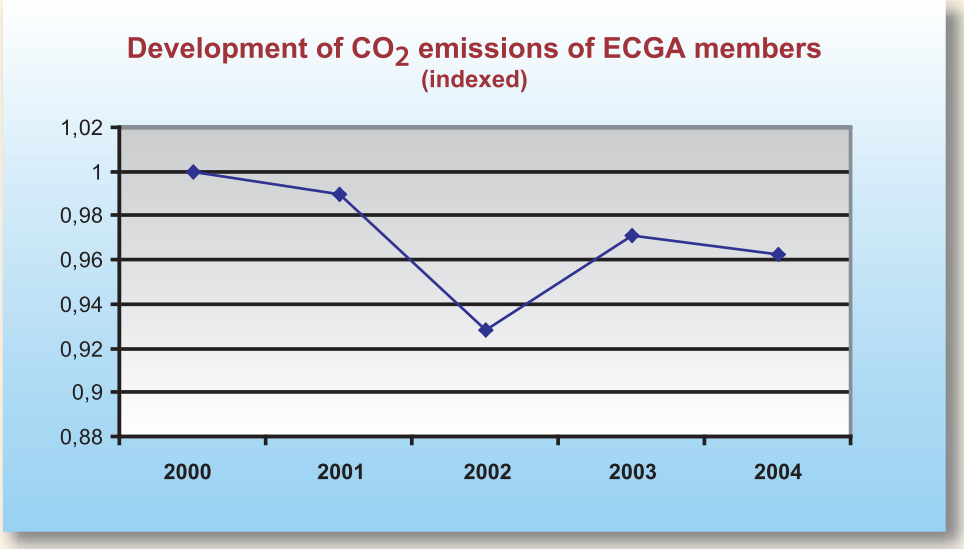


ENERGY CONSUMPTION and CO_2 EMISSION

After a drop in 2002 and stabilization in 2003, the year 2004 shows an increase in energy consumption per ton of product; this is due to the increased share of graphitized products in comparison to carbon products, the former requiring more energy. Energy consumption in this sector is also linked to the necessary evolution of the product quality standards related to the technical demands from carbon and graphite users.

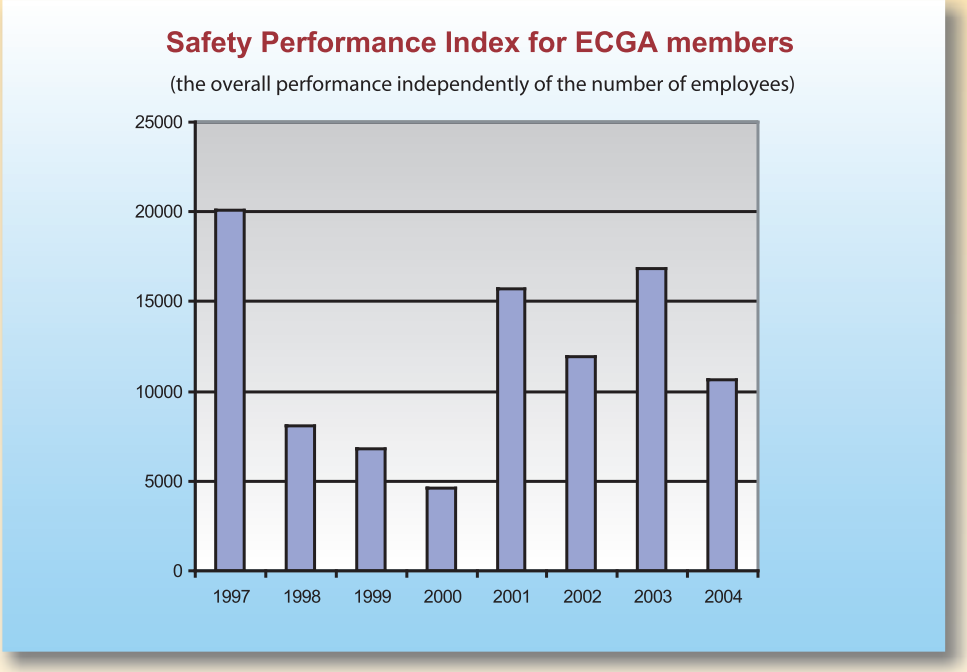


However, strong efforts are being made to reduce the CO_2 emissions in order to ensure that they do not follow the development of the energy consumption.



SAFETY PERFORMANCE

After the temporary deterioration of the Safety Performance Index observed two years ago, and related to the acquisition of some new plants, the improvement of this index has been confirmed last year, thanks to a continued strong Health and Safety policy conducted by the ECGA members. This policy will be continued in order to again achieve the previous low levels.



OTHER TOPICS

During the year 2004, the EHSA Committee continued to monitor the development of EU and national EHS regulations and to assess their impacts on the business, to obtain information on new technologies and implementation issues related to such new technologies.

The main subject in 2004 was risk assessment and the EU Chemicals Policy and future implementation of the new REACH system.

During the year 2004, the activities of the EHSA Committee were highly focused on Coal Tar Pitch Risk Assessment, which is in progress still under the old regulation and which will also contribute to the new REACH legislation. This risk assessment is being carried out by the Dutch Institute RIVM on behalf of the EU.
The first industrial activity covered in this assessment is the production of coal tar pitch. All producers and users are involved in this assessment. Thus the CCSG (Coal Chemical Sector Group, formerly the International Tar Association) created under the umbrella of the CEFIC; the users of Coal Tar Pitch, such as ECGA and EAA (European Aluminium Association) are involved. Together these three organizations had formed a task force in 2003.
In 2004 several meetings were held in order to discuss the methodology and the exchange of data in two main areas
- the impact on human health (occupational exposure)
- the impact on the environment : air, water, waste.

These meetings with RIVM experts gave ECGA members the opportunity to provide up-dated information and data on the manufacturing process for carbon and graphite and on the nature and the levels of emission related to the use of coal tar pitch as a raw material.
The work will be continued in 2005 and should hopefully contribute substantially to the data to be provided on this substance under the new REACH regulation.

3. Major Markets

a. Steel

Dr H Jäger,
SGL Carbon,
chairman

Participating members: Mr G Baust (ERFTCARBON GmbH), Mr P Heinrich (SGL Carbon Group), Mr PN Higgins (ConocoPhilips Ltd), Mr St Paege (GrafTech), Mr R Thomsen (ERFTCARBON GmbH)

China's continuing soaring demand for steel also in 2004 gives further hope for a longer lasting period of sustainable profitability for the steel industry. After three years of average growth rates above 15% in China's crude steel production and last year's 22% increase, China is now the world's largest steel producer with 25% of the world steel production. The growth rate for China over the year 2004 was forecasted at only one third of what was eventually achieved in actual numbers.

China accounted for nearly half of the global steel production growth. The influence of China's growth in the EAF steel production, with a 17% increase, is much less significant and China only accounts for 12% of worldwide production. China ranks 4th, behind Asia (excl. China), the European Union (25) and NAFTA. The annual demand for especially flat steel, presently around 170 million tonnes, cannot be produced internally by China, necessitating imports of about 60 million tonnes in the forthcoming years.

Generally all existing production capacities in Europe, Japan and North America benefited from this steel demand increase especially driven by China.

Despite the growing margins within the steel producing companies, further market consolidations took place, indicating the need for ongoing rationalizations. The European and North American steel producers feel continuing pressure to close the enduring cost gaps with respect to China, Brazil and Russia/Ukraine.

Total steel production 1990 ... 2004

	1990	1995	2000	2001	2002	2003	2004
TOTAL CRUDE [mio t]	771	750	847	840	902	960	1055
TOTAL ELECTRIC [mio t]	215	245	283	296	304	315	341
SHARE ELECTRIC [%]	27,9	32,7	33,4	35,2	33,7	32,8	32,3
W. EUROPE CRUDE * [mio t]	178	182	189	187	183	189	194
W. EUROPE ELECTRIC * [mio t]	56	67	76	79	81	83	86
SHARE ELECTRIC [%]	31,3	36,7	41,5	42,2	43,1	43,6	44,3

* incl. Poland

2004 was the fourth successive year of increased record levels of global crude steel production. Compared to 2003, a 10% increase to 1 055 million tonnes in crude steel was combined with an increase of 8.2% to 341 million tonnes of electric steel. The increase in steel demand outside China, with 45 million tonnes, accounted for almost half of the total increase and gives further hope for a Western World industrial recovery.

The huge overall steel production volume directly impacted and will further impact raw materials availability and transportation capacities globally. The doubling of metallurgical coke prices was a key cost driver for steel processing and set the tone for significant price increases in other raw materials to steel producers and related industries. Thus the increases in the market price of steel do not mirror the profitability situation of steel producers.

The increase in European steel production, 2.6%, could not reach America's 7%. Unfavourable exchange rates ($ vs. €), lower local steel demands, further increasing energy costs and the envisaged implementation of CO_2 emission trading within Europe will continue to impact negatively the competitiveness of European steel producers, depressing likely production volume increases vis a vis America.

Specific graphite electrode consumption

	1990	1995	2000	2001	2002	2003	2004
SPECIFIC CONSUMPTION * [kg/mt]	3,65	2,76	2,08	2,00	1,93	1,93	1,91

* incl. Poland

The electric steel share exceeded for the first time the 44% boarder line indicating a productivity increase, with average specific net graphite consumption comparable to the year before. Due to a continuing shortage of good scrap, all types and grades were processed to control the production costs (scrap accounts for around 50%). In addition, the use of alternative sources like DRI and hot metal was accelerated. Necessary investments were still kept at a just acceptable level to reach production targets.

Productivity increases therefore are necessary to keep the European industry competitive on a global basis. Major efforts concentrated last year on measures such as:

- increase output without capital expenditure by specific adjustments of primary and secondary energy input thus increasing energy use efficiency,
- reducing down times,
- improving furnace logistics and finally
- optimizing the total value chain from scrap to casting.

It will become increasingly important for producers to consider all aspects of adding value in their search for increased productivity and optimized product usage in electric furnaces.
The ongoing increase of market demand for graphite electrodes up to 800 mm for large size furnaces therefore can be regarded as a first step towards productivity increases up to 2 million tonnes on annual steel production. Further increases in graphite electrode diameter for all types of electric arc furnaces will make the electric steel route to a challenging alternative to blast furnace steel production and support the Kyoto protocol by reducing CO_2 emissions. Hot DRI processing and continuous steel production will further contribute to improved energy efficiencies, and open a new window of opportunity for electric steel process technology.

b. Aluminium

Dr D John,
Vesuvius UK Ltd,
chairman

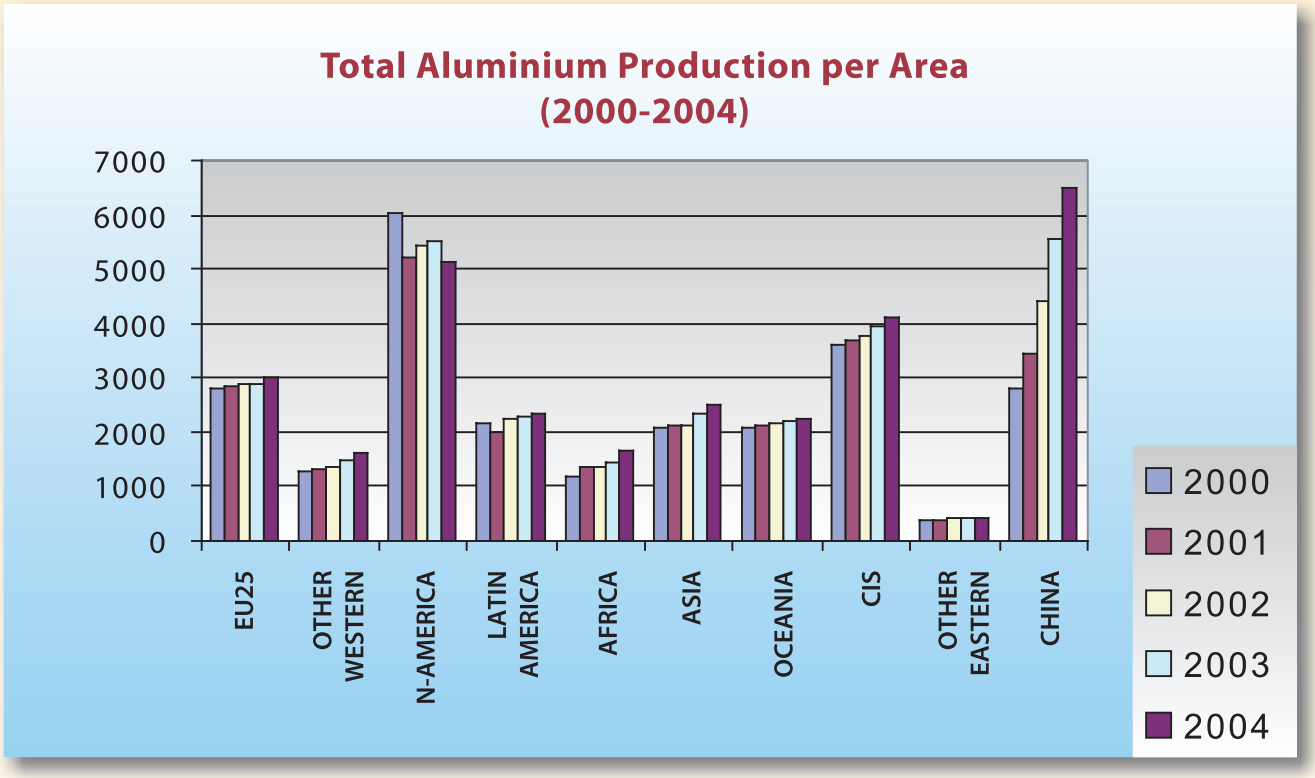
Participating members: Dr R Becker (Aluminium Rheinfelden GmbH), Mr J Cibulec (DEZA a.s.), Mr J A Johansen (Elkem ASA Carbon), Dr J Köhler (SGL Carbon GmbH), Mr H Nawrocki (ERFTCARBON GmbH & CO KG), Mr S Sawatzki (ERFTCARBON GmbH & CO KG)

PRIMARY ALUMINIUM

The primary aluminium industry is a major customer for products manufactured by the carbon and graphite industry worldwide. The aluminium electrolysis cell requires cathode blocks and sidewall pieces manufactured in various carbon grades in the floor and sides respectively. The joints between the cathode and sidewall pieces are sealed using carbon ramming pastes. There is presently no economically viable alternative to this technology for the production of the metal on a large scale.

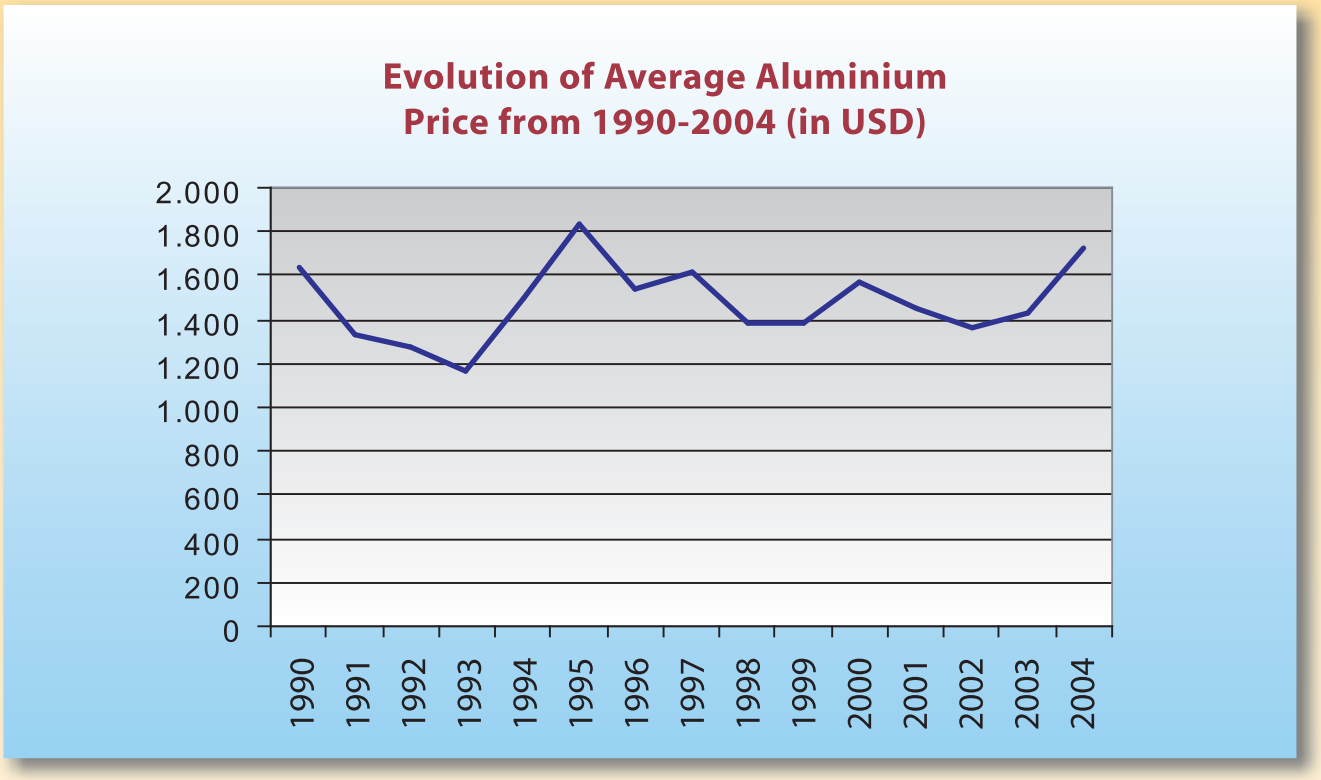
The global consumption of primary aluminium is expected to be approximately 28 million tonnes in 2004, following three years of growth at 7.0 to 7.5%. Consumption in China has been especially strong. Worldwide growth is expected to continue and production will rise to meet the increased demand for the metal.

Graph of primary aluminium production 1990 to 2004 by geographic area (source EAA).



The aluminium metal price has been relatively high throughout 2004 at USD 1 622-1 852.

Graph of metal price 1990 to 2004 in USD (source EAA).



In a presentation on the economic outlook for the aluminium industry Mr Frans Bijlhouwer suggested that in future large volumes of post consumer scrap metal will become available for recycling. This may have an adverse effect on primary metal prices. However the scrap may itself be subject to competition from the Far East, ameliorating any negative impact.

The committee has updated the aluminium industry database with details of metal production and capacity, consumption and stocks, green-field and brown-field project activity plus shut down, idled and restarted capacity.

Carbon Products and Raw Materials

The demand from the aluminium industry for carbon products for maintenance and expansion projects is predicted to be stable over the next five years, according to data collated by the committee.

There are no major changes anticipated in the immediate availability of the raw materials required for cathode manufacture.

A presentation by Mr Phil Higgins of ConocoPhillips covered the future sourcing of the petroleum coke used by aluminium smelters in anode manufacture. Demand is anticipated to rise over the next four years to such an extent that the price will come under severe upward pressure, thereby increasing costs for smelter operators.

Technology

There are no industrial scale alternatives to the present aluminium production technology, but various possibilities are under assessment on a smaller scale. The committee continues to monitor such activity and has not seen evidence of any major breakthroughs in the last year.

List of ECGA members in 2004

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