

BOC GROUP PLC  
Form 6-K  
December 12, 2005

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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549**

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**FORM 6-K**

**REPORT OF FOREIGN PRIVATE ISSUER  
PURSUANT TO RULE 13a-16 OR 15d-16 UNDER  
THE SECURITIES EXCHANGE ACT OF 1934**

Report on Form 6-K dated December 12, 2005

Commission File Number 0-10906

**The BOC Group plc**

(Translation of registrant's name into English)

Chertsey Road, Windlesham  
Surrey, GU20 6HJ England  
(Address of principal executive offices)

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Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

Form 20-F:            Form 40-F:

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1).

Yes:            No:

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7).

Yes:            No:

Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes:            No:

Enclosure: The BOC Group plc Report and Accounts 2005.

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This report contains the Report and Accounts 2005 of The BOC Group plc (the "Company") for the financial year ended 30 September 2005. The Report and Accounts 2005 comprises the annual report and accounts of the Company in accordance with United Kingdom requirements and the information required to be set out in the Company's annual report on Form 20-F for the financial year ended 30 September 2005 (the "Form 20-F") to the Securities and Exchange Commission. The information in the Report and Accounts 2005 that is referenced in the "Cross reference to Form 20-F" table on page 146 shall be deemed to be filed with the Securities and Exchange Commission for all purposes, including incorporation by reference into the Company's annual report on Form 20-F filed with the Securities and Exchange Commission on 12 December 2005.

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BOC  
Report and accounts  
2005



The BOC Group plc Annual report and accounts 2005

## The Group's objectives

Over a sustained period, consistently to outperform our peers in terms of safety, customer service, revenue growth, earnings and cash generation.

We will be the employer of choice for all existing and future employees.

## Who we are

BOC employs over 30,000 people and earns a living in some 50 countries. Over 80 per cent of our revenue comes from industrial gases and we serve customers in fields as diverse as electronics, chemicals and medical. We are organised into three lines of business and a specialist logistics business, Gist.

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The BOC Group plc is a public limited company listed on the London and New York Stock Exchanges and registered in England. This is the report and accounts for the year ended 30 September 2005. It complies with UK regulations and incorporates the annual report on Form 20-F for the Securities and Exchange Commission to meet US regulations. An annual review and summary financial statements for the year ended 30 September 2005 has been issued to all shareholders who have not elected to receive this report and accounts.

#### **Cautionary Statement**

Forward-looking information, within the meaning of section 27A of the US Securities Act of 1933, as amended, and section 21E of the US Securities Exchange Act of 1934, as amended, is given throughout this annual report and accounts including in the chairman's statement, the chief executive's review, the Group profile, strategy, research, development and information technology, the operating review and the financial review. Such forward-looking statements include, without limitation, those concerning the company's operations, economic performance and financial condition, namely (i) the company's strategies, (ii) the company's research and development and information technology activities, (iii) the company's investments, (iv) the commencement of operations of new plants and other facilities, (v) the company's restructuring plans, (vi) efficiencies, including cost savings, for the company resulting from business reviews and reorganisations, (vii) management's view of the general development of, and competition in, the economies and markets in which it does, or plans to do, business, (viii) management's view of the competitiveness of its products and services, and (ix) the company's liquidity, capital resources and capital expenditure. Although the company believes that the expectations reflected in such forward-looking statements are reasonable, no assurance can be given that such expectations will prove to have been correct. By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that will or may occur in the future. Accordingly, actual results could differ materially from those set out in the forward-looking statements, as a result of a variety of factors, including changes in economic conditions, changes in the level of capital investment by the semiconductor industry, success of business and operating initiatives and restructuring objectives, customers' strategies and stability, changes in the regulatory environment, fluctuations in interest and exchange rates, the outcome of litigation, government actions and natural phenomena such as floods, earthquakes and hurricanes. Other unknown or unpredictable factors could cause the company's actual results to differ materially from those in the forward-looking statements.

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### **Financial year**

Throughout the report and accounts, reference to 2005 in the text means the financial year ended 30 September 2005. Similarly, references to other years, eg 2006 , 2004 and 2003 , also mean the financial years to 30 September unless stated otherwise.

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## Financial highlights

Turnover subsidiary companies	Operating profit	Profit before tax	Earnings per share
2005 <b>£3,754.7m</b>	2005 <b>£543.5m</b>	2005 <b>£593.6m</b>	2005 <b>74.1p</b>
2004 £3,885.4m	2004 £559.5m	2004 £412.3m	2004 53.5p
2003 £3,718.3m	2003 £438.6m	2003 £351.9m	2003 44.5p
Turnover including share of joint ventures and associates	Adjusted operating profit	Adjusted profit before tax	Adjusted earnings per share
2005 <b>£4,605.0m</b>	2005 <b>£564.2m</b>	2005 <b>£505.7m</b>	2005 <b>67.5p</b>
2004 £4,599.3m	2004 £576.9m	2004 £504.3m	2004 63.2p
2003 £4,323.2m	2003 £505.6m	2003 £418.9m	2003 52.9p

## 2005 results

Analysis by business		
Turnover (including share of joint ventures and associates)	£ million	%
1. Process Gas Solutions	1,466.3	32
2. Industrial and Special Products	1,721.7	37

3. BOC Edwards	826.0	18
4. Afrox hospitals	275.1	6
5. Gist	315.9	7
<b>Total</b>	<b>4,605.0</b>	<b>100</b>

<b>Adjusted operating profit</b>	£ million	%
1. Process Gas Solutions	207.2	37
2. Industrial and Special Products	289.4	51
3. BOC Edwards	38.1	7
4. Afrox hospitals	37.2	7
5. Gist	24.5	4
Corporate	(32.2)	(6)
<b>Total</b>	<b>564.2</b>	<b>100</b>

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Financial highlights

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Dividends per share	Return on capital employed
2005 <b>41.2p</b>	2005 <b>15.6%</b>
2004 40.0p	2004 14.9%
2003 39.0p	2003 10.9%
	<b>Adjusted return on capital employed</b>
	2005 <b>16.2%</b>
	2004 15.4%
	2003 12.6%

Figures shown as adjusted exclude exceptional items. Other figures shown are prepared under UK Generally Accepted Accounting Principles (GAAP) and include all exceptional items.

Adjusted figures are presented to provide a more meaningful indication of underlying business performance and trends. These are the primary performance figures used by Group management.

In accordance with guidance and regulations issued by UK and US regulatory bodies, where adjusted (or non-GAAP) figures are shown, the comparable GAAP figures are also shown.

Reconciliations between the GAAP figures and the adjusted figures are shown in the operating review on pages 40 and 41, and in the Group profit and loss account on page 86. Return on capital employed is defined on page 13.

Analysis by region		
Turnover (including share of joint ventures and associates)	£ million	%
1. Europe	1,300.8	28
2. Americas	1,222.1	27
3. Africa	586.0	13
4. Asia/Pacific	1,496.1	32
<b>Total</b>	<b>4,605.0</b>	<b>100</b>

<b>Adjusted operating profit</b>	<b>£ million</b>	<b>%</b>
1. Europe	143.7	25
2. Americas	100.0	18
3. Africa	91.3	16
4. Asia/Pacific	229.2	41
<b>Total</b>	<b>564.2</b>	<b>100</b>

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## Implementing our strategy effectively

### Chairman's statement

Your board has again fully reviewed and approved BOC's strategy, which is being effectively implemented by Tony Isaac and his management team. The strategy has seen BOC confirm its leading position in Asia, develop a strong base in China and invest strongly in other growth markets. It has seen a continuing commitment to safety and to improve the efficiency and environmental performance of our operations. It has seen the divestment of underperforming businesses allied to a well implemented acquisition strategy.

#### Rewarding our shareholders

In 2005 BOC raised its first interim dividend to 15.9p. Combined with the second interim dividend of 25.3p, this represents an increase of three per cent on the previous year as we continue to build our dividend cover towards two-times over the medium term. Your board has decided to raise the first interim dividend to be paid on 1 February 2006 by 2.5 per cent to 16.3p.

I have updated the graphs I have shown here every year since 2001. They show BOC's total shareholder return since October 2000 compared with the FTSE100 and our major gases competitors. We have continued to outperform the FTSE100. Industrial gases companies have proved to be a rewarding investment over recent years and in the last year or so we have matched our competitors' performance, although a gap remains from earlier years. In his review, Tony Isaac will explain in more detail how we have progressed this year.

#### Corporate Governance

This year your company has completed its work to comply with one new set of requirements, the Combined Code on Corporate Governance, and has made good progress on two others, namely changing over to International Financial Reporting Standards (IFRS) and meeting the provisions of the US Sarbanes-Oxley Act. The quarterly results to be announced in February 2006 will be the first in accordance with IFRS. We estimate that meeting the requirements of Sarbanes-Oxley cost your company some £10 million this year. We are likely to spend the same next year before the costs reduce somewhat. BOC has to comply with these provisions because we are registered in the US, but being a complex and diverse business working globally means that the cost of such compliance is very high.

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Next year we will, in common with all UK companies, publish an operating and financial review (OFR) as part of our annual report. The intention of the OFR is to help you, our shareholders, assess our strategies and the likelihood of their success.

External checks and reporting requirements may help but I believe the best assurance for shareholders is to ensure high standards of integrity and transparency throughout the organisation, overseen by a strong and independent group of non-executive directors. BOC has both of these. It has a strong and well-implemented Code of

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Chairman's statement

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Conduct and a management team committed to the principles of accountability, collaboration, transparency and stretch, known in BOC as ACTS.

Your board regularly reviews the management of our social, environmental and ethical risks. These have now been integrated into the company's overall risk management programme. Each year our performance is judged against criteria set by the UK's Business in the Community (BiTC). To be as transparent as possible we publish on our website, boc.com, both our comprehensive submission to BiTC and its independent assessment of our performance.

An important feature of BOC's corporate responsibility programme is to enable people at all levels of the organisation to become involved and support things that matter to them. Our joint giving scheme is an example. This year countries around the Indian Ocean suffered from the appalling effects of the tsunami. Our businesses in the countries affected responded immediately with medical oxygen and with other practical help. BOC extended its joint giving scheme to match two-to-one our employees' donations to the relief effort for both the tsunami and hurricane Katrina. BOC again responded when the Pakistan earthquake struck in October 2005. In total the community of BOC gave over £570,000 to the tsunami appeal and we await the final totals for hurricane Katrina and the Pakistan earthquake.

One of our US subsidiaries, along with other companies in the welding products industry, has been the subject of allegations that manganese in welding fumes causes Parkinson's disease or symptoms similar to Parkinson's. Again this year there were no adverse jury verdicts; the only adverse jury verdict was in 2003 and this is the subject of appeal in the Illinois court system.

### **Board of Directors**

We appointed two new executive directors this year: Kent Masters, chief executive for Industrial and Special Products, joined the board in March, replacing John Walsh who resigned to return to his native United States; and Alan Ferguson joined in September as Group finance director in place of René Médori who resigned to take up a similar role at Anglo American. Rebecca McDonald was appointed as a non-executive director in July. Rebecca is president, gas and power, for BHP Billiton. During the year two non-executive directors resigned: Iain Napier, following his appointment as deputy chairman of Imperial Tobacco, and Julie Baddeley because of increasing demands on her time. John Walsh and René Médori each served BOC for some 20 years, Iain Napier and Julie Baddeley for a somewhat shorter time, and I would like to thank them all for their contributions.

Every year we review the performance of the board and each individual director. In alternate years, which included 2005, we conduct these reviews with external facilitation. They confirmed that each director contributes effectively and is committed to his or her role at BOC.

### **Thanks**

BOC's 30,000 people around the world provide products and services that are essential to everyday life. I thank them for their dedication and professionalism. I thank the customers they serve for entrusting their business to BOC. I thank all those with whom we work and in the communities where we operate for their support. And I thank you, our shareholders, for your continuing support.

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## Chief executive's review

2005 was a year of underlying strong performance punctuated by events that challenged and brought out the best in BOC and its people. We continue to see an accelerating rise in energy prices, the move of manufacturing activity from higher- to lower-cost economies and relatively slow growth in an historical context for the semiconductor industry. Faced with these long-term trends we have responded by investing for growth while concentrating on energy efficiency, cost containment and high levels of customer service.

In the year, the biggest structural change in the Group was the reduction in our ownership of Afrox hospitals. Elsewhere, among the highlights, we continued our penetration of the north American refinery market with a string of new hydrogen orders, maintained the pace of our developments in China, and saw BOC Edwards enter into an important customer relationship in Korea. In contrast, events such as the Asian tsunami, the London bombings, hurricane Katrina and most recently the Pakistan earthquake saw BOC businesses helping where they could, notably with medical gases, and BOC people giving freely of their time and money.

Against this background BOC produced good results, with turnover similar to last year at £4,605 million, adjusted operating profit down three per cent to £564.2 million, adjusted profit before tax down one per cent at £505.7 million and record adjusted earnings per share of 67.5p. Adjusted figures eliminate exceptional items. Year-on-year comparisons at constant currency show the performance of our businesses in the markets where they operate without any distortions from changes in the sterling exchange rate. Our statutory results include exceptional items and reflect currency movements and on this basis turnover was similar to last year with operating profit down by three per cent and profit before tax up by 44 per cent.

Our two gases lines of business, Process Gas Solutions and Industrial and Special Products, contribute over 80 per cent of Group operating profit and both of them made good progress. Process Gas Solutions continues to increase the percentage of its business that comes from long-term tonnage schemes, with the emphasis recently on winning hydrogen contracts and building on our strong position in Asia, and particularly in China. There has been a steady flow of new orders with some £500 million of new plant due to enter service over the next couple of years. Our Process Systems team works closely with customers to identify and deliver solutions for their industrial gases needs. This approach has seen us win a disproportionate share of the new business available. In China our success has been founded on our willingness to enter joint ventures with our key customers, enabling us to share the risks and rewards of China's industrial growth. Our joint venture plant building operation, Linde BOC Process Plants, gives us reliable and cost-effective plant to fulfil our customers' needs. This year Process Gas Solutions grew turnover by 16 per cent and adjusted operating profit by nine per cent.

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Chief executive's review

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Industrial and Special Products continues to extract value from its extensive distribution network and its high standards of product stewardship. The core industrial business continues to evolve as manufacturing processes change. We now offer a wider range of products and services to our industrial customers. We have developed sizeable businesses based on liquefied petroleum gas (LPG) and in several of our markets we are taking advantage of similar opportunities for safety products. Our medical business, which serves hospitals and delivers oxygen therapy to patients in their homes, is continuing to grow, particularly in Asia. The special products portfolio is also developing well, serving growth markets with products such as helium, packaged chemicals, refrigerants and propellants. Industrial and Special Products saw turnover decline by four per cent following the sale of the US packaged gas business last year, while adjusted operating profit rose by six per cent as profitability improved in the US.

BOC Edwards' core semiconductor market remained broadly stable without returning to the activity levels seen last year. Despite this, BOC Edwards continued to improve its market position and embarked on a restructuring programme to achieve cost savings. It saw an increase in turnover of two per cent with adjusted operating profit down 21 per cent.

Gist saw some organic growth from new and existing customers and towards the end of the year it expanded into Europe with the acquisition of Van Dongen, a temperature-controlled transport business operating in a number of countries. In November 2005 it extended until 2011 its contract to manage the distribution of Marks & Spencer's chilled and ambient food. This provides long-term security for a significant portion of Gist's business. Gist's turnover for the year rose eight per cent while adjusted operating profit fell by two per cent, impacted by higher pension and compliance costs.

In March we disposed of most of our shareholding in Afrox Healthcare Limited to a consortium led by two major black empowerment investors. Our African Oxygen Limited subsidiary retains a 20 per cent interest in the business. We received the disposal proceeds in March. Afrox Healthcare was a large employer and its disposal has reduced the number of Group employees by over 10,000. The disposal also had the effect of reducing the Group's earnings per share by approximately one penny this year and an expected further one penny in 2006.

We had another good year for cash generation, helped by the Afrox Healthcare disposal. With our strong balance sheet we are in a good position to fund our growth projects, notably the ones already won by Process Gas Solutions and those still in the pipeline.

Safety remains our number one priority. It is unacceptable that anyone is hurt in the course of our business and we continue to emphasise that safety must be 100 per cent of our behaviour, 100 per cent of the time. At the start of this report we set out our objectives as a Group. We intend to outperform our competitors and to do this we must be the employer of choice for talented people. We are working hard on all aspects of our business to achieve these objectives.

Three members of the executive management board resigned this year. René Médori became group finance director for Anglo American plc while John Walsh and Rob Lourey returned with their families to new jobs in their home countries of the United States and Australia respectively. I wish all of them success in their new careers and thank them for their contributions to BOC. Kent Masters was appointed chief executive, Industrial and Special Products, in March and James Cullens joined the executive management board in April as Group human resources director. Alan Ferguson joined us as Group finance director in September from Inchcape plc.

I thank our employees for their hard work over the past year and for their continued emphasis on high standards of customer service. I thank our customers, our shareholders, our suppliers and those with whom we work on a daily basis. BOC contributes to the economic life of many countries around the world and I thank you all for helping us to do so.

**Tony Isaac**

Chief executive

Strong underlying  
performance

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## Board of directors

**Rob Margetts CBE** (01)

**59, chairman.**

Appointed chairman in January 2002. He is chairman of Legal & General Group plc, a non-executive director of Anglo American plc and chairman of the Natural Environment Research Council. Previously he was with ICI PLC for 31 years, becoming a main board director in 1992 and vice chairman in 1998. He is a fellow of both the Royal Academy of Engineering and the Institution of Chemical Engineers.

**Tony Isaac** (02)

**64, chief executive.**

Appointed an executive director in October 1994 and became chief executive in May 2000. He was previously finance director of Arjo Wiggins Appleton plc, which he joined shortly before the demerger from BAT Industries p.l.c. in 1990. Prior to that he had been finance director of GEC Plessey Telecommunications Ltd since its formation in 1988. He is a non-executive director of International Power plc and Schlumberger Ltd.

**John Bevan** (03)

**48, chief executive, Process Gas Solutions.**

Appointed an executive director in December 2002. He joined BOC in 1978 in Australia and has held various positions in general management in Australia, Korea, Thailand and the UK. He was formerly chief executive Asia, responsible for BOC's operations in 15 countries. He has a degree in commerce (marketing) from the University of New South Wales.

**Andrew Bonfield** (04)

**43, non-executive director.**

Appointed in July 2003. He is chief financial officer of Bristol-Myers Squibb Company. He qualified as a chartered accountant in South Africa, working for Price Waterhouse, before joining SmithKline Beecham in 1990 and rising to become chief financial officer in 1999. He joined BG Group plc in 2001 as executive director, finance, before assuming his current role at Bristol-Myers Squibb Company in September 2002.

**Guy Dawson** (05)

**52, non-executive director.**

Appointed in March 2004. He was chairman of European investment banking at Merrill Lynch until 2003. Before joining Merrill Lynch in 1995 he held senior positions in Morgan Grenfell and Deutsche Bank. He is a founding partner in Tricorn, an independent corporate advisory business that he co-founded in 2003, and he is also a non-executive director of Boots Group PLC.

**Alan Ferguson** (06)

**47, group finance director.**

Appointed an executive director in September 2005. Prior to joining BOC as group finance director he held a similar role with Inchcape plc, which he joined in 1983 having qualified as a chartered accountant with KPMG. He has a degree in business economics from Southampton University.

**Kent Masters** (07)

**44, chief executive, Industrial and Special Products.**

Appointed an executive director in March 2005. He joined BOC in 1985 and has held positions of increasing responsibility in

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engineering, marketing and general management, most recently, president, Process Gas Solutions, north America. He holds an engineering degree from Georgia Institute of Technology and an MBA from New York University.

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Board of directors

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**Rebecca McDonald** (08)  
**53, non-executive director.**

Appointed in July 2005. She is president, gas and power, for BHP Billiton and is a member of the BHP Billiton executive committee. She is a director of Granite Construction Company in California.

**Matthew Miao** (09)  
**59, non-executive director.**

Appointed in January 2002. He is chairman of MiTAC-Synnex Group, one of Taiwan's leading high-tech industrial groups. He is also a Convenor of Civil Advisory Committee of National Information and Communications Initiatives (NICI) and on the Board of Directors of the Institute for Information Industry (III), Taiwan. He obtained a BS in electronic engineering and computer science from U.C. Berkeley, an MBA from Santa Clara University and holds an honorary doctorate degree from the National Chiao Tung University, Taiwan.

**Sir Christopher O Donnell** (10)  
**59, non-executive director.**

Appointed in March 2001. He is chief executive of Smith & Nephew plc. Previously he held senior positions with Davy Ashmore, Vickers Limited and C R Bard Inc. He has an honours degree in mechanical engineering from Imperial College, London and an MBA from the London Business School. He is a chartered engineer and a member of the Institution of Mechanical Engineers.

**Anne Quinn CBE** (11)  
**54, non-executive director.**

Appointed in May 2004. She is group vice president of BP's gas, power and renewables business. Previously she was managing director of BP Gas Marketing Ltd, managing director of Alliance Gas Ltd and an executive with Standard Oil of Ohio. She has a Bachelor of Commerce degree from Auckland University and a Masters in management science from the Massachusetts Institute of Technology. She serves on the President's Advisory Committee to the Sloan School, Massachusetts Institute of Technology.

**Dr Raj Rajagopal** (12)  
**52, chief executive, BOC Edwards.**

Appointed an executive director in July 2000. He joined BOC in 1981 and has held several positions in BOC Edwards including manufacturing systems manager, director of manufacturing and managing director, being appointed chief executive in 1998. He was appointed a non-executive director of Foseco plc in May 2005 and joined the Council of Cranfield University in July 2005. He was appointed to The Council of Science and Technology in March 2004 and has chaired the Institution of Electrical Engineers Manufacturing Sector Panel since 2003. He is a Fellow of the Royal Academy of Engineers as well as the Institution of Mechanical Engineers, the Institution of Electrical Engineers and the Chartered Management Institute. He has an MSc in manufacturing technology and a PhD in mechanical engineering both from Manchester University and an honorary degree from Cranfield University received in May 2004. He was awarded the Sir Eric Mensforth Manufacturing Gold Medal in March 2003. He resigned as a non-executive director of FSI International Inc in May 2005 and resigned from the board of the business support organisation, Sussex Enterprise, in February 2005.

**Board committees**

- Audit committee
- Remuneration committee
- Nomination committee
- Pensions committee
- Executive management board

Investment committee

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## Executive management board

**John Bevan** (01)

**48, chief executive, Process Gas Solutions since January 2003.**

Appointed to the executive management board in June 2000. See page 08 for biographical details.

**James Cullens** (02)

**42, group human resources director since April 2005.**

Appointed to the executive management board in April 2005. He joined BOC in July 2003 and most recently was human resources director for BOC Edwards. Prior to joining BOC, he held a variety of senior, international HR roles in organisations including Mars Incorporated, Asda and PA Consulting Group. He has an MA from Cambridge University, an MLitt from Otago University, New Zealand and an MSc from Thames Valley University.

**Nick Deeming** (03)

**51, group legal director and company secretary since May 2001.**

Appointed to the executive management board in May 2001. He has over 18 years in-house counsel experience, including Schlumberger SEMA and Axa PPP Healthcare, specialising in corporate and commercial law. He has a degree in law from Guildhall University, an MBA from Cranfield University and qualified as a solicitor in 1980.

**Stephen Dempsey** (04)

**54, group director, corporate relations since February 1999.**

Appointed to the executive management board in October 1999. He joined BOC in 1990 as director of marketing services for the UK gases business and has held various communications roles in the Group. He has an MA in geography from Oxford University and an MBA from Cranfield University.

**Peter Dew** (05)

**45, group director, information management since February 1998.**

Appointed to the executive management board in October 1999. He joined BOC in 1986. He has held information technology roles in the Group's businesses in South Africa, the UK and most recently as information management director for the Group's businesses in Asia/Pacific.

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Executive management board

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**Alan Ferguson** (06)

**47, group finance director since September 2005.**

Appointed to the executive management board in September 2005. See page 08 for biographical details.

**Tony Isaac** (07)

**64, chief executive since May 2000.**

Appointed to the executive management board in July 1996. See page 08 for biographical details.

**Kent Masters** (08)

**44, chief executive, Industrial and Special Products since March 2005.**

Appointed to the executive management board in December 2002. See page 08 for biographical details.

**Mark Nichols** (09)

**48, group director, business development since January 2004.**

Appointed to the executive management board in January 2004. He joined BOC in February 1988 and held senior financial roles in the UK and US before moving into general management, most recently as managing director, Industrial and Special Products, east Asia. Before joining BOC he worked for Total Oil and Merck. He is a Fellow of the Association of Chartered Certified Accountants.

**Dr Raj Rajagopal** (10)

**52, chief executive, BOC Edwards since June 1998.**

Appointed to the executive management board in July 1996. See page 09 for biographical details.

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## Group five year record

	2001	2002	2003	2004	2005
<b>Profit and loss</b>	£ million	£ million	£ million	£ million	£ million
<b>Turnover<sup>1</sup></b>	3,772.9	3,657.7	3,718.3	3,885.4	<b>3,754.7</b>
Total operating profit before exceptional items <sup>2</sup>	530.6	500.1	505.6	576.9	<b>564.2</b>
Exceptional items	(108.3)	(74.5)	(67.0)	(17.4)	<b>(20.7)</b>
<b>Total operating profit<sup>2</sup></b>	422.3	425.6	438.6	559.5	<b>543.5</b>
Profit/(loss) on termination/disposal of businesses		(20.2)		(79.5)	<b>98.1</b>
Profit on disposal of fixed assets	3.6			4.9	<b>10.5</b>
Profit before interest	425.9	405.4	438.6	484.9	<b>652.1</b>
Interest on net debt	(123.4)	(103.1)	(96.1)	(88.4)	<b>(76.7)</b>
Interest on pension scheme liabilities	(107.2)	(106.1)	(110.2)	(117.4)	<b>(128.9)</b>
Expected return on pension scheme assets	166.9	139.1	119.6	133.2	<b>147.1</b>
Other net financing income	59.7	33.0	9.4	15.8	<b>18.2</b>
<b>Profit before tax</b>	362.2	335.3	351.9	412.3	<b>593.6</b>
Tax on profit on ordinary activities	(104.6)	(106.2)	(96.4)	(101.7)	<b>(159.9)</b>
Profit after tax	257.6	229.1	255.5	310.6	<b>433.7</b>
Minority interests	(33.5)	(26.2)	(36.4)	(46.6)	<b>(66.7)</b>
<b>Profit for the financial year</b>	224.1	202.9	219.1	264.0	<b>367.0</b>

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**Earnings per 25p Ordinary share**

Basic:

on profit for the financial year	46.0p	41.4p	44.5p	53.5p	<b>74.1p</b>
before exceptional items	57.5p	55.9p	52.9p	63.2p	<b>67.5p</b>

Diluted:

on profit for the financial year	45.9p	41.2p	44.5p	53.5p	<b>73.9p</b>
before exceptional items	57.3p	55.7p	52.9p	63.1p	<b>67.3p</b>

**Ordinary dividends per share<sup>3</sup>**

Actual	37.0p	38.0p	39.0p	40.0p	<b>41.2p</b>
Number of fully paid Ordinary shares in issue at the year end (million)	494.4	497.3	497.7	498.8	<b>502.5</b>

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1. Subsidiary undertakings only.
  2. Including share of operating profit of joint ventures and associates.
  3. Dividends paid in the calendar year.
  4. Excludes exceptional items. A fuller explanation of the term 'adjusted', and the reasons for presenting such a measure, is given in the operating review on pages 40 and 41. A reconciliation of adjusted profit before tax to profit before tax is given in the profit and loss account on page 86. A reconciliation of adjusted return on capital employed to return on capital employed is given in the operating review on page 41.
- All turnover and operating profit arose from continuing operations.
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Group five year record

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<b>Balance sheet</b>	2001 £ million	2002 £ million	2003 £ million	2004 £ million	2005 £ million
Fixed assets					
intangible assets	48.1	150.7	206.1	174.9	<b>142.6</b>
tangible assets	3,168.6	3,027.4	2,913.4	2,618.4	<b>2,639.9</b>
joint ventures, associates and other investments	390.3	426.1	608.6	548.2	<b>613.9</b>
Working capital (excluding bank balances and short-term loans)	257.0	203.1	220.1	154.5	<b>151.8</b>
Deferred tax provisions	(294.3)	(291.8)	(279.2)	(253.0)	<b>(241.9)</b>
Other non current liabilities and provisions	(184.3)	(173.7)	(145.8)	(126.9)	<b>(149.7)</b>
Net borrowings and finance leases	(1,272.1)	(1,325.6)	(1,368.1)	(962.4)	<b>(839.7)</b>
Net assets excluding pension assets and liabilities	2,113.3	2,016.2	2,155.1	2,153.7	<b>2,316.9</b>
Pension assets <sup>5</sup>	107.0	54.3	50.7	68.9	<b>88.7</b>
Pension liabilities <sup>5</sup>	(56.0)	(311.0)	(341.8)	(344.5)	<b>(352.5)</b>
Net assets including pension assets and liabilities	2,164.3	1,759.5	1,864.0	1,878.1	<b>2,053.1</b>
Shareholders' capital and reserves	2,026.7	1,641.6	1,686.7	1,675.3	<b>1,942.0</b>
Minority shareholders' interests	137.6	117.9	177.3	202.8	<b>111.1</b>
Total capital and reserves	2,164.3	1,759.5	1,864.0	1,878.1	<b>2,053.1</b>
<b>Other selected financial information</b>					
<b>Capital employed<sup>6</sup></b>					
Total capital and reserves	2,164.3	1,759.5	1,864.0	1,878.1	<b>2,053.1</b>
Non current liabilities and provisions	478.6	465.5	425.0	379.9	<b>391.6</b>
Net borrowings and finance leases <sup>7</sup>	1,272.1	1,325.6	1,368.1	962.4	<b>839.7</b>

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	3,915.0	3,550.6	3,657.1	3,220.4	<b>3,284.4</b>
Total assets	5,000.5	4,904.9	4,883.7	4,665.7	<b>4,726.2</b>
Long-term liabilities and provisions	1,554.5	1,897.5	1,851.5	1,652.9	<b>1,515.6</b>
Capital expenditure <sup>1</sup>	352.6	354.3	281.2	256.1	<b>397.3</b>
Depreciation and amortisation <sup>1</sup>	329.5	330.9	333.4	324.0	<b>301.9</b>
<b>Employees</b>					
UK	10,597	11,266	10,414	10,682	<b>11,014</b>
Overseas	32,574	35,014	34,093	32,701	<b>19,558</b>
Continuing operations	43,171	46,280	44,507	43,383	<b>30,572</b>
<b>Ratios</b>					
Return on capital employed <sup>8</sup>	10.4%	10.6%	10.9%	14.9%	<b>15.6%</b>
Adjusted return on capital employed <sup>4, 9</sup>	13.1%	12.5%	12.6%	15.4%	<b>16.2%</b>
Net debt/capital employed	32.5%	37.3%	37.4%	29.9%	<b>25.6%</b>
Net debt/equity	58.8%	75.3%	73.4%	51.2%	<b>40.9%</b>

5. Pension assets represents the excess of pension assets over pension liabilities in countries where pension assets exceed pension liabilities. Pension liabilities represents the excess of pension liabilities over pension assets in countries where pension liabilities exceed pension assets.
6. As defined in note 1 b) to the financial statements.
7. Analysed for 2005 and 2004 in note 20 to the financial statements.
8. Operating profit as a percentage of the average capital employed excluding net pension liabilities. The average is calculated on a monthly basis.
9. Operating profit before exceptional items as a percentage of the average capital employed excluding net pension liabilities. The average is calculated on a monthly basis.

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## Group profile

### Introduction

The BOC Group began its business life over 100 years ago as the Brin's Oxygen Company. The company was incorporated in England in 1886 and adopted its present name on 1 March 1982.

A technology to extract oxygen from the air in commercial quantities had just been developed and in 1886 the Brin brothers started production at a factory in Westminster, London. Two uses had already been found for oxygen. One was to intensify limelight, which was then used in theatres. The other was to assist patients' breathing during and after surgery. New technology was soon developed that allowed air to be separated into all its major components - nitrogen, oxygen and argon. By 1960, industrial gases were in widespread use and BOC's business was firmly established. Tonnage plants were supplying steelworks with oxygen and the customer base had been broadened to extend from metal cutting and welding to food and medicine. The business had also spread overseas with subsidiaries or associated companies as far away as Australia and South Africa. During the 1980s, BOC's South African subsidiary began to invest in private hospitals. This diversification was the basis of the Afrox hospitals segment.

BOC acquired the vacuum equipment company Edwards High Vacuum International Limited in 1968 and this formed the basis of what was to become the BOC Edwards line of business today.

The BOC Distribution Services business (now called Gist) was first established in 1970, initially providing a chilled food distribution service for Marks & Spencer and relying upon distribution skills and liquid nitrogen chilling technology, acquired as a result of BOC's involvement in gases.

In 1978, BOC completed the acquisition of Airco Inc in America, a predominantly gases business that doubled the Group's size and brought BOC for the first time into the US gases market. In the period from 1970 to 1990 The BOC Group significantly increased its presence in the Asia/Pacific region through participation in several joint ventures or associated companies. BOC established strong market positions in Thailand, Indonesia, Taiwan, the Philippines, China and Korea.

An investment in 1982 gave BOC effective management control of the Japanese gases company Osaka Sanso Kogyo KK (OSK). BOC's holding in OSK was raised to 97 per cent before BOC and Air Liquide merged their industrial and medical gases businesses in Japan in January 2003. BOC's subsidiary in Japan has retained a 45 per cent interest in the joint venture company, which is called Japan Air Gases Ltd.

In the period from 1998 to 2001, BOC increased investments in its gases companies in Thailand, Indonesia and the Philippines by acquiring the interests of joint venture partners or minority shareholders.

The BOC Group has an international portfolio of companies operating and reporting as three lines of business. These are Process Gas Solutions (PGS), Industrial and Special Products (ISP) and BOC Edwards. In addition two separately managed specialist businesses, Afrox hospitals and Gist, are reported as business segments. Until a disposal in March 2005, results for Afrox hospitals were fully consolidated. Since then BOC has reported its 20 per cent share of this business.

BOC Process Plants was combined with Linde Engineering in the US with effect from September 2002. BOC retains an interest in the manufacture of industrial gas equipment through its Cryostar business based in France. Cryostar makes specialist cryogenic pumps and expansion turbines that are used by most manufacturers of industrial gas plant. In recent years Cryostar has also developed a strong position in the market for shipboard compressors and heat exchangers used aboard liquefied natural gas (LNG) tankers. Management believes that Cryostar is the leading manufacturer of its product range worldwide.

The main exports of the Group in 2005 were special products from the UK, helium from the US and vacuum equipment and semiconductor manufacturing equipment from the UK, the US and Japan. Trade between Group undertakings is conducted at fair market prices.

### Analysis of results by business

(including share of joint ventures and associates)

	Turnover		Operating profit		Adjusted operating profit	
	£ million	%	£ million	%	£ million	%
Process Gas Solutions	1,466.3	32	207.2	38	207.2	37

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Industrial and Special Products	1,721.7	37	289.4	53	289.4	51
BOC Edwards	826.0	18	17.4	3	38.1	7
Afrox hospitals	275.1	6	37.2	7	37.2	7
Gist	315.9	7	24.5	5	24.5	4
Corporate			(32.2)	(6)	(32.2)	(6)
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	4,605.0	100	543.5	100	564.2	100
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>

Adjusted operating profit excludes exceptional items. See also pages 40 and 41 of the operating review.

The BOC Group contributes to the economies of some 50 countries throughout the world. The UK is the largest single source of sales revenue for the Group's products and services, followed by the US. Other major geographic areas for the Group are Australia, South Africa, Japan and other markets in the Asia/Pacific region. The business therefore operates from a broad geographical base with local manufacturing in most of the key overseas markets.

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**Analysis of results by region**

(including share of joint ventures and associates)

	Turnover		Operating profit		Adjusted operating profit	
	£ million	%	£ million	%	£ million	%
Europe	1,300.8	28	138.6	25	143.7	25
Americas	1,222.1	27	84.4	16	100.0	18
Africa	586.0	13	91.3	17	91.3	16
Asia/Pacific	1,496.1	32	229.2	42	229.2	41
	4,605.0	100	543.5	100	564.2	100

Adjusted operating profit excludes exceptional items. See also pages 40 and 41 of the operating review.

The UK accounts for the largest part of the Group's activities in Europe but BOC has significant gases subsidiaries in Ireland and Poland, vacuum products manufacturing in France and a pharmaceutical packaging machinery operation in the Netherlands.

Gist, BOC's supply chain solutions business, operates principally in the UK but also has operations in other countries.

Subsidiaries in the US are engaged in the Group's three lines of business. The Group's other principal subsidiaries, joint ventures and associates in the Americas are located in Canada, Venezuela, Colombia, Chile and Mexico.

The largest Group subsidiary in Africa is African Oxygen Limited (Afrox), a South African public company in which the Group owns 56 per cent of the equity. The largest shareholder, other than BOC, holds less than 15 per cent of the equity. Afrox, primarily through wholly-owned subsidiaries, is engaged in the manufacture and sale of products within the PGS and ISP lines of business. Afrox also has a 20 per cent interest in private hospitals, clinics and other health care services in southern Africa.

There are other Group or Afrox subsidiary companies in Africa located in Botswana, Kenya, Malawi, Mozambique, Namibia, Nigeria, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe. These companies are engaged primarily in the manufacture and/or sale of products in the ISP line of business.

BOC has businesses in most of the Asia/Pacific markets, including Japan, Korea, Thailand, Taiwan, Indonesia, Malaysia, Singapore, China, the Philippines, India, Pakistan, Bangladesh, Australia and New Zealand. In Australia, the Group's business is conducted by BOC Limited. This company, as well as its subsidiaries, joint ventures and associates, is engaged in the manufacture and sale of products in the PGS and ISP lines of business. BOC participates in the liquefied petroleum gas market in Australia through a 50 per cent shareholding in Elgas Limited. Elsewhere in the Pacific region, the Group conducts its business through subsidiaries, joint ventures and associated companies.

**Management organisation**

BOC's management structure is based on three global lines of business and, throughout the period 2003 to 2005, on two specialist businesses. Each line of business serves a clearly defined type of customer and each pursues its own strategy for growth and performance at a local level. The organisation is designed to maximise BOC's global as well as local strengths. The lines of business have global responsibility to set strategy and prioritise investment. They include operational business units and these local units are responsible to the Group chief executive for delivering financial, safety and operational performance. The business units contribute to the development of the strategies of the lines of business and customise and implement them in local markets. The business unit heads collaborate in order to share best practice and to maximise growth and profit opportunities wherever they may appear.

Process Gas Solutions (PGS) manages all aspects of BOC's business with customers requiring bulk supplies of industrial gases from on-site plants or by pipeline as well as deliveries of liquefied gases. Typical customers are found in the oil and chemicals, food and beverage, metals, and glass sectors all round the world. Marketing, business development and the execution of investments to provide customer specific solutions for the supply of industrial gases are handled by Process Systems, which forms part of PGS.

Industrial and Special Products (ISP) covers BOC's business with customers in the fabrication, medical and leisure sectors as well as the special products and liquefied petroleum gases businesses.

BOC Edwards embraces all aspects of business with semiconductor industry customers worldwide including the supply of bulk

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gases and electronic materials, vacuum and abatement technology, chemical management systems and semiconductor-related services. BOC Edwards also serves general vacuum markets around the world and manufactures pharmaceutical freeze-drying and packaging machinery.

The segment reported as Afrox hospitals operated through Afrox Healthcare Limited up to the end of March 2005. It owned and managed private hospitals and clinics in southern Africa. BOC's majority-owned subsidiary, African Oxygen Limited (Afrox), held 69 per cent of Afrox Healthcare Limited (AHealth) when the company was sold to a consortium led by two major black economic empowerment investors in March 2005. Afrox has retained a significant interest in the hospitals business through a 20 per cent holding in the new company.

In 2001, BOC Distribution Services was re-named Gist to reflect the changing nature of its business. Gist operates as a separate business unit outside the lines of business structure. It remains focused on developing business with major customers, including Marks & Spencer, and has developed capability in supply chain consultancy and end-to-end supply chain solutions.

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**Corporate development**

Over the last three years BOC has continued to invest in its core businesses at the same time as divesting assets and businesses that were no longer consistent with its strategy.

In October 2002, BOC acquired Environmental Management Corporation (EMC), a privately owned water services company based in St Louis, Missouri. EMC manages water and wastewater treatment facilities for both industrial and local municipal customers around the US. EMC forms part of the PGS line of business, which is expanding the range of solutions offered to its industrial customer base.

BOC and Air Liquide merged their industrial and medical gases businesses in Japan in January 2003 and BOC's subsidiary in Japan has retained a 45 per cent interest in the combined company called Japan Air Gases Ltd.

At the end of January 2003, BOC acquired the partial oxidation syngas plant at Clear Lake, Texas, from Celanese. Under the agreement BOC fulfils a significant proportion of the industrial gas requirements for the Celanese chemical facility at Clear Lake.

In March 2003 BOC announced an agreement to purchase the Canadian packaged gas and related welding equipment business of Air Products. The acquisition was completed in April 2003 following approval from the Canadian regulatory authority.

In June 2003, BOC announced an agreement to obtain half the output of a new helium extraction facility to be constructed in Qatar. Deliveries from the new source are now scheduled to commence during 2006.

In May 2004 BOC agreed to buy Duke Energy's 30 per cent ownership interest in the Cantarell joint venture company for US\$59.7 million in cash. This increased BOC's overall stake to 65 per cent on completion in September 2004. This company supplies Pemex with nitrogen for the pressurisation of its oilfields in the Gulf of Mexico.

BOC completed the disposal of the packaged gas part of its US ISP business to Airgas Inc on 30 July 2004. The initial consideration received was US\$175 million in cash and a final payment of US\$20 million that had been subject to performance conditions was recognised in 2005. These funds were received in November 2005. All packaged gases and associated hardgoods were included in the sale. This comprised compressed industrial, speciality (excluding electronic) and medical gases in the US, sold through BOC retail and distributor channels. The sale did not include BOC's bulk liquid helium, bulk medical gases and distributor businesses.

In October 2004, BOC purchased a 50 per cent holding in Asia Union Electronic Chemical Corporation (AUECC). This acquisition expanded BOC Edwards' electronic materials offering to include the purification, blending, packaging and distribution of wet chemicals for flat panel display, semiconductor and solar cell manufacturers throughout Asia.

In December 2004, BOC sold its shares in Unique Gas and Petrochemicals thereby divesting interests in the LPG and bulk ammonia businesses in Thailand but the cylinder and aqueous ammonia business was retained.

At the end of January 2005, BOC acquired Calor Gas Limited's UK aerosol propellants business. This includes the sales, marketing and distribution of bulk and packaged propane, isobutene and butane blends in the UK. The acquisition also included Calor's CARE range of hydrocarbon refrigerants.

The segment reported as Afrox hospitals operated through Afrox Healthcare Limited up to the end of March 2005. It owned and managed private hospitals and clinics in southern Africa. BOC's majority-owned subsidiary, African Oxygen Limited (Afrox), held 69 per cent of Afrox Healthcare Limited (AHealth) when the company was sold to a consortium led by two major black economic empowerment investors in March 2005. Afrox has retained a significant interest in the hospitals business through a 20 per cent holding in the new company.

In September 2005, Gist acquired G Van Dongen Holding BV, a European temperature-controlled transport operator. The business, which had an annual turnover of some 46 million euros, expands Gist's existing primary food business into continental Europe by providing fresh chill and ambient transport services to food manufacturers in the Netherlands, Spain, Germany, Portugal and France.

**Industrial gases**

The BOC Group is one of the major producers of industrial gases in the world. Its products include the atmospheric gases (nitrogen, oxygen and argon) produced by air separation plants as well as hydrogen, carbon monoxide and syngas (a mixture of hydrogen and carbon monoxide) made by technologies including steam-reforming or partial oxidation of hydrocarbons. The Group also markets carbon dioxide, helium and liquefied petroleum gas. These are generally derived as by-products from chemical processes or from natural sources and are also purchased from other producers. In addition, the Group markets dissolved acetylene and a wide range of special gases, medical gases, gas mixtures and gaseous chemicals.

**Industry structure and consolidation** The industrial gases business is capital-intensive, with increasing demand, together with economies of scale, leading to the need for large production units and distribution networks. The need for fixed asset investments, the trend towards global customers and the benefits from the transfer of applications technology worldwide have resulted in the

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business being handled by a relatively small number of companies internationally.

One or more of the other major international producers compete in each of the industrial gases markets served by the Group, and in many of the markets there are smaller local producers as well. International competitors include Air Liquide, Praxair, Air Products and Chemicals, Linde and Nippon Sanso. The world market for gases and related products is estimated to be some £25 billion a year.

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**Principal industrial gas products** Nitrogen possesses two key characteristics that make it the world's most widely used and versatile industrial gas. Nitrogen is almost inert and when liquefied it is intensely cold. This makes liquid nitrogen a highly effective, versatile and non-polluting agent for freezing and chilling.

Under normal conditions nitrogen is chemically inactive. This makes it an important purging and blanketing gas in the chemical and refining industry as well as in the electronics industry.

Oxygen, in contrast to nitrogen, is useful for its reactivity. It supports combustion and it supports life. Oxygen has been used in welding and medicine for over 100 years and in steel production since the 1950s.

Iron and steel producers use oxygen to accelerate melting and to improve metal quality during the refining process. It is also used by the oil and chemicals industries and many others for a variety of oxidation processes. Mixed with fuel gases, oxygen provides a heat source for many welding, cutting and metal fabrication processes.

Argon makes up less than one per cent of the atmosphere but it is the most abundant truly inert gas. It is used to provide a shielding atmosphere in welding, metal fabrication, aluminium processing, microelectronics, glass coating, advanced ceramics and other industrial processes. It is also used in the steel industry, principally in the production of stainless steel.

Hydrogen is typically produced by steam reforming or partial oxidation of natural gas, petroleum gas, or liquid or solid hydrocarbon feedstocks. Hydrogen may also be recovered from by-products purchased by BOC from external suppliers. Hydrogen is used primarily in the oil and chemicals industries for applications aimed at upgrading crude oil through hydrocracking to form lighter fractions and to remove sulphur in the production of cleaner fuels. The chemicals industry also uses hydrogen where it is required as an active ingredient in many large-scale processes.

Helium is extracted from natural gas deposits. Only a few sources in the world contain a sufficient proportion of helium to justify its separation. The Group's supplies now come from the US, Poland and Russia and are secured by long-term contracts. In June 2003, BOC announced an agreement to obtain half the output from a new helium extraction facility to be constructed in Qatar. Deliveries from this new source are now expected to begin in 2006. Due to its high value, helium is the only major industrial gas to be extensively traded internationally. Helium is used in welding, leak detection, hospital MRI scanners and in the production of optical fibres. Helium gas mixtures are used in balloons.

Carbon dioxide supplied by BOC is obtained as a by-product from other companies' manufacturing processes, from natural sources or recovered in the generation process for hydrogen or syngas and put to constructive use. Solid carbon dioxide is, like liquid nitrogen, used for chilling and freezing in the food industry. As a gas it is used to carbonate and dispense beverages of all kinds.

Acetylene is normally supplied in cylinders and used together with oxygen in metal cutting and welding applications. BOC is a major manufacturer of dissolved acetylene.

Liquefied petroleum gas (LPG) is a fuel gas with a wide variety of domestic, industrial and transport applications. BOC is a major distributor of LPG in South Africa, and its joint venture company Elgas Limited is a major distributor in Australia. BOC has smaller market positions in several other countries.

**Production of industrial gases** Oxygen was first extracted from the atmosphere by a chemical process. This was superseded over 80 years ago by the cryogenic (low temperature) process involving the liquefaction and distillation of air. The cryogenic process is still by far the most widely used, but non-cryogenic techniques (pressure swing adsorption and membrane diffusion), which were first developed during the 1970s, are becoming increasingly significant for smaller or less demanding on-site applications.

Cryogenic air separation is a mature and stable technology, although incremental technical advances are still yielding improvements in capital cost, operating cost, ease of operation and reliability. The only significant raw material, apart from the air itself, is electricity, which is used in large quantities to drive compressors, pumps and other equipment. The production process in modern air separation plants is highly automated, and remote operation of BOC's plants from control centres is becoming increasingly common.

The production of hydrogen and syngas uses steam reforming or partial oxidation of hydrocarbon feedstocks such as natural gas, petroleum or coal to separate the hydrogen and carbon compounds. The choice of feedstock is related to their prices in local markets.

**Distribution of industrial gases** Industrial gases may be supplied to customers in a variety of ways; through pipelines from on-site or nearby cryogenic or non-cryogenic plants, by deliveries of liquefied gases in road or rail tankers, in portable cryogenic containers or in cylinders (also called compressed or packaged gases).

Distribution is an important competitive factor in the industrial gases business and the methods of distribution vary according to

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the nature of the products themselves and the customer's volume requirements. Most gases have to be stored and distributed either under great pressure, which requires them to be carried in heavy and bulky cylinders, or at extremely low temperatures in specially insulated tankers, which limits how far they can be transported before carriage costs become unacceptable. Pipeline delivery involves high capital costs and the routing is inflexible. As a result, there is little international trade in industrial gases. Production has to occur in or near the market being served and there is a trend towards production at customer's own sites.

### **Business segments**

The BOC Group reports financial results for the three lines of business and for Afrox hospitals and Gist separately.

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**Process Gas Solutions (PGS)**

This line of business covers BOC's business with larger-scale industrial customers worldwide, typically in the oil and chemicals, food and beverage, metals, and glass sectors. Gases and services are supplied as part of customer-specific solutions that create the most value for customers at the lowest cost to BOC. These range from supply by pipeline or from dedicated on-site plants to the largest users, to supply by road tanker in liquefied form to others.

Tonnage (pipeline) customers are usually supplied on the basis of long-term contracts, typically containing a fixed facility charge together with a variable charge for product supplied in excess of a set minimum quantity. Revenues from these contracts thus have a measure of stability with respect to changes in demand for product. Tonnage plants are often built to produce merchant gases in addition to those required by the tonnage customer and these gases can be sold to other customers. The BOC Group has substantial positions in the tonnage markets of the UK, the US, Australia, South Africa and Asia as well as in some smaller markets. The products supplied to tonnage customers have traditionally been the atmospheric gases oxygen, nitrogen and argon. More recently, hydrogen and syngas are becoming significant tonnage products as are associated utilities including steam and power.

The delivery of liquefied gases by road or rail to the customer's site is normally limited by transport costs to a radius of about 200 miles. Product for this market is supplied either from merchant plants or from tonnage plants incorporating liquefiers. Larger users are typically supplied with product in liquid form delivered in cryogenic tankers into special storage vessels installed at customer premises. Tankers and vessels are often BOC Group owned. Liquefied gases are usually supplied on the basis of contracts with terms of one to five years. Revenues are generally based upon the actual quantity of gas consumed, with an additional fixed charge for the use of storage equipment.

The growth of sales and profit in this line of business is driven by investment in new production facilities. Such investment is predominantly the result of opportunities to satisfy long-term supply contracts with one or more heavy industrial customers for each plant.

Marketing, business development and the execution of investments to provide customer-specific solutions for the supply of industrial gases are handled by Process Systems, which forms part of PGS.

**Business development** In October 2002, BOC acquired Environmental Management Corporation (EMC), a privately owned water services company based in St Louis, Missouri. EMC manages water and wastewater treatment facilities for both industrial and local municipal customers around the US. EMC's management services extend to steam systems, cold and chilled water systems and wastewater treatment. Customers include small to medium-sized municipalities and industrial customers, many of which are in the food sector. EMC forms part of the PGS line of business and BOC's strategy is to expand the range of solutions offered to its industrial customer base.

At the end of January 2003, BOC acquired the partial oxidation syngas plant at Clear Lake, Texas, from Celanese. Under the agreement BOC fulfils a significant proportion of the industrial gas requirements for the Celanese chemical facility at Clear Lake. The Celanese facility is located on the Houston ship canal, and includes a world scale vinyl acetate monomer plant and the world's largest acetic acid plant. These require large quantities of oxygen and nitrogen as well as carbon monoxide.

A new hydrogen and carbon monoxide (HyCO) plant supplying the Thai Polycarbonate Company for the manufacture of plastic resins began production in 2003.

In October 2003, BOC commissioned a new hydrogen plant supplying Citgo's oil refinery at Lemont, Illinois. The hydrogen is used in the removal of sulphur to produce clean fuels.

In the same month BOC, and its joint venture partners, announced plans to invest over US\$100 million in developing three schemes in China, at Taiyuan, Suzhou and in the Pearl River region.

BOC-TISCO, the joint venture between BOC Gases and Taiyuan Iron and Steel Corporation (TISCO), has under construction two new air separation units (ASUs) to supply 1,400 tonnes a day of oxygen each to TISCO's plant in Shanxi province in north-central China. The new ASUs represent an investment of US\$82 million and they are scheduled to begin coming on stream during 2006. This investment is in response to strong demand for stainless steel in China and will support TISCO's vigorous expansion plans.

Pearl River Gases (PRG), a joint venture between Guangzhou Iron & Steel (GIS) and BOC's joint venture, Hong Kong Oxygen, invested in two further ASUs during 2005. These add some 400 tonnes a day of oxygen capacity to support the expansion of steelmaking in southern China.

Also in 2005, BOC's wholly owned subsidiaries in Suzhou constructed new on-site supply scheme pipelines to meet increasing demand for industrial gases from key customers in Suzhou Industrial Park and the Suzhou New District Industrial Park.

A new hydrogen plant to supply both a Sunoco refinery, and a nearby BP refinery is under construction at Toledo, Ohio. The

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hydrogen will be used by both BP and Sunoco in the production of ultra-low sulphur gasoline and diesel fuels. The complex will be capable of supplying over 120 million standard cubic feet a day of hydrogen. BOC's partner for engineering and construction is Linde BOC Process Plants of Tulsa, Oklahoma. BOC is investing more than US\$100 million in the facility.

In May 2004 BOC agreed to buy Duke Energy's 30 per cent ownership interest in the Cantarell joint venture company for US\$59.7 million in cash. This increased BOC's overall stake to 65 per cent on completion in September 2004. This company supplies Pemex with nitrogen for the pressurisation of its oilfields in the Gulf of Mexico.

In December 2004, BOC announced a new, 20-year agreement to supply an additional 300 million standard cubic feet a day (scf/d) of nitrogen to be used at the Cantarell and Ku Maalob Zaap oil fields. The additional supply will lift the total nitrogen output by 25 per cent to 1.5 billion scf/d at the site. Construction of a fifth production module has commenced and the new facility is scheduled to begin production in 2007.

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In China, significant new business was won in the chemical sector. BOC has agreed to form a joint venture with the Sinopec Shanghai Petrochemical Company (SPC) at Jinshan, near the Caojing chemical complex, to invest in existing assets and then add further air separation capacity to satisfy the industrial gases requirements of SPC in the region. This follows the establishment in 2003 of a similar joint venture with Sinopec YPC to supply the Sinopec and BASF joint venture petrochemical complex at Nanjing.

BOC's subsidiary in Thailand is investing in a venture establishing a 1,300 tonnes-a-day plant to supply TOC Glycol Co. Ltd. (TOCGC) in Map Ta Phut and to increase merchant capacity in the area. When completed in 2006, this will be the largest air separation unit in Thailand. It will be owned and operated by a joint venture between BOC's Thai subsidiary, TIG, and Bangkok Industrial Gas Company.

In January 2005 BOC formed a joint venture with Maanshan Iron & Steel Company (Ma Steel) to invest initially in the construction of two large air separation units. Each will be capable of supplying 1,400 tonnes a day of oxygen to meet the growing needs of Ma Steel in Maanshan City, China. Total production of oxygen, nitrogen and argon is expected to total some 5,000 tonnes a day when commissioned during 2007.

At the same time BOC India Ltd announced that it had been awarded a contract to supply gases requirements of approximately 1,400 tonnes a day for an expansion programme by Jindal Vijaynagar Steel Limited at Bellary in southern India. A plant with an oxygen capacity of 855 tonnes a day will be constructed and is expected to be commissioned in 2006.

In April 2005, BOC agreed to invest approximately US\$40 million in equipment and pipelines in order to supply hydrogen to Valero's 170,000 barrel a day refinery at Lima, Ohio and to supply other customers in the area. Construction of the plant has begun and it is expected to start supplying hydrogen during 2006.

In June 2005, BOC announced further refinery hydrogen business in the US with the proposed investment of nearly US\$50 million at Salt Lake City to supply Chevron and Holly Corporation's Utah subsidiary with hydrogen for cleaner fuels production at their refineries. The refiners are upgrading their facilities in accordance with the US Environmental Protection Agency's lower-sulphur requirements for gasoline and diesel fuels.

Chevron is installing additional hydrotreating capacity at its 49,000 barrel per day (bpd) refinery and will take hydrogen and steam from BOC's plant, which will be located on the Chevron site. Holly will also receive hydrogen for new hydrotreating capacity at its nearby 26,000 bpd Woods Cross refinery through a five-mile pipeline connection from the BOC facility.

Construction of the hydrogen plant has started and production is expected to begin in 2006.

### **Industrial and Special Products (ISP)**

Gases for cutting and welding, hospitality, laboratory applications and a variety of medical purposes are mainly distributed under pressure in cylinders. The ISP line of business covers products and services provided to this section of the market together with sales of packaged chemicals and liquefied petroleum gas (LPG). Customers are typically in the fabrication, engineering, automotive, refrigeration, hospitality or medical sectors. The customer base is therefore broad and varied. The number of separate customers served by ISP is much greater than the other two lines of business and the quality of service is often the key factor in securing existing or obtaining new customers. In order to raise service standards at the same time as reducing costs, national customer service centres have been successfully established in all the major markets.

In addition to supplying gases, BOC also supplies a range of associated equipment in many of its major markets. This includes cutting and welding products and, in some markets, associated safety equipment.

BOC has devoted considerable attention over the last few years to understand the requirements of different types of customer in its major markets and to provide the required service at an appropriate price. Such customer segmentation programmes have been implemented in the UK, South Africa, Australia, Asia, Latin America and are in progress elsewhere.

The cutting and welding applications are a relatively mature part of the industrial gases business and growth opportunities are principally in other segments of the market such as medical applications, safety products, packaged chemicals, hospitality and services. BOC is pursuing these opportunities by the development of new products, packages and services as well as by marketing initiatives to take advantage of BOC's global capabilities by introducing existing products to new regions. Electronic commerce has also become an important tool for sustaining and growing sales by making it easier for customers to manage their business with BOC as a supplier.

BOC is a leading supplier of helium and has liquid helium distribution centres, or transfills, in many markets around the world. With 48 helium transfills in its global network, management believes that this is the largest of its kind. Helium has a broad range of applications, including welding and the refrigeration of medical scanner magnets, and is vital to the production of optical fibres, semiconductors and special alloys. It is also used for leak detection, underwater breathing mixtures and lifting.

**Business development** In April 2002, BOC acquired Matheson Gas Products Canada Inc, one of Canada's leading providers of special gases and equipment. Unique Gas and Petrochemicals Public Company Limited (UGP), a leading distributor of liquefied petroleum gas (LPG) and ammonia in Thailand, was acquired in May 2002. BOC's associated company in Malaysia acquired 35.6 per cent of the gases company Nissan Industrial Oxygen Inc (NIOI) in March 2002 and, following a tender offer, increased its holding to 100 per cent in September 2002. At the end of August 2002, BOC announced an agreement to purchase Praxair's Polish gases business. The transaction was completed in January 2003 following approval by the Polish competition authority. The business acquired includes a high proportion of ISP sales.

Since 2002, BOC has continued its global roll-out of a light-weight medical cylinder with an integrated valve and regulator for homecare patients and emergency services. Heliox, a helium and oxygen mixture formulated to ease the respiratory effort associated with airway obstruction, was launched in the UK and in some other markets.

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Capacity at BOC's Otis, Kansas, helium plant was expanded in 2002 to match market demands. In addition, BOC has access to helium produced by other US plants, as well as to product from Poland and Russia. In 2003 BOC and KRIO, a division of the Polish Oil and Gas Company, entered into a new helium supply agreement. BOC will purchase for export all of KRIO's helium that is not sold to its domestic customers in Poland. BOC has been KRIO's sole customer for bulk liquid helium since the original agreement was signed in 1972. In June 2003, BOC announced an agreement to obtain half the output from a new helium extraction facility to be constructed in Qatar. Deliveries from this new source are now expected to begin in 2006.

Magnetic resonance imaging (MRI) systems use liquid helium to cool superconducting magnets. BOC provides helium as well as a liquid nitrogen filling service to meet MRI operators' total requirements. In 2002, ISP signed a major helium supply scheme with Oxford Magnet Technology (now Siemens) in the UK.

BOC continued to invest in refrigerant filling facilities and in 2003 new filling facilities were installed in Hong Kong, Malaysia and the Philippines. Each of these was built to a standardised global design. BOC now supplies refrigerants in 19 countries compared with six countries in 1999. In June 2003, BOC announced a global alliance with Hudson Technologies to promote technology for cleaning and recycling used refrigerants.

Significant progress in developing web-based customer portals has been made. Amongst others, ISP has launched customer portals in the UK, Australia and New Zealand. Thousands of customers are now able to access detailed material on BOC's product service offers, manage and settle their accounts and place orders on-line.

BOC acquired the Canadian packaged gas and related welding equipment business of Air Products in April 2003.

BOC completed the disposal of the packaged gas part of its US ISP business to Airgas Inc on 30 July 2004. The initial consideration was US\$175 million in cash and a final payment of US\$20 million that had been subject to performance conditions was received in November 2005. All packaged gases and associated hardgoods were included in the sale. This comprised compressed industrial, speciality (excluding electronic) and medical gases in the US, sold through BOC retail and distributor channels. The sale did not include BOC's bulk liquid helium, bulk medical gases and distributor businesses.

In December 2004 BOC sold its shares in Unique Gas and Petrochemicals, thereby divesting interests in the LPG and bulk ammonia businesses in Thailand but the cylinder and aqueous ammonia business was retained.

In January 2005, BOC acquired Calor's aerosol propellants business in the UK. This includes sales and distribution of bulk and packaged hydrocarbon blends together with Calor's CARE hydrocarbon refrigerants range and propylene business.

In March 2005, BOC announced plans to build a new liquid plant to extract helium from a natural gas supply at Darwin, Australia. When it begins production in 2007, it will be the only helium production plant in Australia, and will serve not only domestic Australian demand but also customers in New Zealand and Asia.

## BOC Edwards

This line of business specialises in gases, services and equipment for the semiconductor industry as well as vacuum products for a range of other industries. The major markets for BOC Edwards' products are in Asia, north America and Europe. Until September 2005 it was organised into four customer-facing divisions for sales and marketing in Asia/Pacific, Japan, the US and Europe and into four manufacturing divisions, Vacuum and Exhaust Management, Chemical Management, Bulk Gases and Electronic Materials. Kachina (semiconductor process tool component management service), Coating Technology and Pharmaceutical Systems were managed separately. BOC Edwards is now organized around five global business units, Electronic Materials, Electronic Bulk Gases, Semiconductor Equipment, General Vacuum Equipment and Pharmaceutical Systems.

Management believes that BOC Edwards has a unique position as a fully integrated supplier of gases, vacuum, chemical, slurry and exhaust management products, as well as services to the global semiconductor industry and is a leader in the design and manufacture of vacuum pumps, instrumentation and systems for both general vacuum and semiconductor applications and of freeze-drying systems for the pharmaceutical industry.

The vacuum and exhaust product ranges are manufactured or assembled primarily in the UK, with additional manufacturing and assembly in the US, Japan, Korea, China and Brazil. They include vacuum pumps, coating systems, exhaust management systems, temperature control systems and heat exchangers, instrumentation and controls, vacuum accessories and leak-detection equipment. The range also includes specially designed systems for specific applications, depending on customer requirements.

BOC Edwards also specialises in the design, manufacture and installation of the systems used to deliver liquid process chemicals, including planarisation slurries to the point of use within semiconductor fabrication facilities. Manufacture of these products is located mainly in the US.

In addition to the semiconductor industry, the leading customers are in the chemicals, scientific instruments and other industries, as well as in educational and research establishments. General vacuum products are sold to such customers by a

separate sales force.

BOC Edwards service facilities, including plants for cleaning semiconductor process tool parts, are located near concentrations of semiconductor fabrication facilities around the world.

Technology is important to maintain a competitive edge in this business, and considerable resources are committed to enable the business to address new applications and markets. The major research centres are in the UK, north America and Japan.

The Group's vacuum products are sold directly by Group companies to end-users and also through distributors and agents. Management believes that the Group is a leading manufacturer of the types of vacuum products that it makes and provides. The business is highly competitive, with product design and quality, leading to the lowest cost of ownership, being very significant factors.

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Sales opportunities for much of BOC Edwards semiconductor equipment business are dependent upon capital investment by the semiconductor industry. Management believes that semiconductor production remains on a long-term growth trend but capital investment by semiconductor manufacturers has been subject to sharp variations for a number of reasons, some of which arise from advances in technology.

The products of BOC Edwards Pharmaceutical Systems are tailored specifically to individual customer requirements in the pharmaceutical industry and are used mainly for injectable products. Freeze-drying systems are made in Tonawanda, New York, US. Filling, sterilising and packaging lines for the pharmaceutical industry are made at Dongen in the Netherlands and Beijing in China.

**Business development** Throughout the period 2003 to 2005, new ranges of dry pumps for the semiconductor industry were introduced as well as a comprehensive new range of exhaust management products. These new products meet the needs of 300mm wafer and flat panel manufacturing facilities.

In 2004 a new range of high-speed iGX pumps were introduced, offering attractive features for semiconductor applications such as small size, reduced power consumption and lower lifetime costs.

The range of exhaust management products was also expanded with new burners, wet scrubbers and an advanced plasma-based system for the destruction of reaction products without the use of methane fuel.

Production of nitrogen trifluoride (NF<sub>3</sub>) gas for the semiconductor industry was started at a plant in South Africa during 2000 and production capacity was further increased during 2003. This product is an important etchant that is also used for in-position cleaning of semiconductor process equipment.

On-site fluorine generators were installed at a number of semiconductor and flat panel display manufacturing facilities during 2004 and a fab-wide pilot programme at LG Philips in Korea was extended during 2005.

BOC Edwards range of electronic materials in Asia was expanded in October 2004 with the addition of ultra-pure wet chemicals through a partnership with Asia Union Electronic Chemical Corporation (AUECC) and through that company with Huayi, a chemical manufacturer in China.

### **Afrox hospitals**

African Oxygen Limited (Afrox) sold its 69 per cent controlling interest in its hospitals business (Afrox Healthcare Limited) to a consortium led by two major black economic empowerment investors in March 2005. Afrox has retained a significant interest in the hospitals business through a 20 per cent holding in the new company.

In the period 2003 to 2004 and in 2005 prior to the disposal, Afrox Healthcare Limited owned 60 hospitals and clinics and had a minority interest in a further seven hospitals managed by others. It also managed the Lifecare group of chronic-care hospitals. In addition to hospitals and clinics, which were the core business, Afrox Healthcare Limited also included Afrox Healthcare Services, which facilitated a direct medicines service for chronic medication, and provided occupational health services, nursing training and laboratory services.

### **Gist**

Gist is a provider of specialist supply chain solutions. The name Gist was adopted during 2001 to reflect both the continuing focus on supply chain operations and an increased emphasis on supply chain consulting, end-to-end supply chain solutions and logistics support to e-fulfilment opportunities. This realignment of the business followed a planned withdrawal from most non-Marks & Spencer primary temperature controlled operations in the period 1999 to 2000.

High quality supply chain operations remain at the core of the business. Gist manages a range of supply chains on behalf of retailers, mainly in the UK, as well as some overseas. For over 30 years Gist has been the largest supply chain provider for Marks & Spencer. Gist currently handles all of its UK food distribution and the consolidation and dispatch of all overseas shipments to subsidiaries and franchised operations.

During 2003, Gist ceased to operate general merchandise logistics and garment stockholding operations on behalf of Marks & Spencer.

Gist has provided supply chain consultancy services to major supermarket and catalogue retailers in the UK and demonstrated its capabilities in managing international supply chains. In addition an on-line wholesaling operation has extended the range of Gist's skills offered externally.

During September 2005, Gist expanded its primary business in continental Europe with the acquisition of G Van Dongen Holding BV, a temperature-controlled transport operator based in the Netherlands and Spain. This is to provide chilled and ambient

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transport to food manufacturers in the Netherlands, Spain, Germany, Portugal and France, and adds to Gist's existing operations in the Czech Republic and the Netherlands.

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## Strategy

The BOC Group has an annual planning cycle culminating in a board review, typically held in March each year. The strategy is aligned with the Group objectives, published in 2004, which are: Over a sustained period, consistently to outperform our peers in terms of safety, customer service, revenue growth, earnings and cash generation. We will be the employer of choice for all existing and future employees .

Since 2000, the main components of the strategy have been:

- To establish a leading position for BOC in growth markets: BOC has continued to invest in production and infrastructure facilities in the growth markets of Asia in general and China in particular. It has also expanded by acquisition, notably adding to its gases businesses in Poland and Canada and increasing BOC Edwards range with the turbomolecular pump business of Seiko Instruments. Each line of business additionally has its own growth strategies; in Process Gas Solutions the emphasis has been on increasing the percentage of tonnage business, particularly in the refining and chemicals sectors.
- To improve the return on capital employed: BOC has actively pursued opportunities to improve or divest underperforming assets resulting in, amongst others: the formation of Linde BOC Process Plants LLC in the US; the combination of OSK with part of Air Liquide Japan to form Japan Air Gases; and the sale of the US packaged gas business.
- To improve business and operational efficiency: BOC has sponsored cost reduction and improved efficiency programmes across all of its operating entities.
- To maximise the benefits of BOC's operating model: BOC's structure of lines of business and business units allows global strategies to be implemented successfully while enabling local response to be tailored to local market needs. The operating model has now been extended to all parts of the world, with Asia being the most recent.
- To recruit, retain and develop the best people: BOC has developed a wide range of people programmes to ensure it has the calibre and quantity of people needed to implement its growth strategy successfully.

The components of the strategy are referred to elsewhere in this annual report, notably in the sections on employees, operating review and financial review.

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## Employees

At 30 September 2005 the Group had 30,572 employees (2004: 43,383 employees, 2003: 44,507 employees). During the year the disposal of the Afrox Healthcare business resulted in the successful transfer of over 13,000 employees to the new owner. Employees of the company and its subsidiaries were located as follows:

Europe	13,408
Americas	6,216
Africa	3,541
Asia/Pacific	7,407

Unplanned employee turnover remains low and as a result, excluding disposals, the employee base remains stable. BOC invests time and energy in developing the potential of its people. Opportunities are reviewed and discussed with identified individuals to provide cross-line of business experience or to set up a range of functional and geographical assignments. This contributes to BOC's success in retaining and developing the core skills and capabilities it needs to meet its business, customer service and health and safety targets. BOC regularly reviews its succession planning processes and the availability of essential capabilities. Results show it has solid capability in most areas and adequate succession depth to meet both its technical and leadership requirements.

### Employee satisfaction and commitment

Employee satisfaction is measured and managed both centrally and in the business units.

Levels of employee satisfaction and commitment are generally high. A culture of accountability, collaboration, transparency and stretch, known as ACTS, has been developed throughout BOC. The ACTS principles provide a framework that employees can use in their dealings with each other and with customers, suppliers and other stakeholders.

The Voice of BOC employee survey was conducted again in 2005. The survey, managed by an independent research company, is an opportunity for BOC's people to rate the Group's performance on key issues affecting their employment. 68 per cent of employees responded to the survey. This high participation rate demonstrates employees' willingness to contribute to BOC's aim of being the employer of choice. The 2005 survey built on the employee perception data collated in 2002 regarding ACTS, customer orientation, performance management and diversity. It also incorporated new measures on safety and the Code of Conduct. The areas where BOC employees deemed performance to be particularly high or improved since 2002 were safety, management interest in employee well being, the Code of Conduct, performance reviews, collaboration and diversity. The areas deemed to need further improvement were customer focus, which is still a core strength but slightly down on 2002, and employee engagement, which remained at a high level but was lower than in 2002. As with previous surveys, business units and enabling functions are developing and implementing action plans to address the results and progress will be reviewed on a regular basis.

### Employment policies and Code of Conduct

The BOC Group takes its responsibilities as a global organisation seriously. It is committed to fostering a workplace that is safe and environmentally sound. It will always act in line with all applicable laws, regulations and industry standards. It expects people to respect confidential information and company time and assets. It believes in open and honest communication, fair treatment and equal opportunities. It opposes public corruption, anti-competitive behaviour and insider trading, and it supports the fundamental principles of good governance and human rights.

In 2003 BOC launched a global Code of Conduct, a set of legal and ethical standards that apply to all BOC employees and to contractors in their business dealings with BOC. The code is available in ten languages. An extensive programme of communications and workshops has provided training for employees on the substance of the code. Annual sustainability plans embed the code within the businesses and keep it visible, accessible and relevant to all employees. In 2004, a new network of code sustainability managers was formed to ensure that processes are in place to induct new employees, to provide refresher training and to consolidate country-specific policies. The Code of Conduct telephone helpline has been extended to cover 49 countries and promotional material has been created to publicise the contact number in each country. BOC operates a strict policy of non-retaliation to protect and encourage people wishing to share their concerns.

BOC's employee policies and procedures are aligned with the UN Universal Declaration of Human Rights. BOC is a signatory to the UN Global Compact, whose ten principles - six of which relate to human rights and labour standards - are integrated into BOC's Code of Conduct. In many areas BOC's existing standards exceed those set out in the Global Compact. In 2005, BOC reported

progress to the Global Compact Office, according to official guidelines.

In addition to the Code of Conduct, BOC provides guidance and human resources policies to support BOC people in their day-to-day activities and long-term career planning. These are aligned to the corporate values and principles. At the heart of this approach is the recognition that the energy and application of individuals and teams throughout the organisation will determine which companies have competitive advantage in today's complex global market. BOC's employment policies are designed to underpin the Group's operating requirements and growth strategies. The human resources units implementing these policies are aligned to the business units in each geography and, as far as practicable, Group policies are adapted to meet local requirements.

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**Communication and involvement**

BOC places a high priority on two-way communications with its people. The primary communication channels are within the business units, where local managers work with their people and two-way communication is most achievable. The Group also uses a number of formal and informal communication channels to share information and to shape behaviour. In addition to traditional media such as videos, magazines, newsletters and briefing packs, BOC has continued to invest in e-mail and web-based communications technologies to ensure that consistent and coherent messages are conveyed speedily to its people around the world.

The Group actively searches for ways to involve employees in shaping the future. Teams meet to review or jointly create processes, systems or strategies. A variety of employee structures exist for these purposes, including peer groups, special interest groups, teams of excellence and quality teams. Multi-disciplinary and cross-geographic groups of employees regularly meet, either face-to-face, or by using tele-, video- and web-based meeting technologies which have been installed for these purposes.

**Resourcing, training and development**

Resourcing, training and development programmes are designed to ensure that the Group has a pool of well-qualified, gifted individuals able to meet day-to-day operational needs and plans for the future. BOC conducts a robust annual process to assess the strengths and weaknesses of its units. It is committed to provide its people with opportunities to develop and grow, but also to bring new blood into the organisation through targeted external recruitment. A global, web-based recruiting platform is in place to supplement other recruitment channels.

BOC continued to place great emphasis on personal and career development over the past year. Employees are encouraged to be proactive about their future careers and development opportunities. The aim is for all employees to have regular discussions with their managers regarding their aspirations, prospects and development needs. These result in the formulation of an individual development plan, which is an agreed course of action to meet employees' needs as well as the needs of the organisation. BOC offers many opportunities for career and personal development. Employee development takes the form of on-the-job coaching and training, development projects, secondments, e-learning, as well as more traditional classroom-based training.

In addition to the development that takes place to achieve current job effectiveness of all employees, high potential employees are identified and developed with future roles in mind. The Lead programme is an ambitious executive development programme for high potential senior managers, facilitated by world class external providers as well as senior BOC executives. It is customised for BOC and is comprehensive in its scope. The programme offers a tailored curriculum and is designed to equip the participants with the broad range of skills and experiences they will need to be successful leaders within the Group. To date, some 150 senior managers have participated in Lead programmes. A parallel leadership development programme, iLead, has been developed for high potential middle managers and is run regionally around the world. Lead and iLead augment many other management development initiatives, which are provided to all BOC's supervisors and managers. International assignments are used to develop high potential executives and to create opportunities within local management teams. The success of such programmes are reviewed regularly with business unit heads as part of their performance contracts.

BOC believes that how its employees work is as important as what they produce, which is why it has concentrated on the behaviours associated with accountability, collaboration, transparency and stretch – the ACTS cultural principles. Accountability comes through people knowing what they are accountable for and being empowered to deliver. Collaboration is about drawing on the rich diversity of styles, talents and skills across the Group to maximise achievements. BOC values transparency because it believes that visible problems can be solved and that informed people make better decisions. Finally, stretch advocates continually pushing the boundaries of performance. BOC has created a set of leadership competency models, which are aligned to ACTS. All recruitment, development, recognition and enhancement processes are being aligned to this comprehensive and unified BOC view of leadership and management.

**Reward and recognition**

An organisation that aspires to excellence must recognise and reward the achievement of excellence. The Group continues to refine the key value drivers of its business units and to ensure it can reward and recognise outstanding individual and team performance in the fulfilment of business goals. Programmes to achieve this are cascaded throughout the organisation to heighten focus on effective performance at all levels.

The Group continues to move towards a total reward system that allows people to structure their remuneration and benefits to suit their individual needs. Senior executives' remuneration is linked to a Group-wide variable compensation plan, which is described in the report on remuneration on page 73.





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**Retirement benefit plans**

BOC considers it important that its people provide for their retirement and fully supports their efforts in this regard. Around the world, the Group provides opportunities for people to participate in retirement programmes tailored to suit local conditions. Just as importantly, the board's pensions committee takes prudent steps to monitor and control Group-wide retirement benefit plans with local managers being responsible for safeguarding the security of each retirement plan that they sponsor.

The financial position of the Group's main pension funds is detailed in note 8 to the financial statements.

**Diversity**

BOC believes that diversity is a key driver of future organisational and operating effectiveness. As one of the UK's few truly global companies, BOC highly values the rich diversity of its people. While the Group consistently champions a set of unifying values and principles, they are not imposed regardless of local sensibilities. Rather, the Group strives to build on the qualities inherent in its global environment by encouraging people with different views, styles and approaches. Wherever in the world it operates, BOC is committed to maintaining a workplace free from discrimination for reasons of race, creed, culture, nationality, religion, gender, sexual orientation, age or marital status. The success of its diversity programme is monitored and reported regularly.

Disability is not considered a barrier to employment and, as far as local conditions allow, employees are selected on the basis of their ability to perform the job. Further necessary training is arranged, taking account of their particular needs and the resources required to meet them.

**Employee share schemes**

Many BOC employees in the UK and some other countries have built up an equity interest in the Group's business through employee share schemes. Options may be granted at a discount to the market price at the date of grant. The term of options granted could be from three to seven years and any option is conditional on a commitment by the individual to make regular savings from pay that are then held by an independent organisation to purchase shares at the end of the option period. The exercise of options under these schemes can be satisfied by the issue of new shares or the transfer of existing shares.

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## Social, environmental and ethical performance

Exercising sound corporate responsibility is fundamental to the way BOC operates. The Group aims always to behave ethically and to manage risk strategically. It has a process for identifying, evaluating and managing all risks in accordance with best practice.

This section outlines the Group's systems for managing its social, environmental and ethical (SEE) risks and opportunities - in line with guidelines set out by the Global Reporting Initiative, the Association of British Insurers, the UK's Combined Code on Corporate Governance and the provisions of the US Sarbanes-Oxley Act 2002 as it applies to foreign private issuers. More details about BOC's risks and corporate responsibility performance can be found in the sections on risk factors on pages 38 and 39 and on the company's website, boc.com.

The Group works actively with its stakeholders - shareholders, customers, suppliers, employees, local communities and governments. Underlining the Group's adherence to best practice, BOC engages with a wide variety of employee, safety, environmental and community bodies.

BOC is a signatory to the UN Global Compact. All Global Compact principles are integrated into BOC's Code of Conduct and, in many areas, BOC's existing standards exceed those set out in the Global Compact. In 2005, BOC submitted its communication on progress to the Global Compact Office, according to official guidelines. BOC continues to review and adapt its business practices to achieve the Group's SEE objectives and activities.

### Executive responsibility

BOC has an integrated approach to SEE risks, managing them in the same way as all other business considerations through business unit and Group risk management programmes. These processes are applied to major business decisions such as acquisitions, disposals, new ventures and major supplier contracts. BOC's business dealings are guided by a global Code of Conduct. The code sets out the safety, environmental, social, legal and ethical parameters that Group businesses and employees are expected to follow. The code is the responsibility of the executive management board (EMB), whilst BOC's businesses are responsible for day-to-day implementation.

EMB members are responsible for each of the code's standards, supported by the appropriate business and functional structures. The Group chief executive has ultimate responsibility for the code programme. He delegates oversight to an EMB sponsor board and day-to-day management to a code advisory group. The code advisory group is chaired by the general counsel, global compliance.

Safety, health and environmental management systems are the responsibility of the Group chief executive and are implemented by business managers, supported by the Group director for safety, health, environment and quality (SHEQ). Workplace issues, including labour relations, diversity, equal opportunities and human rights, are managed by the Group director, human resources (HR). Market issues, including customer relations and ethical trading practices, are managed by the line of business chief executives. The director of supply management oversees BOC's supply chain and ethical purchasing policy and reports to the Group chief executive. The Group director, corporate relations, manages community relations, including sponsorships and charitable support.

The EMB regularly reviews Group systems for managing risks and opportunities, including business assurance audits, legal, SHEQ and HR reviews, appropriate training and communications, and performance management and remuneration incentives through the Group's performance contract process. Directors are provided with appropriate SEE training and communications. For example, they are given regular safety briefings and Code of Conduct progress reviews. Training on defensive driving and other SHEQ priorities is provided. The EMB sets a strategic direction with regard to all business issues, including SEE matters. Business units implement and develop the EMB's strategy through their own management teams.

Safety and other SEE measures, as required, are included in performance contracts. Part of the remuneration of business unit managers and their teams is dependent on achieving these measures.

### The Code of Conduct

Launched two years ago, the Code of Conduct embodies BOC's commitment to integrity and responsible business practice. This year, steps were taken to reinforce the effectiveness of the code and to build it into the way that BOC does business.

The code advisory group met twice during the year. The role of the group is to establish globally consistent ethical and legal standards, to support the business in owning and upholding these standards and to respond to issues that may require BOC to adopt a new or revised position within the Code. Chaired by the general counsel, global compliance, the council comprises

representatives from each line of business and Gist.

A robust central tracking system was introduced to capture allegations from all the businesses and channel them to the global compliance function. The system not only records allegations that are subsequently substantiated, but also allegations that ultimately prove unfounded but that warranted further investigation.

BOC's network of sustainability managers is responsible for championing the Code within the businesses. Guidelines on communications and training were issued and each business unit head is required to report on progress within the quarterly performance contract review.

The Code, available in ten different languages, can be accessed via boc.com, the intranet, CD or paper copy. It is linked to a number of other systems, notably the Group's integrated management systems and standards (IMSS). BOC operates a confidential 24 hours a day/seven days a week helpline in 49 countries, supported by helpline promotional material in the form of posters, wallet cards and a screensaver. In 2005, the Group introduced a quarterly Code report, distributed to senior management for onward cascade to all employees, giving a round up of news, recent violations, statistics and lessons relating to the Code.

Code sustainability issues are reported to the EMB and appropriate managers on a monthly basis. In 2005, the helpline received 155 allegation cases from around the world. 19 per cent resulted in disciplinary action and 57 per cent were found to be unsubstantiated or non-violations. The remaining cases are still being investigated.

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[Back to Contents](#)**BOC's global management system (IMSS)**

IMSS (integrated management systems and standards) is a system developed by BOC. It has three distinct parts: the IMSS Library, Traccess and Audit Manager. The IMSS Library houses electronic copies of BOC's reference material, work instructions, operating procedures and management systems and standards. Traccess is BOC's online training and competency tracking system, storing individual learning profiles and employee training histories. Audit Manager houses all stages of the audit cycle and verifies site performance and compliance against best practice and minimum standards defined in the IMSS Library. IMSS documents Group knowledge from high level policies to detailed work instructions, enabling all employees to be trained and assessed in the skills required by their roles. IMSS outlines the correct protocols and minimum standards, and tracks the performance of actions needed to ensure the safe, environmentally sound and efficient management of BOC businesses worldwide. IMSS and the Code of Conduct are mutually supportive.

**Stakeholders**

BOC's Code of Conduct is segmented into key stakeholder groups, each of which is addressed by specific code standards and management structures and procedures. Details are posted under the corporate responsibility section of boc.com. For example, BOC works with its suppliers through a supplier evaluation, selection and performance appraisal (SESPA) system, which assures minimum standards of supplier performance, quality assurance and legal, ethical, social and environmental compliance. BOC's ethical purchasing policy, an integral part of SESPA, is managed by the Group supply management function, underpinned by the Code of Conduct and supported by IMSS and a number of other web-based platforms. Suppliers are segmented according to a combination of two matrices: supplier risk profile and product risk profile. The highest risk category requires the ethical purchasing policy to be included in the supplier's signed contract with BOC, with BOC reserving the right to terminate the contract in the event of a breach. Any employee can raise concerns about supplier ethics via the Code of Conduct helpline and data is captured and reported as a specific category.

**Identifying and prioritising SEE risks**

In 2004 BOC introduced a formal process to identify and manage its SEE risks and to identify potential opportunities. EMB directors, business unit heads and other key managers around the world submitted potential SEE risks which were consolidated by the Group risk management function and rated using predetermined scoring criteria. Each risk was rated according to its potential impact, the adequacy of plans to mitigate the risk, and its urgency.

The broad areas identified by the SEE risk and mitigation process are: managing the safety of people associated with BOC; managing major operational hazards; minimisation of greenhouse gas emissions; energy efficiency; water conservation; global adherence to and the effective working of the Code of Conduct; managing an ethical supply chain; and continuing enhancement of product stewardship procedures.

The Group's SEE review found that management systems and mitigations already exist for identified risks, but in some minor instances enhanced measures have been, or are being, put in place. One example is a screening process to ensure that customers have the capability to handle hazardous products safely. Piloted this year in the UK for the packaged chemicals business, the process will be rolled out to the wider Industrial and Special Products business in 2006.

**Corporate social investment strategy**

BOC strives to be a good corporate citizen by: operating safely and minimising the environmental impact of its activities; enhancing the wellbeing of local economies through employment on the bases of diversity, equal opportunity and merit, and; fostering strong community relations.

BOC is committed to all the communities in which it operates, wherever they are in the world, and its contribution takes on a number of forms. At the Group level BOC supports a variety of programmes broadly aligned with the nature of the business. Key themes are the environment, education, medical research and the arts.

At the local level BOC encourages a range of volunteering, donation and sponsorship programmes, guided from the centre but ultimately decided and implemented at country, business unit and site levels. The choice of charitable donations is devolved through matched giving schemes.

**Managing corporate responsibility performance**

This year the Group continued to participate in the UK's Business in the Community (BiTC) corporate responsibility (CR) index. The index assesses companies' performance against a wide range of environmental, social and ethical measures. BOC has participated

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in the index's sister survey, the Business in the Environment (BiE) index, since 1995. BOC scored 89 per cent in BiTC's CR index, ranking it 39th out of 144 participating companies, including 57 from the FTSE100. The average score among participants from BOC's comparator group was 88 per cent. Completing the index demonstrates the Group's commitment to managing, measuring and reporting its corporate responsibility performance in an open and transparent way. BOC's completed survey and BiTC's independent assessment of the Group's performance are published on boc.com. The BiTC index is the Group's common measure and standard response to corporate responsibility and SEE enquiries.

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Social, environmental and ethical performance

**Safety, health and the environment**

There are no greater priorities for BOC than the health and safety of our employees, contractors, suppliers, customers and local communities, and the protection of the environment. BOC is committed to excellence in managing these areas through normal business practice assisted by its safety, health, environment and quality (SHEQ) function.

SHEQ policies and procedures are the responsibility of the Group chief executive and are implemented by BOC's businesses with the support of the SHEQ function. The SHEQ department works within the businesses to ensure that the Group has a deliverable policy, is active in its risk management and professional in its mitigation.

BOC has well-established programmes to drive improvement in SHEQ performance. Employees are required to comply with all external regulations and the Group's policies and Code of Conduct. Suppliers are expected to meet minimum standards set by BOC's ethical purchasing policy.

SHEQ management standards, procedures and tools are embedded in Group practice by the organisation's integrated management systems and standards (see IMSS section above). IMSS outlines the standards and actions needed to align with, or conform to, internationally accredited certifications such as ISO 9000 (quality assurance), ISO 14001 (environment) and ISO 18001 (health and safety).

BOC met its objectives in 2005 when the Group:

- Retained safety, health and environment as the top priority at EMB level;
- Retained SHEQ at the forefront of Group and business unit employee communications;
- Sustained emphasis on behavioural safety through the Safety in BOC programme;
- Improved safety and environmental performance against 2004 figures;
- Transitioned to using proactive measures (leading indicators), in addition to the traditionally reported lagging indicators, to measure SHEQ performance;
- Took positive measures to improve road transport safety;
- Continued to conduct its annual environment survey to highlight opportunities for continuous improvement;
- Set initial environmental targets for 2006 and beyond.

Along with the Code of Conduct and the Group's ACTS operating principles, the Safety in BOC programme ensures that SHEQ issues are managed consistently across all countries and businesses, in accordance with our SHEQ policies and principles.

**Overall safety performance**

	2004	2005
Lost workday case rate	0.41	<b>0.37</b>
Total recordable case rate	1.18	<b>1.09</b>
Passenger car avoidable accident rate	2.12	<b>1.81</b>
Truck avoidable accident rate	2.38	<b>2.20</b>

**Safety**

Safety is BOC's highest priority and the Group has one simple goal: zero incidents and injuries. Safety is the first agenda item at every EMB and business executive meeting. Great emphasis is put on providing all our employees with the necessary training,

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equipment and safeguards such that no-one gets hurt. Business managers around the world, with SHEQ support, continually strive to improve safety performance and, through our Safety in BOC programme, are now focusing on individuals' behaviour and the effect that safe and unsafe behaviour has on the organisation.

Each business unit has a SHEQ function, reporting to the business unit's executive and the Group SHEQ function through a global peer group. This ensures that global best practice and the functional requirements of the business and Group are always at the forefront of management thinking.

BOC manufactures and distributes products that are potentially hazardous, some being stored at very low temperature or under pressure, and some having toxic or flammable properties. Consequently, the Group is committed to reducing the risk of harm to people through its products. Operating safely and communicating safe working practices are an integral part of its safety and product stewardship processes.

It is important for the Group not only to have clear and measurable performance standards practised by all BOC employees, plants, depots and distributors, but also to disseminate these safe working practices to our customers and suppliers. IMSS contains product safety and stewardship instructions, policies and procedures. Each product line has specific standards attached to it. BOC undertakes research into the health and safety of its products, keeps abreast of new scientific information and works with industry and public bodies to reduce risk and share learning. This year BOC launched an online safety advice service, [bocsafety.net](http://bocsafety.net), to help customers identify risks and unsafe practices and adopt guidance on best practice to comply with the law.

BOC continuously strives to improve safety in the workplace and combat the root causes of safety incidents. In 2005 BOC Edwards, which manufactures hazardous gases for use in processing semiconductors, was recognised for its safety performance. In South Africa, BOC Edwards received two NOSA safety awards for occupational risk management procedures at the nitrogen trifluoride plant in Pelindaba. In the US, BOC Edwards' special gases plant at Medford, Oregon, was awarded the OSHA Voluntary Protection Programs' Star Program' status for self-sufficiency in their ability to control workplace hazards. EMC, BOC's US-based water management business, won several Water Environment Association awards. EMC's water treatment plant at Ligonier, Indiana, won the prestigious Water Environment Federation's Burke Award.

Regrettably, three Group employees died in work related activities in 2005. Two employees tragically died in road incidents, one in the UK and one in the US, both of which involved third parties. These incidents reinforce our commitment to remain focused on transport safety during 2006. Another employee was killed in Taiwan, by falling from a height at a customer location. In addition, BOC experienced six contractor fatalities during the period.

The Group chief executive, SHEQ director and business unit managers review every fatality and major incident personally. Investigations are only closed when the chief executive is fully satisfied that the root causes of the incident are understood and action has been taken to prevent future recurrences.

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1. 2003, 2004 and 2005 safety statistics include mergers, acquisitions and all joint ventures. Previous years have not been restated. Controlling process-related risks is of the utmost importance. Any incidents that do occur are thoroughly investigated and the lessons learned are applied throughout the organisation to minimise the likelihood of recurrence. Safety lessons are shared throughout the gases industry and BOC continues to participate fully in the development and application of industry-wide codes.

This year the Group built on the vision, policy and strategy put in place last year when it launched its Safety in BOC programme. Safety in BOC, which complements and builds upon existing safety systems, standards and tools, aims to prevent people getting hurt by effecting lasting behavioural and cultural change. It is underpinned by the principle that safety is not a small part of someone's job, it is 100 per cent of our behaviour, 100 per cent of the time. The aim is to establish a culture whereby each employee thinks instinctively not just about his own safety, but also about the safety of others, be they colleagues, contractors or members of the community.

The roadmap is the key tool that supports Safety in BOC. It shows the organisation where it is and how it can move from its current base to world class through a series of well-defined steps and markers. It is a gap analysis tool that enables a particular department, site or business to assess itself in terms of safety performance, plot year by year progress on each of the nineteen roadmap components and develop a plan to progress to world class. During 2005, the roadmap has been formally integrated into safety implementation plans within each of the businesses, which are in turn included in business planning processes and individual performance contracts.

The focus on leading indicators continued in 2005, allowing the Group to monitor safety performance in terms of proactive measures being taken as well as lagging indicators measuring past performance. In conjunction with the roadmap, a series of practical steps were taken during 2005 to help embed safe behaviour and the desired safety culture. BOC's business units in Asia and Africa rolled out SiteSafe, a focused approach for implementing the systems, standards and behaviours inherent in Safety in BOC. SiteSafe included various modules such as LeadSafe workshops to promote visible leadership among management and ActSafe, a series of safety through empowerment seminars encouraging supervisors and front line employees to recognise unsafe acts and challenge them through peer-to-peer conversations. During 2006 other business units will use SiteSafe to cascade and further embed the Safety in BOC principles into the organisation. At a local level, every BOC business unit throughout the world actively engaged employees through sustained communications, cascade briefings and training programmes.

Approximately half the major incidents across the Group result from road transport, which is also the main cause of fatalities. Driver training has always been a high priority at BOC, both for commercial vehicles and passenger cars. Initiatives include defensive driver training, driver observation and feedback, vehicle design, use of on-board monitoring technology and anti-rollover and jack-knife training. Last year, the Group appointed a director of Group transport safety to collaborate with regional counterparts and develop a consistent global strategy for improving road safety throughout BOC.

In 2005, this appointment has started to deliver new processes and tools to share best operating practice and achieve sustainable improvements in road transport safety. For example, a new transport audit protocol was piloted in Asia and a new driver-training model will be ready for implementation in the first quarter of 2006. A common vehicle incident reporting process was established to aid learning, while a global transport team of experts met twice in 2005 to prioritise initiatives to prevent fatalities or serious injuries.

Building on the Group's total ban on making and receiving calls from mobile phones while driving, a major campaign was launched to promote transport safety and reinforce the wearing of seatbelts. This campaign was supported by a global transport directive to apply a minimum set of safety standards to all fleet and contractor vehicles throughout the Group, including a requirement to fit three-point seat belts rather than lap belts where the latter existed. At Gist, safety rails were introduced for the protection of drivers when coupling tractors to trailers and stability systems were installed on all high-sided double-decker trailers to reduce the risk of rollover.

In addition to the leading indicators previously mentioned, used to monitor safety performance proactively, the Group also has four reactive, or lagging, indicators to provide a consistent measure of its workplace and vehicle safety performance. These are: lost workday case rate (LWCR) per 200,000 hours. This includes all accidents resulting in the loss of one complete day of work, according to best international practice. Many companies only report cases resulting in three or more lost workdays as deemed reportable under RIDDOR regulations;

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total recordable case rate (TRCR) per 200,000 hours. This includes all LWCRs and medical treatment cases;  
passenger car avoidable accident rate (PCAAR) per million miles;  
truck avoidable accident rate (TAAR) per million miles.

The figures for 2005, which include joint ventures and acquisitions, showed an improvement across all four lagging indicators. The disposal of Afrox Healthcare in 2005 marked a major change in BOC's portfolio, as the business employed over 13,000 people representing around 30 per cent of the total workforce. BOC's lagging indicators are shown with and without Afrox Healthcare, giving a basis for future comparison. The chart excluding Afrox Healthcare gives a clearer indication of underlying improvement, with a 20 per cent improvement in both lost workday and total recordable case rates since the launch of the Safety in BOC programme two years ago.

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[Back to Contents](#)**Occupational health and hygiene**

BOC requires its businesses to manage employee health activities in accordance with local laws and regulations and according to BOC's codes of practice, standards and procedures. The Group's occupational health and hygiene (OH) function provides a global service striving to eradicate work-related health hazards and to ensure that employees can come to work and carry out their duties safely.

Employees have access to guidance on OH from health professionals and qualified safety, health, environment and quality (SHEQ) managers. This is supported by a range of up-to-date training programmes, manuals, videos and safety data sheets, which are available through local and global SHEQ functions and on dedicated SHEQ intranet sites.

The OH function carries out reviews in all business units to provide information and guidance on the main health issues that exist in BOC operations globally and how best these potential hazards may be minimised or eliminated. This is achieved by providing best practice standards and guidance to local SHEQ personnel who then implement these standards and policies as necessary. Adverse employee health effects are monitored through local occupational health checks around the world. Some are internal and others are outsourced to professional OH providers. In some regions, Well-person health checks are available for employees and specific tests are done for employees engaged in hazardous activities. These vary according to risk and requirements.

The main potential health issues that exist in BOC operations differ across business units. When dealing with our gases businesses, the main potential health issues are:

- exposure to noise from gas compression activities and from cylinder handling;
- potential exposure to some gases filled into cylinders;
- potential exposure to chemicals used in metal cleaning and painting operations;
- ergonomic and manual handling risks.

As reported last year, the OH programmes developed to deal with these issues continue to be applied across the Group. Other continued work has been the ongoing programme to reduce some of the hazardous solvents used for metal cleaning and possible substitution of those used in paints with safer and more environmentally friendly alternatives.

Of particular significance this year is the high percentage of lost workday and medical treatment cases as a direct result of manual handling, culminating in short-term acute injury and chronic conditions such as back, hand, arm or shoulder conditions. In the Industrial and Special Products business, attention to these activities is a high priority with major effort being applied to risk assessment processes and the implementation of best practice solutions to minimise identified risks. The principle of best practice has also been applied to new plants, such as the new cylinder filling facility in Bangalore, India, which was designed to minimise manual handling of cylinders as much as possible and hence reduce the potential risk of injury among employees.

Work has also been done to gather and analyse information relating to employee health issues, with a view to counteracting the costs of ill health and enabling actions to be established in the priority areas. There is also recognition that even if ill health is not related to the job, there can still be a benefit to the employee and the business in facilitating early recovery and return to work. In the south Pacific region, a scheme has been devised to speed up the diagnosis and treatment of employees suffering from injury or ill health, therefore bringing rehabilitation forward. This process, coupled with pro-active preventative programmes, has the added benefit of reducing employee liability insurance costs, in real terms, such that they are significantly less than industry benchmarks. The principles of this injury management scheme are being examined with a view to globalisation.

**The environment**

BOC is classified as part of the chemicals sector, but does not have the same direct or significant environmental issues to deal with as traditional chemicals manufacturers. The nature of BOC's activities and the type of chemicals handled are quite different. However, in line with other industries, BOC is committed to sound environmental practices including the conscientious stewardship of its products and services. Across the businesses, BOC's most significant environmental impacts fall into four main areas. These are:

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Energy consumption: Process Gas Solutions is a major consumer of electricity, used to power air separation units. The generation of electricity directly contributes to carbon dioxide emissions.

Vehicle transport: BOC's gases businesses operate large fleets of vehicles worldwide for delivering gas to customer sites, contributing principally to carbon dioxide emissions. Gist operates a logistics network in Europe.

Ozone depleting potential (ODP) substance release: cryogenic air separation techniques require air to be cooled to achieve liquefaction. This requires refrigeration, which has traditionally used refrigerant gases that have ozone depleting potential.

Non-hazardous and hazardous waste: this covers a range of categories and varies across business units. For example, one of the main forms of waste from Process Gas Solutions is oil used in compressors. In Industrial and Special Products, waste comprises packaging materials, metals, acids and alkalines used for abatement purposes in the production of special gases, solvents from painting cylinders and waste related to transport such as oil and batteries from vehicles. BOC Edwards hazardous waste includes chemicals used in component cleaning and toxic residue from vacuum components replaced during servicing. In Gist, the main waste is packaging materials such as paper, card and plastics.

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The Group continues to work actively with its stakeholders to ensure that environmental issues are approached responsibly. BOC is a signatory to the UN Global Compact and abides by its environment principles. In the US and Australia BOC supports the chemical industry's Responsible Care programme. BOC participates in Business in the Community's Environment Index and this year scored 88.86 per cent, ranking it 48th out of 168 participating companies and number one in the chemicals sector.

BOC aims to comply fully with all material environmental laws and regulations. No prosecutions for breaches of environmental regulations were incurred in 2005.

Management of environmental issues that are relevant to the Group's businesses is overseen by the safety, health, environment and quality (SHEQ) department and implemented through a worldwide environmental management system. This includes operating instructions, training, performance tracking and auditing. The sharing of best practice is achieved through the Group's integrated management systems and standards (IMSS).

BOC has operated a comprehensive environmental survey of its sites for more than ten years. The annual web-based survey, which covers approximately 550 sites around the world, highlights issues relevant to the businesses and identifies opportunities for the development and sharing of best environmental practice. The results are reviewed by the executive management board, business unit management teams and the Group SHEQ director. Annual environment action plans are integrated into business unit management processes and included in business and individual performance contracts.

Many BOC business units have programmes to achieve ISO 14001 environmental certification. Our welding product consumables business in Germiston, South Africa, and our special gases site at Morden, UK, both achieved ISO 14001 certification this year. Thirty key industrial sites around the world are now accredited. However, all BOC sites operate in accordance with ISO standards even if not specifically accredited, because IMSS, containing the Group's global operating systems and standards, is aligned to ISO 14001.

Selecting the right supplier for BOC is fundamental to conducting business effectively and ethically. Throughout its businesses, BOC has adopted its proprietary supplier evaluation, selection and performance appraisal (SESPA) process, together with an ethical purchasing policy stating that suppliers must place a high regard on safety and adhere to local legislation concerning pollution.

This year BOC appointed a manager to identify, develop, share and support the implementation of environmental best practice. The benefits will include improvements in cost-efficiency and productivity, as well as a reduction in emissions, waste and water consumption.

It is now widely recognised that carbon dioxide (CO<sub>2</sub>), released into the atmosphere by burning fossil fuels for heat and power, is the main greenhouse gas that has an impact on climate change. BOC's climate impact comes from intensive use in air separation units (ASUs) of electric power, which is still generated largely from coal-based technologies. Improving energy efficiency is a high priority at BOC. Reductions in energy consumption benefit everyone in terms of lower CO<sub>2</sub> emissions, lower production and purchase costs and lower product prices.

BOC manages the purchase and use of power extremely carefully. Its ASUs are run at optimal efficiency levels required to meet regulatory and competitive requirements. Long-established efficiency programmes anticipate power price movements wherever possible. To assure the highest levels of efficiency, state-of-the-art operating centres in each global region control BOC's production plants. Over the last four years, for example, Process Gas Solutions has undertaken more than one thousand plant and distribution efficiency projects, delivering significant annual savings. Managing climate change issues effectively and responsibly is a matter of business and environmental necessity for the Group.

Carbon dioxide equivalent emissions from BOC production plants this year are estimated to be 7.9 million tonnes (2004: 7.5 million tonnes); 7.4 million tonnes relate to emissions from using electricity and 480,000 tonnes as a by-product of producing hydrogen by steam methane reforming. The hydrogen-related emissions are reported for the first time this year. BOC's electricity consumption for its production plants was approximately 11.9 Terawatt hours (2004: 11.8 Terawatt hours). The two gases businesses, Process Gas Solutions and Industrial and Special Products, account for 99 per cent of these emissions and in 2005 they produced 2,442 tonnes (2004: 2,521 tonnes(1)) of carbon dioxide equivalents from electricity usage for each £1 million of turnover.

BOC's methodology for emission estimation and addressing emission factors<sup>(2)</sup> has been independently assessed and

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confirmed to be appropriate. The Group uses energy data to help improve its energy efficiency with resultant improvements in carbon dioxide emissions.

During 2005 BOC undertook a number of pilot projects, with the assistance of the Carbon Trust, to improve energy efficiency at several UK sites. For example at BOC Edwards Burgess Hill manufacturing facility a site energy assessment identified potentially 340 tonnes of CO<sub>2</sub> equivalent savings and at ISP's Worsley site a similar survey identified 420 tonnes of CO<sub>2</sub> savings. These results will be used to develop best practice in energy management next year.

1. Adjusted for the US packaged gas business divested in 2004.
  2. The methodology is consistent with all major mobile and point sources of carbon dioxide emissions within scope 1 of the Greenhouse Gas Protocol (World Business Council for Sustainable Development and the World Resources Institute, March 2004), all major sources of carbon dioxide emissions under scope 2 of the protocol and major mobile sources of emissions under scope 3 of the protocol. The figure does not include non-carbon dioxide global warming gases (N<sub>2</sub>O, SF<sub>6</sub>, CH<sub>4</sub>, PFCs and HFCs) or minor sources such as business travel, office electricity at small sites and decomposition of wastes and carbon dioxide emissions associated with heat and/or steam imported to BOC plants.
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Ozone depleting potential (ODP) substance release has decreased this year by 38 per cent. In 2004, two plants were responsible for 60 per cent of total ODP substance release and in 2005 actions were taken to remedy the situation at these plants. For other plants annual refrigerant consumption and loss targets were set. In Process Gas Solutions a project was undertaken to reduce ODP substance release from the refrigeration system at a nitrogen liquefaction unit. Cleaning technology developed by Hudson Technologies resulted in a significant reduction in ODP substance loss and the saving of 3,000 tonnes per year CO<sub>2</sub> equivalent.

BOC's Industrial and Special Products business supplies a range of refrigerant gases and is phasing out those with ozone depleting potential, according to the requirements of the Montreal protocol. BOC Edwards supplies special gases for the semiconductor manufacturing process, which can result in ozone depleting emissions at the end of the process. BOC Edwards has developed a wide range of abatement systems for rendering these emissions harmless. One example is the Zenith Etch Plasma, an integrated vacuum pump and abatement system. The product assists in achieving the World Semiconductor Council's target for perfluorocarbon (PFC) emissions and is closely aligned to the energy reduction philosophy of the International Technology Roadmap for Semiconductors (ITRS). It delivers high performance PFC destruction with total power consumption of less than 10 kW, less than a quarter that of conventional systems performing the same function, making it the most energy efficient system of its kind on the market.

Hazardous waste and general waste performance improved in 2005 as a result of site based programmes focused on waste minimisation.

The transport of product by road also has a potentially significant environmental impact. BOC operates its vehicle fleet to the highest environmental standards. Emissions of carbon dioxide equivalents from our transport operations are approximately 552,000 tonnes of carbon dioxide equivalents(3).

Process Gas Solutions has put in place a global reporting card and network to focus on transport efficiency and delivery for its tanker distribution network. The tool analyses vehicle utilisation metrics and delivery statistics. Reports highlight trends and thus help improve transport efficiency, reduce mileage, and thereby reduce emissions. BOC Edwards has also been working on a supply chain management project to replace air freight with sea freight through improved planning of inventory and supply needs.

BOC's distribution services business, Gist, undertook an efficiency programme in support of key customer Marks & Spencer's transport strategy. By synchronising volume more closely to store needs and implementing a new planning process, efficiency was improved by 11 per cent and delivery schedules reduced by 2.8 million miles. Gist and Marks & Spencer, working together, also introduced command steer trailers, drawbar Simply Foods vehicles and double decker trailers to reduce trips and therefore mileage. Road speed was limited to 53 mph to save fuel and automated gearboxes were fitted to the transport fleet, resulting in an estimated average saving of 0.3 mpg per vehicle. In addition, quiet packs were fitted to a number of fridge trailers to reduce noise emissions at stores.

In the past three years much work has been done to improve environmental performance and to establish the business processes and metrics that will permit the publishing of pre-set performance targets. Every BOC business has internal efficiency targets that have environmental benefits. Some relate to structural changes in the businesses which, when in place, will improve the monitoring of performance patterns and enable the development of longer-term targets.

Process Gas Solutions, which manages the Group's air separation units and thus accounts for the majority of energy usage, will:

- Implement 59 power saving projects in 2006, which will reduce electricity usage by 83,000 MWh, saving the equivalent of 54,000 tonnes of carbon dioxide emissions.
- Reduce the release of ozone depleting potential materials by at least 40 per cent by 2009.

Industrial and Special Products, which has BOC's largest distribution fleet worldwide, will:

- Establish single customer delivery vehicle scheduling centres in the UK, South Africa and south Pacific in 2006 from a current total of 22 scheduling centres. Centralised scheduling will lead to improvements in the efficiency of the fleet. As part of the programme, cab computers will be installed to give real time feedback on scheduling and the automatic capture of key performance data, such as kilometres driven for each cylinder delivered and litres of fuel consumed for each 100 kilometres driven.
- Review vehicle replacement policy and commit funds in 2006 to replace old vehicles across all business units. For instance, the average vehicle age in South Africa has fallen from 9.4 years in 2003 to 6.8 years currently. The target is an average age of 6 years.

BOC will continue setting internal targets through business unit performance contracts at site level where individual improvement opportunities have been highlighted by audits, the annual environmental survey and identification of best practice. These targets

include opportunities to reduce waste, conserve water and improve process efficiency.

3. First year of reporting.

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Product stewardship programmes minimise the environmental impact arising from the manufacture of BOC's products and their ensuing use by customers. Growing concern about the environment and climate change has led to increased legislation, which presents BOC with potential business opportunities, such as:

- BOC has formed a partnership with the Morgan Motor Company to develop LIFECar, the world's first hydrogen powered sports car. The hydrogen fuel cell produces electric energy, powering four separate electric motors, one at each wheel. The only waste product is water.
- BOC has signed a ten-year agreement with Biofuels Corporation in the UK to supply nitrogen and compressed air used in the production of environmentally friendly biodiesel.
- BOC and Dabbrook Services have combined solar power and hydrogen fuel cell technologies to develop an eco-friendly water management system for the Environment Agency in the UK.
- BOC has signed several contracts in the US to supply oil refineries with hydrogen for producing cleaner fuels. Hydrotreating meets the US Environment Agency's requirements for lower-sulphur gasoline and diesel fuels.
- BOC and Cellex Power Products, Canada, are jointly developing hydrogen supply solutions to power forklift trucks used in large distribution warehouses in north America.
- BOC and the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO) have developed an environmentally safe fumigant to replace methyl bromide in the treatment of soil, pests, weeds and crop diseases.
- BOC is helping to cut the rate of ozone depleting emissions across the building sector with the introduction Ecomate®, an environmentally friendly foam blowing agent.

#### **Commitment to the environment**

The UK-based BOC Foundation for the Environment, established with an initial injection of £1 million in 1990, continues to fund air and water quality projects. New and ongoing projects include: a review of roadside emissions testing; development of liquid petroleum gas clean fuel cell technology; a new oxidation technique for pharmaceutical toxic waste; an evaluation of photovoltaics for solar power; research into the impact of electrical and electronic hazardous waste; and a programme to develop low cost electrolyzers in support of the hydrogen economy.

This year, the Group contributed £385,000 to the Foundation and approved new awards totalling £674,000, bringing the total combined funding to date from BOC and its co-sponsoring partners to £15 million.

BOC joined forces with the North East Process Industry Cluster (NEPIC) to launch an environment award for schools in the north east of England. Pupils are invited to submit practical ideas on environmental issues ranging from recycling to preservation of air and water resources.

In other parts of the world, notable contributions were made to environmental initiatives in New Zealand and Australia. BOC's Where There's Water community environment grants programme in New Zealand, which has awarded 45 grants throughout the country since its inception three years ago, awarded £13,000 in grants, mainly to schools undertaking water conservation projects. In Australia, BOC donated ten hectares of land at its Wagga Wagga operations centre to Greenfleet, a non-profit organisation that reduces the environmental impact of carbon dioxide emissions by planting trees. BOC volunteers helped local schoolchildren to plant ten thousand trees on the site.

#### **Commitment to education**

BOC continues to support educational programmes in local communities through school tours, lessons in the properties of gases, health and safety briefings, careers advice, technical support and academic research.

BOC's Inspiring Gases education programme made further progress in terms of educational posters and CDs, in addition to development of the web site at [boc.com/education](http://boc.com/education). The programme, designed to complement the school chemistry syllabus and to stimulate young people's interest in science, is being run in co-operation with the Royal Society of Chemistry. This year, BOC's UK-wide network of science ambassadors staged a spectacular new show called It's a Gas. Staged at the Glasgow Science Centre to coincide with the 7th Institution of Chemical Engineers World Congress, the show demonstrated the properties and applications of gases with plenty of flashes, bangs and vapour clouds to appeal to young audiences. Its run was extended to the end of the school summer holidays because of its popularity.

Other educational activities in the UK included the BOC Gases Challenge, designed to encourage secondary school students to develop chemical engineering ideas and won in its 24th year by a team of pupils from Royal Russell School in Croydon. For the fifth year, BOC sponsored the Science, Engineering and Technology Student of the Year Awards, held at the Guildhall in London. The winner, a chemical engineering graduate undertaking a PhD, received £500 and £500 was also donated to Loughborough University for his work on the engineering of artificial blood for transfusions. BOC supports a range of education bodies and initiatives including: The Council for Industry and Higher Education; The Salters' Festival of Chemistry; The Institute of Chemical Engineers environment award; Surrey County Council's young entrepreneur scheme; Surrey Scholars Club; the Industrial Trust's Open Industry programme: SETPOINT and Surrey SATRO.



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### Commitment to medical research

BOC made an annual grant of £10,000 to the Association of Respiratory Nurse Specialists to aid the fight against chronic respiratory diseases in the UK. As part of its commitment to the NHS and the medical establishment as a whole, BOC leads or supports a number of research programmes, clinical trials and patient care opportunities, in addition to running clinical seminars on the use of medical gases for the relief of pain and respiratory problems. In 2005, BOC provided £400,000 to sponsor several studies on respiratory issues, lung cancer and chronic obstructive pulmonary disease (COPD), with a major study being conducted on bronchiolitis at St Mary's Hospital, Paddington. BOC also supports several clinical bodies, jointly founding the COPD consortium with the British Thoracic Society and others, and including the long-term sponsorship of the BOC chair of anaesthesia in the UK and the Hong Kong College of Anaesthesiologists. In addition, it supports various patient groups including the Patients Association in the UK.

### Commitment to the arts

The fourth BOC Emerging Artist Award, created to support promising young artists in the UK, was won by photographer Justin Coombes, a graduate of Goldsmiths College, University of London. The £20,000 award is designed to cover a year's studio rental and materials, a travel bursary and the costs of a London-based exhibition at the end of the award period. Five other artists were awarded £1,000 each as runners-up.

### Charitable donations and community involvement

Operating within broad guidelines set by the Group, BOC's local businesses are responsible for choosing and funding their own causes through discretionary volunteering, donations and sponsorships. This devolved approach has resulted in support for a rich variety of programmes that have an impact on BOC's people and the communities in which they work and live.

In 2005, BOC's global charitable donations totalled £2,032,000, including funding for the BOC Foundation for the Environment, educational programmes, medical research and the BOC Emerging Artist Award.

In the UK, BOC donated £350,000 to UK-registered charities through a matched giving scheme operated through the Charities Aid Foundation. In addition to the numerous causes supported by matched giving, BOC also supported a number of Group causes, including the Royal British Legion, Macmillan Cancer Relief, Limbless Association, Unravel Mills, Voluntary Services Surrey Heath and Royal Surrey County Hospital's St Luke's Cancer Fund. The Group's logistics business, Gist, donated £10,000 to schools and charities at the request of its staff after they won a competition organised by key customer Marks & Spencer. The money was divided between Kent Air Ambulance, Davington Primary School, Pilgrim's Hospice, Bysingwood Primary School and Faversham Cottage Hospital. BOC is a member of the PerCent Club.

In December 2004, the tsunami inflicted terrible devastation on several countries in the Indian Ocean region. BOC people and businesses in the area responded with help of all kinds – food, clothing, blankets, medicines and medical oxygen – as well as money. Across the world, BOC employees donated over £200,000 to help relieve this disaster. Their personal generosity was matched in every region by BOC (double matched in most cases), bringing the total raised for the tsunami victims to £570,000. One example of the enormous support from BOC employees around the world was BOC in Pakistan and Bangladesh, whose employees contributed one day's salary to provide relief to victims. Another example was twelve employees from BOC Edwards' manufacturing site in Shoreham, who raised over £20,000 by cycling up Mount Snowdon in Wales.

Through matched giving, BOC and its employees also contributed £125,000 to the American Red Cross in support of the hurricane Katrina relief effort and to a special fund to help afflicted BOC employees. BOC also made emergency deliveries of nitrogen to a bottling plant to speed up the distribution of drinking water to local communities around New Orleans.

In the UK, BOC Edwards sponsored Sussex Business Award's manufacturer of the year category for the second year running. BOC Edwards' sponsorship of the Seishin Judo Club in East Grinstead was matched by government body Sportsmatch and named runner-up in their annual awards ceremony. For the second year running, two drivers from Gist's Faversham site delivered a trailer of much needed furniture and aid to schools in Belarus. In July, BOC medical gas teams across the UK ensured that victims of the terrorist attacks in London got the supplies they needed, delivering 2,500 emergency cylinders to the capital.

In the US, employees continued to assist the United Way charitable appeal through financial donations, volunteering and collections of supplies for needy children. All financial donations were matched by the business. BOC sponsored the building of a home for a needy family in Ohio, through the Maumee Valley Habitat for Humanity initiative. A BOC leadership team spent a day helping to build the house in Toledo, where BOC is building a hydrogen plant to serve oil companies producing cleaner burning fuels.

In Chile, BOC supported several charities, notably those caring for and educating disadvantaged children. In Venezuela, BOC made regular donations to charities in Valencia in support of impoverished children, health and the environment. A donation was also made to the health corporation in the state of Aragua. BOC in Colombia supported the Noel children's hospital and Aburra Norte young community leaders.

In the south Pacific, the business matches employee donations as a matter of course. BOC in Australia launched the Rotary Youth Driver Awareness road safety programme, influencing attitudes and behaviour of young people before they start driving. The business continued its long-established relationship with the Malcolm Sargent Cancer Fund, now known as Redkite. Support includes volunteering and a scholarship programme whereby six young people with cancer receive financial support from BOC. BOC received an award from the New South Wales Cancer Council for its long-term support of Daffodil Day.

In South Africa, employees at BOC's subsidiary Afrox continued to support their community involvement programme (CIP), which helps over seventy institutions dealing with disadvantaged children. As in previous years, the main event of the year was Bumbanani Day (meaning 'let's build together'), when 8,000 children attended events hosted by BOC staff. The aim of the day is to celebrate the relationship that Afrox staff have built up with the children throughout the year and the achievements they have brought about through their involvement. In addition, the Afrox donations committee supplemented CIP funds on certain projects. For example, a delivery van was donated to Takalani, a home for disabled children, and four other CIP children's homes received additional financial support to help with upgrading and refurbishment. Gas and welding equipment were donated to a welding school in Richards Bay and to a skills development initiative in Johannesburg. Funds were also allocated to: build a home for destitute children in Postmasburg, a rural town in the Northern Cape; provide a borehole and water pump at a school in Limpopo Province; purchase desks, chairs and maths sets for two other schools in the same province; and support the University of South Africa's Mathematics Teachers Training Project.

Across Asia, employees supported a wide variety of charities and community organisations. Every BOC business unit in Asia donated generously to the tsunami appeal. In Malaysia, employees sponsored several programmes in support of local hospitals, underprivileged and handicapped children and old people's homes. In China, BOC provided scholarships to students in Xi'an Jiaotong University, which is the leading institution for cryogenic engineering in the country.

In India, in addition to supporting a number of poverty, disease and disaster relief funds, BOC employees donated gifts to several orphanages to commemorate the 70th year of BOC's presence in India. In Pakistan, BOC continued its support for organisations engaged in healthcare, social and literacy projects, as well as the conservation of national heritage. During the year, recipients of donations included: the Layton Rehmatulla Benevolent Trust, an organization dedicated to providing free eye care; Friends of APWA Pakistan, a voluntary organization committed to the development and care of the underprivileged women and children; the Mohatta Palace Museum that fosters awareness and appreciation of the history and cultural heritage; and the Aga Khan Medical Hospital and Foundation.

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## Research, development and information technology

### Research and development (R&D)

Research and development is conducted around the world with key sites located in north America, the UK and Japan. The Group Technical Centre (GTC) in Murray Hill, New Jersey, is a primary R&D location for market applications for Process Gas Solutions and for electronic materials for BOC Edwards. Co-ordination of R&D is managed through the Group technology council. The council also meets regularly with the Group new business development forum to ensure the opportunities and risks from technological change are understood and, where appropriate, exploited.

Process Gas Solutions undertakes internal development, forms alliances and partnerships with universities and customers, licenses or acquires technologies from third parties and leverages governmental funding to progress key developments. Internal developments use its core technical competencies while external partnerships give access to additional competencies.

In 2005 BOC successfully commissioned the cryogenic refrigeration system for the high temperature superconducting (HTS) cable project at Albany, New York. This 34.5 kV HTS cable will form part of the Niagara Mohawk utility grid. BOC was responsible for the cryogenic system, monitoring and interfacing with the cable system, working with the Niagara Mohawk utility company. The project drew on BOC's strengths in heat and mass transfer and its ability to manage remote operations infrastructures.

Additional licenses were signed during the year for BOC's proprietary glass melting technology, CGM, which is based on its combustion and modelling competencies. Major glass companies were willing to publicise their results and allow other glass companies to visit their installations. These companies include Owens-Corning, Pilkington, Anchor Glass and LG Philips, representing the fibreglass, flat glass, container glass and TV glass segments respectively.

BOC's knowledge of adsorption and materials has been applied to the continuing development of an oxygen generation process. Based on the selective oxygen sorption properties of specific ceramic materials it has the potential to reduce substantially the cost of oxygen for certain applications in future chemical and power plants. As part of a European Union funded project, BOC has identified promising new materials for use in oxy-fuel coal boiler-based power plants. Pilot demonstration of the process is being progressed with government funding in the US and the European Union.

BOC has excellent access to hydrogen/synthesis gas production technology through Linde BOC Process Plants. In addition, BOC continues to develop novel ceramic-based technologies that offer potential step change improvements for the production of hydrogen and synthesis gas.

BOC is working with Ceres Power of the UK jointly to develop fuel cell-based systems for generating electricity, using a variety of cylinder gases. BOC developed and commercialised a helium conservation system for the optical fibre manufacturing industry and licensed the technology to Fibre Ottiche Sud, a division of Pirelli. This technology improves overall efficiency substantially and reduces helium wastage.

Based on its combustion and modelling competencies, BOC successfully commercialised a new way to enhance the productivity of steel from basic oxygen furnaces and reached commercial agreements for licensing the technology to leading steel producers.

BOC's heat and mass transfer experience enabled it to develop and commercialise a food freezing technology to crust-freeze luncheon meat logs prior to slicing, allowing customers to increase the speed of their production lines and overall product yield. It also eliminates product handling, increases the efficiency of cryogenic freezing and makes more efficient use of floor space.

For BOC Edwards, the pace of innovation in the silicon semiconductor market is unabated with leading edge customers following a two year technology cycle. In the storage market the pace is even more rapid with storage capacity doubling every year. Fab investments have generally been at or below those in 2004 with the exception of the flat panel area where investments have been higher than predicted.

Emphasis in product development has been on reducing new products' demand for power and utilities. Monitoring and control capability helps create products with these capabilities, including active utility control. A sensor-less turbomolecular pump with an integrated controller, which was introduced this year, is smaller, easier to install, yet has better performance with lower vibration.

Energy and environmental concerns drive new abatement technology. The Zenith Plasma for Etch gives excellent destruction and low cost of ownership for customers that prefer non-combustion abatement technology. Liquid abatement systems for copper can be installed at points of use or throughout a production facility.

In the general vacuum business, new products for the scientific sector offer cost-reduction and enhanced performance. Lower-cost web-enabled sales channels have been introduced for our broad customer base.

The pharmaceutical business supplied its first systems containing a patented non-contact weighing system. The application, which uses nuclear magnetic resonance technology, has received approval from the US Food and Drug Administration and is

incorporated in several new vial loading products.

Industrial and Special Products installed prototypes of a new thermodynamic cylinder filling package at two sites handling scientific and industrial gases. Thermodynamic modelling gives real time control and compensates for raw material impurities and other system variations, resulting in tighter mixture tolerances and better production efficiency.

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Among areas of development undertaken by the industrial products technology group are oxy-fuel cutting, the cryogenic cooling of welds, pipeline welding and shielding gas mixtures. The cold spray coating process that uses helium or nitrogen is being used in a number of new applications and has been accompanied by the successful introduction of a new helium recovery system. The design and development of new cylinder packages continues, concentrating on valves with integrated regulators and valve guards. A web-based global fabrication technical library was launched, designed to support technical and product training initiatives.

The medical business continues to research the clinical application of a variety of gases, including heliox (a mixture of oxygen and helium) that has demonstrated promising results in a number of areas, including asthma and bronchiolitis in infants and chronic obstructive pulmonary disease in adults. The BOC Chair of Anaesthesia and Intensive Care has been awarded to Professor David Menon of Cambridge University.

In special products, work continues on a new environmentally friendly fumigant, Vapormate, which has achieved product registration in Australia and New Zealand.

Total R&D expenditure in 2005 was £43.2 million compared to £41.6 million in 2004 and £39.9 million in 2003.

### **Information management**

The information management (IM) team reports its performance against four criteria: delivering innovation, creating value, enabling the business and operating efficiently. It also has measures for developing its people and for its safety performance. All users are surveyed regularly to ensure IM's performance matches their needs. As well as reporting regularly on its short-term performance, IM this year updated and had approved its five year strategy.

Development work continues in areas as diverse as wireless technologies, network access, telephony, and knowledge and document management. The SAP computing system has been deployed further, notably to BOC Edwards in north America and more countries in Asia, and deployment has started of a global asset management system. An IM helpdesk has been set up that is available to all employees, all the time. It replaces a number of regional centres. The global data centre, based in the UK, is now well established and undertakes data processing for BOC businesses around the world.

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## Risk factors

This document contains certain forward-looking statements which involve risk and uncertainty as they relate to future events and circumstances. The following risk factors, as well as those discussed on pages 56 and 57 of the financial review could cause actual results to differ materially from those expressed or implied by these forward-looking statements:

### **BOC is affected by the semiconductor business cycle**

Manufacturers of semiconductors represent BOC Edwards' major customer base, and BOC Edwards' profitability is directly linked to the demand of these manufacturers for vacuum equipment, services and industrial gases. The semiconductor industry has experienced significant growth over the long term, but is cyclical in nature. Any improvements in the level of demand for BOC Edwards' products or services may not be sustained due to reduced demand from end users of technology products and/or excess supply of semiconductors. The competitive nature of the semiconductor industry can reduce profit margins for suppliers of products and services to semiconductor manufacturers. Either of these factors or a combination could adversely impact BOC's financial results. Any long-term reduction in the growth pattern of the semiconductor industry could also have a negative impact on BOC's financial results.

### **Acquisitions may not be successful in achieving intended benefits and synergies**

BOC has completed a number of acquisitions in recent years as part of its growth strategy and may make acquisitions in the future. While BOC identifies expected synergies, cost savings and growth opportunities prior to completing any acquisition, these benefits may not be achieved owing to, among other things:

- delays or difficulties in completing the integration of acquired companies or assets;
- higher than expected costs or a need to allocate resources to manage unexpected operating difficulties;
- diversion of the attention and resources of BOC's management;
- inability to retain key employees in acquired companies;
- inability to retain key customers; and
- assumption of liabilities unrecognised in due diligence.

### **The growth of BOC's gases business will depend on the ability to win and execute large projects profitably**

BOC, through its Process Gas Solutions (PGS) line of business, has a strategy for growth that requires significant investment each year to serve key customers in different geographies. Failure to execute projects successfully for these customers will impact PGS's ability to win new projects from these customers, and therefore may impact BOC's future financial results. The specific risks associated with major projects include:

- failure to complete the project on time owing to unforeseen construction problems (which may require BOC to pay penalties under the terms of the customer contract);
- failure of the plant to deliver the contracted volumes and quantities of product required by the customer because of design errors or errors in manufacturing or construction (which may require BOC to pay penalties under the terms of the customer contract); and
- inability to operate the plant at costs assumed in BOC's financial evaluation of the project.

### **The safety of BOC's operations is critical to success**

Industrial gases are hazardous substances and BOC recognises that managing safety in operations, transportation and products is critical to achieve growth and financial results. Failure to maintain high levels of safety can result in a number of negative outcomes, including:

- fines and penalties for breaches of safety laws;
- liability payments and costs to employees or third parties arising from injury or damage;
- exclusion from certain market sectors deemed important for future development of the business (such as medical gases); and
- damage to reputation.

Additionally managing social, environmental and ethical matters is key to BOC's reputation.

### **BOC operates in over 50 different countries and is therefore exposed to economic, political, business and natural catastrophe risks associated with international operations**



BOC's overall success as a business with global operations depends, in part, upon its ability to succeed in differing economic, political and business conditions. BOC encounters different legal and regulatory requirements in numerous jurisdictions. These include taxation laws, environmental regulations, regulations concerning operational standards and competition laws. BOC is also confronted by political risks such as the expropriation of assets and the inability to export currency. The business risks and challenges faced in each geography include the need to manage credit risks of local customers, appointing and retaining key staff, general economic conditions locally and currency fluctuation. Recognition of changing market conditions in local geographies is critical to BOC's long-term success, particularly those where BOC anticipates significant investments to achieve growth, for example China. Additionally, a good understanding of political and economic risks is essential to achieve success from investments in new geographies. BOC's operations are exposed to varying degrees of natural catastrophe risk, such as earthquake and flood, as well as security risk, in the different countries in which BOC operates.

**BOC operates in a highly competitive environment**

The industrial gases market is very competitive, with several large competitors and a significant number of smaller local competitors in different territories. Although the current trend in the industry is to seek price increases for industrial gases, the industry has experienced falling prices in previous years. There is no guarantee that the current trend will continue and there is a risk that competitors will seek to maintain or increase market shares by reducing prices. These price reductions would result in lower revenues, profits and cash flows.

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**BOC relies on development of, or access to, technology to support business growth**

BOC's success is dependent in part on its continued investment in technology to develop new products and services across all businesses, new applications for existing products or to design effective means for producing industrial gases. Failure to access or develop technology or anticipate, manage or adopt technological changes in operations or product applications on a timely basis will have a material impact on BOC's future results. For example, the rapid development of technology in the semiconductor sector requires BOC Edwards to be aware of changes in customer technology requirements and to introduce new products to meet those requirements in a timely manner. Failure to do so could result in reduced market share and profitability.

**Recognising and anticipating changes in the manufacturing economy is key to BOC's success**

BOC's industrial gas businesses serve a wide range of manufacturing customers in major geographies such as the US, UK, Japan and Australia. This is particularly true of the Industrial and Special Products line of business which provides products and services to customers involved in the welding and cutting of metal, a major source of revenue for this division. As customers in these traditional manufacturing-based economies seek to move their manufacturing operations to lower cost territories in, for example, Asia and Latin America, the risk arises that BOC's operations in the major geographies will have lower growth opportunities. Failure to recognise these trends and manage the consequences, through the development of alternative markets and/or meeting demand in higher growth territories, could have a negative impact on future Group financial results.

**BOC's success depends to a significant extent on its key personnel and employees**

BOC's performance depends on the skills and efforts of its employees and management team across all of its businesses. BOC recognises that failure to attract new talent and retain existing expertise, knowledge and skills in operations, products and infrastructure areas such as information technology could have a negative impact on revenues and profits. In addition, the success of BOC's acquisitions may depend, in part, on BOC's ability to retain management personnel of acquired companies.

**Litigation may have an adverse impact on financial results**

The global nature of BOC's business exposes it to the potential for litigation from third parties. From time to time BOC is involved in lawsuits, resulting from current and past operations or products. The outcome of these lawsuits may result in damages and awards which could have a material impact on BOC's profitability, its business operations or financial condition. Examples of litigation in the US for past products include allegations of injury arising from the use of welding electrodes previously manufactured and distributed by BOC in the US.

**Increased energy costs could reduce profitability**

The production of industrial gases requires significant amounts of electrical energy. Energy costs are a key component of the cost of manufacturing industrial gases, and increases in these costs can impact profitability if they cannot be passed on to customers. Accurately predicting trends in energy costs is difficult to achieve as energy costs are to a large extent subject to factors beyond the company's control – for example, political conditions in oil producing regions. BOC also operates large fleets of commercial vehicles in certain major geographies. An increase in energy costs associated with the use of these commercial vehicles may negatively impact profit levels.

**Further consolidation between major competitors may impact BOC's competitive position**

A merger between any of the major competitors to BOC within the principal geographies, subject to competition authority consent, could result in a longer-term deterioration of BOC's competitive position resulting in reduced levels of growth. Possible consequences could include:

- an uncompetitive cost base for large projects;
- an inability to participate in further consolidation due to competition concerns;
- retention and/or recruitment of key personnel;
- weakened geographical positions.

**Managing joint venture relationships is a key success factor for BOC**

BOC needs to ensure that the selection of joint venture partners in new ventures and the relationships with partners in existing relationships is managed effectively to ensure the full potential for the joint venture is achieved. Failure to achieve alignment of objectives and manage relationships effectively may negatively impact future growth and profit levels.

**Failure to renew major contracts could reduce profitability**

All of BOC's businesses operate in very competitive markets. The loss of major contracts through competitive forces, changes in customer purchasing strategy or changes in customer location, could have a negative impact on Group financial results.

**Identifying growth opportunities and productivity improvements are necessary for longer term success**

Failure to identify and execute growth and productivity opportunities effectively will limit increases in profitability. These risks can materialise from inadequate processes or a lack of resources to identify opportunities and exploit them.

**Adoption of accounting changes or new regulations can increase costs and reduce profitability**

The implementation of new accounting requirements (for example, International Financial Reporting Standards) or regulations (for example, the US Sarbanes-Oxley Act) can incur significant costs which reduce profitability. Increased costs arise through recruitment of additional resources, consultancy fees to support implementation or increased external audit fees.

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## Operating review

### Introduction

The Group's results are prepared under UK Generally Accepted Accounting Principles (GAAP) and comply with UK Companies Act requirements. While the UK GAAP reporting basis provides the core information for users of this report and accounts to understand the financial performance of the Group, management believes that users will be assisted in understanding the performance relative to previous periods by presenting the results in an alternative manner. This presentation isolates the impact of currency movements from year to year and eliminates the impact of exceptional or non-recurring items. This is consistent with the basis used by management to measure performance of the business and is a component of variable compensation plans. The elements of this alternative presentation are described in more detail below.

### Impact of currency movements

The Group has operations in some 50 countries around the world and the majority of its profit is generated outside the UK. Results of overseas operations are translated at the average rates of exchange against sterling for the year. Changes in such rates from year to year can significantly affect the Group's results when these are presented in pounds sterling. In some cases, such changes may make it difficult to understand underlying business performance trends without providing additional information. For example, the average value of the US dollar to pounds sterling changed by three per cent in 2005 compared with 2004. It is important to highlight such currency movements to users of financial information to help them understand business and regional performance.

Consequently, management has for many years monitored business performance on a constant currency basis. This basis eliminates the impact of changes in the rates of exchange used to translate the results of overseas businesses into sterling by retranslating the results of the comparative year at the rates of exchange used in the current year. This is the basis for all internal management reporting throughout the year.

In this operating review, the comparison of financial performance between years may in places be referred to as on this constant currency basis. Comments on all segmental performance are on a constant currency basis.

The impact of changes in the rates of exchange used to translate the results of overseas businesses into sterling is shown in the table below.

	2003 results (as reported) £ million	Impact of movements in currency £ million	2003 results (at 2004 rates of exchange) £ million	2004 results (as reported) £ million	Impact of movements in currency £ million	2004 results (at 2005 rates of exchange) £ million
Turnover (including share of joint ventures and associates)						
Process Gas Solutions	1,242.7	(71.1)	1,171.6	1,275.2	(9.4)	1,265.8
Industrial and Special Products	1,751.2	(19.6)	1,731.6	1,782.3	6.9	1,789.2
BOC Edwards	684.1	(39.4)	644.7	816.5	(5.5)	811.0
Afrox hospitals	353.4	41.4	394.8	432.1	11.6	443.7
Gist	291.8	(0.1)	291.7	293.2	0.2	293.4
<b>Total</b>	<b>4,323.2</b>	<b>(88.8)</b>	<b>4,234.4</b>	<b>4,599.3</b>	<b>3.8</b>	<b>4,603.1</b>
Operating profit						
Process Gas Solutions	177.1	(10.3)	166.8	189.5	(0.6)	188.9
Industrial and Special Products	238.2	3.1	241.3	253.9	3.0	256.9
BOC Edwards	7.9	(1.1)	6.8	46.8	0.4	47.2
Afrox hospitals	46.1	5.4	51.5	59.8	1.6	61.4

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Gist	29.2	0.1	29.3	25.1		25.1
Corporate	(59.9)	6.1	(53.8)	(15.6)	0.5	(15.1)
<hr/>						
Total	438.6	3.3	441.9	559.5	4.9	564.4
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Adjusted operating profit

Process Gas Solutions	184.0	(10.5)	173.5	190.3	(0.6)	189.7
Industrial and Special Products	242.7	2.8	245.5	269.5	2.6	272.1
BOC Edwards	18.5	(1.5)	17.0	47.8	0.4	48.2
Afrox hospitals	46.1	5.4	51.5	59.8	1.6	61.4
Gist	29.2	0.1	29.3	25.1		25.1
Corporate	(14.9)	1.5	(13.4)	(15.6)	0.5	(15.1)
<hr/>						
Total	505.6	(2.2)	503.4	576.9	4.5	581.4
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**Exceptional or non-recurring items**

Management believes that to present the results of the Group in the most meaningful way, items of an exceptional nature should be separately identified and disclosed. This enables users of the information to have a better understanding of underlying business performance. Examples of such items in 2005 include the profit on disposal of the Afox hospitals business in Africa and costs of restructuring in BOC Edwards. Included in 2004 were the loss on disposal of the packaged gas business in the US, costs relating to the subsequent restructuring of the remaining US business and charges relating to the integration process in Japan that began in 2003 following the merger of the industrial and medical gases businesses there of BOC and Air Liquide to form Japan Air Gases.

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Operating review

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Exceptional items include those items classified as both operating and non-operating under UK GAAP.

The review of results excluding exceptional items is part of the normal internal management reporting process. The growth in operating profit excluding exceptional items is also one of the measures used in the variable element of the senior management compensation scheme.

Further information regarding the exceptional items is given in the financial review on page 55. An analysis of all operating and non-operating exceptional items is given in note 2 b) to the financial statements on page 97.

In this review, the adjustments to eliminate exceptional items have been made to operating profit (both Group and by segment), profit before tax and earnings per share. Exceptional items are commented on in the Group results section as well as in the individual business segments to which they relate. A reconciliation of these adjusted items to the equivalent UK GAAP measure is shown in the profit and loss account on page 86. When any results or measures used in this review have been adjusted to exclude exceptional items, they are referred to as adjusted.

Within the individual business segments of the operating review, operating exceptional items are commented on separately. Comments on other aspects of financial trends and performance are based on adjusted operating profit. This provides more meaningful comment on underlying business performance.

A reconciliation of adjusted operating profit to operating profit is given in the table below.

	2005			2004			2003		
	Adjusted operating profit £ million	Operating exceptional items £ million	Operating profit £ million	Adjusted operating profit £ million	Operating exceptional items £ million	Operating profit £ million	Adjusted operating profit £ million	Operating exceptional items £ million	Operating profit £ million
Process Gas Solutions	207.2		207.2	190.3	(0.8)	189.5	184.0	(6.9)	177.1
Industrial and Special Products	289.4		289.4	269.5	(15.6)	253.9	242.7	(4.5)	238.2
BOC Edwards	38.1	(20.7)	17.4	47.8	(1.0)	46.8	18.5	(10.6)	7.9
Afrox hospitals	37.2		37.2	59.8		59.8	46.1		46.1
Gist	24.5		24.5	25.1		25.1	29.2		29.2
Corporate	(32.2)		(32.2)	(15.6)		(15.6)	(14.9)	(45.0)	(59.9)
<b>Total Group</b>	<b>564.2</b>	<b>(20.7)</b>	<b>543.5</b>	<b>576.9</b>	<b>(17.4)</b>	<b>559.5</b>	<b>505.6</b>	<b>(67.0)</b>	<b>438.6</b>

#### Other non GAAP measures

This review also presents return on capital employed (ROCE) and adjusted return on capital employed. Adjusted return on capital employed removes exceptional items from the measure of operating profit used in the calculation. Adjusted return on capital employed is used by management for reasons similar to those described above.

A reconciliation of these two measures is shown below.

	2005			2004			2003		
	Operating profit £ million	Average capital employed £ million	ROCE %	Operating profit £ million	Average capital employed £ million	ROCE %	Operating profit £ million	Average capital employed £ million	ROCE %
Adjusted ROCE	564.2	3,478.3	16.2	576.9	3,752.4	15.4	505.6	4,010.5	12.6
Operating exceptional items	(20.7)			(17.4)			(67.0)		

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ROCE	<b>543.5</b>	<b>3,478.3</b>	<b>15.6</b>	559.5	3,752.4	14.9	438.6	4,010.5	10.9
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1. ROCE is operating profit as a percentage of the average capital employed excluding net pension liabilities. The Group commentary in this review also comments on free cash flow. Free cash flow is a measure often referred to by BOC management and other users of financial information to highlight the cash flow available from underlying ongoing business operations before acquisition and disposal activity. Whether or not this remains positive over time is an indicator that dividends to shareholders are being paid out of cash generated by existing Group businesses. As such it is a useful additional measure of financial performance.

A reconciliation of this measure to the nearest equivalent UK GAAP measure, net cash flow, is shown below.

	<b>2005</b>	2004	2003
	<b>£</b>	£ million	£ million
	<b>million</b>		
Free cash flow	<b>18.6</b>	257.9	141.8
Exceptional cash items	<b>(16.9)</b>	(11.9)	(28.3)
Acquisitions and disposals <sup>1</sup>	<b>59.2</b>	92.5	(118.3)
<i>Other items within capital expenditure and financial investment:</i>			
Purchases of intangible fixed assets	<b>(0.6)</b>	(0.2)	(1.2)
Net sales/(purchases) of current asset investments	<b>4.7</b>	(0.9)	16.6
Purchases of trade and other investments	<b>(3.4)</b>	(3.8)	(3.3)
Sales of trade and other investments	<b>30.0</b>	5.6	5.3
<b>Net cash inflow before use of liquid resources and financing</b>	<b>91.6</b>	339.2	12.6

1. Acquisitions and disposals in 2005 is shown after an adjustment of £69.6 million relating to the disposal of the Afrox hospitals business. This comprises £54.2 million for the minority interest element of the special dividend paid to the shareholders of African Oxygen Limited following receipt of the proceeds of disposal and £15.4 million for the tax paid on the special dividend.

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## Operating review (comparing 2005 with 2004)

### Group

Turnover including the Group share of joint ventures and associates was £4,605.0 million in 2005, similar to the £4,599.3 million reported in 2004. Operating profit was £543.5 million, down three per cent compared with £559.5 million in 2004. After crediting operating and non-operating exceptional items totalling £87.9 million and charging net interest and other financing items of £58.5 million, profit before tax was £593.6 million, up 44 per cent compared with £412.3 million in 2004. Earnings per share were 74.1p, up 39 per cent compared with 53.5p in 2004. Excluding the exceptional items, adjusted operating profit for the year was £564.2 million, adjusted profit before tax was £505.7 million and adjusted earnings per share were 67.5p, a record level for BOC.

Comparisons with 2004 are affected by exchange rate movements. For the currencies that principally affect the Group's results, movements in the Australian dollar and the South African rand were favourable and movements in the US dollar and Japanese yen were adverse. If the results of a year ago had been translated at the rates applied to this year, turnover would have been increased by £3.8 million. There would have been an increase in operating profit of £4.9 million and an increase in adjusted operating profit of £4.5 million. Adjusted profit before tax would have been £5.2 million higher and adjusted earnings per share would have been 0.5p higher.

The table set out below summarises results reported both under UK GAAP and as adjusted. Results for 2004 are shown both as reported in that year and on a constant currency basis.

	2005	2004	2004 (at 2005 exchange rates) <sup>1</sup>
Turnover including share of joint ventures and associates (£ million)	<b>4,605.0</b>	4,599.3	4,603.1
Operating profit (£ million)	<b>543.5</b>	559.5	564.4
Adjusted operating profit (£ million) <sup>2</sup>	<b>564.2</b>	576.9	581.4
Profit before tax (£ million)	<b>593.6</b>	412.3	420.5
Adjusted profit before tax (£ million) <sup>2</sup>	<b>505.7</b>	504.3	509.5
Earnings per share	<b>74.1p</b>	53.5p	54.5p
Adjusted earnings per share <sup>2</sup>	<b>67.5p</b>	63.2p	63.7p

1. A reconciliation of turnover, operating profit and adjusted operating profit for 2004 at 2004 and at 2005 rates of exchange is shown on page 40.

2. A reconciliation of adjusted results with UK GAAP results is shown on page 41 and in the profit and loss account on page 86.

Exceptional items in 2005 amounted to a profit of £87.9 million. This comprised £84.9 million profit on the disposal of a majority shareholding in Afrox Healthcare Limited, £13.2 million profit relating to the disposal in 2004 of the US packaged gas business, £10.5 million profit on the disposal of the majority of a shareholding in the US beverage dispense company, NuCo2 Inc, partly offset by a charge of £20.7 for restructuring in BOC Edwards.

Exceptional items in 2004 amounted to a charge of £92.0 million. This comprised a loss of £79.5 million on disposal of the US packaged gas business, a charge of £14.8 million for restructuring the remaining business in the US following the disposal, a charge of £2.6 million relating to the integration of the industrial and medical gases businesses of BOC and Air Liquide in Japan, and a profit of £4.9 million on the disposal of fixed assets.

Adjusted return on capital employed for the year to 30 September 2005 was 16.2 per cent. Return on capital employed for the year to 30 September 2004 was 15.6 per cent. Free cash flow (as defined on page 41) was £18.6 million in 2005. Net cash flow, after acquisitions, disposals and other investing activities, and including exceptional cash items, was £91.6 million in 2005. A reconciliation of these measures is shown on page 41.

A first interim dividend for 2005 of 15.9p per share was paid in February 2005 and a second interim dividend of 25.3p per share was paid in August 2005. In aggregate this was a 3 per cent increase over the annual dividend of the previous year. A first interim



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dividend for 2006 of 16.3p per share has been declared for payment in February 2006.

Capital expenditure by subsidiaries (including interest capitalised) was £397.3 million in 2005, compared with £256.1 million in 2004. This was covered by cash inflow from operating activities. Capital expenditure by joint ventures and associates was £285.9 million in 2005, of which the BOC share was £144.0 million. Equivalent expenditure in 2004 was £109.0 million, of which the BOC share was £49.2 million. The Group also made acquisitions of businesses of £57.1 million in 2005 and proceeds from disposals were £224.1 million. Equivalent items in 2004 were £50.9 million and £98.3 million respectively.

### Process Gas Solutions (PGS)

	2005 £ million	Change on 2004	Change on 2004 <sup>1</sup> (constant currency)
Turnover	<b>1,466.3</b>	+15%	+16%
Europe	<b>332.3</b>	+13%	+12%
Americas	<b>631.5</b>	+21%	+25%
Africa	<b>38.6</b>	+7%	+4%
Asia/Pacific	<b>463.9</b>	+10%	+10%
Operating profit	<b>207.2</b>	+9%	+10%
Adjusted operating profit <sup>2</sup>	<b>207.2</b>	+9%	+9%

1. A reconciliation of results for 2004 at 2004 and at 2005 rates of exchange is shown on page 40.
2. A reconciliation of adjusted operating profit with operating profit is shown on page 41.
3. All comments below are on a constant currency basis.

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Operating review (comparing 2005 with 2004)

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The principal business factors driving increased turnover in 2005 were increased selling prices to recover higher power and energy costs, increased turnover within the Linde BOC Process Plants business in the US and strong demand for gases in the steel sector for most of the year. The recovery of higher power and energy costs is estimated to have added approximately one per cent to turnover in 2005. Turnover also rose because of an increase in BOC's ownership of the business supplying nitrogen for enhanced oil recovery in Mexico and as a result of changes to the terms of a supply scheme contract in the US. These two factors added approximately five per cent to turnover in 2005 compared with 2004.

New plants had a relatively smaller impact on turnover during 2005. Those contributing additional sales included a hydrogen plant supplying Citgo in the US and a new air separation unit supplying the Sinopec and BASF joint venture petrochemical plant in Nanjing, China. New plants added less than one per cent to turnover in 2005 compared with 2004.

Operating profit increased less rapidly than turnover principally because of the factors that raised turnover without a corresponding impact on profit. These included increased prices to recover higher input costs and the changed contract.

During 2005, BOC continued to be successful in winning new on-site supply contracts with major customers in the oil and petrochemical industries and in Asia with steel customers. Three new plants are under construction for the supply of hydrogen to US refiners for the production of cleaner-burning fuels and to improve the processing of heavier crude feedstocks. When these plants are fully commissioned they are expected to approximately double BOC's worldwide hydrogen capacity. At the same time, new air separation capacity is being added to satisfy growing demand from steel and petrochemical customers in Asia. A new plant is being built for a petrochemical customer at Map Ta Phut in Thailand and several large-scale plants are under construction in China for both steel and chemical customers. One of the largest projects currently under way is the addition of a fifth production module to the complex supplying nitrogen for the re-pressurisation of oil wells in the Gulf of Mexico. This facility is already the largest nitrogen plant in the world and has already proved its worth in boosting oil production. The new module will increase nitrogen production by approximately 25 per cent. Much of this new capacity is scheduled to be commissioned in late 2006 and during 2007.

There were no operating exceptional items in 2005. Operating exceptional items in 2004 were for the integration of the industrial and medical gases businesses of BOC and Air Liquide in Japan that began in 2003.

**Europe** Economic conditions were mixed during 2005 with some difficult trends in the UK and Ireland partly offset by industrial growth in Poland. The adverse impact of lower merchant volumes in some sectors was to a large extent offset by further savings from improved operating efficiency.

In the UK, industrial gases demand from the steel and chemical sectors was strong in 2005, leading to better tonnage volumes. However, demand for liquefied gases declined as a result of generally sluggish activity in some manufacturing sectors exacerbated by sharp increases in energy costs. These also impacted BOC's merchant gases business. Higher power costs were generally recovered in selling prices but increased prices led some customers to reduce their consumption of industrial gases, while a few ceased production in the UK.

There has been another significant increase in UK power prices for 2006 and further selling price increases are being implemented with customers.

BOC's business in Poland continued to benefit from general economic growth and strong demand in the steel industry.

Sales volumes were lower in Ireland as some traditional industries declined while economic growth was concentrated in the service sectors.

Cryostar's business as a manufacturer of cryogenic pumps, expansion turbines and compressors continued to grow in 2005. These devices are used for a variety of industrial gas applications and for marine liquefied natural gas (LNG) tankers.

**The Americas** Buoyant conditions in the steel industry led to strong demand for tonnage gases in the US during the first half of 2005. Some slowdown became apparent during the second half and this, together with isolated plant outages, reduced tonnage volumes in the second half and for the year as a whole. Higher power costs were progressively recovered by increased selling prices in the merchant market for liquefied atmospheric gases and demand remained firm. Carbon dioxide sales benefited from strong demand for enhanced oil recovery rather than for food and beverage applications.

During 2005, BOC invested in new carbon dioxide capacity to satisfy demand for oil recovery in Texas and made a number of smaller investments to optimise the US supply chain network and reduce delivery costs.

In Latin America, the contribution from the joint venture supplying nitrogen to Pemex for re-pressurising its Cantarell oilfield was increased in 2005 as a result of BOC's acquisition of Duke Energy's 30 per cent interest. This transaction was completed in

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September 2004 and increased BOC's overall stake to 65 per cent. Construction of a fifth production module that will increase output by approximately 25 per cent is now under way and on schedule. Meanwhile some improvement in the efficiency of existing production units is expected from a routine maintenance schedule that is currently in progress.

**Africa** Sales volumes increased in 2005 as a result of continuing firm demand for tonnage gases in the South African steel sector and increasing consumption of liquid nitrogen by food manufacturers. Higher selling prices also contributed to increased turnover. New long-term supply contracts were signed with customers in the metals and automotive components industries. During 2006, investments will be made to fulfil these contracts and to satisfy growing demand for liquefied gases in the merchant market.

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Operating review (comparing 2005 with 2004)

**Asia/Pacific** Sales growth in north Asia was supported by production from new and recently commissioned plants in China. There was also growing demand for liquefied gases in the merchant markets not only in China but also in Korea and in Taiwan, where available capacity was fully utilised. Further investment by China's leading steel and chemicals producers continued strongly in 2005 leading to opportunities for long-term supply schemes.

A new 1,400 tonnes-a-day air separation unit was commissioned by BOC's joint venture with Sinopec in Nanjing during the year and began to supply Sinopec's new joint venture with BASF when that began operation in 2005. Two new air separation plants were also commissioned in south China to supply steel customers during 2005. Two 1,400 tonnes-a-day air separation units are under construction to supply gases for expanded production at the Taiyuan Iron & Steel Corporation (TISCO), which is already the largest stainless steel producer in China and one of the biggest in the world. Construction of a further two similarly large air separation units to supply the Maanshan Iron & Steel Company (Ma Steel) began before the end of 2005.

In Japan, demand for industrial gases from the steel, chemical and glass industries remained strong in 2005. During the year, BOC's Japan Air Gases joint venture brought on stream a new 2,100 tonnes-a-day plant serving a major steel customer.

BOC's most important PGS businesses in south and south east Asia are in Thailand, Malaysia, Singapore and India. The major market sectors for PGS across the region are steel, petrochemicals and the food industry.

The Thai economy continued to expand in 2005 and BOC's business there benefited from growth of the chemical industry. Despite a continuation of US anti-dumping measures that held back prawn exports, there was some recovery in the food-freezing sector leading to increased sales of carbon dioxide and liquefied nitrogen.

MIG Production Co. Ltd (MIGP), a joint venture between BOC's Thai subsidiary Thai Industrial Gases PCL and Bangkok Industrial Gas Company Ltd has been awarded a long-term contract to supply 800 tonnes a day of oxygen to a new mono ethylene glycol project operated by TOC Glycol Co. Ltd. (TOGCG) in Map Ta Phut, Thailand. MIGP is investing US\$50 million to build an air separation unit on an adjacent site to TOGCG's new mono ethylene glycol plant. Scheduled to come on-stream in 2006, the facility will produce 1,300 tonnes of oxygen a day, making it the largest air separation unit in Thailand. The excess capacity from the new facility will serve the parent companies' tonnage and merchant markets.

Business in Malaysia was supported by buoyant conditions in the steel sector for most of the year despite some softening of demand in the final quarter. Demand from the Malaysian chemical industry also improved in 2005. Business trends in Singapore were positive in 2005, led by expanding activity in the chemicals and electronics sectors.

Strong demand for industrial gases by the steel, chemicals, pharmaceuticals and glass sectors coupled with positive selling price trends led to accelerated growth in India.

BOC's subsidiary, BOC India Ltd, has been awarded the contract for supplying the gases requirements for an expansion programme being undertaken by Jindal Vijaynagar Steel Limited at Bellary in Southern India. BOC India Ltd has signed a fifteen-year agreement to supply 1,400 tonnes a day of oxygen and nitrogen and is building a new 855 tonnes-a-day air separation unit at Bellary, which is due to be commissioned in 2006. Management sees this latest investment of up to US\$40 million as a major move in developing its strategy in southern India.

Elsewhere in the region, business developed well in Pakistan but growth in the Philippines was constrained by product availability. Production of oxygen at BOC's plant at Gresik in Indonesia was limited during 2005 by the availability of natural gas to generate power. Use of diesel fuel as an alternative led to less efficient operation.

In Australia economic growth continued in 2005 but at a slower rate than in 2004 and there was relatively little new plant investment. World commodity prices remained firm leading to sustained demand from the mineral processing and steel industries for tonnage gases. Higher energy and labour costs in 2005 were generally recovered by increased selling prices.

During 2005, BOC renewed its long-term contract to supply a leading titanium dioxide pigment manufacturer.

The Government of Western Australia's environmentally friendly fuel cell bus project, which began in 2004 with three hydrogen-fuelled buses operating in the city of Perth, was commercialised in 2005. BOC's hydrogen purification plant and re-fuelling facility supports BP in this project.

**Water services** Further business was secured during 2005 with industrial rather than municipal customers, in accordance with BOC's strategic objectives for this business. Much of the new business continued to be with food manufacturers but there was also increasing interest for water services in the chemicals and refining sectors.

#### **Industrial and Special Products (ISP)**

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	2005 £ million	Change on 2004	Change on 2004 <sup>1</sup> (constant currency)
Turnover	<b>1,721.7</b>	3%	4%
Europe	<b>467.0</b>	+4%	+3%
Americas	<b>322.3</b>	24%	23%
Africa	<b>272.3</b>	+18%	+19%
Asia/Pacific	<b>660.1</b>	3%	4%
Operating profit	<b>289.4</b>	+14%	+13%
Adjusted operating profit <sup>2</sup>	<b>289.4</b>	+7%	+6%

1. A reconciliation of results for 2004 at 2004 and at 2005 rates of exchange is shown on page 40.
2. A reconciliation of adjusted operating profit with operating profit is shown on page 41.
3. All comments below are on a constant currency basis.

Turnover was lower in 2005 as a result of the disposal of BOC's packaged gas business in the US in July 2004 and the disposal of part of the Unique Gas business in Thailand in December 2004. These disposals accounted for a ten per cent decrease in turnover for 2005 compared with 2004. The effect of disposals on turnover was partly offset by growth in Europe, Africa and the south Pacific region.

The elimination of overhead costs following the US packaged gas disposal helped towards an increase in operating profit. This together with new business won was reflected in a £15 million increase in north American adjusted operating profit in 2005. Other factors supporting profitability were the extension of best commercial practice and best operating practice business efficiency programmes to more parts of the world.

Further progress was made with the refurbishment of retail stores - particularly in South Africa and Australia - during 2005 and this led to increased sales. Retail outlets also supported the growth of BOC's safety products business. At the same time further comprehensive safety product contracts were won with major customers.

New user-friendly product packages, including lightweight cylinders for emergency services, continued to drive sales growth of medical gases. Turnover of medical gases for BOC's major subsidiaries, joint ventures and associates (excluding Japan) increased by seven per cent in 2005. There was also good growth in the special products and services business, which includes scientific gases, refrigerant gases and other packaged chemicals. Special gases turnover increased by 11 per cent in 2005 on the same basis.

Higher petroleum prices in 2005 presented a challenge to margins in the liquefied petroleum gas businesses in Australia and South Africa but most of the cost increases were recovered in higher selling prices.

Demand for helium remained strong worldwide, driven by increasing use of medical imaging. New helium capacity is expected to come into production in Qatar in 2006. This will make more product available to BOC but at a higher price than existing supplies.

There were no operating exceptional items in 2005. Operating exceptional items in 2004 were for the integration of the industrial and medical gases businesses of BOC and Air Liquide in Japan that began in 2003, as well as for the restructuring of the ISP business in the US following the disposal of the packaged gas business.

**Europe** Increased turnover reflected growing sales of medical and special products in the UK and generally favourable business trends in Poland. The UK industrial market remained flat, but BOC's business was expanded by increased sales of welding products. Increased energy costs were recovered by increased selling prices.

Growth in the medical gases business was once again driven by the introduction of new lightweight cylinder packages and by winning hospital facilities management contracts.

Increased turnover of special products was based largely on growing sales of gas mixtures for scientific applications and additional helium business. New capacity is being added to satisfy additional requirements for Siemens Magnet Technology (formerly Oxford Magnet Technology) the leading MRI scanner manufacturer. BOC already manages Siemens' helium requirements during manufacturing and will now provide on-site services for Siemens magnets in hospitals. Additional sales also resulted from the acquisition of Calor's aerosol propellants and hydrocarbon refrigerants business in the UK.

Growth of BOC's Sureflow hospitality gas and cellar services business was curtailed by lower sales of draught beer in the UK during 2005. Additional business was gained in Ireland by providing cellar services for a major brewery chain.

Changes in the provision of domiciliary oxygen in England and Wales were announced by the National Health Service in 2005. BOC was awarded one of the 11 regional contracts and from February 2006 will supply all forms of domiciliary oxygen to patients for the Eastern region. It is expected that this will lead to a reduction of BOC's home oxygen sales in the UK over the next two years. However, the majority of BOC's UK medical gases business is with hospitals and the emergency services, which is unaffected by this change.

**The Americas** The disposal of BOC's US packaged gas business was completed on 30 July 2004 when initial cash proceeds of US\$175 million were received. This business had turnover of approximately US\$240 million in 2003.

The ISP business in the US now consists of bulk medical gases, bulk supplies to distributors, tube trailer and liquefied helium. BOC's US overhead costs were reduced following the disposal, as the business was then concentrated on a much smaller number of customers. As a result the US business became profitable in 2005.

During 2005, new distributor channels were added, new helium business was secured in the US and new bulk industrial contracts were won with biotechnology and laser welding customers.

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Buoyant conditions in the oil and gas industry helped towards an improved performance in Canada during 2005.

BOC's global helium business grew strongly in 2005 with increasing demand in China and Korea. During 2006 the first supplies from a new source in Qatar will enable these markets to be served more efficiently. However the financial impact is expected to be negative initially as additional volumes will be offset by higher feedstock costs.

Growth in Latin America was driven by increased sales in Venezuela and Colombia, where the medical sector is the most important. However there was also growth in the industrial markets served by BOC's associated company based in Chile.

**Africa** Lower interest rates continued to stimulate South African domestic consumption and manufacturing output during 2005, leading to better turnover for the African region. Operating profit also increased but by somewhat less than turnover, which was additionally inflated by higher liquefied petroleum gas (LPG) prices.

Turnover grew in every part of the South African business but was led by particularly strong sales of safety products. During 2005 Afrox Safety was launched as a business brand and an on-site safety services business was acquired. Sales of scientific gases increased but from a relatively low base.

Despite the challenge of a strong South African rand, export business also grew considerably. Plans are in place to expand production of welding products for local use and particularly for export.

Other African countries also produced satisfactory results with particularly good performances in Kenya and Zambia.

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Operating review (comparing 2005 with 2004)

**Asia/Pacific** Most of the countries in south and south east Asia achieved good results in 2005 with especially strong performances in India, Thailand and Bangladesh. Results in India were additionally supported by a profit from the disposal of some land in Bangalore.

At the same time, trading conditions during 2005 were difficult in Malaysia and industrial activity continued to decline in Hong Kong as production drifted to mainland China. This trend also continued to affect Taiwan but to a lesser extent.

BOC's industrial products business remains relatively undeveloped in China. Few attractive opportunities have been identified but growing demand for helium provides a better prospect.

The growth of automobile production stimulated demand for welding gases and investment in special gases and packaged chemicals production facilities supported increased sales of these products in Asia generally.

In Japan, both turnover and adjusted operating profit were similar to a year ago.

An improved performance in the south Pacific region was driven by demand from the natural resources sector and increased sales of safety products while consumption of welding products and gases by the manufacturing sector grew more slowly. This reflects somewhat slower growth in the Australian economy than in 2004.

Growth was focused in the mining regions of Western Australia, Queensland and Papua New Guinea. BOC was also successful in winning significant contracts to supply safety and personal protective products to Xstrata in Australia and to New Zealand Steel. These added to similar contracts won with Western Mining in 2004.

The construction of a new special gases centre is under way at Wagga Wagga, in Australia, to meet the increasing demand for packaged chemicals such as ammonia, ethylene oxide and sulphur dioxide. Meanwhile the gradual re-development of BOC's retail Gas and Gear stores that began in 2004 continued in 2005 and is now approximately two thirds completed.

BOC's joint venture company supplying liquefied petroleum gas in Australia faced the twin challenges of a sharp rise in input costs and the warmest winter on record in 2005. Lower consumption for heating applications therefore led to a decline in volumes.

## BOC Edwards

	2005 £ million	Change on 2004	Change on 2004 <sup>1</sup> (constant currency)
Turnover	<b>826.0</b>	+1%	+2%
Operating profit	<b>17.4</b>	63%	63%
Adjusted operating profit <sup>2</sup>	<b>38.1</b>	20%	21%

1. A reconciliation of results for 2004 at 2004 and at 2005 rates of exchange is shown on page 40.

2. A reconciliation of adjusted operating profit with operating profit is shown on page 41.

3. All comments below are on a constant currency basis.

The upturn in semiconductor equipment spending that had helped BOC Edwards' order intake and financial performance in 2004 was not repeated in 2005. At the same time, margins continued to be adversely affected by weakness of the US dollar, which is the currency in which much of BOC Edwards' revenue is earned. The adjusted operating profit for 2005 would have been approximately £9 million more if transactions had been conducted at the exchange rates of a year ago. Adjusted operating profit was therefore lower in 2005, despite some initial benefit from cost reduction programmes.

Where new semiconductor or liquid crystal display (LCD) business was placed, BOC was generally successful in retaining or improving its market share. Demand for integrated subsystems combining vacuum and exhaust management technologies grew in 2005. BOC Edwards is now launching a new plasma abatement system for the destruction of ozone-depleting PFC chemicals, which are found in the exhaust streams after etch processes in semiconductor, LCD and solar cell manufacture. BOC Edwards also became a leading supplier of subsystems for immersion lithography. For the latest generation of LCD fabrication units, BOC Edwards has also launched its own iFxK and iHxK high-capacity pumping systems. For semiconductor applications, a new cost-effective turbomolecular pumping system, whose magnetic bearings are controlled without the use of sensors, was developed.

Demand for component cleaning services and electronic materials was slightly lower as some semiconductor production rates



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were reduced in 2005 to reduce stock levels. During 2005 BOC Edwards formed a joint venture to extend its component cleaning business into Taiwan.

While nitrogen trifluoride prices continued to fall in 2005, BOC Edwards made good progress with its alternative technology of on-site fluorine generation systems for cleaning vapour deposition chambers. Production of fluorine generators has already been established in Korea to achieve lower production and distribution costs to serve the expanding customer base in Asia.

In October 2004 BOC Edwards expanded its electronic materials offering to include wet chemicals for flat panel display, semiconductor, and solar cell customers throughout Asia, by purchasing a 50 per cent ownership in Asia Union Electronic Chemical Corporation (AUECC) . This company also formed a joint venture with Shanghai Huayi (Group) Company to supply wet process chemicals to the growing electronics manufacturing industry in China. Through the joint venture, AUECC will use Shanghai as a base to produce, package and distribute a full range of ultra high-purity process chemicals for the semiconductor and flat panel display industries.

In 2005 BOC Edwards retained strong positions in the bulk gases markets of Taiwan and China and improved its position in Korea. New production capacity was added to the existing pipeline network in the Hsinchu business park in Taiwan and additional business was obtained in the business parks at Suzhou, China. BOC Edwards has also established a position supplying customers in the new Cheng Du park in China. In Korea, BOC won potentially significant gases business with Samsung, having previously been a major supplier of semiconductor equipment. BOC s joint venture company also won new business with semiconductor manufacturers in Singapore.

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There was better demand for vacuum equipment from the chemicals industry and from the aerospace industry for metallurgical applications in 2005. A general improvement in Asian markets also helped towards better results from BOC Edwards' general vacuum business. Vacuum pump production was expanded in the Czech Republic and some system assembly operations were established in Brazil during 2005.

Deliveries of pharmaceutical freeze-drying and packaging systems were at a higher level than in 2004. The establishment of a new low-cost manufacturing base in China has opened up new possibilities for business with the fast-growing pharmaceutical industry in Asia generally and particularly in India.

Exceptional costs of £20.7 million were charged within BOC Edwards during 2005. Some £14 million relates to the impairment of goodwill. The remainder is a charge for restructuring. Savings of approximately £5 million are targeted from this restructuring.

Operating exceptional items in 2004 were for the integration of the industrial and medical gases businesses of BOC and Air Liquide in Japan that began in 2003.

### Afrox hospitals

	2005 £ million	Change on 2004	Change on 2004 <sup>1</sup> (constant currency)
Turnover	275.1	36%	38%
Operating profit	37.2	38%	39%
Adjusted operating profit <sup>2</sup>	37.2	38%	39%

1. A reconciliation of results for 2004 at 2004 and at 2005 rates of exchange is shown on page 40.

2. A reconciliation of adjusted operating profit with operating profit is shown on page 41.

3. All comments below are on a constant currency basis.

The disposal of the majority shareholding in Afrox Healthcare Limited to a consortium led by two major black empowerment investors was completed on 22 March 2005. African Oxygen Limited (Afrox), BOC's subsidiary in South Africa, retains a significant interest in the hospitals business through a 20 per cent holding in the new company. Until disposal, Afrox Healthcare Limited was fully consolidated into the BOC Group accounts. For the second half of 2005, a 20 per cent share of the results of the new company, with its adjusted operating profit and net interest charge, was included in the BOC Group profit and loss account. The comparisons above are therefore distorted by this change.

After adjusting for this disposal and change of accounting treatment, the underlying performance of the Afrox hospitals business remained positive during 2005.

The disposal proceeds were received by Afrox in March and distributed to The BOC Group and Afrox minority shareholders by means of a special dividend in June, followed by a share buy-back in July 2005.

### Gist

	2005 £ million	Change on 2004	Change on 2004 <sup>1</sup> (constant currency)
Turnover	315.9	+8%	+8%
Operating profit	24.5	2%	2%
Adjusted operating profit <sup>2</sup>	24.5	2%	2%

1. A reconciliation of results for 2004 at 2004 and at 2005 rates of exchange is shown on page 40.

2. A reconciliation of adjusted operating profit with operating profit is shown on page 41.

3. All comments below are on a constant currency basis.

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While the market for distribution services remained difficult in the UK throughout 2005, Gist continued to expand sales with existing customers and won new business. The higher turnover was not reflected in better operating profit, principally because of increased pension costs. Gist accounts for a substantial proportion of BOC's UK workforce and the impact of pension costs is therefore significant.

Food business with Marks & Spencer, Gist's major customer, expanded in 2005 as more new retail outlets were opened. Logistic operations for the Ocado home food service in association with Waitrose also continued to grow. Existing services for Carlsberg (UK) were expanded in 2005 and new business was won with Woolworths.

In September 2005 the Van Dongen group of logistics companies based in the Netherlands was acquired. This adds to Gist's primary distribution operations, bringing products from food manufacturers into the supply chain. It also extends the reach into continental Europe, which is becoming an increasing source of food products for UK retailers. This wider network has already generated additional business between the UK and continental Europe from a number of existing and new customers.

In November 2005, Gist was awarded an extension to its food logistics contract with Marks & Spencer. The contract covers the retailer's growing food business until 2011, confirming it as one of the UK's largest food logistics contracts.

### **Corporate**

Corporate costs increased in 2005 partly as a result of additional spending on procedures to ensure compliance with Sarbanes-Oxley legislation and discretionary spending on litigation support in the US. The corporate charge also included a provision of £4.3 million for environmental clean-up in the US.

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## Operating review (comparing 2004 with 2003)

### Group

Turnover including the Group share of joint ventures and associates was £4,599.3 million in 2004, up six per cent compared with £4,323.2 million in 2003. Operating profit was £559.5 million, up 28 per cent compared with £438.6 million in 2003. After charging operating and non-operating exceptional items totalling £92.0 million and net interest and other financing items of £72.6 million, profit before tax was £412.3 million, up 17 per cent compared with £351.9 million in 2003. Earnings per share were 53.5p, up 20 per cent compared with 44.5p in 2003. Excluding the exceptional items, adjusted operating profit for the year was £576.9 million, adjusted profit before tax was £504.3 million and adjusted earnings per share were 63.2p.

Comparisons of 2004 with 2003 were affected by exchange rate movements. For the currencies that principally affect the Group's results, movements in the Australian dollar and the South African rand were favourable and movements in the US dollar and Japanese yen were adverse. If the 2003 results had been translated at the rates applied to 2004, turnover would have been reduced by £88.8 million. There would have been an increase in operating profit of £3.3 million and a decrease in adjusted operating profit of £2.2 million. Adjusted profit before tax would have been £2.9 million higher and adjusted earnings per share would have been 0.2p lower.

The table set out below summarises results reported both under UK GAAP and as adjusted. Results for 2003 are shown both as reported in that year and on a constant currency basis.

	2004	2003	2003 (at 2004 exchange rates) <sup>1</sup>
Turnover including share of joint ventures and associates (£ million)	4,599.3	4,323.2	4,234.4
Operating profit (£ million)	559.5	438.6	441.9
Adjusted operating profit (£ million) <sup>2</sup>	576.9	505.6	503.4
Profit before tax (£ million)	412.3	351.9	360.3
Adjusted profit before tax (£ million) <sup>2</sup>	504.3	418.9	421.8
Earnings per share	53.5p	44.5p	44.9p
Adjusted earnings per share <sup>2</sup>	63.2p	52.9p	52.7p

1. A reconciliation of turnover, operating profit and adjusted operating profit for 2003 at 2003 and at 2004 rates of exchange is shown on page 40.

2. A reconciliation of adjusted results with UK GAAP results is shown on page 41 and in the profit and loss account on page 86.

Exceptional items in 2004 amounted to a charge of £92.0 million. This comprised a loss of £79.5 million on disposal of the US packaged gas business, a charge of £14.8 million for restructuring the remaining business in the US following the disposal, a charge of £2.6 million relating to the integration of the industrial and medical gases businesses of BOC and Air Liquide in Japan, and a profit of £4.9 million on the disposal of fixed assets.

Exceptional items in 2003 comprised £43.2 million for a litigation settlement, costs of £15.5 million for completion of restructuring programmes and £8.3 million relating to the integration of the BOC and Air Liquide businesses in Japan.

Adjusted return on capital employed for the year to 30 September 2004 was 15.4 per cent. Return on capital employed for the year to 30 September 2004 was 14.9 per cent. Free cash flow (as defined on page 41) was £257.9 million in 2004. Net cash flow, after acquisitions, disposals and other investing activities, and including exceptional cash items, was £339.2 million in 2004. A reconciliation of these measures is shown on page 41.

A first interim dividend for 2004 of 15.5p per share was paid in February 2004 and a second interim dividend of 24.5p per share was paid in August 2004. In aggregate this was a 2.6 per cent increase over the annual dividend of the previous year.

Capital expenditure by subsidiaries (including interest capitalised) was £256.1 million in 2004, compared with £281.2 million in 2003. This was covered by cash inflow from operating activities. Capital expenditure by joint ventures and associates was £109.0 million in 2004, of which the BOC share was £49.2 million. Equivalent expenditure in 2003 was £81.4 million, of which the BOC

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share was £36.1 million. The Group also made acquisitions of businesses of £50.9 million in 2004 and proceeds from disposals were £98.3 million. Equivalent items in 2003 were £135.5 million and £3.9 million respectively.

### Process Gas Solutions (PGS)

	2004 £ million	Change on 2003	Change on 2003 (constant1 currency)
Turnover	1,275.2	+3%	+9%
Operating profit	189.5	+7%	+14%
Adjusted operating profit <sup>2</sup>	190.3	+3%	+10%

1. A reconciliation of results for 2003 at 2003 and at 2004 rates of exchange is shown on page 40.

2. A reconciliation of adjusted operating profit with operating profit is shown on page 41.

3. All comments below are on a constant currency basis.

Increased turnover reflected strong demand worldwide for both steel and nonferrous metals. In addition, sales from new production facilities accounted for approximately £14 million of the increase in turnover between 2003 and 2004.

Metal production increased in 2004 and world metal prices firmed as a result of strong demand from China. This benefited BOC's steel and nonferrous metal customers in all the key markets throughout the year.

For 2004 as a whole, the food sector was buoyant outside the US despite the temporary consequences of avian flu in Asia and the imposition of US import tariffs on prawns.

The recovery in the electronics packaging industry created exceptionally strong demand for industrial gases in the electronics packaging sector. BOC was a leading beneficiary of this because of its strong position in Asian markets.

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Operating review (comparing 2004 with 2003)

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Several significant new supply scheme contracts were won in 2004. BOC's hydrogen business with refiners will be substantially increased with a new plant to supply both a Sunoco refinery at Toledo, Ohio, and a nearby BP refinery. The hydrogen will be used by both BP and Sunoco in the production of ultra-low sulphur gasoline and diesel fuels.

Outside the US, significant new business in the chemical sector was won with the Sinopec Shanghai Petrochemical Company. BOC will form a joint venture to invest in existing assets and then add further air separation capacity. BOC's subsidiary in Thailand is to invest in a venture establishing a 1,300 tonnes-a-day plant to supply TOC Glycol Co. Ltd. (TOCGC) in Map Ta Phut and to increase merchant capacity in the area.

New business with steel customers was mainly concentrated in Asia. In January 2004, BOC announced that its joint venture with the Taiyuan Iron and Steel Corporation (TISCO) would expand its existing 1,500 tonnes-a-day capacity with the construction of two new 1,400 tonnes-a-day air separation units.

In the UK, BOC supplies Corus at its Port Talbot, Scunthorpe, Rotherham and Redcar plants. BOC is to increase its industrial gases supply to the Port Talbot strip products plant by 30 per cent to increase steel production locally.

Selling prices were generally firm during 2004 and sufficient to offset input cost inflation except in parts of north Asia.

Operating exceptional items in 2004 were for the integration of the industrial and medical gases businesses of BOC and Air Liquide in Japan that began in 2003.

**Europe** Turnover increased in all parts of Europe except for Ireland. Adjusted operating profit increased significantly, mainly as a result of more efficient plant operation and careful control of costs.

In the UK, manufacturing activity remained generally weak but customer closures and relocations that had affected business in 2003 were less evident in 2004. Rising steel production led to increased demands for oxygen.

Price increases were generally sufficient to cover higher input costs in 2004. Further increases are being implemented in 2005 to cover sharply higher electricity prices in the UK following the expiry of a fixed price supply contract.

Cryostar manufactures cryogenic pumps, expansion turbines and compressors for a variety of industrial gas applications and for marine liquefied natural gas (LNG) tankers. As in 2003, turnover and adjusted operating profit increased in 2004 principally as a result of demand for shipboard compression units on LNG tankers and following continued investments for gases plants in Asia.

**North America** Turnover increased as a result of including a full year of syngas production for Celanese at Clear Lake, Texas and the start-up of a new plant supplying hydrogen to Citgo's refinery at Lemont, Illinois, in October 2003.

Adjusted operating profit was lower as a result of reduced carbon dioxide volumes to our food and dry ice customers, and reduced argon demand from the stainless steel and wholesale sectors.

In general, demand for industrial gases from steel customers was strong in 2004. Liquid nitrogen volumes for food freezing applications strengthened during the year, mitigating the reduced carbon dioxide volumes into this sector. BOC's carbon dioxide business with beverage customers continued to make good progress in 2004 and new business was won.

Selling prices remained generally firm and significant increases in fuel and energy costs were largely recovered with surcharges or general price rises.

**Latin America** Revenues increased across the region during 2004, although business in Venezuela continued to be affected by political uncertainty. In Brazil, BOC's new 400 tonnes-a-day plant entered production serving CST, the world's biggest producer of slab steel.

The benefits of re-pressurising the Pemex Cantarell oilfield in the Gulf of Mexico with nitrogen from BOC's joint venture company continued to be realised during the year. In May 2004 BOC agreed to buy Duke Energy's 30 per cent ownership interest in the joint venture company for US\$59.7 million in cash. This increased BOC's overall stake to 65 per cent on completion in September 2004.

**Africa** Turnover increased and adjusted operating profit was further improved by cost savings and firm pricing trends leading to better margins. Although the stronger rand adversely affected platinum and gold mining in 2004, strong demand and firmer prices led to increased activity in the steel industry.

**Japan** The combination of BOC's and Air Liquide's industrial and medical gases businesses in Japan took effect from January 2003. This distorts the comparison of turnover and profit for BOC's three lines of business between 2004 and 2003 and with earlier years. The results of Japan Air Gases were consolidated on an equity basis throughout 2004 and for the last three quarters of 2003. In

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2004 turnover increased mainly as a result of equipment sales and adjusted operating profit increased faster as a result of achieving integration cost savings as planned.

**North Asia** Turnover and adjusted operating profit increased in 2004 but at a more modest pace than in 2003. Production plants across the region were almost fully utilised and little new capacity came on stream in 2004.

In China, turnover and adjusted operating profit increased in line with economic trends but further growth was constrained by available production capacity and by some unplanned shutdowns, mainly at customers' plants.

BOC announced a new joint venture with Sinopec Shanghai Petrochemical Company Limited (SPC), a subsidiary of Sinopec Corporation, to meet the industrial gases needs of SPC in the Jinshan District of Shanghai.

Economic conditions were stable in Korea but increased turnover and adjusted operating profit came from some additional argon and hydrogen capacity to supply customers near Pohang.

Turnover in Taiwan increased as a result of full capacity utilisation but adjusted operating profit increased significantly as a result of improved efficiency in plant operations.

Hong Kong also enjoyed a better economic climate in 2004 for the same reasons and adjusted operating profit was sharply better.

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Operating review (comparing 2004 with 2003)

**South and South East Asia** These regions came under the same business unit management during 2004. The economies continued to be buoyant across both regions during the year, helped by generally strong steel demand and a more active electronics industry in Singapore, Malaysia and the Philippines.

The SARS infection that had adversely affected 2003 was no longer an issue in 2004 but in Thailand and Malaysia the food sector was hit by an outbreak of avian flu. The Thai shrimp industry was further affected by the imposition of US tariffs on imports.

In September 2004, BOC's subsidiary in Thailand announced a major investment in new joint venture air separation capacity to supply oxygen for ethylene glycol production and to increase the availability of products for sale in the expanding merchant market around Map Ta Phut.

**South Pacific** Turnover and adjusted operating profit were higher than a year ago. The Australian and New Zealand economies remained generally strong in 2004. The strength of local currencies led to some further customer plant closures but firm commodity prices for minerals and particularly for steel enabled leading customers to prosper. There was some increase in tonnage volumes but volumes overall were similar to a year ago.

Electricity prices increased in eastern Australia and more so in New Zealand. Increased costs were passed through to tonnage customers and progressively recovered in the merchant markets. At the same time, BOC's major plants in Australia achieved significant cost savings as a result of implementing a global plant optimisation programme.

During 2004 BOC outsourced the transport of its bulk products to Australia's leading transport company, while retaining control of distribution and scheduling. This change was made only after ensuring that there would be no diminution of safety standards or the quality of service to customers.

A hydrogen purification plant and bus re-fuelling facility to support BP in the Government of Western Australia's environmentally friendly fuel cell bus trial came into operation during September 2004. Three hydrogen-fuelled buses will be operating in the city of Perth. The trial is to continue for at least the next two years.

**Water services** BOC acquired Environmental Management Corporation (EMC), a US water services company in October 2002. Turnover increased modestly in 2004 but the business remained close to breakeven after the amortisation of goodwill as a result of planned costs to increase business development resources.

BOC's strategy for water services is to focus on its industrial customers. Significant new business was won during 2004, including a multiyear contract for process and waste water services to a major US beef producer. Tightening regulations for proteins in effluent seem likely to create fresh demands for water treatment in the food industry.

### Industrial and Special Products (ISP)

	2004 £ million	Change on 2003	Change on 2003 <sup>1</sup> (constant currency)
Turnover	1,782.3	+2%	+3%
Operating profit	253.9	+7%	+5%
Adjusted operating profit <sup>2</sup>	269.5	+11%	+10%